VCU College of Engineering Strategic Plan
Quest 2028
May 2023

Background:

In October 2021, Virginia Commonwealth University launched a recalibration process of its strategic goals to better meet our mission in a changing world. The recalibration is an update to meet the vision, mission and values originally established in the Quest 2025 strategic plan. The global pandemic, sweeping social justice movements, new developments in technology and accelerating effects of climate change have forever changed how we engage, work, learn, and live. Thus, our strategic plan must reflect the vision and aspirational goals required to ensure its realization. Quest 2028: One VCU Together We Transform, harnesses the collective power of our community and stakeholders to do just that. During the 2022-2023 academic year, the College of Engineering updated its Strategic Plan as part of the Quest 2028 recalibration process.

Methodology:

The most recent College of Engineering *Strategic Plan* was completed in 2021 and the Mission, Vision and Core Value statements from that plan were retained. The 2021 plan included five *Strategic Priorities* (Recruitment; Retention and Graduation; Research; Resources and Reputation). These were modified to be consistent with the four *Strategic Themes* of VCU Quest 2028 (Diversity Drives Excellence; Student Success; Research and Innovation and Thriving Communities). An engineering committee was convened for each theme consisting of faculty from each academic department and staff members. 37 faculty and staff members served on the committees. Goals, Strategies and Metrics of Success were developed for each Theme and the committee reports were shared broadly and feedback was collected.

Our Mission:

Our mission is to create and grow a community of exceptional students, faculty, staff, alumni and industry partners that strive to create a common future for all where innovative, sustainable and equitable solutions to global engineering challenges are realized for the benefit of this generation and future generations.

Our Vision:

A Community that fosters:

1. An environment for experiential student-centered learning, preparing the interdisciplinary leaders of tomorrow.

2. Research making a positive difference on grand challenges facing society.

3. Making big ideas real through a culture of innovation, entrepreneurship, and collaboration.

4. A diverse and inclusive community supporting our students, faculty and staff.

5. Real-world computer science and engineering by being a catalyst in encouraging industry and academia to collaborate, enabling experiences connecting students and faculty with alumni and industry, both at home and abroad.

6. Sustainability, in order to create thriving, healthy, diverse and resilient communities for this generation and generations to come.

Core Values:

Accountability: Committing to the efficient and transparent stewardship of our resources to achieve excellence

Achievement: Ensuring distinction in learning, scholarship

Collaboration: Fostering cooperation to advance learning, entrepreneurship and inquiry

Freedom: Striving for truth with responsibility and civility, respecting the dignity of all individuals

**Innovation:** Cultivating discovery, creativity and originality

Service: Engaging in the application of teaching, learning and discovery to improve the human condition and support the public good

Diversity and inclusion: Ensuring a culture of mutual trust and respect where individuals of differing cultural backgrounds, identities, abilities, ideas, beliefs and life experiences are embraced, engaged and empowered to drive excellence

Integrity: Adhering to the highest standards of honesty, respect and professional and scholarly ethics

Perseverance: Encouraging faculty, staff and students to meet their aspirational goals

Quest 2028 Strategic Themes
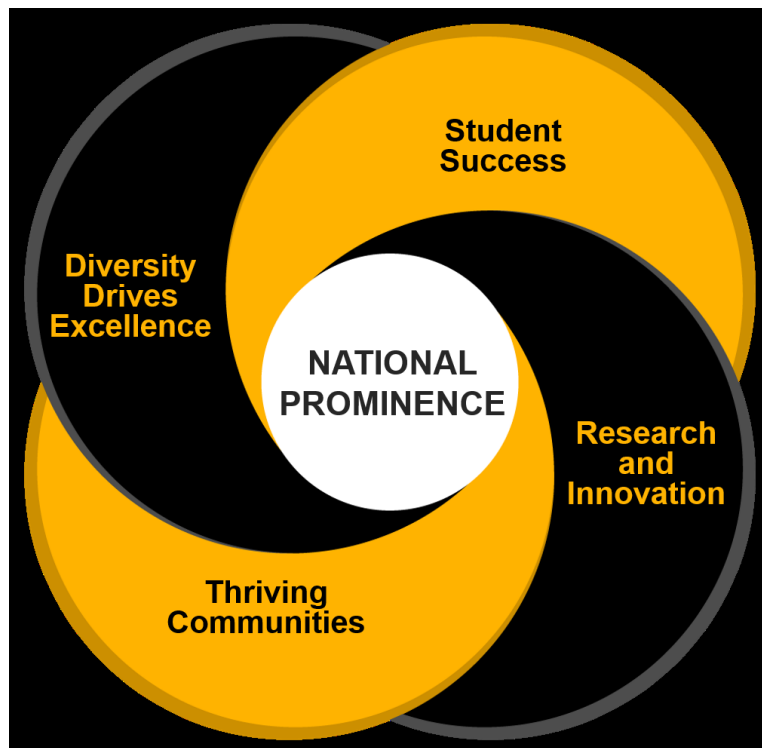
THEME I: DIVERSITY DRIVES EXCELLENCE

Champion diversity, equity and inclusion in all that we do and advance a conscientious drive to support a climate where excellence and success for all people are valued and differences are celebrated.

