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Image is derived from the Wayback Machine cache of MAXAR subsidiary, and IBM subcontractor, The Human Geo Group, LLC.

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Abstract

Tech Inquiry has released an open source system for monitoring international corporate and NGO behavior, initially across the 'Five Eyes' intelligence sharing alliance between: the United States, the United Kingdom, Australia, Canada, and New Zealand.

As the first of a two-part report, we demonstrate the utility of extending the methodology of our previous report – which focused entirely on prime awards – with subaward data reported through USASpending.gov by mapping out the subcontractors – and broader Five Eyes contracting footprints – from awards involving:

- Emotion recognition company smileML subcontracting with US Special Operations Command (USSOCOM) for "Autonomy Enabled [Intelligence, Surveillance, and Reconnaissance]".

- AI surveillance and counter-drone company Anduril Industries subcontracting with the U.S. Navy and Air Force in a contract involving a lethal autonomous tank ('EMAV') and a robot dog ('Vision 60').

- Location-tracking data broker Outlogic, Inc. (FKA X-Mode Social) subcontracting under the U.S. Defense Intelligence Agency alongside C4ADS, a defense nonprofit built on Palantir that has worked closely with both The New York Times and BuzzFeed.

- Location-tracking data broker Venntel subcontracting with the U.S. Air Force alongside U.S. think tanks, such as CSIS and lesser-known China-watching CACR, drone and satellite surveillance companies Sierra Nevada Corporation and MAXAR, Eric Schmidt backed Rebellion Defense, and corruption-linked SOSi in collaboration with the "Remote Sensing Center" of the Naval Postgraduate School.

- ECS Federal's three Project Maven drone surveillance prime contracts, "Kubera", "Pavement", and "Avalanche", including Clarifai contributing facial recognition and confirming the role of Microsoft, AWS, Palantir, Rebellion Defense, etc. We also document a connected Palantir-centric "Pubilcly Available Information (PAI) enclave" and a predecessor surveillance award, "Project CICERO", with USSOCOM's J2 Intelligence. And we detail a prime award to Booz Allen involving Project Maven, Palantir, and social media analytics by Popily (DBA Yonder, FKA New Knowledge), who was infamously caught faking Russian support for the opponent of a Democratic candidate.

Our follow-up report will focus on the detailed methodology behind importing and navigating international procurement and lobbying feeds and the construction of our associated – and publicly released – manually curated dataset of: corporate logos, URLs, contracting names, subsidiaries, partnerships, investments, and citations of related investigative journalism. At a high level, Tech Inquiry's Influence Explorer is a recommendation system interface to international procurement and lobbying feeds making use of data including:

- Corporations and the government entities they contract with, prime awardees and their subcontractors, the terms in the contracts, and any product classification codes.

- Any entity and the terms in their associated websites.

- Manually curated, weighted associations between arbitrary entities, including funding relationships for nonprofits and startups.

Iteratively constructing such corporate maps has become an integral component of our exploration of large networks of corporations and NGOs, and links to the entity profiles are peppered throughout our report.

Both the software and data behind our Influence Explorer are available at gitlab.com/tech-inquiry/InfluenceExplorer, and a deployed instance is accessible via techinquiry.org/explorer/.

1   Introduction

Even when investigating a single form of influence (e.g., government contracting or lobbying) within a particular country or region, the official government data sources (e.g., USASpending.gov, AusTender, or CAL-ACCESS) at best partially expose corporate hierarchies and correct for name changes/ misspellings. And, in the case of USASpending.gov, the entity normalization system (the Data Universal Numbering System (D-U-N-S) of The Dun & Bradstreet Corporation) is proprietary and ostensibly cannot be distributed in bulk.[1] Further, linking several such data feeds for a single entity (e.g., from both U.S. and Australian federal procurement) requires the manual introduction of a unique identifier for each entity.

Another complicating factor is that companies often sell their products to governments through intermediaries:

- Google famously subcontracted on the Pentagon's project to apply AI to triage Wide Area Motion Imagery drone surveillance (Project Maven) through ECS Federal, LLC, which was acquired by (publicly traded) staffing company ASGN Incorporated in 2018.[2]

- ServiceNow, Inc., an American cloud computing company which acquired Canadian AI provider (and human-rights branded) Element AI in November of 2020, resells its products to the U.S. government through Integrated Solutions Management, which was acquired by ECS Federal in December 2020.[3]

- Amazon Web Services, Inc. has sold more than $57M of its cloud computing to U.S. Customs and Border Protection through Four Points Technology, L.L.C and more than $44M to U.S. Citizenship and Immigration Services through JHC Technology, Inc., which was acquired by Effectual, Inc. in January 2020.

Thus, second-order financial flows are an important component of any holistic analysis of technology sales to governments, and one must contend with a spectrum between simple (hierarchical) bookkeeping and ad-hoc analysis of particular high-profile contracting relationships.

Yet another layer of complication arises from governments withholding disclosure of large contracts on national security grounds:

- A $10B cloud computing award from the NSA to Amazon Web Services – codenamed "WildandStormy" – only became public due to a bid protest from Microsoft through the Government Accountability Office.

- The multi-billion dollar (ceiling) cloud computing award from the CIA to Amazon, Microsoft, Oracle, IBM, and Google in late 2020 – "Commercial Cloud Enterprise (C2E)" – is widely quoted in the press but withheld from public procurement records.[4] The same is true of the earlier $600M cloud computing award between the CIA and Amazon, "Commercial Cloud Services (C2S)".

We therefore conclude that procurement analysis must – on top of handling entity resolution and subsidiary relationships – incorporate reseller networks, subcontracting relationships, and investigative journalism.

The goal of our two-part report is to demonstrate, and then describe, our system for keeping track of, and even discovering, myriad networks of corporations and NGOs. It boils down to a recommendation system built on top of numerous curated government data feeds (both procurement and lobbying), as well as known partnerships,

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[1]USASpending.gov provides both a downstream subset of FPDS.gov (it excludes Other Transaction Agreements), as well as subcontracting data not available on FPDS.gov.

[2]As we show below, despite the Pentagon confirming Google subcontracting under ECS Federal for Project Maven, Google is not publicly listed as a subawardee, though tech reseller Carahsoft – whose numerous providers include Google – is a subawardee who delivered an "*ML training data analysis [and] EO object detection algorithm*". And a Freedom of Information request submitted by the author revealed that Google Cloud AI was being resold to U.S. Customs and Border Protection – through Thundercat Technology, LLC – for the stated purpose of processing thermal imagery from Anduril's Autonomous Sentry Towers.

[3]ServiceNow's previous CEO, John Donahoe, since became CEO of Nike – which The New York Times reported as lobbying against the Uyghur Forced Labor Prevention Act – and has also served as CEO of eBay and PayPal. Mr. Donahoe is married to former U.S. Ambassador Eileen Donahoe, who is the Executive Director of Stanford's Global Digital Policy Incubator, a member of the multi-stakeholder digital rights organization Global Network Initiative, and the former Director of Global Affairs at Human Rights Watch.

[4]In contracting parlance, the 'ceiling' of a contracting vehicle is the maximum amount that can eventually be spent through the mechanism – as opposed to the amount that has already been, or is expected to be, spent.

Figure 1: A diagram of the subcontracting relationship between emotion recognition company smileML and USSOCOM through BAE Systems for "*Autonomy Enabled ISR*".

venture capital investments, nonprofit funding relationships, and term associations from websites. It dramatically expands and improves upon the methodology from our earlier report – Reports of a Silicon Valley/Military Divide Have Been Greatly Exaggerated – and both its data and source code are open source and permissively licensed at gitlab.com/tech-inquiry/InfluenceExplorer.

2   Subcontracting Examples

This first report shows how our resulting system can be used to map out previously unreported deployments of emotion recognition, facial recognition, and location tracking by the U.S. military in consortia involving prominent think tanks (at least partially coordinated through the DC-area office of the Naval Postgraduate School's Remote Sensing Center). We also map out the subcontracting network for Project Maven, as well as a related Secure Unclassified Network (SUNet) "Publicly Available Information (PAI) enclave" involving Palantir and a preceding "Project CICERO" with USSOCOM's J2 Intelligence Directorate.

While one can seed such searches through many different data feeds, US federal subcontracting data has proven to be – by far – the most interesting source of ledes. One could argue this is due to the signficant amount of information implied by both knowledge of which entities are contracting together, as well as the cumulative effects of separate subaward descriptions each shedding light on the prime award.

2.1   Emotion Recognition Deployment by USSOCOM

We begin with a trivial, yet seemingly unreported, example of U.S. Special Operations Command (USSOCOM) procuring "*autonomy enabled ISR*" – 'ISR' is common shorthand for "Intelligence, Surveillance, and Reconnaissance" – from smileML, Inc., whose slogan is "*Making Emotion Recognition an Exact Science*". The procurement involved smileML serving as a subcontractor to a subsidiary of British defense giant BAE Systems (see Fig. 1), with roughly $1.6M obligated to BAE Systems and $235K to smileML (as shown in Fig. 2).[5] [6] Figure 3 contains depictions of both smileML's crowdsourced emotion recognition dataset collection app (MatchMoji) and sales rep emotion monitoring software (SaleSpot).

Despite smileML selling its emotion recognition to U.S. Special Operations Command, Apple advertises the data collection app as suitable for children as young as four. And a Google Cloud AI for Education case study on smileML explains that the company pivoted from its earlier Guess Less Pinterest like-sharing app to emotion recognition (in early 2018) as a result of wanting automated sentiment analysis of user interactions with their product.

The author recommends [Barrett et al., *Emotional Expressions Reconsidered: Challenges to Inferring Emotion*

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[5]While we use USASpending.gov as a primary source where possible, we find subawards much easier to explore through our own open source, freely available tool.

[6]As is the case for numerous other awards mentioned in this document, the author has submitted a Freedom of Information Act request for a copy of the contract, including any subawards and modifications, as well as any associated emails.

Figure 2: A screengrab from the subaward tab of a USASpending.gov prime award to a subsidiary of BAE Systems for "*Autonomy Enabled ISR*". The $235K of subawards are to emotion recognition company smileML, inc.

from Human Facial Movements, 2019] for a leading critique of emotion recognition technology and the preprint Excavating "Excavating AI" from Michael Lyons for a critical reflection on a recent high profile campaign against emotion recognition.

The methodology of the author's previous report misses smileML's relationship with USSOCOM, as subawards are not provided through the Federal Procurement Data System's ATOM feed and no prime award description refers to smileML or its products.[7] However, a $1.5M obligated/exercised/ceiling prime award to smileML from the Air Force's Small Business Technology Transfer (STTR) program for "*COVID-19 DIB Edge-Based Emotion Recognition*" has been public since September 2020.

2.2 ManTech TSG-2, Anduril, and Autonomous Tanks

In contrast to the above autonomous surveillance contract with USSOCOM involving emotion recognition company smileML, the remainder of our examples involve numerous subawardees. And since each subaward description provides a hint – or even outright description – of the goals of the award, one can piece together interesting information if the descriptions are combined with knowledge of the product lines of the contractors.
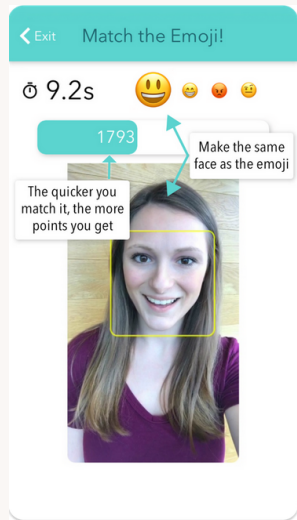
We first demonstrate multiple subawardee analysis on a – seemingly unreported – prime award with the U.S. Navy for "*Marine Corps Science & Technology Innovation and Rapid Prototyping for the Marine Corps Warfighting Laboratory / Futures Directorate*" to a joint venture led by ManTech International, named ManTech TSG-2, whose other venture partners appear to not be publicly disclosed. The partners of the predecessor joint venture, ManTech TSG-1, also appear to be a secret, despite their heavily redacted – and failed – bid protest against competitor Jacobs Engineering. Though ManTech has previously formed a joint venture with Genex Systems, GenTech Partners, and has publicly partnered with Google, Amazon, and Microsoft on cloud computing, and a separate award involved a subcontract with Carahsoft for "*Google display software*". (We also note that ManTech has long had a Technical Services Group using the TSG initialism.)

Even if we are unable to determine the joint venture partners of ManTech TSG-2, their subcontractors on the "*Marine Corps Warfighting Laboratory*" contract are significantly more transparent and are listed in Table 1. The largest subaward, $1.8M for the "Deployment and evaluation of Artificial Intelligence Hardware", went to Anduril Industries, whose four most prominent product lines include:
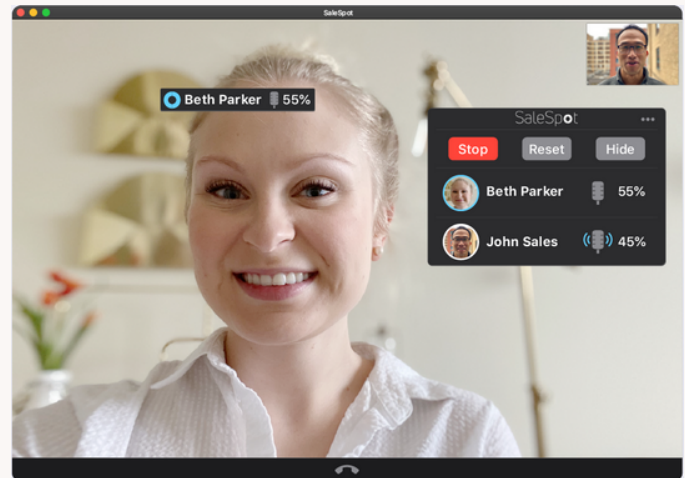
- The Lattice real-time data fusion platform.

- The Sentry autonomous surveillance tower, which has been deployed by U.S. Customs and Border Protection along the U.S.-Mexico border (including near Del Rio, TX) and makes use of Echodyne's EchoGuard.[8]

- The Ghost Small Unmanned Aircraft Systems (sUAS). And,

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[7]Tech Inquiry thus combines prime award data from the FPDS ATOM feed with the subaward data from USASpending.gov to avoid unnecessary 24 hour or more delays in availability.

[8]This is the product involved in the previous reference to a Tech Inquiry FOI request produced a statement of work for a contract between US government tech reseller Thundercat Technology and USCBP that committed to using Google Cloud's AI to process Anduril's Sentry thermal imagery.

(a) smileML's MatchMoji

(b) smileML's SaleSpot

(c) MatchMoji's pitch in the Apple Store

(d) MatchMoji specs in the Apple Store

Figure 3: Emotion recognition company smileML trains its model through the crowd-sourced collection game MatchMoji – **which Apple markets as suitable for children as young as four** – and sells a model to managers of sales teams (to monitor, for example, how often they smile) through their SaleSpot app. smileML has also sold its services to both U.S. Special Operations Command (USSOCOM) and the U.S. Air Force (the latter award explicitly mentions emotion recognition). The MatchMoji and SaleSpot depictions, and Apple Store descriptions, were retrieved from smile-ml.com/technology, salespot.io, and apps.apple.com/us/app/matchmoji/id1360888175 on August 26, 2021.
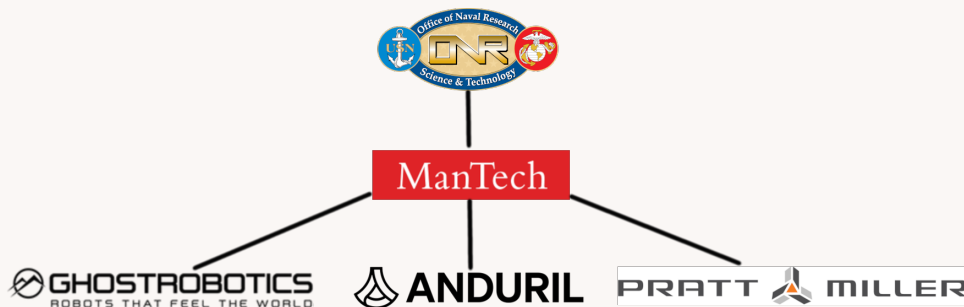

Figure 4: A set of subcontractors with the US Navy's Office of Naval Research on the prime award to ManTech International's joint venture, ManTech TSG-2, including Anduril Industries, Ghost Robotics, and Pratt & Miller.

Amount	Company	Transaction Period	Summary
$1.8M	Anduril Industries, Inc.	2018.11	"*Deployment and evaluation of Artificial Intelligence Hardware*"
$0.28M	Ghost Robotics Corporation	2019.08	"*Purchase of Vision 60 Pilot Program*"
$1.2M	Kwesst Micro Systems Inc.	2020.07 – 2020.12	"*Integrated Fires Module*"
$0.99M	Pratt & Miller Engineering & Fabrication, Inc.	2020.03 – 2020.10	"*EMAV Transportation and Repairs*"
$0.24M	Radio Reconnaissance Technologies, Inc.	2020.06	"*Engineering and Technical Support*"
$0.15M	Honeywell International Inc.	2021.01	"*Purchase of Small SATCOM kit*"
$0.13M	Daimler subsidiary Torc Robotics, Inc.	2019.04 – 2019.07	For a "*Purchase of PinPoint Localization/Safestop*". Torc's PinPoint Localization is a "*continuous positioning system for ground vehicles...provid[ing] multi-sensor fusion of dual-GPS receivers*". Whereas SafeStop is Torc's discontinued kill-switch for "*autonomous and remote-control systems*".
$0.13M	Syncopated Engineering, Inc.	2019.07 – 2020.01	For "*Purchase of Cielo Mockingbird System*" and "*Mockingbird Mission Management Application*". A June 30, 2021 press release from the U.S. Army states: "*[Syncopated Engineering]'s Mockingbird RF system emulates multiple radio personalities and manipulates the spectrum to deceive and confuse the adversary*"
$0.06M	Hexagon subsidiary Autonomous Stuff LLC	2019.03	"*Purchase of High Definition LIDAR Sensors*"
$0.05M	goTenna, Inc.	2019.03	"*Deployment Kits*"
$0.04M	Drone monitoring company Sensofusion, Inc.	2019.02	For "*IT Software*".

Table 1: Robotics, Surveillance, SatCom, and Electronic Warfare Subawardees on a prime award from the U.S. Navy to the ManTech TSG-2 Joint Venture involving the "EMAV" autonomous tank and "Vision 60" robot dog.

