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OSINT, New Technologies, Education: Expanding Opportunities and Threats. A New Paradigm

Dr. Libor Benes

Introduction

The successful concept of General W. Donovan's Office of Strategic Services (OSS), assembling a unique diversity of America's finest talent, has proven any education can serve intelligence.¹ A large portion of intelligence expertise comes from non-intelligence education and professions. But the more these are intelligence-centered, the better tools the analyst gets. Beside growing knowledge and skills, the galloping world, also result of new technologies, pressures intelligence professionals to keep refining their competencies.

George Washington said that "[t]he necessity of procuring good intelligence is apparent and need not be further urged."² Intelligence aims to gain superiority over an adversary. America's Leadership in the free world requires that leaders have the best intelligence to decide, shape events, and know others. President George H.W. Bush defines intelligence as "our basic national instrument for anticipating danger," "our first line of defense," and a means of anticipating opportunities."³

The quality and use of intelligence depends on information quality, intelligence, and the policy maker. Also new technologies bring opportunities and threats. They change the information paradigm in the society through empowering people to acquire and create more and better information and influence events. They both support and press intelligence and education and increase the importance of open source intelligence (OSINT).

Top technology and top education fuel America's unrivaled political-economic system. Education has a special role in the fine fabric of the society. It builds a basis for America's Leadership. Sherman Kent "took account of the coming computer age as well as human and technical collectors in proclaiming the centrality of the analyst," the "thoughtful man ... the intelligence device supreme."⁴ It stays valid. Education must innovate to boost intelligence and to show how to approach the consequences.

Methodology

Thesis

"While the human factor will remain central in the intelligence process, the paradigm-changing impact of new technologies on the society and OSINT is among the biggest opportunities for strengthening America's Leadership in the world and requires more education innovation."

Research Goal and Method

The paper analyzes how the rapidly advancing new technologies change the society, information, OSINT, and intelligence education, i.e., teaching and self-education. Finding out how to innovate

¹ Casey, William J. and Herbert E. Meyer, *Scouting the Future* (Washington, D.C.: Regnery Gateway, 1989), 41.

² Ibid, 30.

³ President George H. W. Bush, Swearing-in ceremony of Robert Gates as DCI, November 12, 1991.

⁴ Heuer, Richards J., Jr., *The Psychology of Intelligence Analysis* (Center for the Study of Intelligence: Central Intelligence Agency, 1999), XIV; Kent, Sherman, *Writing History*, 2nd Edition (1967).

education is a living process and can only result from an integrated collaborative approach. This paper uses OSINT strictly in the legal sense, excluding information published illegally.

National Defense Authorization Act for Fiscal Year 2006 defines in Sec. 931 of Public Law 109 - 163:

“Open Source Information: Publicly available information that anyone can lawfully obtain by request, purchase, or observation.”⁵

Open Source Intelligence: Produced from publicly available information that is collected, exploited, and disseminated in a timely manner to an appropriate audience for the purpose of addressing a specific intelligence requirement.”⁶

New Technologies

New technologies are an expanding mix of tools substantially changing the nature of the society and information environment, such as gadgets, laptops, cell phones, search engines, software, information-sharing and communication platforms, high-speed data transmission networks, satellites, cyberspace, social media, traditional media (TV/radio) plus their innovations.⁷

Cyberwar, Our Vulnerabilities, and the Defense of the U.S. National Interest

The fast expanding cyberspace taking over increasing portions of our activities requires the right technology, competencies, and mental attitude. In my book, *We Are at Cyberwar: Everywhere, Forever. The Reliable Theory for the U.S. National Security*, I advocate a paradigm that the society will be safer when we accept and tackle, theoretically and practically, the incessant attacks in cyberspace as a war, beyond cybercrime.⁸ Our growing dependence on cyberspace, the availability of new technologies and information, cyberwar traits, and the attacks on all aspects of the society create vulnerability and require defense.⁹ George Washington's spoke about a “need for armaments, suitable frontiers, and appropriate alliances.”¹⁰ It is relevant in cyber threats that attack even such basic parameters as frontiers. In 1943, Lippmann said the end of foreign policy is “not peace but security in peace and war.”¹¹ Hans Morgenthau defined the first

⁵ Intelligence Community Directive Number 301, National Open Source Enterprise, Effective: July 11, 2006, 8, F. Definitions, available at: <http://www.fas.org/irp/dni/icd/icd-301.pdf>.

⁶ Ibid.

⁷ This definition is larger and it shows that open sources are more than the Internet. Lowenthal mentions a misconception that intelligence analysts rely on the Internet or most open source information. Best and Cummings quote Lowenthal that the intelligence community derives only 3 – 5 percent of open source information from the Internet; Lowenthal, Mark M. *Intelligence, From Secrets to Policy*. 2nd Edition (Washington, D.C.: CQ Press College, 2003), 80; Best and Cummings say that reason may be the lack of open source expertise, ineffective analytic tools, lack of subject matter expertise, deadline pressure, the Internet may not give the best sources, or a combination of these factors; Richard A. Best, Jr., Alfred Cumming, “Open Source Intelligence (OSINT): Issues for Congress,” December 5, 2007: 7.

