Some context for the Defense Innovation Initiative

Jack Poulson
Tech Inquiry
Cornell, February 28, 2020
Overview

Giving this talk in an academic setting, particularly to many applied mathematicians, is uncomfortable:

• This work was born out of deep concern over systemic human rights violations from US companies, not a desire to develop technical tools or publish papers.

• I threw in a sprinkle of math as a means of exploring the vast landscape of federal contractors – please don’t take that as the meat of this talk.

• Again, this is not a math talk.

Nevertheless, computational mathematicians are, whether they like it or not, pulled into the stew of issues that I will raise, whether they fund their academic work from DOE/DOD, work in a national lab, or go to a tech company.

And you invited me...so here I am.
Overview

Giving this talk in an academic setting, particularly to many applied mathematicians, is uncomfortable:

• This work was born out of deep concern over systemic human rights violations from US companies, not a desire to develop technical tools or publish papers.

• I threw in a sprinkling of math as a means of exploring the vast landscape of federal contractors – please don’t take that as the meat of this talk.

• Again, this is not a math talk.

Nevertheless, computational mathematicians are, whether they like it or not, pulled into the stew of issues that I will raise, whether they fund their academic work from DOE/DOD, work in a national lab, or go to a tech company.

And you invited me...so here I am.
Overview

Giving this talk in an academic setting, particularly to many applied mathematicians, is uncomfortable:

- This work was born out of deep concern over systemic human rights violations from US companies, not a desire to develop technical tools or publish papers.

- I threw in a sprinkling of math as a means of exploring the vast landscape of federal contractors – please don’t take that as the meat of this talk.

- Again, this is not a math talk.

Nevertheless, computational mathematicians are, whether they like it or not, pulled into the stew of issues that I will raise, whether they fund their academic work from DOE/DOD, work in a national lab, or go to a tech company.

And you invited me...so here I am.
Overview

Giving this talk in an academic setting, particularly to many applied mathematicians, is uncomfortable:

- This work was born out of deep concern over systemic human rights violations from US companies, **not** a desire to develop technical tools or publish papers.
- I threw in a sprinkling of math as a means of exploring the vast landscape of federal contractors – please don’t take that as the meat of this talk.
- Again, this is **not** a math talk.

Nevertheless, computational mathematicians are, whether they like it or not, pulled into the stew of issues that I will raise, whether they fund their academic work from DOE/DOD, work in a national lab, or go to a tech company.

And you invited me...so here I am.
Overview

Giving this talk in an academic setting, particularly to many applied mathematicians, is uncomfortable:

• This work was born out of deep concern over systemic human rights violations from US companies, not a desire to develop technical tools or publish papers.

• I threw in a sprinkling of math as a means of exploring the vast landscape of federal contractors – please don’t take that as the meat of this talk.

• Again, this is not a math talk.

Nevertheless, computational mathematicians are, whether they like it or not, pulled into the stew of issues that I will raise, whether they fund their academic work from DOE/DOD, work in a national lab, or go to a tech company.

And you invited me...so here I am.
Overview

Giving this talk in an academic setting, particularly to many applied mathematicians, is uncomfortable:

• This work was born out of deep concern over systemic human rights violations from US companies, not a desire to develop technical tools or publish papers.

• I threw in a sprinkling of math as a means of exploring the vast landscape of federal contractors – please don’t take that as the meat of this talk.

• Again, this is not a math talk.

Nevertheless, computational mathematicians are, whether they like it or not, pulled into the stew of issues that I will raise, whether they fund their academic work from DOE/DOD, work in a national lab, or go to a tech company.

And you invited me...so here I am.
Some nuanced anti-regulation arguments

April 2018

ZUCKERBERG:

And when I brought up the Chinese internet companies, I think that that's a real -- a real strategic and competitive threat that, in American technology policy we (inaudible) should be thinking about.

May 2019
Some nuanced anti-regulation arguments

April 2018

ZUCKERBERG:

And when I brought up the Chinese internet companies, I think that that's a real -- a real strategic and competitive threat that, in American technology policy we (inaudible) should be thinking about.

May 2019

Facebook’s latest reason it shouldn’t be broken up: Chinese companies will dominate

Sheryl Sandberg's explanation is conspicuously well timed.

By Emily Stewart | emilystewart@vox.com | May 20, 2019, 4:00pm EDT
Some nuanced anti-regulation arguments

April 2018

ZUCKERBERG:

And when I brought up the Chinese internet companies, I think that that's a real -- a real strategic and competitive threat that, in American technology policy we (inaudible) should be thinking about.

May 2019

Facebook’s latest reason it shouldn’t be broken up: Chinese companies will dominate

Sheryl Sandberg’s explanation is conspicuously well timed.

By Emily Stewart | emilystewart@vox.com | May 20, 2019, 4:00pm EDT

May 2019

Big Tech: Breaking Us Up Will Only Help China

Amid escalating tension with China, executives at Google and Facebook argue that tough regulations against tech will hurt US competitiveness.
Silicon Valley & Great Power Competition


Silicon Valley & Great Power Competition


The First Offset / “New Look”

[1950s] portable nuclear weapons (like Davy Crockett) were developed for NATO [1949] to counter larger Soviet, then Warsaw Pact [1955], forces in Europe.¹

Developing and deploying technical capabilities – i.e., miniaturized nukes – to counter an enemy advantage for the nominal purpose of deterrence would come to be known as an offset strategy.

The First Offset / “New Look”

[1950s] portable nuclear weapons (like Davy Crockett) were developed for NATO [1949] to counter larger Soviet, then Warsaw Pact [1955], forces in Europe.¹

Developing and deploying technical capabilities – i.e., miniaturized nukes – to counter an enemy advantage for the nominal purpose of deterrence would come to be known as an offset strategy.

Deputy Def Sec William Perry sought to counter larger Warsaw Pact forces by “arm[ing]...battle networks with...”,
“extended-range precision-guided munitions, stealth aircraft, and new intelligence, surveillance, and reconnaissance platforms.”

This included GPS and Airborne Warning And Control Systems (AWACS).

---

2 smallwarsjournal.com/jrn1/art/role-offset-strategies-restoring-conventional-deterrence
3 www.defense.gov/Newsroom/Speeches/Speech/Article/606635/
Battle Networks and the Third Offset

“The first modern battle network was the British home air defense network assembled at the start of WW2. Like all battle networks that followed, it had four interconnected grids…”

4 smallwarsjournal.com/jrnl/art/role-offset-strategies-restoring-conventional-deterrence
Battle Networks and the Third Offset

“It had a sensor grid with radars, aircraft spotters and in the later stages of the campaign, electronic intelligence capabilities, all designed to sense the battlespace.”\(^5\)

\(^5\) smallwarsjournal.com/jrn1/art/role-offset-strategies-restoring-conventional-deterrence
“It had an enormous command, control, communications and intelligence (C3I) grid consisting of hardened underground command posts connected by radio and telephone that worked to make sense of what the enemy was doing, facilitate command decisions, and transmit orders to friendly forces.”

---

6 smallwarsjournal.com/jrnl/art/role-offset-strategies-restoring-conventional-deterrence
“It had an **effects grid** consisting of Spitfire and Hurricane fighter squadrons, antiaircraft weapons, barrage balloons and electronic warfare capabilities designed to achieve the specific combat outcomes directed by the C3I grid.”

---

7 smallwarsjournal.com/jrnl/art/role-offset-strategies-restoring-conventional-deterrence
Battle Networks and the Third Offset

“And it had a **sustainment and regeneration grid** that allowed the British to continue fighting and restore combat losses.”

---

8 smallwarsjournal.com/jrnl/art/role-offset-strategies-restoring-conventional-deterrence
Battle Networks and the Third Offset

The Third Offset would focus on the incorporation of AI/ML into US battle networks, which would coordinate Joint Forces.⁹

“In 2012, [Ash Carter] established [SCO] to work on state-of-the-art weapons...ranging from swarming microdrones to hypervelocity projectiles”

“[DARPA] is [prototyping] for the future fight, the SCO tries to understand current needs and...[modify] existing systems”

[March 2018] “DARPA is pursuing [hypersonics] aggressively and with a particular sense of urgency due to the rising pace of related research by peer adversaries”.

[August 2019] SCO moving to DARPA

---

10 foreignpolicy.com/2017/12/18/the-pentagons-third-offset-may-be-dead-but-no-one-knows-what-comes-next/
“In 2012, [Ash Carter] established [SCO] to work on state-of-the-art weapons...ranging from swarming microdrones to hypervelocity projectiles”¹⁰

“[DARPA] is [prototyping] for the future fight, the SCO tries to understand current needs and...[modify] existing systems”¹¹

[March 2018] “DARPA is pursuing [hypersonics] aggressively and with a particular sense of urgency due to the rising pace of related research by peer adversaries”.¹²

[August 2019] SCO moving to DARPA¹³

“In 2012, [Ash Carter] established [SCO] to work on state-of-the-art weapons...ranging from swarming microdrones to hypervelocity projectiles”\(^{10}\)

“[DARPA] is [prototyping] for the future fight, the SCO tries to understand current needs and...[modify] existing systems”\(^{11}\)

[March 2018] “DARPA is pursuing [hypersonics] aggressively and with a particular sense of urgency due to the rising pace of related research by peer adversaries”.\(^{12}\)

[August 2019] SCO moving to DARPA\(^{13}\)

\(^{10}\)foreignpolicy.com/2017/12/18/the-pentagons-third-offset-may-be-dead-but-no-one-knows-what-comes-next/


Hagel and Carter’s Third Offset

In 2001, Ash Carter wrote “Keeping America’s Military Edge”, pointing out the transition in relative R&D expenditures from gov to commercial sector.  