- The Anvil Counter Unmanned Aircraft System (cUAS), which essentially just rams into competing drones.

Despite a wave of press coverage from Popular Mechanics, WIRED, and CNet in 2018, Anduril's work on a questionably 'autonomous' tank for fighting California wildfires – led by former Mythbusters star Jamie Hyneman – was quickly forgotten. Though in the years since the Anduril/Mythbuster press stunt, fellow subawardee Pratt & Miller has been delivering a machine-gun and missile launcher equipped autonomous tank – called the "Expeditionary Autonomous Modular Vehicle" (EMAV) – to the US Department of Defense.[9] Which makes it of note that Pratt & Miller's subaward alongside Anduril is for "*EMAV transport and repair*".

Figure 5 provides a visual comparison of Anduril's prototype firefighting 'autonomous' tank – which confusingly has the same name as their border surveillance product – and Pratt & Miller's EMAV. While *we do not have enough evidence to conclude that Anduril was directly involved with Pratt & Miller's autonomous machine-gun and missile-launcher equipped tank*, the two companies subcontracting on the same DoD award arguably deserves as much attention as the firefighting tank.

Pratt & Miller has not responded to a request for comment on the scope of their subaward despite forwarding the author to a Sales & Marketing representative by phone.

The second-largest subaward – $0.28M to Boston Dynamics competitor Ghost Robotics – is also of interest, as it directly refers to the procurement of a "*Vision 60 Pilot Program*". While Boston Dynamics has received significantly more public attention than Ghost Robotics – arguably a result of the combination of their frequent viral videos and their ownership changing from Alphabet to SoftBank to Hyundai – the Ghost Robotics "Vision 60" robot is a direct competitor to the Boston Dynamics "Spot" that has been publicly demoed by the U.S. Air Force as part of an Advanced Battle Management System (ABMS) exercise.[10]

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[9]Technically, the machine gun and missile launcher are part of Kongsberg's Common Remotely Operated Weapons Station (CROWS-J), though EMAVs are frequently pictured equipped with said weapons system.

[10]Incidentally, Anduril is a prime awardee on ABMS.

(a) Pratt & Miller EMAV

(b) Anduril 'Autonomous' Firefighting Tank, "Sentry". [Credit: Dwight Eschilman / Popular Mechanics]

Figure 5: Pratt & Miller Defense's Expeditionary Modular Autonomous Vehicle (EMAV) compared against Anduril's prototype 'Autonomous' Firefighting Tank, "Sentry", which was led by Mythbuster Jamie Hyneman and profiled by Popular Mechanics in 2018. Pratt & Miller received nearly $1M in a subcontract under ManTech TSG-2 for "*EMAV Transportation and Repairs*", whereas Anduril received $1.8M for "Artificial Intelligence Hardware". Pratt & Miller has referred to the EMAV as "*perhaps [the] most mobile and lethal of [its] robotic vehicles*".

Beyond their work with the US Department of Defense, both Ghost Robotics and Boston Dynamics have worked closely with the Australian Department of Defence: the former sold the Australian defense agency AU$1.2M worth of "*Robotics and Autonomous Systems*" between May 2019 and 2020, and Boston Dynamics received AU$400K for a "Robot" just three months ago.[11] See Fig. 6 for a visual comparison of Vision 60 and Spot.

ManTech International Corporation has not responded to a request for comment on the scope of its prime award through joint venture ManTech TSG-2, or on the list of its fellow joint venturers.

Anduril has not responded to a request for comment on the scope of their subaward under ManTech TSG-2 to support the Marine Corps Warfighting Laboratory. Though one of Anduril's PR representatives from Invariant LLC – formerly known as Heather Podesta + Partners and which Anduril has also spent $1.4M lobbying the US federal government through – had numerous questions about the scope and thesis of this report.

Ghost Robotics did not respond to a request for comment by email.

Torc Robotics did not respond to a request for comment via their contact form.

2.3 DIA data procurement from location-tracking data broker X-Mode Social and Palantir-driven C4ADS on DEMOS

Numerous journalists have expressed concern over the New York Times promoting the usage of two location tracking data vendors (SafeGraph and Cuebiq) – the former of which is connected to Saudi intelligence and recently banned by Google – in contrast with their previous exposé on the harms of the industry. Perhaps uncoincidentally, the next year U.S. Health and Human Services contracted with both of these companies with identical descriptions: "*Data Gathering and Reporting*".

Much less attention has been paid to the relationships between The New York Times, Government Accountability Project, and BuzzFeed with a 'Palantir powered" (see Fig. 8) think tank, The Center for Advanced Defense Studies, Inc. (DBA C4ADS). Beyond working with The New York Times on North Korean oil deliveries in March and with a journalist from the Government Accountability Project on U.S. defense contractors avoiding sanctions in Iraq in June, last month a C4ADS report on U.S. companies buying Xinjiang cotton was covered by BuzzFeed News which – according to a public post from Palantir – "*used Palantir's Foundry and Gotham platforms to integrate and analyze*

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[11] Boston Dynamics also has a CA$203K public contract with Canadian National Defence in 2006 for *Robotic Systems and Equipment*.

(a) Ghost Robotics "Vision 60"

(b) Boston Dynamics "Spot" [Credit: Saint-Cyr Coëtquidan]

Figure 6: The U.S. Air Force demonstrating the Ghost Robotics Vision 60 during an Advanced Battle Management System (ABMS) exercise (Left) and the French Army testing Boston Dynamics's Spot (Right). Anduril Industries is both a prime awardee on ABMS and a fellow subawardee under ManTech TSG-2 with Ghost Robotics.

data". As shown in Table 2, C4ADS was paid $250K by the U.S. Defense Intelligence Agency in Oct. 2020 for "*Bulk Datasets*" as one of the five subcontractors on a Definitive Contract for "*Dynamic Exploitation Modeling for Operation Systems (DEMOS)*". Location-tracking data broker X-Mode Social (now Outlogic, Inc.) – which has sourced location data nonconsensually from a popular Muslim prayer app (Muslim Pro) – was similarly paid $200K on the project "*to procure data needed for [the] program effort*". Roughly two months after C4ADS sold its data to the Defense Intelligence Agency, they supported aspects of a BuzzFeed investigation into detention camps in Xinjiang which won a Pulitzer. (The author is not contesting the veracity of said reporting, but is instead highlighting the impact of C4ADS's work. Further, no direct relationship between C4ADS and X-Mode Social is being asserted.)

Edit on 2021.09.30: Government Accountability Project *journalist Zack Kopplin, who* "shared manifests" *with C4ADS so that they could "identif[y] a much larger corporate ownership network of the Iranian shipping companies", had no comment on what software or data C4ADS used in their collaboration, nor on C4ADS having sold data to the DIA.*

The New York Times journalist who quoted C4ADS's analysis of North Korean oil deliveries – Muyi Xiao – did not respond to request for comment by email or phone.

BuzzFeed News provided the following comment regarding their collaboration with C4ADS:

> *"[O]ur work was done using publicly available satellite imagery, government records, media reports and eyewitness testimony. C4ADS worked with us to look at businesses registered in the location of the camps that we had identified and they did so using paid tools which collate publicly available Chinese business records. Our data analysis was done by our team at BFN using Libre Office, Google Earth, QGIS and Datawrapper."*

The author modified the description of BuzzFeed's reporting on C4ADS's Long Shadows report to say "covered" instead of "summarized" and cited Palantir for how their Foundry and Gotham platforms were used in said report. The participation of both C4ADS and X-Mode Social in the Defense Itelligence Agency's DEMOS project was also expanded upon for clarity. Further, the preface to the following quote was specified to C4ADS.

Dr. Darren Byler, an Assistant Professor of International Studies at Simon Frasier University who recently authored the book In The Camps, responded to C4ADS's relationships by stating:

> *"While it is crucially important to examine forced labor supply chains, mass internment and anti-democratic systems, using tools such as Palantir – which were built to support the U.S. police and military – also has the effect of legitimating such tools."*

Other subcontractors on the project run by Systems & Technology Research LLC (STR) – "*Dynamic Exploitation*
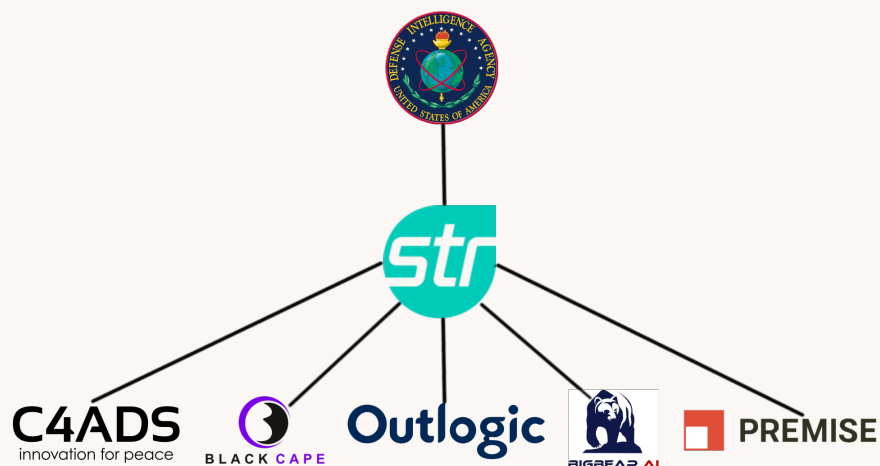
Figure 7: A set of subcontractors with the Defense Intelligence Agency on the prime award to Systems and Technology Research (STR) for the Dynamic Exploitation Modeling for Operational Systems (DEMOS) project that includes location-tracking data broker Outlogic (Formerly Known As X-Mode Social).
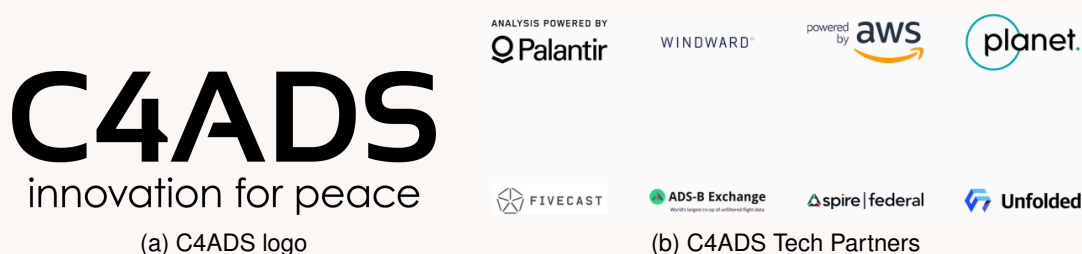

(a) C4ADS logo

(b) C4ADS Tech Partners

Figure 8: The technology partners advertised by the Center for Advanced Defense Studies (C4ADS) at c4ads.org/about-us. Beyond the displayed partnerships with Palantir and its Australian analogue, Fivecast, the intelligence community tied nonprofit has also produced a report on sand dredging in North Korea alongside IHS Markit.

Modeling for Operational Systems (DEMOS)" – included data fusion defense contractors Black Cape, Inc. and BigBear.ai's subsidiary Open Solutions Group, Inc., as well as data collection contractor Premise Data Corporation (see Figure 7).[12] (See Figure 9 for depictions of the collection apps for Premise Data and its competitor, First Mile Geo – DBA Native.) The relationship between STR and X-Mode Social has been reported as far back as Nov. 2020 by Motherboard, and both The New York Times and Motherboard have reported the (warrantless) usage of location-tracking data by the DIA.

(One can argue this DIA award succeeds a previous contract to the same prime, STR, that also subcontracted to Outlogic, BigBear, and Black Cape.)

C4ADS's ties to the US Defense Intelligence Agency and location data broker Outlogic (FKA X-Mode Social) are much less surprising if one pays attention to the full list of public partners (Fig. 8): beyond data fusion company Palantir, its Australian analogue, Fivecast, and satellite imaging company Planet Labs, the list also includes location tracking data broker Foursquare Labs's geospatial analytics subsidiary Unfolded Inc.. [13] C4ADS has even openly advertised the Chairman of its Board, Richard Wirt, as previously serving as CTO of a venture capital arm of U.S. intelligence agencies, In-Q-Tel.

We emphasize that C4ADS subcontracted with the Defense Intelligence Agency alongside location-tracking vendor Outlogic, Inc. (FKA X-Mode Social) **months after** VICE made public the latter nonconsensually sourcing from a Muslim prayer app and reselling to ICE, CBP, and the FBI:

- X-Mode Social sold $60K worth of data to the DIA in Nov. 2019 through STR.

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[12]We left out subawardee PC Specialists, Inc., which appears to have simply sold $44K of hardware.

[13]Despite Fivecast being Australian, it has a $5M prime award with the U.S. Defense Counterintelligence and Security Agency for a "*Prototype of Artificial Intelligence / Machine Learning (AI/ML) technologies to aggregate mass data sets and perform machine assisted analysis*".

Amount	Company	Transaction Period	Summary
$3.39M	Open Solutions Group, Inc. (DBA BigBear, Inc.)	2019.05	"*Provide technical services*"
$1.17M	Black Cape, Inc.	2019.07	"*Provide technical services*"
$0.27M	Premise Data Corporation	2020.04	"*Procurement of historical data*"
$0.25M	The Center For Advanced Defense Studies, Inc. (C4ADS)	2020.10	"*Bulk Datasets*"
$0.20M	Outlogic (FKA X-Mode)	2019.11 – 2020.05	"*Provide Data for Program*"

Table 2: Data and Surveillance subcontractors for the prime award from the U.S. Defense Intelligence Agency to Systems & Technology Research LLC (STR) for the "*Dynamic Exploitation Modeling for Operational Systems (DEMOS)*" project. Sub-awardees include location tracking data broker Outlogic (under the name it used before its acquisition by Digital Envoy, Inc., X-Mode Social, which began through location data monetization of its Drunk Mode app), Center For Advanced Defense Studies (C4ADS) (whose work is frequently cited by The New York Times and BuzzFeed), and gig-work surveillance company Premise Data.

- VICE reported on X-Mode Social's usage of Muslim Pro in March 2020.

- X-Mode Social sold $140K worth of data to the DIA in May 2020 through STR. And,

- C4ADS sold "*Bulk Datasets*" to the DIA in October 2020 through STR.

C4ADS responded to a request for comment on the scope of their $250K sale of "Bulk Datasets" to the DIA alongside X-Mode Social as follows:

> *The confidentiality provisions of our agreement prevent [us] from providing more information on this specific award beyond what is listed.*
>
> *[We] can, however, provide you some context. C4ADS uses Publicly Available Information to conduct analysis and build datasets to identify the actors, networks, and modus operandi responsible for transnational conflict, crime, and corruption. We share and provide this research and data to organizations across civil society, government, and the private sector who are at the frontlines of detecting and disrupting the perpetrators and facilitators of illicit activity. We are proud of the work C4ADS does and the impact it is generating in the world...[C4ADS is] unfamiliar with [X-Mode Social]. C4ADS has [no] business, past or present, with it.*

While journalists have long used members of intelligence agencies as sources, one might be concerned about the possibility of accountability-focused investigative journalists feeling locked into proprietary technology stacks and datasets maintained by intelligence contractors (e.g., Palantir or Dataminr), even if mediated by nonprofit U.S. intelligence contractors such as C4ADS.

Systems & Technology Research LLC (STR) did not respond to a request for comment on the scope of either this prime award with the Defense Intelligence Agency involving location-tracking data broker Outlogic, Inc. (FKA X-Mode Social), or on its three subawards under ECS Federal, LLC (for Project Maven related "Pavement" and "Kubera+Buick" or on "Project CICERO" with SOCOM's J2 Intelligence).

Digital Envoy's VP of Communication, who was previously Chief Marketing Officer of both X-Mode Social and Drunk Mode, indirectly confirmed X-Mode Social's participation but focused on the contract being canceled before X-Mode's rebranding as Outlogic:

> *"Outlogic is not a subcontractor on the referenced contract. I believe it was canceled around a year ago."*

Open Solutions Group (DBA BigBear.ai) did not return a request for comment by email on the scope of either of its two subawards underneath Systems & Technology Research alongside location-tracking data broker X-Mode Social (now Outlogic).
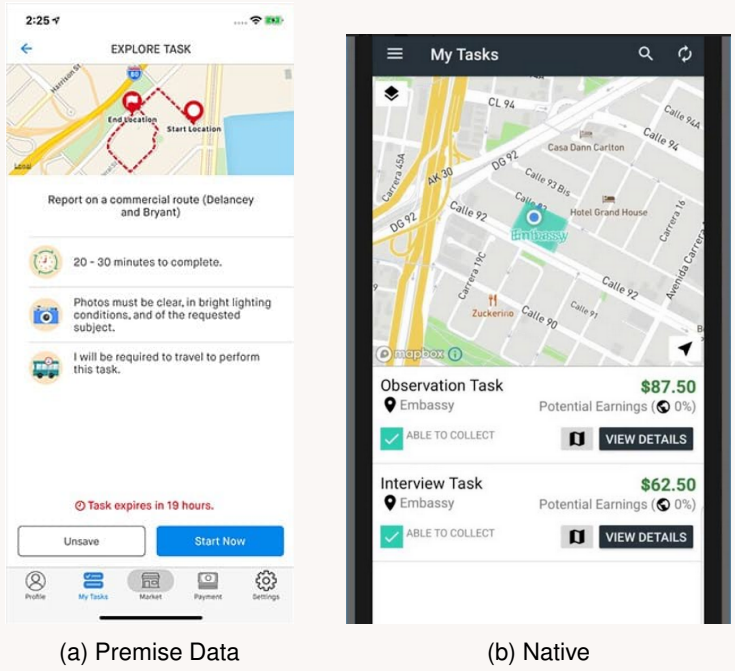
(a) Premise Data   (b) Native

Figure 9: Depictions of the crowdsourced data collection apps for defense contractors Premise Data Corporation and First Mile Geo, Inc. (DBA Native). The depictions were collected from premise.com/howitworks/ and the 'Welcome to Native' video from Native's app by the author on August 26, 2021.

Black Cape did not return a request for comment by email on the scope of either its two subawards underneath Systems & Technology Research alongside location-tracking data broker X-Mode Social (now Outlogic) or on its – later discussed – subaward under the Kubera effort of ECS Federal.

