Manifest Spatialization:

Militarizing Communication in Canada

Patricia Mazepa

York University, Canada

Abstract:

Focusing on the political economy of communication and the process of spatialization whereby control over space and time is extended through the use of information and communication technology (ICT), this paper provides an overview of the intersections that draw the Canadian federal government, its military, and the ICT, defence and security industries into relationships that reinforce and extend their control. By attending to historical and current examples, it highlights several sub-processes of spatialization, including corporate restructuring (through vertical and horizontal integration), as well as state restructuring (principally through internationalization and commercialization), which together underpin and support the militarization of communication. From the state's concentration on conventional war and the "Cold War", through to the current "War on Terror" and its protection of an integrated ICT infrastructure, communication is increasingly confined within a narrow militarized and corporatized framework. Within this framework, both capital and the military prioritize the development and administration of the "command and control" capabilities of ICT, such that the policies and practices of communication become more exclusive, restrictive and surveilled, and less open, accessible, and universal. The paper seeks to explain how this tripartite combination of "command, control, and communication" is indicative of the process of spatialization, and supports a militarized capitalism and the formation of a cross-border MICC poised to expand and defend it.

Keywords: Commercialization; Communication Technology; Communication's Complex; Internationalization; Political Economy; Security; Spatialization; Vertical and Horizontal Integration

Résumé:

En mettant l'accent sur l'économie politique de la communication et le processus de spatialisation où le contrôle de l'espace et le temps est prolongée grâce à l'utilisation de technologie et de l'information de la communication (TIC), cet article fournit un aperçu des intersections attirant le gouvernement fédéral canadien, son armée, ainsi que les industries des TIC, de la défense et de la sécurité vers les relations renforçant et étendant ce contrôle. En présentant des exemples historiques et actuelles, il possible de mettre en évidence plusieurs sous-processus de spatialisation exposant la restructuration des entreprises (grâce à l'intégration verticale et horizontale), ainsi que la restructuration de l'État (principalement grâce à l'internationalisation et à la commercialisation), qui sous-tendent et soutiennent la militarisation de la communication. De la concentration de l'État sur la guerre conventionnelle, la "guerre froide" ainsi que sur la "guerre contre le terrorisme" liée à la protection d'une infrastructure de TIC intégré, la communication est de plus en plus confiné à l'intérieur d'un cadre sociétal militarisé. Dans ce cadre, à la fois le capital et l'armée priorisent le développement et l'administration des "commandement et contrôle" des capacités de TIC, tels que les politiques et pratiques de communication devenant plus exclusive, restrictive et surveillé tout en étant moins accessible et universel. L'article cherche à expliquer comment cette combinaison tripartite de "commandement, de contrôle, et de communication" est indicatif du processus de spatialisation tout en soutenant un capitalisme militarisé ainsi que la formation d'un MICC transfrontalier appelé à se développer et la défendre.

Mots-clés: Commercialisation; Économie Politique; Intégration verticale et horizontale; Le complexe de la communication; L'internationalisation; Sécurité; Spatialisation; Technologie de communication

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From Structures to Processes and Back Again

As a key entry point to the study of the political economy of communication, attention to the process of spatialization focuses on how capital overcomes time and space with information and communication technology (ICT) among other resources (Mosco, 2009). Political economists take it as axiomatic that large structures and institutions like states, militaries, and corporations possess the most power and ability to affect spatialization, and explain how they are each more broadly reconfigured in the process (Ibid). To describe and analyze the interactions and relationships between states, militaries and corporations, and how this shapes communication in the process, one of the concepts political economists employ is the "military-industrial-communications-complex" (MICC).[1]

With the largest amount of public resources allocated to the military, the largest concentration of arm's producers,[2] and the legal home of most of the world's dominant ICT corporations (e.g., Apple, Google, and Microsoft), the United States tends to be the focus of

MICC research. Political economists of communication explain how the MICC advances American Empire, fuels the expansion of capitalism worldwide, and militarizes capitalism in the process (e.g., Mosco, 1989; 2014; Schiller & Phillips, 1970; Schiller, 1969; Schiller, 2014). They examine how the U.S. state and capital drive the development of ICTs in ways that advance concentrations of private ownership and control of public resources, and extend the state's military and national security interests to the detriment of democratic alternatives.

This paper contributes to this area in the political economy of communication tradition by delineating the contours of the MICC in Canada by focusing on how the process of spatialization in particular, is manifest in Canada. With ICT as the common denominator, the paper begins with a brief overview of how both state and corporate relationships and ICT development are encouraged by military priorities which complement corporate profit imperatives. By attending to historical and current examples, it highlights several sub-processes of spatialization that indicate corporate restructuring (through vertical and horizontal integration), as well as state restructuring (principally through internationalization and commercialization), that underpin and support the militarization of communication.[3] Examples focused on in this study indicate that from the state's concentration on conventional war and the "Cold War", through to the current "War on Terror" and its security and protection of an integrated ICT infrastructure, communication in Canada is increasingly confined within a narrow militarized and corporatized framework. Within this framework, both the military and capital prioritize the development and administration of the "command and control" capabilities of ICT, such that the policies and practices of communication become more exclusive, restrictive, and surveilled, and less open, accessible, and universal. The paper seeks to explain how this tripartite combination of "command, control, and communication" is indicative of the process of spatialization, and supports a militarized capitalism and the formation of a cross-border MICC poised to expand and defend it.

Spinning the Web of Inter-dependence

Political economy of communication research identifies the state's influence on ICT by tracing the military's role in ICT development over time. Early indications of the process of spatialization are evident in international and national military-industrial links regarding the whole range of ICT from the use and development of the telegraph, the laying and protection of international undersea cables, to international broadcasting, telecommunication, and global satellites (e.g., Hills, 2006; Mattelart, 1994; Mosco, 1989; Schiller, 2008; 2014; Winseck & Pike, 2007). It is no secret that the current technology used in global positioning satellites, drones, and a myriad array of surveillance and tracking devices originate in military requirements, not the least of which is the Internet itself. It is also no surprise that the United States has been the prime mover of these developments given the enormous amount of resources allocated to defense. As Schiller (1969) explained, such skewing of public resources directly affects government priorities and overall decision-making resulting in the restructuring of government, or what he termed the "militarization of the government sector".

The government-military-industrial links have long influenced communication practices and policy-making, moving decision-making away from public participation, universal access, and democratic development towards expansion of what Schiller called the "domestic communications complex" (1969: 51). Focusing on just the decision-making of the U.S. Federal Communications Commission (FCC), for example, the complex is an outgrowth of decisions

favouring private ownership and ICT industry concentration, and the cultivation of exclusive institutional and interpersonal arrangements between government decision-makers and the heads of the largest corporations. Taken together, the U.S. state strengthens a corporately owned and controlled communication infrastructure that can affect the content of the commercial communication flows produced as entertainment or news that it is uncritical of concentrated power, whether expressed militarily (ranging from the hard power of physical violence to the soft power of propaganda), socially (as in class, gender or race) or environmentally (control over natural resources) (e.g., Artz & Kamalipour, 2003; Herman & Chomsky, 1988; Herman & McChesney, 1997).