“Technologies and weapons that were once the exclusive province of advanced nations have become available to a broad range of militaries and non-state actors...Russia and China have been heavily investing in...aircraft, submarines...anti-ship and air-to-air missiles, counter-space, cyber, electronic warfare”

---

14 www.foreignaffairs.com/articles/united-states/2001-01-01/keeping-americas-military-edge
15 www.defense.gov/Newsroom/Speeches/Speech/Article/606635/
Hagel and Carter’s Third Offset

In 2001, Ash Carter wrote “Keeping America’s Military Edge”, pointing out the transition in relative R&D expenditures from gov to commercial sector.\textsuperscript{14}


“Technologies and weapons that were once the exclusive province of advanced nations have become available to a broad range of militaries and non-state actors...Russia and China have been heavily investing in...aircraft, submarines...anti-ship and air-to-air missiles, counter-space, cyber, electronic warfare”\textsuperscript{15}

\textsuperscript{14}www.foreignaffairs.com/articles/united-states/2001-01-01/keeping-americas-military-edge

\textsuperscript{15}www.defense.gov/Newsroom/Speeches/Speech/Article/606635/
Hagel and Carter’s Third Offset

In 2001, Ash Carter wrote “Keeping America’s Military Edge”, pointing out the transition in relative R&D expenditures from gov to commercial sector.\textsuperscript{14}


“Technologies and weapons that were once the exclusive province of advanced nations have become available to a broad range of militaries and non-state actors...Russia and China have been heavily investing in...aircraft, submarines...anti-ship and air-to-air missiles, counter-space, cyber, electronic warfare”\textsuperscript{15}

\begin{flushleft}
\textsuperscript{14}www.foreignaffairs.com/articles/united-states/2001-01-01/keeping-americas-military-edge
\textsuperscript{15}www.defense.gov/Newsroom/Speeches/Speech/Article/606635/
\end{flushleft}
Search Subversion and Operation Aurora

[Jan. 27, 2006] Eric Schmidt on proactively censoring Google Search in China: “We actually did an Evil-Scale and...we decided this was less evil...there are millions of people in China who...will benefit from using our products.”

[March 30, 2010] Sergey Brin: “The [Operation Aurora] hacking attacks were the straw that broke the camel’s back...which we believe [were] an attempt to gain access to Gmail accounts of Chinese human rights activists.”

[Jan 25, 2010] Bill Gates: “[Google has] done nothing and gotten a lot of credit...What point are they making? If Google ever chooses to pull out of the United States, then I’d give them credit.”

Microsoft had just begun censoring Bing in mainland China (and still does).

Google sells lessons learned from Aurora to startups via Alphabet’s Chronicle (which also owns VirusTotal).

---

16 money.cnn.com/2006/01/27/news/international/davos_3_fortune/
17 www.spiegel.de/international/business/google-co-founder-on-pulling-out-of-china-it-was-a-real-step-backward-a-686269.html
18 bits.blogs.nytimes.com/2010/01/25/microsofts-bill-gates-defends-google-then-pans-it
20 www.nytimes.com/2019/03/04/technology/google-chronicle-alphabet.html
Search Subversion and Operation Aurora

[Jan. 27, 2006] Eric Schmidt on proactively censoring Google Search in China: “We actually did an Evil-Scale and...we decided this was less evil...there are millions of people in China who...will benefit from using our products.”

[March 30, 2010] Sergey Brin: “The [Operation Aurora] hacking attacks were the straw that broke the camel’s back...which we believe [were] an attempt to gain access to Gmail accounts of Chinese human rights activists.”

[Jan 25, 2010] Bill Gates: “[Google has] done nothing and gotten a lot of credit...What point are they making? If Google ever chooses to pull out of the United States, then I’d give them credit.”

Microsoft had just begun censoring Bing in mainland China (and still does).

Google sells lessons learned from Aurora to startups via Alphabet’s Chronicle (which also owns VirusTotal).

---

16 money.cnn.com/2006/01/27/news/international/davos_3_fortune/
17 www.spiegel.de/international/business/google-co-founder-on-pulling-out-of-china-it-was-a-real-step-backward-a-686269.html
18 bits.blogs.nytimes.com/2010/01/25/microsofts-bill-gates-defends-google-then-pans-it
20 www.nytimes.com/2019/03/04/technology/google-chronicle-alphabet.html
Search Subversion and Operation Aurora

[Jan. 27, 2006] Eric Schmidt on proactively censoring Google Search in China: “We actually did an Evil-Scale and...we decided this was less evil...there are millions of people in China who...will benefit from using our products.”

[March 30, 2010] Sergey Brin: “The [Operation Aurora] hacking attacks were the straw that broke the camel’s back...which we believe [were] an attempt to gain access to Gmail accounts of Chinese human rights activists.”

[Jan 25, 2010] Bill Gates: “[Google has] done nothing and gotten a lot of credit...What point are they making? If Google ever chooses to pull out of the United States, then I’d give them credit.”

Microsoft had just begun censoring Bing in mainland China (and still does).

Google sells lessons learned from Aurora to startups via Alphabet’s Chronicle (which also owns VirusTotal).

---

16 money.cnn.com/2006/01/27/news/international/davos_3_fortune/
17 www.spiegel.de/international/business/google-co-founder-on-pulling-out-of-china-it-was-a-real-step-backward-a-686269.html
18 bits.blogs.nytimes.com/2010/01/25/microsofts-bill-gates-defends-google-then-pans-it
20 www.nytimes.com/2019/03/04/technology/google-chronicle-alphabet.html
Search Subversion and Operation Aurora

[Jan. 27, 2006] Eric Schmidt on proactively censoring Google Search in China: “We actually did an Evil-Scale and...we decided this was less evil...there are millions of people in China who...will benefit from using our products.”  

[March 30, 2010] Sergey Brin: “The [Operation Aurora] hacking attacks were the straw that broke the camel’s back...which we believe [were] an attempt to gain access to Gmail accounts of Chinese human rights activists.”

[Jan 25, 2010] Bill Gates: “[Google has] done nothing and gotten a lot of credit...What point are they making? If Google ever chooses to pull out of the United States, then I’d give them credit.”

Microsoft had just begun censoring Bing in mainland China (and still does).

Google sells lessons learned from Aurora to startups via Alphabet’s Chronicle (which also owns VirusTotal).
Search Subversion and Operation Aurora

[Jan. 27, 2006] Eric Schmidt on proactively censoring Google Search in China: “We actually did an Evil-Scale and...we decided this was less evil...there are millions of people in China who...will benefit from using our products.”

[March 30, 2010] Sergey Brin: “The [Operation Aurora] hacking attacks were the straw that broke the camel’s back...which we believe [were] an attempt to gain access to Gmail accounts of Chinese human rights activists.”

[Jan 25, 2010] Bill Gates: “[Google has] done nothing and gotten a lot of credit...What point are they making? If Google ever chooses to pull out of the United States, then I’d give them credit.”

Microsoft had just begun censoring Bing in mainland China (and still does).

Google sells lessons learned from Aurora to startups via Alphabet’s Chronicle (which also owns VirusTotal).
Search in China: Redux

[August 2018]

GOOGLE PLANS TO LAUNCH CENSORED SEARCH ENGINE IN CHINA, LEAKED DOCUMENTS REVEAL

[September 2018]

[October 2018]

[November 2018]
Search in China: Redux

[August 2018]

**GOOGLE PLANS TO LAUNCH CENSORED SEARCH ENGINE IN CHINA, LEAKED DOCUMENTS REVEAL**

[September 2018]

Previously undisclosed details about the plan, obtained by The Intercept on Friday, show that Google compiled a censorship blacklist that included terms such as “human rights,” “student protest,” and “Nobel Prize” in Mandarin.

[October 2018]

[November 2018]
Search in China: Redux

[August 2018]

GOOGLE PLANS TO LAUNCH CENSORED SEARCH ENGINE IN CHINA, LEAKED DOCUMENTS REVEAL

[September 2018]

Previously undisclosed details about the plan, obtained by The Intercept on Friday, show that Google compiled a censorship blacklist that included terms such as “human rights,” “student protest,” and “Nobel Prize” in Mandarin.

[October 2018]

Google’s CEO Says Tests of Censored Chinese Search Engine Turned Out Great

At WIRED’s 25th anniversary festival, Google CEO Sundar Pichai said the company would be able to serve more than 99 percent of queries.

[November 2018]
Search in China: Redux

[August 2018]

**GOOGLE PLANS TO LAUNCH CENSORED SEARCH ENGINE IN CHINA, LEAKED DOCUMENTS REVEAL**

[September 2018]

Previously undisclosed details about the plan, obtained by The Intercept on Friday, show that Google compiled a censorship blacklist that included terms such as “human rights,” “student protest,” and “Nobel Prize” in Mandarin.

[October 2018]

[November 2018]

We are Google employees. Google must drop Dragonfly.
The problem is systemic

Tim Cook defends Apple's removal of Hong Kong mapping app

Apple chief said in a letter HKmap.live was 'used maliciously to target' officers as claim was disputed by protesters on the ground
The problem is systemic

[Oct. 2019]

Tim Cook defends Apple’s removal of Hong Kong mapping app

Apple chief said in a letter HKmap.live was ‘used maliciously to target’ officers as claim was disputed by protesters on the ground

[Jan. 2020]

Investing In Immigrant Surveillance: Palantir And The #NoTechForICE Campaign

[Oct. 2019]
The problem is systemic

[Oct. 2019]

Tim Cook defends Apple's removal of Hong Kong mapping app

Apple chief said in a letter HKmap.live was ‘used maliciously to target’ officers as claim was disputed by protesters on the ground

[Jan. 2020]

Investing In Immigrant Surveillance: Palantir And The #NoTechForICE Campaign

[Oct. 2019]

Why did Microsoft fund an Israeli firm that surveils West Bank Palestinians?

