



Pi Shaped Officers:

*Developing Naval Officers to Lead in the
Converged Cyberspace and
Electromagnetic Spectrum Domains*

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29 APRIL 2016*

Agenda

- Background
- Navy Posture
- Survey
- Recommendations

KAL
THE ECONOMIST
London
ENGLAND

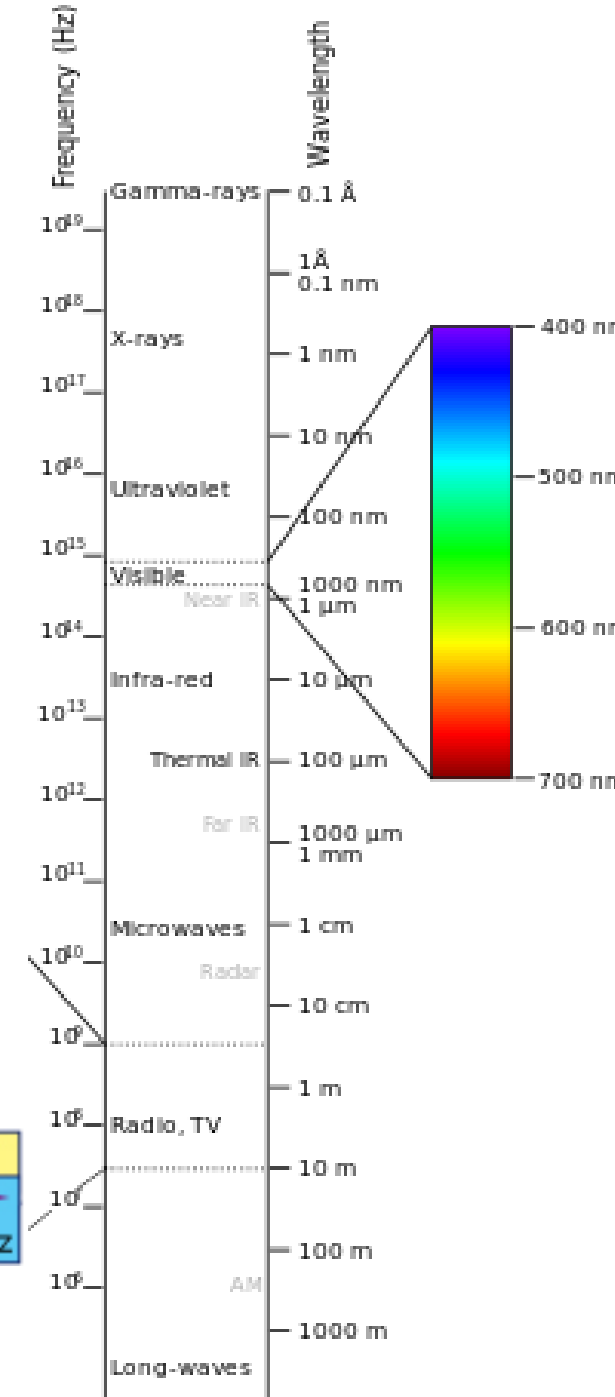
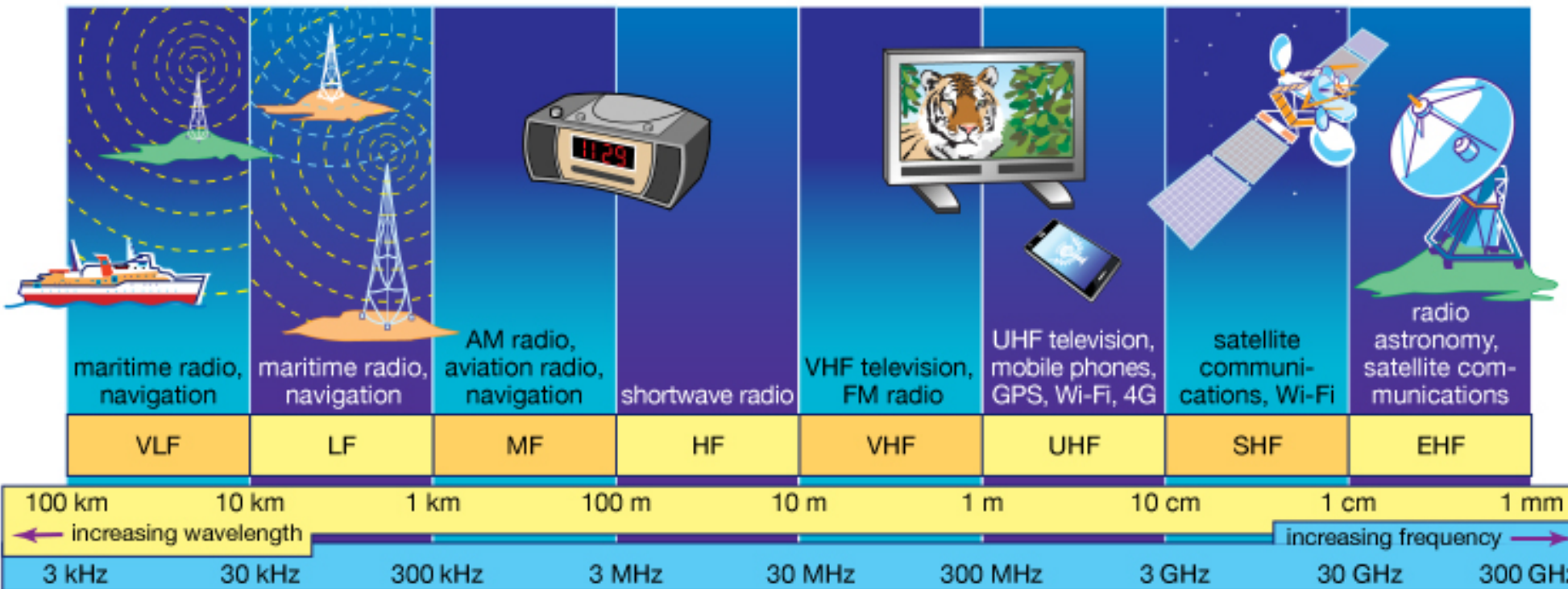