Although it is common for a commercial media and information system to praise the private ownership of the ICT industry that is independent from government as a recipe for economic success—with a free-market economy bringing out the purportedly natural entrepreneurial spirit of individuals, instigating innovative technological research and development, miraculous engineering discoveries, and unending corporate growth—empirical research indicates that the reverse is more accurate. Economists Block and Keller (2011) for example, have demonstrated through longitudinal analysis that the ICT industry in the United States relies on government subvention to such an extent that the entire economy depends upon it, and is inseparable from its military expenditures (Leslie, 2000). The inter-dependence of the U.S. military and the ICT industry is currently entrenched in ways that both concentrate political and economic power and increase risk due to reliance on convergent ICT infrastructure, the prioritization of national and international security blocs, and advanced state and corporate surveillance (Schiller, 2014). As also argued by Foster and McChesney (2014), the militarization of capitalism has thus become systemic in the United States; it is not limited to one specific period, but reliant and sustained on continual crises (whether actual or constructed). This means that the public, and more democratic, capabilities afforded by new ICT, and of the public access, and involvement in decision-making on communication, is continually subordinated to military and corporate requirements.

The 20th century history of ICT development in Canada indicates important variations (particularly in comparison to the United States). On a basic level, this is a matter of size and scale, both militarily and industrially, but it is also an outcome of government decision-making, a history of inconsistent military budgets and fluctuating state support for the domestic defence industry. Assessing the existence of a military-industrial-complex (MIC) in Canada (1935-1970), Bothwell suggests that the federal government has a habit of "devot[ing] a small as portion as possible to military items" preferring to purchase equipment on the basis that some (or most) of the manufacturing can be done in Canada and thereby derive some technological and employment benefits (1981: 117). He emphasizes that the primary factor of government decisions have been economic and political ones. This is a conclusion evidenced in more recent and critical work by Kellogg who explains how an independent "capitalist Canadian state" along with "the class it represents" was able to reap the advantages of American military and capitalist expansion without incurring the costs (a relationship that he characterizes as "military parasitic") which has continued to the present day (2013: 181-182). Following Panitch and Gindin, this is indicative of the "relative autonomy of capitalist states" (2013: 4) in setting its own political and economic priorities while negotiating the "dynamics of capital accumulation" (Ibid: 3) and still contributing to the "the making of global capitalism" blazed by the United States.

Building the Communication's Complex in War and Peace

The Canadian government's support for the development of a capitalist-oriented ICT industry is also evident in Canadian political economic history. As demonstrated by Mosco and Mazepa (2003), almost every one of the largest high-tech corporations in Canada began from, or relied on government contracts (for seed financing, risk absorption and political economic maintenance, for example). The military genealogy of the MICC in Canada, however, is less researched, and is thus less apparent, but a brief foray in what follows indicates unexpected connections along with the traditional, and illustrates how the process of spatialization is operationalized by both the state and corporation.

Early recipients of Canadian military contracts during the 20th century appear in corporations thought to be well outside of the defense and arms industry, and inside what are now called the communication and cultural industries. This included Eastman Kodak (Canada), whose spacious grounds and buildings of its then new headquarters in Toronto were used to house and provide general military-training facilities for newly recruited soldiers in the First World War. Although it is common to think of Kodak as just a film and camera company, it vertically integrated early in its history to derive advantage from producing the raw materials necessary for photography by establishing Eastman Tennessee. One of its products used for photography was also found to keep "synthetic rubber from becoming too gummy", and was therefore used for the tires of military vehicles and airplanes during the Second World War.

From these relatively innocuous beginnings, chemicals produced by Eastman Tennessee were also used to develop and manufacture the "powerful RDX explosive" (1942) used in bombs, and "at its peak nearing the end of the war" its dedicated ordnance plant was producing "nearly a million and a half pounds of explosives each day" (Ibid). Such expertise in explosives was recognized by the American government as Eastman's management team was chosen to be the lead in a branch plant which contributed to the development of the atomic bomb. Appreciating its MICC connections, Kodak's advertising slogan that: "you point the camera, we do the rest" takes on a whole new meaning. Although the American military developed the first bombs, Canadian mining companies, and later the Canadian government together with military and civilian research scientists, were directly involved in their development through participation in what became known as the "Manhattan Project" (Avery, 1998).

Just as wars generally do not last, and government priorities can change, government financial and funding support does not guarantee corporate loyalty as corporations take advantage of the process of spatialization to move elsewhere for more favourable conditions. Over a period of time after the Second World War, Kodak made a number of strategic decisions affecting its corporate structure. A combination of patent law-suits, digital miscalculations, and an over-ambitious global expansion led to the break-up of Eastman Tennessee, and the closing down of Kodak Canada in 2005 (Bozikovic, 2012, August 22). While Kodak continues to operate in the United States, and has expanded its operations to India and China, "transforming itself into a technology company" (Our company, n.d.); its Canadian branch took the collateral damage. The now derelict remains of its former Toronto headquarters appear as if obliterated by a bomb. The previous site of military marching bands and the Canadian "home" of the company, whose history was synonymous with the modern image, now lay abandoned. While Kodak's chemical residue seeps underground, the thousands of people left without jobs subsist in a devastated neighborhood without its major employer—painful reminders of dynamics of

spatialization and the social and environmental deleterious left by a flexible, but ever volatile complex.

Sharing a similar fate and history of the state-military link in Canada is the Nortel Networks Corporation (Nortel). Nortel's history indicates the twists and turns of spatialization set in its dual ownership origins in the Northern Electric Company (a division of Western Electric based in the United States) and Bell Canada (itself a division of Bell in the United States), to its reverse expansion into the United States and several other countries over four continents. Northern Electric experimented early with horizontal integration as it manufactured domestic electronics, owned a radio-broadcasting station, and produced a sound-system for movie theatres, for example, yet it nearly fell "victim" to the 1929 crisis of capitalism until it was saved by federal government contracts during the Second World War to supply radio and radar equipment to the Canadian military.[4]

The reliance on government funding and military connections then remained central throughout the company's history, and its expertise grew to include the hardware and software necessary for digital communication, winning military contracts in Europe, the United Kingdom, and the United States. At its peak, Nortel was heralded as *the* shining example of "Canadian" innovation and corporate success (Hasselback & Tedesco, 2014, September 27); yet it could not finance its own expansion, and a combination of strategic mismanagement and the dot.com crash (2000) arguably led to its demise, despite government bailouts (CDN$750 million by Export Development Canada in 2003), and a later $30 million offer of short-term financing (2009). Replacing the CEO of Nortel with an ex-military man in 2004—a former U.S. Navy Admiral credited for championing technological development expressly for military operations (Morton, 2004, April 29)—was meant to encourage more U.S. government and military contracts (Evans, 2005), but was ineffective.

Even though the ship was clearly sinking, a succession of other CEOs and executives at Nortel received guaranteed million dollar salaries and payouts, and those few executives charged with accounting fraud were later acquitted. In the end, Nortel's ownership of over 6,000 patents—countless which were the result of government, and therefore public resources—were sold for US$4.5 Billion to competing multi-national companies (e.g., Apple, Microsoft, and Sony) (Nortel patents . . ., 2011, July 11). Unlike the visible waste left by the demise of Kodak, however, in keeping up its capital appearances, the federal government purchased the land and buildings of the Nortel research campus in Ottawa in 2010 and is still in the process of renovating and moving the military and civilian staff from the Department of National Defence to its new location for an estimated cost of just under CDN$1billion (Pugliese, 2010).

