INTELLIGENCE ANALYSIS

COGNITIVE BIAS, DIGITAL DISINFORMATION, AND STRUCTURED ANALYTIC TECHNIQUES

Randolph H. PHERSON*
Penelope MORT RANTA*

Abstract:

"In recent years, democracies have increasingly come under attack by perpetrators of Digital Disinformation"[1], also commonly referred to as Fake News. Manifestations of Digital Disinformation can range from Russia attempting to influence election outcomes to young entrepreneurs in Macedonia posting false stories for profit. In the absence of laws or international standards to regulate these online activities, the perpetrators have honed techniques that, intentionally or not, effectively manipulate popular perceptions by exploiting the cognitive biases, misapplied heuristics, and intuitive traps shared by all people. This article explores which of these cognitive limitations have proven the most effective to exploit. Key biases and misapplied heuristics the Russians and others have used to promote their agendas include: Confirmation Bias, Vividness Bias, Groupthink, and the Anchoring Effect. Examples of intuitive traps that can easily be manipulated through postings on social media include Judging by Emotion, Confusing Causality with Correlation, and Ignoring Inconsistent Information. „The best antidote for such manipulation is to employ more deliberate and purposeful thought processes as described by Daniel Kahneman in his book, Thinking Fast and Slow. Structured Analytic Techniques are effective in helping people recognize when they are being influenced by Digital Disinformation and in countering its impact". (see more on Pherson, June 2019)

Keywords: *Digital Disinformation, Fake News, Social Media, Cognitive Bias, Misapplied Heuristics, Intuitive Traps, System 2 Thinking, Structured Analytic Techniques*

* CEO Globalytica, LLC
* Expert Globalytica, LLC

[1] A first form of this material was published in 2019 as Pherson, Randolph H., "Deep fakes and digital disinformation a looming threat", Globalytica Volume 6. Issue 2, June 2019, http://www.globalytica.com/deepfakesanddigitaldisinformation/.

Introduction

The growing power of social media has made democratic processes increasingly vulnerable to perpetrators of Digital Disinformation. The attacks on Western democratic systems have come from a multitude of sources, ranging from young entrepreneurs in Macedonia posting false stories for profit to Russian active measures campaigns to undermine democratic institutions and influence electoral outcomes.

Unencumbered by commercial or legal constraints, international standards, or morality, perpetrators of Digital Disinformation have learned how best to exploit common cognitive limitations such as Confirmation Bias, Groupthink, and Judging by Emotion in ways that easily manipulate popular perceptions. History may show that we have greatly underestimated the political and social impact of these techniques because we did not understand how easily popular opinion can be manipulated by leveraging cognitive biases, misapplied heuristics, and intuitive traps.

Defining Digital Disinformation

Digital Disinformation can take many forms and has many proponents. The phrase commonly used in the public domain is **Fake News but** use of this term by the current US President to describe any news reporting critical of his administration has undermined its usefulness. One way to distinguish between forms of Digital Disinformation is to focus on the motives of the perpetrators. (Pherson and Mort Ranta, 2018)

- "**Entrepreneurial News**" or "**Fraud News**" is usually generated by an individual to mislead a reader for personal or financial gain; the purpose is to attract the viewer to ads and thereby generate revenue.
- "**Agenda-driven News**" or "**False News**" is purposely intended to mislead the reader, most often for partisan political or social purposes. The objective is to provide incorrect information that affirms the reader's biases and further hardens mental mindsets.

Other types of Digital Disinformation can be distinguished based on the source of the misinformation:

- **Unintentional Misinformation:** Inaccurate information that is spread by people lacking malicious intent, who often do not know or care if the information is factually incorrect.
- **Computer Propaganda:** Best defined as the use of algorithms, automation, and human curation to purposefully distribute misleading information over social media networks. (Woolley and Howard)
- **Deception:** The intentional action by a known adversary or competitor to influence the decisions or actions of the recipient to the advantage of the deceiver.
- **Active Measures:** Deception operations by a nation state that are intended to manipulate the perceptions or actions of individual decision makers, the public, and governments to influence elections and the broader course of world events.