Navy View of EMS and Cyberspace

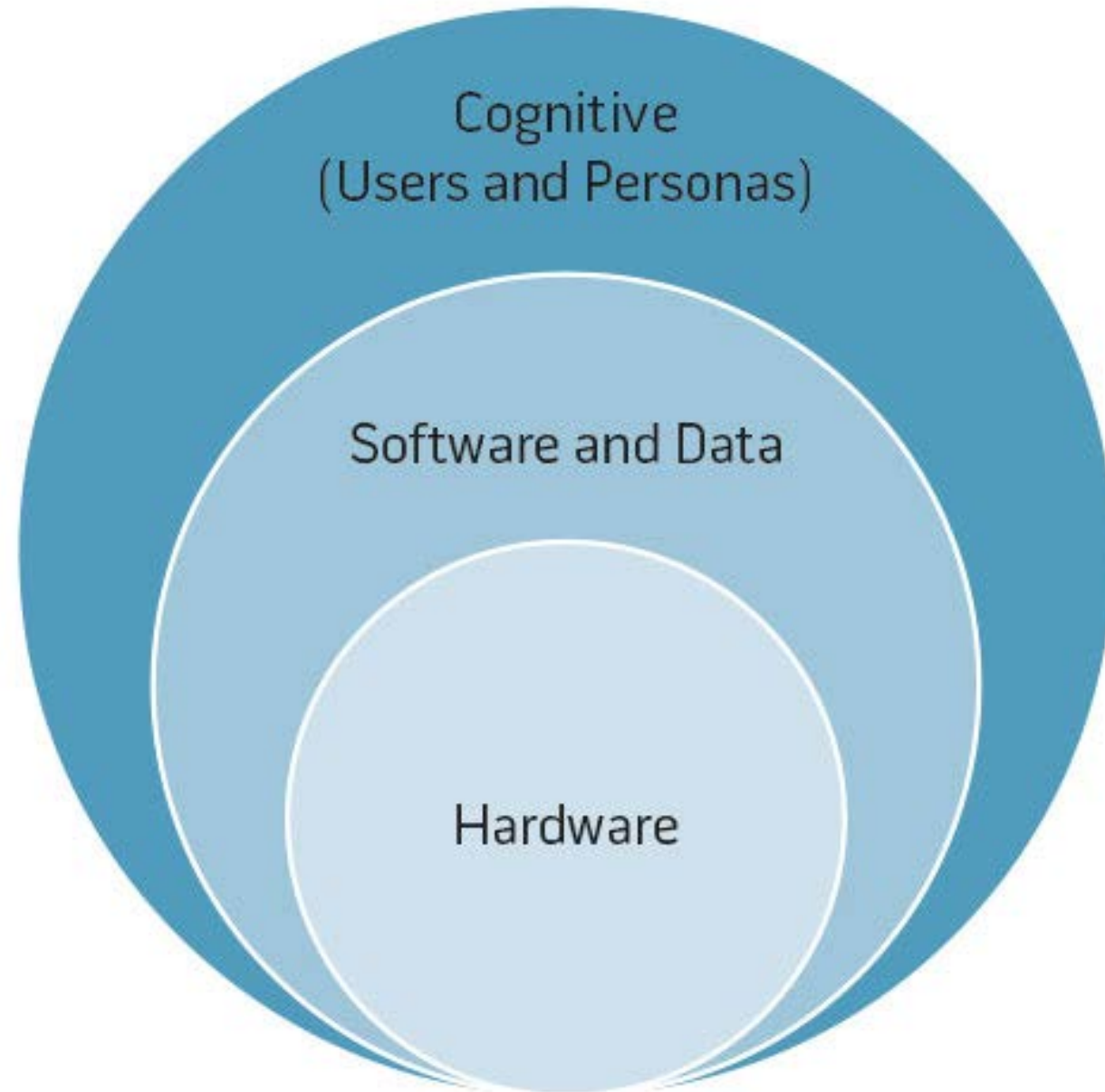
“All domain access... assures appropriate freedom of action in any domain—the sea, air, land, space, and *cyberspace*, as well as in the *electromagnetic spectrum*... the electromagnetic-cyber environment is now *so fundamental to military operations and so critical to our national interests that we must treat it as a warfighting domain* on par with sea, air, land, and space.”