Industrial Restructuring

Although the rise and fall of Kodak Canada and Nortel are separate examples of the process of corporate spatialization, they are not exceptional to capitalism. Relationships with government, cultivated on the availability of government financing and defence contracts are, however, indicative of the persistence of the MICC. The increased sophistication and use of ICT means that the largest and strategically flexible corporations can exploit government contracts to further horizontally integrate their product-lines, labour force, and manage their subsidiaries. Moreover, like Eastman Tennessee discovered long ago, the resources or the technology used in one application (photography) can be used in another (military explosives) and sold for profit. With such a unidirectional goal, ICT companies can become defence contractors, and defence

contractors can become ICT companies—doing whatever it takes to ensure increased return for their shareholders. Two recent examples of the modification from defence to ICT are epitomized in the horizontal integration of Canadian engineering firm MacDonald, Dettwiler, and Associates (MDA), and the largest defense contractor in the world, Lockheed Martin Corporation.

Firstly, as provided in Wills' (2011) longitudinal case study of MDA, the firm both benefitted and contributed to the development of the military-industrial complex in Canada. As Wills identifies, MDA's pursuit of where the highest returns could be found led to defence contracts, and resulted in MDA's expertise in the exploitation of remote sensing technology and developing sophisticated radar "observation" capacities. Following this history indicates that the social and political ramifications of the use of observation technology were inconsequential in relation to a focus on technological advantage and economic gain. Paid for with public "contract" resources, the observation technology is used to advance global surveillance, the long term consequences of which include an impact on Canadian sovereignty and the continued growth of "surveillance capitalism" or the "surveillance state", depending on where emphasis is placed. In any case, as a sign of the times, MDA indicates that either is desirable in rebranding itself from its origins as an engineering firm to "A Global Communications and Information Company". Highlighting its "communication, surveillance, and intelligence" expertise, its self-defined priorities are focused on "markets and customers with strong repeat business potential" (MDA, 2014).

Our second example of industrial restructuring in the current round of the MICC is the activities of the Lockheed Martin Corporation moving outside of defence contracting. Corresponding to the scale and priorities of the U.S. and Canadian defence budgets, Lockheed dwarfs the size and scope of MDA, but like MDA, its growth and sustenance are dependent on defence and government contracts. Its horizontal integration was encouraged by the U.S. government via the Census Bureau when it awarded Lockheed Martin (US$49M) to develop the hardware and software necessary to help digitize the American census (Computer World, 1997, March 31). It collaborated with Eastman Kodak and Electronic Data System Corp. to develop a "data capturing system", and was awarded the contract for the U.S. Census in 2000 (Vaas, 2000, June 19), and again in 2010, this time at US$500Million (Keeton, 2007). The United Kingdom (UK) followed suit in directly awarding Lockheed its census in 2001 and 2011, as did its defence ally—Canada in 2006 (for CDN$61M), and 2011 (for CDN$80M) (e.g., Link between . . ., 2011, May 10). Although the moral and ethical contradictions of awarding an American arms dealer public resources to capture and secure data from all Canadians was not entirely lost on the Canadian media, public protest was muted by focusing on the human interest story of an 89-year old woman who refused to complete the census on the grounds that the information was being gathered and stored by Lockheed Martin which meant that access to this information was covered by the U.S. Patriot Act (e.g., Census protester . . ., 2013, October 9; Perkel, 2013, October 3).

Putting the social and political ramifications of private access and storage of public data aside as was done in Canada, the Canadian government contract is also highly significant in drawing attention to the intricacies and various nodes making up the MICC that would otherwise be obscured. That is, if one is just focused on the defence side of Lockheed Martin (weapons productions and sales, for example), one could miss the fact that the reason it was able to bid for the contract in the first place, was due to the government contract supporting its ICT development, and as a result of a clause in the North American Free Trade Agreement (NAFTA) that permitted it. As political economy scholars have underscored, such agreements between

states are never simply economic ones, but are part of the process of "internationalization" or the restructuring and renegotiation of state boundaries and borders (Mosco & Schiller, 2001).

Internationalization: Restructuring the State

Where vertical and horizontal integration indicates spatialization at an industry level, internationalization occurs at the government level. As explained in Mosco, internationalization "links the state to other states thereby shifting economic and political authority to regional authorities that bring together several countries in one geographical area" (2009: 15). As discussed earlier, these can result in outcomes that significantly affect power asymmetries and national interests. In the first instance, states can come together to encourage economic flexibility in terms of facilitating a corporately-dominated (economic) operating environment (acceding greater control to the corporations). In the second, the state can manage power differentials by ratcheting up its ability to exercise command and control over its geo-political and informational environment. Laws like the 2001 U.S. Patriot Act and the 2001 and 2015 Canadian Anti-Terrorism Act, for example, affect ICT in many ways (principally through its use for electronic surveillance and compromise of privacy), but also rules regarding the transmission, storage and access to data, which is under the legal jurisdiction of the state in which the server is held (PIAC, 2014).

Although national legislation enacted in the name of combating terrorism has garnered increased public and media attention as of late, this spatialization of the liberal-democratic state—weaving a new web for a particular kind of defence and security—is the latest of a series of government decisions made outside of the periods of inter-state war. In the 20th century, arrangements and agreements signed by the Canadian federal government with its war-time allies mean that it has joined numerous institutions that operate on a continual or renewable basis. As one example, agreements signed on the basis of "intelligence-sharing" continue to direct the policies, practices, and resources of communication towards electronic surveillance and adversary, and are illustrative of how internationalization requires national restructuring and coordination.

Intelligence agreements include the FVEY (Five Eyes) agreement made between the United States, the United Kingdom, New Zealand, Australia, and Canada (signed in 1948). As retired Canadian army Brigadier-General James Cox describes: FVEY is a "cooperative, complex network of linked autonomous intelligence agencies" (2012: 5) covering "all five domains of warfare (maritime, land, air, space and cyberspace)" (Ibid: 9). It consists of a coordinated structure of six different but corresponding national institutions each focused on communication as divided according to types of "intelligence" (Ibid: 10). For example, its many legitimized capabilities include gathering signals intelligence (or SigInt), which is the "interception and analysis of electromagnetic communications and data links", and includes the technological potential for the "interception of diplomatic, military, scientific and commercial communications" (Ibid: 5). As Cox explains: "[w]hile it cannot always reveal what an opponent is thinking, sigint can tell you what he [sic] is saying and doing, from which adversarial capability and intent might be deduced" (Ibid).

The structure of this agreement provided a template for the expansion of regional "intelligence-sharing" agreements following the U.S. government's response to the violent acts of September 11, 2001. As Lennox (2007) argues, this triggered the transformation of Canada's liberal-democratic state into a "security state", such that restructuring was advanced via several

successive bi-national agreements, each one extending the process of spatialization to encompass greater areas of jurisdiction and surveillance. The first of these was the 2001 United States and Canada Smart Border Declaration regarding "information sharing" on the flow of goods, people (advocating biometric identification cards), and protection of "critical infrastructure". This was later enlarged to include scientific and technology research (Canada, 2004),[5] and later still, to encompass the "finance, transportation and energy" sectors thereby directly involving the private sector (Canada, 2010). As Lennox (2007: 1018) previously advanced, while the Canadian government did not completely surrender its national sovereignty, it was certainly encouraged to "mimic" the American governments' response, and—in order to retain its relative political and economic independence—was thus "compelled to take on the new security state form as defined and specified by its superordinate partner, the United States".