For purposes of this discussion, this paper will use the term **Digital Disinformation,** which encompasses all these forms. Digital Disinformation is the purposeful propagation of incorrect information over social media platforms to manipulate and manage popular perceptions in a way that advantages the political and social agendas of the perpetrator.[2]

Explaining the Power of Digital Disinformation

Propaganda, deception, and active measures have been used by nation states and politicians—as well as advertisers—to influence the public for decades, if not centuries. Such efforts at perception management appear to have had greater impact in recent years, however, because**:**

[2] This phrase has also been adopted by the International Association for Media and Communication Research (IAMCR) as a preferred term for describing "Fake News". At its February 2018 Colloquium in Paris, IAMCR noted that Digital Disinformation touches many aspects of our lives, including the politics of climate change, globalization, feminism, health, science and many other concerns. It posits that Digital Disinformation threatens the integrity of knowledge and scientific reasoning. See: https://iamcr.org/clearinghouse/challenges_of_digital_disinformation

- The **breadth and volume** of misinformation has become staggering, owing to the power of social media platforms.
- The **speed** of the spread of disinformation is breathtaking as stories go "viral". An MIT study in *Science* documents that false rumors travel across the internet six times faster than factual stories. (Vosoughi, Roy, and Aral, 2018, 1146-1151)
- People are increasingly seeking **simple answers** to complex problems. Social network platforms usually present information in simplified form which makes the message more digestible but far less nuanced—and often inaccurate. (Shearer and Gottfried, 2017)

Incentives to use social media to manipulate popular perceptions have also increased dramatically because:

- "It is an easy way for anyone with internet access to make money.
- Thousands, if not millions, of people can be reached almost instantaneously.
- Perpetrators are rarely held accountable for what they have posted.
- Perpetrators can micro-target their messages to those most easily swayed and open to persuasion". (see more on Pherson, June 2019)

Increasing Susceptibility to Digital Disinformation

Another potential driver that would help explains the growing impact of Digital Disinformation is the susceptibility of people to false messaging. If an individual's first instinct when receiving a story over the internet is to share it immediately with friends because it proves they are "right," the odds are that the person most likely has been victimized by Digital Disinformation.

Perpetrators of Digital Disinformation know what is most likely to "stick" in the minds of their audiences. This "stickiness" is usually attributable to the exploitation of human vulnerabilities that are manifestations of underlying, omnipresent, and well-engrained cognitive biases, misapplied heuristics, and intuitive traps.

Cognitive biases are mental errors caused by humans' simplified information processing strategies. The human brain is conditioned to process information quickly because of the "Fight or Flight" impulse. As a result, people have developed "rules of thumb" or heuristics that help them quickly arrive at a solution that is good enough to solve the problem at hand but can also produce a solution that is not optimal.

These cognitive limitations often prevent people from accurately understanding reality even when all the needed data and evidence that would form an accurate view is available. More importantly, people generally are quick to form opinions. Once their minds are made up, they are highly resistant to changing their judgment or conclusion. Usually they are blind to data that is inconsistent with their existing conceptual framework, often dismissing such data as noise or simply ignoring it. Such initial, incorrect perceptions are likely to persist even after better information is available.

Perpetrators of Digital Disinformation know how to take advantage of these cognitive pitfalls. They can anticipate when a person is likely to fall victim to a cognitive bias or to misapply a heuristic, and they leverage this knowledge to increase the impact of their messaging.

Experts in false messaging, for example, are aware that people's perceptions of data are strongly influenced by their occupation, education, cultural values, and past experiences. People with different backgrounds will perceive information differently. Moreover, knowledge of someone's social media profile greatly facilitates the process of identifying how best to package misinformation to sway that person's thinking.

Exploiting Cognitive Biases: Perpetrators of misinformation over social media outlets can easily manipulate popular expectations by capitalizing on cognitive biases. Three of the most powerful biases to exploit are Confirmation Bias, Evidence Acceptance Bias, and Vividness Bias.[3]

[3] This paper was inspired in large part by observations made during the US presidential election in 2016; most of the examples in this paper were drawn from that campaign. Similar dynamics, however, have been observed in recent elections in France, Germany, and several other European states as well as the Brexit campaign in the UK. All would merit careful study to assess whether similar dynamics were in play.

Confirmation Bias: "Social media is a Confirmation Bias machine" (see more on Pherson, June 2019) Advertisers and marketers use a form of Confirmation Bias all the time. They know that people are predisposed to seek information – and products – that are consistent with already formed judgments, conclusions, and preferences. They track activities and purchases on the web and tailor messages and product offerings to match each individual's personal preferences.