-- Chief of Naval Operations, 2015 Cooperative Strategy for 21st Century Seapower

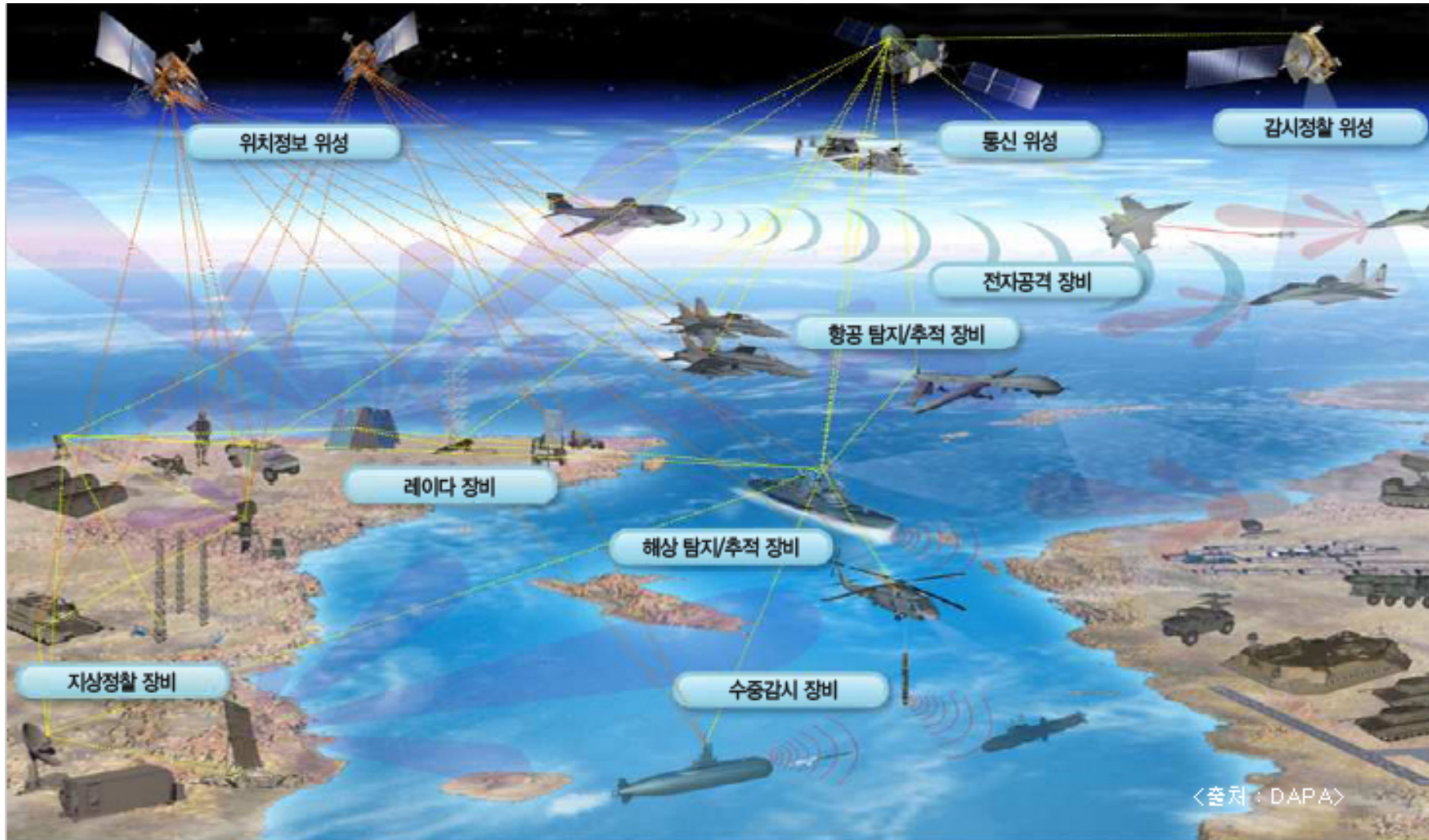
Electromagnetic Spectrum



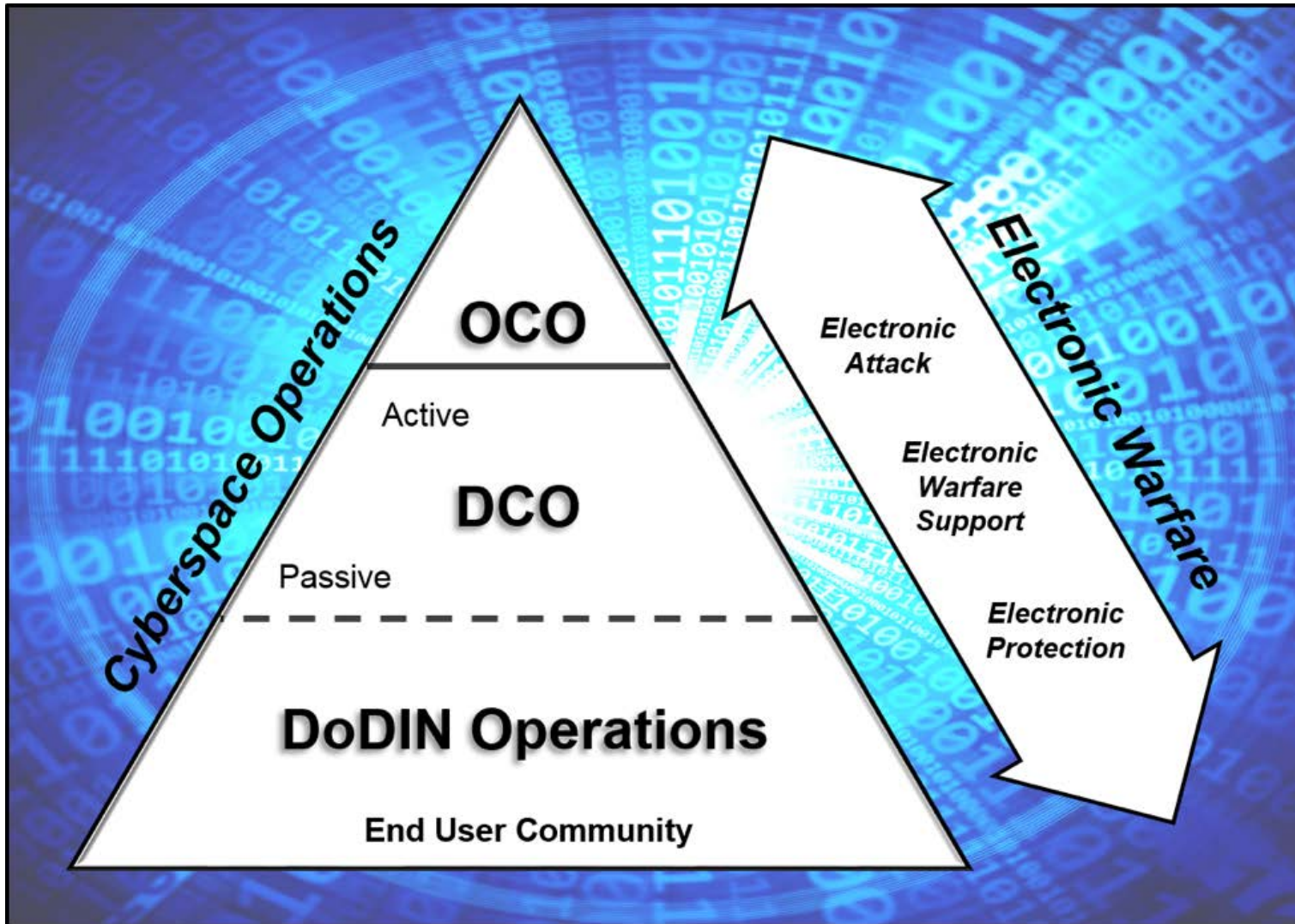
Cyberspace



In the Electromagnetic Spectrum



In Cyberspace



DoD Cyberspace Growth



Navy Cryptologic Warfare Officer

- **1948**- Cryptologic Officer Community established; NSG established 1950
- **2005**- Transitioned to Information Warfare Officer; NSG disestablished & replaced by NNWC
- **2009/2010**- Information Dominance Corps created; OPNAV N2/N6 merged; Fleet Cyber Command established; TENTH FLEET re-established
- **2011**- Cryptologic Community Foundational Principles Published
- **2016**- Cryptologic Warfare Officer Community “Re”-established



Foundational Principles

- “Unify the efforts of the Cryptologic Community”
- “deliver value by deliberately developing *deep, specialized expertise*”
- “SIGINT... EW... CYBER”



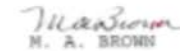
Collaborative leadership is a powerful tool and in that spirit, we offer the attached document for your consideration. It was written by a group of passionate junior officers and senior enlisted Sailors and is fully endorsed across the IM/CT Community Flag Deck. The words did not originate with us, but our commitment to them will be unambiguous:

- Cultivate Specialized Expertise
- Take Collective Ownership
- Invest in Core Competencies
- Foster External Partnership

We expect that our collective actions as a community will be aligned with these guiding principles, as well as the overall culture outlined in the document, and we ask you to hold each of us accountable for the same. The perception of our actions being misaligned with these words would be counter-productive, so we ask for honest, constructive, and regular feedback. Tell us what we need to hear, not what you think we want to hear, and we ask that you make the same philosophy clear to those under your charge.

Please make time to read this document and discuss it with your peers, seniors, and subordinates. Don't let this document be a piece of "shelf-ware". We must each do our part to turn these words into meaningful action.

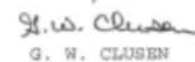

W. S. ROGERS


M. A. BROWN


W. E. LEIGHER


S. R. FILIPOWSKI


J. E. FIGHE


G. W. CLUSEN


W. L. METTS


J. P. RAPIH


M. D. NEIGHBORS

Specialist vs Generalist?

Generalist



vs.