Premise Data Corporation did not return a request for comment by email on the scope of its subaward under Systems & Technology Research alongside location-tracking data broker X-Mode Social (now Outlogic).

Figure 10: A sample of the subcontractors with the US Air Force under a prime award to Alion Science and Technology Corporation that involves location-tracking data broker Venntel, drone manufacturer Sierra Nevada Corporation, and satellite imaging company MAXAR. Other (undisplayed) subawardees include the Center for Strategic and International Studies (CSIS), the Center for Advanced China Research (CACR), and the American Geographical Society (through the Fund for the City of New York)

(a) Remote Sensing Center logo
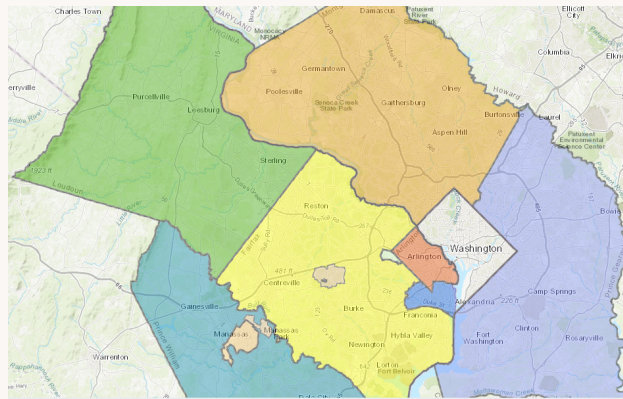
(b) The "North Capital Region" surrounding DC

Figure 11: While the Remote Sensing Center at the Naval Postgraduate School is based in Monterey, California, a subaward to V5 Holdings LLC (DBA V5 Government) – as part of a prime award to Alion Science and Technology – states that "*the RSC office in the National Capital Region (RSCNCR) interacts with DoD, Intelligence Community (IC), and other U.S. Government mission partners to understand their requirements, discover cutting-edge technologies (in Government, commercial, academic, and non-profit sectors), and bring real-world examples to NPS...In parallel, the RSC-NCR also brings technical and programmatic expertise together to allow DoD and IC mission partners to achieve their mission*"

2.4   Remote Sensing Center involving Location Tracking Data Broker Venntel and Prominent Think Tanks and Defense Contractors

C4ADS is unfortunately far from the only think tank subcontracting with the U.S. Department of Defense alongside location-tracking data brokers connected to Outlogic's Muslim Pro privacy abuses. The author discovered a Delivery Order from the U.S. Air Force's Agency for Modeling and Simulation to HII subsidiary Alion Science and Technology Corporation for "*support to the Joint Capability Embedded Technology Insertion and Integration (JCETII) Remote Sensing Center (RSC) within the National Capital Region (NCR)*" whose subcontractors include both Outlogic (FKA X-Mode Social) linked Venntel, Inc. – whose $57K subaward is for a "*Commercial Data Subscription*" – and numerous think tanks (including CSIS) and a Ford Foundation spin-off, which we will detail below). See Figure 10 for a diagram including five of the subcontractors.

Alion describes this $769M award, on its own website, as "*Enabl[ing] Warfighters to Transform Information from Innovative Platforms into Intelligence*". But the description for a $6.6M subaward to McLean Virginia based internet surveillance contractor Creative Radicals LLC (see Fig. 12) is more revealing:

> "*the subcontractor will provide support for the MP (Army 1st Information Operations Command) at the Multi Agency Collaboration Environment (MACE SNC IMS)...This includes assessing the applicability and suitability information operations (IO) activities and cyber mission sets through enriched data integration across platform domains...The objective of this effort is to identify adversary targets of interest in a region specified by the MP using a combination of commercially available sensor data, satellite systems, and other PAI.*
>
> *The MP has provided specific analytic focus areas for immediate turn-around and has requested broader regional analytic focus. Analysis will occur over specific areas of interest and times identified by the MP. The subcontractor shall support the MP's research in human topographical data analysis and pattern of life by investigating methods for extracting geometric information from multi-dimensional data...The engineering and technical expertise applied will facilitate an iterative process of data gathering, processing, analysis, monitoring, and reporting to address requests for information (RFIs) for adversaries of interest by the MP.*
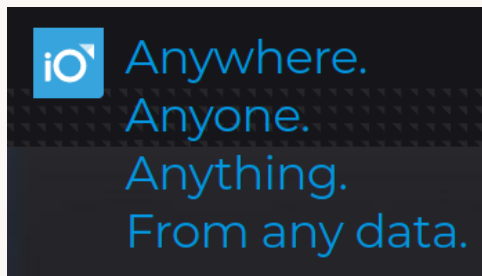>
> *The subcontractor shall concentrate on using the unclassified environment to apply innovative data processing approaches, including crowdsourcing and deep learning algorithms in a big data cloud environment. A combination of information will be communicated on SIPRNET or JWICS to the MP.*

The 1st IO Command is the Army's only Active Component Information Operations organization. A multi-component, brigade-level organization, its mission is to provide Information Operations and Cyberspace Operations support to the Army and other Military Forces through deployable teams, reach back planning and analysis, and specialized training. 1st IO Command is a major subordinate command of the U.S. Army Intelligence and Security Command (INSCOM) and is under the Operational Control (OPCON) of the U.S. Army Cyber Command (ARCYBER)"
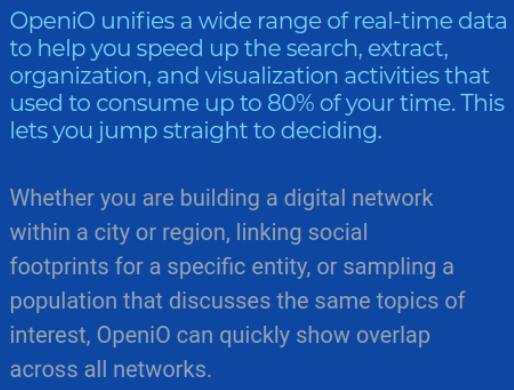
As we will see from our later deep dives into the subcontracting involved with the Pentagon's Project Maven, a connected US Army Secure Unclassified Network (SUNet) project, and a predecessor USSOCOM J2 Intelligence contract, surveillance of "Publicly Available Information" forms a larger component of tech defense contracting than is widely appreciated.

Creative Radicals has not responded to an emailed request for comment on either this subaward under Alion, or its two later-discussed subawards under ECS Federal relating to the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave.

One of the descriptions in the $6.2M worth of subawards to Wide Area Motion Imagery drone manufacturer Sierra Nevada Corporation – whose former Executive Vice President, Mark Sirangelo, took over as Chairman of the Defense Innovation Board after former Google CEO Eric Schmidt – is strikingly similar, but it refers to the "DoD/IC" instead of the "1st Information Operations Command" and uses the term "Key Intelligence Questions" instead of "requests for information".

(a) OpeniO slogan

OpeniO unifies a wide range of real-time data to help you speed up the search, extract, organization, and visualization activities that used to consume up to 80% of your time. This lets you jump straight to deciding.

Whether you are building a digital network within a city or region, linking social footprints for a specific entity, or sampling a population that discusses the same topics of interest, OpeniO can quickly show overlap across all networks.

(b) OpeniO description

Figure 12: California and McLean, Virginia based real-time internet surveillance company Creative Radicals LLC has licensed its software – such as OpeniO – to both the U.S. and Australian Departments of Defense/Defence. As detailed above, Creative Radicals was paid $6.6M to support the U.S. Army's 1st Information Operations Command, "*the Army's only Active Component Information Operations organization.*" And Creative Radicals has sold "*OpeniO licenses*" to the U.S. Army and Air Force as recently as June 2021. The advertising blurbs for OpeniO were retrieved from creativeradicals.com/openio/ on August 26, 2021.

It is reasonable to suggest from the above subaward description that the "commercially available sensor data" and/or "open source information" being combined with "satellite systems" includes location tracking data from subawardee Venntel. And a separate subaward of $351K to satellite surveillance company, and long-time Google Maps data provider, MAXAR for "*SOUTHCOM PERU - GEOINT & Analytics Research & Data Delivery*" strongly suggests that MAXAR is one of the sources for satellite imagery data.[14] And another $175K subaward is to RIEGL USA, Inc. for "Light Detection and Range (LIDAR)".

The broader context is clarified by one of the two subawards – for a total of more than $2M – to obscure, seemingly defunct defense contractor V5 Holdings LLC (DBA V5 Government):

The Remote Sensing Center (RSC) is an interdisciplinary research group chartered under the Dean of Research at the Naval Postgraduate School (NPS). In support of the Office of the Deputy Assistant Sec-retary of Defense, Office of Command, Control, and Communication (C3), Cyber, and Business Systems

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[14]Note that DigitalGlobe was acquired by MAXAR in 2017. And the subaward in question was to MAXAR subsidiary Radiant Mission Solutions, Inc.

(C3CB), the RSC office in the National Capital Region (RSCNCR) interacts with DoD, Intelligence Community (IC), and other U.S. Government mission partners to understand their requirements, discover cutting-edge technologies (in Government, commercial, academic, and non-profit sectors), and bring real-world examples to NPS for enhanced training, education, thesis focus, and application as well as viable and unique solutions to the Remote Sensing Community. In parallel, the RSC-NCR also brings technical and programmatic expertise together to allow DoD and IC mission partners to achieve their mission.

We can conclude from this and other subaward references, as well as the prime award description itself, that the North Capital Region office of the Naval Postgraduate School's Remote Sensing Center (RSC-NCR) is interfacing with the numerous subcontractors underneath Alion Science and Technology Corporation in its $767M Joint Capability Embedded Technology Insertion and Integration (JCETII) award.

2.4.1 Data source subawards

The full list of data and surveillance subawardees – beyond our previous references to location-tracking data broker Venntel, satellite imaging and analytics company MAXAR, WAMI surveillance contractor Sierra Nevada Corporation (SNC), and LIDAR manufacturer REIGL USA – is given in Table 3.

While the vast majority of money went to SNC and Creative Radicals – likely for its OpeniO product (see Fig. 12), whose "4.x" version they have sold to the US Air Force as recently as June of this year – several of the smaller, so-far-undiscussed subawards are worth elaborating on:

- Hot-air balloon and tethered aerostat manufacturer Raven Aerostar received $280K for its "high-altitude balloons', which are described in detail on its website as the Thunderhead Balloon System. Raven advertises its Thunderhead balloons as "persistent surveillance platforms" for "denied areas" and integrates the resulting surveillance data into a platform named Thunderstorm (see Figure 13). Raven Aerostar also sells tethered aerostats for persistent surveillance purposes (see Figure 14).[15]

- Crowdsourced data collection company Premise Data Corporation, which was also a subcontractor on the previously discussed DIA award involving location-tracking data broker Outlogic (FKA X-Mode Social) and think tank C4ADS, received $200K for the "*purchase of Premise software license*" (see Fig. 9). As quoted above, drone manufacturer Sierra Nevada Corporation described "crowdsourcing" as part of the PAI exploitation process.

- AI surveillance company Geospark Analytics, Inc. received $167K in January for a "*Database Subscription*". Geospark Analytics rebranded as a real-time risk assessment and alerting tool (Hyperion) using marketing similar to Dataminr, but it began as the BlueGlass product of Parsons-subsidiary OGSystems and was spun out in 2017. BlueGlass's original partners included In-Q-Tel investees TransVoyant, Inc., Narrative Science Inc. and Planet Labs, Inc., as well as private detective agency Prescient Comply, LLC, which advertises employing ex-CIA and FBI employees for "intelligence collection operations". Geospark Analytics is now backed by the Gates Foundation, CBP, DoD, and NATO.

- Shodan, LLC, which describes itself as "*the world's first search engine for Internet-connected devices*", received $40K for a one year subscription to Shodan's corporate API. We can reasonably infer that Shodan's ability to "*discover everything from power plants, mobile phones, refrigerators and Minecraft servers*" is part of the open source information aggregation reference by Sierra Nevada Corporation's subaward description.

2.4.2 Think tank and advisory firm subawards

Earlier this year, think tanks The Center for Advanced Defense Studies (C4ADS) and the UK's Royal United Services Institute for Defence and Security Studies (RUSI) published a report on "*Exposing North Korea's Oil Procurement*

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[15]The U.S. Customs and Border Protection Tethered Aerostat Radar System (TARS) was initiated by the U.S. Air Force in 1978 – it transferred to CBP in 2013 – and has been referred to by CBP as "like a low-flying satellite system, but cheaper to launch and operate". The U.S. has deployed similar systems outside of Khost and Kabul, Afghanistan.

(a) Thunderhead surveillance balloon

(b) Thunderstorm platform

Figure 13: Screenshots of the Thunderhead surveillance balloon and Thunderstorm "operating system" for *https://techinquiry.org/explorer/vendor/aerostar%20international%2C%20inc./*Raven Aerostar's high-altitude balloon persistent surveillance system. Retrieved from ravenaerostar.com/products/balloons-airships on Aug 26, 2021.

Figure 14: A Raven Aerostar Responsive Aerostat system which "provided a broad picture of the surface and air traffic around the HSV SWIFT" for the Fourth Fleet of the U.S. Navy. Raven Aerostar advertises its responsive aerostats for both "Border and Maritime Surveillance" and "Critical Infrastructure Protection" and sold "high altitude balloons" to the US Air Force alongside location tracking data broker Venntel and the Center for Strategic and International Studies (CSIS) in July of last year. Image and quote retrieved from ravenaerostar.com/products/tethered-aerostats/responsive-aerostat-systems on August 26, 2021.

Amount	Company	Transaction Period	Summary
$6.6M	Creative Radicals, LLC	2020.01	[Description of use of PAI by Army 1st Information Operations Command]
$6.2M	Sierra Nevada Corporation	2020.05 – 2020.12	[Description of use of PAI by DoD/IC]
$0.35M	MAXAR Technologies Inc.	2020.02	"*SOUTHCOM PERU - GEOINT & Analytics Research & Data Delivery*"
$0.28M	Aerostar International, Inc. (DBA Raven Aerostar), through Aerostar Technical Solutions, Inc.	2020.07	For the "*purchase of high-altitude balloons*".
$0.20M	Premise Data Corporation	2019.10	For the "*purchase of Premise software license*".
$0.18M	RIEGL USA, Inc.	2020.08	"*Light Detection and Range (LIDAR)*"
$0.17M	Geospark Analytics, Inc.	2021.01	For a "*database subscription*".
$0.10M	NV5 Global, Inc. subsidiary Quantum Spatial, Inc.	2019.07	"*LIDAR and Air Photo Collection / Reports*"
$0.06M	Venntel, Inc.	2019.07	"*Commercial Data Subscription*"
$0.04M	Shodan, LLC	2020.05	For its "*corporate API plan (yearly)*".

Table 3: Data and Surveillance subcontractors for the prime award to Alion Science and Technology Corporation involving the North Capital Region office of the Naval Postgraduate School's (NPS) Remote Sensing Center (RSC).

Figure 15: The technology and private intelligence partners thanked by think tanks The Center for Advanced Defense Studies (C4ADS) and the Royal United Services Institute for Defence and Security Studies (RUSI) in their 2021 Black Gold report on North Korean oil shipments.

Networks" entitled Black Gold.[16] It should thus come as less of a surprise that the small consulting firm of a RUSI Associate Fellow – Eastern Advisory Group Limited – was a subawardee under Alion alongside location-tracking data broker Venntel (see Table 4). Other think tank and advisory subcontractors included the influential Center for Strategic and International Studies (CSIS) – which also has a prime award with DHS on "*development of [a] facial recognition positioning strategy*" – and a close associate of the Ford Foundation (Fund for the City of New York).[17]

Beyond the 1968 origin of Fund for the City of New York (FCNY) as a tax compromise between the Mayor of New York, John Lindsay, and Ford Foundation President McGeorge Bundy – who was also National Security Advisor to Presidents Kennedy and Johnson – FCNY received $950K from Ford Foundation in 2021. $750K of this money was for: "*Core support for the Immigrant Defense Project to fight for fairness and justice for immigrants caught at the intersection of the U.S. criminal and immigration systems and to end the mass criminalization, detention and deportation of immigrants*". We note that FCNY's fellow subcontractor, Venntel, has been reported by both The Wall Street Journal and VICE to have sold smartphone location data to ICE, CBP, and the FBI.[18]

When reached for comment, Ford Foundation stated:

> "*The Ford Foundation's engagement with FCNY in recent years has been as a fiscal sponsor for projects that do not have capacity to receive grant funding directly, like the Immigrant Defense Project. We*

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[16] Beyond the partners described on C4ADS's about page – such as Palantir, Planet Labs, FourSquare's Unfolded, and AWS – UK-based "geospatial intelligence" company Geollect and maritime "sanctions screening" Pole Star were also named (see Fig. 15).

[17] According to the 2019 990 for Fund for the City of New York, their highest compensated employee is Mary McCormick, whose total year's compensation was $351K. You can watch an interview with Ms. McCormick filmed in 2013 here.

[18] FCNY has shared the DUNS number of 073279945 with spin-out, and Pinkerton Foundation funded, Center for Court Innovation.

are not directly aware of FCNY's engagements outside of the select initiatives we have collaborated with them on...[F]rom Ford's long-standing focus on addressing the ways technology impacts society and exacerbates inequality, we take privacy and surveillance-tech issues seriously. We appreciate you bringing this to our attention and we will look into this."

The Immigrant Defense Project declined to comment on the record.

In an emailed statement, Fund for the City of New York (FCNY) confirmed the subcontract was to their organization, but that FCNY was an intermediary for American Geographical Society:

"The subcontract you are referencing pertains to a video mapping project of the oceans done by the American Geographical Society, a partner project of the Fund...The AGS Council is composed of academic geographers as well as government and business leaders in geographical applications and geospatial technologies. AGS collaborates with the Earth Institute at Columbia University to sponsor an annual Geography 2050 conference on global futures."

So far, FCNY has not responded to the request for comment on whether it is concerned that its partner has subcontracted alongside location-tracking data broker Venntel.

Beyond AGS's association with Venntel, the organization's homepage openly describes its partnerships with not only a US intelligence agency (the National Geospatial-Intelligence Agency, or NGA) and its closely associated foundation (USGIF), but also data fusion contractor Black Cape, who we previously discussed subcontracting under the US Defense Intelligence Agency alongside location-tracking data broker X-Mode Social (now Outlogic) and think tank C4ADS.