This theme is integral to all the goals and strategies of the College of Engineering because fostering a true sense of belonging is foundational to the success and excellence of our students, faculty and staff.

<u>GOALS AND STRATEGIES</u>

CULTURE
DDE 1: Nurture a College-wide culture and climate that is diverse, inclusive, equitable, and engaged.

- Engage external partners to develop a robust annual climate survey to establish a baseline against which we can measure growth and improvement related to DEI.
- Establish a publicly- accessible dashboard with current College data and links to relevant university resources in order to demonstrate transparency, accountability, and a commitment to improve.
- Create a culture of care so that all Engineering community members have designated internal contacts for discussion diversity, equity and inclusion related matters.
- Implement a progressively phased approach to DEI education and training.

INFRASTRUCTURE
DDE 2: Implement an organizational infrastructure to support, sustain, and scale DEI initiatives that infuses them into curriculum, scholarship, and practice.

- Dedicate a percentage of the annual College operating budget for DEI initiatives and support the Engineers Driving Inclusive Excellence council (EDIE) as it continues to serve as the DEI advisory body for the College.

- Regularly update evaluation policies including promotion and tenure; teaching and course evaluations; and employee annual reviews to reflect current best practices and university policy.
- Ensure current, revised, and new policies are evidence-based to reduce unconscious bias and discrimination.
- Create an easily accessible tool that offers support and resources for best practices in academic DEI initiatives.

SERVICE

DDE 3: Demonstrate support for service as critical to the role of public academic institutions.

- Invest time and resources into College programs that serve relationships with public schools and community organizations with the goal of broadening participation in engineering among populations underrepresented in the field.
- Create mechanisms through which faculty who participate in community-engaged research and/or service learning activities are recognized for their efforts and incentivized to continue.
- Update annual evaluations and promotion and tenure review policies to include recognition of service activities as a highly valued portion of effort.
- Provide infrastructure to create and support the adoption of service, community engagement, and community responsive pedagogies.

METRICS of SUCCESS
- Diversity training: Institute annual college-wide diversity training requirement with the goal of 75% of faculty and staff attending at least one qualified training option (e.g. green zone, safe zone, in-person College-wide training, online university training, etc.)
- Organization culture and climate: Positive percent change in university biennium culture and climate survey results in diversity, inclusion, engagement and performance indices
- Faculty Recruitment and Retention: Positive percent change in minority, underrepresented minority and women faculty
- Staff Recruitment and Retention: Positive percent change in minority, underrepresented minority and women staff
- Recruitment: Positive percent change in minority, underrepresented minority and women in the candidate pools for all posted positions.

- Sense of Belonging: Demonstrated improvement on annual College-wide climate survey for all stakeholder groups (students, faculty, and staff).

STATEMENT OF COMMITMENT TO DEI

We commit to consider relevant cultural and societal responses, calling on outside advisors where appropriate, as we continue to learn and uncover biases. We acknowledge that there will be cases in which our DEI values collide with other values we also hold dear. When these cases arise, we commit to approach each case with open minds and examine each case from all sides. We commit to communicate resolutions in a timely and transparent manner. Finally, while we cannot commit that every party will agree with the resolution of every case, we do commit to continually educate our community and strive for improvement.

Theme II: Thriving Communities

Goals and strategies

TC1: Identify and leverage current community engagement opportunities conducted by faculty and staff in the College.

- Create a survey to identify current initiatives
- Develop a process to collect information related to community involvement
- Ensure that the information collected is easily available to all faculty and staff in the College to facilitate collaboration and support for current outreach efforts.
- Develop a streamlined process by which community members can request collaboration with the College
- Develop a database of community engagement grant opportunities at federal and state funding agencies.

TC2: Identify opportunities to share research and engineering technology with the community

- Partner with community organizations to leverage existing community connections, i.e., partnership with the United Way for the Explore and Tour
- Enhance collaboration with the Alumni Association, community colleges, DOD, and local neighborhood communities

TC3: Incentivize faculty and staff to participate and focus on community engagement

- Include in faculty and staff evaluations
- Encourage faculty to include existing community initiatives, if applicable, to grant proposals submitted
- Recognize faculty and staff for participating in activities that support community engagement
- Track yearly awarded grant totals based on community outreach centered proposals

Metrics of Success:

- Increase the overall participation by CoE faculty and staff in community-focused engagement activities
- Increase overall participation of community members engaged in outreach programs on a yearly basis
- Increase outreach efforts towards specific types of communities within the Richmond area
- Increase the public's awareness of VCU CoE's community engagement activities and successes
- Increase involvement in undergraduate/graduate student involvement in community outreach activities

Recommendations

- Best community engagement awards for faculty, staff, alumni, and students
- All COE community service day-faculty, staff, students

Theme III: Student Success

Goals and Strategies:

SS 1: Engage all students in inquiry, discovery, innovation, experiential learning, civic engagement and creative expression.