⁸ Benes, Libor, *We Are at Cyberwar. Everywhere, Forever. The Reliable Theory for the U.S. National Security* (Self-e-published on Amazon Kindle, October 2012), 47.

⁹ Ibid, 19 - 22.

¹⁰ Lippmann, Walter, *U.S. Foreign Policy: Shield of the Republic* (New York: Little Brown, 1943), 51.

¹¹ Lippmann, *U.S. Foreign Policy: Shield of the Republic*, 50 - 51.

principle of American foreign policy, “one primary national interest: the security of its territory and institutions.”¹²

OSINT Between Intelligence and New Technologies

Reality and conceptual shifts increased the role of OSINT. Arthur Hulnick says, although

“OSINT was seen as unnecessary to national intelligence due to...the low reliability of sources arising from the misinformation, secret messages, disinformation, and nonsense content of OSINT sources, the OSINT when properly used is believed to be as crucial as the most secretive and expensive aspects of intelligence collection...In the end...most significant is the system's ability to give sound judgments to decision makers.”¹³

In 1998, Mark Lowenthal saw OSINT as “under-appreciated” and “underutilized.”¹⁴

Regardless past and still present bias against OSINT, it constitutes a large portion of intelligence. The OSS “also gathered public and secret information.”¹⁵ Sherman Kent “estimated that in peacetime 80 percent of the information policymakers needed to make a decision was available publicly.”¹⁶ By Chris Pallaris OSINT provides 80 to 95 percent “of the information used by the intelligence community.”¹⁷ Lt. Gen. Samuel V. Wilson spoke about 90 percent.¹⁸ Nonetheless, some people question OSINT is intelligence. Thomas Carroll quoted “a retired DO officer” saying, “[b]y definition, intelligence is clandestinely acquired information - stolen, to put it bluntly.”¹⁹ The spectrum of intelligence is broader though. Sherman Kent “argued that

¹² Morgenthau, Hans J., *A New Foreign Policy for the United States* (New York: Praeger Publishers, 1969), 241.

¹³ Arthur S. Hulnick, “The Dilemma of Open Sources Intelligence: Is OSINT Really Intelligence?,” *The Oxford Handbook of National Security Intelligence* (U.S.A.: Oxford University Press, March 2010), 229-241, available at: <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195375886.001.0001/oxfordhb-9780195375886-e-0014>.

¹⁴ Mark M. Lowenthal, “Open Source Intelligence: New Myths, New Realities, Defense Daily Network Special Reports, 4,” available at: <http://www.defensedaily.com/reports/osintmyths.htm>.

¹⁵ Bean, Hamilton, *No More Secrets. Open Source Information and the Reshaping of U.S. Intelligence* (Santa Barbara: Praeger Security International, 2011) 26.

¹⁶ Memorandum Respecting Section 202 (Central Intelligence Agency) of the Bill to Provide for a National Defense Establishment, Submitted by Allen W. Dulles, April 25, 1947, reprinted in U.S. Congress, 80th Congress, 1st Session, Senate, Committee on Armed Services, *National Defense Establishment (Unification of the Armed Services)*, Hearings, Part 1, 525. By: Richard A. Best, Jr., Alfred Cumming, “Open Source Intelligence (OSINT): Issues for Congress.” December 5, 2007, 28.

¹⁷ Chris Pallaris, “Open Source Intelligence: A Strategic Enabler of National Security.” Issue 32, Center for Security Studies, Zurich, 2008, available at: <http://www.isn.ethz.ch/isn/Digital-Library/Publications/Detail/?lng=en&id=50169>.

¹⁸ Donna O’Harren, “Opportunity Knocking: Open Source Intelligence For the War on Terrorism.” Thesis, Naval Postgraduate School, December 2006, 9. By: Richard A. Best, Jr., Alfred Cumming, “Open Source Intelligence (OSINT): Issues for Congress.” December 5, 2007.

¹⁹ Thomas Patrick Carroll, “The Case Against Intelligence Openness,” *International Journal of Intelligence and Counterintelligence*, (Winter 2001 - 2002): 561. In: Stephen C. Mercado, “Sailing the Sea of OSINT in the Information Age. A Venerable Source in a New Era,” 6, available at: <https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol48no3/article05.html>, April 14, 2007.

intelligence is knowledge" but "some still confuse the method with the product. Sadly, such confusion is widespread."²⁰ How to clarify it?

OSINT uses information "openly available to all."²¹ As a subgroup of intelligence, OSINT serves the same goal - identify and ward off threats and find and promote opportunities. Let's not underestimate it, let's not mistake "secrecy"²² for knowledge,²³ let's stay aware of also secrets' weaknesses. OSINT has its place in intelligence. It helps handle cognitive challenges, e.g., lower uncertainty, improve accuracy, predictability, completeness, structure, judgment, estimates, creativity, decisions, detect disconfirming information, or explore alternative interpretations (develop hypotheses). Karl Haigler says OSINT "supplements and supports other intelligence gathering activities by providing background cultural or biographical information."²⁴ On terrorism, the Robb/Silberman Report says, "open source information can fill gaps and create links that allow analysts to better understand fragmented intelligence, rumored terrorist plans, possible means of attack, and potential targets"²⁵ and even "may provide the critical and perhaps only window into activities that threaten the United States."²⁶

