

Minutes
COMMISSION ON RESEARCH
November 8, 2017
130 Burruss Conference Room
3:30pm – 5:00pm

Attendees: Jennifer Irish (Chair), Virginia Pannabecker (Vice-Chair), Theresa Mayer (Ex-Officio), Sally Morton, Alan Michaels, Sid Madhavan, Uri Kahanovitch, Robert Vogelaar, Andrew Neilson, Nancy Dudek, Kevin McGuire, Deborah Milly, Jon Greene (for Stefan Duma), Benjamin Corl, Rachel Rupnow, Tom Inzana (for Kurt Zimmerman), Dipankar Chakravanti, Ken Miller and Chris Tysor (Recorder).

Absent: Thomas Bell, Van Crowder, Myra Blanco, Saied Mostaghimi, Steve Nagle

Guests: Sanjay Raman, Dennis Grove

- I. Approval of the Agenda – The agenda was approved with the correction of the order of guest speakers
- II. Announcements
 - a. Approval of the minutes from October 4th, 2017 – J. Irish reported the minutes had been approved electronically (lack of response indicated an approval of the minutes).
- III. Unfinished Business
 - a. University Library Committee update- V. Pannabecker updated the CoR on the last meeting of the University Library Committee, reporting they had gone through introductions, a presentation on library spaces and updates on university library services. There was no further progress to report.
 - b. Faculty Senate update- B. Vogelaar reported on the Faculty Senate Resolution on Faculty Inclusion and Access to Opportunities. Someone on the CoR will probably be asked to sit on and participate in a Faculty Senate/Commission on Faculty Affairs task force to help flesh out this resolution and opportunities. There was also a discussion about the fact there is not an internal updated website for any of the information, agendas, minutes or resolutions coming out of the Faculty Senate, as a place for the faculty body to see what is going on and leave feedback or comments.
 - c. T. Mayer gave a presentation to the CoR on the information she shared with the BoV on November 6. “The Virginia Tech Research Enterprise: A Financial Perspective”. T. Mayer made the point about the components of a global university and how Virginia Tech plans on working towards this end. T. Mayer presented financial information from NSF HERD showing research expenditures and Virginia Tech’s place in the rankings. The overview broke down VTs expenditures by source- 65% Federal, 13% Industry and 20% State and local and then a further breakdown of the federal dollars and which agencies those come from. To become a top 100 Land-Grant Global Institution, VT is looking at peer organizations and how they have been able to experience continued growth even with the compression of the federal government budgets. T. Mayer explained what external funding we receive supports. VT is well poised to engage with the state and it is critically important we do so as well as remain in partnership with the federal government. T. Mayer reviewed the university research enterprise and the 3 major pillars to include Non-Medical Academic Colleges, Academic Medical Schools and Affiliated Thematic Research Units in order to provide an overview of another way the

research expenditures are generated and how that affects a school's rankings. It is CoR's intention that the remainder of this discussion occur at the December meeting.