Microsoft committed to protecting democratic freedoms. Then it funded an Israeli facial recognition firm that secretly watched West Bank Palestinians.
Clearview AI, which scraped more than 3 billion photos from Facebook, Instagram, and YouTube, found to have sold to ICE, CBP, FBI, Secret Service, DEA, and the DOJ, as well as thousands of law enforcement agencies, private security agencies, foreign governments such as the KSA and UAE, and even Home Depot, Walmart, and Macy’s.²¹

In 2015, Bloomberg reported on how Walmart had contracted with Lockheed Martin Wisdom to surveil its employees which were organizing towards higher wages.²²

²¹ www.buzzfeednews.com/article/ryanmac/clearview-ai-fbi-ice-global-law-enforcement
²² www.bloomberg.com/features/2015-walmart-union-surveillance/
And just yesterday…

Clearview AI, which scraped more than 3 billion photos from Facebook, Instagram, and YouTube, found to have sold to ICE, CBP, FBI, Secret Service, DEA, and the DOJ, as well as thousands of law enforcement agencies, private security agencies, foreign governments such as the KSA and UAE, and even Home Depot, Walmart, and Macy’s.21

In 2015, Bloomberg reported on how Walmart had contracted with Lockheed Martin Wisdom to surveil its employees which were organizing towards higher wages.22

---

21 www.buzzfeednews.com/article/ryanmac/clearview-ai-fbi-ice-global-law-enforcement
22 www.bloomberg.com/features/2015-walmart-union-surveillance/
The problem is not new

"Anything that comes through (an internet protocol network), we can record," says Steve Bannerman, marketing vice president of Narus, a Mountain View, California, company. "We can reconstruct all of their e-mails along with attachments, see what web pages they clicked on, we can reconstruct their (voice over internet protocol) calls."

[May 2005]
www.wired.com/2006/05/the-ultimate-net-monitoring-tool/
The problem is not new

"Anything that comes through (an internet protocol network), we can record," says Steve Bannerman, marketing vice president of Narus, a Mountain View, California, company. "We can reconstruct all of their e-mails along with attachments, see what web pages they clicked on, we can reconstruct their (voice over internet protocol) calls."

One of Golden Shield's stated goals in the Cisco presentation was to "combat 'Falun Gong' evil religion and other hostiles," – a statement that was attributed to Runsen Li, the Chinese government information technology chief in charge of developing the project.

[May 2005]
www.wired.com/2006/05/the-ultimate-net-monitoring-tool/

[May 2008]
www.wired.com/2008/05/leaked-cisco-do/
The problem is not new

"Anything that comes through (an internet protocol network), we can record," says Steve Bannerman, marketing vice president of Narus, a Mountain View, California, company. "We can reconstruct all of their e-mails along with attachments, see what web pages they clicked on, we can reconstruct their (voice over internet protocol) calls."

One of Golden Shield's stated goals in the Cisco presentation was to "combat 'Falun Gong' evil religion and other hostiles," – a statement that was attributed to Runsen Li, the Chinese government information technology chief in charge of developing the project.

Report: Web monitoring devices made by U.S. firm Blue Coat detected in Iran, Sudan

[May 2005]
www.wired.com/2006/05/the-ultimate-net-monitoring-tool/

[May 2008]
www.wired.com/2008/05/leaked-cisco-do/

[July 2013]
citizenlab.ca/2013/07/planet-blue-coat-redux/
"Anything that comes through (an internet protocol network), we can record," says Steve Bannerman, marketing vice president of Narus, a Mountain View, California, company. "We can reconstruct all of their e-mails along with attachments, see what web pages they clicked on, we can reconstruct their (voice over internet protocol) calls."

One of Golden Shield's stated goals in the Cisco presentation was to "combat 'Falun Gong' evil religion and other hostiles," – a statement that was attributed to Runsen Li, the Chinese government information technology chief in charge of developing the project.

Report: Web monitoring devices made by U.S. firm Blue Coat detected in Iran, Sudan

Narus sold to Boeing in 2010 then Symantec in 2015. Blue Coat merged with Symantec in 2016 as Symantec CEO (Michael Brown) left to lead DIUx. Symantec later sold to Broadcom and then partially to Accenture Federal.
The problem is not new

"Anything that comes through (an internet protocol network), we can record," says Steve Bannerman, marketing vice president of Narus, a Mountain View, California, company. "We can reconstruct all of their e-mails along with attachments, see what web pages they clicked on, we can reconstruct their (voice over internet protocol) calls."

One of Golden Shield's stated goals in the Cisco presentation was to "combat 'Falun Gong' evil religion and other hostiles," – a statement that was attributed to Runsen Li, the Chinese government information technology chief in charge of developing the project.

Report: Web monitoring devices made by U.S. firm Blue Coat detected in Iran, Sudan

Narus sold to Boeing in 2010 then Symantec in 2015. Blue Coat merged with Symantec in 2016 as Symantec CEO (Michael Brown) left to lead DIUx. Symantec later sold to Broadcom and then partially to Accenture Federal.

Confusingly, Broadcom was blocked from acquiring Qualcomm on national security grounds, then faked DOD memo about them being Chinese asset circulated in midst of them acquiring CA Technologies.
A [January 2015] DBB report, “Transforming DoD’s Core Business Processes for Revolutionary Change” claimed: “a clear path to saving over $125 billion in the next five years” and “legacy technology obsolescence must be addressed to achieve agility and innovation” 23

 “[Robert] Work acknowledged that the push...lost steam after...Hagel was replaced by [Ash Carter] in February 2015. Carter has emphasized other goals, such as strengthening the Pentagon’s partnerships with high-tech firms.”

 “[DBB] members said they started to get the silent treatment. Stein, the board chairman, accused Carter of deliberately derailing the plan...‘Unfortunately, Ash — for reasons of his own — stopped this’” 24

24 https://www.washingtonpost.com/investigations/pentagon-buries-evidence-of-125-billion-in-bureaucratic-waste/2016/12/05/e0668c76-9af6-11e6-a0ed-ab0774c1eaa5_story.html
A [January 2015] DBB report, “Transforming DoD’s Core Business Processes for Revolutionary Change” claimed: “a clear path to saving over $125 billion in the next five years” and “legacy technology obsolescence must be addressed to achieve agility and innovation”.

“[Robert] Work acknowledged that the push...lost steam after...Hagel was replaced by [Ash Carter] in February 2015. Carter has emphasized other goals, such as strengthening the Pentagon’s partnerships with high-tech firms.”

“[DBB] members said they started to get the silent treatment... Stein, the board chairman, accused Carter of deliberately derailing the plan...‘Unfortunately, Ash — for reasons of his own — stopped this’.”

---


24 https://www.washingtonpost.com/investigations/pentagon-buries-evidence-of-125-billion-in-bureaucratic-waste/2016/12/05/e0668c76-9af6-11e6-a0ed-ab0774c1eaa5_story.html
A [January 2015] DBB report, “Transforming DoD’s Core Business Processes for Revolutionary Change” claimed: “a clear path to saving over $125 billion in the next five years” and “legacy technology obsolescence must be addressed to achieve agility and innovation”  

“[Robert] Work acknowledged that the push...lost steam after...Hagel was replaced by [Ash Carter] in February 2015. Carter has emphasized other goals, such as strengthening the Pentagon’s partnerships with high-tech firms.”

“[DBB] members said they started to get the silent treatment.. Stein, the board chairman, accused Carter of deliberately derailing the plan...‘Unfortunately, Ash — for reasons of his own — stopped this’”


24 https://www.washingtonpost.com/investigations/pentagon-buries-evidence-of-125-billion-in-bureaucratic-waste/2016/12/05/e0668c76-9af6-11e6-a0ed-ab0774c1eaa5_story.html
Defense Innovation Board


“Just as the Defense Business Board provides advice to the department on best business practices from the private sector, the Defense Innovation Advisory Board will provide advice on the best and latest practices in innovation that the department can emulate.”

25 www.defense.gov/Newsroom/News/Article/Article/684366/pentagon-to-establish-defense-innovation-advisory-board
Defense Innovation Board

Chairman: Eric Schmidt (Chairman / Technical Advisor of Alphabet)
ED: Joshua Marcuse (Office of Under Secretary of Defense for Policy & CSIS)
Defense Innovation Unit Experimental (DIUx) was initially launched in August 2015.

In 2006 “[Ash] Carter decided to restart the program... ‘Raj [Shah] and his team are already bringing in game-changing technologies... in areas like network defense, autonomous seafaring drones, and virtual war-gaming’.”

The Silicon Valley office was “created and led” by Christopher Kirchoff, now of Schmidt Futures. He points to Carter’s 2001 article as impetus of DIB and DIU.

One could loosely argue that the DIU is to the Joint Forces what In-Q-Tel is to the CIA, though the structures are different. In-Q-Tel is a company that makes strategic equity investments (e.g., Palantir and Keyhole Inc. – which became Google Earth / Maps) rather than facilitating government contracting.

---

Defense Innovation Unit 2.0

*Defense Innovation Unit Experimental (DIUx)* was initially launched in August 2015.

In 2006 “[Ash] Carter decided to restart the program... ‘Raj [Shah] and his team are already bringing in game-changing technologies... in areas like network defense, autonomous seafaring drones, and virtual war-gaming’.”

The Silicon Valley office was “created and led” by Christopher Kirchoff, now of Schmidt Futures. He points to Carter’s 2001 article as impetus of DIB and DIU.

One could loosely argue that the DIU is to the Joint Forces what In-Q-Tel is to the CIA, though the structures are different. In-Q-Tel is a company that makes strategic equity investments (e.g., Palantir and Keyhole Inc. – which became Google Earth / Maps) rather than facilitating government contracting.