Neither American Geographical Society or Columbia's Earth Institute responded to a request for comment on whether they were aware of, or concerned with, American Geographical Society subcontracting with the US Army alongside location-tracking data broker Venntel. AGS's partner, the impact investment organization Omidyar Network, explained that "the grant has expired [in March 2021] and any inquiries should be directed to American Geographical Society". A subsequent email explained the grant was "part of our property rights portfolio - which spun out into its own organization in January 2020...Here's a post on the new organization: thisisplace.org/blog-1/introducingplace/introducing-place". Said blog post from PLACE – which is headquartered on K Street and partnered with the UK Government's mapping agency – describes the launch of "the Locus Charter, a set of common guiding principles to help practitioners and decision-makers use location data for good and we are incorporating those principles into our work.

But much larger than the $150K awarded to the American Geographical Society through the Fund for the City of New York was the $6M subaward to the relatively obscure Center for Advanced China Research (CACR), which specializes in analysis of the internal politics of the Chinese Communist Party.[19] Similar, but significantly smaller, subawards went to Pacific Forum – "*Focusing on Peace and Stability in the Indo-Pacific Since 1975*" – and the frequently quoted RWR Advisory Group, whose President previously chaired the U.S. China Commission (USCC) and co-founded the Prague Security Studies Institute. As a clear sign of at least a minority focus on Russia, $230K was awarded to the websiteless Russia Research Network – which appears to simply be London-based researcher Andrew Monaghan.

Center for Advanced China Research (CACR) did not respond to a request for comment through their contact form.

Center for Strategic and International Studies (CSIS) did not respond to a request for comment by phone and email.

Pacific Forum International did not respond to a request for comment by email.

Center for European Policy Analysis did not respond to a request for comment by email.

Russia Research Network Director Andrew Monaghan did not respond to a request for comment through his website's contact form.

Eastern Advisory Group Limited Director Richard Connolly did not respond to a request for comment through email.

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[19]The CEO of CACR, David Gitter, notes in his bio that he previously worked at fellow subawardee CSIS.

Lastly, there was an $880K transfer to Whitney Strategic Services LLC in Nov. 2019 for "*Risk Monitoring Scoring*". As demonstrated in Figure 16, the "Ecosystem" of parent company J.H. Whitney Investment Management, LLC includes a "*counterintelligence*" relationship with D4C Global, LLC, who is listed as a "*Featured User*" on the homepage of fellow subawardee, and data fusion contractor, Geospark Analytics.[20]

Amount	Company	Transaction Period	Summary
$6M	Center for Advanced China Research	2020.10 – 2021.01	"*Providing Modeling and Simulation support*" and "*Professional Services*"
$1M	Research and advisory firm Gartner, Inc.	2020.01 – 2020.12	"*Executive Programs [and] Enterprise IT Leadership*"
$0.88M	Whitney Strategic Services LLC	2019.11	"*Take Aim Standard Portal with Risk Monitoring Scoring*"
$0.7M	Center for Strategic and International Studies (CSIS)	2020.12 – 2021.02	"*Professional Services*"
$0.59M	Pacific Forum International	2021.02	"*STO SME JCETII Support*"
$0.32M	RWR Advisory Group, LLC	2020.01	"*to provide monthly and quarterly analytical reports designed to examine the exposure of countries and regions around the world to threats emanating from Russian activity in the economic and financial (E&F) domain*"
$0.23M	The Russia Research Network Limited	2020.06	"*PS03D EUCOM GIO (RRN)*"
$0.19M	Eastern Advisory Group Limited	2020.10	"*FEDSIM Task 2 - Eningeering Services*"
$0.15M	Fund for the City of New York	2021.02	"*Professional Services*".
$0.10M	DC-based Center for European Policy Analysis (CEPA)	2021.01	"*Professional Services*"

Table 4: Think tank and Advisory subcontractors for the prime award to Alion Science and Technology Corporation involving the North Capital Region office of the Naval Postgraduate School's (NPS) Remote Sensing Center (RSC) and Joint Capability Embedded Technology Insertion and Integration (JCETII).

noindent *The Remote Sensing Center did not respond to a request for comment on the scope of their Joint Capability Embedded Technology Insertion and Integration (JCETTI) project or their relationships with location tracking data brokers (such as Venntel) and social media aggregation vendors.*

Alion Science and Technology Corporation has not responded to a request for comment on the scope of its prime award with the US Air Force or on the manner in which it interacted with subawardees such as Venntel and CSIS.

Venntel did not respond to a request for comment on either this subaward with the US Air Force under Alion Science and Technology, or on their subaward under ECS Federal with the US Army and Air Force.

2.4.3 Broader Concerns Raised by This Award

While the typical cause of concern with DC think tanks is the degree to which corporate funding prescribes their public positions, the subcontracting behavior surrounding the North Capital Region office of the Remote Sensing Center (RSC-NCR) suggests that the shift from classified to commercial intelligence sources is further blurring the lines between intelligence contractors and civil society (including think tanks, universities, nonprofits, and even foundations). And the emergence of COVID-19 has only accelerated this trend, with even ProPublica and The Washington Post partnering with location-tracking data broker X-Mode Social (now Outlogic) as part of The Center for New Data (see Fig. 17).

And as a result of the expansion of data fusion contractors into real-time alerting (e.g., Dataminr, Geospark Analytics, and Creative Radicals), there is the potential for increasing pressure on journalists to make use of surveillance platforms to stay ahead of their competition. This is in addition to the existing pressures to make use of 'Palantir-powered' global records analysis platforms from organizations such as C4ADS. Even in the midst of writing this report, The New York Times published a visual investigation on Afghanistan centered around satellite imagery from

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[20]One might also note J.H. Whitney referring to Ericsson as a "*strategic partner on 5G projects*".

Figure 16: An overview of J.H. Whitney Investment Management, LLCs "Ecosystem" retrieved from www.jhwhitney.com/portfolio on Aug. 24, 2021. In addition to J.H. Whitney serving as a subcontractor under Alion Science and Technology alongside location-tracking data broker Venntel, their displayed "counterintelligence" partner, D4C Global, is listed as a "Featured User" of its fellow subawardee – and Gates Foundation backed – Geospark Analytics.

(a) Reporting Partners

(b) Data Partners

Figure 17: The Data and Reporting partners of The Center for New Data, which includes both location-tracking data broker, and Defense Intelligence Agency subcontractor, X-Mode Social (now Outlogic) and ProPublica. Location-tracking data broker Veraset is one of the providers to SafeGraph, which is connected to Saudi intelligence and was recently banned from the Google Play store.
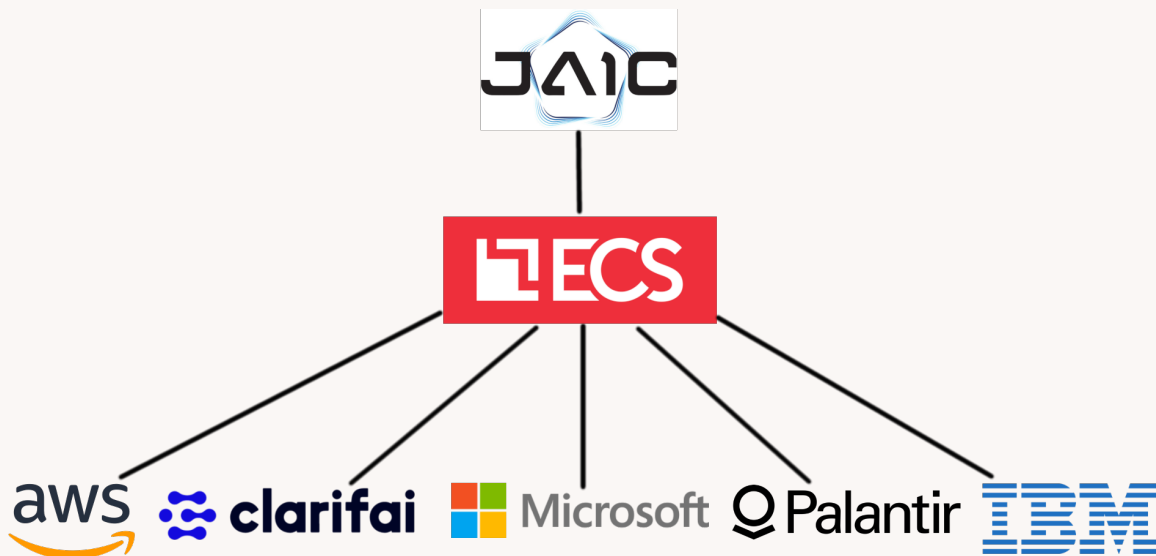
Figure 18: A subset of the technology contractors subcontracting with the Pentagon's Joint Artificial Intelligence Center on the Kubera, Avalanche, and Pavement prime awards to ECS Federal relating to Project Maven.

Planet Labs, who has partnered with both C4ADS and Geospark Analytics.[21]

2.5 Project Maven, ECS Federal, and Booz Allen Hamilton

While the previous subaward examples are – to the best of the author's knowledge – previously unreported, the Pentagon's "pathfinder" project for integrating Silicon Valley artificial intelligence into its wide area drone surveillance program (codenamed "Project Maven") – and especially Google's employee-led opposition to participation – has been extensively publicly debated – and even led to the DoD developing a set of (seemingly unenforced) AI Principles.[22][23]

Nevertheless, even a cursory dive through four prime awards referring to Project Maven – three to ECS, which the Pentagon publicly confirmed Google subcontracted under, and one to Booz Allen Hamilton – reveals that the project is both ongoing and involves numerous entities of interest who have not previously been reported/confirmed.[24] For example:

- Microsoft received more money than any other subcontractor ($31.6M) on the three Maven-related ECS Federal awards we identified, including for "*[Electro-Optical] and [Infrared] Full Motion Video Machine Learning*" and to "*automate and augment the analysis of Wide Area Motion Imagery*".

- Clarifai was paid more than $25M in subawards under ECS Federal for work including "*Development of Facial Recognition*", build a "*[Captured Enemy Materials] & [Publicly Available Information] NSFW filter*", "*[Full Motion Video]..deployment to the classified domains*", and "*Machine Learning...for Multispectral...still imagery from...satellite sensors..[and] [High Altitude] and BAS algorithms*".

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[21] Technically, Planet Labs was partnered with the BlueGlass project of OGSystems, LLC, which was rebranded to Geospark Analytics after its spin-off.

[22] The author highly recommends Patrick Biltgen and Stephen Ryan's book, *Activity-Based Intelligence: Principles and Applications* for an overview of not only Wide Area Motion Imagery drone surveillance, but also its broader context, including the centrality of location data to the NGA's Activity-Based Intelligence (ABI) – which they argue somewhat competes with the DIA's Object-Based Production (OBP).

[23] The author was informed during a Pentagon press briefing by Lieutenant General Michael Groen – the Director of the Joint Artificial Intelligence Center – that no due diligence or retrospectives have so far been conducted for DoD procurement of AI systems despite it having procured from multiple AI companies which have arguably violated the DoD AI Principles commitment to "auditable" data sources (e.g., Clearview AI, Outlogic (FKA X-Mode Social), and Everalbum (DBA Paravision)). Though a verbal commitment was given to the DoD's Tradewind project conducting a retrospective.

[24] A draft of this report has led to two publications on Maven in Forbes.

- Popily, Inc. (DBA Yonder), which was caught faking Russian disinformation to influence an Alabama Senate race, was paid more than $600K for "*social media data collection, normalization, aggregation, storage, and advanced analytics services through the New Knowledge Platform*" in subawards under Booz Allen Hamilton as part of a prime award referencing Project Maven.

- Documentation of AWS, Orbital Insight, Rebellion Defense, and Palantir involvement – as well as Maven's intersection with a Publicly Available Information (PAI) enclave hosted on the Secure Unclassified Network (SUNet) and a predecessor award with SOCOM's J2 Intelligence referred to as Project CICERO.

We also note that Project Maven interacted with DHS through Alion's subaward for the Minotaur Mission System, while developed by the Navy, "*is government-owned and operated across multiple Defense and Homeland Security department platforms*".

2.5.1 ECS Federal and Maven: Kubera + Buick, Avalanche, and Pavement

We start by analyzing three prime awards associated with Project Maven that all involved ECS Federal as their prime contractor; we address a fourth prime award to Booz Allen in a short follow-up. The first task – of course – is demonstrating their relevance to Maven, which we handle one-by-one before proceeding:

1. **"Kubera" + "Buick"**: The prime award to ECS Federal with Procurement Instrument IDentifier (PIID) W911QX18C0037 – and a Period of Performance spanning Sept. 28, 2018 to Aug 06, 2022 – explicitly mentions Maven in two subawards: in both an obligation of $700K to Rebellion Defense, Inc. on March 31, 2021, and of $1.9M to Cubic Corporation subsidiary GATR Technologies, Inc. on October 1, 2019. The subaward to Rebellion Defense is for:

   > "*Engineering support to further improve the currently established Captured Enemy Materials (CEM) pipeline by standing up the Subcontractor's existing commercial cloud-based CEM pipeline, integrate existing AI, analytic and data processing functionality and demonstrate faster throughput, additional logging and auditing metrics, and enhancements that will allow the flow of data to ensure outputs are displayed concisely in Maven Machine Human Teaming System (MHTS) to improve decision making for users within the military community.*"

   while the subaward to GATR is to:

   > "*integrate cloud-ready version of the Maven appliances into SC2S, including FMV video.*"

   Two of these initialisms deserve clarification: the latter is a bit like "ATM machine", as numerous subawards use the expanded form of "*Full Motion Video*". We can easily discover the definition of "SC2S" by searching for the term in our procurement database, which produces a subaward to RAZ Logic LLC (under a prime to Applied Research Associates Inc.) stating

   > "*The F-22 Raptor Systems Program Office (SPO) is prototyping and developing a cloud-based software development environment with in the Amazon Web Services (AWS) Secret Cloud Compute Service (SC2S) Region. The vision of the SPO is to maximize efficiency and agility in software development to maintain the air superiority of the F-22 Raptor.*"

   We can thus infer that GATR's subaward involves integrating "Maven appliances" into the Amazon Web Services (AWS) Secret Cloud Compute Service (SC2S). (And, as we discuss in more detail below, Amazon Web Services is directly named as a subawardee on this – and the other two – prime awards to ECS Federal mentioning Maven.)

   Lastly, numerous modification and subaward descriptions call this prime award "Kubera", including a January 4, 2021 modification to the prime award to ECS, whose description is (modulo capitalization):

   > "*Research and Development effort for prototypical state-of-the-art Artificial Intelligence (AI) hardware and software - Buick modification to expand on the Kubera effort.*"

2. **"Pavement"**: The prime award to ECS Federal with PIID W911QX20C0019 – and Period of Performance Feb. 10, 2020 to Feb. 09, 2023 – contains a direct reference to "Project Maven" in a subaward to Technical Intelligence Solutions, LLC of $1M in Sept. 2020 to

> "*Support Project Maven's High Altitude and Captured Enemy Material (CEM) Lines of effort*".

Further, a subaward to SAP National Security Services, Inc. [25] – through its subsidiary Volume Integration, LLC and acquiree Technical Management Associates, Inc. – received $8M across two awards in Sept. and Oct. 2020 for

> "*Baselining, deployment, management, and continual integration of Maven applications and capabilities in the classified cloud environment; SC2S & C2S*".

We can easily discover that "C2S" is a reference to Amazon Web Services's Commercial Cloud Services (C2S) through its explicit reference in US procurement records or – preferably – reading Amazon's press release on the subject. And the name "Pavement" for this prime award is justified through Microsoft's Oct. 2020 subaward of $12.4M for:

> "*Full Motion Video (FMV) Sprint 3 effort, focusing on Model Development for FMV data, under the Pavement prime contract...*"

3. **"Avalanche"**: The prime award to ECS Federal with PIID W911QX20C0023 – and Period of Performance April 23, 2020 to Mar. 26, 2023 – contains a subaward to Prescient Edge Corporation for:

> "*Supporting JAIC's Search & Rescue effort with four primary tasks:*
> *1) modify, develop, and Test Minotaur Software to support prototype integration with the identified software on a USCG asset*
> *2) interface with JHU/APL and the ECS team to provide solutions to meet the prototype objectives*
> *3) shall provide subject matter expertise and*
> *4) attempt Minotaur and Maven integration efforts on the following hardware solutions: a) Minotaur Laptop (to be procured) b) Aircraft Mission Processor and c) Aircraft Work Station.*"

We can thus infer that Prescient Edge was paid to integrate Project Maven – which is run by the Pentagon's Joint Artificial Intelligence Center (JAIC) – with a system (Minotaur) deployed on a DHS asset (through the U.S. Coast Guard).[26]

Though numerous modification and subaward descriptions refer to this prime contract as "Avalanche", the following subaward of $600K to Rebellion Defense in January 2021 is particularly clear:

> "*Improve MQ-9 Lynx Synthetic Aperture Radar (SAR) imagery labeling quality through Rebellion Defense's SAR colorization methodology...under the Avalanche prime contract W911QX20C0023.*"

A ranking of subawardees by total obligated amount under the three combined Kubera, Pavement, and Avalanche prime awards to ECS Federal is given in Table 5 – and a diagram demonstrating the relationship between ECS and the dominant subcontracting tech companies is shown in Fig. 18. Microsoft is demonstrated to be the largest subcontractor on the three identified prime awards to ECS Federal involving Project Maven. Further, between the listings of Orbital Insight and Rebellion Defense – and the Pentagon having confirmed Google as a subcontractor under ECS Federal to The New York Times (in either an undisclosed subaward or perhaps underneath Carahsoft) – then at least three Google-connected companies were involved in the project.

The subaward descriptions for Microsoft reveal the company was paid $31.6M to develop both "*[Electro-Optical] and [Infrared] Full Motion Video Machine Learning*" and to "*automate and augment the analysis of Wide Area Motion Imagery*" drone surveillance. But, even more surprising is that the startup Clarifai was not only the second biggest subcontractor on the three Maven-related prime awards, but also contributed – beyond the widely understood Full Motion Video analysis component of Maven – "*facial recognition*", "*Machine Learning...for Multispectral...still imagery from...satellite sensors in both unclassified [For Official Use Only] ([Secure Unclassified Network]) and classified domains*", and a "*[Captured Enemy Materials] & [Publicly Available Information] NSFW*" filter. Thus, **a single**

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[25]NSCAI Vice-Chairman – and WestExec Principal – Bob Work is a member of the Advisory Board of SAP NS2.