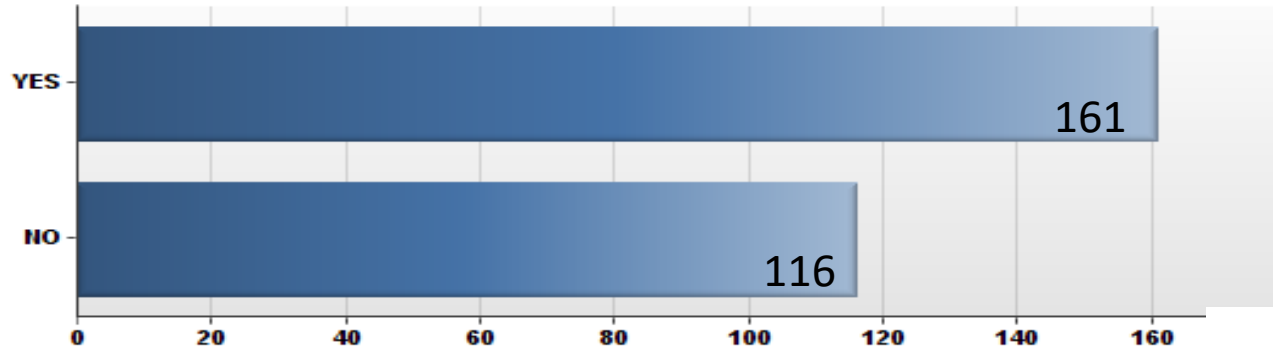
Specialist

Survey Background

- Focused on:
 - Understanding of Cryptologic Community strategic guidance
 - Understanding of Cryptologic Community Foundational Principles
 - Perception of Generalist/Specialist requirements in core competencies
- O4 and below Cryptologic Warfare Officers
- Jan/Feb 2016 (30 days)
- 277 Respondents

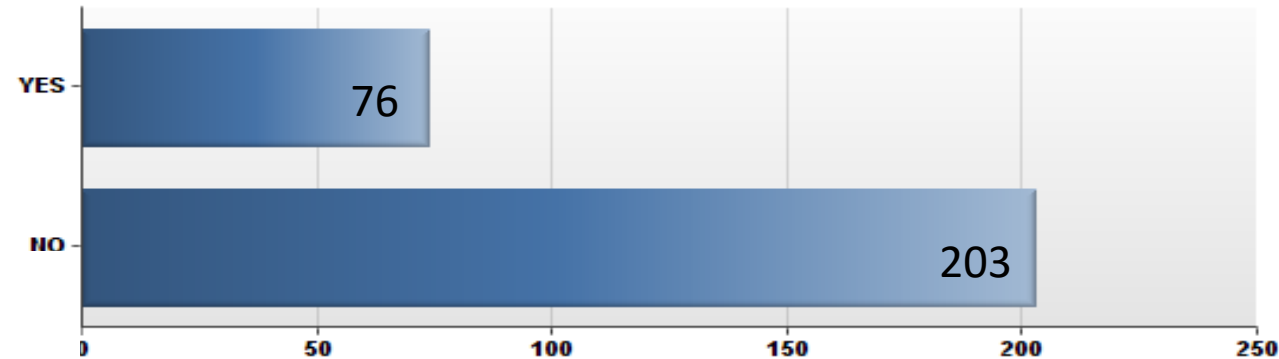


Survey Results

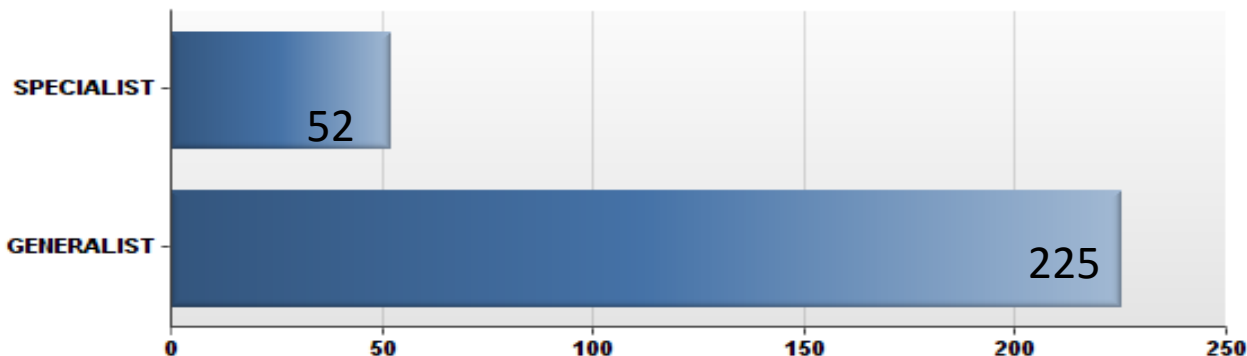


Do you feel you have received clear guidance from Information Warfare Community leadership regarding the expectation of being a Generalist vs being a Specialist as an Information Warfare Officer (1810/681X)?

Have you read the 2011 Cryptologic Community Foundational Principles?