An interesting game to demonstrate this dynamic is to ask a group of friends or family members to search the web on their individual cell phones or laptops for information on a given topic such as "Brexit", "the Pope", or even "umbrellas". Participants will be surprised to discover that much of what is delivered to the searcher differs from one person to another, reflecting their personal preference profiles.

In an election campaign, astute political operatives now can tailor political advertisements to specific audiences – and even individuals – seeking to reinforce the concerns or fears of members of this target cohort or influence the final vote tally. They know that people gravitate toward information that confirms what they already believe. Echo chambers are formed by exposing individuals only to information that reaffirms their views without challenge, and unchallenged beliefs can lead to ill-informed judgments and decisions. Social media is an ideal platform for creating such echo chambers. (Karsten and West, 2016)

Algorithms are created by Facebook and similar platforms to display only content that is likely to appeal to – and therefore generate clicks from – each individual user. During the 2016 US presidential election campaign, for example, Brad Parscale, the architect behind the Trump campaign's online ad operation, took advantage of the personalizing capabilities of social media platforms to tailor ads to individual users. Pascale came under scrutiny for micro targeting individuals with dark ads, or ads targeting an individual that disappear unless they are shared with others. These ads were designed to tell people what they wanted to hear – confirming their biases – and to attract the most clicks, thereby generating the most interest and more campaign donations. (Stahl, 2017)

Evidence Acceptance Bias: Digital Disinformation is often easy to accept at first because it is designed to catch people's attention and

stick in their minds. It is difficult to erase the impressions Digital Disinformation leaves on the mind, even after a false claim has been disproven. This is especially true when the false messaging plays into a narrative that recipients are already inclined to believe. This trap is called Evidence Acceptance Bias and is defined as accepting data as true unless it is immediately rejected when first reviewed. It occurs when the recipient focuses more on the coherence of the story than on the reliability of the data.

For example, during the US presidential campaign in 2016, Donald Trump tweeted that his opponent, Hillary Clinton, said terrorism was "not a threat to the nation" in some of her campaign emails that had been released to WikiLeaks. (Carroll, 2016) Trump portrayed Clinton as aloof and disconnected with the security concerns of the nation. He repeatedly labeled the former Secretary of State as "Crooked Hillary" whenever he referenced her. Although the terrorism claim was debunked by PolitiFact, an independent political fact checking site, the impression of Clinton as distant, crooked, and unconcerned about the safety of the nation was slowly engrained into a significant segment of the popular consciousness of the nation.

If recipients of unproven messages are unwilling to consider competing views or unaware of their own propensity for misjudgment, they can become narrow-minded and will stubbornly continue to accept disproved data. This response is even more pronounced if the incorrect data supports a narrative they are already inclined to believe.

Much the same dynamic has been in play with the phrase "Fake News" itself. The constant repetition of this refrain by the US President serves to reinforce this mostly unsupported narrative that the mainline media is biased and cannot be trusted to report the news accurately. Polls show that individuals are increasingly beginning to believe that this false – and constantly repeated – narrative must be true.

Vividness Bias: "The objective of much Digital Disinformation is to generate clicks because clicks lead to increased site traffic which leads to increased income from ad revenue and donations. The more salacious and outrageous the story, the more clicks are generated. Perpetrators of Digital Disinformation employ the Vividness Bias to increase clicks by focusing attention on vivid scenarios while ignoring

other possibilities or alternative hypotheses". (See more on Pherson, June 2019)

For example, one teenager in Veles, Macedonia made USD 27,000 in ad revenue during the 2016 US election campaign by posting false stories with titles such as "Obama Illegally Transferred DOJ Money to Clinton Campaign". (Smith and Banic, 2016) Such vivid stories stick in the minds of readers, even if they learn later that the stories are total fabrications. Once recipients become preoccupied with the vivid – and false or misleading – story, they are disinclined to consider alternative possibilities. As a result, they end up basing their decisions on incorrect or misleading impressions.

Leveraging Misapplied Heuristics

Perpetrators of Digital Disinformation have become masters of exploiting misapplied heuristics such as the Anchoring Effect, Groupthink, and Mental Shotgun.

Anchoring Effect: One widely disseminated headline during the 2016 US presidential election was "Pope Francis Shocks the World, Endorses Donald Trump". (Ritchie, 2016) The headline portrayed Trump as honorable and worthy to be president of the United States. The intended impact of the headline was to elevate popular perceptions of him from a "slick businessman" and a TV star to a noble candidate endorsed by a saint. The headline, however, was completely false.