- d. Committee for Research Competitiveness – overview provided electronically by S. Duma and read by J. Irish. This committee will be looking to schedule a meeting with T. Mayer in the near future.
 - e. Open Access Policy Draft- K. McGuire reported on their outreach efforts, including a presentation and feedback discussion with CNRE, as well as the public version of their website (<https://sites.google.com/a/vt.edu/cor-oa-policy-working-group/>) which contains a FAQ section. They are planning another meeting with Legal Counsel to discuss the transfer and copyright clarification information when someone leaves VT, i.e., what occurs with the IP and copyright. There is not a lot of information that can be found on the interpretation of the legal documents for these issues. K. McGuire will bring updates on the VT draft policy to the CoR for a discussion, then push it out to faculty through VT News for broader publication. Looking to have a broader discussion of the Draft Policy prior to an official 1st Reading. For any department or group that would like to host a brief (~20 min) presentation of the draft policy followed by discussion and feedback, contact the COR OA Committee at openaccess@vt.edu.
 - f. No update on Policy 13005
 - g. Task Force on Shared Governance- A lot of discussion surrounding the process of where a resolution goes once it leaves a commission and goes to Faculty Senate. Would like for a training session to be offered for new faculty to the university and/or faculty new to serving in one of the capacities of the governance system at VT.
 - h. Faculty Handbook – Peggy Layne and Ellen Plummer working on the resolutions to accompany updates to the sections on Research Faculty drafted in FY17. The resolutions should be available next time CoR meets.
 - i. Sanjay Raman, Director of VT-ARC, provided an overview of VT-ARC, established in 2010 to “extend the brand and impact of Virginia Tech”. VT-ARC 2.0 established with a leadership change in 2016. S. Raman reviewed the mission statement, core values and strategic goals of VT-ARC. Identified the two key Destination Areas that are players currently with VT-ARC- Data & Decisions and Integrated Security. VT-ARC is a big part of National Security research at VT along with the Hume Center, although they do not perform all of the National Security research at VT. S. Raman described the value added for the VT ecosystem that ARC can provide to the university to include flow funding through to the university, provide access to interesting customers, collaborative business capture, secure research facilities, internship and externship opportunities for students, a unique commercialization model for VT research and technologies.
 - j. T. Mayer informed the group about the different types of affiliated research units at VT to include the institutes- there are two main types which are thematic institutes and investment institutes, the newer opportunities at VT to include LINK and LAUNCH, VTKnowledgeworks is being phased out and VT is bringing that knowledge enterprise back onto campus.
- IV. Adjournment – meeting adjourned at 1708

Commission on Research
Committee for Research Competitiveness
Summary minutes for November 8, 2017
Submitted by Stefan Duma, Chair of the Committee for Research Competitiveness

Following the last meeting of the Commission on Research, the Committee for Research Competitiveness met on October 9, 2017. Present were Stefan Duma, Chair, and committee members Ben Corl, Kurt Zimmerman, and Barb Lockee. The committee discussed our charge for the 2017-2018 academic year that included two goals: investigate methods to increase support for alternative sources of funding (ie, foundations and corporate sponsors), and also increase competitiveness for government grants. We discussed various ways of engaging faculty through focus groups and surveys. We decided as a group to first engage the research leadership in order to understand better the most useful path forward. We concluded that we would schedule a meeting with Vice President Theresa Mayer and Link Director Brandy Salmon.

On October 20, 2017 the Committee for Research Competitiveness met with Link Director Brandy Salmon. Present were Stefan Duma, Chair, and committee members Ben Corl, Kurt Zimmerman, and Barb Lockee. We had a very productive discussion on methods and ideas regarding better engagement with foundations and corporate sponsors. In particular, Brandy Salmon asked us for more information on two topics. First, regarding current instrumentation and capacities, Brandy noted that it would be useful to have a complete and working inventory of Virginia Tech assets. Second, we were asked to focus on what facilities and equipment would be best to add to Virginia Tech to make our researchers more competitive.



VT-ARC Overview

VT Commission on Research Meeting, 8 Nov. 2017

Science – Technology – Innovation – Impact

*Business Sensitive Information
Proprietary to VT Applied Research Corporation*

Brief History of VT-ARC

- The Virginia Tech Applied Research Corporation (VT-ARC) is a 501(c)3 university-affiliated research organization established in 2010 to “extend the brand and impact of Virginia Tech”
- Focused on the federal government market, primarily in the National Capital Region; initial focus was on Cybersecurity and Intelligence
- Headquartered on the 7th floor of the VT Research Center – Arlington (VTRC-A), with satellite office in the VT Corporate Research Center in Blacksburg. The VTRC-A location was built out with spaces for conducting classified research at various levels.
- Commenced operations in 2011, initial revenue in 2012
- Leadership transition occurred in summer 2016 → VT-ARC “2.0”
- Revenue in FY17 reached nearly \$10M, ~85% CAGR FY12-FY17

VT-ARC “2.0” Strategic Plan: Mission and Goals

Mission Statement:

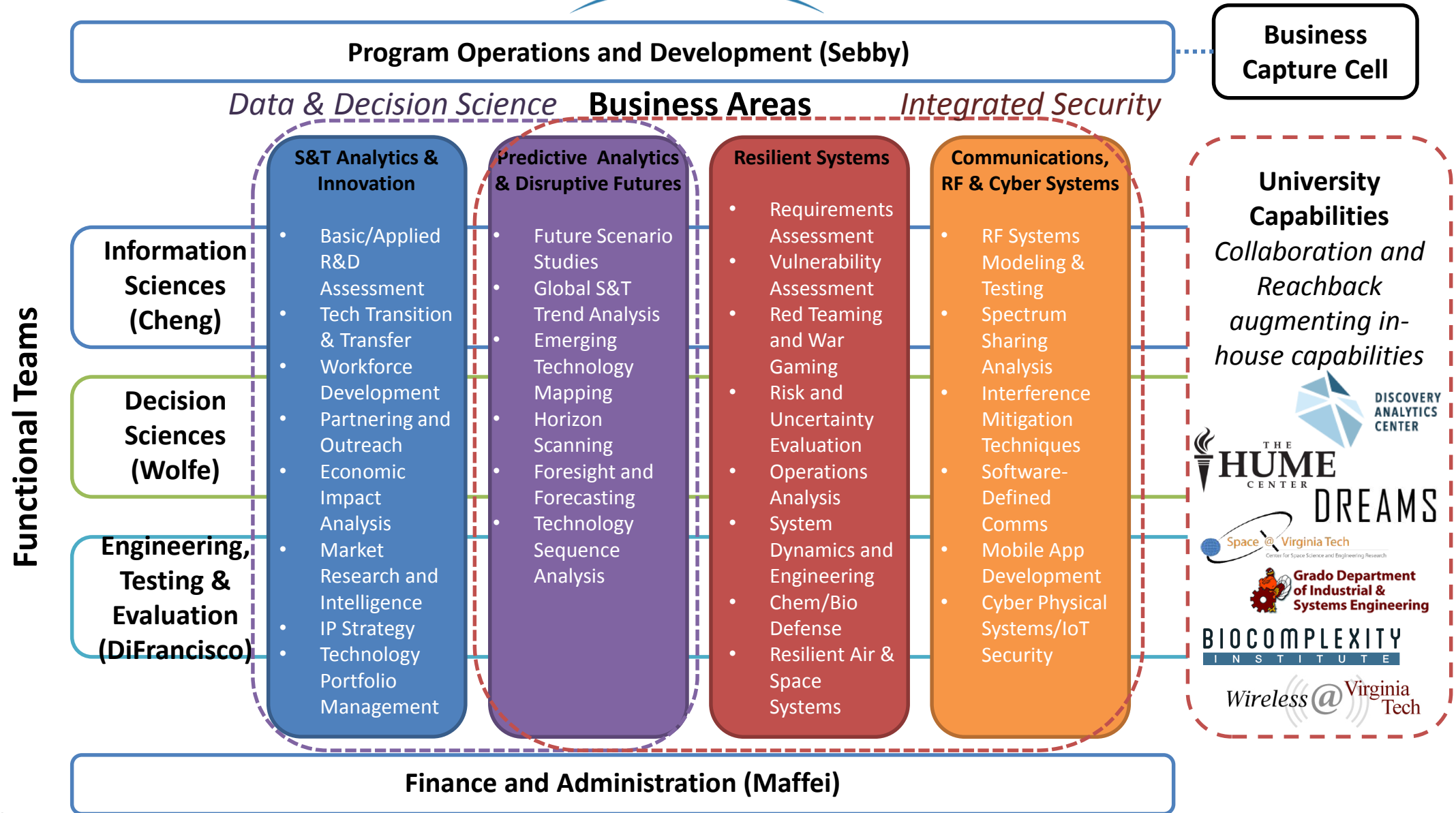
Deliver superior analytic and technology solutions to government and non-government customers, extending the brand and impact of the Virginia Tech Research and Innovation enterprise.

