

## Committee Minutes

### FINANCE AND RESOURCE MANAGEMENT COMMITTEE

#### The Inn at Virginia Tech

August 30-31, 2021

#### Joint Open Session with the Buildings and Grounds Committee

August 30, 2021

**Board Members Present:** Sharon Brickhouse Martin, Shelley Butler Barlow, Carrie Chenery, Greta Harris, C. T. Hill, Tish Long, Phil Miskovic – Graduate Student Representative, Melissa Nelson, Chris Petersen, Horacio Valeiras, Robert Weiss – Faculty Representative, Preston White, Serena Young – Staff Representative

**Virginia Tech Personnel:** Mac Babb, Lynsay Belshe, Eric Brooks, Bob Broyden, Charlene Casamento, Cyril Clarke, Van Coble, Al Cooper, John Cusimano, Corey Earles, Jeff Earley, Alisha Ebert, Kari Evans, Michael Evans, Lance Franklin, Ron Fricker, Bryan Garey, Mark Gess, Alan Grant, Tony Haga, Wendy Halsey, Mary Helmick, Kay Heidbreder, Jim Hillman, Patrick Hilt, Elizabeth Hooper, Mary-Ann Ibeziako, Frances Keene, Chris Kiel, Chris Kiwus, Sharon Kurek, Jamie Lau, Jack Leff, Rob Mann, Meghan Marsh, Elizabeth McClanahan, Nancy Meacham, Ken Miller, Liza Morris, Saied Mostaghimi, Mike Mulhare, Justin Noble, Kim O'Rourke, Mark Owczarski, Dwayne Pinkney, Ellen Plummer, John Randolph, Tim Sands, Frank Shushok, Adam Smith, Ken smith, Don Taylor, Dwyn Taylor, Jon Clark Teglas, Tracy Vosburgh, Chris Yianilos

- \* 1. **Approval of Resolution for a Capital Project for Hitt Hall:** The Committees reviewed for approval the resolution for a capital project for Hitt Hall.

In 2017, the Board of Visitors approved a \$6 million planning authorization to design a multi-purpose facility to support doubling the size of the Building Construction academic program, increasing dining services, and increasing general assignment instruction space. The project design for the approximately 100,000 gross square foot facility is 65 percent complete, with an early site package expected to begin in October 2021 and the building construction package slated to start in January 2022.

The university estimates that the total project cost will be \$85 million, inclusive of all hard and soft costs. The funding plan for this project calls for \$25 million of private support, \$47 million of dining services revenues, and \$13 million of internal lease funding for the academic space. The timing of revenues results in the use of cash and approximately \$73 million of debt.



This request is for approval of a \$79 million supplement to the existing \$6 million authorization for an adjusted \$85 million authorization to complete the construction of the Hitt Hall project.

The Committees recommended the Resolution for a Capital Project for Hitt Hall to the full Board for approval.

There being no further business, the meeting adjourned at 5:16 p.m.

### **Open Session**

August 31, 2021

**Board Members Present:** Sharon Brickhouse Martin, Shelley Butler Barlow, Carrie Chenery, Paolo Fermin – Undergraduate Student Representative, Greta Harris, C. T. Hill, Tish Long, Phil Miskovic – Graduate Student Representative, Melissa Nelson, Chris Petersen, Horacio Valeiras, Robert Weiss – Faculty Representative, Preston White, Serena Young – Staff Representative

**Virginia Tech Personnel:** Callan Bartel, Lynsay Belshe, James Bridgeforth, Eric Brooks, Bob Broyden, Charlene Casamento, Cyril Clarke, Lance Collins, Al Cooper, David Crotts, John Cusimano, Jon Deskins, Corey Earles, Alisha Ebert, Kari Evans, Lance Franklin, John Forte, Bryan Garey, Luisa Havens Gerardo, Rebekah Gunn, Kay Heidbreder, Mary Helmick, Jim Hillman, Tim Hodge, Elizabeth Hooper, Frances Keene, Chris Kiwus, Sharon Kurek, Elizabeth McClanahan, Nancy Meacham, Ken Miller, Terri Mitchell, Justin Noble, Kim O'Rourke, Mark Owczarski, Charlie Phlegar, Dwayne Pinkney, Ellen Plummer, Menah Pratt-Clarke, Julia Ross, Robin Queen, Tim Sands, Adam Smith, Ken Smith, Dan Sui, Don Taylor, Jon Clark Teglas, Tracy Vosburgh

1. **Welcome and Opening Remarks:** The acting Chair welcomed the attendees and gave opening remarks.
2. **Consent Agenda:** The Committee considered for approval and acceptance the items listed on the Consent Agenda.

**a. Approval of Minutes of the June 8, 2021 Meeting**

- \* **b. Approval of Falls Church Property Acquisition 9(d) Debt Financing Resolution:** This debt financing resolution is for the Falls Church property acquisition. The total \$11.08 million project will be funded entirely by 9(d) debt. Debt service for the project will be covered by redirecting retired debt service from the original Falls Church project.



The Committee approved the items on the Consent Agenda and recommended the Falls Church Property Acquisition 9(d) Debt Financing Resolution to the full Board for approval.

- ◆ 3. **Comprehensive Update on Advancement:** The Committee received a comprehensive presentation from University Advancement on the year-end giving results for fiscal year 2021. This presentation also included an update on alumni participation and growth trends; an overview of the Enterprise Risk landscape and mitigation strategies; and a summary of near-term focus areas for fundraising priorities such as the athletics *Reach for Excellence* campaign, Innovation Campus, and the Sesquicentennial and the ongoing Boundless Impact campaign.
- \* 4. **Approval of Authorization of General Banking Resolution:** The Committee reviewed for approval an authorization of general banking resolution. This resolution authorizes the President, Senior Vice President and Chief Business Officer, or the University Treasurer, or their designees, to transact the day-to-day banking duties on behalf of the university.

The Committee recommended the Authorization of General Banking Resolution to the full Board for approval.

- ◆ 5. **Update on the Financial Impacts Caused by the COVID-19 Pandemic:** The Committee received an update on the financial impacts caused by the COVID-19 pandemic. This update provided an overview of the impacts from fiscal year 2020 and fiscal year 2021; the risks and uncertainty of potential impacts in fiscal year 2022; the remaining federal funding available to address financial impacts of the pandemic; and the Enterprise Risk landscape and mitigation strategies.
- 6. **Related Corporations Performance – Update on Virginia Tech – Applied Research Corporation:** The Committee received an update on the performance of the Virginia Tech - Applied Research Corporation (VT-ARC), a Virginia Tech related corporation, from John Forte, the president and chief executive officer. The mission of this corporation is to deliver tailored analysis, research, and engineering to address problems of national and global importance. VT-ARC specializes in applied research, translational research, technical services, and commercialization.

This update provided an overview of VT-ARC's defining work and affiliations, the VT-ARC "Research Ecosystem" Approach, strategic priorities for fiscal years 2022 through 2024, leadership and organizational structure, the overall financial picture, an in-depth program analysis, research and technical services exemplars, and future initiatives.



- \* 7. **Approval of Resolution Authorizing Changes to the Commercial Paper Program:** The Committee reviewed for approval a resolution authorizing changes to the existing commercial paper program. The proposed resolution increases the authorized use of commercial paper from \$120 million to \$175 million; authorizes the university to issue its own commercial paper on a tax-exempt or taxable basis in an aggregate principal amount up to \$175 million; authorizes the university to enter into one or more line(s) of credit in an aggregate principal amount of up to \$175 million; and authorizes the university to enter into one or more commercial paper broker-dealer agreement(s) provided that the line of credit and broker-dealer terms are at least as favorable as those presented to the Board.

This resolution also authorizes the Vice President for Finance, and the University Treasurer, in consultation with the Chief Business Officer, to negotiate, execute, deliver, and enter into extensions and amendments of all certificates, documents, and instruments related to the commercial paper program.

The Committee recommended the Resolution Authorizing changes to the Commercial Paper Program to the full Board.

- \* 8. **Approval of Year-to-Date Financial Performance Report (July 1, 2020 – June 30, 2021):** The Committee reviewed for approval the Year-to-Date Financial Performance Report for fiscal year ending June 30, 2021. The university successfully closed its fiscal year in accordance with guidance and requirements of the commonwealth. The Educational and General budgets were balanced at year-end, with no operating deficit incurred. The Educational and General program experienced higher than projected net tuition revenue due to savings in scholarship and codified waivers, and lower than projected revenues in continuing education and animal cancer care programs. Expenditures in the Educational and General and Auxiliary Enterprise programs were lower than projected due to timing delays as a result of the essential spending order in response to the COVID-19 pandemic.

For year-ended June 30, 2021, \$109.2 million was expended for Educational and General capital projects, and \$64.3 million was expended on Auxiliary Enterprises capital projects. The cumulative capital outlay expenditures for year-ended June 30, 2021 totaled \$173.5 million against an annual budget of \$223.3 million.

The Committee recommended the Year-to-Date Financial Performance Report to the full Board for approval.



9. **Discussion of Future Agenda Topics and Closing Remarks:** The acting Chair requested input on future agenda topics.

There being no further business, the meeting adjourned at 11:47 a.m.

**\* Requires full Board approval.**

**◆ Discusses Enterprise Risk Management topic(s).**



**Open Session Agenda**  
**FINANCE AND RESOURCE MANAGEMENT COMMITTEE**  
**Latham Ballroom A/B, The Inn at Virginia Tech**  
**10:00 a.m.**  
**August 31, 2021**

<b><u>Agenda Item</u></b>	<b><u>Reporting Responsibility</u></b>
1. Welcome and Opening Remarks	Sharon Brickhouse Martin
2. Consent Agenda	Sharon Brickhouse Martin
a. Approval of Minutes of the June 8, 2021 Meeting	
* b. Approval of Falls Church Property Acquisition 9(d) Debt Financing Resolution	
◆ 3. Comprehensive Update on Advancement	Charlie Phlegar
* 4. Approval of Authorization of General Banking Resolution	Dwayne Pinkney
5. Update on the Financial Impacts Caused by the COVID-19 Pandemic	Dwayne Pinkney
6. Related Corporations Performance – Update on Virginia Tech – Applied Research Corporation	Ken Miller John Forte
* 7. Approval of Resolution Authorizing a Commercial Paper Program	Ken Miller
* 8. Approval of Year-to-Date Financial Performance Report (July 1, 2020 – June 30, 2021)	Tim Hodge Bob Broyden
9. Discussion of Future Agenda Topics and Closing Remarks	Sharon Brickhouse Martin

\* Requires full Board approval.