While the FVEY intelligence agreements and the "Smart Border Declaration" illustrate the continuing internationalization of the Canadian state, they are but two of the arguably more significant military-political arrangements between the United States and Canada. These include the "Permanent Joint Board on Defence" (1940), and the "North American Aerospace Defense Command" (NORAD) (1957; 2006). Pressures on the federal government today stem from these historical agreements and through the geo-political decisions made by past signatories, and their prominence can fluctuate (Jones, 2011). Even so, historical research indicates that Canada has a "long history of successful adaptation to American preferences for strategic defence" (McDonough, 2012: 807). Such military-political defence and intelligence-sharing (state surveillance) agreements come to drive, and so facilitate, cross-border ICT research and development that further enable the militarization of communication.

Militarizing Communication Then and Now

As was evident in the Cold War, ICT corporations carried on supporting both the American and Canadian military to develop the next technological advances, continuing to cultivate their successful partnerships of World War II. As one example, throughout the 1950s, the (then) largest ICT corporation in the United States—International Business Machines (IBM)—worked with the U.S. Air Force and the Royal Canadian Air Force, together with Canadian companies— principally Northern Electric and Bell Telephone—to facilitate the military operation of the Distant-Early-Warning System. In Canada the "DEW Line" set out three lines of defense and surveillance meant to protect the industrial heartland in north-eastern United States from possible attack by the Soviet Union. Significant U.S. government funding of major ICT projects such as "Whirlwind" and "Semi-Automatic Ground Environment" System (SAGE), resulted in the development of integrated computer and communication networking system that assured the military requirement of "command and control" at its core. As computer history has it, while the "DEW Line" was "the first large-scale computer communications network ever developed", its framework supporting "SAGE" was "the first large scale, computerized command, control and communication's system", and thus precipitated the Internet (Edwards, 1996: 3).

In developing an integrated militarized communication system, national or multi-national ICT capability amplifies the capacity to exercise command and control across multiple environments. Historically, these environments have been conceptualized as first, land, sea, and air, and then space operations, but today's ICT capability considers operations across the electromagnetic spectrum. While the electromagnetic spectrum is a public resource (given that it is finite and essential for human communication over time and space), in military terms it

becomes a fifth operating environment or "cyber-space" (Canada, 2010). Accordingly, it is where cyber-war is conducted, requiring a coordinated strategy between defence and industry, and the cooperative approach of a broad range of government agencies (Ibid).

Levin and Goodrick (2013) identify, for example, how the international shift of focus from "crime" to "war"—a salient feature of the militarization of the government sector—impacts on defence and security policy-making. Rather than seeing a collaborative international community, as one that works together to solve international crime, in "cyber-space" states replace criminals as the focus, and "cyber-attacks" are those launched by "foreign interests". National policy-making is correspondingly "reactive" (Levin & Goodrick, 2013: 129), and states retreat to their "traditional international blocks" and alliances (Ibid: 128). As evident in Canada, tied to its historical defence and security arrangements, we now see a shift in government policy, such that "allocations that flow to military and defence initiatives are far greater than the resources allocated to law enforcement agencies and their fight against cyber-crime" (Ibid: 131).

Extending the operating environment into cyber-space continues the requirement of military and civilian personnel to interpret intelligence and make decisions; and now allows focused attempts to influence human behaviour (whether of soldier or civilian) before taking physical action. This cognitive dimension has been expressed most vividly in national management of international broadcasting, state production of propaganda, regulation and censorship of communication, as well as in distinct "psychological operations" and "information operations" (e.g., Bourrie, 2011; Hall, 1997; Snow & Taylor, 2006; Winseck, 2008). While these identify a system of strategic communication advanced by the state, Schiller's (1969) reminder of the symbiotic existence of the "communications complex" in the MIC indicates that tracking and influencing behaviour change is not exclusive to the military. Commercial media, advertising, marketing, and public relations are entire industries founded upon it, and ICT is increasingly used to data mine, data capture, and data manipulate information on the public (regardless of their citizenship) as means to this end (Chui & Tavella, 2008). This information can also be "shared" across governments as requested, or required by law. According to the Canadian government, such "lawful access" is manoeuvred through a succession of bills which extend its power of electronic surveillance over its own citizens.[6]

Accepting militarized communication practices as the hegemonic, or "new normal" in an ever expanding environment, puts the pressure on national governments to extend the process of internationalization through cross-border political economic agreements. In the process, state defence and security priorities become increasingly inseparable from economic ones—and vice versa—in a mutually reinforcing matrix. This is most clearly expressed in the now pairing of "security and prosperity" in many international documents and discussions, giving rise to further agreements over regional authority, particularly since the events of 2001. These range from the 2001 Smart Border Declaration (identified earlier) which (then) U.S. Homeland Security Director announced as its goal: "to make North America more secure and more prosperous" (US, Canada sign . . ., 2001, December 13), to the United States/Canada/Mexico Security and Prosperity Project for North America which was promoted on the basis of "our security and our economic prosperity being mutually reinforcing", followed by the United States-Canada (2011) joint declaration, Beyond the Border: A Shared Vision for Perimeter Security and Economic Competitiveness.

As the process of spatialization indicates, however, in the current round of internationalization, Canada continues its process of restructuring at the national level, to facilitate coordination and communication over space and time with historic allies. In Canada,

this was epitomized in the passage of the 2001 Anti-terrorism Act, which Lennox (2007) identified as part of four major transformations to the "security state". Another transformation was in government bureaucracy (Ibid), which brought together several previously distinct agencies (connecting intelligence service, national police force, corrections and customs) under the general heading of "Public Safety" in 2003. As Lennox identified this restructuring directly "imitated the state-building response of the U.S. government" in its creation of the Department of Homeland Security (Ibid: 1028).

This bureaucratic reorganization was complemented in the restructuring of government communication based on what has come to be called the "Whole of Government Approach" (WoGA). As the progeny of both the Liberal and Conservative governments, the posture was meant to address the failure of "hard power tactics" in Afghanistan (e.g., Joya, 2013; Mazepa, 2011). Building on defence (military operations), development (engaging NGOs), diplomacy (foreign affairs), and commerce (private corporations) initiatives, the WoGA aims to act in delivering a domestic and foreign policy. Calling for this coordination between various (distinct) stakeholders not only "indicates how development has been subordinated to military and security goals" (Joya, 2013: 277), but following the international "security and prosperity" agreements, the approach supports militarized capitalism and militarized communication.

Domestically, the "Whole of Government Approach" operationalizes a militarized communication strategy by further concentrating executive control in the Prime Minister's Office. Under the current Prime Minister Harper, this model of executive command and operational control has increasingly been exercised over a whole range of information and communication, including the limiting of public and media access to government information and decision-making, and controlling the speech of his political party members, as well as members of the public service (Mazepa, 2011), just as you would see in a national military hierarchy. More recently, this has included the "muzzling" of the speech of public scientists (PIPSC, 2013). While the speech of those who may indicate government failure to attend to public health and safety in terms of experiences of poverty, environmental destruction, and climate change, for example—selected kinds of science and scientists have more palatable options available to them, as encouraged to act through the process of state commercialization.

