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Perspectives on Cybersecurity:  
A Collaborative Study

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# Explorations in Cyber International Relations

Massachusetts Institute of Technology    Harvard University

## **PERSPECTIVES on CYBERSECURITY**

### **A Collaborative Study**

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## 9. A Theoretical Framework for Analyzing Interactions between Contemporary Transnational Activism and Digital Communication

### Vivian Peron

The aim of this text is to contribute to cyber security studies workshop from a social perspective through consideration of the role of political groups or social movements and their potential impacts on international relations. Specifically, this study shows the cyberspace effects on transnational activism's dynamics considering digital communication's uses by activists.

Activism is a role assumed by individuals or collective actors either to resist what they consider to be a political wrong or to act to bring about political change through either contained or transgressive tactics. It is a process defined by a political cause which may originate online or not. An activist therefore may be a member of a social movement, popular struggle, trade union, collective, network, NGO, or civic or religious organization, a scholar or student, or an individual unaffiliated with any group. Transnational activism is the term used to indicate coordinated international campaigns on the part of networks of activists against international actors, other states, or international institutions.<sup>153</sup>

Even though there is a traditional set of studies in Social Sciences related to transnational activism, this conceptualization has been expanded and reinforced by inserting new elements and actors in these communicative processes through the social use of new technologies such as the Internet. Some events in the first decades of the 21st century are emblematic of this change, such as the Arab Spring, Al Qaeda, and WikiLeaks. These phenomena are different examples of transnational activism's dynamics and illustrate how their actions impact and may redefine security and stability in international relations. For this reason, this study focuses on the role of digital communication in the dynamics of contemporary transnational activism.

This study is divided into three parts. Firstly, this study defines cyberspace and digital communication through a social perspective. From this conceptual background, it is possible to explain the main cyberspace effects on social practices. Secondly, the study organizes the activism's dynamics into six stages: Arrangement of the cause, individual engagement, action planning, execution of actions, visibility production and reaction or counter-attacks. Thirdly, the preliminary analysis shows cyber effects on transnational activism's dynamic using illustrations from three different cases: the Arab Spring, Al Qaeda, and WikiLeaks.

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<sup>153</sup> Margaret E. Keck and Kathryn Sikkink, *Activists beyond Borders: Advocacy Networks in International Politics* (Ithaca, NY: Cornell University Press, 1998); W. Lance Bennett, "Social Movements beyond Borders: Understanding Two Eras of Transnational Activism," in *Transnational Protest and Global Activism*, ed. Donatella della Porta and Sidney Tarrow (Lanham, MD: Rowman & Littlefield Publishing, 2005), 203-226; Donatella della Porta and Sidney Tarrow, "Transnational Processes and Social Activism: An Introduction," in *Transnational Protest and Global Activism*, ed. Donatella della Porta and Sidney Tarrow (Lanham, MD: Rowman & Littlefield Publishing, 2005), 1-17; Sidney Tarrow and Doug McAdam, "Scale Shift in Transnational Contention," in *Transnational Protest and Global Activism*, ed. Donatella della Porta and Sidney Tarrow (Lanham, MD: Rowman & Littlefield Publishing, 2005), 121-147; Ruth Reitan, *Global Activism* (New York: Routledge, 2007).

*Cyberspace* is a digital arena for social, political, economic and cultural interaction accessible to human experience through electronic devices (smartphones, computers, tablets) and that works based on three main layers: physical (fiber optic cables, backbones), logical (protocols, internet, web, applications) and informational (contents).<sup>154</sup>

*Digital communication* is a key aspect in the cyber domain for social, political, economic and cultural interactions. Digital communication systems, by definition, are communication systems that use a digital sequence as an interface between the source and the channel input (and similarly between the channel output and final destination). In cyberspace, digital communication process occurs through layers. For digital communication to happen there is needed: (1) symbolic features/ content (text, video, audio, digital identification etc.); (2) decoder / encoder device (computers, tablets, smartphones and others); (3) physical infrastructure for transporting and processing data (backbones, optical fiber); and (4) applications (software, web, protocols, blog, social media etc.).<sup>155</sup>

In order to understand how activists use digital communication it is important to identify first the main cyber effects on social practices, since transnational activism is embedded in social relations. Four main cyber effects on social practices are identified in this study: (1) Strengthening media connectivity, (2) Encouraging aggregation, (3) Increasing reality perception, and (4) Diffusing power.