---

In 2006 “[Ash] Carter decided to restart the program... ‘Raj [Shah] and his team are already bringing in game-changing technologies... in areas like network defense, autonomous seafaring drones, and virtual war-gaming’.”

The Silicon Valley office was “created and led” by Christopher Kirchoff, now of Schmidt Futures.26 He points to Carter’s 2001 article as impetus of DIB and DIU.

One could loosely argue that the DIU is to the Joint Forces what In-Q-Tel is to the CIA, though the structures are different. In-Q-Tel is a company that makes strategic equity investments (e.g., Palantir and Keyhole Inc. – which became Google Earth / Maps) rather than facilitating government contracting.

---

Defense Innovation Unit Experimental (DIUx) was initially launched in August 2015.

In 2006 “[Ash] Carter decided to restart the program... ‘Raj [Shah] and his team are already bringing in game-changing technologies... in areas like network defense, autonomous seafaring drones, and virtual war-gaming’.”

The Silicon Valley office was “created and led” by Christopher Kirchoff, now of Schmidt Futures.\(^{26}\) He points to Carter’s 2001 article as impetus of DIB and DIU.

One could loosely argue that the DIU is to the Joint Forces what In-Q-Tel is to the CIA, though the structures are different. In-Q-Tel is a company that makes strategic equity investments (e.g., Palantir and Keyhole Inc. – which became Google Earth / Maps) rather than facilitating government contracting.

DIU Portfolio

yubico

Aurora

SkySafe

Apella Space

Sparkcognition

lastwall

Rhombus Power

C3 IoT

Plurilock

Method

Polyverse

Palantir

Recorded Future
*Fortem Technologies* has a video of drones catching drones with nets.
youtu.be/oJcrwr1ZINc
DIU Kinetic Drone Defeat

“U.S. Army Counter-Rocket Artillery & Mortar Program Directorate (C-RAM) is working with [Raytheon Missile Systems, Airspace Systems, Applied Minds, Aurora Flight Sciences (Boeing)] and other companies to develop an unmanned aerial vehicle (UAV) to intercept adversarial UAS.”

[June 2019] Raytheon teaching KSA to make high-tech bombs. Raytheon spokesman: “Industrial participation by local partners has been an element of international sales of military equipment for decades.”


DIU website currently shows more recent awards to Fenix Group, Fortem Technologies, and Stellar Exploration.

---

30 See banner on diu.mil
“U.S. Army Counter-Rocket Artillery & Mortar Program Directorate (C-RAM) is working with [Raytheon Missile Systems, Airspace Systems, Applied Minds, Aurora Flight Sciences (Boeing)] and other companies to develop an unmanned aerial vehicle (UAV) to intercept adversarial UAS.”  

[June 2019] Raytheon teaching KSA to make high-tech bombs. Raytheon spokesman: “Industrial participation by local partners has been an element of international sales of military equipment for decades”  


DIU website currently shows more recent awards to Fenix Group, Fortem Technologies, and Stellar Exploration.  

---  

30 See banner on diu.mil
“U.S. Army Counter-Rocket Artillery & Mortar Program Directorate (C-RAM) is working with [Raytheon Missile Systems, Airspace Systems, Applied Minds, Aurora Flight Sciences (Boeing)] and other companies to develop an unmanned aerial vehicle (UAV) to intercept adversarial UAS.”

[June 2019] Raytheon teaching KSA to make high-tech bombs. Raytheon spokesman: “Industrial participation by local partners has been an element of international sales of military equipment for decades”


DIU website currently shows more recent awards to Fenix Group, Fortem Technologies, and Stellar Exploration.

---

30 See banner on diu.mil
“U.S. Army Counter-Rocket Artillery & Mortar Program Directorate (C-RAM) is working with [Raytheon Missile Systems, Airspace Systems, Applied Minds, Aurora Flight Sciences (Boeing)] and other companies to develop an unmanned aerial vehicle (UAV) to intercept adversarial UAS.”

[June 2019] Raytheon teaching KSA to make high-tech bombs. Raytheon spokesman: “Industrial participation by local partners has been an element of international sales of military equipment for decades”


DIU website currently shows more recent awards to Fenix Group, Fortem Technologies, and Stellar Exploration.

---

30 See banner on diu.mil
DIU Multi-Drone Detection/Defeat

Dedrone has a video showing their passive detection and drone jamming gun.
youtu.be/EQEKi8Uih6U?t=84.
DIU Multi-Drone Detection/Defeat

“Unmanned Aerial Systems (UAS)...can be used as forward observers for indirect fire, surveillance assets, delivery of explosives, and more. For dismounted troops and light vehicles, countering UAS is extremely difficult.

The Marine Corps is using [Sensofusion] AIRFENCE / SkySafe in a mobile system to passively identify, track, and defeat [UAS]... the Air Force is augmenting electro-optical/infrared detection technologies with [Squarehead] DiscovAir’s acoustic detection capabilities.”

DIU website shows more recent awards to Citadel Defense Company, D-Fend Solutions, Dedrone, and Photon-X.

C-UAS programs spun out into Rogue Squadron, now part of Defense Digital Service.

---

31 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
32 dds.mil/dds-acquires-rogue-squadron/
DIU Multi-Drone Detection/Defeat

“Unmanned Aerial Systems (UAS)...can be used as forward observers for indirect fire, surveillance assets, delivery of explosives, and more. For dismounted troops and light vehicles, countering UAS is extremely difficult.

The Marine Corps is using [Sensofusion] AIRFENCE / SkySafe in a mobile system to passively identify, track, and defeat [UAS]...

the Air Force is augmenting electro-optical/infrared detection technologies with [Squarehead] DiscovAir’s acoustic detection capabilities.”

DIU website shows more recent awards to Citadel Defense Company, D-Fend Solutions, Dedrone, and Photon-X.

C-UAS programs spun out into Rogue Squadron, now part of Defense Digital Service.

---

31 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
32 dds.mil/dds-acquires-rogue-squadron/
DIU Multi-Drone Detection/Defeat

“Unmanned Aerial Systems (UAS)…can be used as forward observers for indirect fire, surveillance assets, delivery of explosives, and more. For dismounted troops and light vehicles, countering UAS is extremely difficult.

The Marine Corps is using [Sensofusion] AIRFENCE / SkySafe in a mobile system to passively identify, track, and defeat [UAS]…

the Air Force is augmenting electro-optical/infrared detection technologies with [Squarehead] DiscovAir’s acoustic detection capabilities.”

DIU website shows more recent awards to Citadel Defense Company, D-Fend Solutions, Dedrone, and Photon-X.

C-UAS programs spun out into Rogue Squadron, now part of Defense Digital Service.

---

31 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
32 dds.mil/dds-acquires-rogue-squadron/
DIU Multi-Drone Detection/Defeat

“Unmanned Aerial Systems (UAS)…can be used as forward observers for indirect fire, surveillance assets, delivery of explosives, and more. For dismounted troops and light vehicles, countering UAS is extremely difficult.

The Marine Corps is using [Sensofusion] AIRFENCE / SkySafe in a mobile system to passively identify, track, and defeat [UAS]...

the Air Force is augmenting electro-optical/infrared detection technologies with [Squarehead] DiscovAir’s acoustic detection capabilities.” 31

DIU website shows more recent awards to Citadel Defense Company, D-Fend Solutions, Dedrone, and Photon-X.

C-UAS programs spun out into Rogue Squadron, now part of Defense Digital Service. 32

31 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
32 dds.mil/dds-acquires-rogue-squadron/
“Unmanned Aerial Systems (UAS)…can be used as forward observers for indirect fire, surveillance assets, delivery of explosives, and more. For dismounted troops and light vehicles, countering UAS is extremely difficult.

The Marine Corps is using [Sensofusion] AIRFENCE / SkySafe in a mobile system to passively identify, track, and defeat [UAS]…

the Air Force is augmenting electro-optical/infrared detection technologies with [Squarehead] DiscovAir’s acoustic detection capabilities.”

DIU website shows more recent awards to Citadel Defense Company, D-Fend Solutions, Dedrone, and Photon-X.

C-UAS programs spun out into Rogue Squadron, now part of Defense Digital Service.32

---

31 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
32 dds.mil/dds-acquires-rogue-squadron/
"Watch [Kinetica DB] analyze 14B mobile signal data points [in the Bay Area] in real-time."

youtu.be/ZvU0Q13wYiQ?t=365.
“U.S. Air Force (USAF) is using [Palantir & TransVoyant] to integrate disparate data sources into an open, scalable, and secure data management platform to support real-time global logistics operations.”  

Pilot contracts awarded September 2017.

[Sept 2019] In response to sustained human rights criticism over profiting from accelerating deportations, CEO of Palantir, Alex Karp, writes WaPo op-ed Policy decisions should be made by elected representatives, not Silicon Valley.  

In 2018, Palantir spent nearly $2M on lobbying.  

Similar awards now cited on DIU website for Kinetica DB and Raven Black.

---

33 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
34 www.washingtonpost.com/opinions/policy-decisions-should-be-made-by-elected-representatives-not-silicon-valley/2019/09/05/e02a38dc-cf61-11e9-87fa-8501a456c003_story.html
35 www.opensecrets.org/lobby/clientsum.php?id=D000055177&year=2018
“U.S. Air Force (USAF) is using [Palantir & TransVoyant] to integrate disparate data sources into an open, scalable, and secure data management platform to support real-time global logistics operations.”\(^{33}\)

Pilot contracts awarded September 2017.

[Sept 2019] In response to sustained human rights criticism over profiting from accelerating deportations, CEO of Palantir, Alex Karp, writes WaPo op-ed *Policy decisions should be made by elected representatives, not Silicon Valley.*\(^{34}\)

In 2018, Palantir spent nearly $2M on lobbying.\(^ {35}\)

Similar awards now cited on DIU website for Kinetica DB and Raven Black.