Favouring Commercialization

Like militarization, commercialization is a sub-process of spatialization whereby the state takes public resources and uses them to underwrite contracts or directly transfer them to the private sector, and therein restructures its policies in order to do so.[7] In this way, while it does not directly take part in the process of commodification, policies advancing the pairing of "security and prosperity" work to facilitate it. Any long-term financial, social, and environmental consequences are of less concern when government decision-making is skewed in the direction of support of capitalism. Despite the fact that state commercialization is a direct contradiction to free market doctrine, continued and cyclical crises of capitalism have demanded and received significant state support (as was evident in Canadian government attempts to rescue Nortel, and other major corporations such as General Motors Canada and Bombardier, for example). In Canada, the clearest expression that commercialization has become normalized in the policies and practices of the federal government, are institutionalized in Industry Canada, and Foreign Affairs, Trade, and Development Canada. As an indication of the growing strength of capitalist hegemony, the myriad number of programs and policies supporting business is simply presented

as the state's *responsibility* to assist commercialization in every way possible as a "public service" (Industry Canada, 2013).

While the overall "security and prosperity" benefits for the public continue to be promoted but remain relatively obscure, the benefits to private corporations are more directly evident. Commercialization—as specifically applied to the ICT and defense and security industries—can vary depending on what federal funding program is applied for and how flexible the terms or conditions are to the applicant. An early example of Industry Canada's funding programs—the now-ended Technology Partnerships Canada Program (1996-2006)—was promoted as providing financial support for long-term projects (up to thirty years) and research and development that produced "economic, social and environmental benefits to Canadians." (Industry Canada, Industrial Technologies Office, n.d.). After-evaluation reports show, however, that a significant portion of the funding was first directed towards the aerospace and defence industry (Ibid).

Since then, the federal government has been more explicit in setting up a relationship between industry and military requirements as evident in the Canada First Defence Strategy which envisions "A Military in Partnership with Canadian Industry" for the long-term, explaining that:

> The infusion of long-term stable funding it provides will enable industry to reach for global excellence and to be better positioned to compete for defence contracts at home and abroad, thus enabling a pro-active investment in research and development and opportunities for domestic and international spin-offs as well as potential commercial applications.
>
> (DND, 2010: 4)

Similar support is offered through the 2007 Strategic Aerospace and Defence Initiative, which extends the commercialization process into the universities, and brings public research under the MICC through its stated objective to foster "collaboration". Both apply the government's 2007 Science and Technology Strategy in which ICT is identified as a priority, encouraging such collaboration or "partnerships among Canadian businesses, universities and colleges", as foundational to what the government now calls its "innovation pillars" (Canada, 2014: iii). The creation of so-named Centres of Excellence for Commercialization and Research in 2007, as an initiative of the three federal granting agencies, draw directly on public funds to colonize both the physical and mental space within the university with corporate and military priorities, as was past evident in wartime (Avery, 1998), and ongoing in the United States (e.g., Giroux, 2007; Schiller, 1969).

In the MICC framework, defence requirement-based procurement is seen as but one member in the new "innovation community" where the goal of innovation is commercialization (Industry Canada, 2013). Here the inculcated "security and prosperity" rubric is further explained in relation to the military, as most recently outlined in the introduction to Science and Technology in Action: Delivering Results for Canada's Defence and Security published by National Defence:

> The role of military procurement in encouraging innovation and strengthening the domestic economy is also being explored. Going forward, there is a growing consensus that all members of the innovation community within government, industry and academia have a stake in finding better ways of harnessing new technologies for the purposes of both operational success and economic gain, and that these objectives can best be achieved through close, ongoing collaboration.
>
> (National Defence, 2013: 14)

Funded research that advances ongoing government-military-industry-academic collaboration is further encouraged through an agency of the Department of National Defence: Defence Research and Development Canada (DRDC). DRDC consists of eight research centres and seven research funding programs including: the Defence Industrial Research Program, Technology Demonstration Program, Technology Transfer (to the private sector), and Science and Technology Contracts. Military collaboration with Public Safety Canada is formalized through its "Centre for Security Science", which manages "The Canadian Safety and Security Program" bringing together military, ICT industries, and universities with more "partners" across *all* levels of government (including municipal and provincial police forces), and other projects that include the Department of Homeland Security and U.S. Coast Guard, for example (DRDC, 2014). Defining Canadian "safety" under a wide spectrum of dangers—"natural disasters, serious accidents, crime and terrorism"—although each are significantly distinct, they appear equally threatening. In this way, the federal government confines safety within this "defense and security" framework and justifies is own restructuring through what it calls "the convergence of science and technology with policy, operations and intelligence" (Ibid). Such an extensive list of government programs, research centres, grants, and public-private partnerships, weave together like a spider's web, and make it increasingly difficult to identify where the science begins and the technology ends, or the military begins and the industry ends (or vice versa).

Canadian Defence and Security Industries Revived

Today's military-industrial-communication-complex relationships reflect the priorities of militarized communication as government priorities and corporate strategies coalesce over national security and corporate ICT exclusivity, as found in the dependable adage of "follow the money". The government's priorities and suggestions of funding stability in an otherwise volatile economic environment are particularly welcomed by the Canadian Association of Defence and Security Industries (CADSI) and other regional industry lobbying groups. Made up of small, medium and large Canadian businesses together with the Canadian subsidiaries of (primarily) U.S. corporate members, CADSI is self-described as:

> [T]he modern incantation of the Canadian defence industry . . . Our name and our mission reflect an increasing integration of defence and security in the plans and decisions of government and in the product and service offerings of companies in this sector.
>
> (CADSI, 2014: 1, 6)

Recognizing that Canadian government defence spending is limited and the current reliance on the United States as its largest market is precarious, CADSI advocates for even more direct

government support to enter international markets, by extending its formal (and registered) government lobbying to cultivating interpersonal relationships beyond national to international trade shows. These range from Canada's CANSEC (the "premier defence trade show"), and SECURETECH (for practically anything falling under the mandate of Public Safety Canada); to big international shows held in Washington, London, Paris, as well as regionals in Brazil and the United Arab Emirates. These trade shows provide extra-governmental and exclusive spaces (i.e., non-public) for the cultivation and advancements of corporate mutual interests. A "Canadian Pavilion" at the international trade shows combines Canadian defence industries with a whole range of supporting government agencies, not the least of which is the Canadian Commercial Corporation (CCC), established in 1956 as a result of the Defence Sharing Agreement that then supported the export of military goods to the United States by providing federal guarantees for *both* parties (supplier and client), thereby "mitigating the risk to the U.S. DOD".[8] It also brokers and secures the investment of Canadian industries—which fits with the federal government's overall historic economic objectives (Kellogg, 2013).

The CCC has now expanded its services to select foreign governments, which includes a recently published "Buyer's Manual" to assist them. As Project Ploughshares (a religious peace organization) explains, this is only one method whereby federal government agencies work to foster international defence and security integration, that, as Epps observes, are advertised with less export controls (less restrictions on where or what countries the industry can sell to) and faster agreements (with less "red tape" particularly in comparison to the United States) (Epps, 2013). As a case in point, CCC recently brokered a CDN$10-$13 billion sale of armoured vehicles from General Dynamics Land Systems (Canada) to Saudi Arabia (Cudmore, 2014).