From Open Source Information to OSINT

From the huge pool, only some open source information can become OSINT through its substance, hard work, and good process, a well thought through and flexible mechanism of gathering, sorting, and evaluating. Otherwise, important indication on intentions or actions or an opportunity can be missed. A threat can appear. The criteria for evaluating intelligence, including OSINT, are accuracy, reliability, timeliness, and, mainly, gaining competitive advantage. How do new technologies increase the role and value of OSINT to help it meet the criteria? In the business area, Jennifer Richard highlights factors of credibility are trustworthiness and expertise.²⁷

Information and Communication Technologies (ICT)²⁸ have changed nothing in OSINT's basic goal, roles, functions, factors, and mechanisms of the intelligence process as defined by Sherman

²⁰ Mercado, "Sailing the Sea of OSINT in the Information Age," 6.

²¹ R. A. Norton, "Guide to Open Source Intelligence. A Growing Window into the World," *The Intelligence, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 18:2 (Winter/Spring 2011): 65.

²² I analyze secrecy and threats in light of the changing environment in the Global War on Terror and national security documents. Libor Benes, "The Global War on Terror and National Security: Crossroads - External Threat-Definitions," The Institute of World Politics, Washington, D.C., November 2007.

²³ Florian Schaurer and Jan Störger, "Guide to the Study of Intelligence. The Evolution of the Open Source Intelligence (OSINT)." *The Intelligence, Association of Former Intelligence Officers* (2011): 2.

²⁴ Karl Haigler, "Guide to Intelligence Support for Military Operations," *In: The Intelligence Association of former Intelligence Officers* 19:I (Winter/Spring 2012) 53.

²⁵ Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, *Report to the President of the United States* (Washington, D.C.: GPO, 2005, pp. 378 - 379). By: Borchgrave, Arnaud de, Thomas Sanderson, John MacGaffin, *Open Source Information. The Missing Dimension of Intelligence.* A Report of the CSIS Transnational Threats Project. CSIS Report, March 2006, 13.

²⁶ Ibid.

²⁷ Richard, Jennifer, *In: Competitive Intelligence: A Framework for Web-Based Analysis and Decision Making*, (Mason, Ohio: Thomson, South-Western, 2004) p. 57.

²⁸ Stephen H. Campbell, "Guide to Intelligence in the Post-Cold War Period: Part II - The Impact of Technology," *The Intelligence, Association of Former Intelligence Officers* (2012): 5.

Kent²⁹ or Richards J. Heuer, Jr.,³⁰ or in acquiring and exploiting open sources "as part of the all-source intelligence process," as analyzed the Joint Military Intelligence Training Center 1996 OSINT Handbook.³¹ But the ICT did change the society and quality of intelligence process elements.

Two Trends: Impact of New Technologies on Society and OSINT

1st Set of Trends (Macro): Impact of New Technologies on Society

New technologies bring a new dimension into the discussion about the OSINT value as they:

- Developed cyberspace: more and more aspects of the society take place through them.
- Reshape the society and actors and the ways future societies will operate. They impact individuals, industry, consumers, market, power, influence of the U.S. and others locally and globally.
- Reshape the infosphere. By Bill Gates, they make available the best and personalized knowledge.³²

New technologies are revolutionary. Their impact would meet Thomas Kuhn's criteria for scientific revolutions.³³ Through cyberspace and their high formative capability, new technologies empower people to find, create, and make publicly available exponentially increasing massive quantity and quality of open source information and to shape reality. Most of that information may have no intelligence value but much of it can, duly handled, become OSINT. Through the combination of passive (consumption) and active (influence) work with information and intelligence, new technologies create a new paradigm, a change qualitatively bigger than any former, e.g., "revolutionary innovations in intelligence-related technologies"³⁴ that mentions Douglas Wheeler. We need an overhaul in OSINT interpretation. What features relevant for OSINT do new technologies have?

New technologies are democratic, giving equal access to the use or creation of open sources (bar censored or restricted by anti-democratic regimes) regardless personal status or hierarchy. They express and support free market, help law enforcement to fight crime and espionage. The passive and active impact affects state power. Mark Lowenthal quoted Deputy Director of Central

²⁹ Kent, Sherman, *Strategic Intelligence for American World Policy*. (Princeton: Princeton University Press, 1951).

³⁰ Heuer, Richards J., Jr., "Psychology of Intelligence Analysis," *Center for the Study of Intelligence, Central Intelligence Agency* (1999).

³¹ "Open Source Intelligence: Professional Handbook." *Joint Military Intelligence Training Center* (October 1996): 1.

³² Bill Gates, Bloomberg TV, January 31, 2013.

³³ As "scientific revolutions," Kuhn calls the extraordinary events where a shift of expert attitude takes place; Kuhn, Thomas S., *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962): 19; Quoted from the Czech translation: *Struktura vedeckych revoluci, I. Uvod* (Introduction), *Role dejin* (The Role of History), Praha 1997, 19.

³⁴ Douglas Wheeler, "Intelligence between the World Wars, 1919 - 1939.' A World Made Safe for Deaths of Democracy." *The Intelligence, Journal of U.S. Intelligence Studies* (2012): 1.