Core Values:

- *Excellence*
- *Integrity*
- *Collaboration*
- *Service (Ut Prosim)*

Strategic Goals:

- *Develop and maintain leading applied research capabilities, leveraging the power of Virginia Tech, for solving complex, dynamic customer challenges*
- *Serve as an innovation and commercialization platform for the university, supporting translation of VT technologies to the marketplace*
- *Create financial and synergistic value for the VT enterprise*
- *Achieve sustainable growth and profitability*



Programs and Projects

S&T Analytics & Innovation



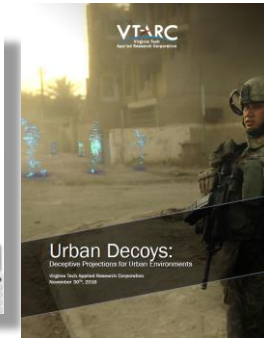
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Miyasaka, T

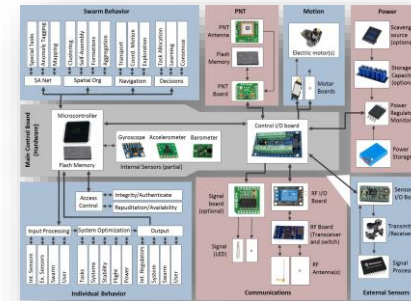
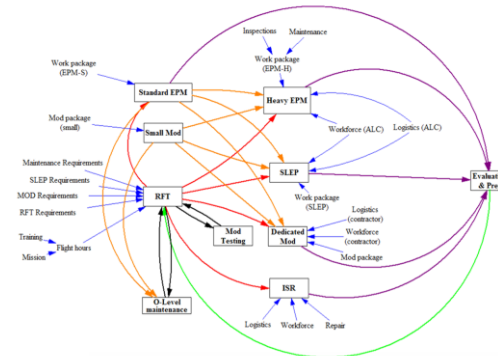
Smith, HJ



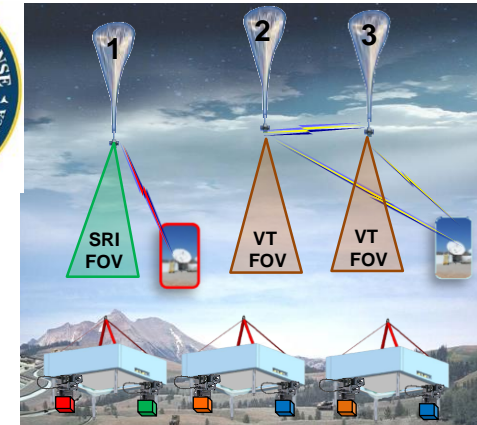
Predictive Analytics & Disruptive Futures



Resilient Systems



Communications, RF & Cyber Systems



- Balloon 1:
 - SRI SAR
 - Aerospace Lasercom
- Balloon 1:
 - VT Camera
 - VT RF Downlink/Crosslink
- Balloon 3:
 - VT Camera
 - VT RF Downlink/Crosslink



National Security @ Virginia Tech

Virginia Tech National Security Enterprise

Continuum from **basic** to **translational** research that engages students, faculty, and researchers in unclassified, restricted, and classified settings