---


“U.S. Air Force (USAF) is using [Palantir & TransVoyant] to integrate disparate data sources into an open, scalable, and secure data management platform to support real-time global logistics operations.”

Pilot contracts awarded September 2017.

[Sept 2019] In response to sustained human rights criticism over profiting from accelerating deportations, CEO of Palantir, Alex Karp, writes WaPo op-ed Policy decisions should be made by elected representatives, not Silicon Valley.

In 2018, Palantir spent nearly $2M on lobbying.

Similar awards now cited on DIU website for Kinetica DB and Raven Black.

---

33 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
34 www.washingtonpost.com/opinions/policy-decisions-should-be-made-by-elected-representatives-not-silicon-valley/2019/09/05/e02a38dc-cf61-11e9-87fa-8501a456c003_story.html
35 www.opensecrets.org/lobby/clientsum.php?id=D000055177&year=2018
“U.S. Air Force (USAF) is using [Palantir & TransVoyant] to integrate disparate data sources into an open, scalable, and secure data management platform to support real-time global logistics operations.”

Pilot contracts awarded September 2017.

[Sept 2019] In response to sustained human rights criticism over profiting from accelerating deportations, CEO of Palantir, Alex Karp, writes WaPo op-ed Policy decisions should be made by elected representatives, not Silicon Valley.

In 2018, Palantir spent nearly $2M on lobbying.

Similar awards now cited on DIU website for Kinetica DB and Raven Black.

---

33 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
34 www.washingtonpost.com/opinions/policy-decisions-should-be-made-by-elected-representatives-not-silicon-valley/2019/09/05/e02a38dc-cf61-11e9-87fa-8501a456c003_story.html
35 www.opensecrets.org/lobby/clientsum.php?id=D000055177&year=2018
DIU Air Operations Center Modernization

“U.S. Air Force (USAF) is using [Pivotal Software (Dell)] to prototype a cloud-native software development platform and to employ modern software development practices in order to rapidly modernize the Air Operations Center.”

Pilot Awarded: July 2017

Program spun out into Kessel Run, which operates like a “software company within the Air Force.”

Awards also given to AgileTrailBlazers, Appddiction Studio, BridgePhase, Clarity Innovations, Concept Solutions, Crowdbotics, Highlight Technologies, Octo Consulting Group, Omni Fed, Porticos, StreamSets, TDMK Digital, and TJFACT. Cloud computing was through Rean Cloud (now Hitachi Vantara) and Fjord (Accenture) and Wolf Den Associates were involved in UIs.

---

36 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
37 kesselrun.af.mil/
“U.S. Air Force (USAF) is using [Pivotal Software (Dell)] to prototype a cloud-native software development platform and to employ modern software development practices in order to rapidly modernize the Air Operations Center.”  

Pilot Awarded: July 2017

Program spun out into Kessel Run, which operates like a “software company within the Air Force.”

Awards also given to AgileTrailBlazers, Appddiction Studio, BridgePhase, Clarity Innovations, Concept Solutions, Crowdbotics, Highlight Technologies, Octo Consulting Group, Omni Fed, Porticos, StreamSets, TDMK Digital, and TJFACT. Cloud computing was through Rean Cloud (now Hitachi Vantara) and Fjord (Accenture) and Wolf Den Associates were involved in UIs.  

---

36 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio  
37 kesselrun.af.mil/
DIU Air Operations Center Modernization

“U.S. Air Force (USAF) is using [Pivotal Software (Dell)] to prototype a cloud-native software development platform and to employ modern software development practices in order to rapidly modernize the Air Operations Center.”

Pilot Awarded: July 2017

Program spun out into Kessel Run, which operates like a “software company within the Air Force.”

Awards also given to AgileTrailBlazers, Appddiction Studio, BridgePhase, Clarity Innovations, Concept Solutions, Crowdbotics, Highlight Technologies, Octo Consulting Group, Omni Fed, Porticos, StreamSets, TDMK Digital, and TJFACT. Cloud computing was through Rean Cloud (now Hitachi Vantara) and Fjord (Accenture) and Wolf Den Associates were involved in UIs.

36 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
37 kesselrun.af.mil/
“DoD is using Capella Space’s SAR micro-satellite persistent Earth imagery for near real-time awareness of natural and manmade threats.”

Similar awards are shown for Planet Labs and Orbital Insights.
“U.S. Army is deploying the Uptake [Technologies] platform on its Bradley Fighting Vehicles to determine if it can improve the readiness of the fleet by predicting component failures before they occur.”  

Pilot Awarded: June 2018
A similar award was made to c3.ai (formerly c3 IoT).

---

“U.S. Cyber Command (USCYBERCOM) cyber protection teams are using Carbon Black’s endpoint detection and response capability to quickly identify and remediate cyber intrusions remotely.”

Carbon Black was formerly known as bit9 and, in 2013, was hacked and used to spread malware. Carbon Black is now owned by VMWare, which is a subsidiary of Dell.

There have been many cybersecurity awards, such as to Attivo Networks, Blue Ivy Partners, Bromium (HP Inc.), CounterCraft, ForAllSecure, GrammaTech, Infocyte, Kudu Dynamics, Logically Secure, nanovms, Polyverse, Qadium, Recorded Future, Spanalytics, Symmantec (Accenture), Tanium, Trail of Bits, World Wide Technology, Zephyr Software, and Zimperium.

---

40 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
41 krebsonsecurity.com/2013/02/bit9-breach-began-in-july-2012/
“U.S. Cyber Command (USCYBERCOM) cyber protection teams are using Carbon Black’s endpoint detection and response capability to quickly identify and remediate cyber intrusions remotely.”

Carbon Black was formerly known as bit9 and, in 2013, was hacked and used to spread malware. Carbon Black is now owned by VMWare, which is a subsidiary of Dell.

There have been many cybersecurity awards, such as to Attivo Networks, Blue Ivy Partners, Bromium (HP Inc.), CounterCraft, ForAllSecure, GrammaTech, Infocyte, Kudu Dynamics, Logically Secure, nanovms, Polyverse, Qadium, Recorded Future, Spanalytics, Symmantec (Accenture), Tanium, Trail of Bits, World Wide Technology, Zephyr Software, and Zimperium.

---

40 web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
41 krebsonsecurity.com/2013/02/bit9-breach-began-in-july-2012/
“U.S. Cyber Command (USCYBERCOM) cyber protection teams are using Carbon Black’s endpoint detection and response capability to quickly identify and remediate cyber intrusions remotely.”\textsuperscript{40}

Carbon Black was formerly known as bit9 and, in 2013, was hacked and used to spread malware.\textsuperscript{41} Carbon Black is now owned by VMWare, which is a subsidiary of Dell.

There have been many cybersecurity awards, such as to Attivo Networks, Blue Ivy Partners, Bromium (HP Inc.), CounterCraft, ForAllSecure, GrammaTech, Infocyte, Kudu Dynamics, Logically Secure, nanovms, Polyverse, Qadium, Recorded Future, Spanalytics, Symmantece (Accenture), Tanium, Trail of Bits, World Wide Technology, Zephyr Software, and Zimperium.

\textsuperscript{40}web.archive.org/web/20191206151733/https://www.diu.mil/portfolio
\textsuperscript{41}krebsonsecurity.com/2013/02/bit9-breach-began-in-july-2012/
JEDI and conflict-of-interest on the DIB

“Roma Laster, a Pentagon employee responsible for policing conflicts of interest, emailed an urgent warning...Jeff Bezos, the CEO of Amazon, [was] to be sworn into [the DIB] despite...never complet[ing] a required background check...The swearing-in was canceled...[but] Bezos met with Mattis that day. They talked about...why the Defense Department should...abondon its hodgepodge of 2,215 data centers...[and] replace that with [AWS].”

“The Pentagon is preparing to award a $10 billion, 10-year contract...JEDI, for Joint Enterprise Defense Infrastructure”

“Laster did her best to enforce the rules. She would challenge the Pentagon’s cozy relationship not only with Bezos, but with Google’s Eric Schmidt...She was removed from the innovation board in November 2017”

“‘Roma was removed because she insisted on them following the rules,’ said a former DoD official...‘I’ve been betrayed by an organization I joined when I was 17’ said Laster, who is 54. ”

Microsoft was awarded JEDI contract in Oct. 2019, though Amazon immediately contested it and, earlier this month, a federal judge placed a hold on Microsoft’s award.

JEDI and conflict-of-interest on the DIB

“Roma Laster, a Pentagon employee responsible for policing conflicts of interest, emailed an urgent warning...Jeff Bezos, the CEO of Amazon, [was] to be sworn into [the DIB] despite..never complet[ing] a required background check...The swearing-in was canceled...[but] Bezos met with Mattis that day. They talked about...why the Defense Department should...abondon its hodgepodge of 2,215 data centers...[and] replace that with [AWS].”

“The Pentagon is preparing to award a $10 billion, 10-year contract...JEDI, for Joint Enterprise Defense Infrastructure”

“Laster did her best to enforce the rules. She would challenge the Pentagon’s cozy relationship not only with Bezos, but with Google’s Eric Schmidt...She was removed from the innovation board in November 2017”

“‘Roma was removed because she insisted on them following the rules,’ said a former DoD official...‘I’ve been betrayed by an organization I joined when I was 17’ said Laster, who is 54. ”

Microsoft was awarded JEDI contract in Oct. 2019, though Amazon immediately contested it and, earlier this month, a federal judge placed a hold on Microsoft’s award.

JEDI and conflict-of-interest on the DIB

“Roma Laster, a Pentagon employee responsible for policing conflicts of interest, emailed an urgent warning...Jeff Bezos, the CEO of Amazon, [was] to be sworn into [the DIB] despite...never complet[ing] a required background check...The swearing-in was canceled...[but] Bezos met with Mattis that day. They talked about...why the Defense Department should...abandon its hodgepodge of 2,215 data centers...[and] replace that with [AWS].”