Intelligence Richar Kerr that "[t]he IC has to learn that it no longer controls most of its own sources."³⁵

New technologies serve, spread, and express freedom. They decentralize the monopoly on agenda setting, shaping of reality, and power. They allow people exercise freedom and influence (initiate, shape) events, even absent some pre-requisites. They drive events, facilitate mobilization of the society, watch, protect, and even can bring freedom. By Shimon Peres, mass media are a threat "to dictatorial regimes."³⁶ New technologies magnify this. It brings opportunity to those able to manage decentralization. New technologies help, change, pressure, sometimes trump the traditional media in reporting and influencing events. We have seen citizen journalists with iPhones in Middle East revolutions. "The role of mass media will be modified in a revolutionary way as a result of new technologies."³⁷ By Graeme Burton, "[n]ew technology has made the media - audience relationship more complex."³⁸

2nd Set of Trends (Micro): Impact of New Technologies on OSINT

New technologies are the biggest invention and innovation game changer since the printing press for growth, quality, spread, sharing, accessibility, communication, collecting, processing, and organizing information. They help sort valuable information from the mass of unorganized and useless, identify the right information, process and use it. They improve quality, accuracy, reliability, efficiency, and value added of intelligence process, both on the collection and production side. They:

- Add new dimensions to the traditional notion of OSINT (books, journals, magazines, public reports).
- Shorten publication time, increase opportunities (self-e). Chairman of Federal Reserve Ben Bernanke, said on writing and publishing research papers that formerly, it could take three years before somebody knew what you were working on.³⁹ Now, the process is faster. More open sources can bring both more or less quality and power. Not sharing information is increasingly more difficult, less meaningful, and brings disadvantages, e.g., restricts opportunities to influence events. Someone else can share the information, any information is quickly overcome. Foreign language and cultural original sources are widely available, also thanks to translation applications. Despite that, analysts will need to learn languages.
- Redefine and increase mobility, availability, and ways to access, collect, process, store, and use sources and develop new interpretations.

³⁵ Lowenthal, "Open Source Intelligence," 2.

³⁶ Peres, Shimon, quoted from (Czech book) *Pet rozhovoru*. Nakladatelstvi Lidove noviny, 1998, 175.

³⁷ Libor Benes, "Science and Its Implications." (original in Czech as "Veda a její dusledky"), Essay, Philosophy and Methodology of Science, Ph.D. course, Department of International Relations, University of Economics, Prague, June 25, 2001. 37.

³⁸ Burton, Graeme, *Media & Society. Critical Perspectives* 2nd Edition (Maidenhead, UK: Open University Press, 2010) (2nd edition), 75.

³⁹ University of Michigan discussion, televised by Bloomberg TV, January 14, 2013.

- Expand OSINT and narrow space for classified intelligence as OSINT includes "open versions of the covert arts of human intelligence (HUMINT), overhead imagery (IMINT), and signals intelligence (SIGINT)"⁴⁰ and "is expanding into" these areas,⁴¹ increasingly driving agenda.
- Decrease, eliminate, permeate, or alter barriers, limitation, and constraints in access to knowledge, information, education, spectrum of sources, intelligence process, cooperation, work, sharing, and influencing developments. These information benefits are available everywhere, in real-time, all the time, and in new ways, regardless time, geography, technology, formal status, hierarchy, or rules.
- Increase verifiability of information, give a more complete picture by helping to monitor and acquire a spectrum of inputs (data, analysis, opinion) for broader thinking and cross-checking alternatives and interpretations (local, regional, etc.), including, as Fuld mentions, from cross-cultural communication.⁴²
- Reveal, identify, and help analyze (in context with all-source) public perceptions of events and trends, relationships between players (organizations, groups, countries), and patterns in behavior, including discrepancies (the public image presented vs. secret intentions and steps, as either can be skewed).
- Help identify, involve, connect, use, and task experts.
- Help optimize processes and define research and analytical needs, customers, intelligence product.
- Improve support to secrets through better structuring, specification, and developing OSINT's role. Can OSINT create a full-value intelligence? It increasingly can but an integrated product must always be considered. New technologies cut through enemy lines, into the core of societies, power establishments. OSINT can indicate thinking, intentions, decisions, trends, steps, warning, detect that somebody may try to hide or prepare something. OSINT can influence events where its potential is often higher than secrets. What is the potential of OSINTers to develop clues, indications and warnings for governments?

Can OSINT find a smoking gun? Increasingly yes, but secrets have primacy. Intelligence broader activities, the need to understand political-economic and socio-cultural factors in foreign societies, increase OSINT importance, competencies, and responsibility. The analyst must possess top-notch OSINT know-how to be able to spot an important, often decisive bit of information, an aspect indicating an event, a pattern, or a trend, a kind of a smoking gun, or even

⁴⁰ Stephen C. Mercado, "Sailing the Sea of OSINT in the Information Age. A Venerable Source in a New Era," (April 14, 2007): 3, available at: <https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol48no3/article05.html>.

⁴¹ Ibid, 4.