◆ Discusses Enterprise Risk Management topic(s).



**Joint Open Session Agenda**

**FINANCE AND RESOURCE MANAGEMENT COMMITTEE  
AND  
BUILDINGS AND GROUNDS COMMITTEE**

**Latham Ballroom A/B, The Inn at Virginia Tech**

**4:45 p.m.**

**August 30, 2021**

**Agenda Item**

**Reporting  
Responsibility**

- \* 1. Approval of Resolution for a Capital Project for Hitt Hall

Ken Miller  
Chris Kiwus

\* Requires full Board approval.

◆ Discusses Enterprise Risk Management topic(s).



# COMPREHENSIVE UPDATE ON ADVANCEMENT

CHARLES D. PHLEGAR, VICE PRESIDENT FOR  
ADVANCEMENT

AUGUST 31, 2021



# YEAR-END GIVING RESULTS

Attachment G

For the period July 1, 2020 - June 30, 2021

- New Gifts & Commitments

**\$200,253,986**

- Cash

**\$143,528,203**

- Beyond Boundaries Scholarship Initiative

**Over \$1 million raised that will be matched by VT to support underrepresented and high-achieving students**

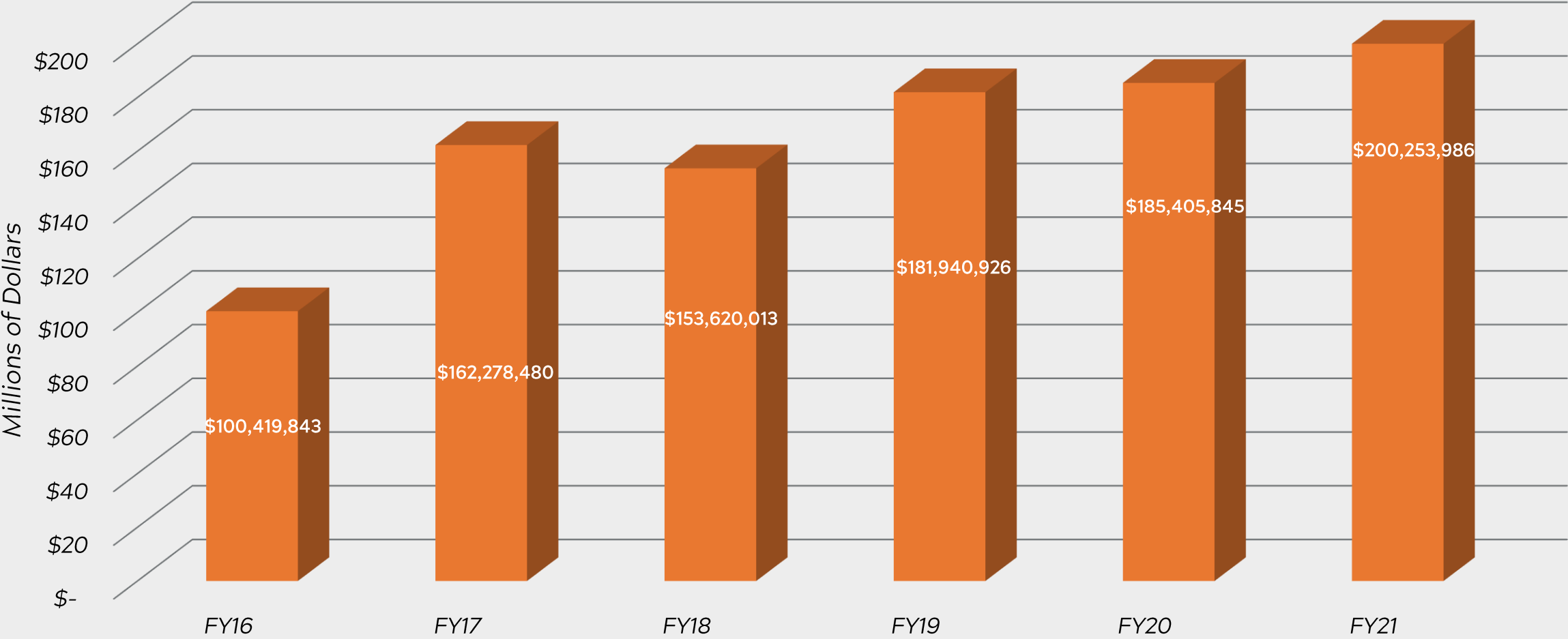
- Boundless Impact Campaign

**\$850.8 million raised toward a \$1.5 billion goal**

- Overall Alumni Participation Rate was **20%**

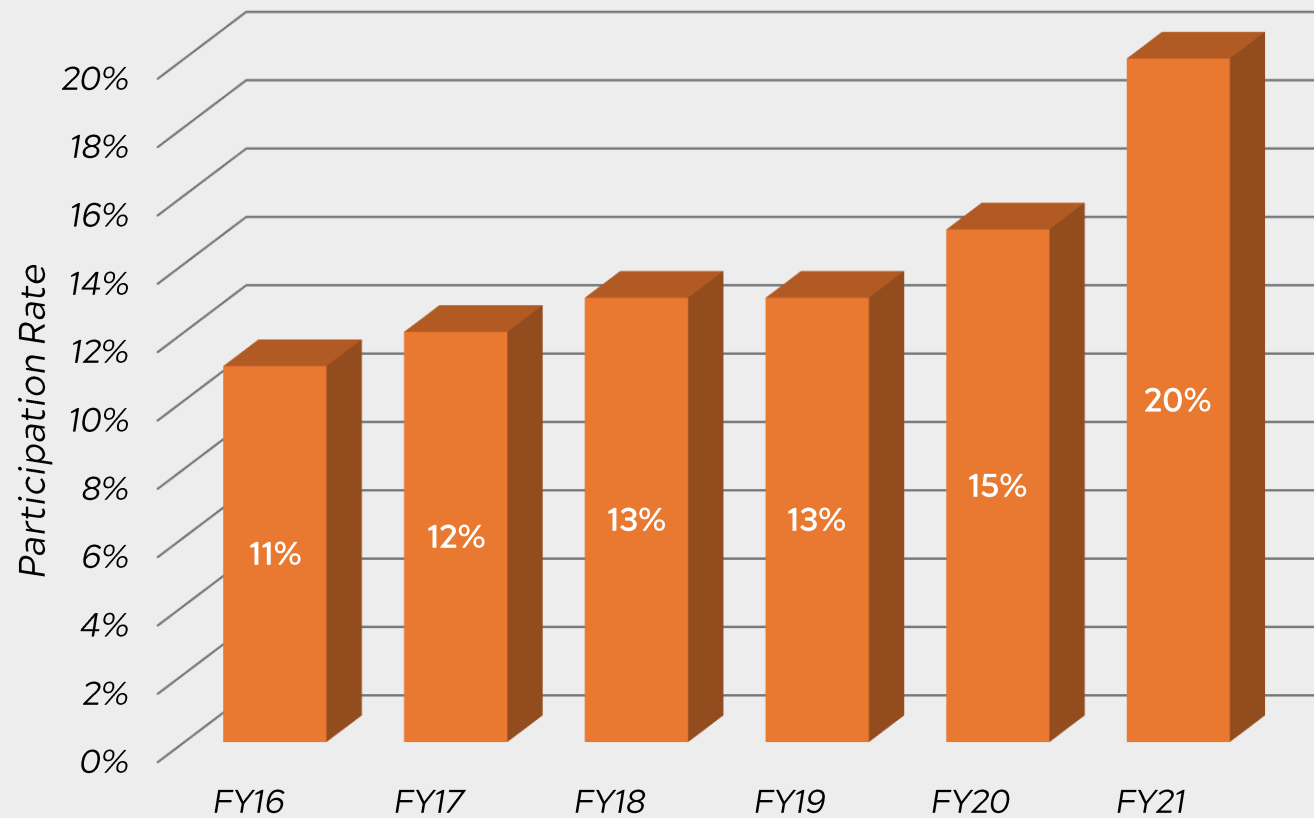


*New Gifts & Commitments Comparison  
Fiscal Year 2016 through Fiscal Year 2021*





*Alumni Participation Rate Comparison  
Fiscal Year 2016 through Fiscal Year 2021*



Class of 2021  
Statistics:

- **27.20%** Participation rate
- **2321** gifts
- Total Giving Amount:  
**\$67,719**



# INCREASE ON PARTICIPATION GROWTH

Attachment G

- Growth in alumni giving in recent years to 20% is projected to result in approximately **\$755 million additional gift revenue over the next 20 years.**
- Growing to 22% alumni giving will increase this figure to **\$900 million additional gift revenue** over the next 20 years.