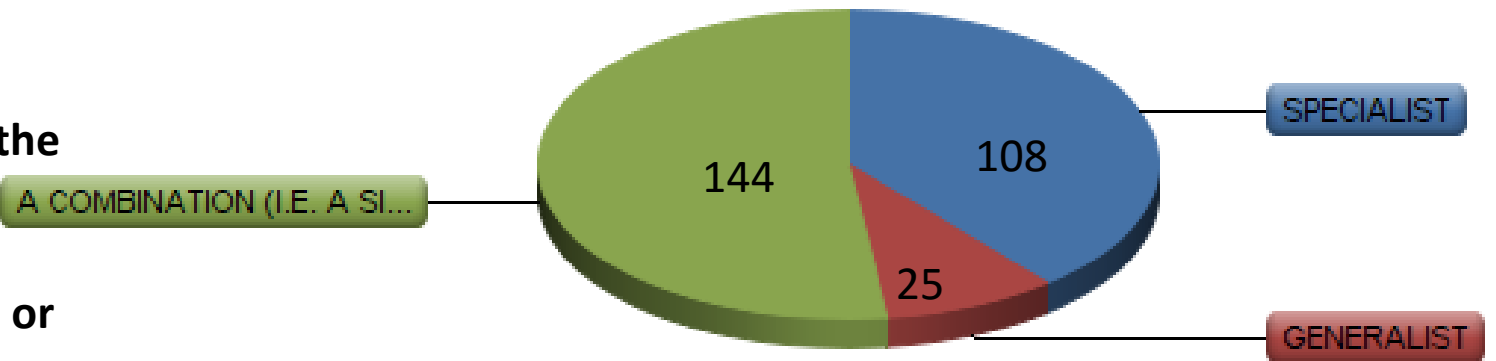


Do you feel the Information Warfare Community desires an Information Warfare Officer (1810/681X) to be a specialist or generalist?



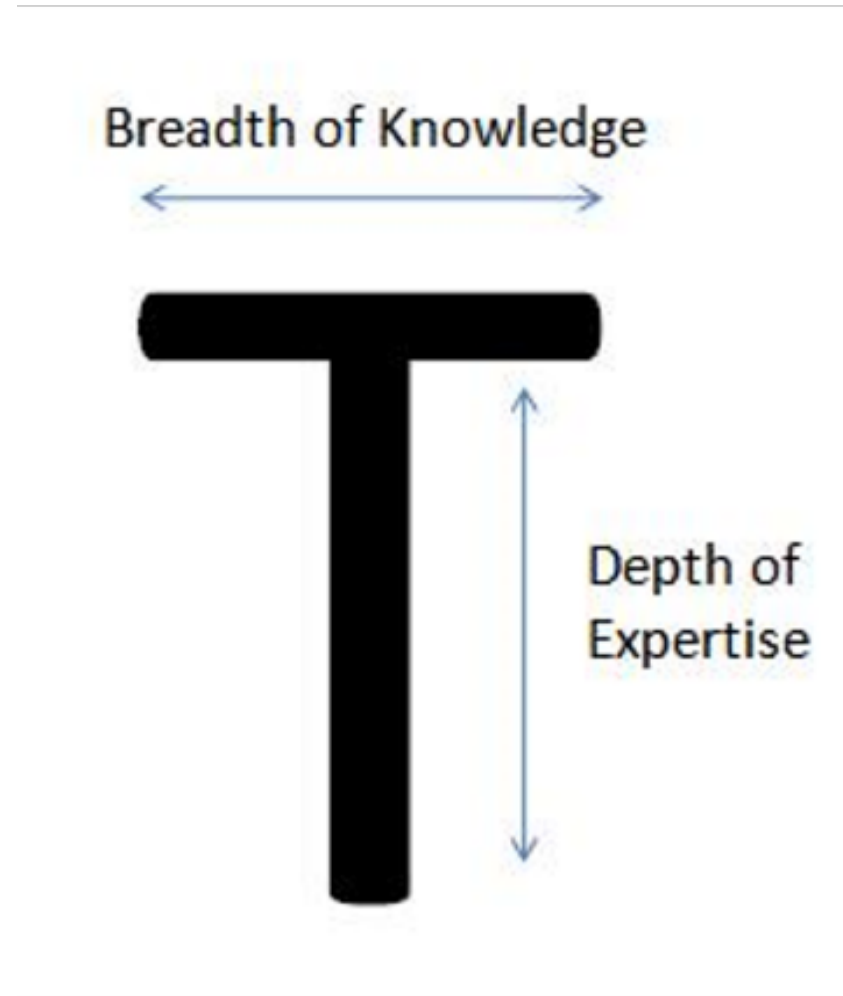
Survey Results Continued

If you were creating the model for the future Navy Information Warfare (1810/681X) Officer, would you advocate for them to be Specialists or Generalists?