⁴² Fuld, Leonard M., *The New Competitor Intelligence. The Complete Resource for Finding, Analyzing, and Using Information about Your Competitor*, (New Jersey: Wiley, 1994) 204.

the smoking gun within the growing, widening, and deepening mass of diluted, chaotic, low quality, or deliberately false open source information.

How to Educate About Opportunities New Technologies Bring

The power of new technologies creates opportunities and threats, intertwined, with potential to swap fast. New technologies help localize, process, and disseminate large quantities of data and prepare them for analysts. But the central role in analysis will continue to have the mind of the analyst, an object and a subject for new technologies. Gregory Treverton says "[t]he best looker is not a spymaster, much less an impersonal satellite but rather someone trained in the substance of the subject - an analyst."⁴³

New technologies change the ways people think, work, live, learn, communicate, behave, get, process, and use information. Increasing portions of lives of new generations spent on new technologies will impact the intelligence process and the work and thinking of the analyst, although with the structure of basic competencies unchanged. With all weaknesses, the human brain, is unrivaled and irreplaceable as the central asset to develop the decisive technical and creative aspects of intelligence (sort, analyze, and compare evidence, generate a more alternative hypotheses, assumptions, judgments, detect and minimize sources of vulnerability to networks, institutions, businesses, society) or to handle new technologies' technical and political challenges.

New Technologies' Opportunities for Education of the Analyst

New technologies can improve quality, efficiency, and results of the analyst's education through in-class or on-line education and gadgets and applications, with full or partial programs, including about cyberspace, new technologies, and analysis. What will be their philosophy and status? Albert Einstein said education's goal is "a harmonious personality," not creating a specialist.⁴⁴ In the rapid world it is impossible to give students all tools for their whole professional life. John Lenczowski mentioned the value of information from school halves every two years.⁴⁵ New technologies increase this rate. The more the competitive future world requires increasing quantity and quality of know-how (everybody knows more, unlike formerly when only a few people had access to the best books and other sources), and a mindset, curious and inventive, the more effort must education generate to equip the analyst beyond school years. Last month, the Institute of World Politics in Washington, D.C., introduced a new course on cyberspace, an innovative approach to prepare analysts for the future world. There are others but more U.S. ideas, programs, and establishments are needed, including around the world.

New Technologies Opportunities for Education on OSINT

New technologies give access to education to many more people, including the poor, low-income, handicapped, living in secluded places. Publicly available information, databases, free

⁴³ Treverton, Gregory F., *Reshaping National Intelligence for an Age of Information* (Cambridge: Cambridge University Press, RAND, 2003) 104.

⁴⁴ Einstein, Albert, *Out of My Later Years* (New Jersey: Littlefield, Adams, & Co., 1967), The Hebrew University of Jerusalem, 1995; Quoted from the Czech translation by Martin Cernohorsky, Marie Fojtikova a kol., *Z mych pozdejsich let. Jak vidim svet II*. Nakladatelstvi Lidove noviny, 1995, 25 - 26.

⁴⁵ John Lenczowski, Founder and President, Lecture, The Institute of World Politics, Washington, D.C., 2010.

on-line education programs, and communication platforms offer life-long education, self-education, and building expertise, and lower the education costs. The lead position in these trends increases the U.S. quality of knowledge, educational level, competitive advantage, and leadership in the world.

Education of the Broad Public

Concerted effort educational institutions, government, businesses, and media will give the public the information on opportunities, threats, and challenges related to new technologies. Free or low-priced on-line educational tools or evening continuing educational courses the way the Learning Annex in New York City offers are great for spreading the right interpretations. Not only direct participants will be influenced but they would become also multipliers of that information and effects for others.

Educators and Education

How can an educator stay ahead of new generations and stay relevant to their education? New technologies, as an educational subject and a tool, increasingly challenge educators. Their students will often know more. What innovative programs and effort will bring educators to top know-how, top performance, and top results, as measured by performance and success of students that shall be the criteria for gauging the educators' efficiency? How to find, train, and use other education multipliers?

How to Educate About Threats From New Technologies

In security, anything can, abused by hostile actors, lead to a threat: risks, attacks, problems, vulnerability, weakness, uncertainty, limitation, flaw in intelligence process, human nature, good will, openness, technology high or low level and nature, effects, and availability, low competency, imperfections, interconnectedness, dependence on technologies, misunderstanding or underestimating factors. Threats created by new technologies can affect: the society or security (through their implications and abuse as a weapon or a medium for other threats).

Threats from New Technologies for the Society: Nature of New Technologies and Human Nature

It is increasingly difficult to understand the complexity of new technologies. Most people embrace some aspects or tools but selectively resign on participation in the society through them. Glassman and Kang mention confusion and fear created by the internet.⁴⁶ Practitioners can be "subject to coercive power of technology" whereas technology developers struggle "to understand practitioner's needs and to assess the transformative power of technology."⁴⁷ Trends research and cooperation with the private sector and the public is necessary. New technologies

⁴⁶ Michael Glassman, Min Ju Kang, "Intelligence in the internet age: The emergence and evolution of Open Source Intelligence (OSINT)." *In: Computers in Human Behavior* 28:2 (March 2012): 673 – 682, available at: <http://www.sciencedirect.com/science/article/pii/S0747563211002585>.