[26]The Minotaur Mission System, while developed by the Navy, "*is government-owned and operated across multiple Defense and Homeland Security department platforms*". Alion – who has a subaward on Kubera from March 2019 for "*Modification of the Navy Minotaur system to add features for Full Motion Video*", has had its work on Minotaur publicly reported.

Amount	Company	Transaction Period	Summary
$31.6M	Microsoft Corporation	2019.07 – 2020.10	"*Model Development for FMV*", "*automate and augment the analysis of [WAMI]*", and "*EO and IR [FMV] [ML]*"
$25.2M	Clarifai, Inc. including subsidiary NeuralNetOne, Inc.	2019.08 – 2021.03	"*Development of Facial Recognition*", "*CEM & PAI NSFW filter*", "*Sprint 3 FMV effort...including deployment to the classified domains*', and "*[ML]...for [MS]...still imagery from...satellite sensors...in both...SUNet...and classified domains...[and] HA and BAS algorithms*".
$24.2M	Palantir USG, Inc.	2018.12	"*Software licenses*"
$19.2M	Amazon Web Services, Inc.	2020.02 – 2020.10	"*Edge ARM model*", "*Developing [EO] and...[IR] FMV models for object detection and classification and...[TAC]*", and "*predictive analytics/forecasting platform for...humanitarian response to COVID-19*"
$12.4M	General Atomics Aeronautical Systems, Inc.	2020.05	"*Prototyping a 'Smart Sensor' capability that will apply [AI]...to multi-sensor fused data at the edge.*"
$11.7M	MAXAR Technologies Inc.	2019.10 – 2020.12	"*[HA] Algorithm Development supporting [MI] focusing on still imagery [SAR] inclding...[MS]*" and "*DeepCore AIP*
$10.6M	Alion Science and Technology Corporation	2019.03 – 2021.04	"*sensor calibration and model integration*", "*Modification of the Navy Minotaur system to add features for [FMV]*"
$5.6M	IBM	2019.12 – 2020.04	"*statistical reasoning...combined with [AI]*", "*[VL] platforms*"
$5.6M	Scale AI, Inc.	2020.03	"*infrastructure for labeling of FMV video with bounding boxes*"
$5.12M	SAP NS2 (including Volume Integration)	2020.06 – 2020.09	"*continual integration of Maven applications...in the classified cloud environment SC2S & C2S*", "*[VL] platforms...and...analytics...to better inform...disaster response....and fused...publicly available and commercial data*"
$5.03M	Systems & Technology Research LLC	2019.02 – 2019.07	"*[HA]...[MI]*", "*models to detect and classify acoustic signatures*", and "*[SAR] automatic target recognition*"
$4.8M	Government Tech Reseller Carahsoft Technology Corp.	2020.05 – 2021.05	"*ML training data analysis...EO object detection algorithm*", "*68 Processing Units 17 Language Pairs*", "*SAP NS2 Licenses*"
$3.70M	CrowdAI, Inc.	2018.12 – 2019.12	"*Analyze [HA] still imagery [MS] Models...to label and classify images.*", "*Develop a [CV] infrastructure detector to process satellite imagery data and [FMV]*", and "*Collect [FMV for] hurricanes, earthquakes, and wildfires and develop...Medium Altitude [IR]...wildfire detection*"
$3.0M	SocialTrendly Inc.	2020.02	"*examine data and develop algorithms*"
$2.85M	Anno.ai, Inc.	2020.06	"*automation...in the labeling workflow*"
$2.61M	Intelligent Automation, Inc.	2020.02	"*Identify foreign networks...Summarize foreign language user generated content...Characterize networks and individual entities behaviors, backgrounds, relationships, and georegistration enrichment of user and network locations.*"
$2.58M	Primer Technologies, Inc.	2020.02	"*examine data and develop algorithms*"
$2.48M	r4 Technologies, Inc.	2021.05	"*data analytics...publicly available and commercial data*"
$1.9M	Zignal Labs, Inc.	2020.06	"*[PAI] Sprint 2.5 Data Aggregation*"
$1.87M	Cubic Corporation subsidiary GATR Technologies, Inc.	2019.10	"*integrate cloud-ready version of the Maven appliances into SC2S, including FMV video*"
$1.79M	Orbital Insight, Inc.	2019.12	"*Sprint 1 - [HA] Still Imagery [MS] Models*"
$1.70M	Two Six Technologies, Inc. (as IST Research)	2020.01	"*examine data and develop algorithms*"
$1.58M	Northrop Grumman Systems Corporation	2020.01	"*algorithms to augment the analysis of [FMV] and [WAMI]*"
$1.52M	Black Cape, Inc.	2020.02	"*examine data and develop algorithms*"
$1.51M	Lyteworx Automation Systems LLC	2020.10	"*Linux / Unix and Windows-based systems engineering activities at the Training Data Office in support of data acquisition, imagery data processing, [CV] systems*"
$1.48M	Valkyrie Intelligence LLC	2020.02	"*AI models and software for content analysis*"
$1.30M	Rebellion Defense, Inc.	2021.01 – 2021.03	"*Improve MQ-9 Lynx [SAR] imagery labeling quality through...colorization...to generate a higher [MAP] accuracy*"
$1.08M	Blue Ridge Envisioneering	2020.07	"*examine data and develop algorithms*"
$1.08M	Leidos, Inc.	2020.07	"*models to detect and classify acoustic signatures*"
$1.05M	Deep Insight Solutions, Inc. (DBA Lucd)	2020.04	"*[VL] platforms...and...analytics...to better inform...disaster response...and fused...publicly available and commercial data*"
$1.03M	Technical Intelligence Solutions, LLC	2020.09	"*Support Project Maven's [HA] and [CEM] Lines of effort*"
$0.95M	SRI International	2020.09	"*automate...the analysis of documents and media*"
$0.14M	Prescient Edge Corporation	2021.03	"*Supporting JAIC's Search & Rescue effort with...1) modify, develop, and Test Minotaur Software...on a USCG asset; 2) interface with JHU/APL and the ECS team...4) attempt Minotaur and Maven integration*"

Table 5: AI & Analytics subcontracting on the three prime awards to ECS Federal referencing Project Maven (Kubera + Buick, Pavement, and Avalanche). We make use of the following initialisms: AI – Artificial Intelligence, CEM – Captured Enemy Material, CV – Computer Vision, EO – Electro-Optical, HA – High Altitude, IR – Infrared, FMV – Full Motion Video, MI – Machine Intelligence, ML – Machine Learning, MS – Multispectral, PAI – Publicly Available Information, SAR – Synthetic Aperture Radar, SUNet – Secure Unclassified Network, TAC – Tracking Analytic Capability, VL – Visualization Layer, and WAMI – Wide Area Motion Imagery.

| COHORTS	DESCRIPTION
Conspiracy Theorists	Communities that believe in what they deem broad societal conspiracies including UFOs, Flat Earth, moon landing hoax and other pseudoscience.
Populists	Left/right wing economic nationalists critical of market liberalism, neoliberalism, and globalization.
Anti-Vaxxers	A subtype of conspiracy theorist, having appeal across the left-right political spectrum. Generally believe that vaccinations are more harmful to health than what they are meant to inoculate against. Beliefs range from the notion that vaccines cause autism to global conspiracies for depopulation.
Fringe Trolls	Dark corners of the internet like 4chan and 8chan, typically men united by inside jokes, massive social stunts which involve tricking media, misogyny, racism, and broad disaffection with contemporary society.
Alt-Right	Also goes by "the new right", united by core beliefs that "white identity" is under attack by global, multicultural forces who utilize "political correctness" and "social justice", among other things, to undermine "white culture" and a strict notion of "Western civilization" and often overlap with white supremacist cohorts.
Left-Lean	Focused on anti-MAGA and anti-conservative content.
QAnon	A far-right conspiracy theory that has mutated into an ideology that unites other disaffected cohort. Believes in a secret plan by the alleged "deep state".
White Power	Encompasses a number of complementary movements and groups, from White supremacists, nationalists, Klansmen and Neo-Nazis and generally seek to establish a white ethnostate.

(a) SocialTrendly's explanation of its cohorts, including "Populist" critics of "neoliberalism" and "Left Lean" "anti-MAGA and anti-conservative" accounts.

USER COHORT ANALYSIS - High Volume Amplification Accounts

USER NAME	COHORT	# TWEETS	BEHAVIOR
@FairTax4America	Populist	249,500	Bot-like account pushing populist and 2nd Amendment content, as well as stock market information.
@otiose94	Left Lean	484,900	Bot-like account pushing left leaning political and news commentary. Very high tweet volume.
@mbees39	QAnon	171,600	Bot-like account pushing Qanon and MAGA content. High tweet volume, high retweet percentage.
@GoldStuart	QAnon	210,200	Bot-like account pushing MAGA, KAG, and Qanon themed content.

(b) An example of cohort-categorized Twitter accounts, including "Populist" @FairTaxForAmerica (which is currently suspended) and "Left Lean" @otiose94 (which is still active).

Figure 19: Images from the *COVID-19 Disinformation Report - Volume 3.0* from SocialTrendly Inc. (DBA Blackbird.AI). Social-Trendly received $3M as a subcontractor with the US Air Force on an award to ECS Federal involving Project Maven and has since received an additional $50-100K from the Air Force for an SBIR entitled "*Deception Detection Across the Digital Media Landscape*". One of SocialTrendly's previous products, Vibespotr, included celebrity hotspot tracking.
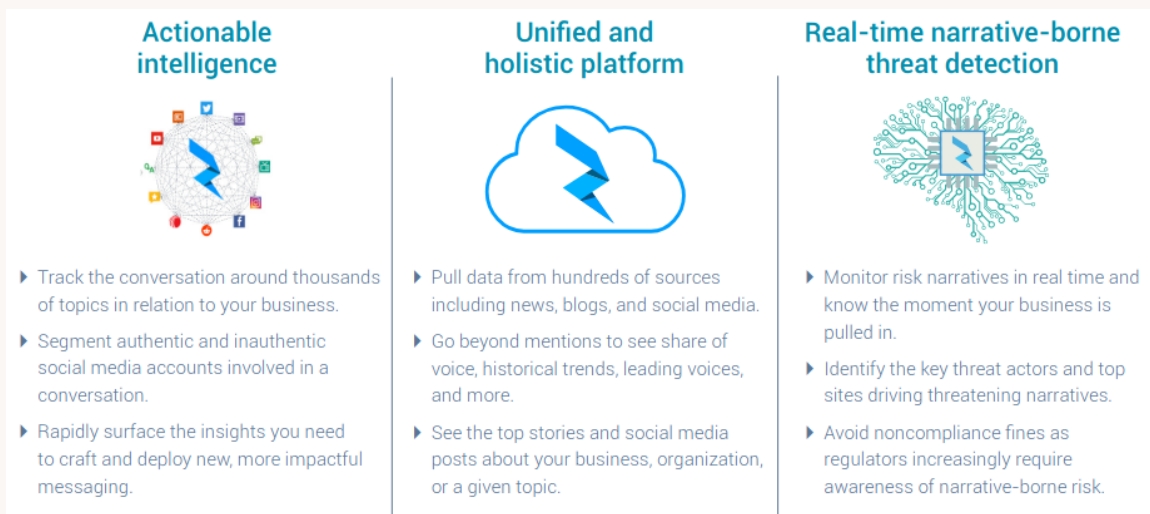
(a) Zignal marketing of its features.

For example: A social media director was notified of a potential crisis generated by a major news publication's breaking story. The social team immediately began monitoring the news and set up automated alerts to follow any escalations of the story as a result of social conversations.

Using Zignal, the director was able to understand where the story was gaining traction and what influencers were driving the conversation. As a result, he was ultimately able to minimize negative press coverage by working with the PR team on where they should—and shouldn't—focus their communication efforts.

(b) Zignal advertising its surveillance for countering investigative journalism.

Figure 20: Marketing copy from the Zignal Labs, Inc. including their Data Sources Solution Sheet. Zignal Labs received $1.9M as a subcontractor under ECS Federal on its Kubera effort involving Project Maven.

Project Maven subcontractor was analyzing – including through the usage of using facial recognition – satellite imagery, drone surveillance footage, and "Publicly Available Information".[27] We will return to the Secure Unclassified Network (SUNet) in a subsequent section analyzing two prime award to ECS Federal relating to its Publicly Available Information (PAI) enclave.

Microsoft did not respond to an email request for comment on the scope of its subawards under ECS Federal on the "Pavement" and "Kubera+Buick" prime awards relating to Project Maven.

Clarifai did not respond to a contact form request for comment on the scope of its subawards under ECS Federal on the "Pavement" and "Kubera+Buick" prime awards relating to Project Maven.

One of the subcontractors on the Kubera effort, Zignal Labs, Inc., was paid $1.9M for "*Publicly Available Information (PAI) Sprint 2.5 Data Aggregation*". Zignal's social media surveillance marketing is displayed in Figure 20, but a July 1, 2020 Zignal "Town Hall" entitled *Defending Your Brand in the Age of Information Operations* which involved a contractor from the Defense Innovation Unit and three former US military members (including a Brig. Gen.) is more enlightening. Forty-eight minutes in, former Unisys executive Jack Koons says "*DoD made the connection that...Information Operations and Public Affairs need to be at the same table.*" At the 7:20 mark, Koons suggested that brands integrate the DoD's "*Social Media Exploitation*" strategies, which Brig. Gen. Touhill followed up by encouraging "*good situational awareness*" in the private sector.

Zignal Labs did not return a request for comment by email on the scope its subawards under ECS Federal – either for the Kubera effort or the Secure Unclassified Network (SUNet).

The majority of subaward descriptions contained useful discussions of their scope, but the subawards to Social-Trendly (DBA Blackbird.AI), Primer Technologies, Two Six Technologies (as IST Research), Black Cape, and Blue

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[27]Clarifai's upcoming Perceive 2021 speakers list includes the CTO of MORSECORP, which has an underappreciated prime award with the JAIC on Project Gargoyle, which "*delivers low-altitude and horizontal computer vision capabilities to operational users in the Force Protection mission.*"

Ridge Envisioneering (BRE) simply consisted of "*examine data and develop algorithms*". An examination of several of their contracting histories provides some context:

- IST Research Corporation – before its acquisition by The Carlyle Group and merger with Two Six Labs to form Two Six Technologies – was best known as a prime contractor on DARPA's custom search engine for human trafficking, Memex. A blog post from the IST Research CEO on the usage of Memex to uncover a network referred to as "Bata International" – and the associated frequent FBI coordination – is described via:

  "*I sent the full investigation on to my friend Rob, who is a special agent at the FBI. I often shared with Rob findings from our research that we thought their investigative power could run to ground.*"

  Incidentally, while an Assistant Professor in 2013, the author worked literally next door to Memex on DARPA's XDATA project, which was run by the same program manager.[28] Like IST Research, CBP social media surveillance contractor Giant Oak also incubated within Memex.

  Two Six Technologies did not return a request for comment on the scope of its subaward with ECS Federal within Kubera.

- Black Cape, which received $1.5M in Feb. 2020 as part of ECS Federal's Kubera effort, describes its data fusion product Rubicon as "*Built on Open Source: reduces costs and vendor lock-in*" (see Fig. 21). One might hypothesize that Rubicon is alluding to competing products such as Palantir's Gotham.

  Black Cape did not return a request for comment by email on the scope of either its subaward under the Kubera effort of ECS Federal or on its two subawards underneath Systems & Technology Research alongside location-tracking data broker X-Mode Social (now Outlogic).

- Natural Language Processing firm Primer Technologies – which partnered with fellow Maven subawardees Palantir and Microsoft in June after receiving funding from both the government of Abu Dhabi and In-Q-Tel – recently promoted "*free beta access to [its] Command and Tactical Insights*" tools in response to "*the Taliban's...capture of Kabul*".[29] See Figure 22 for a screenshot of the promotion, which echoes broader themes of this report by juxtaposing computer vision and Twitter surveillance for deployment in Afghanistan.

  Primer Technologies declined to comment on the scope of its subaward under ECS Federal for the Kubera effort via its Public Relations firm, OutCast Agency, whose other clients include the US Air Force, fellow Maven subawardee Amazon Web Services, Facebook, and Bloomberg Philanthropy.

- As yet another example of the social media surveillance as a component of "*Publicly Available Information*" that is ingested alongside drone and satellite imagery, SocialTrendly Inc. (DBA Blackbird.AI) received a $3M subaward as part of ECS Federal's Maven-related Kubera prime award. Like Clarifai, SocialTrendly pivoted into contracting with the Department of Defense – one of its previous products, Vibespotr, included such features as celebrity hotspot tracking. The company now focuses on its Blackbird.ai product, which recently put out a series of reports on misinformation that included augmenting the surveillance of Twitter accounts using a classification of their political leanings into categories including "*Populist*", "*Left Lean*", and "*QAnon*". See Fig. 19 for details.

ECS Federal does not provide a media email address and did not respond to a request for comment by phone for any of its six prime awards discussed in this report: three relating to Project Maven ("Kubera+Buick", "Pavement", and "Avalanche"), two relating to the Secure Unclassified Network (SUNet) and its Publicly Available Information (PAI) enclave, and one with SOCOM's J2 Intelligence named "Project CICERO".

Palantir did not respond to an email request for comment on the scope of either its $24.2M subaward on the "Kubera+Buick" prime award to ECS Federal relating to Project Maven or its $72.5M subaward on SUNet.

Amazon Web Services did not return a request for comment by email on the scope of its subawards under ECS Federal for the Kubera, Pavement, or Avalanche projects relating to Maven.

Orbital Insight did not return a request for comment by email on the scope of its subaward under ECS Federal for the Kubera project relating to Maven.

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[28]And several of the author's close friends and colleagues worked directly on Memex.