Hume Center for National Security and Technology

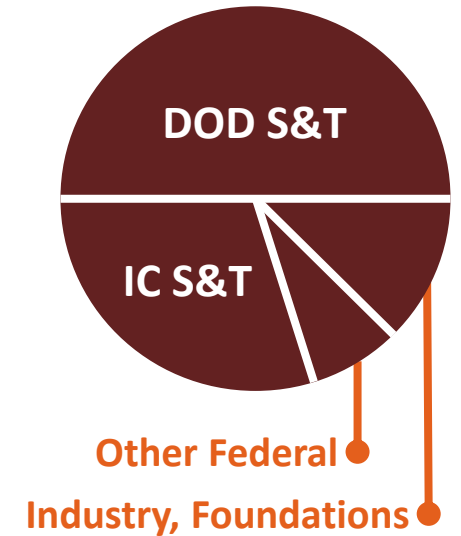
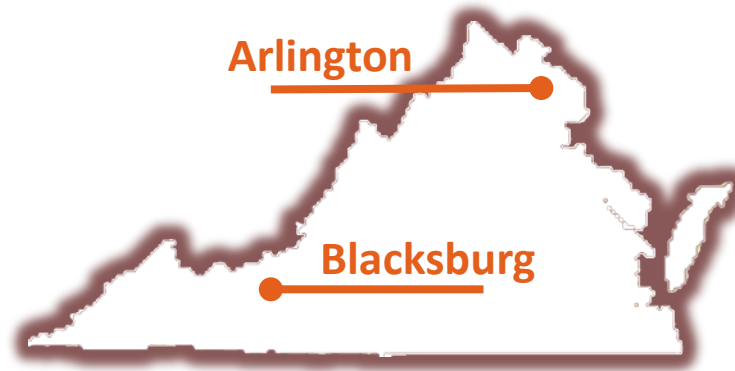
University Research Center
Emphasis on Advanced Research and Student-Oriented Programs

Virginia Tech Applied Research Corporation

Integrated 501(c)3
Emphasis on Technology Expertise and Mission Insight



NSA/DHS Center for Academic Excellence
IC Center for Academic Excellence
CyberCorps Scholarship for Service Site



\$18M Annual Program Revenue		100 Cleared Researchers, Staff and Professors	
300 Annual Academic Publications		250 Students Engaged Annually	

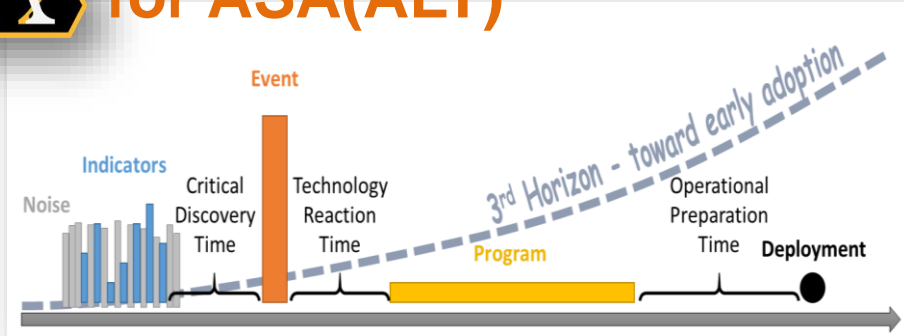
Value Added for the Virginia Tech Ecosystem

- Collaboration and Teaming on R&D programs
- Access to new, more operational customers beyond the traditional R&D funding agencies
- Flow-through funding to VT faculty and research groups
- Access to programs/data the University cannot otherwise reach due to legal or other restrictions
- Collaborative business capture
- Secure research facilities in Arlington for classified project work & business development
- A unique commercialization model for VT research and technologies, with revenue flow to faculty and research groups
- Internship/externship opportunities for VT students
- Enhancement of the Virginia Tech brand, particularly in the NCR

Representative Ongoing VT-ARC Collaborations with VT



S&T Horizon Scanning for ASA(ALT)



Building predictive models for S&T emergence

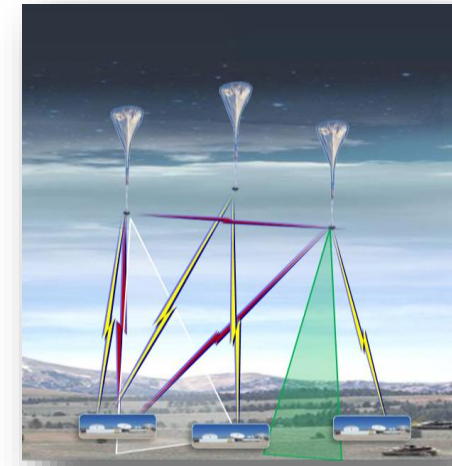
- VT-ARC Decision Sciences collaborating with DAC