When someone in a position of authority and trust appears to pass a judgment, people anchor their expectations to the initial information they receive. They fall victim to the Anchoring Effect, or accepting a given value of something unknown as a proper starting point for generating an assessment. "Once anchored on an assessment, people usually will adjust their views as they learn more. But if the initial assessment is highly skewed, even people's adjusted views will be influenced by first impressions, leading them to make decisions grounded in incorrect or misleading information. People are particularly susceptible to this trap if they are already predisposed to believe a certain idea". (see more on Pherson, June 2019)

Groupthink: Social media creates echo chambers that enable Groupthink, which is defined as choosing the option that most of the

group agrees with or ignoring conflicts within the group due to a desire for consensus. Accepting a "certain view without challenging it through critical thinking is especially easy when one is surrounded by others holding the same opinion". (See more on Pherson, June 2019)

Social media sites are designed to create an echo chamber for each individual user to display only that content that is agreeable to the user. Echo chambers both enable – and are enabled by – Groupthink, because they present the impression that everyone shares a certain view. They encourage quick, non-thorough research of a given topic. For example, the widespread Digital Disinformation story that prominent Democrats, including Hillary Clinton, were running a child sex trafficking network in 2016 out of a pizza parlor in Washington, DC spurred a nonsensical shooting. A man was so convinced by the narrative he read online that he drove from his home in North Carolina to the pizza parlor in Washington, DC and opened gunfire on the restaurant. (Kang and Goldman, 2016)

By limiting the diversity of the arguments and views people are exposed to, the Groupthink dynamic limits people's perspectives and understanding. Not only does Groupthink spur under-informed decisions, it can lead to a misperception of public opinion and hostility toward those with dissenting or different voices.

Mental Shotgun: Social media is the perfect vehicle for exploiting the tendency of people to fall victim to the Mental Shotgun heuristic. Most people are busy and tend to read the headlines or the lead sentence of a story and then move on to other stories. Or people hear a sound bite on TV and never have time to consider or seek out the evidence that provides the foundation for that story. When this happens, people have fallen victim to Mental Shotgun which is "a lack of precision and control while making assessments continuously. It leads to providing quick and easy answers to difficult questions". (See more on Pherson, June 2019)

This cognitive failing is easily exploited when legitimate stories are pirated and given new, misleading, or false headlines that do not match the accompanying stories. For example, a story boasting "Pepsi Stock Tanks after CEO Attacks Trump Supporters" received 77,000 likes on Facebook. The associated story was only tenuously related to the

title. (Willingham, 2016) Reading the headlines without the accompanying story leaves the reader with lasting impressions of what the article is imagined having said, even if the article provides no evidence or is completely unrelated to its misleading headline.

Headlines can create lasting impressions that are never challenged because people simply do not have enough time or interest to explore every story in depth. Failing to be diligent, people make misinformed decisions based on incorrect or inadequate information.

Capitalizing on Intuitive Traps

Intuitive traps are a newly recognized category of cognitive limitations. Analysts and members of the public often fall victim to mental mistakes or intuitive traps that are manifestations of more commonly recognized cognitive biases. They belong in the realm of practitioners of analysis and were first identified by Katherine Hibbs Pherson and Randolph H. Pherson in *Critical Thinking for Strategic Intelligence*. (Pherson, Hibbs and Pherson, 2017) Three intuitive traps that perpetrators of Digital Disinformation frequently exploit are Judging by Emotion, Confusing Correlation with Causality, and Ignoring Inconsistent Evidence.

Judging by Emotion: In the two years prior to the 2016 presidential election potential voters often said they could not vote for Hillary Clinton because she was "evil," "corrupt," or "a horrible person." When asked which positions she held that they disagreed with, the response often was that it did not matter because she was just a bad person. These interviews probably were a manifestation of a classic trap, judging by Emotion, which is defined as accepting or rejecting everything another person says because the analyst, or reader, likes or dislikes the person.

"Much of the visceral hatred evidenced in political campaigns is likely to be a product of successful Digital Disinformation operations". (Anderson and Rainie, 2017) The 2016 US elections provided one of the most dramatic examples of the power of melding social media, individual targeting strategies, and Digital Disinformation dissemination techniques to influence election outcomes – but certainly not the first.