[29]The author credits journalist Jonathan Guyer of The American Prospect for publicly noting Primer's "beta access" promotion.
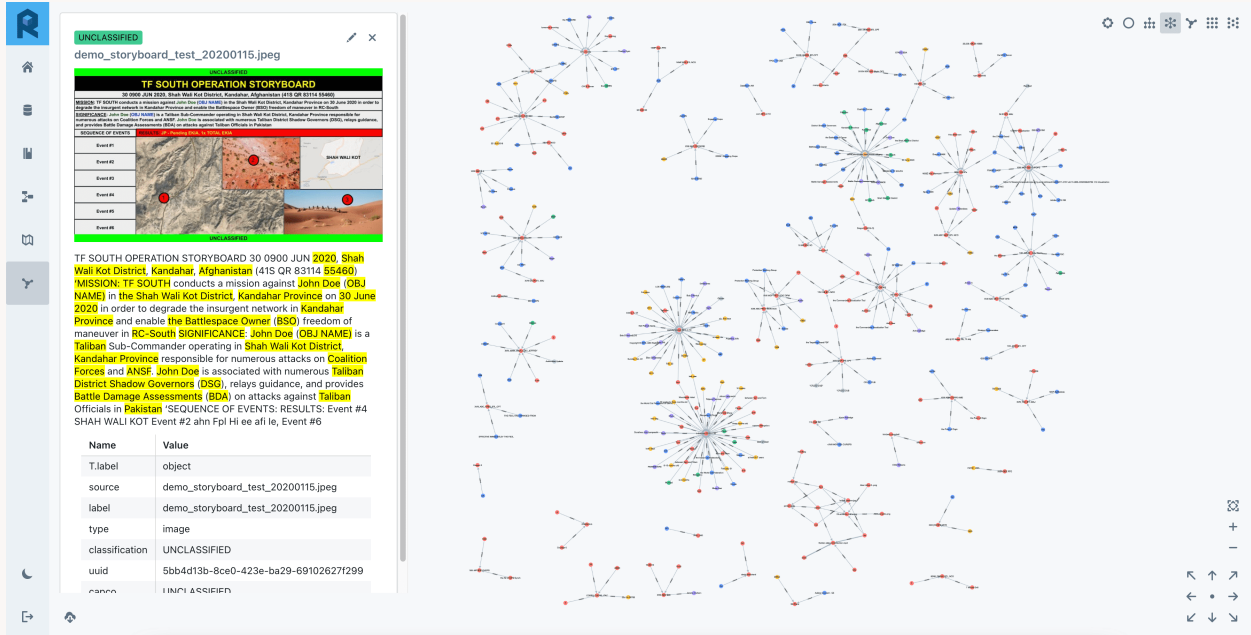
Figure 21: A screenshot from Black Cape's Rubicon product, which it describes as "*a modular Swiss Army knife for data management that provides AI/ML-powered tools and integrations to simplify data ingest, storage, and analysis*". Black Cape has both subcontracted alongside location-tracking data broker X-Mode Social (now Outlogic) with the Defense Intelligence Agency and under ECS Federal on a prime award involving Project Maven.
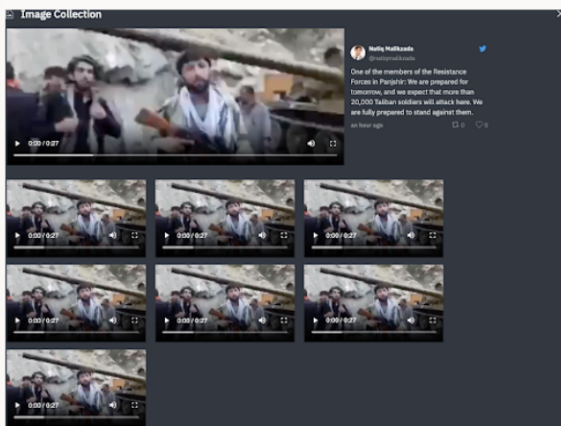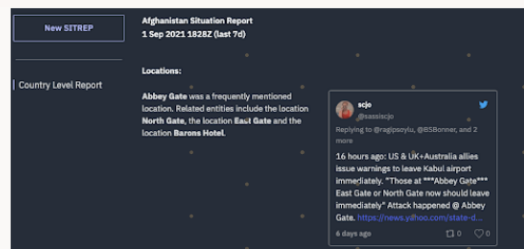
Figure 22: A screenshot from the promotional flyer for "*Primer Command*" distributed by Primer Technologies on Sept. 2, 2021 alongside its advertisement of "*free beta access*" to the product in response to "*the Taliban's...capture of Kabul*". Primer Technologies has subcontracted under ECS Federal on its Kubera prime award, which included numerous subawards for Project Maven. Tech Inquiry has mirrored the flyer at techinquiry.org/docs/PrimerCommand.pdf.
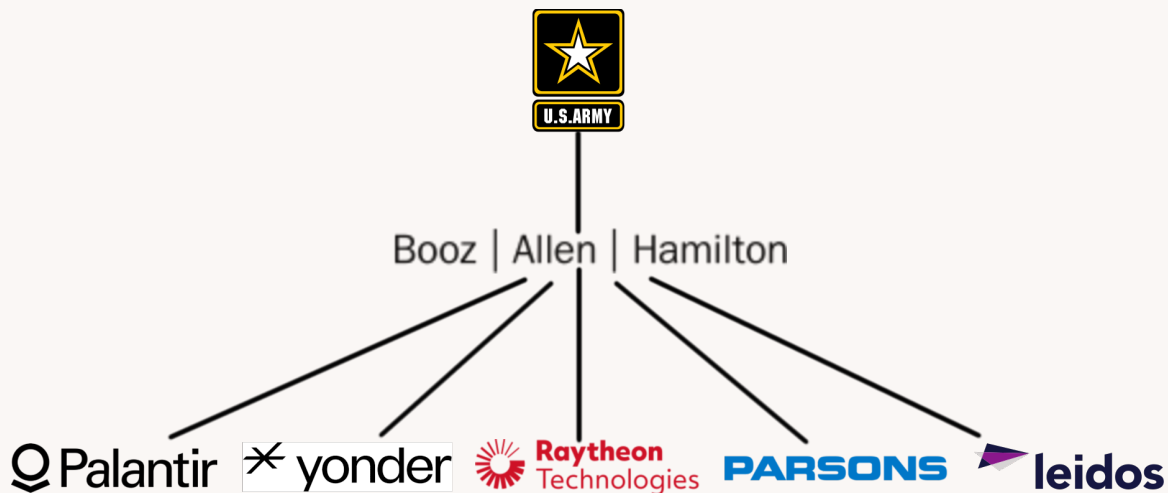
Figure 23: A subset of the subcontractors with the US Army under a prime award to Booz Allen Hamilton relating to both the Distributed Common Ground System Army (DCGS-A) and Project Maven.

Rebellion Defense did not return a request for comment by email on the scope of its subawards under ECS Federal for the Kubera and Avalanche projects relating to Maven or its (somewhat auxiliary) role on the previously discussed Alion Science and Technology award relating to the Naval Postgraduate School's Remote Sensing Center .
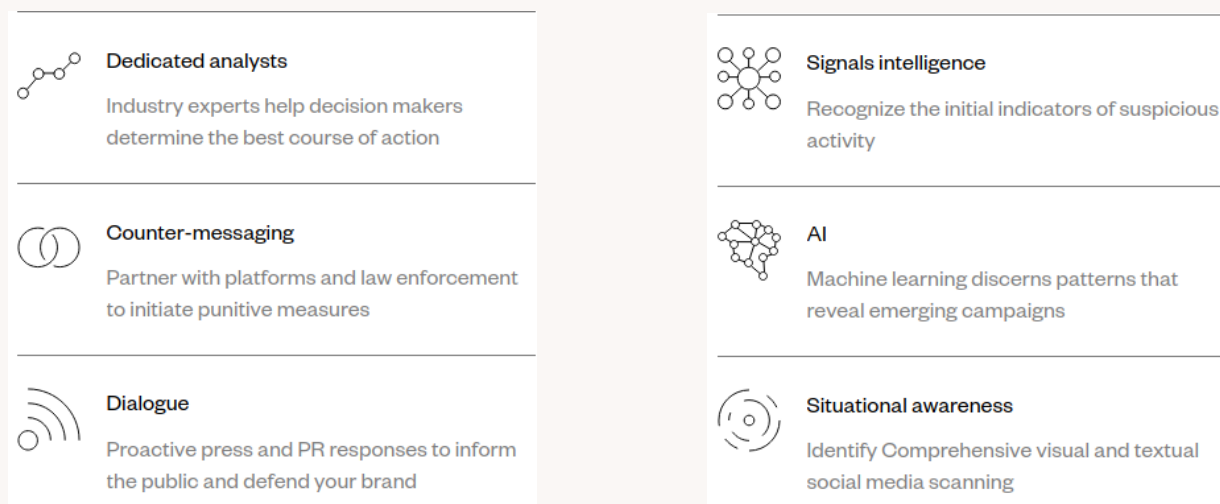
SocialTrendly did not return a request for comment on the scope of its subaward with ECS Federal within Kubera.

Systems & Technology Research LLC (STR) did not respond to a request for comment on the scope of either of its two subawards under ECS Federal relating to Project Maven (on "Pavement" and "Kubera+Buick"), on its subaward under ECS Federal for "Project CICERO", or on its prime award with the Defense Intelligence Agency involving location-tracking data broker Outlogic, Inc. (FKA X-Mode Social).

2.5.2 Booz Allen and Maven

Rather than provide a lengthy breakdown of the the subcontractors involved in the prime award to Booz Allen with PIID 47QFCA18F0114 – with a Period of Performance from Aug. 28, 2018 to Sep. 09, 2021 – we limit ourselves to five subawardees:

1. Parsons subsidiary Polaris Alpha Advanced Systems, Inc. received $796K between May 2019 and Jan. 2020 for tasks including "*study of the existing Maven AI frameworks, algorithms and datasets to develop a prototype of Maven/MAPPS*", "*provid[ing] technical support for the integration, deployment, and operations and maintenance of the Video Identification, Collection and Exploitation (VICE) system*", "*Support[ing] the modernization and integration of Distributed Common Ground System Army (DCGS A)*", and for "*enhancements of MAPP 2.X/Smart System appliances.*" We can confidently conclude from the work involving both video exploitation and "*Maven AI*" that the award at least draws upon Project Maven's infrastructure for an effort called "*MAPP[S]*". Though a full analysis of subawards involves far more references to the Distributed Common Ground System Army (DCGS-A), which Palantir won after suing the Army.

2. Palantir's US government subsidiary received $300K for "*Misc. Hardware/software*" – which is unsurprising given other subaward descriptions mentioning both DCGS-A (which Palantir won) and Project Maven (which we showed above that Palantir subcontracted alongside).

   Palantir did not respond to an emailed request for comment on the scope of this subaward, its $72.5M subaward on SUNet, or its $24.2M subaward on the "Kubera+Buick" prime award to ECS Federal relating to Project Maven.

3. Perhaps the most interesting subawards were to Popily, Inc. (DBA Yonder, FKA New Knowledge) for "*provid[ing] social media data collection, normalization, aggregation, storage, and advanced analytics services through the*

Dedicated analysts
Industry experts help decision makers determine the best course of action

Counter-messaging
Partner with platforms and law enforcement to initiate punitive measures

Dialogue
Proactive press and PR responses to inform the public and defend your brand

Signals intelligence
Recognize the initial indicators of suspicious activity

AI
Machine learning discerns patterns that reveal emerging campaigns

Situational awareness
Identify Comprehensive visual and textual social media scanning

(a) New Knowledge Platform's copy on both its Law Enforcement partnerships and PR-led Brand Protection

(b) New Knowledge Platform's copy on its AI social media surveillance

Figure 24: Negatives of screenshots of the New Knowledge Platform of Popily, Inc. (DBA Yonder, FKA New Knowledge). Yonder sold the New Knowledge Platform's "*social media data collection...and advanced analytics*" to the US Army starting in Feb. 2019. This was just two months after The New York Times reported on – and their funder, LinkedIn founder Reid Hoffman, apologized for – the company faking Russian disinformation to help a Democratic candidate.

> *New Knowledge Platform*". See Fig. 24, whose juxtaposition of AI social media surveillance, partnership with law enforcement, and PR-driven brand protection mirrors the framings suggested in the previously discussed Zignal Labs town hall.

> *Popily, Inc. (DBA Yonder, FKA New Knowledge) has not responded to a request for comment on the scope of their engagement with the US Army as a subcontractor to Booz Allen Hamilton.*

4. Tygart Technology received $160K for engineering support for the Army's Intelligence and Information Warfare Directorate (I2WD) and advertises on its website that its MXSERVER program – in partnership with UK-based Allevate and Facewatch – was deployed in Brazil to

> "*aid retailers, bars and restaurants in fighting shoplifting and other criminal activities...[and] led to the detection and arrest of a "top ten most wanted" fugitive by the Brazilian Federal authorities in March of 2018.*"

5. Uncharted Software – which produces numerous tools for surveilling financial transactions, communication patterns, and geospatial interactions – received $320K for "*platform maintenance...data integrity validation...[and] community engagement forums*".

A diagram of several of the subcontractors, including Popily (DBA Yonder), is shown in Fig. 23.

Thus, a company known to have faked Russian disinformation in a US Senate race – Yonder – sold its social media surveillance to the US Air Force, just months after the scandal, as part of a prime award involving both Project Maven, DCGS-A, and Palantir.

Booz Allen did not respond to a request for comment on this scope of this prime award through its official contact form.

2.6 ECS Federal and the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave

As part of our demonstration of the connection between ECS Federal's Kubera, Avalanche, and Pavement prime awards relating to Project Maven, we ran into subaward descriptions mentioning that classified workloads would

Amount	Company	Transaction Period	Summary
$4.60M	Raytheon Technologies	2018.11 – 2019.12	"*Sustainment support to the DCGS-Army Lite software baseline and to USASOC for the deployed DCGS-A Lite systems currently in use*"
$1.1M	Phoenix Operations Group LLC	2018.11 – 2020.01	"*Assist in delivering the Unified Data Ecosystem with data ingress, egress, and persistence*", "*support I2WD in...design...and experimentation to advance the next generation of Army cyber, EW, SIGINT, [PED], and radar capabilities*", and "*Provide enhancements and support to the DCGS-A Test Harness to include...Data Collection, Reduction, and Analysis*"
$0.80M	Parsons subsidiary Polaris Alpha Advanced Systems, Inc.	2019.05 – 2020.01	"*Analyses, assessments and enhancements of MAPP 2.X/Smart System appliances and enabling technologies*", "*conduct a technical and operational study of the existing Maven AI frameworks, algorithms and datasets to develop a prototype of Maven/MAPPS.*", "*provide technical support for the integration, deployment, and operations and maintenance of the Video Identification, Collection and Exploitation (VICE) system*", "*Support the modernization and integration of Distributed Common Ground System Army (DCGS A) mission applications and infrastructure components*"
$0.61M	Popily, Inc. (DBA Yonder)	2019.02 – 2019.05	"*Popily, Inc (dba New Knowledge) will provide social media data collection, normalization, aggregation, storage, and advanced analytics services through the New Knowledge Platform...The Platform will provide an [API] that allows software systems to request data collection from the social media networks described below*"
$0.60M	Leidos, Inc.	2018.11 – 2020.01	"*integration of the DCGS-A Fusion Brain (DFB), DCGS-A Installation (DFI), DCGS-A Fixed Storage (DFS), at the...500th MI Brigade, the 505th MI Brigade, the 66th, USASOC, 501st, and 470th*"
$0.32M	Uncharted Software Inc.	2019.01 – 2019.05	"*platform maintenance and updates, data integrity validation, remote support including a weekly scheduled support call, community engagement forums, monthly status reports and a product roadmap*"
$0.30M	Palantir USG	2020.02	"*Misc. Hardware/software*"
$0.60M	Zapata Technology, Inc.	2018.11 – 2020.01	"*support of I2WD while acknowledging and accommodating requirements for continuity and urgency. These activities are: (1) Software baseline support for the DCGS-A Intelligence Processing Center version 1 (IPCv1) Systems; (2) Installation, integration, and verification of DCGS-A Fusion Brain (DFB); and (3) Program management support for the DFS and DFB tasks.*"
$0.16M	Tygart Technology, Inc.	2020.01	"*engineering technical support and services for [I2WD]*"
$0.09M	GDIT subsidiary Praxis Engineering	2019.02	"*maintaining the Post Production Sustainment Support (PPSS) of the DCGS-A 3.2.5 SP1 baseline*"
$0.07M	HPE – through MapR Technologies, Inc.	2019.05	"*Technical engineering subject matter expertise*"

Table 6: AI and analytics subcontracting on a prime award to Booz Allen Hamilton involving DCGS-A and Project Maven. The following initialisms were used: API – Application Programming Interface, DCGS-A – Distributed Common Ground System Army, EW – Electronic Warfare, I2WD – Intelligence and Information Warfare Directorate, PED – Intelligence Processing, Exploitation, and Dissemination, SIGINT – Signals Intelligence
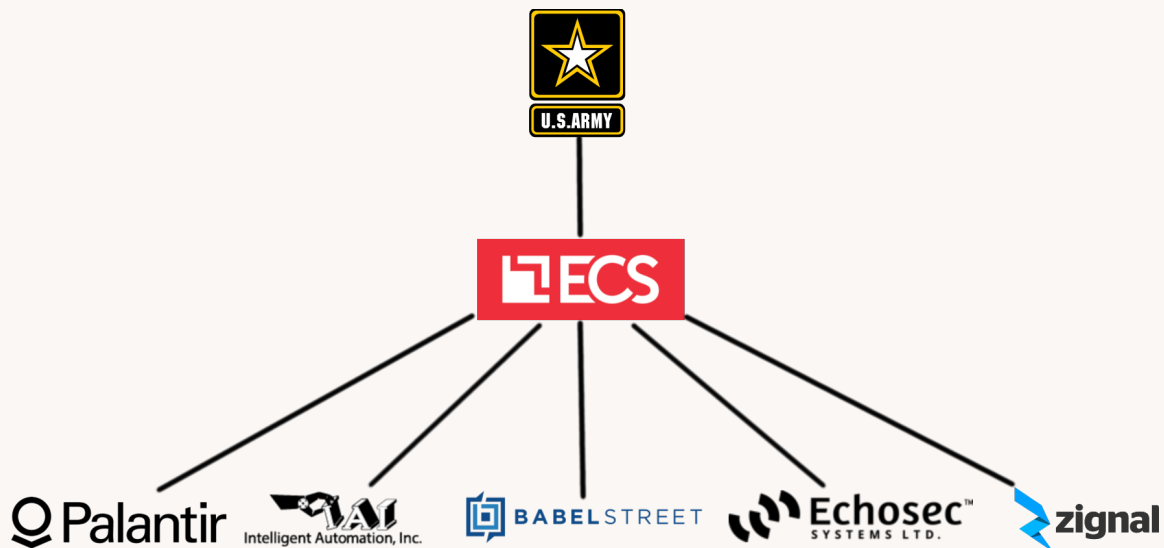
Figure 25: A subset of the subcontractors with the US Army under two prime awards to ECS Federal involving the Secure Unclassified Network (SUNet) and its Publicly Available Information (PAI) enclave.

be run on either the Amazon Web Services (AWS) Secret Cloud Compute Service (SC2S) or Commercial Cloud Services (C2S) and Clarifai's unclassified satellite imagery analysis would take place in the Secure Unclassified Network (SUNet). The U.S. Army described the Secure Unclassified Network (SUNet) as:

> "*a US-government-established, non-DOD information-network, For Official Use Only–accredited unclassified platform. SUNet provides an operational infrastructure that is secure, accredited, Internet-accessible, unclassified, scalable, and with user/data segmentation and strict access controls. SUNet enables mission partners to establish virtual enclaves, controlled access to those enclaves, and to acquire, develop, and deploy mission-specific datasets and analytics that can be shared across multiple enclaves or restricted based on mission requirements. SUNet serves US federal government agencies as well as law-enforcement agencies from around the world to support collaborative efforts.*"[30]

We can discover significantly more about the usage of SUNet – especially as it relates to PAI surveillance – by breaking down the subawards under ECS Federal as part of their prime awards with the US Army with Procurement Instrument IDentifiers (PIIDs) W911QX19C0039 (whose period of performance is Sep. 30, 2019 – Sep. 29, 2021) and W911QX19F0086 (using Tech Inquiry's combined award and sub-award stream). As we will show below, Palantir was the biggest subcontractor across these two prime awards, receiving nearly $73M in Dec. 2019 to "*examine data and develop algorithms*". (This strategy will prove even more useful in our later analysis of the secretive award to ECS Federal (through I_SW, LLC) for predecessor "Project CICERO".)