⁴⁷ Lucy Resnyansky, "The role of technology in intelligence practice: linking the developer and the user perspectives." *Prometheus: Critical Studies in Innovation* 28:4 (2010), available at: <http://www.tandfonline.com/doi/abs/10.1080/08109028.2010.544076>.

may entrap also analysts, even those with potential and interest to understand, in modified or new flaws in the intellectual process.

New technologies affect the society by systemic threats (socio-economic, psychological, political):

- The asymmetry in their availability creates inequalities within the society and between societies.
- The society's growing dependency and interconnectedness creates vulnerabilities.
- The ever-lurking unlimited threats create lingering uncertainty.
- They change the nature of information production, exchange, use, and advantage. How to achieve information and power superiority when everybody will have access to everything? What does selective withdrawal from participating in the new information sphere indicate about performance, how does it affect results at the individual level compared to the institutional level?

Security Implications of New Technologies

New technologies create:

- A new dimension to the traditional threats through higher efficiency of enemy weapons.
- New types of threats by building cyberspace that empowers collective and individual hostile actors and increases individualization of threats through tech-savvy rogue actors.
- Magnify other threats through cyberspace that changes geography (threats may easier get through the nation's defenses).

Hostile actors can abuse new technologies - directly or as a medium - to:

- Attack freedom, power, and prosperity.
- Incite, perpetrate, or foment political controversies.
- Develop newer types of threats to launch cyber attacks, threaten others, conduct cyberwar, criminal activities and espionage, steal U.S. government and business secrets.
- Conduct new ways of traditional information warfare like spreading mis- and disinformation and propaganda (it is different from the mass of low quality random, non-warfare misleading information).

Threats for the analyst

The analyst fighting cyber threats is to the old-time analyst like the philosopher is to the scientist. Karl Popper described in 1934 that the scientist can attack a problem directly, enter the house through the door because there is a house to enter.⁴⁸ Historically, the enemy was known and the threat formulated, although there still was the need, as during the Civil War, in words of General Ulysses S. Grant quoted by Edward Glantz, to "[f]ind out where" the enemy is.⁴⁹ The philosopher stands "in front of something what resembles a heap of rubble (maybe hiding treasures)."⁵⁰ Today, the enemy and the threats may more often be hidden, dispersed, and distant, while their impact imminent, grave, and close.

New technologies, OSINT, and the fast and hardly predictable future can press the analyst in all phases of the intelligence process through these effects:

The nature of open source information: high quantity, diverse quality, growing importance. The analyst must be able to gather, judge, and sort information, know and handle limitations, understand different users, needs, tasks, information mix, organization, institutions, law. Open source cannot eliminate its deficiencies against secrets but can increase its value by better information structuring.

- Disproportionate nature of sources: varied character of information, availability, use, and style of use of new technologies in various geographical and sociological contexts (U.S. vs. poor countries, older vs. younger generations). Don't think they will all use new technologies in the same way as you.
- The nature and impact of new technologies: complex, fast, unpredictable. Even technology experts cannot predict where applications go. Paul Hodkinson mentions one interpretation that "[u]se depends on the context and motivation of users."⁵¹ The founder of Skype explained how different its use is from the initial intention to facilitate payments.⁵² Giddings and Lister mention radio "was first conceived, within already effective social systems, as an advanced form of telegraphy."⁵³
- Technology barriers: the analyst must continuously learn but can face technical obstacles, e.g., availability or quality of technology, cannot predict developments or understand some aspects, e.g., sophisticated, even random algorithms to organize and filter information through research tools (Google results, Facebook, deep web). They give you the information they decide to share. It is logical because they seek ways to sell their product but the analyst must find ways how to cope with this.

⁴⁸ Foreword to the first German edition, Vienna, Fall 1934, XV., Popper, Karl R., *Logic of Scientific Research*. Quotation taken from the Czech translation *Logika vedeckeho badani*. Praha 1997.

⁴⁹ Edward J. Glantz, "Guide to Civil War Intelligence," *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 18:2 (Winter/Spring 2011) 58.

⁵⁰ Foreword to the first German edition, Vienna, Fall 1934, XV., Popper, Karl R., *Logic of Scientific Research*. Quoted from the Czech translation *Logika vedeckeho badani*. Oikumene, Praha 1997.

⁵¹ Hodkinson, Paul, *Media, Culture, and Society* (London: SAGE, 2011): 29.

⁵² Bloomberg TV, January 2013.

⁵³ Giddings, Seth with Martin Lister (Editor), *The New Media and Technocultures Reader* (New York: Routledge, Taylor & Francis Group, 2011): 97.