“The Pentagon is preparing to award a $10 billion, 10-year contract...JEDI, for Joint Enterprise Defense Infrastructure”

“Laster did her best to enforce the rules. She would challenge the Pentagon’s cozy relationship not only with Bezos, but with Google’s Eric Schmidt...She was removed from the innovation board in November 2017”

“‘Roma was removed because she insisted on them following the rules,’ said a former DoD official...‘I’ve been betrayed by an organization I joined when I was 17’ said Laster, who is 54. ”

Microsoft was awarded JEDI contract in Oct. 2019, though Amazon immediately contested it and, earlier this month, a federal judge placed a hold on Microsoft’s award.

JEDI and conflict-of-interest on the DIB

“Roma Laster, a Pentagon employee responsible for policing conflicts of interest, emailed an urgent warning...Jeff Bezos, the CEO of Amazon, [was] to be sworn into [the DIB] despite...never complet[ing] a required background check...The swearing-in was canceled...[but] Bezos met with Mattis that day. They talked about...why the Defense Department should...abandon its hodgepodge of 2,215 data centers...[and] replace that with [AWS].”

“The Pentagon is preparing to award a $10 billion, 10-year contract...JEDI, for Joint Enterprise Defense Infrastructure”

“Laster did her best to enforce the rules. She would challenge the Pentagon’s cozy relationship not only with Bezos, but with Google’s Eric Schmidt...She was removed from the innovation board in November 2017”

“‘Roma was removed because she insisted on them following the rules,’ said a former DoD official...‘I’ve been betrayed by an organization I joined when I was 17’ said Laster, who is 54. ”

Microsoft was awarded JEDI contract in Oct. 2019, though Amazon immediately contested it and, earlier this month, a federal judge placed a hold on Microsoft’s award.

JEDI and conflict-of-interest on the DIB

“Roma Laster, a Pentagon employee responsible for policing conflicts of interest, emailed an urgent warning...Jeff Bezos, the CEO of Amazon, [was] to be sworn into [the DIB] despite..never complet[ing] a required background check...The swearing-in was canceled...[but] Bezos met with Mattis that day. They talked about...why the Defense Department should...abondon its hodgepodge of 2,215 data centers...[and] replace that with [AWS].”

“The Pentagon is preparing to award a $10 billion, 10-year contract...JEDI, for Joint Enterprise Defense Infrastructure”

“Laster did her best to enforce the rules. She would challenge the Pentagon’s cozy relationship not only with Bezos, but with Google’s Eric Schmidt...She was removed from the innovation board in November 2017”

“‘Roma was removed because she insisted on them following the rules,’ said a former DoD official...‘I’ve been betrayed by an organization I joined when I was 17’ said Laster, who is 54. ”

Microsoft was awarded JEDI contract in Oct. 2019, though Amazon immediately contested it and, earlier this month, a federal judge placed a hold on Microsoft’s award.

Project Maven

Pilot Program Early 2017

Real-Time Indexing and Detection of Multiple Classes of Objects: Cars, Trucks, Buildings and Infrastructure
The Joint Artificial Intelligence Center (JAIC) was announced in April 2018 with a ‘main mission...to listen to service requests, gather the necessary talent, and deliver AI-infused solutions’.

“‘Everyone is very happy with Project Maven’ in terms of speed of delivery, quality of product, and organizational structure, according to one of the observers. ‘There’s an element [of the Defense Department] that’s asking: How do we make a Project Maven factory?’ “
The Joint Artificial Intelligence Center (JAIC) was announced in April 2018 with a ‘main mission...to listen to service requests, gather the necessary talent, and deliver AI-infused solutions’.

“‘Everyone is very happy with Project Maven’ in terms of speed of delivery, quality of product, and organizational structure, according to one of the observers. ‘There’s an element [of the Defense Department] that’s asking: How do we make a Project Maven factory?’ ”
Google engineers block Air Gap & Maven

[June 21, 2018] “Earlier this year, a group of influential engineers in Google’s cloud division surprised their superiors by refusing to work on a cutting-edge security feature. Known as ‘air gap’, the technology would have helped Google win sensitive military contracts.”

“The engineers became known was the ‘Group of Nine’...the engineers’ work boycott was a catalyst for larger protests that convulsed the company’s Mountain View, California campus and ultimately forced executives to let a lucrative Pentagon contract called Project Maven expire without renewal.”

Google engineers block Air Gap & Maven

[June 21, 2018] “Earlier this year, a group of influential engineers in Google’s cloud division surprised their superiors by refusing to work on a cutting-edge security feature. Known as ‘air gap’, the technology would have helped Google win sensitive military contracts.”

“The engineers became known was the ‘Group of Nine’…the engineers’ work boycott was a catalyst for larger protests that convulsed the company’s Mountain View, California campus and ultimately forced executives to let a lucrative Pentagon contract called Project Maven expire without renewal.”

---

Google’s “AI Principles”

[June 2018] Google releases its Al Principles, which commits to, among others, “not design or deploy” “technologies whose purpose contravenes widely accepted principles of international law and human rights”.44

[October 2018] JAIC announces initial focus on Humanitarian Assistance and Disaster Relief (HADR).45

[January 2019] DoD announces plan to form its own AI Principles; “One of the challenges for things like Project Maven...is that some scientists expressed concern...A public set of AI principles will help clarify DoD’s intentions”46

[Oct 2019] DIB proposes AI Principles – limits scope to what is entirely new to AI and carves out protections for intended harm and bias; does not rule out autonomous weapons.47

44 www.blog.google/technology/ai/ai-principles/
45 gtcwashingtondc2018.smarteventscloud.com/connect/sessionDetail.ww?SESSION_ID=253084
46 www.defenseone.com/technology/2019/01/pentagon-seeks-list-ethical-principles-using-ai-war/153940/
47 www.dvidshub.net/video/embed/695866
Google’s “AI Principles”

[June 2018] Google releases its AI Principles, which commits to, among others, “not design or deploy” “technologies whose purpose contravenes widely accepted principles of international law and human rights”.  

[October 2018] JAIC announces initial focus on Humanitarian Assistance and Disaster Relief (HADR).  

[January 2019] DoD announces plan to form its own AI Principles; “One of the challenges for things like Project Maven...is that some scientists expressed concern...A public set of AI principles will help clarify DoD’s intentions”  

[Oct 2019] DIB proposes AI Principles – limits scope to what is entirely new to AI and carves out protections for intended harm and bias; does not rule out autonomous weapons.

---

44 www.blog.google/technology/ai/ai-principles/
45 gtcwashingtondc2018.smarteventscloud.com/connect/sessionDetail.ww?SESSION_ID=253084
46 www.defenseone.com/technology/2019/01/pentagon-seeks-list-ethical-principles-using-ai-war/153940/
47 www.dvidshub.net/video/embed/695866
Google’s “AI Principles”

[June 2018] Google releases its AI Principles, which commits to, among others, “not design or deploy” “technologies whose purpose contravenes widely accepted principles of international law and human rights”.

[October 2018] JAIC announces initial focus on Humanitarian Assistance and Disaster Relief (HADR).

[January 2019] DoD announces plan to form its own AI Principles; “One of the challenges for things like Project Maven...is that some scientists expressed concern...A public set of AI principles will help clarify DoD’s intentions”

[Oct 2019] DIB proposes AI Principles – limits scope to what is entirely new to AI and carves out protections for intended harm and bias; does not rule out autonomous weapons.

---

44 www.blog.google/technology/ai/ai-principles/
45 gtcwashingtondc2018.smarteventscloud.com/connect/sessionDetail.ww?SESSION_ID=253084
46 www.defenseone.com/technology/2019/01/pentagon-seeks-list-ethical-principles-using-ai-war/153940/
47 www.dvidshub.net/video/embed/695866
Google’s “AI Principles”

[June 2018] Google releases its AI Principles, which commits to, among others, “not design or deploy” “technologies whose purpose contravenes widely accepted principles of international law and human rights”.

[October 2018] JAIC announces initial focus on Humanitarian Assistance and Disaster Relief (HADR).

[January 2019] DoD announces plan to form its own AI Principles; “One of the challenges for things like Project Maven...is that some scientists expressed concern...A public set of AI principles will help clarify DoD’s intentions”

[Oct 2019] DIB proposes AI Principles – limits scope to what is entirely new to AI and carves out protections for intended harm and bias; does not rule out autonomous weapons.

---

44 www.blog.google/technology/ai/ai-principles/
45 gtcwashingtondc2018.smarteventscloud.com/connect/sessionDetail.ww?SESSION_ID=253084
46 www.defenseone.com/technology/2019/01/pentagon-seeks-list-ethical-principles-using-ai-war/153940/
47 www.dvidshub.net/video/embed/695866
Nat. Sec. Commission on AI
Nat. Sec. Commission on AI

Founded to:

consider the methods and means necessary to advance the development of [AI] to comprehensively address the national security and defense needs of the United States.\(^{48}\)

Chairman: Eric Schmidt (Chairman, then Technical Advisor to Alphabet)
Vice Chairman: Robert Work (Deputy Secretary of Defense 2014–2017)
Executive Director: Ylli Bajraktari (former member of NSC)

Nat. Sec. Commission on AI

Founded to:

consider the methods and means necessary to advance the development of [AI] to comprehensively address the national security and defense needs of the United States.\textsuperscript{48}

**Chairman**: Eric Schmidt (Chairman, then Technical Advisor to Alphabet)
**Vice Chairman**: Robert Work (Deputy Secretary of Defense 2014–2017)
**Executive Director**: Ylli Bajraktari (former member of NSC)

“EPIC has filed suit to enforce the transparency obligations of the [NSCAI]. ... Yet since its launch in March of 2019, the Commission has operated in near-total secrecy. None of the Commission’s meetings have been announced in advance or opened to the public, and no agendas, minutes, or meeting materials have been published.”