*Strengthening media connectivity* involves the structure of permanent connectivity, in which individuals are now routinely connected to digital communication devices everywhere, all the time. Cyberspace has turned the ordinary citizen into one who carries an ubiquitous media device. The various types of devices are now so common they have faded into the background of everyday routine, and in that way become “invisible”. It means that the tendency now is for the ordinary citizen to be connected full-time by means of omnipresent communication devices.<sup>156</sup>

*Encouraging aggregation* implies three concepts: long tail phenomenon, like-minded idea and emergent convergence culture.<sup>157</sup> Cyberspace amplifies the concentration of ideas, preferences and interests.<sup>158</sup> The individual now has the tool to find other groups or individuals who hold common ideas, and it condenses the convergence culture phenomenon – more important than the technological

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<sup>154</sup> Michael Benedikt, “Cyberspace: Some Proposals,” in *Cyberspace: First Steps*, ed. Michael Benedikt (Cambridge, MA: The MIT Press) 119-224; Stephen J. Kobrin, “Territoriality and the Governance of Cyberspace,” *Journal of International Business Studies* 32 (2001): 687-704; Xiaoqing Shi and Hai Zhuge, “Cyber Physical Socio Ecology,” *Concurrency and Computation: Practice and Experience* 23 (2010): 972-985, Published online 28 August 2010. DOI: 10.1002/cpe.1625; Nazli Choucri, *Cyberpolitics in International Relations* (Cambridge, MA: The MIT Press, 2012); Nazli Choucri and David Clark, “Integrating cyberspace and International Relations: The Co-Evolution Dilemma,” MIT/Harvard ECIR Workshop on Who Controls Cyberspace? Cambridge, MA, November 6-7, 2012; Melissa E. Hathaway and Alexander Klimburg, “Preliminary Considerations: On National Cyber Security,” in *National Cybersecurity: Framework Manual*, ed. Alexander Klimburg (Tallinn: NATO Cooperative Cyber Defence Centre of Excellence), 1-43; Lucas Kello, “The Meaning of the Cyber Revolution,” *International Security* 38 (2013): 7-40; Jan-Frederik Kremer and Benedikt Müller, “SAM: A Framework to Understand Emerging Challenges to States in an Interconnected World,” in *Cyberspace and International Relations: Theory, Prospects and Challenges*, ed. Jan-Frederik Kremer and Benedikt Müller (Switzerland: Springer, 2014), 41-58.

<sup>155</sup> Robert G. Gallagher, *Principles of Digital Communication* (Cambridge: Cambridge University Press, 2008); David Clark, “An Insider’s Guide to the Internet”, *M.I.T. Computer Science and Artificial Intelligence Laboratory*. Version 2.0 7/25/04, 2004: <http://groups.csail.mit.edu/ana/Publications/PubPDFs/An-Insiders-Guide-to-the-Internet.pdf>.

<sup>156</sup> Reitan, *Global Activism*; Milton L. Mueller, *Networks and States* (Cambridge, MA: The MIT Press, 2010); Fabien Miard, “Call for power? Mobile phones as facilitators of political activism,” in *Cyberspaces and Global Affairs*, ed. Sean S. Costigan and Jake Perry (Burlington, VT: Ashgate, 2012) 119-144; Philip Seib, *Real-time diplomacy: Politics and power in the social media era* (New York: Palgrave Macmillan, 2012); Bruce Bimber, Andrew Flanagin, and Cynthia Stohl, *Collective Action in Organizations: Interaction and Engagement in an Era of Technological Change* (Cambridge: Cambridge University Press, 2012); José van Dijck, *The Culture of Connectivity: A Critical History of Social Media* (New York: Oxford University Press, 2013); Andreas Hepp and Friedrich Krotz, “Mediatized Worlds- Understanding Everyday Mediatization,” in *Mediatized Worlds Culture and Society in a Media Age*, ed. Andreas Hepp and Friedrich Krotz (New York: Palgrave, 2014) 1-18.

<sup>157</sup> Chris Anderson, *The Long Tail: Why the Future of Business is Selling Less of More* (New York: Hyperion, 2006); Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: New York University Press, 2008).