# NEAR TERM FOCUS AREAS

Attachment G

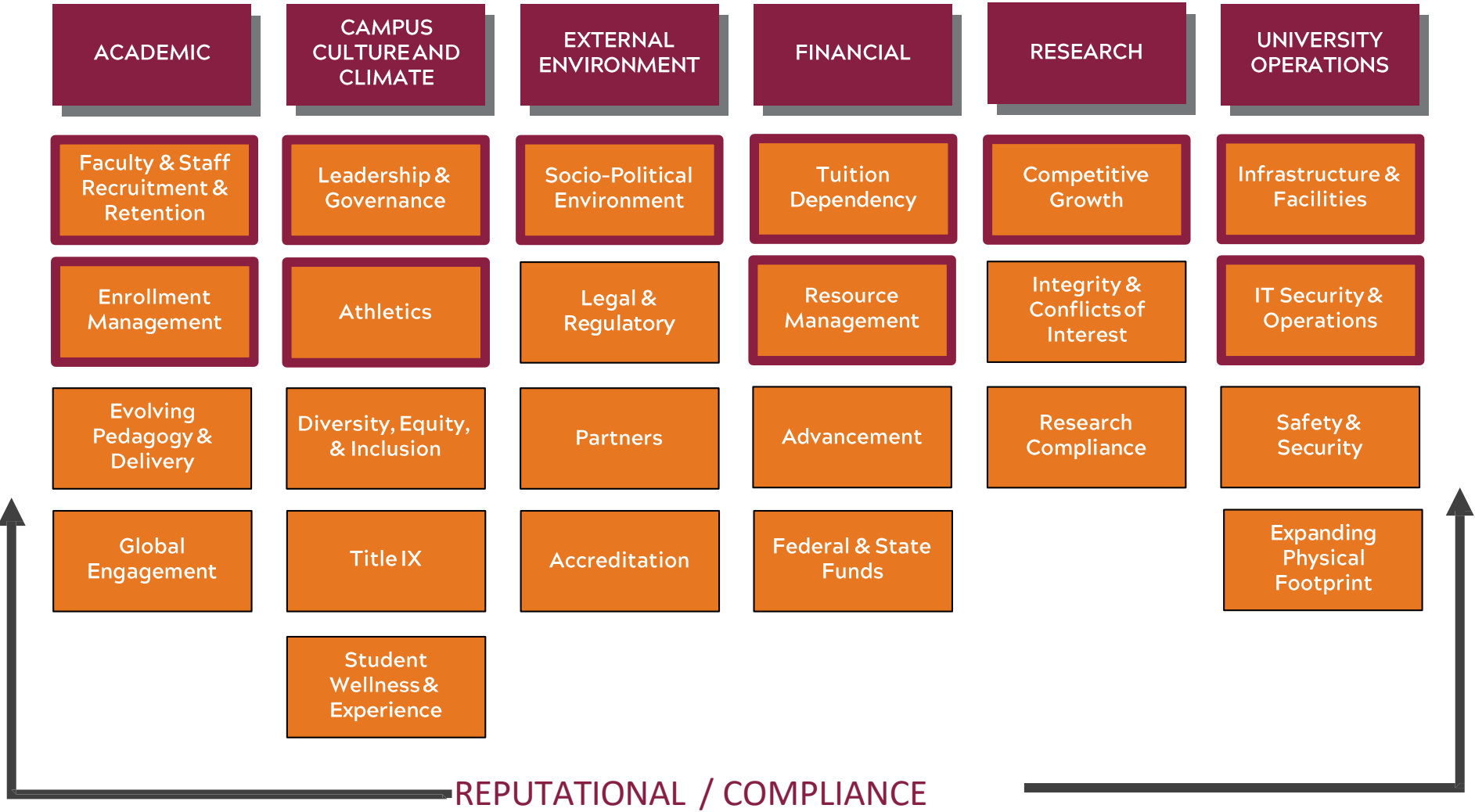
- Fundraising Priorities:
  - University
  - College
  - Unit
- Athletics *Reach for Excellence* Campaign
- Innovation Campus
- 22% x 2022
  - Traditional & Non-Traditional Techniques
- Sesquicentennial & Campaign



# ENTERPRISE RISK LANDSCAPE

Attachment G

May 2021





# FUTURE GROWTH PROJECTIONS

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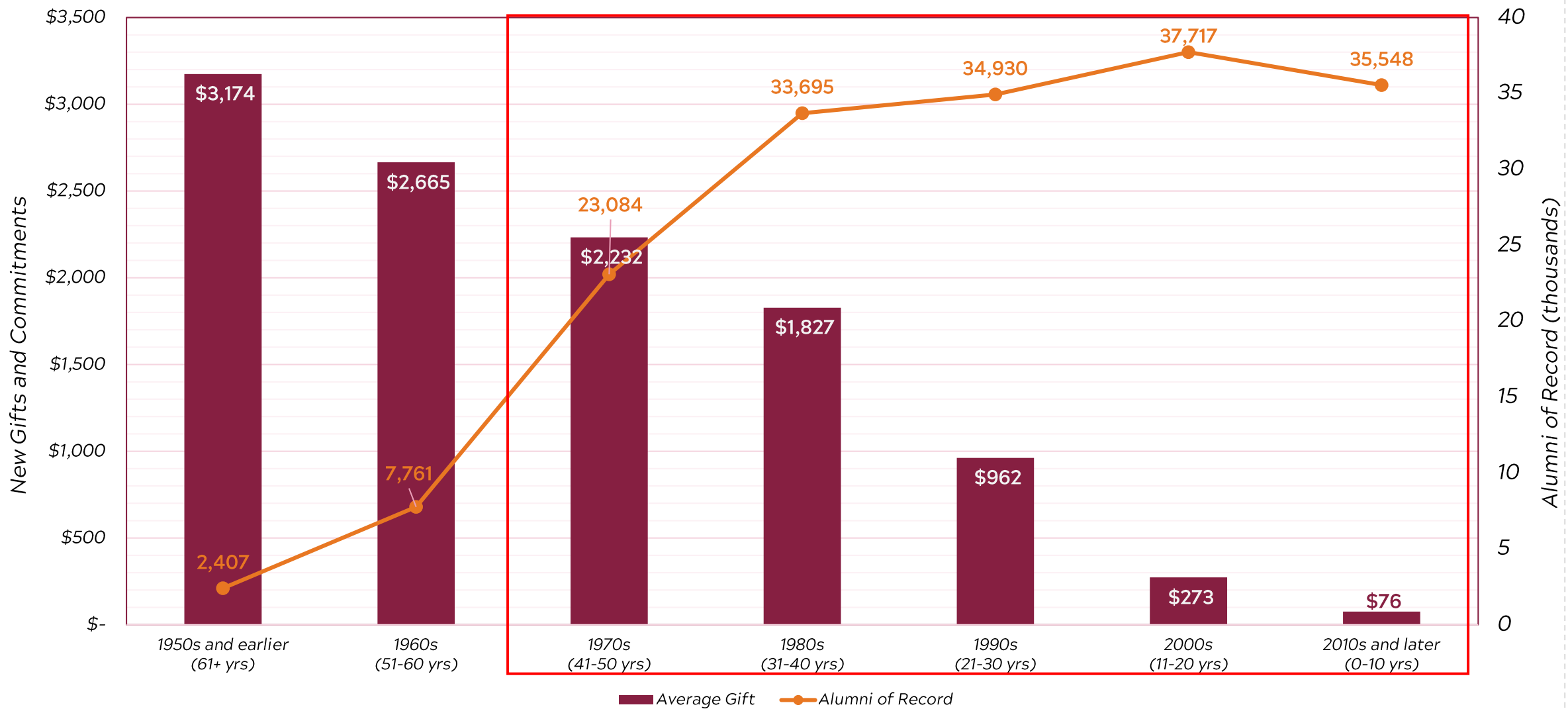
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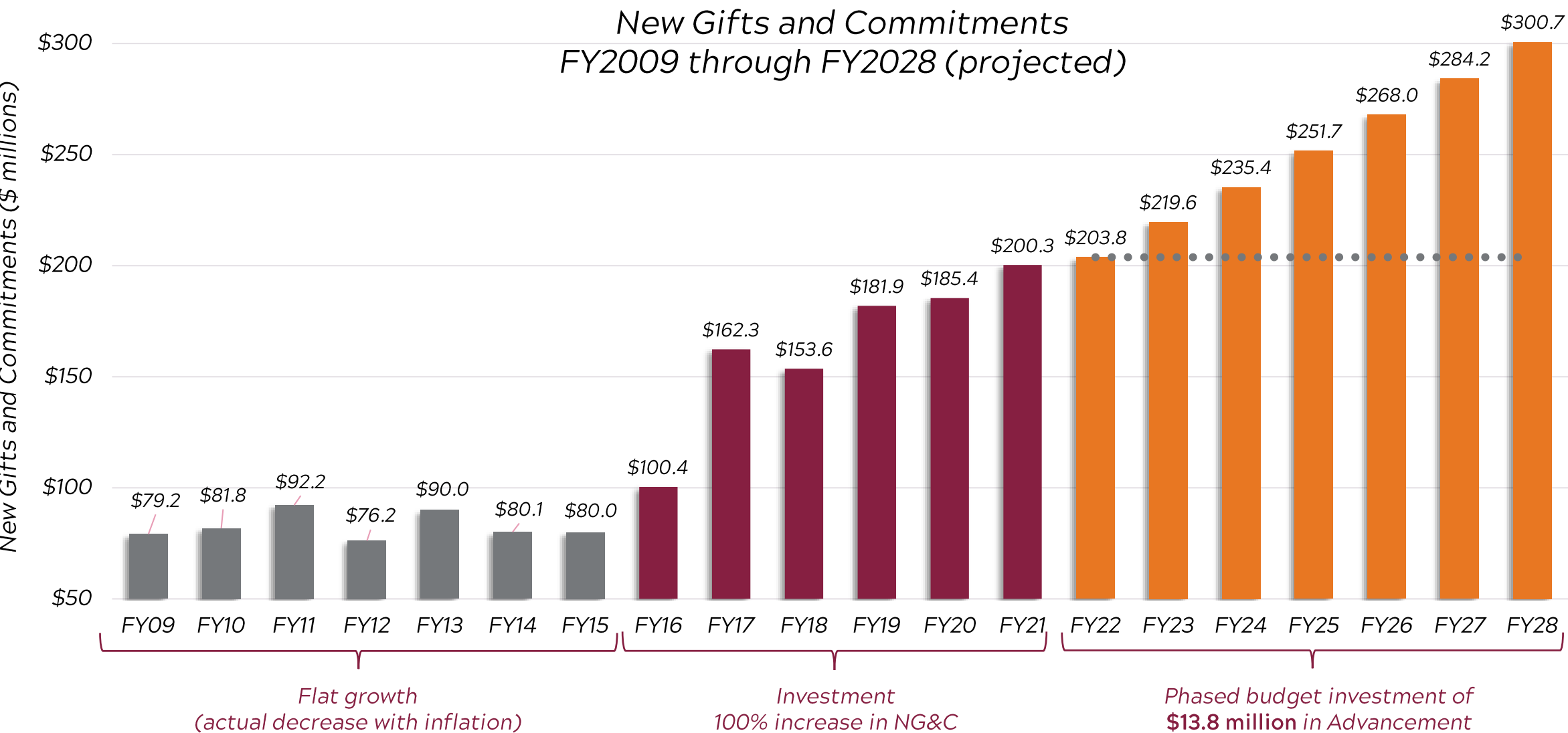
# A COMING WAVE OF ALUMNI WILL SOON ENTER THEIR PRIME GIVING YEARS