This focus on selling in the global defence market corresponds with the advice that William J. Lynn III (2014), former U.S. Deputy Secretary of Defence (and now CEO of an international ICT corporation), offers the U.S. government and its Department of Defence (DOD): "to *liberalize* defence and open up the U.S. industry to international competition". Citing the example of Google (which purchased Boston Dynamics—a manufacturer of robotics for the U.S. military—in 2013), his comments suggest that "command, control and communication" is no longer the domain of the military: that the essential dependence on ICT by the military, means that the expertise (and intellectual property rights) reside within industry. In other words, the legacy of the long government cultivation of the MICC has developed to a point where the ICT industry does not need (or rely on) defence contracts, but the military now needs to rely on the ICT industry, as it owns the technology (whether through hardware, software, or intellectual property rights). While this neglects that fact that the U.S. government is still in relative control of ICT infrastructure (Purkayastha & Bailey, 2014), it does suggest a significant change in the MICC—indicating a reversal of power to one in which the largest ICT corporations (the "communications complex") are the prime mover. As Mosco (2009) observed, this is the end-result of the process of spatialization: although the state has been a significant contributor to the process of capital accumulation, in the end, it has been cut out of the process. What then is left for the state, but to exercise its military and surveillance capacities, and support the security of that which it has wrought?

Security in the New Communications Complex?

In reconsidering the expanding power of the "communications complex" that Schiller (1969) first underscored, in its early 20th century application to Canada, this initially included fending

off American expansion by establishing public broadcasting and thereby providing an alternative to the U.S.-based commercial model. Into this century, it is clear that the commercial model has come to dominate, and successive governments have done little to curb the corporate ownership and control of ICT, or the private integration of a commercial communications complex in Canada. This is evident in the process of spatialization via the extent of horizontal and vertical integration through the concentrated ownership of its largest ICT corporations (e.g., BCE Inc., Rogers, Telus, Shaw, and Quebecor). In the current round of government restructuring, it begs the question of whether this will be of any public comfort when the global operating environment is further liberalized (whether regionally or globally), and current government limitations on foreign ownership in Canada are reduced or removed altogether. Public ownership of the broadcasting spectrum in Canada provides little bulwark, given cuts in government finances and its own resort to commercialization. Conversely, ownership concentration in Canada's ICT industry makes these corporations ripe for purchase. Moreover, the technological convergence that now makes horizontal integration between the ICT, defence, and security industries easier, and the exercise of corporate "command and control" more globally expansive, makes future restructuring likely, if not inevitable.

Like the fly caught in the spider's web, dazzled by its technology, and baffled by the speed and intricacies in which it is spun, sensing danger, it is assured by the spider to hold tight: protection lies in the security of the web. While the spider's-web metaphor is obviously simplistic—and flies can escape, or webs can collapse by their own weight—there is significant skewing when we see the web through the spider's eyes. The "security and prosperity" framework being touted by a militarized government and its militarized communication system, works to quickly deflect alternatives and block oppositional ways of understanding either. In this framework, "security and prosperity' is positioned to justify a militarized capitalism, and both communication and "public safety" are subordinate to the defence and security requirements of a dominant capitalist political economy.

Marginalizing or excluding innovations that are *not* driven by commercialization is more the danger since the ability to understand, evaluate, criticize, and create alternatives, significantly diminishes. It is in this role that a public (versus a military) model of information, communication and technology is vital, as Schiller clearly underscored:

> Knowledgeability is essential to the citizen in a democracy. If the people are informed presumably they will be alert to any potential threats to their liberties. What happens, however, if the military-industrial power enclave has grown up strongest in the informational apparatus itself? What may be expected, if the alarm system, so to speak, has been disconnected by those very elements it was designed to signal against?
>
> (Schiller, 1969: 32)

Whether the balance of power between states, its military complex, and ICT corporations has significantly shifted such that the commercial "communications complex" is now the lead decision-maker is a significant question that requires comprehensive research across national boundaries. What is currently at stake in Canada is the citizen/public's exclusion from national decision-making, and an acceptance of the joint "security and prosperity" rubric as justification for their exclusion. If the opportunity to make ICT to be other than for profit-making and surveillance is squandered or lost, then we will all be subordinated to the executive command

and corporate control priorities of a militarized state and militarized capitalism, coerced or reduced to being subservient followers on a path of disengagement and destruction. Options of spatialization thus remain: how to socially restructure the state in such a way that national security and public safety are inseparable from social and environmental necessities such as clear air and clean water, food safety, or basic needs of shelter, health, education, and meaningful labour? How to develop an alternative and democratic communications complex to support this public safety and security?

Notes

1   Spatialization is one of three entry points to the study of the political economy of communication (Mosco, 1996; 2009). Commodification and structuration are also central and equally dynamic processes necessary to provide a holistic analysis of the MICC. As such, the work provided here is partial and in progress.

2   Figures from the Stockholm International Peace Research Institute (SIPRI) indicate that U.S. military spending is at US$610.0 billion, representing 34% of the "world's share of military expenditure" (2014: 2). It is the largest exporter of major weapons to the world (SIPRI, 2013b); and is the legal home of the majority of the top ten arms producing companies (SIPRI, 2013a).

3   Privatization and liberalization are also part of spatialization and state restructuring supporting capitalism (Mosco, 2009); internationalization and commercialization are the primary focus here given their predominance in the current decision-making of the federal government.

4   Nortel case study brief and timeline provided in Hirst, Harrison, and Mazepa (2014).

5   Canada is already a signatory in what is now called the "Technical Cooperation Program" it consists of a Memorandum of Understanding initially signed between the United States and the United Kingdom (1957), and Canada (in the same year), and later by Australia and New Zealand. It agrees to share research on science and technology that is focused on defence (TTCP, 2007).

6   See https://cippic.ca/en/electronic_surveillance.

7   As explained by Mosco, in government policy-making, commercialization is "when the state replaces forms of regulation based on public interest, public service and related standards such as universality, with market standards that establish market regulation" (1996: 176). As applied here, commercialization identifies the same process in terms of state decision-making that reorganizes public resources to facilitate the capitalist market. It is also the current term used by government to describe these policies.

8   See www.ccc.ca/en/industries-and-markets/US-Defence.

References

Artz, Lee & Kamalipour, Yahya R. (Eds.). (2003). *The globalization of corporate media hegemony*. Albany, NY: State University of New York Press.

Avery, Donald. (1998). *The science of war: Canadian scientists and allied military technology during the Second World War*. Toronto: University of Toronto Press.

Block, Fred & Keller, Matthew R. (Eds.). (2011). *State of innovation: The U.S. government's role in technological development*. Boulder, CO: Paradigm Publishers.

Bothwell, Robert. (1981). Defence and industry in Canada 1935-1970. In Benjamin F. Cooling (Ed.), *War, business and world military-industrial complexes*. New York: Kennikat Press.

Bourrie, Mark. (2011). *The fog of war: Censorship of Canada's media in World War Two*. Vancouver, BC: Douglas & McIntyre.

Bozikovic, Alex. (2012, August 22). The end of photography drive: A city landmark, and an industry, fade out. *The Globe and Mail*. Retrieved May 28, 2015, from http://www.theglobeandmail.com/news/national/the-end-of-photography-drive-a-city-landmark-and-an-industry-fade-out/article1321733/.