Confusing Correlation with Causality: "Many people will easily jump to a conclusion that one variable cause another because they want it to be true or think that by citing the "connection" they can prove their beliefs or justify their positions. This trap of inferring causality inappropriately by assuming that correlation implies causation is a favourite tool of manipulators of social media". (see more on Pherson, June 2019) For example, in summer the consumption of ice cream at a lakeside resort will increase as will the number of drownings. But this does not necessarily mean that the increased consumption of ice cream was the cause of more drownings. Another example: a 99.9 percent correlation exists between the divorce rate in the state of Maine in the United States and the per capita consumption of margarine – a form of butter – in that state. (Tyler Vige) While a graph of the two variables appears to show an unmistakable relationship, there is no logical link between consuming more margarine and obtaining divorces.

For perpetrators of Digital Disinformation, this mental pitfall is easy to exploit. Perpetrators merely need to associate one of their Digital Disinformation themes with a recent trend and then rely on Confirmation Bias to spur readers to assume a connection, thereby driving the perpetrator's message home. People will often infer that a correlation between two variables also denotes causation, especially when presented with an alluring graph that appears to scientifically prove the claim. People will be even more inclined to confuse causality with correlation when they already tend to believe, or hope, that a causal relationship exists between the two variables.

Ignoring Inconsistent Evidence: As the debate in the UK has intensified over the fate of Brexit – and in the United States over the fate of the Trump Administration – the tendency of many people is to say, "I don't listen to the news anymore because I don't know what or who to believe". This is "the true metric for success for the practitioners of Digital Disinformation, when people believe there is no truth or that the real truth is unknowable". "When confronted with data that is inconsistent with one's world view, politics, or deeply held beliefs, the response is not to argue the facts but to avoid the discussion altogether" (see more on Pherson, June 2019) Cognitive dissonance sets in, and *Flight* emerges as a more comfortable path to pursue than *Fight*,

especially if the person believes he or she is likely to lose the argument. The result is to fall into the trap of Ignoring Inconsistent Evidence which is defined as discarding or ignoring information that is inconsistent with what one expects to see.

People hear and see what they want to hear and see, often regardless of the evidence. For example, one example of this type of Digital Disinformation was a report that "Ireland is now officially accepting refugees from America" in response to Donald Trump's election as president. Although the headline accompanying the story only mentioned a small island off Ireland's coast that has no say on Irish immigration policy, the story generated 810,000 Facebook engagements. (Ritchie, 2016) By ignoring data that is inconsistent with what one wants to believe, people simplify complex issues to justify their own positions. They maintain that their side is obviously correct, and the other side is simply irrational. People fail to consider that they may have overlooked information and therefore made judgments that are misinformed.

Seeking Remedies

Perpetrators of Digital Disinformation know that the best way to manipulate popular perceptions is to exploit well-engrained cognitive biases, misapplied heuristics, and intuitive traps. These inescapable cognitive limitations are powerful tools when used to reinforce Digital Disinformation stories. As Richards J. Heuer, Jr. argues, "Cognitive biases are similar to optical illusions in that the error remains compelling even when one is fully aware of its nature. Awareness of the bias, by itself, does not produce a more accurate perception". (Heuer, 2007, p. 112)

The best antidote to the scourge of Digital Disinformation is to employ Structured Analytic Techniques that help individuals recognize when they are being manipulated. Structured techniques provide people with methods they can use to avoid, overcome, or at least mitigate the impact of these cognitive pitfalls. Three Structured Analytic Techniques are particularly effective in helping to combat the scourge of Digital Disinformation (Pherson, 2019, pp. 5, 9, 19, 31, 43, and 53):

"Key Assumptions Check: Making explicit and questioning the assumptions that guide an analyst's interpretation of evidence and the reasoning underlying any particular judgment or conclusion.

Analysis of Competing Hypotheses: The evaluation of information that is consistent and inconsistent with a set of alternative hypotheses and the rejection of hypotheses with much inconsistent data.

Premortem Analysis and the Structured Self-Critique: A systematic process using brainstorming and checklist procedures to identify critical weaknesses in an argument and assess how a key analytic judgment could be spectacularly wrong".