Average Gift Size by Alumni Class year Decade & Alumni of Record by Class Year Decade





# HOW TO ACHIEVE A \$300 MILLION NG&C ORGANIZATION BY FY28





# ADVANCEMENT OUTCOME COMPARISON

	FY09 - FY15 Average	FY21 Actual Results	FY28 No Investment	FY28 With Investment
Annual New Gifts & Commitments	\$79.5M	\$200.3M	\$200.3M	\$300M
Annual Contribution to Endowment*	\$23.0M	\$42.5M	\$42.5M	\$77.2M
Annual Contribution to Current Use, Capital Facilities, and Private Grants*	\$56.5M	\$101.0M	\$101.0M	\$162.8M

\* These figures are cash amounts according to the New Gifts and Commitments raised





# DISCUSSION

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# UPDATE ON FINANCIAL IMPACTS CAUSED BY THE COVID-19 PANDEMIC

DWAYNE PINKNEY, SENIOR VICE PRESIDENT  
AND CHIEF BUSINESS OFFICER

AUGUST 31, 2021



- The COVID-19 pandemic has impacted fiscal year 2020 and fiscal year 2021 thus far
  - Recent financial updates have focused on Auxiliary Enterprises
    - Targeted pandemic relief has restored units in fiscal year 2021 to a neutral financial position
  - Impacts have also spanned other programs
    - Utilization of federal funds for PPE, testing, etc.
  - Incremental One-time Student Financial Aid was provided from federal funding
- Risks remain, potential impacts in FY22 are not yet known



# Closing the 2020-21 Auxiliary COVID-19 Gap

Attachment G

\$ in millions

Strategy	Plan <sup>(a)</sup>	Actual 6/30/21
Federal Support	\$28.8	\$25.7
State Support	4.0	4.0
Restructuring of Existing Debt (FY21)	10.8	2.9
One-time Savings (health insurance holiday)	4.8	4.8
Relief from Indirect Cost Assessments	13.9	12.8
Expenditure Savings/Cost Control	0.9	0.0 <sup>(b)</sup>
TOTAL	\$63.2	\$50.2

(a) On 3/21/2021 the Board approved a plan (based on 12/30/20 financial information)

(b) Table summarizes resources utilized to close the auxiliary COVID financial gap in FY21. Auxiliaries reduced expenses by \$33.5M in response to lower revenues.



# 2020-21 Auxiliary COVID-19 Gap by Unit Attachment G

*\$ in millions*

Strategy	Utilized 6/30/21
Athletics	\$18.1
Dining Services	13.1
Inn at Virginia Tech	4.6
Residential	8.8
Parking & Fleet Services	1.6
Printing Services	1.2
Other Units: Steger Center, Printing, Licensing/Trademark, Electric, Health, Center for Arts, Telecommunications, Library Photocopy	2.8
TOTAL	\$50.2



# Financial Impacts of COVID19

As of June 30, 2021

Attachment G

Impacts	2019-20		2020-21		Total **
	Auxiliary	University	Auxiliary	University	
Revenue	(9,699,493)		(83,669,142)	(2,613,514)	(95,982,149)
Testing, PPE, Pandemic Expense		(1,845,581)	-	(5,739,935)	(7,585,516)
	<u>(9,699,493)</u>	<u>(1,845,581)</u>	<u>(83,669,142)</u>	<u>(8,353,449)</u>	<u>(103,567,665)</u>
<b>Strategies</b>					
<i>Federal</i>					
HEERF I: CARES	9,699,493				9,699,493
HEERF II: CRRSAA			15,837,861	253,521	16,091,382
HEERF III: ARP					-
State Pass Through		1,845,581	9,864,640	5,051,789	16,762,010
State Pass Through Testing					-
FEMA				688,146	688,146
	<u>9,699,493</u>	<u>1,845,581</u>	<u>25,702,501</u>	<u>5,993,456</u>	<u>43,241,031</u>
<i>University</i>					
Expense Mgmt. & Savings			33,474,279	2,359,993	35,834,272
Debt Scoop & Toss Savings			2,946,304		2,946,304
Health Holiday Savings			4,778,668		4,778,668
Indirect Cost Assessment Relief			12,767,390		12,767,390
State Allocation			4,000,000		4,000,000
	<u>-</u>	<u>-</u>	<u>57,966,641</u>	<u>2,359,993</u>	<u>60,326,634</u>
<b>Total Strategies</b>	<u>9,699,493</u>	<u>1,845,581</u>	<u>83,669,142 *</u>	<u>8,353,449</u>	<u>103,567,665</u>
<b>Net</b>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

## Footnotes:

\* Auxiliary 2020-21 gap was \$50.2M comprised of \$83.6M revenue shortfall less \$33.4M of expense savings.

\*\* At this time, the financial impacts of COVID-19 on university operations in 2021-22 are not yet quantifiable.



# Incremental One-time Federal Student Financial Aid Attachment G

	<b><u>2019-20</u></b>	<b><u>2020-21</u></b>	<b><u>Total*</u></b>
Sources			
<i>Federal</i>			
HEERF I: CARES	9,699,494		<b>9,699,494</b>
HEERF I: CARES - MSI	80,104		<b>80,104</b>
HEERF II: CRRSAA		9,699,494	<b>9,699,494</b>
HEERF II: CRRSAA - MSI		103,887	<b>103,887</b>
HEERF III: ARP			-
Total Sources	<b><u>9,779,598</u></b>	<b><u>9,803,381</u></b>	<b><u>19,582,979</u></b>
Uses			
Student Financial Assistance	<b><u>(9,779,598)</u></b>	<b><u>(9,803,381)</u></b>	<b><u>(19,582,979)</u></b>
Total Uses	<b><u>(9,779,598)</u></b>	<b><u>(9,803,381)</u></b>	<b><u>(19,582,979)</u></b>
Net	<b><u>-</u></b>	<b><u>-</u></b>	<b><u>-</u></b>

\*Additional future COVID-19 impacts and potential federal funds are not yet known.



# Financial Risk Exposure FY22 & Beyond

Attachment G

- Future COVID-19 costs are not yet quantifiable.
- Risks/uncertainty include:
  - Enrollment
    - Travel uncertain thus could impact some enrollments (e.g. international)
    - Increased competition for talented students
  - Self-supporting business activity levels
    - Hotel & Conference Center - conferences normally booked well in advance.
    - Athletics - competitions need to be COVID free, will attendance at large sporting events be different?
  - Other post pandemic changes
    - Costs - potential for inflation



- VT performing contingency planning for potential financial risks and developing management strategies
- Remaining HEERF III: ARP funds:
  - \$24.85 million for student financial aid in 2021-22
  - \$24.85 million for institutional pandemic impacts (multiple potential commitments have been identified, but the continued evolution of the pandemic will impact decisions on the use of these funds)
- Commonwealth has significant federal resources and one-time General Fund surplus, but preliminary indications are that higher education will receive limited additional funding



# DISCUSSION

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# RELATED CORPORATIONS PERFORMANCE – VIRGINIA TECH – APPLIED RESEARCH CORPORATION