CALWC. (2014). *No man's land: Tech considerations for Canada's future army*. Ottawa: National Defence, Canadian Army Land Warfare Centre.

Canada. (2004). Agreement between the government of the United States of America and the government of Canada for cooperation in science and technology for critical infrastructure protection and border security. Retrieved May 30, 2015, from http://www.dhs.gov/xlibrary/assets/agreement_us_canada_sciencetech_cooperation_2004-06-01.pdf.

Canada. (2010). *Cybersecurity action plan*. Retrieved May 15, 2015, from http://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/ctn-pln-cbr-scrt/index-eng.aspx.

Canada. (2014). Seizing Canada's moment: Moving forward in science, technology and innovation. Retrieved May 30, 2015, from http://www.ic.gc.ca/eic/site/icgc.nsf/eng/h_07419.html.

Canadian Association of Defence and Security Industries. (2014). *Canadian Association of Defence and Security Industries Directory*. Ottawa, ON: Canadian Association of Defence and Security Industries.

Census protester Audrey Tobias acquitted of not filing form. (2013, October 9). *CBC*. Retrieved May 30, 2015, from http://www.cbc.ca/news/canada/toronto/census-protester-audrey-tobias-acquitted-of-not-filing-form-1.1930998.

Chui, Susan & Tavella, Domingo. (2008). *Data mining and market intelligence for optimal marketing returns*. Boston, MA: Butterworth-Heinemann.

Clement, Tony. (2010, December 6). Announcement of new centres of excellence for commercialization and research. Retrieved June 6, 2015, from https://www.ic.gc.ca/eic/site/064.nsf/eng/06136.html.

Computer World. (1997, March 31). Census in $49M pact. *31*(3), 71.

Cooling, Benjamin F. (Ed.). (1981). *War, business and world military-industrial complexes*. New York: Kennikat Press.

Cox, James S. (2012). Canada and the five eyes intelligence community. Strategic Studies Working Group Papers. *Canadian International Council and Canadian Defence and Foreign Affairs Institute*. Retrieved May 15, 2015, from http://opencanada.org/wp-content/uploads/2012/12/SSWG-Paper-James-Cox-December-2012.pdf.pdf.

Cudmore, James. (2014, February 14). General Dynamics Canada wins $10B deal with Saudi Arabia. *CBC*. Retrieved May 29, 2015, from http://www.cbc.ca/news/politics/general-dynamics-canada-wins-10b-deal-with-saudi-arabia-1.2537934.

Defence Research and Development Canada. (2014, January 29). Government of Canada invests in Canada's safety and security. *News*. Retrieved 29 May 2015, from http://www.drdc-rddc.gc.ca/en/dynamic-article.page?doc=government-of-canada-invests-in-canada-s-safety-and-security/hr0e3lxs.

Department of National Defence. (2013). Science & technology in action: Delivering results for Canada's Defence and Security. Retrieved May 15, 2015, from http://www.drdc-rddc.gc.ca/assets/DRDC_Internet/docs/en/ST-Strategy.pdf.

Department of National Defence. (1998). Canadian Forces information operations. Ottawa, Ontario.

Department of National Defence. (2005). Canada's international policy statement: A role of pride and influence in the world (defence). Ottawa, Ontario.

Department of National Defence. (2010). Canada first defence strategy. Retrieved May 29, 2015, from http://www.forces.gc.ca/en/about/canada-first-defence-strategy.page.

Eastman Tennessee. (n/d). Time line. Retrieved May 15, 2015, from http://www.eastman.com/Company/About_Eastman/History/Pages/History_Timeline.aspx.

Edwards, Paul N. (1996). *The closed world: Computers and the politics of discourse in cold war America*. Cambridge, MA: MIT Press.

Evans, Mark. (2005, 15 April). Nortel views U.S. government as a juicy target. *National Post*, p. FP7.

Foster, John B. & McChesney, Robert W. (2014). Surveillance capitalism: Monopoly-finance capital, the military-industrial complex, and the digital age. *Monthly Review*, *66*(3), 1-31.

Giroux, Henry A. (2007). *The university in chains: Confronting the military-industrial-academic complex*. Boulder, CO: Paradigm Publishers.

Government of Canada. (2011) Private sector advisory report on activities and impacts of the centres for excellence for commercialization and research: Turning research into commerce. Retrieved June 6, 2015, from http://www.nce-rce.gc.ca/_docs/reports/PSAB2011_eng.pdf.

Government of Canada. (2005). International policy statement: A role of pride and influence in the world. Retrieved June 6, 2015, from http://publications.gc.ca/site/eng/272595/publication.html.

Government of Canada. (2007). Mobilizing science and technology to Canada's advantage. Retrieved June 6, 2015, from https://www.ic.gc.ca/eic/site/icgc.nsf/eng/h_00856.html.

Hall, James. (1997). *Radio Canada international: Voice of a middle power*. Ann Arbor, MI: Michigan University Press.

Hasselback, Drew & Tedesco, Theresa. (2014, September 27). The fate of the once-mighty Nortel's last billions lie in the hands of two men. *Financial Post*. Retrieved May 15, 2015, from http://business.financialpost.com/legal-post/the-fate-of-once-mighty-nortels-last-billions-lies-in-the-hands-of-two-men.

Herman, Edward & Chomsky, Noam. (1988). *Manufacturing consent: The political economy of the mass media*. New York: Pantheon.

Herman, Edward & McChesney, Robert. (1997). *Global media: The new missionaries of global capitalism*. New York: Continuum.

Hills, Jill. (2006). What's new? War, censorship and global transmission: From the telegraph to the Internet. *The International Communication Gazette*, *68*(3), 195-216.

Hirst, Martin, Harrison, John & Mazepa, Patricia. (2014). *Communication and new media: From broadcast to narrowcast, Canadian edition*. Toronto: Oxford University Press.

Industry Canada. (2013). *Innovation Canada: A call to action: Review of federal support to research and development—Expert panel report*. Retrieved May 29, 2015, from http://rd-review.ca/eic/site/033.nsf/vwapj/R-D_InnovationCanada_Final-eng.pdf/$FILE/R-D_InnovationCanada_Final-eng.pdf.

Industry Canada. (n.d.). Archived: Technology Partnerships Canada Program: About, and TPP payment status reports. Retrieved May 30, 2015, from http://ito.ic.gc.ca/eic/site/ito-oti.nsf/eng/h_00154.html.

Jones, David T. (2011). U.S.-Canada security: The long polar watch *and* Canada's changing defence policy 1957-1963. *International Journal*, *66*(2), 452-461.

Joya, Angela. (2013). Failed states and Canada's 3D policy in Afghanistan. In Jerome Klassen and Greg Albo (Eds.), *Empire's ally: Canada and the war in Afghanistan* (pp. 277-305). Toronto: University of Toronto Press.

Keeton, Ann. (2007, August 29). Lockheed looks to IT for growth. *Wall Street Journal*. Retrieved June 6, 2015, from http://www.wsj.com/articles/SB118835803330411949.

Kellogg, Paul. (2013). From the Avro Arrow to Afghanistan: The political economy of Canadian militarism. In Jerome Klassen and Greg Albo (Eds.), *Empire's ally: Canada and the war in Afghanistan* (pp. 181-210). Toronto: University of Toronto Press.