<sup>158</sup> Cass Sustein, *Republic.com* (Princeton, NJ: Princeton University Press, 2001); Seib, *Real-time diplomacy*; Choucri, *Cyberpolitics*.

convergence of multi-media devices is the convergence of ideas and interests that takes place in a symbolic environment created by digital communication. This convergence makes it possible to undertake concrete actions in the real world. Convergence culture is more than simply a technological shift and refers to a process, not an endpoint.<sup>159</sup>

*Increasing reality perception* means that virtuality blurs boundaries not only between online and offline, or public and private, but also between geographical distance and timing. The understanding of the world is no longer based only on formal filters (such as media, school and other traditional intermediaries), the new way to get information dilates individuals' worldview. The individual is exposed daily to a variety of ideas and compelled to think or give opinion on what appears on "screen". Cyberspace has expanded the worldview of individuals through receiving information from different sources, themes, places and levels of complexity.<sup>160</sup>

*Diffusing power* involves a new definition of power. Cyberpower is the ability to obtain preferred outcomes (*within* cyberspace or in other domains *outside* cyberspace) by using interconnected information through Internet, intranets, cellular technologies and space-based communications. These resources characterize the domain of cyberspace and are defined by infrastructure, location, networks, software, and human skills. In this context, power will increasingly be described by connections — who is connected to whom and for what purposes, therefore the measure of this power is connectedness. It is important to point out that distribution of power does not mean equality of power.<sup>161</sup>

Analysis of these four cyberspace effects on transnational activism's dynamic indicates that digital communication creates conditions that contribute to transnational activism's dynamic in different ways. The activism's dynamic is defined by six phases: Arrangement of the cause, individual engagement, action planning, execution of actions, visibility production and reaction or counter-attacks. Arrangement of the cause is when an activist idea is activated and delimited by a political cause, target or claim. Individual engagement is when the individual, after incorporating the activist cause and ideas, decides to engage and join the cause. Action planning is when a cause's supporters plan actions, collect information and decide guidelines and tactics. Execution of actions is when there is an action on behalf of the cause aiming at political results. Visibility production is when there is image management by the members. Reaction or counter-attacks is when defensive actions or counter-attacks happen.

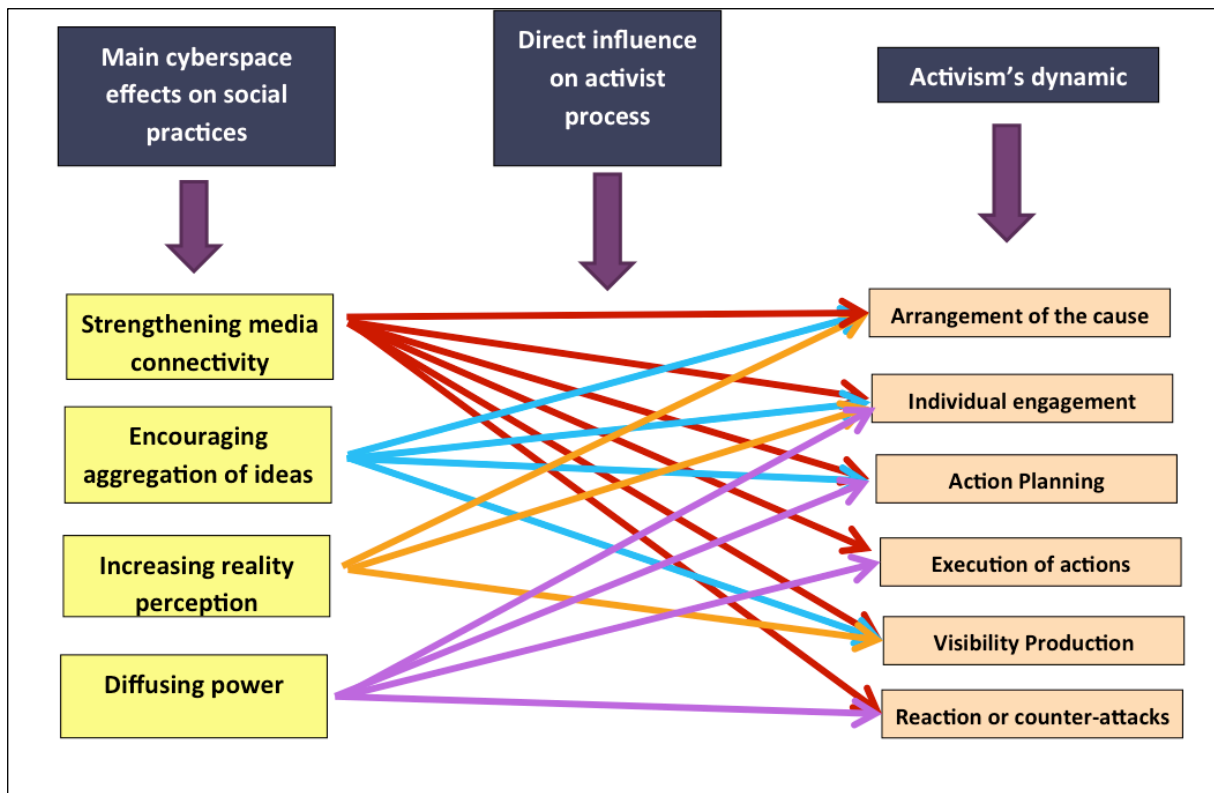
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<sup>159</sup> Jenkins, *Convergence Culture*.