KEN MILLER, VICE PRESIDENT FOR FINANCE

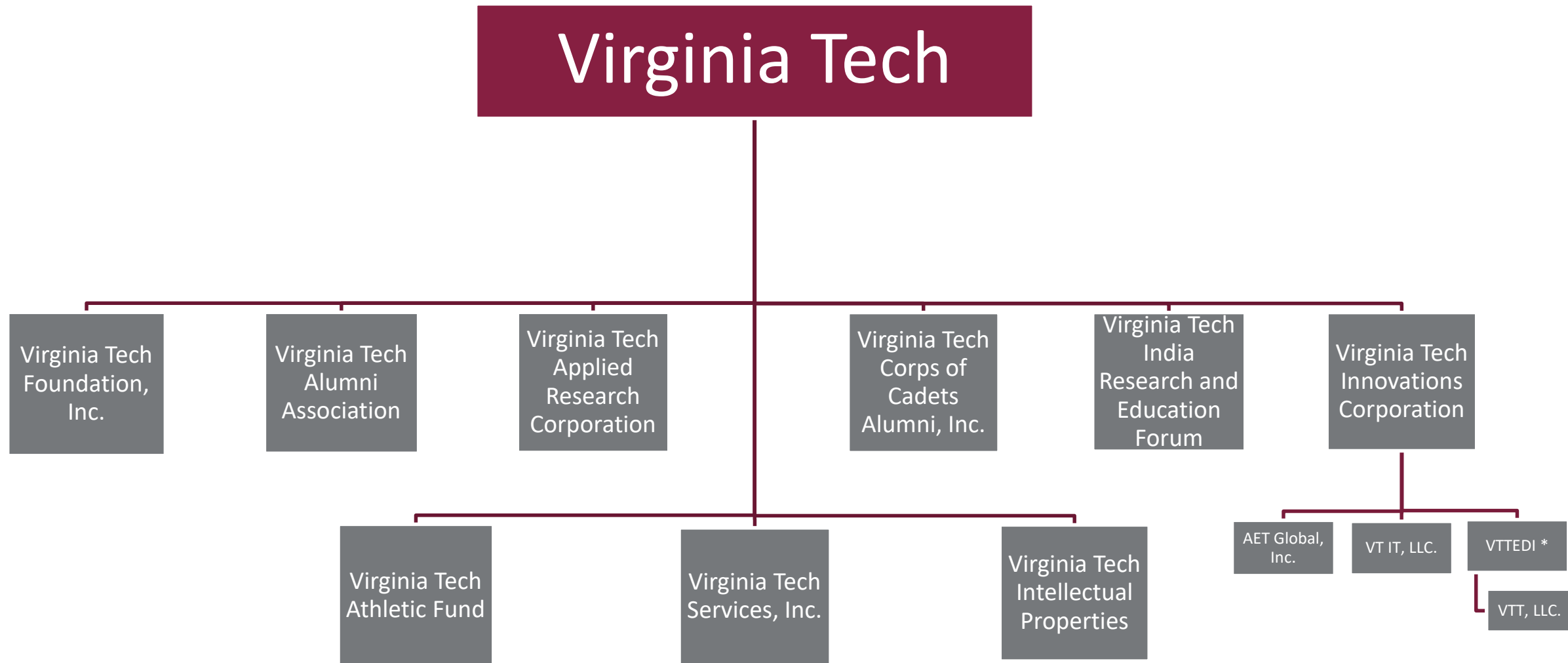
JOHN FORTE, PRESIDENT AND CEO OF VT-ARC

AUGUST 31, 2021



# Virginia Tech - Related Corporations

Attachment G



\* Virginia Tech Transportation Economic Development, Inc.



# Vision & Mission

Attachment G

To be a leader in innovative technologies that safeguard the nation and advance global welfare

Established in 2009, Virginia Tech Applied Research Corporation (VT-ARC) is a 501(c)3, nonprofit, research organization with a mission to deliver tailored analysis, research and engineering to address problems of national and global importance. Working with the government and other academic and industry partners, we specialize in:

- Applied Research
- Translational Research
- Technical Services
- Commercialization



*Science -- Technology -- Innovation -- Impact*



# Defining Work & Affiliation

Attachment G



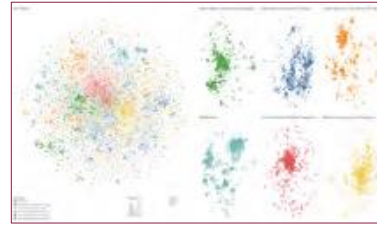
**Systems and Mission Engineering**



**S&T Strategy and Policy**



**Cyberphysical Systems**



**Autonomous Information Systems**



**Communications and Network Resilience**



**Health and Environmental Innovations**

## VT-ARC at a Glance

- Examining emerging research and engineering solutions and forecasting Science and Technology (S&T) landscapes
- Guiding basic research priorities across government
- Conducting Research and Development (R&D) and delivering advanced technology solutions, shaping dual-use technologies with industry
- Leading end-to-end system analyses for technology-informed mission engineering
- Facilitating innovation, collaboration, and technology and workforce development as an Air Force Research Laboratory (AFRL) Innovation Institute and one of three Army Research Laboratory (ARL) Partner Intermediaries
- Fostering technology transfer and transition (T3) and commercialization

## VT-ARC Affiliation and Value

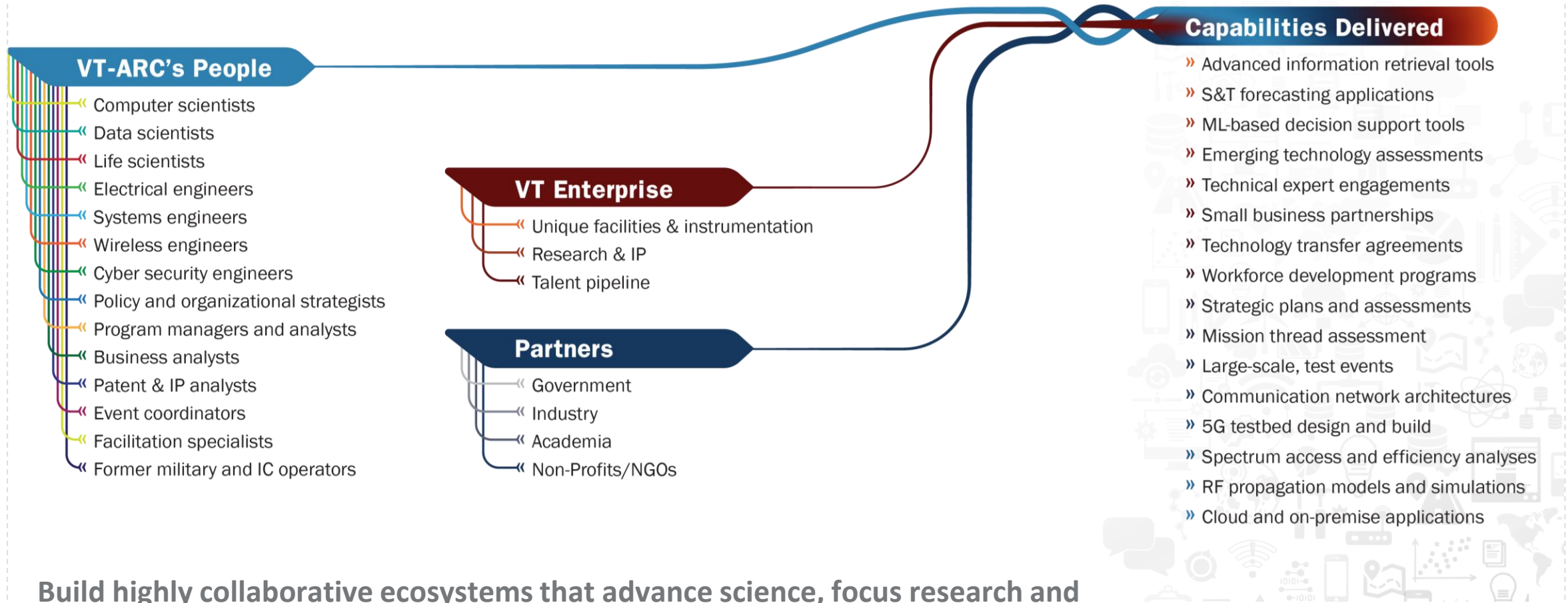
- Extend the brand of VT and serve as gateway to VT research to broad base of sponsors
- Customer-centric delivery of VT scholarly research
- Blended team of technical and operational experience
- Efficient business capture and proposal development
- Rapid assembly of collaborative, multidisciplinary teams from industry, academia and government
- Assorted contract vehicles and mechanisms
- Swift and effective contract negotiation and execution, including non-traditional contracts VT cannot accept
- Federal Acquisition Regulation (FAR)-based contracts and Other Transaction Authority (OTA) management

**Science -- Technology -- Innovation -- Impact**



# The VT-ARC “Research Ecosystem” Approach

Attachment G



Build highly collaborative ecosystems that advance science, focus research and enable the integration of cutting-edge capabilities across multiple domains

*Science -- Technology -- Innovation -- Impact*



# FY22-24 Strategic Priorities Attachment G



Lead groundbreaking *initiatives in spectrum sharing* and develop new capabilities to advance the science, application and *assurance of wireless communications and networking* technologies.

Accelerate and expand the boundaries of *scientific discovery* and *technology transition* through collaborative innovations, robust analyses, and effective partnerships.



Develop *information science capabilities* and services *that drive decision making* at strategic, tactical, and operational levels in the public and private sectors.

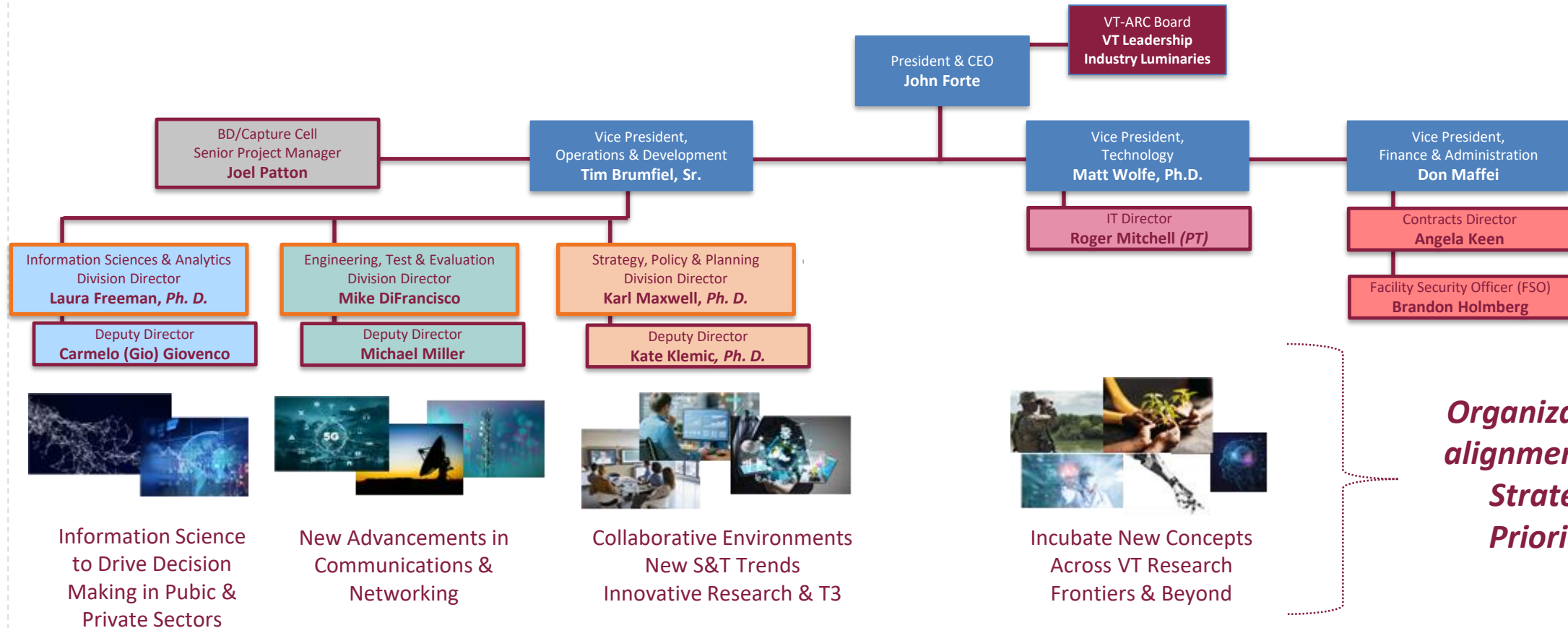
*Identify, incubate, and transform new opportunities* leveraging creative partnerships to achieve impact against VT's research frontiers and beyond.