Our first step is justification that our two cited awards relate to SUNet:

1. The award description for the first PIID, W911QX19C0039, is "*SUNet Infrastructure Services*".

2. The award description for the second PIID, W911QX19F0086, includes "*Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave services task order*".

ECS Federal's work on a Publicly Available Information (PAI) enclave with the Secure Unclassified Network (SUNet) is thus related to its Maven subcontractor, Clarifai, analyzing satellite imagery within SUNet, as well as the numerous fellow subawardees referencing their PAI aggregation (e.g., of social media). What follows is a breakdown of the social media surveillance subawards involved in the two identified SUNet prime awards (for the sake of brevity, we have left out legacy defense contractors and service companies).

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[30]An immediate question is what law enforcement agencies "from around the world" SUNet data has been shared with, and whether ECS Federal or Project Maven subcontractors have played a part.

2.6.1 Social Media Surveillance

While the previously discussed Maven-related ECS Federal and Booz Allen prime awards involved a few social media surveillance companies – Zignal Labs, SocialTrendly (DBA Blackbird.ai), and Popily (DBA Yonder, FKA New Knowledge) – the two ECS Federal prime awards involving SUNet and its PAI enclave contain a far higher concentration. A ranking of these social media surveillance subawardees by their total obligated amount is provided in Table 7.

Perhaps the most notable listed subawardees are partnered social media and location-tracking surveillance contractors Babel Street – who received $5.1M for "*136 Babel X Licenses*" and "*30 Babel Synthesis Licenses*" – and Venntel – who received $60K for "*Venntel licenses*". As detailed in Fig. 26, Babel Synthesis is the company's newest public product, an "*AI-enabled solution empowering teams to visualize unstructured and relationship data*", whereas Babel X is their older, "*AI-enabled, multilingual, knowledge discovery and transformation platform*". Babel Street's location-tracking product, Locate X, was not mentioned in its subaward descriptions.

The second-largest social-media surveillance recipient after Babel Street was Intelligent Automation, Inc. (IAI), whose computer vision (PixL) and social media analysis (SocL) components of its procured Scraawl platform are displayed in 27. IAI's Scraawl is but one contributor to our ongoing observation of the DoD's combined procurement of overhead and social media surveillance.

The SUNet project also paid surveillance firm Echosec $1.6M for "*222 Echosec Licenses*" (see Fig. 28). As part of their *Crisis Averted – Protecting Your Enterprise* video series, the company pitches its deep web and social media surveillance – by both cybersecurity teams and HR – as early threat detection. The third video in the serious verbally and visually cites the Capitol insurrection as justification for corporations surveilling the social media of anyone who protests their executives.[31]

Other subawardee social media surveillance companies included Australian company ShadowDragon, whose SocialNet product is shown in Fig. 31, Meltwater (see Fig. 30), EJ2 Communications (DBA Flashpoint) (see Fig. 29), and Bluestone Analytics (see Fig. 32 for details on their DarkBlue platform). Bluestone, along with fellow subawardee Echosec, is publicly partnered with the anti-child trafficking organization The Innocent Lives Foundation. And both Bluestone and C4ADS partner with Australian Palantir-analogue Fivecast.

The last subawardees to discuss from Table 7, Zignal Labs and Creative Radicals, have already appeared in our analyses of previous subcontracting networks: the former (see Fig. 29) subcontracted as part of ECS Federal's Project Maven-related Kubera effort, while the latter (see Fig. 12) subcontracted under Alion Science and Technology as part of the Naval Postgraduate School's Remote Sensing Center (RSC) Joint Capability Embedded Technology Insertion and Integration (JCETTI) project. We hypothesize that the procurement of a "*VK Data Source*" from Zignal is a reference to a historical cache of the Russian social media platform VKontakte (VK) from Mail.ru Group, ooo.

ECS Federal does not provide a media email address and did not respond to a request for comment by phone for any of its six prime awards discussed in this report: three relating to Project Maven ("Kubera+Buick", "Pavement", and "Avalanche"), two relating to the Secure Unclassified Network (SUNet) and its Publicly Available Information (PAI) enclave, and one with SOCOM's J2 Intelligence named "Project CICERO".

Babel Street did not return a request for comment on the scope of its subawards under ECS Federal on the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave.

Intelligent Automation did not return a request for comment on the scope of its subaward under ECS Federal on either the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave or Project CICERO.

Creative Radicals has not responded to an emailed request for comment on its subawards under ECS Federal's prime award for the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave, or on its previously discussed subaward under Alion Science and Technology involving the Naval Postgraduate School's Remote Sensing Center.

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[31] Incidentally, the second video in Echosec's Crisis Averted series prominently displays April Glaser's article "Where 8channers Went After 8chan". Glaser covered our previous report.

Amount	Company	Transaction Period	Summary
$5.1M	Babel Street	2019.12 – 2021.06	For services including "*136 Babel X Licenses*" and "*30 Babel Synthesis Licenses*' (and a "*Data Package for the Synthesis Licenses*")'.
$4.3M	Intelligent Automation, Inc.	2019.11 – 2021.06	For services including "*an automated analytic process resulting in a PAI Order of Battle product that contains reports designed to provide essential elements of information about multiple subnetworks within a larger meta-network.*", "*10 Scraawl Premium Licenses*" and "*12 Scraawl Enterprise license renewals*".
$1.6M	Echosec Systems Ltd	2020.01 – 2021.07	For, among other orders, "*222 Echosec Licenses*".
$0.96M	Zignal Labs, Inc.	2020.02 – 2020.12	For services including "*50 Zignal licenses and 15 VK Data Source*".
$0.83M	Creative Radicals, LLC	2019.10 – 2021.06	For multiple orders of "*5 OpeniO licenses*".
$0.50M	EJ2 Communications, Inc. (DBA Flashpoint)	2020.01 – 2021.07	For licenses (up to July 2022) to their "*Flashpoint Intelligence Platform [and] Access to All Flashpoint Datasets*" and "*52 Flashpoint licenses*".
$0.39M	Meltwater News AS	2020.03 – 2021.04	For services including "*5 Meltwater Platforms*".
$0.25M	ShadowDragon, LLC	2019.11 – 2021.03	For "*Shadowdragon Maltego Licenses*".
$0.17M	Bluestone Analytics LLC	2020.04 – 2021.06	Including for "*3 DarkBlue License Rewnewal[s]*'.
$0.06M	Venntel, Inc.	2020.01	For "*4 Venntel licenses*".

Table 7: Subawardees involved in Social Media / "Publicly Available Information" surveillance as part of the two prime awards to ECS Federal for the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave project.

Echosec did not return a request for comment by email on the scope of its subawards under ECS Federal relating to the Secure Unclassified Network (SUNet).

Zignal Labs did not return a request for comment by email on the scope its subawards under ECS Federal – either for the Secure Unclassified Network (SUNet) or Kubera.

ShadowDragon did not return a request for comment via the submission form on its website to clarify the scope of its subawards under ECS Federal on the Publicly Available Information (PAI) enclave within the Secure Unclassified Network (SUNet).

Venntel did not respond to a request for comment on either this subaward under ECS Federal with the US Army and Air Force, or their other subaward under Alion Science and Technology with the US Air Force.

2.6.2 Search, Data Fusion, and GIS

While we can reasonably infer that the analytics and visualization SUNet subawardees displayed in Table 8 had their products used as part of the social media surveillance just discussed, we nevertheless separate them out for the sake of clarity: Data fusion contractor Palantir received the sizable sum of $73M to "*examine data and develop algorithms*", GIS giant – and SafeGraph reseller – Esri received $2M to support USNORTHCOM, and Babel Street partner Executive Information Systems received $190K for providing the Viya Platform from SAS Institute – who also partnered with Babel Street. Lastly, popular search platform Elastic – who has both acquired an In-Q-Tel investee and partnered with a subsidiary of BigBear – received $50K.

Palantir did not respond to an email request for comment on the scope of either its $72.5M subaward on SUNet or $24.2M subaward on the "Kubera+Buick" prime award to ECS Federal relating to Project Maven.
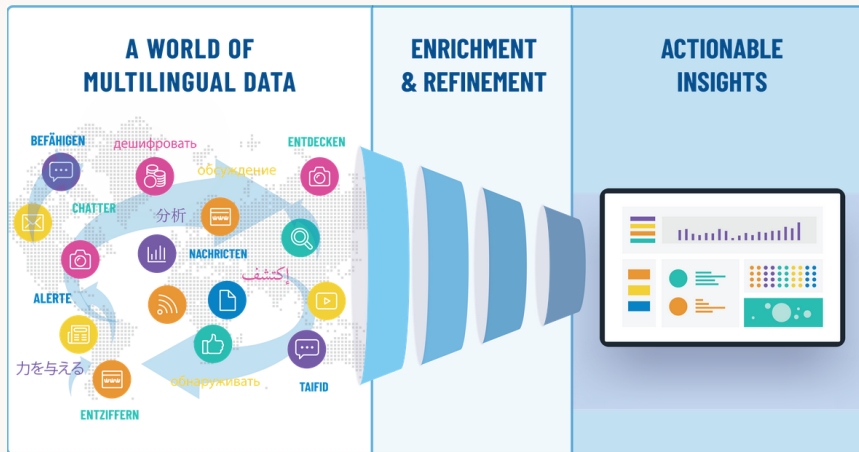
2.6.3 Segue between SUNet and CICERO

We have shown that a bevy of social media and location-tracking surveillance companies – including Babel Street, Venntel, IAI, ShadowDragon, Echosec, Zignal Labs, Creative Radicals, and Flashpoint – subcontracted under ECS
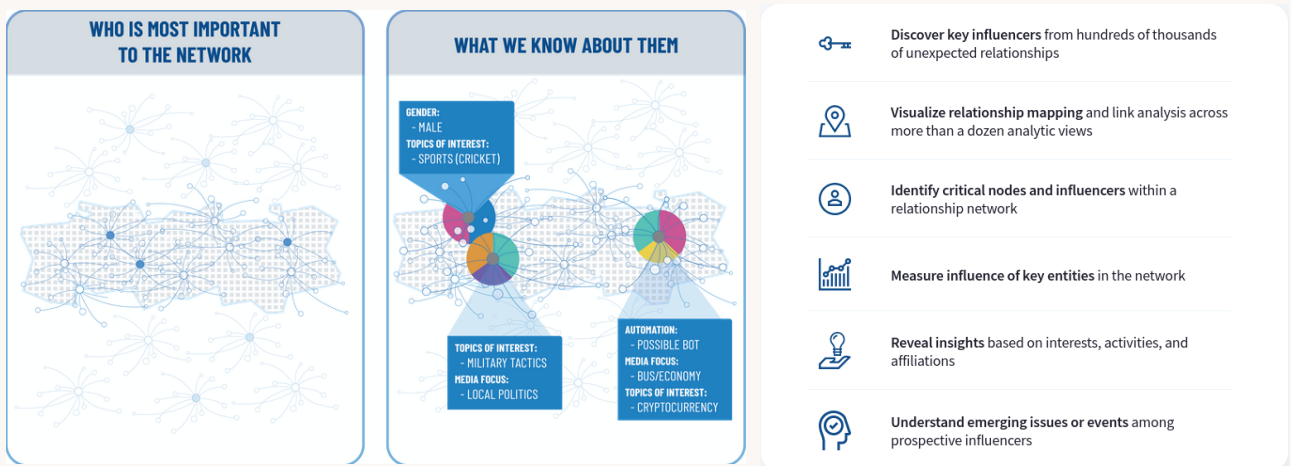
(a) Babel Street's depiction of Babel Synthesis

(b) Babel Street's marketing for Babel Synthesis

(c) Babel Street marketing for Babel X

Figure 26: Babel Street's marketing materials for its Babel Synthesis and Babel X products. Both were procured through subcontracts to Babel Street from the US Army as part of its Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave awards to ECS Federal.

FACE RECOGNITION

Use Scraawl PixL's Face Recognition analytics to recognize individuals of interest by matching faces detected within a video or set of images against a user-provided database of faces. Scraawl PixL performs off-line analysis using deep learning of the user-provided images to extract user-specific feature vectors and compares them against faces detected in the video. For commercial use cases, Scraawl PixL comes pre-configured with a celebrity dataset for celebrity recognition. The celebrity dataset includes over half a million images of 50,000 celebrities. Use Scraawl PixL's tools to update, label, and maintain your own custom image/face datasets against which face recognition can be performed.
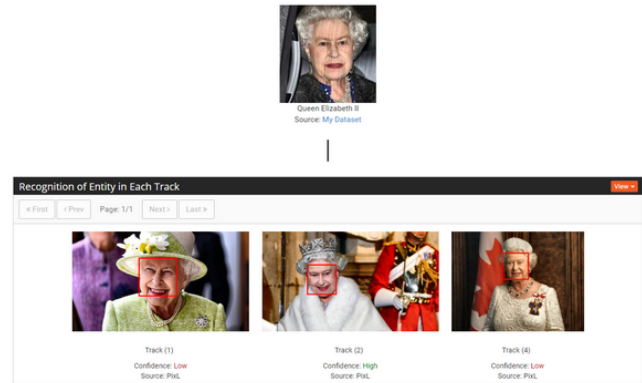
(a) Scraawl PixL Face Recognition

SATELLITE DETECTION

To address issues related to low resolution data and overhead camera angles, use Scraawl PixL's satellite object detection which leverages specially trained machine learning models to identify objects of interest in satellite imagery. This analytic includes a deep learning-based model that was trained using a satellite image dataset containing millions of labelled objects. The model predicts the positions of bounding boxes, the object classes, and their probabilities. A tracker is integrated with satellite object detection to correlate continuous occurrences of objects in the video. Tracks of similar objects are grouped into a single entity and can be used with the analytics drill down pages or the player to navigate through the detections and tracks.
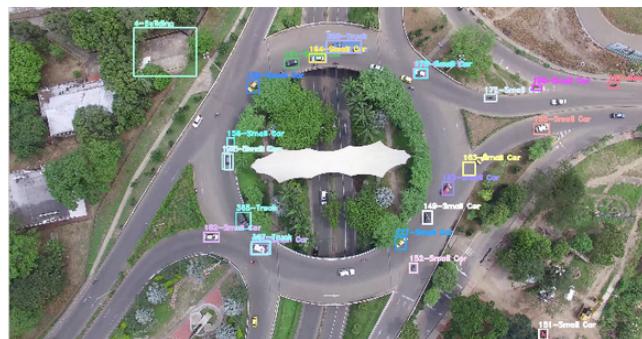
(b) Scraawl PixL Satellite Computer Vision

BOT DETECTION

Use Scraawl SocL's advanced Bot Detection analytic to distinguish potential bots from humans. Scraawl SocL's algorithm uses various statistical, temporal, and textual features of posts along with historical information from user profiles to categorize users.

(c) Scraawl SocL Bot Detection

TOPIC MODELING

Use Scraawl SocL's Topic Modeling analytic to identify the themes underlying the digital conversation collected. Scraawl SocL uses a language-independent probabilistic model to partition conversations into distinct topical threads. Filter by topic, then apply Influence Discovery, Community Detection, or Sentiment Analysis to get a clearer picture of the conversation.

(d) Scraawl SocL Topic Modeling

Figure 27: Features from the social media analysis (SocL) and computer vision (PixL) components of the Scraawl platform from Intelligent Automation, Inc. (IAI), which was recently acquired by BlueHalo, LLC. Scraawl was procured in subcontracts under ECS Federal on both their CICERO (under USSOCOM J2 Intelligence) and SUNet (under US Army) projects.
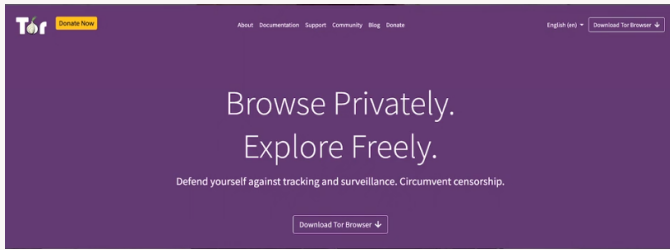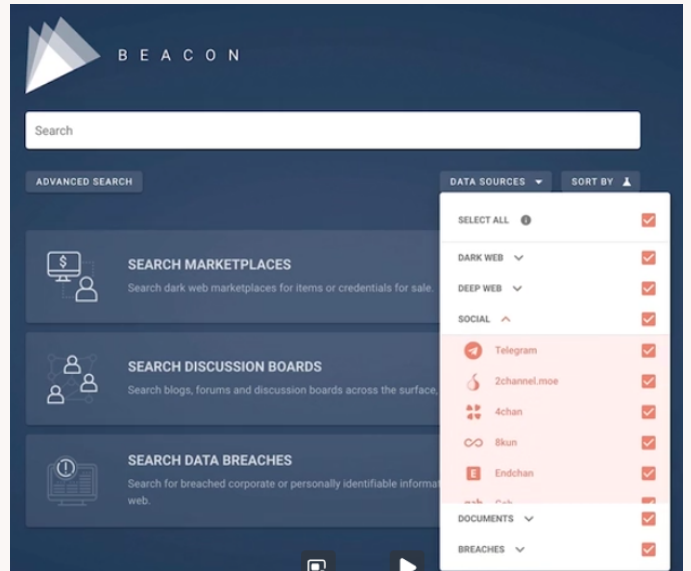
(a) Echosec's advertisement of Tor surveillance in Video 1.