DSO: Wireless Spectrum



Spectrum sharing test and demonstration

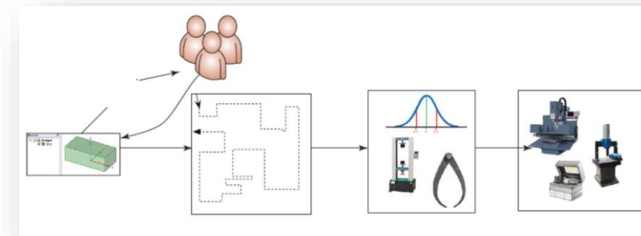
- VT-ARC Engineering, Testing and Eval collaborating with HUME, Wireless@VT



Cyber Physical Systems Manufacturing Security

Developing partnerships in CPSS for DHS/NSF, proposed research in QA/QC and AM Cybersecurity for SOCOM, OSD

- VT-ARC Info Sciences collaborating with DREAMS, CPSSMFG

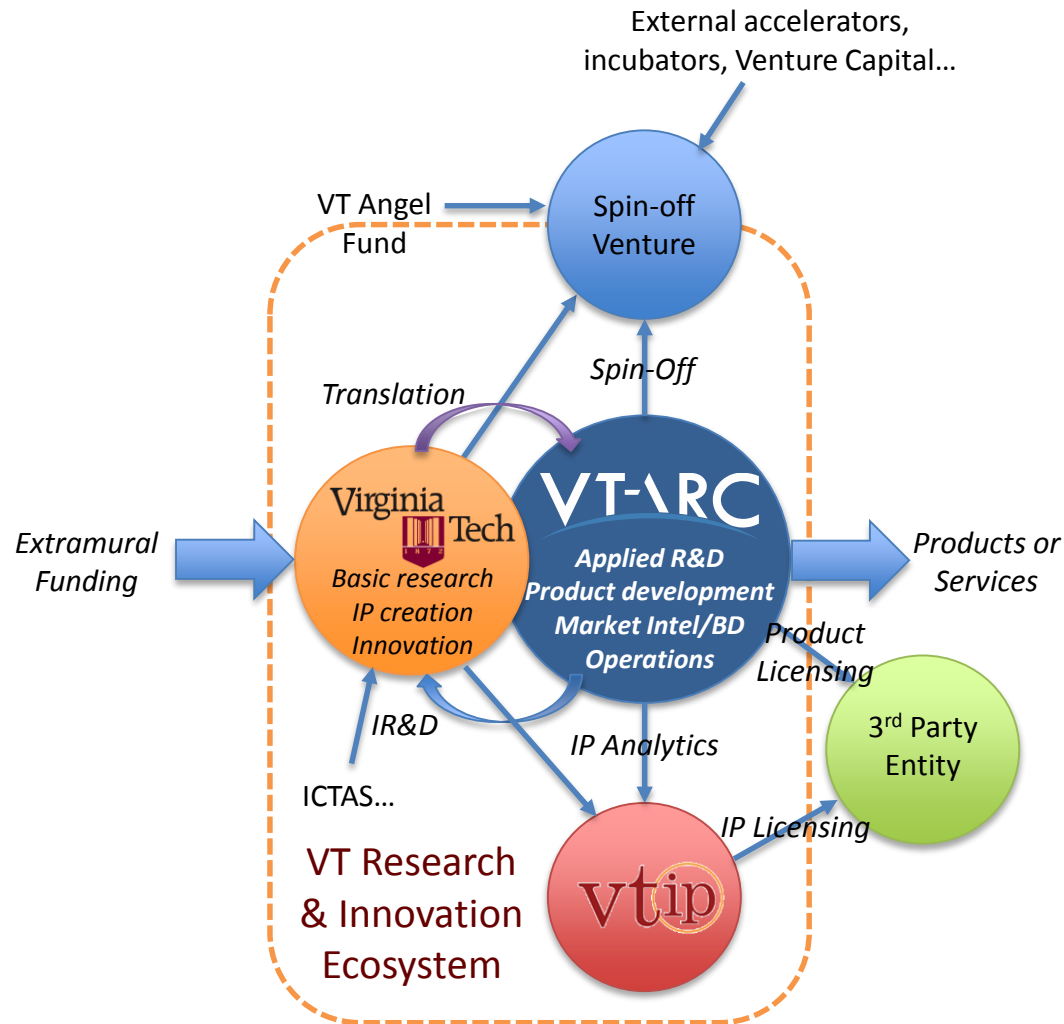


TRIPPWIRE

High altitude sensor payload and platform test campaign and demonstration for DoD customer