# Leadership and Organizational Structure

Attachment G



Backgrounds from Academia, Industry, Intelligence, Department of Defense (DOD), and other Federal Agencies

## 51 People

Full Time: 45

Part Time: 2

Intern: 4

PhDs: 10%

Masters: 44%

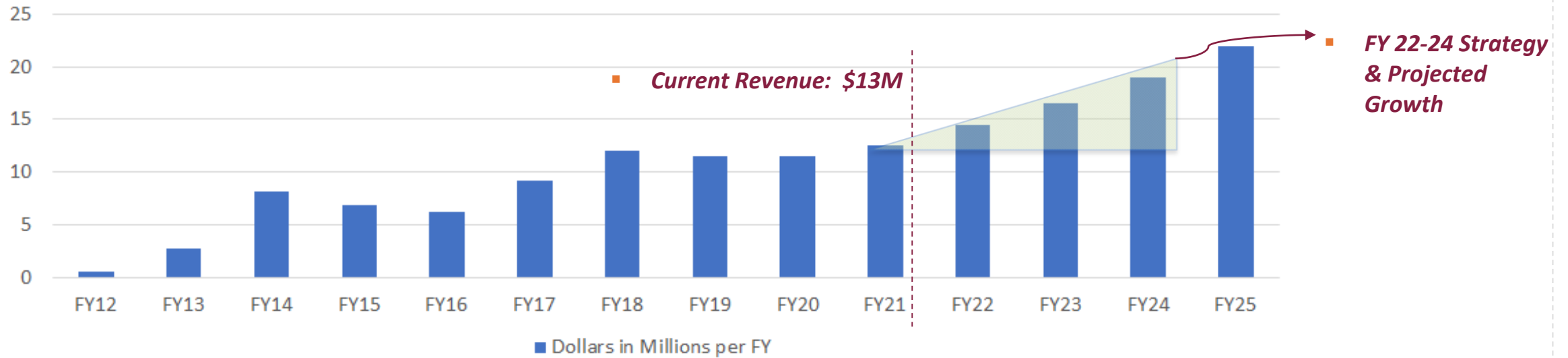




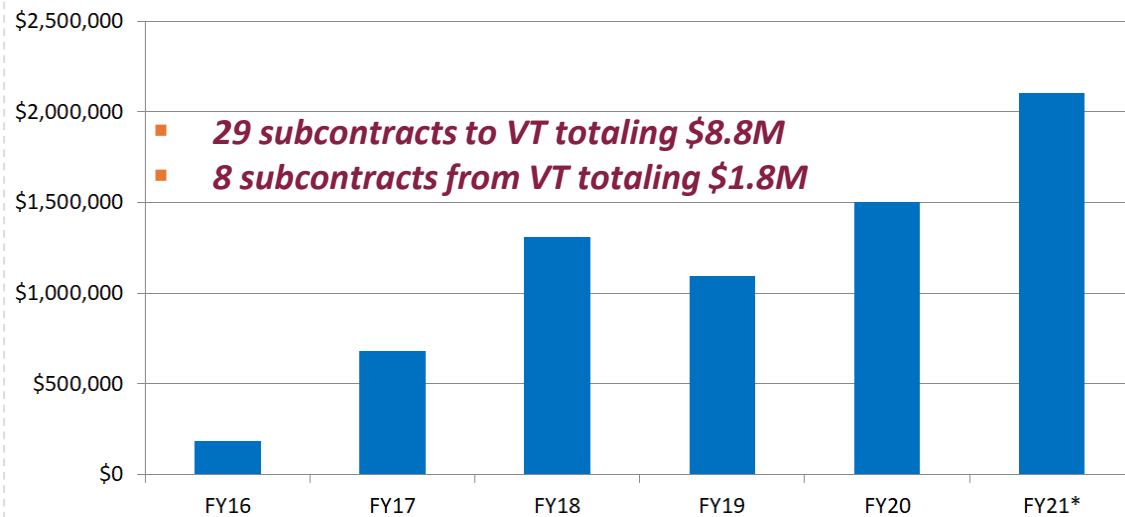
# VT-ARC Financial Picture

Attachment G

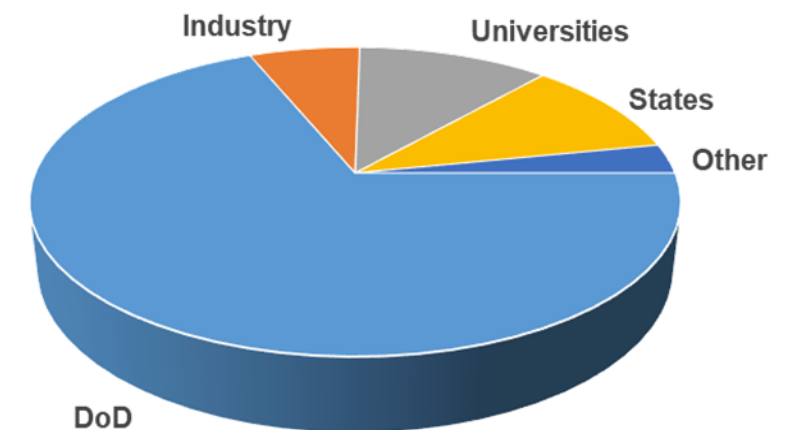
## VT-ARC Historical & Projected Growth



## Flowdown Revenue to VT



## Contract Value by Sponsor





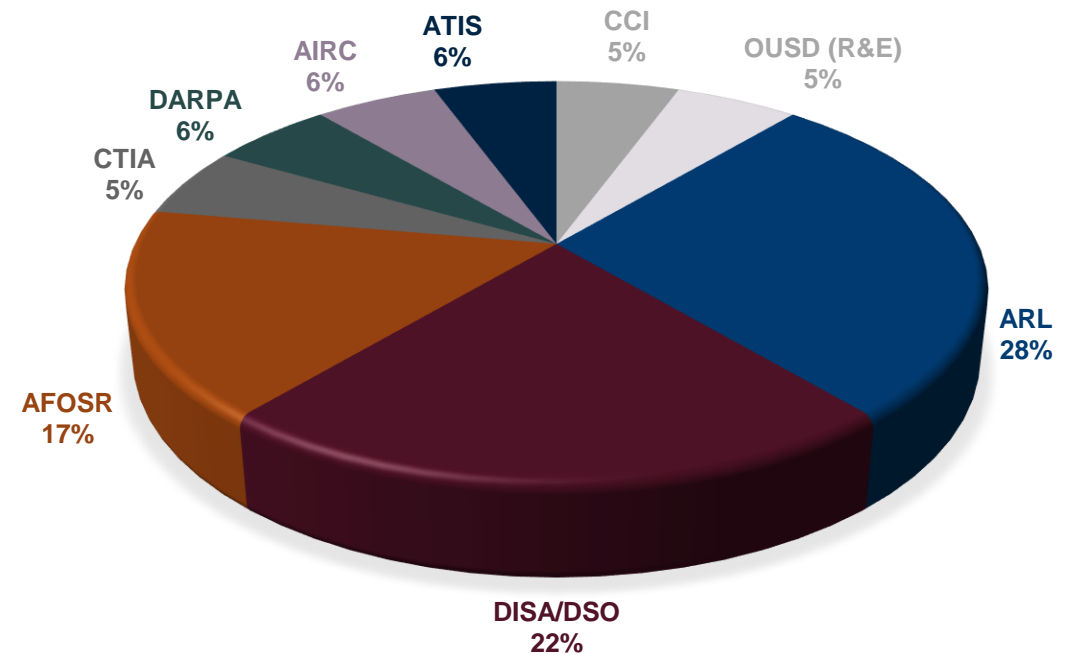
# VT-ARC Program Analysis

Attachment G

- ❑ 18 x Research and Technical Services Programs/\$38.95M Value
  - 89% National Security/DOD Related
  - 72% Prime
  - 50% Characterized as Research
  - 50% Include Academic Partnerships (100% VT w/33% Other Academia)
  - 72% Include Academia and/or Industry Partnerships

- ❑ >\$24M Won-Closed FY21
- ❑ \$48M (+) in Business Development (BD) Pipeline
- ❑ Industry Customer Added to Portfolio FY21
- ❑ Access to 13 x Contracting Vehicles/OTAs
- ❑ General Services Administration (GSA) Schedule Add in FY22

**Distribution of VT-ARC Sponsored Programs**





# VT-ARC Program Analysis

Attachment G

- ❑ Army Research Laboratory (ARL)
- ❑ Defense Information Systems Agency (DISA)/ Defense Spectrum Organization (DSO)
- ❑ Air Force Office of Scientific Research (AFOSR)
- ❑ Cellular Telecommunications & Internet Association (CTIA)
- ❑ Defense Advanced Research Projects Agency (DARPA)
- ❑ Acquisition Innovation Research Center (AIRC)
- ❑ Alliance for Telecommunications Industry Solutions (ATIS)
- ❑ Commonwealth Cyber Initiative (CCI)
- ❑ Office of the Under Secretary of Defense (OUSD) Research and Engineering (R&E)