<sup>160</sup> Shi and Zhuge, "Cyber Physical Socio Ecology," 972-985; Choucri, *Cyberpolitics*; Roxana Radu, "Power Technology and Powerful Technologies - Global Governmentality and Security in the Cyberspace," in *Cyberspace and International Relations: Theory, Prospects and Challenges*, ed. Jan-Frederik Kremer and Benedikt Müller (Switzerland: Springer, 2014) 3-21; James Miller, "Intensifying Mediatization: Everywhere Media. Mediatized Worlds- Understanding Everyday Mediatization," in *Mediatized Worlds Culture and Society in a Media Age*, ed. Andreas Hepp and Friedrich Krotz (New York: Palgrave, 2014) 107-122.

<sup>161</sup> Madeline Carr, "A Political History of the Internet: A Theoretical Approach to the Implications for US Power," Conference Paper at the *International Studies Association Annual Meeting*, February 15-18, New York: 2009; Daniel Drezner, "Weighing the Scales: The Internet's Effect on State-Society Relations," *Borwn Journal of World Affairs* XVI (2010): 31-46; Joseph Nye, "Cyber Power," Paper from *Belfer Center for Science and International Affairs, Harvard Kennedy School* (May 2010); Kello, "The Meaning of the Cyber"; David P. Fidler, "authoritarian Leaders, the Internet, and Intenrational Politics," *Journal of Diplomacy & International Relations* 15 (2014): 7-21; Jeffrey A. Hart, "Information and Communications Technologies and Power," in *Cyberspaces and Global Affairs*, ed. Sean S. Costigan and Jake Perry (Burlington, VT: Ashgate, 2012) 203-214; Eddie Walsh, "Viewpoint: An alternative perspective on cyber anarchy for policy-makers," in *Cyberspaces and Global Affairs*, ed. Sean S. Costigan and Jake Perry (Burlington, VT: Ashgate, 2012) 233-235; Seib, *Real-time diplomacy*.

These four main cyberspace effects on social practices directly influence these six stages of previously described, as show in figure 1:



**Figure 1:**  
**Cyber effects on activism’s dynamics**

The main purpose of this diagram is to identify and assess how the cyber effects directly influence the activism’s process. Therefore, it is possible to identify that digital communication:

1. **Enables** configuration of the cause
2. **Multiplies** individual engagement
3. **Equips** action planning
4. **Empowers** execution of actions
5. **Amplifies** visibility production
6. **Empowers** reaction or counter-attacks

This thus provides a useful perspective about contemporary transnational activism. To illustrate this point of view, this study examines each of the identifications above considering three emblematic cases: WikiLeaks, Arab Spring and Al Qaeda.

**Digital communication enables configuration of the cause.** Dispersed beliefs and claims can be turned into a cause through the convergence of ideas and interests within cyberspace. Digital communication catalyzed the uprisings in the Arab region; discontent about social and political injustices was compounded by decades of institutional and political decay in that region. This collective sentiment then enabled the process for the riots and demonstrations. In December 2010, the

self-immolation of Mohamed Bouazizi was shocking to Tunisians' eyes, the Arab people and the rest of the world. A street vendor of fruits and vegetables, at 26, he had his products confiscated by government authorities in Tunisia because they considered his activity illegal. After petitioning for the return of his belongings in the administration headquarters and seeing his request denied, he threw flammable liquid on his own body and burned. Bouazizi was rescued and taken to hospital but died two weeks later on January 5, 2011. The strong image of Bouazizi and his narrative circulated through social media and it set off protests in Tunisia. This emblematic fact culminated with the fall of President Ben Ali after two decades in power.