Learning how to use these techniques and integrating them as habits of thinking into one's everyday life will help protect people from falling victim to Digital Disinformation. It is important, however, for people to recognize that they are not only naturally susceptible to Digital Disinformation postings on the internet but that they need to adopt new habits of thinking that prompt them to challenge their assumptions, consider alternative hypotheses, recognize inconsistent evidence, identify key drivers, and take time to reflect on the overarching context for what they read on the internet or hear in the news. (Pherson, 2013)

References:

1. Woolley, Samuel C. and Philip N. Howard, s.a, "Automation, Algorithms, and Politics/Political Communication, Computational Propaganda, and Autonomous Agents – Introduction". *International Journal of Communication*, no. 10(0), p. 9.
2. Soroush Vosoughi, Deb Roy, and Sinan Aral, 2018, "The Spread of True and False News Online". *Science* 359, no. 6380, pp. 1146-1151.
3. Elisa Shearer and Jeffrey Gottfried, 2017, "News Use Across Social Media Platforms 2017". *The Pew Research Center*, September 7, available at http://www.journalism.org/2017/09/07/news-use-across-social-media- platforms-2017/.
4. Jack Karsten and Darrell M. West, 2016, "Inside the Social Media Echo Chamber". *The Brookings Institute*, December 9, available at

https://www.brookings.edu/blog/techtank/2016/12/09/inside-the-social-media-echo-chamber/
5. Lesley Stahl, 2017, "Facebook 'Embeds,' Russia and the Trump Campaigns Secret Weapon". *CBS News*, October 8, available at https://www. cbsnews.com/news/facebook-embeds-russia-and-the-trump-campaigns-secret-weapon/
6. Lauren Carroll, 2016, "10 Misleading Trump Attack Lines from the WikiLeaks Email Dump". *PolitiFact*, October 17, available at https://www.politifact.com/truth-o-meter/article/2016/oct/17/10-misleading-trump-attack-lines-wikileaks-email-d/
7. Alexander Smith and Vladimir Banic, 2016, "Fake News: How a Partying Macedonian Teen Earns Thousands Publishing Lies". *NBC News*, last modified December 9, available at https://www.nbcnews.com/news/world/fake-news-how-partying-macedonian-teen-earns-thousands-publishing-lies-n692451
8. Hannah Ritchie, 2016, "Read All About It: The Biggest Fake News Stories of 2016". *CNBC News*, December 30, available at https://www. cnbc.com/2016/ 12/30/read-all-about-it-the-biggest-fake-news-stories-of-2016.html
9. Cecilia Kang and Adam Goldman, 2016, "In Washington Pizzeria Attack, Fake News Brought Real Guns". *New York Times*, December 5, available at https://www.nytimes.com/2016/12/05/business/media/comet-ping-pong-pizza-shooting-fake-news-consequences.html
10. AJ Willingham, 2016, "Here's How to Outsmart Fake News in Your Facebook Feed". *CNN*, November 18, available at https://www.cnn.com/2016/ 11/18/tech/how-to-spot-fake-misleading-news-trnd/index.html
11. Pherson, Katherine Hibbs and Randolph H. Pherson. 2017, „Critical Thinking for Strategic Intelligence". 2nd ed., Washington, DC: CQ Press/SAGE Publications.
12. Janna Anderson and Lee Rainie, 2017, "The Future of Truth and Misinformation Online". *The Pew Research Center*, October 19, available at http://www.pewinternet.org/2017/10/19/the-future-of-truth-and-misinformation-online/
13. Tyler Vigen, "Spurious Correlations", available at https://tylervigen.com/view_ correlation?id=1703
14. Hannah Ritchie, 2016, "Read All About It: The Biggest Fake News Stories of 2016". *CNBC News*, December 30, available at

https://www. cnbc.com/2016/ 12/30/read-all-about-it-the-biggest-fake-news-stories-of-2016.html

15. Heuer, Richards J. Jr., (2007), "Psychology of Intelligence Analysis". Reston, VA: Pherson Associates, LLC, p. 112.
16. Pherson, Randolph H., (2019) "Handbook of Analytic Tools and Techniques", 5th ed., Tysons, VA: Pherson Associates, LLC, pp. 5, 9, 19, 31, 43, and 53.
17. Pherson, Randolph H., 2013, "The Five Habits of the Master Thinker". Vol. 6, No. 3, *Journal of Strategic Security*, available at https:// scholarcommons. usf.edu/jss/vol6/iss3/5/
18. Pherson, Randolph H., "Deep fakes and digital disinformation a looming threat", *Globalytica Volume* no. 6. Issue 2, June 2019, available at http://www.globalytica.com/deepfakesanddigital disinformation/