“Twice in the past seven months, EPIC submitted open records and meetings requests to the AI Commission and Department of Defense under [FOIA and FACA]. After both agencies failed to comply with EPIC’s requests, EPIC brought suit on September 27, 2019.”

“Judge Trevor N. McFadden, writing in EPIC v. AI Commission, rejected the Commission’s arguments that it is exempt from the law. ‘[L]ike a stranger offering candy to a child, the Government invites the Court not to read [the FOIA] literally,’ the court wrote. ‘The Government has not convinced the Court that it should ignore what Congress said.’”

The first produced document is available at:

49 epic.org/foia/epic-v-ai-commission
“EPIC has filed suit to enforce the transparency obligations of the [NSCAI]. ... Yet since its launch in March of 2019, the Commission has operated in near-total secrecy. None of the Commission’s meetings have been announced in advance or opened to the public, and no agendas, minutes, or meeting materials have been published.”

“Twice in the past seven months, EPIC submitted open records and meetings requests to the AI Commission and Department of Defense under [FOIA and FACA]. After both agencies failed to comply with EPIC’s requests, EPIC brought suit on September 27, 2019.”

“Judge Trevor N. McFadden, writing in EPIC v. AI Commission, rejected the Commission’s arguments that it is exempt from the law. ‘[L]ike a stranger offering candy to a child, the Government invites the Court not to read [the FOIA] literally,’ the court wrote. ‘The Government has not convinced the Court that it should ignore what Congress said.’”

The first produced document is available at:

49 epic.org/foia/epic-v-ai-commission
“EPIC has filed suit to enforce the transparency obligations of the [NSCAI]. ... Yet since its launch in March of 2019, the Commission has operated in near-total secrecy. None of the Commission’s meetings have been announced in advance or opened to the public, and no agendas, minutes, or meeting materials have been published.”

“Twice in the past seven months, EPIC submitted open records and meetings requests to the AI Commission and Department of Defense under [FOIA and FACA]. After both agencies failed to comply with EPIC’s requests, EPIC brought suit on September 27, 2019.”

“Judge Trevor N. McFadden, writing in EPIC v. AI Commission, rejected the Commission’s arguments that it is exempt from the law. ‘[L]ike a stranger offering candy to a child, the Government invites the Court not to read [the FOIA] literally,’ the court wrote. ‘The Government has not convinced the Court that it should ignore what Congress said.’”

The first produced document is available at:

49 epic.org/foia/epic-v-ai-commission
“EPIC has filed suit to enforce the transparency obligations of the [NSCAI]. ... Yet since its launch in March of 2019, the Commission has operated in near-total secrecy. None of the Commission’s meetings have been announced in advance or opened to the public, and no agendas, minutes, or meeting materials have been published.”

“Twice in the past seven months, EPIC submitted open records and meetings requests to the AI Commission and Department of Defense under [FOIA and FACA]. After both agencies failed to comply with EPIC’s requests, EPIC brought suit on September 27, 2019.”

“Judge Trevor N. McFadden, writing in EPIC v. AI Commission, rejected the Commission’s arguments that it is exempt from the law. ‘[L]ike a stranger offering candy to a child, the Government invites the Court not to read [the FOIA] literally,’ the court wrote. ‘The Government has not convinced the Court that it should ignore what Congress said.’”

The first produced document is available at:

epic.org/foia/epic-v-ai-commission
FOIA’ing the Defense Innovation Unit

After numerous FOIA requests to the Office of the Secretary of Defense for contract information all ended in blanket denials or unresponsiveness, I decided to take another tact.

You can find the exchanges at:
docs.google.com/document/d/17lM9zZMDlIDwpx F79qU1NFYsWPAnVrgpaVDqet6HVw/edit?usp=sharing.
FOIA’ing the Defense Innovation Unit

After numerous FOIA requests to the Office of the Secretary of Defense for contract information all ended in blanket denials or unresponsiveness, I decided to take another tact.

You can find the exchanges at:
docs.google.com/document/d/17lM9zZMDlDwpiphery=sharing.

F79qU1NFYsWPAdunVrgpaVDqet6HVw/edit?usp=sharing.
Many of my FOIA requests demanded a particular award number associated with the contract, and one quickly realizes that the legacy interface to the Federal Procurement Database System (FPDS) is the official source.

It turns out that you can pull down 10 awards at a time in XML format via an RSS feed...
Many of my FOIA requests demanded a particular award number associated with the contract, and one quickly realizes that the legacy interface to the Federal Procurement Database System (FPDS) is the official source.

It turns out that you can pull down 10 awards at a time in XML format via an RSS feed...
Embeddings for Contractors from FPDS

We can traverse award data to produce cooccurrence matrix index by vendors, funders, and award description n-grams.

A good heuristic is a $1/d$ weighting for terms occurring $d$ unigrams apart and subsequently squashing sum via $\log(x + 1)$.

One can then train a low-rank model by running an Alternating Weighted Least Squares method to find an approximate local minimum of:

$$L(X, Y) = \frac{1}{2} \| \sqrt{W} \circ (A - XY') \|_F^2 + \frac{\lambda}{2} (\|X\|_F^2 + \|Y\|_F^2)$$

For weight matrix of form $W_{i,j} = r_i c_j$ if $A_{i,j} \neq 0$ and $W_{i,j} = \alpha r_i c_j$ otherwise, one only needs to sparsely correct a fixed background Gramian for each subproblem.\(^{50}\)

We use the last 18 months of awards, set $r_i = 1$, $c_j = \text{pinv}(\|A(:, j)\|_1)$, a rank of 100, $\alpha = \lambda = 0.01$, limit to the maximum 150k vendors, and perform 10 iterations.

\(^{50}\)See Pan and Schulz, dl.acm.org/doi/10.1145/1557019.1557094
Embeddings for Contractors from FPDS

We can traverse award data to produce cooccurrence matrix index by vendors, funders, and award description n-grams.

A good heuristic is a $1/d$ weighting for terms occurring $d$ unigrams apart and subsequently squashing sum via $\log(x + 1)$.

One can then train a low-rank model by running an Alternating Weighted Least Squares method to find an approximate local minimum of:

$$L(X, Y) = \frac{1}{2} \| \sqrt{W} \circ (A - XY') \|^2_F + \frac{\lambda}{2} (\|X\|^2_F + \|Y\|^2_F)$$

For weight matrix of form $W_{i,j} = r_i c_j$ if $A_{i,j} \neq 0$ and $W_{i,j} = \alpha r_i c_j$ otherwise, one only needs to sparsely correct a fixed background Gramian for each subproblem.\(^{50}\)

We use the last 18 months of awards, set $r_i = 1$, $c_j = \text{pinv}(\|A(:,j)\|_1)$, a rank of 100, $\alpha = \lambda = 0.01$, limit to the maximum 150k vendors, and perform 10 iterations.

\(^{50}\)See Pan and Schulz, dl.acm.org/doi/10.1145/1557019.1557094
Embeddings for Contractors from FPDS

We can traverse award data to produce cooccurrence matrix index by vendors, funders, and award description n-grams.

A good heuristic is a $1/d$ weighting for terms occurring $d$ unigrams apart and subsequently squashing sum via $\log(x + 1)$.

One can then train a low-rank model by running an Alternating Weighted Least Squares method to find an approximate local minimum of:

$$L(X, Y) = \frac{1}{2} \| \sqrt{W} \circ (A - XY') \|_F^2 + \frac{\lambda}{2} (\| X \|_F^2 + \| Y \|_F^2)$$

For weight matrix of form $W_{i,j} = r_i c_j$ if $A_{i,j} \neq 0$ and $W_{i,j} = \alpha r_i c_j$ otherwise, one only needs to sparsely correct a fixed background Gramian for each subproblem.\textsuperscript{50}

We use the last 18 months of awards, set $r_i = 1$, $c_j = \text{pinv}(\|A(:,j)\|_1)$, a rank of 100, $\alpha = \lambda = 0.01$, limit to the maximum 150k vendors, and perform 10 iterations.

\textsuperscript{50}See Pan and Schulz, dl.acm.org/doi/10.1145/1557019.1557094
Embeddings for Contractors from FPDS

We can traverse award data to produce cooccurrence matrix index by vendors, funders, and award description n-grams.

A good heuristic is a $1/d$ weighting for terms occurring $d$ unigrams apart and subsequently squashing sum via $\log(x + 1)$.

One can then train a low-rank model by running an Alternating Weighted Least Squares method to find an approximate local minimum of:

$$L(X, Y) = \frac{1}{2} \| \sqrt{W} \circ (A - XY') \|^2_F + \frac{\lambda}{2} (\| X \|^2_F + \| Y \|^2_F)$$

For weight matrix of form $W_{i,j} = r_i c_j$ if $A_{i,j} \neq 0$ and $W_{i,j} = \alpha r_i c_j$ otherwise, one only needs to sparsely correct a fixed background Gramian for each subproblem.\footnote{See Pan and Schulz, dl.acm.org/doi/10.1145/1557019.1557094}

We use the last 18 months of awards, set $r_i = 1$, $c_j = \text{pinv}(|A(:,j)|_1)$, a rank of 100, $\alpha = \lambda = 0.01$, limit to the maximum 150k vendors, and perform 10 iterations.
Embeddings for Contractors from FPDS

We can traverse award data to produce cooccurrence matrix index by vendors, funders, and award description n-grams.

A good heuristic is a $1/d$ weighting for terms occurring $d$ unigrams apart and subsequently squashing sum via $\log(x + 1)$.