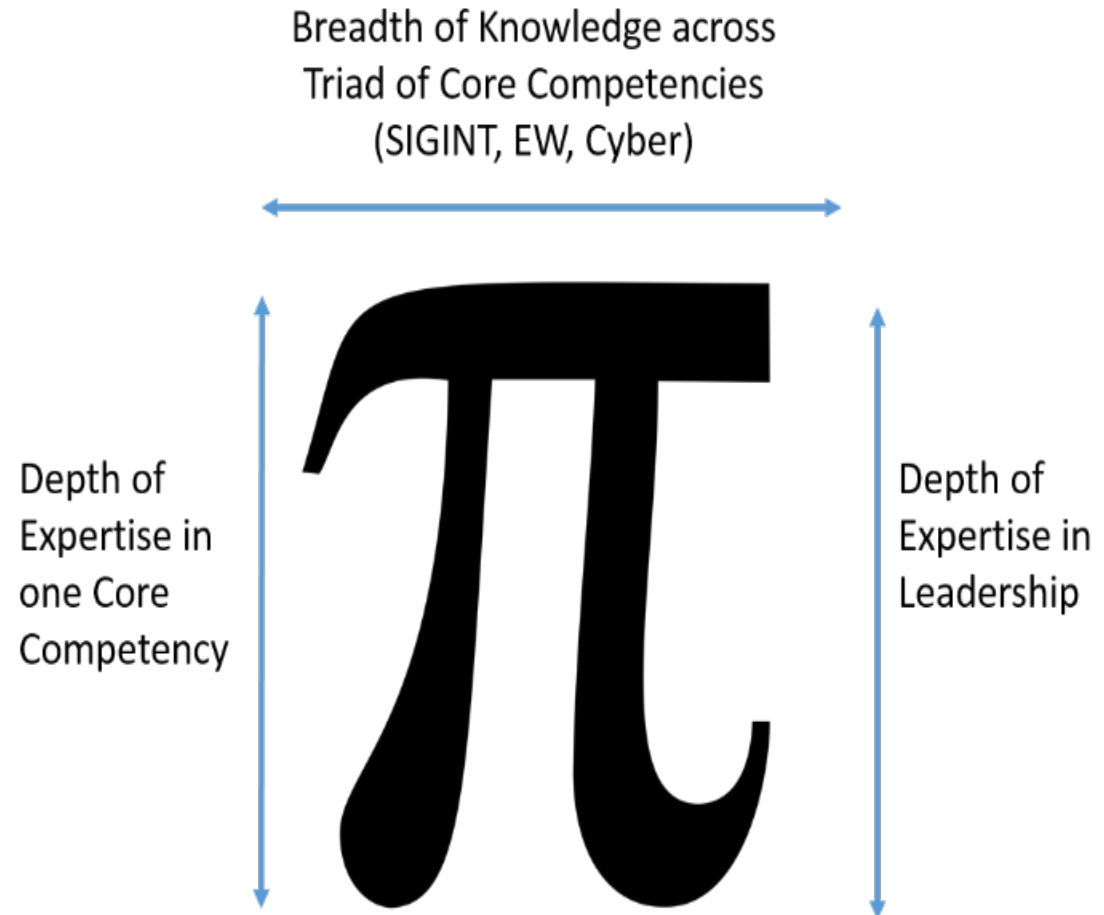
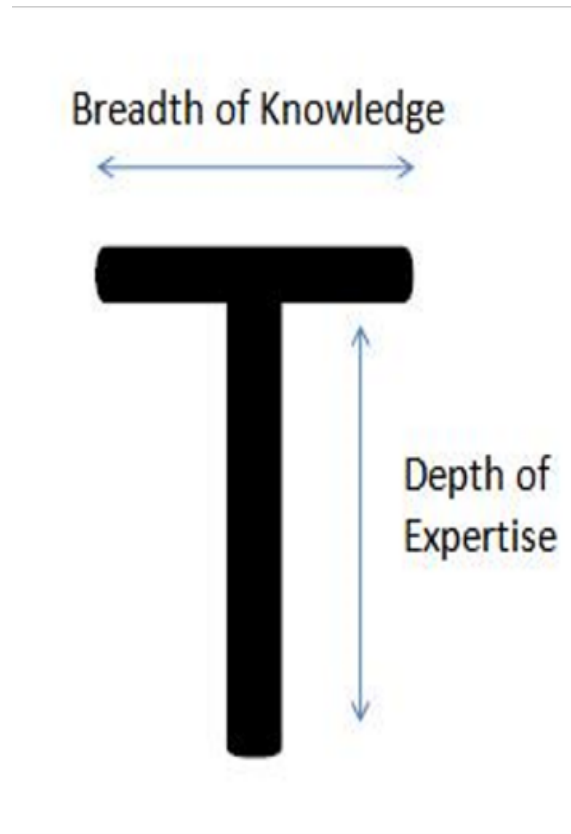