(b) Echosec's advertisement of Pastebin surveillance in Video 1.
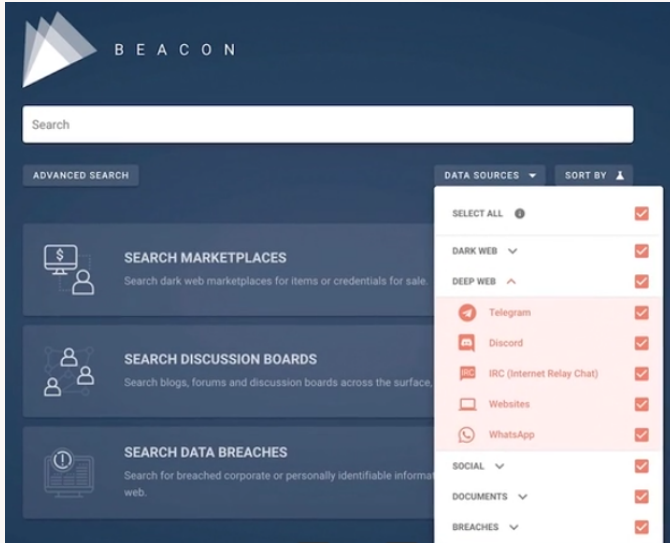
(c) Echosec's advertisement of Deep Web surveillance in Video 2 (including Telegram, Discord, IRC, WhatsApp, and "Websites").

(d) Echosec's advertisement of Social surveillance in Video 2 (including 2channel.moe, 4chan, 8kun, and Endchan).

Figure 28: Screenshots from Echosec's Crisis Averted – Protecting Your Enterprise three-part video series which demonstrate several components of the internet which their company surveils and indexes for both governments and commercial users (both cybersecurity teams and HR are recommended). The third video cites the Capitol insurrection as justification for surveilling online "trolls" of corporate executives, as well as corporate protestors. Echosec sold its system to the Army as part of the Secure Unclassified Network (SUNet) as a subcontractor – alongside Palantir and Babel Street – under Project Maven prime contractor ECS Federal. Echosec also advertises its product being used by "*border control [and] intelligence agencies*".

Blogs

Provides a broader view into open web data by providing online sources of news and information related to threat actors and collectives, allowing users to monitor activity in malicious communities more comprehensively, as well as risks impacting the organization or brand.

Paste Sites

Enables access to openly shared research, data leaks, and other plain text files frequently used by both anonymous sources and threat actors to share malicious activity, providing a broader view into open web data.

4chan & 8chan

Provides access to the anonymous 4chan and 8chan message boards, enabling users to monitor malicious content and discussions ranging from hacktivism to physical threats.

Social News Aggregation and Discussion Sites

Collections from social news aggregation and discussion websites leveraged by both open and deep & dark web communities where illicit actors discuss malicious activity, including malware developments, cyber threats, and physical threats.

Figure 29: A few samples from the surveillance datasets advertised by EJ2 Communications, Inc. (DBA Flashpoint) as part of its API. The US Army purchase access to all of Flashpoint's datasets, as well as its Intelligence Platform, as part of a subcontract under ECS Federal as part of the Secure Unclassified Network (SUNet) Publicly Available Information enclave awards.

Since 2001, we have invested in proprietary technology to capture content from more than 270,000 global news sources, social media platforms, forums, blogs, print publications, broadcasts and podcasts. We bring in over **500 million pieces of new content every day** and keep adding news sources on a daily basis. You can also always access your search results and get real-time analyses through our industry-leading <u>mobile app</u>, available on iOS and Android.

Social Media

We allow you to monitor over **15 different social media channels** (including access to all of Twitter's content), blogs, comments, news articles and product reviews.

Figure 30: Two pieces of marketing copy for the Meltwater News Media Monitoring platform. The US Army procured multiple licenses of this platform in a subcontract as part of its Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave award to ECS Federal.

Social Media, Chat, Online Forums With User Alias Info

Major and secondary networks like:

Parler, TikTok, etc.

Pornhub, OnlyFans, etc.

WhatsApp, IRC, Reddit

Over 70,000 confirmed threat actors and 8,000 known online aliases in our AliasDB

100 Total platforms and growing

Our platforms provide access to a wide variety of live publicly available information, but what's online is constantly changing. To provide a historical view, we capture and archive datasets going back many years. Subscriptions available to archives for DarkWeb TOR, FourChan, Reddit, Pastebin, ZoneH, and others.

(b) Deep and Dark Web sources ShadowDragon's SocialNet advertises surveilling.

Maltego

Maltego is a comprehensive tool for graphical link analysis that offers real-time data mining and information gathering, as well as the representation of this information on a node-based graph, making patterns and multiple order connections between said information easily identifiable. With Maltego, you can easily mine data from disparate sources, automatically merge matching information in one graph, and visually map it to explore your data landscape.

ShadowDragon tools were the first commercially available transform offering inside of Maltego.

(a) Marketing copy of some of the platforms ShadowDragon's SocialNet surveils.

(c) ShadowDragon's description of its partnership with Maltego.

Figure 31: Two pieces of marketing copy for the ShadowDragon SocialNet product. The US Army procured "*ShadowDragon Maltego Licenses*" in a subcontract as part of its Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave award to ECS Federal.

Our Technical Collections Team scours the digital landscape for hard-to-reach information, developing advanced tools that enable automatic, persistent access to unique data from multiple dark nets and relevant open web sources.

DarkBlue data is explicitly structured to support Artificial Intelligence insights, entity resolution, technical exploitation, and seamless integration with most enterprise platforms.

Mission Spaces within the DarkBlue platform display curated dashboards featuring data feeds, robust visualizations, and custom Artificial Intelligence solutions. Mission Spaces are deployed on a need-to-know or project basis.

Figure 32: Marketing copy for the Bluestone Analytics DarkBlue internet surveillance platform. DarkBlue was procured by the US Army as part of its Secure Unclassified Network (SUNet) project through a subcontract to BlueStone under ECS Federal. *Image retrieved Aug. 29, 2021.*

Amount	Company	Transaction Period	Summary
$73M	Palantir Technologies, Inc.	2019.12	"*examine data and develop algorithms*"
$2M	Esri	2020.09	For "*Providing support of the USNORTHCOM and the NGB implementation and configuration of ArcGIS software[and] provided IL4 cloud-based infrastructure within...SUNet.*".
$0.19M	Executive Information Systems, LLC (EIS)	2020.06 – 2020.07	For "*Providing SAS Viya Platform installation on SUNet A212, SAS consultation, and SAS training.*" Beyond reselling SAS Institute's Viya platform, EIS has both partnered with Babel Street and resold its products to the US Air Force and Florida's Department of Corrections.
$0.05M	Elastic N.V.	2021.04	"*Billable Nodes for a Federal Subscription*"

Table 8: Subawardees supplying Search / GIS / Analytics as part of the two prime awards to ECS Federal for the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave project.
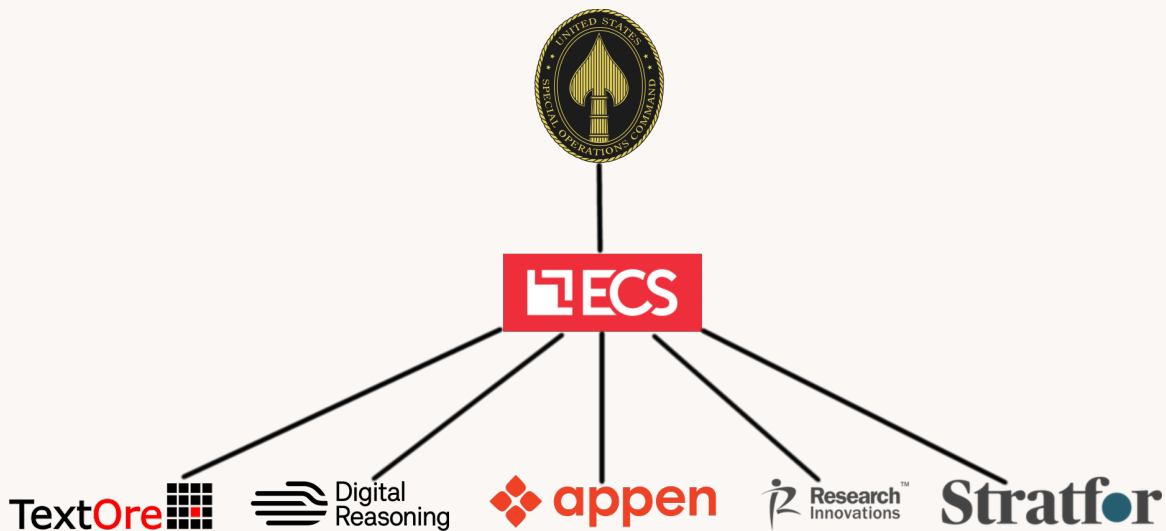

Figure 33: A subset of the subcontractors with the J2 Intelligence Directorate of USSOCOM under a prime award to ECS Federal for Project CICERO. The logo of Appen Limited is shown due to their acquisition of subcontractor Figure Eight (FKA CrowdFlower).

Federal alongside Palantir and Esri as part of a Publicly Available Information (PAI) enclave in the Secure Unclassified Network (SUNet) that one of Clarifai's Maven-related subawards referenced satellite imagery analysis taking part in. As we are about to see, ECS Federal's PAI surveillance work within SUNet was preceded several years by their work with USSOCOM's J2 Intelligence Directorate on "*Project CICERO*", which began in 2013. One of the subcontractors, IAI, even carried over.

2.7 ECS Federal and SOCOM J2 Intelligence's "Project CICERO"

As we will show, ECS Federal's secretive work on "Project CICERO" with the J2 Intelligence branch of USSOCOM involved subawards to both data crowdsourcing and social media surveillance companies (see Table 9). As a result of the PAI surveillance – including through Intelligent Automation, Inc. – we argue that CICERO was a predecessor to ECS's prime contracts on Project Maven and the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave.

The largest subaward on this contract was to crowdsourced AI training set generation company CrowdFlower, Inc. – before its namechange to Figure Eight Inc. and subsequent merger into Appen Limited – for $6M in June 2017 for "*Support to the CICERO program, Subproject SILVER*". A second data crowdsourcing company, First Mile Geo, Inc. (DBA Native), received a much smaller award of $260K; their app is depicted in Fig. 9.[32]

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[32]The author installed the Native app on his Android phone and, over the course of a week, did not see any tasks appear in the downtown

Amount	Company	Transaction Period	Summary
$6M	CrowdFlower, Inc.	2017.06	"*Support to the CICERO program, Subproject SILVER*"
$1.2M	Digital Reasoning Systems, Inc.	2015.12	"*Technical support to the CICERO Program*"
$1.1M	Research Innovations Inc.	2016.10	"*Technical support to Project CICERO*"
$0.82M	TextOre Inc.	2016.02	"*Support to the C2IE subproject under Project CICERO*"
$0.38M	Stratfor Enterprises, LLC	2016.09	"*Technical support to Project CICERO*"
$0.3M	SC2 Corp. (DBA Equitus)	2016.02	"*Technical support for the vendor's proof of technology for the HTAS system*"
$0.26M	Intelligent Automation, Inc. (IAI)	2016.03	For "*technical support to CICERO project. IAI provides training and support for their Scraawl SW and data hub.*"
$0.26M	First Mile Geo, Inc. (DBA Native)	2016.04	"*Support to Project CICERO*"

Table 9: Social Media Surveillance, Crowdsourcing, and Analytics Subcontractors under the "Project CICERO" prime award from USSOCOM's J2 Intelligence to ECS Federal subsidiary Information Systems Worldwide.

Capture data

Our Natural Language Processing (NLP) models find signals of employee intent present in communications such as email and chat.

Surface behaviors

Signals such as flight risk, apathy, and complaints are mapped to behavioral profiles in order to proactively locate high-risk employees.

Figure 34: Two stages from the "Insider Risk" tool sold by Digital Reasoning Systems, Inc.. Digital Reasoning was a subcontractor in 2015 under ECS Federal on Project CICERO with the USSOCOM's J2 Intelligence division.

But the most surprising subaward was $380K to Stratfor, the "private intelligence" firm which was infamously hacked by Anonymous and whose internal emails were published by WikiLeaks. Stratfor was acquired by Risk Assistance Network + Exchange in early 2020 – roughly three and a half years after its subaward on Project CICERO.

Other subawardees included:

- Digital Reasoning, recently acquired by Smarsh, who built an "Insider Risk" tool which surveils employee email and chat messages to model their "apathy" and "flight risk" (see Figure 34).

- Research Innovations Inc., whose RapidAdapt platform is similar to a small business Palantir (and thus comparable to the Rubicon platform of Black Cape).

- TextOre Inc., who advertises access to the Twitter firehose and surveillance of networks of students (see Figure 36). Like C4ADS, TextOre is partnered with Australian Palantir-analogue Fivecast

- Before its current branding as Equitus, SC2 Corp. sold a platform called the Human Terrain Analysis System (HTAS), which was explicitly mentioned in its CICERO subaward and built in partnership with IBM and LUCIAD (now Hexagon). One of the advertised features of HTAS was "*real-time data mining of Tweets and re-tweet sequences*". See Figure 35 for screen captures of HTAS advertisements and SC2's YouTube video demonstrating the newer, Palantir-like platform whose slogan is "*Intelligence Born From Combat Not Silicon Valley*"

- Intelligent Automation, Inc., who sold its Scraawl platform as part of both CICERO and ECS Federal's SUNet project.

Despite Project CICERO having concluded more than three years ago and involved both a prime contractor (ECS Federal) and a subcontractor (Stratfor) who have warranted significant journalistic scrutiny, the majority of the surveillance subcontractors appear to have stayed out of the limelight. We hope that this report helps establish their work as foundational to the later work ECS Federal performed on integrating major Silicon Valley firms into the Pentagon's drone and satellite surveillance work.

ECS Federal does not provide a media email address and did not respond to a request for comment by phone for any of its six prime awards discussed in this report: three relating to Project Maven ("Kubera+Buick", "Pavement",

Toronto area.

(a) HTAS Banner Image
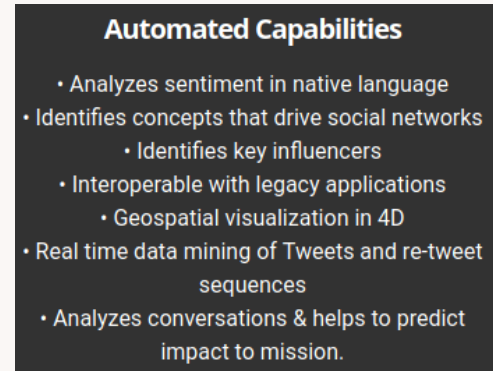
(b) HTAS Features

Figure 35: Images from a cache of the Human Terrain Analysis System from SC2 Corp. before its rebranding as Equitas. HTAS was procured in 2016 by SOCOM's J2 Intelligence as part of Project CICERO as a subcontract under a subsidiary of Project Maven prime ECS Federal. Advertised features included "*Real time data mining of Tweets and re-tweet sequences*".

(a) TextOre Overview

(b) TextOre Capabilities

Figure 36: Screenshots from the Defense & Policy capabilities overview of TextOre Inc. linked from their website at textore.net/solutions. We note their admitted monitoring of "*networks of students [and] scholars*" as well as "*access to the full firehose of Twitter, VK, Sina Weibo, and others.*"

and "Avalanche"), two relating to the Secure Unclassified Network (SUNet) and its Publicly Available Information (PAI) enclave, and one with SOCOM's J2 Intelligence named "Project CICERO".

Systems & Technology Research LLC (STR) did not respond to a request for comment on the scope of either this subaward under ECS Federal for "Project CICERO", the two subawards under ECS Federal relating to Project Maven (on "Pavement" and "Kubera+Buick"), or on its prime award with the Defense Intelligence Agency involving location-tracking data broker Outlogic, Inc. (FKA X-Mode Social).

Intelligent Automation did not return a request for comment on the scope of its subaward under ECS Federal on either Project CICERO or the Secure Unclassified Network (SUNet) Publicly Available Information (PAI) enclave.

First Mile Geo, Inc. (DBA Native) did not return a request for comment through the contact form on their website (no media inquiry email address is listed).

3   Conclusions

As part of demonstrating Tech Inquiry's open source – both in software and data – system for curating and monitoring corporate and NGO entities, we have leaned heavily on subcontracting patterns to detail numerous previously unreported aspects of AI and surveillance procurement by the US Department of Defense. Beyond mapping out the subcontractors associated with Project Maven, we have demonstrated the broader scope of the project, including its connections to facial recognition, satellite and Synthetic Aperture Radar surveillance, and "*Publicly Available Information (PAI) aggregation*" – especially AI-driven social media surveillance. Further, we have identified a network of think tanks which have subcontracted under the US Defense Intelligence Agency and Army alongside location-tracking data brokers X-Mode Social (now Outlogic) and Venntel; we hope that these connections will be made clear in future public coverage of said think tanks' reports, especially when relating to analysis of US competitors such as China, Russia, and North Korea.

4   Acknowledgements

5   Funding

6   Broader Conflict of Interest Disclosure

The author spent a bit more than two years as a research scientist in Google's Research and Machine Intelligence division, which was since renamed Google AI. The author publicly resigned from said company in 2018.