Klassen, Jerome & Greg Albo. (Eds.). (2013). *Empire's ally: Canada and the war in Afghanistan*. Toronto: University of Toronto Press.

Lennox, Patrick. (2007). From golden straitjacket to kevlar vest: Canada's transformation to a security state. *Canadian Journal of Political Science*, *40*(4), 1017-1038.

Leslie, Stewart W. (2000). The biggest "angel" of them all: The military and the making of Silicon Valley. In Martin Kenney (Ed.), *Understanding Silicon Valley: The anatomy of an entrepreneurial region* (pp. 48-70). Stanford, CA: Stanford University Press.

Levin, Avner & Goodrick, Paul. (2013). From cybercrime to cyberwar? The international policy shift and its implications for Canada? *Canadian Foreign Policy*, *19*(2), 127-143.

Link between census, war machine galling. (2011, May 10). *Toronto Star*, p. A8.

Lockheed Martin. (n.d.) Census. Retrieved May 15, 2015, from http://www.lockheedmartin.com/us/products/census-systems.html.

Lynn, William J. (2014). The end of the military-industrial complex: How the Pentagon is adapting to globalization. *Foreign Affairs*, *93*(6), 1-5.

Mattelart, Armand. (1994). *Mapping world communication: War, progress and culture*. Minnesota, MN: University of Minnesota Press.

Mazepa, Patricia. (2011). Direct from the source: Canada's integrated system of state propaganda. In Gerald Sussman (Ed.), *The propaganda society: Promotional culture and politics in global context* (pp. 297-313). New York: Peter Lang.

McDonough, David S. (2012). Canada, NORAD, and the evolution of strategic defence. *International Journal*, *67*, 797-812.

Morton, Peter. (2004, April 29). New CEO remade U.S. military. *National Post*, p. A1.

Mosco, Vincent & Mazepa, Patricia. (2003). High tech hegemony: Transforming Canada's capital into Silicon Valley North. In Lee Artz and Yayla Kamalipour (Eds.), *The globalization of corporate media hegemony* (pp. 93-112). New York: State University of New York Press.

Mosco, Vincent & Schiller, Dan. (Eds.). (2001). *Continental order? Integrating North America for cybercapitalism*. Lanham, MA: Rowman and Littlefield.

Mosco, Vincent. (1989). *The pay-per society: Computers and communication in the information age*. Toronto: Garamond Press.

Mosco, Vincent. (2009). *The political economy of communication*. London: Sage.

Mosco, Vincent. (2014). *To the cloud: Big data in a turbulent world*. Boulder, CO: Paradigm Publishers.

National Defence. (2013). *Science and technology in action: Delivering results for Canada's defence and security*. Retrieved May 29, 2015, from http://www.drdc-rddc.gc.ca/assets/DRDC_Internet/docs/en/ST-Strategy.pdf.

Nortel patents sale approved by courts. (2011, July 11). *CBC*. Retrieved May 30, 2015, from http://www.cbc.ca/news/business/nortel-patents-sale-approved-by-courts-1.1012812.

Our company. (n.d.). About Kodak. Retrieved June 10, 2015, from http://www.kodak.com/ek/US/en/About_Kodak_Top/Our_Company.htm.

Panitch, Leo & Gindin, Sam. (2013). *The making of global capitalism: The political economy of American empire*. London: Verso.

Parkayastha, Prabir & Bailey, Rishab. (2014). U.S. control of the Internet: Problems facing the movement to international governance. *Monthly Review*, *66*(3), 103-127.

Perkel, Colin. (2013, October 3). Toronto Woman, 89, pleads not guilty in censorship protest-case. Retrieved May 15, 2015, from http://www.ctvnews.ca/canada/toronto-woman-89-pleads-not-guilty-in-census-protest-case-1.1481472.

Public Interest Advocacy Centre. (2014). *No such thing as a free lunch: Consumer contracts and "free" services*. Retrieved May 15, 2015, from www.piac.ca/files/free_services.pdf.

Pugliese, David. (2010, October 16). DND set to take over Nortel campus. *Ottawa Citizen*. Retrieved 30 May, 2015, from http://www.ottawacitizen.com/business/take+over+Nortel+campus/3680169/story.

Schiller, Dan. (2008). The militarization of U.S. communications. *Communication, Culture & Critique*, *1*(1), 126-138.

Schiller, Dan. (2014). *Digital depression: Information technology and economic crisis*. Urbana, IL: University of Illinois Press.

Schiller, Herbert I. (1969). *Mass communication and American empire*. Boulder, CO: Westview Press.

Schiller, Herbert I. & Phillips, John D. (Eds.). (1970). *Super*State: Readings in the military-industrial complex*. Urbana, IL: University of Illinois Press.

Snow, Nancy & Taylor, Philip M. (2006). The revival of the propaganda state: U.S. propaganda at home and abroad since 9/11. *The International Communication Gazette*, *68*(5-6), 389-407.

Stockholm International Peace Research Institute (SIPRI). (2013a) The SIPRI top 100 arms-producing and military service companies 2013. Retrieved May 25, 2015, from http://books.sipri.org/files/FS/SIPRIFS1405.pdf.

Stockholm International Peace Research Institute (SIPRI). (2013b). Trends in international arms transfers. Retrieved May 25, 2015, from http://books.sipri.org/files/FS/SIPRIFS1403.pdf.

Stockholm International Peace Research Institute (SIPRI). (2014). Trends in world military expenditure. Retrieved May 25, 2015, from http://books.sipri.org/files/FS/SIPRIFS1504.pdf.

The Professional Institute of the Public Service of Canada (PIPSC). (2013). Most federal scientists feel they can't speak out, even if public health and safety at risk, says new survey. Retrieved May 15, 2015, from http://www.pipsc.ca/portal/page/portal/website/issues/science/bigchill.

The Technology Cooperation Program. (2007). A beginner's guide to the technical cooperation program. Retrieved May 30, 2015, from http://www.acq.osd.mil/ttcp/guidance/documents/TTCP_101.pdf.

US, Canada sign "smart border" declaration. (2001, December 13). *CNN*. Retrieved May 15, 2015, from http://www.cnn.com/2001/US/12/12/rec.canada.border/.

Vaas, Lisa. (2000, June 19). Crunching at web speed—Got 120 million forms to process? Web-based work analysis gets data centers deployed faster. *eWeek*, p. 70.

Wills, Jocelyn. (2011). Innovation in a Cold [War] climate: Engineering peace with the American military-industrial complex. *Enterprise and Society*, *12*(1), 120-74.

Winseck, Dwayne & Pike, Robert (2007). *Communication and empire: Media, markets and globalization, 1860-1930*. Durnham, NC: Duke University Press.

Winseck, Dwayne. (2008). Information operations "blowback": Communication, propaganda and surveillance in the global war on terrorism. *The International Communication Gazette*, *70*(6), 419-441.

About the Author

Patricia Mazepa is an Associate Professor in the Department of Communication Studies and in the York/Ryerson Joint Graduate Program in Communication and Culture. Her teaching and research focus is on the political economy of communication in Canada. Her most recent book publications include: *Communication and New Media: From Broadcast to Narrowcast, Canadian Edition* (2014, with Martin Hirst and John Harrison) and *Alternative Media in Canada* (2012, edited with Kirsten Kozolanka and David Skinner).

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