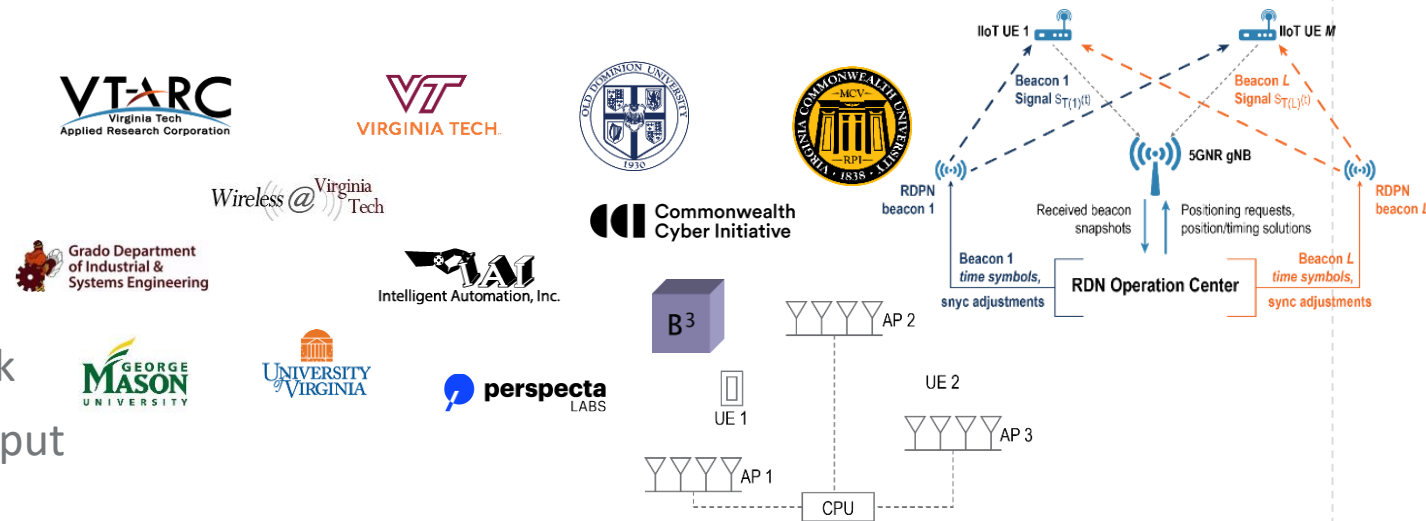


# Research & Technical Services Exemplars

Attachment G

## 5G Smart Warehouse-Albany, GA

- \$13M/36 months - (OUSD R&E)
- DoD's 1st tranche of 5G initiatives
- Two 5G enhancements:
  - Resilient Distributed Positioning Network
  - Distributed Coherent MIMO (multiple-input multiple-output)



## Next G Alliance Technical Program Office

- \$572K/12 months, 2 Option Years (ATIS)
- Provide the leadership and technical support to achieve the following objectives:
  - Advance North American global leadership
  - Create a Next G (6G) development roadmap
  - Develop national priorities for govt applied research funding
  - Progress a North American commercial development model



Georgetown University





# FY22 Initiatives

Attachment G

- New Advancements in Communications & Networking
  - 5G and beyond
  - Artificial Intelligence/Machine Learning for wireless communications enhancement
  - Driving standards and assurance in spectrum access systems
- S&T Trend Capture, Collaboration Environments, and T3
  - Maintain and expand roles as an Air Force Innovation Institute
  - Policy analysis
  - Program evaluation
- Information Science to Drive Decision Making in Public & Private Sectors
  - Predictive analysis/threat forecasting/analytic tool sets
  - Data repository designs and strategy for open-source data
  - Analytics and toolsets for cybersecurity, sensors, mission data... decision science
- Incubate New Concepts Across VT Research Frontiers & Beyond
  - National Security Institute
  - Mission Engineering
  - Health & Bio
  - Tech transition & operationalization
  - Cybersecurity and resilience
  - Others?



# Questions & Discussion







# Virginia Tech Applied Research Corporation FY22–FY24 Strategy

The Virginia Tech Applied Research Corporation (VT-ARC) is a 501(c)(3), non-profit R&D organization affiliated with Virginia Polytechnic Institute and State University (Virginia Tech or VT). Our vision is to be a leader in innovative technologies that safeguard the nation and advance global welfare. In supporting this vision, we leverage the Virginia Tech \$500M/year multidisciplinary research and innovation enterprise to build highly collaborative ecosystems that advance science, focus research and enable the integration of cutting-edge capabilities across multiple domains. Working with government and other academic and industry partners, we specialize in applied research, analysis and engineering, as well as in translational research, technical services and commercialization efforts to deliver resilient, mission-focused solutions with enduring effect.

*Science – Technology – Innovation – Impact*





# Vision

To be a leader in innovative technologies that safeguard the nation and advance global welfare.

## Innovative technologies

Our work includes the development of technical and operational approaches that lead to the innovation of technologies with enduring and highly contextual impact.

## Safeguard the nation

Our roots in national security research remains a foundational element in what we do. The US homeland is no longer a sanctuary; the threats within our borders, to US national interests, to our citizenry are now greater than ever. In order to aid in the future safeguarding of our nation, VT-ARC must now broaden the application of our research, focusing also on those innovative technologies that enable US critical infrastructure and key resources to be more resilient.

## Advance global welfare

Our identity is defined by our people, our university, and our community. We have passions in achieving impact with our work. Extending those passions to also promote and foster the application of science in the development of commerce, trade, industry, and in the improvement of the human-condition nationally and globally, will also define us.

## Mission

VT-ARC delivers tailored analysis, research, and engineering to address problems of national and global importance. Specializing in forming highly collaborative, trusted partnerships across government, industry, and academia, we enable the critical innovations of tomorrow.

## Values

- » Excellence
- » Integrity
- » Collaboration
- » Diversity and Inclusivity
- » Service (Ut Prosim)





# What We Do

Applied Research – Translational Research – Technical Services – Commercialization



## VT-ARC at a Glance...

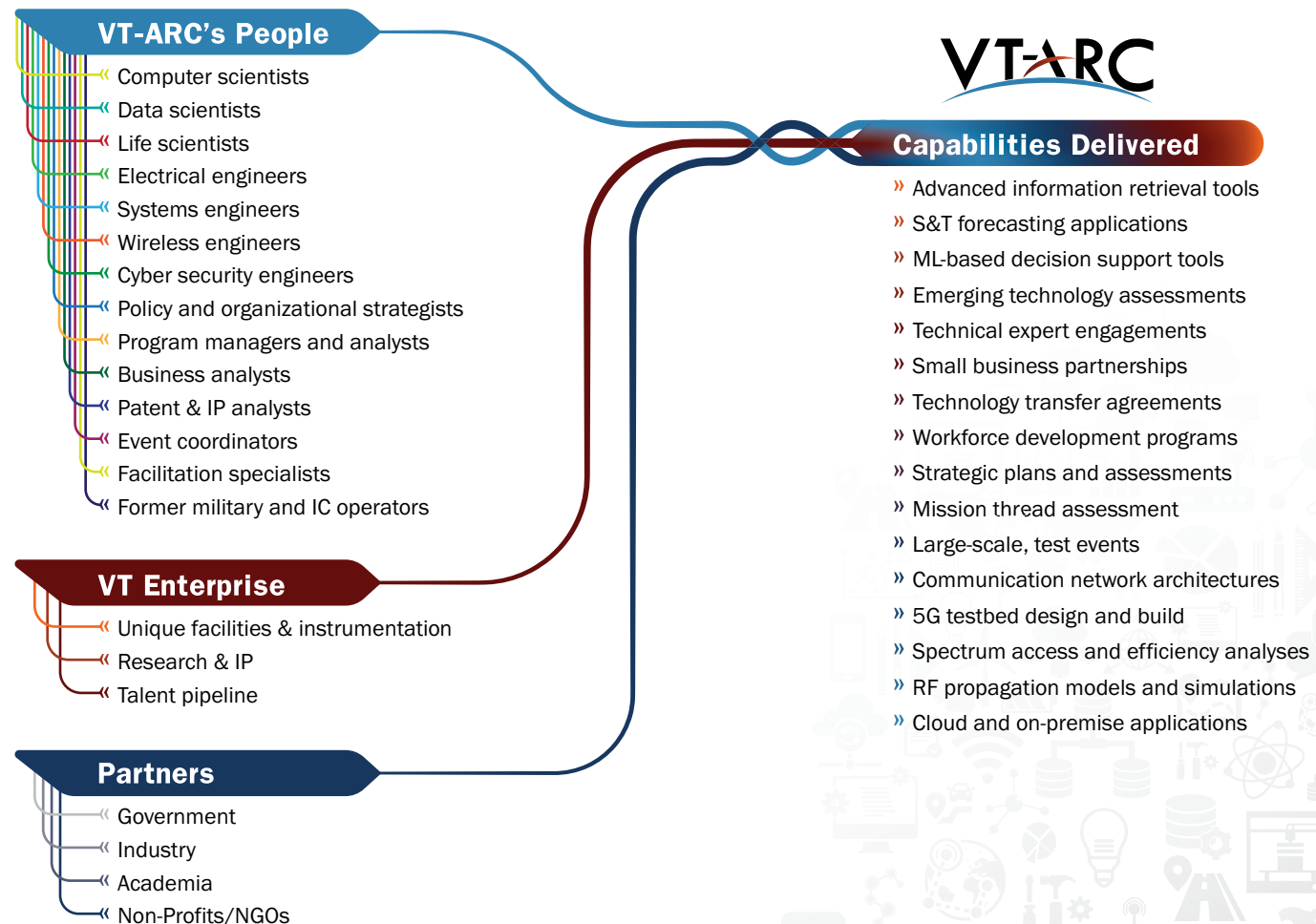
- » Guiding basic research priorities across federal agencies with technical forums, examining emerging research and engineering solutions that promise to transform future capabilities.
- » Characterizing and forecasting S&T landscapes (empowered by AI/ML) and identifying promising government-industry-academia collaboration networks.
- » Leveraging federal investments in national security R&D to deliver advanced technology solutions, shaping dual-use technologies with industry, to improve global welfare.
- » Conducting end-to-end system analyses for technology-informed mission engineering.