- Cyberspace and cyberwar: the analyst must become cyberwarrior, understand cyberspace and increasingly be able to predict, prevent, detect, expose, evade, and fight hostile steps by many actors.
- The analyst's know-how and competencies: versatility, flexibility, rapidity, higher and increasing inter-disciplinary subject matter expertise and understanding socio-cultural, political, economic factors. Getting expert advice needs to be faster and more organized, integrating the variety of open sources.
- Education about OSINT and new technologies: real life, practically oriented, higher level, more practice, trends, examples, and the ability and certain way of technological thinking. The analyst has less and less time to provide a more and more complex yet concise analysis and, alongside substance, must understand new technologies. It is incomparable with the past when technology advances were slow and the analyst could do with the basic skillset changed little. The future analyst must do more than "passively waiting" for information, as Thomas Fingar put it.⁵⁴ The analyst, whose work increasingly centers on new technologies, needs to more often integrate collection, sorting, and analysis. Without technological competence and learning, the analyst would lag behind which would damage the intelligence process.
- Psychology: People tend to place too much confidence in technology, assuming it is a cure-all. The analyst must actively study and work to eliminate or minimize this bias.⁵⁵ Also, students' views often "are shaped by the news media, entertainment industry, blogs, wikis, social networks, and on occasion, even books."⁵⁶ However beneficial these may be, only professional education can equip the future analyst with the required quality of tools, a basis for thinking and actions.
- New technologies, society, intelligence, education, and U.S. primacy: the high and fast know-how and technology level throughout the world and decreasing amount of resources will require high, fast, and life-long education. Historically, in a village only a priest, a teacher, and say a mayor were more educated. Today, everybody's knowledge is higher. Similarly, new technologies will press the whole society to a higher level of knowledge, with the most educated with the highest responsibility.

Education is central but is increasingly driven by new technologies and by businesses. Societies and individuals lagging behind in know-how will become stoppers, create problems, and get into insurmountable opportunity barriers. Players with their own agenda trying to trade "secrets"

⁵⁴ Thomas Fingar, "A Guide to All-Source Analysis," *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 19:I (Winter/Spring 2012): 66.

⁵⁵ Best and Cumming analyze the analyst's obstacles in use of open sources: lack of subject matter expertise, bias against open source information, lack of training, no access to the internet, volume of information, analytic tools, echo effect, security practices; Richard A. Best, Jr. and Alfred Cumming, "Open Source Intelligence (OSINT): Issues for Congress," December 5, 2007, 9.

⁵⁶ Edward F. Mickolus, "A Guide to Popular Student Books on Intelligence. What do students think they know about intelligence before they walk into the classroom?" *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 19:I (Winter/Spring 2012): 67.

publicly available in open sources will cause their societies to lag behind. It is most visible in revolutions, wars, and top business but, due to new technologies, increasingly in peacetime and everyday lives. "[T]here often comes a time when public political activity proceeds at such a rapid and fulminating pace that secret intelligence, the work of agents, is overtaken by events publicly recorded."⁵⁷ The higher the know-how, skills, and tech savviness of open source analysts, leaders, and the population, the better pre-requisites for advancing America's leadership.

Conclusion: Strategic Imperatives

Why to teach about new technologies and OSINT?

New technologies created a new world. They changed the society, communication, and work. Their level, fast and hard to predict advance, impact with expanding the quantity and quality of publicly worldwide available information and technology and an ability to influence events, and our dependency on cyberspace create opportunities and threats for the society and the intelligence community, process, and education.

New technologies' impact on OSINT does not solve all intelligence needs and must not harm secrets or intelligence but increases OSINT's role, relative to both its past and secrets, and requires continuing analysis, not for prestige or contest but to use OSINT and secrets in their best ways to the benefit of the United States. New technologies' complex impact is the biggest change of information **paradigm** since the printing press.

Influencing the world requires understanding it and the competency Albert Einstein defined as science - "making the every-day thinking more accurate."⁵⁸ The criteria for judging **the value** of OSINT will be its ability to contribute to:

- Developing U.S. Power, Leadership, and prosperity through formulation and implementation of America's vision and influencing world events.
- Explaining and estimating other's intentions, attitudes, actions, and trends to avoid lack of understanding or knowledge, including strategic surprise.
- Defending U.S. National Security and Interest against other's actions through developing capabilities to detect, identify, analyze, prevent and defeat hostile intentions, threats, and action. John Collins says "[t]hree basic considerations dominate the threat-evaluation process:" capabilities (What *can* the enemy do?), intentions (What *will* the enemy do?), and vulnerabilities (enemy's weaknesses).⁵⁹

⁵⁷ The words of one veteran of the CIA's Directorate of Operations referring to the Soviet suppression of the Hungarian uprising; de Silva, Peer, *Sub Rosa: The CIA and the Uses of Intelligence* (New York: Times Books, 1978), 120; Stephen C. Mercado, "Sailing the Sea of OSINT in the Information Age. A Venerable Source in a New Era," 3, available at: <https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol48no3/article05.html>, April 14, 2007.

⁵⁸ Einstein, *Out of My Later Years*, 39.

⁵⁹ Collins, John M., *Grand Strategy. Principles and Practices* (Annapolis: Naval Institute Press, 1973): 9.

Who to teach?

Intelligence core will remain **the human mind**. The complexity of new technologies' impact requires involving the best talent and building institutional and individual know-how to which central is complex, inter-disciplinary, high, increasing, and continuing education. "Analysis is the most important aspect of intelligence."⁶⁰

What to teach?