One can then train a low-rank model by running an Alternating Weighted Least Squares method to find an approximate local minimum of:

$$L(X, Y) = \frac{1}{2} \| \sqrt{W} \circ (A - XY') \|_F^2 + \frac{\lambda}{2} (\|X\|_F^2 + \|Y\|_F^2)$$

For weight matrix of form $W_{i,j} = r_i c_j$ if $A_{i,j} \neq 0$ and $W_{i,j} = \alpha r_i c_j$ otherwise, one only needs to sparsely correct a fixed background Gramian for each subproblem.$^{50}$

We use the last 18 months of awards, set $r_i = 1$, $c_j = \text{pinv}(\|A(:,j)\|_1)$, a rank of 100, $\alpha = \lambda = 0.01$, limit to the maximum 150k vendors, and perform 10 iterations.

$^{50}$ See Pan and Schulz, dl.acm.org/doi/10.1145/1557019.1557094
Some preliminary results

You can find an extremely basic interface to a cluster tree formed over the embeddings at: techinquiry.org/fpds/.
The code is at gitlab.com/techinquiry/fpds-interface.

A massive amount of time was spent manually building JSON representations of subsidiary and joint venture graphs so that cooccurrences with subsidiaries are also applied to their ancestors.

In addition to a cluster tree over 138k vendors, 125 awardees of the DIU and Kessel Run were identified and connected to the clustering.

Similarly, the companies identified in Mijente’s “Who’s Behind ICE?” report are also coalated.\textsuperscript{51}

\textsuperscript{51}mijente.net/notechforice/
Some preliminary results

You can find an extremely basic interface to a cluster tree formed over the embeddings at: techinquiry.org/fpds/. The code is at gitlab.com/techinquiry/fpds-interface.

A massive amount of time was spent manually building JSON representations of subsidiary and joint venture graphs so that cooccurrences with subsidiaries are also applied to their ancestors.

In addition to a cluster tree over 138k vendors, 125 awardees of the DIU and Kessel Run were identified and connected to the clustering.

Similarly, the companies identified in Mijente’s “Who’s Behind ICE?” report are also coalated.\footnote{mijente.net/notechforice/}
Some preliminary results

You can find an extremely basic interface to a cluster tree formed over the embeddings at: techinquiry.org/fpds/.
The code is at gitlab.com/techinquiry/fpds-interface.

A massive amount of time was spent manually building JSON representations of subsidiary and joint venture graphs so that cooccurrences with subsidiaries are also applied to their ancestors.

In addition to a cluster tree over 138k vendors, 125 awardees of the DIU and Kessel Run were identified and connected to the clustering.

Similarly, the companies identified in Mijente’s “Who’s Behind ICE?” report are also coalated.¹

¹mijente.net/notechforice/
Some preliminary results

You can find an extremely basic interface to a cluster tree formed over the embeddings at: techinquiry.org/fpds/.
The code is at gitlab.com/techinquiry/fpds-interface.

A massive amount of time was spent manually building JSON representations of subsidiary and joint venture graphs so that cooccurrences with subsidiaries are also applied to their ancestors.

In addition to a cluster tree over 138k vendors, 125 awardees of the DIU and Kessel Run were identified and connected to the clustering.

Similarly, the companies identified in Mijente’s “Who’s Behind ICE?” report are also coalesced.\textsuperscript{51}

\textsuperscript{51}mijente.net/notechforice/
Neighbors: Raytheon Missile Systems Company

Using awls.nearest_neighbors:

- Team Apache Systems LLC
- JRM Enterprises, Inc.
- Bell Boeing Joint Project Office
- Intelligent Systems Technology, Inc.
- Alliant TechSystems Inc.
- DSE, Inc.
- Sierra Research
- Janya, Inc.
- Opticomp Corporation
- Lockheed Martin Tactical Systems, Inc.
- Goodrich Corporation
- Cymfony, Inc.
Neighbors: Palantir USG, Inc.

- Prizum Inc.
- Qbase-McNeil Integrated Solutions
- Optech, LLC
- 360 IT Integrated Solutions
- EDC Consulting, LLC
- Safer Society Group Sweden AB
- ConvergeOne Systems Integration, Inc.
- Shine Enterprises, LLC
- Venture NetComm, Inc.
- Kalos, Inc.
- Hubstream, Inc.
- Antares Technology Corp.
- Dev Technology Group, Inc.
Neighbors: Pivotal Software, Inc.

- Connexta, LLC
- Alaska Northstar Resources LLC
- Sudolynx Incorporated
- Dell Technologies, Inc.
- General Assembly Space, Inc.
- Oneida Technical Solutions, LLC
- F9 Teams Inc.
- TDMK Digital, LLC
- Seeker Integrated Solutions, Inc.
- AgileDelta, Inc.
- Vennetic, Inc.
- EO Vista, LLC
- SilverThread, Inc.
- ATC IT Services LLC
- Wolf Den Associates, LLC
- NSS Labs, Inc.
- Athieb Intergraph Saudi Company
Neighbors: Kudu Dynamics LLC

- Smart Information Flow Technologies, LLC
- Systems & Technology Research LLC
- Graf Research Corporation
- Geometric Data Analytics
- Intelligent Fusion Technology, Inc.
- Inferlink Corporation
- Boston Fusion Corp.
- Apogee Research, LLC
- Language Computer Corporation
- Raytheon BBN Technologies Corp.
- Assured Information Security, Inc.
- Episys Science, Inc.
- Charles River Analytics, Inc.
- Notos Technologies LLC
- Nucrypt LLC
- Cynnovative, LLC
Part of Cellebrite’s Cluster
Neighbors: Cellebrite

- Pen-Link, Ltd.
- Grayshift, LLC
- Adaptive Digital Systems, Inc.
- Avail Forensics LLC
- Callyo 2009 Corp.
- Special Services Group, LLC
- National Cyber-Forensics and Training Alliance Limited
- Berla Corporation
- Cox Virginia Telcom, LLC
- SatCom Global, Inc.
- Audio Visual Services Group, LLC
- V.H. Blackinton & Co., Inc.
- STI-Co Industries, Inc.
- Vound Colorado, Ltd.
- Gans & Pugh Associates, Inc.
Part of Cornell’s Cluster

- Colorado State University
- Cornell University
- Fish & Wildlife Conservation Commission, Florida
- Florida International University
Neighbors: Cornell University

- Washington University
- University of Delaware
- Texas Tech University System
- Columbia
- Portland State University
- Smithsonian Institution
- SETI Institute
- Utah State University
- University of Central Florida
- University of Hawaii System
- UC Santa Barbara
- Association for Universities for Research in Astronomy
- Montana State University
- Arizona State University
Closing thoughts

Further shift from traditional defense contractors to VC-style funding: larger surface area, faster movement, less transparency. Keeping track of companies is serious effort. (Need better open data.)

The current US industry view is that it is immoral for foreign governments to build oppressive technology; yet, when a US tech company provides it to them, it is ‘engaging’ and ‘complying with local laws and regulations’.

When institutions go off the rails, it is up to its members to collectively stand up to the abuse. That includes students, scientists, and engineers.

If tech companies, and the US, care about minimizing harms from their products, they should follow Ireland (and EU) by guaranteeing protections for employees who speak out in the public interest.

---

52 Cf. Tim Cook’s statement at www.ft.com/content/bb188768-8221-11e7-94e2-c5b903247afd
Closing thoughts

Further shift from traditional defense contractors to VC-style funding: larger surface area, faster movement, less transparency. Keeping track of companies is serious effort. (Need better open data.)

The current US industry view is that it is immoral for foreign governments to build oppressive technology; yet, when a US tech company provides it to them, it is ‘engaging’ \(^{52}\) and ‘complying with local laws and regulations’ \(^{53}\).

When institutions go off the rails, it is up to its members to collectively stand up to the abuse. That includes students, scientists, and engineers.

If tech companies, and the US, care about minimizing harms from their products, they should follow Ireland (and EU) by guaranteeing protections for employees who speak out in the public interest.

\(^{52}\text{Cf. Tim Cook’s statement at www.ft.com/content/bb188768-8221-11e7-94e2-c5b903247afd}\)

Closing thoughts

Further shift from traditional defense contractors to VC-style funding: larger surface area, faster movement, less transparency. Keeping track of companies is serious effort. (Need better open data.)

The current US industry view is that it is immoral for foreign governments to build oppressive technology; yet, when a US tech company provides it to them, it is ‘engaging’\(^52\) and ‘complying with local laws and regulations’\(^53\).

When institutions go off the rails, it is up to its members to collectively stand up to the abuse. That includes students, scientists, and engineers.

If tech companies, and the US, care about minimizing harms from their products, they should follow Ireland (and EU) by guaranteeing protections for employees who speak out in the public interest.

\(^{52}\) Cf. Tim Cook’s statement at www.ft.com/content/bb188768-8221-11e7-94e2-c5b903247afd

Closing thoughts

Further shift from traditional defense contractors to VC-style funding: larger surface area, faster movement, less transparency. Keeping track of companies is serious effort. (Need better open data.)

The current US industry view is that it is immoral for foreign governments to build oppressive technology; yet, when a US tech company provides it to them, it is ‘engaging’\(^{52}\) and ‘complying with local laws and regulations’\(^{53}\).

When institutions go off the rails, it is up to its members to collectively stand up to the abuse. That includes students, scientists, and engineers.

If tech companies, and the US, care about minimizing harms from their products, they should follow Ireland (and EU) by guaranteeing protections for employees who speak out in the public interest.

\(^{52}\) Cf. Tim Cook’s statement at www.ft.com/content/bb188768-8221-11e7-94e2-c5b903247afd

Questions and Comments

Thanks:

- OpenCorporates for their open corporate database.
- The Internet Archive for their historical website records.
- My hosts – Austin Benson, Erika Fowler-Decatur, and CAM.