## VT-ARC Initiative Exemplars

- » Leading an interdisciplinary technical team on the DoD's \$600M inaugural 5G technology T&E program.
- » Driving Army and Air Force small business collaboration programs fostering technology transfer and transition (T3) and commercialization.
- » Helping advance North American mobile technology by leading the development and operation of the Next G Alliance Program Office.
- » Facilitating innovation, collaboration, and technology and workforce development as one of five Air Force Research Laboratory Innovation Institutes and one of three Army Research Laboratory Partner Intermediaries.

# How We Do It

Collaborative Teams, Technology, and Expert Integration





## FY22–FY24 Strategic Priorities and Execution Objectives

In order to deliberately build towards the achievement of our vision and the execution of our mission, VT-ARC has established five Strategic Priorities (SPs) over FY22-FY24\*. These SPs act as guiderails for the near-term achievement of several aligned FY22 Execution Objectives (see below). SPs 1-4 have Execution Objectives that focus on discovering new research, developing and expanding core competencies and staff, as well as creating and incubating new capabilities and transformational opportunities. SP5 has Execution Objectives that focus on maturing the corporation, seeking new partnerships, and building and maintaining a VT-ARC culture that emulates our values, fosters learning and growth, and drives operational efficiencies. Each Execution Objective has associated measurable key results (metrics) that drive the impact we seek against our vision and mission.

As VT-ARC moves into the future, in partnership with our collaborators in government, industry and academia, we will use these priorities and objectives to deliver resilient, mission-focused solutions with enduring effect.

### SP1 New Advancements in Communications & Networking



Lead groundbreaking initiatives in spectrum sharing and develop new capabilities to advance the science, application and assurance of wireless communications and networking technologies.

#### Execution Objective 1a:

Expand existing and capture new opportunities to research and develop future wireless technologies

#### Execution Objective 1b:

Hire, develop and retain staff at multiple levels with strong technical and management capabilities, while maturing operational efficiencies

#### Execution Objective 1c:

Create new capabilities and capture innovative approaches to advance assured intelligent spectrum access and resiliency

### SP2 Collaborative Environments; New S&T Trends; Innovative Research & Technology Transfer and Transition



Accelerate and expand the boundaries of scientific discovery and technology transition through collaborative innovations, robust analyses, and effective partnerships.

#### Execution Objective 2a:

Optimize and diversify strategy, policy, and analysis portfolios for expanded impact in Science & Technology

#### Execution Objective 2b:

Develop and retain staff, expand core competencies in analytics, strategic planning, technology transfer and transition, and S&T outreach

#### Execution Objective 2c:

Develop transformational opportunities through collaborative events and research, policy development and technical service offerings

\* ( FY22-FY24 = 1 July 2021 through 30 June 2024)



## SP3 Information Science to Drive Decision Making in Public & Private Sectors



Mature information science capabilities and services that drive decision making at strategic, tactical, and operational levels in the public and private sectors.

### Execution Objective 3a:

Grow and mature information sciences, while broadening the sponsor base and leveraging the VT National Security Institute

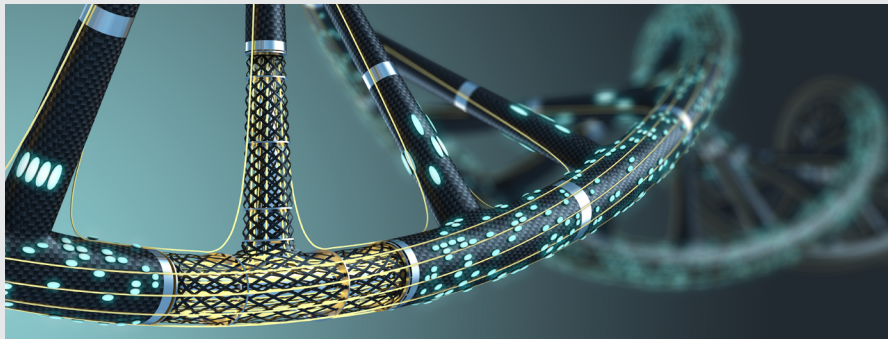
### Execution Objective 3b:

Mature project management, data science, engineering, and visualization workflows

### Execution Objective 3c:

Identify and exploit technologies derived from sponsored research for new service offerings and impact

## SP4 Incubate New Concepts Across VT Research Frontiers & Beyond



Identify, incubate, and transform new opportunities leveraging creative partnerships to achieve impact against VT's research frontiers and beyond.

### Execution Objective 4a:

Launch the VT National Security Institute (NSI) with the Hume Center, innovating new ideas, research and centers in national security

### Execution Objective 4b:

Develop a new Mission Engineering Analysis capability with VT to inform future ops and investment strategies

### Execution Objective 4c:

Establish a VT-ARC incubation cell, piloting concepts and approaches for achieving impact in Health and Bio

## SP5 Maturing the Corporation



SP5 has Execution Objectives that focus on maturing the corporation, seeking new partnerships, and building and maintaining a VT-ARC culture that emulates our values, fosters learning and growth, and drives operational efficiencies.

### Data Driven Organization

### Staff Growth

### Culture of Inclusion and Diversity



## VT-ARC Leadership



**Mr. John Forte**  
President and CEO  
[John.Forte@vt-arc.org](mailto:John.Forte@vt-arc.org)

Mr. John Forte is the CEO and President of VT-ARC, responsible for guiding strategic growth in applied research and development with the intent of strengthening national security, driving societal impact, and improving the human condition.



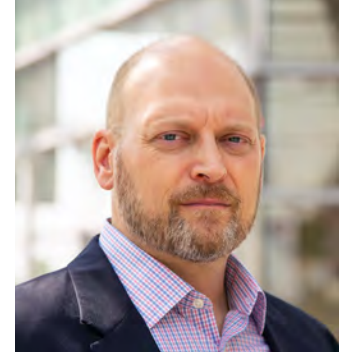
**Mr. Don Maffei**  
VP, Finance  
and Administration  
[Don.Maffei@vt-arc.org](mailto:Don.Maffei@vt-arc.org)

As the leader of the finance and administration team, Don provides strategic input on the direction of the corporation as well as day-to-day planning, implementation, and management of all financial, compliance, human resources, and information technology matters.



**Mr. Tim Brumfiel, Sr.**  
VP, Operations  
and Development  
[Timothy.Brumfiel@vt-arc.org](mailto:Timothy.Brumfiel@vt-arc.org)

Mr. Tim Brumfiel, Sr. is VT-ARC's VP of Operations and Development, responsible for overseeing daily operations and programs, defining and implementing operations strategy, structure, and processes, and managing the corporation's business development activities.



**Dr. Matt Wolfe**  
VP, Technology  
[Matt.Wolfe@vt-arc.org](mailto:Matt.Wolfe@vt-arc.org)

Dr. Matt Wolfe is VT-ARC's VP of Technology and is responsible for the corporation's technology development strategy and commercialization efforts. In this position, Matt is responsible for ensuring VT-ARC's technical, partnership, and commercialization activities align with the corporation's business strategy.



**Mr. Mike DiFrancisco**  
Director, Engineering Test  
and Evaluation  
[Mike.Difrancisco@vt-arc.org](mailto:Mike.Difrancisco@vt-arc.org)

Mr. Mike DiFrancisco is an experienced Technology Executive and Engineering Manager with functional expertise in Communication Systems, RF Design, SATCOM, Cyber Technologies, IT Infrastructure Systems, and Networking. Currently, Mike's focus is on applied research and testing of wireless technologies, and on guiding test campaign management capabilities.



**Dr. Laura Freeman**  
Director, Information  
Science and Analytics  
[Laura.Freeman@vt-arc.org](mailto:Laura.Freeman@vt-arc.org)

Dr. Laura Freeman is a Research Associate Professor of Statistics and dual hatted as the Director of the Intelligent Systems Lab, Virginia Tech Hume Center and the Director of the Information Sciences and Analytics Division, Virginia Tech Applied Research Corporation (VT-ARC). In her role with VT-ARC, she focuses on transitioning emerging research in these areas to solve challenges in Defense and Homeland Security.



**Dr. Karl Maxwell**  
Director, Strategy Planning  
and Policy  
[Karl.Maxwell@vt-arc.org](mailto:Karl.Maxwell@vt-arc.org)

Dr. Karl Maxwell is VT-ARC's Director of Strategy, Policy and Planning Division. He is responsible for providing the vision, strategy, and leadership necessary to grow the division's science and technology analytics and services portfolio. He has over 20 years' experience that encompasses planning and evaluation, health care service delivery, and public health policy research and analysis.



**Mrs. Angela Keen**  
Contracts Director  
[Angela.Keen@vt-arc.org](mailto:Angela.Keen@vt-arc.org)

Ms. Angela Keen is VT-ARC's Contracts Director and is responsible for ensuring VT-ARC's compliance with federal grant and contract regulations. As leader of the Contracts Department, she provides oversight of cradle-to-grave contracts administration functions and program management support. Angela provides strategic guidance on contractual and compliance issues to program staff and senior leadership.



## VT-ARC Board of Directors

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Vice President for Finance  
& Chief Financial Officer, (Retired)  
Virginia Tech

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Interim Dean,  
College of Science,  
Virginia Tech

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Virginia Tech

**Dr. Daniel Sui**  
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Virginia Tech



Virginia Tech Applied Research Corporation operates offices in Blacksburg and Arlington, VA (National Capital Region, or NCR). For more information on VT-ARC services, capabilities, and collaborations, please call us at our NCR office: 703.879.8142

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