- VT-ARC Engineering, Testing and Eval collaborating with HUME, Space@VT

Notional Translation/Commercialization Enterprise



- VT-ARC as a key element in translation/commercialization of VT technologies
- Differentiated from technology licensing and venture-backed spin-outs
- Closely coupled continuous innovation loop with VT faculty
- Identifies and exploits new markets for VT innovations/IP
- Increased research funding flow to VT, increased revenue to VT-ARC
- *Pilot DAC/EMBERS commercialization effort under development now → PreSage*



PreSage is a fully automated proven forecasting engine providing timely, actionable intelligence on a range of societal events, *before* they occur.

Up to the moment forecasts are available via subscription services and tailored to need.

PreSage accurately forecasts events impacting society such as:

- ▶ Protests and demonstrations
- ▶ Disease outbreak
- ▶ Mass migrations
- ▶ Threats to airports
- ▶ Threats to shipping and transit
- ▶ Cyber attacks
- ▶ Cyber bullying

The technology underpinning PreSage grew out of a \$22 million U.S. Intelligence Advanced Research Projects Agency (IARPA) investment.

PreSage leverages the power of open information and big data. Our engine churns through terabytes of data daily from sources such as: Blogs and news feeds, Twitter, Facebook, Bloomberg, Google search and news, Wikipedia edits, Healthmap, opinion polls harvested from free text, socioeconomic DBs, TOR, ICEWS, weather, regional sites, domain-specific databases (e.g., CLACSO DB of past protests in Latin America), online reservation systems, images in news articles, overhead satellite imagery (e.g., parking lots outside hospitals), NGO websites, Landsat, obituaries, crop and vegetation indices, prices of essential goods, foursquare check-ins.

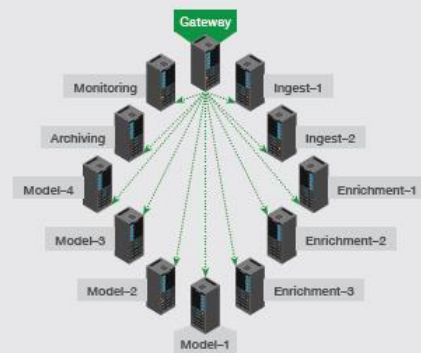
We'll choose which one's are the most impactful...

What would you like to forecast? Ask us about our development options. **We build to suit.**

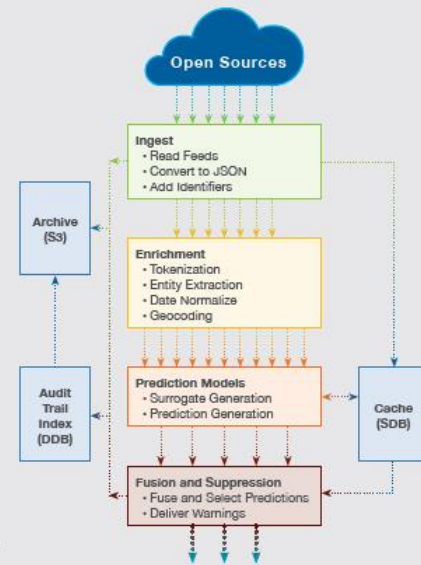
Luke Sebby, luke.sebby@vt-arc.org | (703)879-8142 x228



How We Do It



The unique PreSage architecture allows for a tailored but flexible approach to forecasting through a process featuring ingestion, enrichment, prediction model application, fusion and suppression. Each of our forecasts includes a detailed audit trail for result attribution.



We offer **subscription services** to PreSage forecasts featuring API access, S3 dumps, and an intuitive feature-rich dashboard.

Questions?

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