**Digital communication multiplies individual engagement.** Through digital communication, the individual has access to new possibilities for engagement, including different types and degrees of effort in support of causes. This is related to online mobilization, recruitment, and online efforts to move people to action, protest, intervene, advocate and/or support a political cause. In the case of Al Qaeda, there is a global support base which is highly skilled at using computers and internet; and 80% of terrorist recruitment is through the internet.<sup>162</sup> This terrorist group has a global fundraising network that is based on a foundation of charities, nongovernmental organizations and other financial institutions, that solicit and gather funds through Web sites (for example via PayPal), Internet based chat rooms and forums. The practice of criminal activity is also part of the alternatives to raise funds by terrorists.

**Digital communication equips action planning.** Activists have greater ability to gather information, evaluate scenarios, and design tactics. About 50% of the protesters in Egypt (2010/2011) used Facebook and 13% used Twitter to communicate about the protest. The online magazine Al Battar, published by activists linked to al-Qaeda, contains detailed information about how to kidnap relevant people from the political and economic field, how to shoot grenades, and other related tutorials. This magazine has developed a true virtual training camp.<sup>163</sup> Al Qaeda operatives relied heavily on the Internet in planning and coordinating the September 11th attacks. Thousands of encrypted messages that had been posted in a password-protected area of a website were found by federal officials on the computer of arrested al Qaeda terrorist Abu Zubaydah, who reportedly masterminded the September 11th attacks. The first messages found on Zubaydah's computer were dated May 2001, and the last were sent on September 9, 2001. The frequency of the messages was highest in August 2001. To preserve their anonymity, the al Qaeda terrorists used the Internet in public places and sent messages via public e-mail. Some of the September 11th hijackers communicated using free web-based e-mail accounts.

**Digital communication empowers execution of actions.** Activist groups have more tools available to accomplish their goals, including cyberspace, as a new arena for disputes and attacks. In 2010 WikiLeaks had 40 core volunteers and about 800 mostly unpaid followers to maintain a diffuse web of computer servers with published data and an encrypted system for receiving information leaked anonymously. The possibility of obtaining classified documents through digital copies has empowered activists. The distribution via the Internet also gives more power to the group, affecting governments around the world.

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<sup>162</sup> Ellen Hallams, "Digital diplomacy: the internet, the battle for ideas & US foreign policy," *CEU Political Science Journal* 5 (2013): 538-574.

<sup>163</sup> Hallams, "Digital diplomacy".



**Digital communication amplifies visibility production.** Activists can better manage their image and identity without traditional gatekeepers (even though the traditional media can participate in the diffusion process) and can disseminate narratives that tell their stories, ideas and actions. Research shows that during the Arab Spring protests in Egypt, about 50% of the demonstrators produced and disseminated videos or images of political protests in the streets, especially through Facebook.<sup>164</sup> The growth of jihadist sites over time shows the jump of only two sites in 1998 to over 4,700 in 2005. Currently in operation are 5,000 to 10,000 radical websites.<sup>165</sup>

**Digital communication empowers reaction or counter-attacks.** Activists are able to use new instruments/tools to defend themselves from attacks or to conduct counter-attacks. After the release of State Department cables in November 2010 by WikiLeaks, Amazon stopped acting as a host for WikiLeaks' material; the firm that managed WikiLeaks' domain name, EveryDNS.net, suspended its services, so that the domain name wikileaks.org was no longer operable; and PayPal stopped accepting donations for Mr. Assange's group. These and others business decisions hurt WikiLeaks significantly. Assange called it 'economic censorship' and claimed that actions by these financial intermediaries cost WikiLeaks three-quarters of a million dollars in lost donations. For this reason, hackers (especially Anonymous group) concatenated invasions of websites of several companies and businesses (like PayPal, Amazon, Visa.com) to retaliate with denial of service attacks against several of the firms that severed ties with WikiLeaks, making them inaccessible or slow. In the case of the Arab Spring process, turning off the internet by the Egyptian regime from the 25th of January to the 2nd February, 2011 caused the opposite effect to that provided by the authority. First, a small group, but with vast knowledge of information technology, continued to send information and videos to the outside about what was happening in Tahrir Square. Second, the fact that people no longer had access to the internet, caused greater interest in what was happening in their country, so that encouraged people to go to the streets, intensifying the protests.

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<sup>164</sup> Zeynep Tufekci and Christopher Wilson, "Social Media and the Decision to Participate in Political Protest: Observations from Tahrir Square," *Journal of Communication* 62 (2012): 363-379.

<sup>165</sup> Hallams, "Digital diplomacy".

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