To develop the best analysts, education must equally:

- Give them **competency** in best method and subject through theoretical and practical training, and
- Develop their **mindset**: open ways to **life-long** education,⁶¹ promote, teach, and show the right way to think about the rapidly changing world, events, trends, technologies, opportunities, threats, and limitations; help develop an approach to risk taking, curiosity, inventiveness, innovation spirit, creativity, entrepreneurship, hard work; motivate them, teach, and show them how to use new technologies; incorporate new developments and trends, including the ability to anticipate those from far future.

What are opportunities and obstacles to education overhaul to analyze and handle new technologies' consequences? New technologies create a new phase, following the 1957 Washington Platt's recommendation, as Stephen Marrin mentions, "that intelligence organizations adapt 'formal education followed by practical experience.'"⁶² Post-Cold War and post-9/11 changes followed, leading to, by Jon Wiant, growth of academic interest in intelligence and "significant expansion of intelligence courses and seminars."⁶³ The importance of new technologies is expressed also by growing attention to cyberspace. Can we find resources to systematically develop more educational programs about new technologies and analysis?

How to teach?

Education must provide:

- **Best educators**: The highest professional or academic credentials, best if they have both because their studies, research, and work in the other area greatly enhance their qualifications, basis, and potential. Many educators, as Peter Oleson says, "may not have

⁶⁰ Mark Lowenthal, "Intelligence Analysis. Guide to its Study," *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 18:3 (Summer/Fall 2011): 61.

⁶¹ I found the best educational benefits and experiences in an opportunity to learn in educational settings allowing intensive discussions and gathering all backgrounds and ages present as both instructors and colleagues. I also appreciated an opportunity to listen to the most experienced warriors, including those from the OSS and from the Cold War.

⁶² Stephen Marrin, "Why Teach About Intelligence," *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* (2012): 1.

⁶³ Jon A. Wiant, "A Guide to the Teaching About Covert Action," *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 19:2 (Summer/Fall 2012): 55.

had practical experience or exposure to the field."⁶⁴ This limitation will increase the need to combine their courses with intelligence practitioners.

- **Best educational institutions:** More schools, programs, or courses teaching analysis and related issues should be available. Successful can only be education fast adaptable (including curriculum), connecting theory and practice, inter-disciplinary, innovative, visionary, generating fresh ideas and solutions, with strong self-reflection and falsification capability, developing critical thinking, reaching out, with technological dimensions (as both an educational target and tool with on-line classes or dimensions of courses). Regarding technology, a great example is Professor Eugene Poteat's course Technology, Intelligence, Sciences, and Security.⁶⁵ Can we find resources for smaller, seminar-type courses?
- **Public awareness and knowledge:** Opportunities and threats in cyber realm are not a matter for intelligence professionals only but for the general public, too. Educating other industries and bringing educators to other educational institutions not specialized in new technologies and OSINT will help.
- **Collaborations, interactions, and mutual education:** These must develop between intelligence producers (analysts) and consumers (elected officials, policy planners), as I mention in my 2007 academic paper about the Great Debate of the 1940s,⁶⁶ or among government agencies and with private businesses, think tanks, media, public, across the globe. This is important for increasing harmony of the education path and national purpose.
- **English:** New technologies launch English into a new era of its central and unrivaled position. Despite the rise of other languages or translation software, English will increasingly become a common platform for information exchange in various contexts. As the level of know-how, the level of competency in English will decide about opportunities, position, and power.
- **Tools:** Develop technological solutions for better solving the "volume problem,"⁶⁷ in increasing quality able to gather and prepare, or indicate needs of, open sources for the intelligence process. Preparation means pre-sort (relevant vs. irrelevant) and pre-analyze (pre-structure, identify patterns, irregularities, gaps, trends) information. Kent's approach was criticized for being too wartime intelligence centric⁶⁸ but such criticism is wrong. General Donovan has proven the value of the precious wartime experience for developing the firm basis for successful peace-time intelligence. Analyzing and exploiting military

⁶⁴ Peter C. Oleson, "Getting Started. Initial Readings for Instructors on Intelligence." *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* 18:2 (Winter/Spring 2011): 47.

⁶⁵ Taught at the Institute of World Politics.

⁶⁶ Benes, Libor, *Intelligence and Policy: The Kent - Kendall Great Debate - and my take on it for now and future* (Washington, D.C.: The Institute of World Politics, November 2007).

⁶⁷ Stephen H. Campbell, "Guide to Intelligence in the Post-Cold War Period: Part II - The Impact of Technology," *The Intelligencer, Journal of U.S. Intelligence Studies, Association of Former Intelligence Officers* (2012).

⁶⁸ Willmoore Kendall, "The Function of Intelligence." *World Politics* I:4 (1949): 548.

and top business (Wall Street, etc.) experience is vital. Find ways to shape and estimate developments in open sources, keeping in mind William Casey's note about the changing character of intelligence priorities from OSS, through the first peaceful years concentrating on weapons estimates, to detection of subversion and economic aggression.⁶⁹

The other questions will lead, shape, and influence opportunities and threats linked to new technologies and OSINT. The right approach, education, and human and material resources will be increasingly needed to study and steer these factors to protect freedom, prosperity, and national security and to develop America's role as the leader of the free world.

⁶⁹ Casey, William and Herbert E. Meyer, *Scouting the Future* (Washington, D.C.: Regnery Gateway Publishing, 1989): 20.