Recommendation

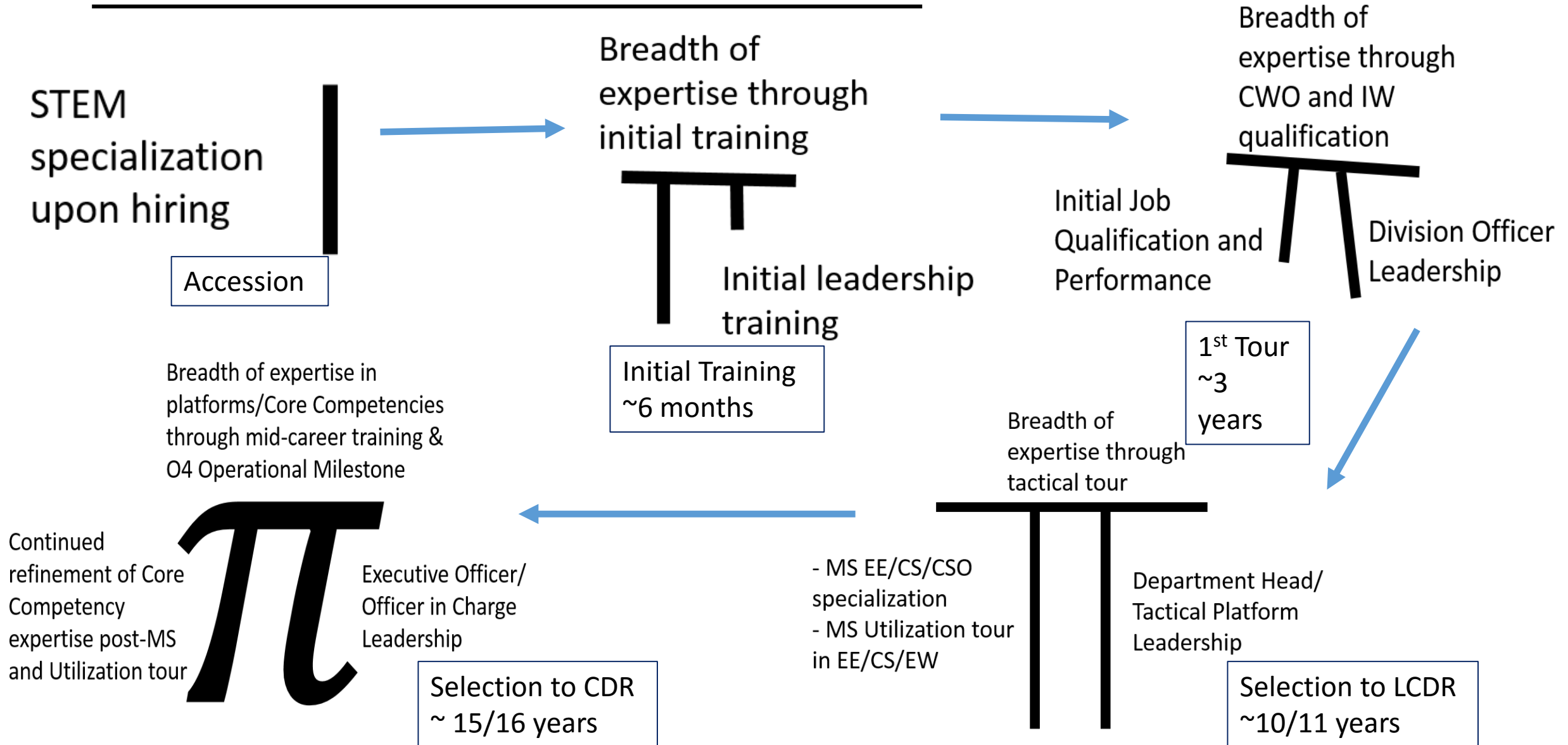
- David Guest-- 1991
- T-shaped employee
- Generalizing-Specialist



Recommendation continued



Recommendation continued



Sources of Images Included in Presentation

- **Slide 2:** <https://www.google.com/imgres?imgurl=https%3A%2F%2Fthestateofthecentury.files.wordpress.com%2F2013%2F01%2Fthe-future-of-security-from-the-economist.jpg&imgrefurl=http%3A%2F%2Fworldoregon.org%2Fsystem%2Ffiles%2Fmultimedia%2Ffile%2Fevents-and-programs%2Fpeter-w-singer-opens-2015-international-speaker-series-with-the-future-of-war%2Fpeterwsinger.pdf&docid=7TcBHb7FNShmxM&tbnid=SdPyl2LfCAHQmM%3A&w=555&h=359&bih=498&biw=1093&ved=0ahUKEwjVveHiw6rMAhUHWx4KHRtoCZMQMwgdKAAwAA&iact=mrc&uact=8>
- **Slide 4:** http://www.fsec.ucf.edu/en/education/k-12/curricula/sm3/documents/SM3-11-ElectromagneticSpectrum_WebVersion.pdf
<http://www.britannica.com/science/radio-frequency-spectrum>
- **Slide 5:** <http://ndupress.ndu.edu/Media/News/NewsArticleView/tabid/7849/Article/577560/jfq-75-the-limits-of-cyberspace-deterrence.aspx>
- **Slide 6:** http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0ahUKEwi_gY_EyKrMAhUFIB4KHaJbCSkQjRwlBw&url=http%3A%2F%2Fwww.taconic.co.kr%2Fpages%2Fsub03_02.php&psig=AFQjCNH7Qjk1gUi52Hb4cYcFh8NunVARjw&ust=1461700387724246
- **Slide 7:** <http://www.cyberdefensereview.org/2015/12/10/mission-command-primer/>
- **Slide 10:** <http://seanheritage.com/wp-content/uploads/2012/05/20110907CryptologicCommunityFoundationalPrinciples.pdf>
- **Slide 11-:** <http://www.m3design.com/m3-design-journal/generalists-vs-specialists/>
- **Slide 15:** <http://theapprenticeacademy.co.uk/blog/t-shaped-how-to-be-an-adaptable-collaborative-valuable-employee/>
- **Slide 19-:** <https://twitter.com/infosecnewsbot/status/280549482934984705>

Discussion