- Foster interdisciplinary collaboration by engaging multiple knowledge communities in developing new undergraduate and graduate academic programs and credentials
  - Encourage and promote VIP projects and students' participation with them
  - Undergraduate research
  - Badges and credentials
- Redesign undergraduate curriculum to expand the integration of transformative experiences
  - Faculty reward structure should incorporate elements of student success. There is no alignment between teaching success and student success
  - Promote and reward creative and innovative teaching

- Offer new degrees and course offerings focused on attracting a more diverse student population
  - Online/evening master's
  - Post-bacc online

- Develop approaches and initiatives that enhance the global competency of students, faculty and staff
  - Capstone
  - Career services and professional development opportunities
  - Internships and co-ops

SS 2: Establish a culture that ensures actions promote student engagement, success and sense of belonging.

- Promote a culture of collaboration, adaptability and innovation focused on student success
  - Allow students to take courses outside of engineering
- Continue to develop approaches and programs that strengthen student academic, financial, and career planning, readiness and agency
- Strengthen and provide intentional opportunities and conditions for purposeful student engagement, growth, physical/mental well-being and belonging among all students (undergraduate, graduate and first-professional)
  - Mentorship programs
  - Undergraduate TA program

- Create an environment that supports and strengthens student success through faculty/staff-student mentorship and faculty/staff development and engagement
  - Promote culture of concern for all students
  - Student clubs and organizations
  - Fall Ball
  - Lots of volunteer activities providing opportunity for VCU students to "give back" to their high schools.
  - Mentoring programs bring alumni back to help guide our soon-to-graduate students
- Develop robust data analytics to track individual and overall student performance throughout the academic career from acceptance through graduation
- Redesign space to allow for more student collaboration

SS 3: Attract and retain a diverse community of highly engaged faculty, staff and students that reflects a culture where everyone matters, belongs, and thrives.

- Strengthen a cross-organizational culture of appreciation that is expected of all academic and administrative units and is reflected in day-to-day behaviors, activities, clarity of goals, rewards and accountability
- Develop a culture through appropriate institutional shared governance structures to promote excellence in teaching and learning across the curriculum

Metrics of Success:
- Increase the number of students participating in co-op experiences, VIP and online programs.

- Award a larger percentage of badges for students participating in extracurricular activities.

- Broaden the number of students participating in community building activities and activities which promote student success and engagement.

- Increase the percentage of diverse faculty, staff and students in the College.

THEME IV: RESEARCH AND INNOVATION

Distinguish VCU as a vibrant public research university where researchers, educators, practitioners and entrepreneurs innovate together to improve lives and address societal challenges.

GOALS AND STRATEGIES

RI 1: Amplify VCU's impact on society through excellence across all disciplines, knowledge creation and transdisciplinary research.

- **RI 1.1:** Invest in promising research aligned with VCU's strengths and emerging research areas as a catalyst for increased external research awards, including federal research awards and research expenditures as a measurement of knowledge creation
  - **Short-Term Promising Research – Recommendations:**
    - Artificial Intelligence (AI) and Data Science:
      - Foster research in AI, machine learning, and data science with applications in healthcare, smart cities, energy management, autonomous systems, and environmental monitoring.
    - Sustainable Infrastructure and Environmental Engineering:
      - Invest in renewable energy sources, water treatment and management, carbon capture and energy storage, Smart Grid Technology, and energy efficiency technologies.
      - Support research on environmental monitoring, pollution mitigation, and climate change adaptation to address pressing environmental challenges.
    - CHIPS Act, Advanced Materials and Manufacturing:
      - CHIPS Act for cutting-edge semiconductor research and manufacturing to strengthen the domestic semiconductor industry and supply chain, promoting research innovation across various sectors, ensuring long-term economic growth and national security.
      - Invest in research related to additive manufacturing, and smart materials (e.g., nanomaterials, superconducting materials, biomaterials), with potential applications in aerospace, automotive, and medical industries.
    - Interdisciplinary Biomedical Engineering:
      - Invest in tissue engineering, medical imaging, neural engineering, drug delivery systems, wearable medical devices, regenerative medicine.
      - Explore the application of artificial intelligence, machine learning, and data science for personalized medicine, drug discovery, and diagnostics.
    - Cybersecurity in Critical Sectors and Autonomous Systems:

- Focus on healthcare, energy, and transportation sectors, where cybersecurity is crucial for safety and reliability.
- Invest in the development of autonomous systems, including drones, urban air mobility, and ground vehicles, with an emphasis on safety, reliability, and efficiency.

- **Long-Term Promising Research - Recommendations**
  - Personalized Healthcare and Bio-Inspired Technologies:
    - Leverage interdisciplinary research in genomics, proteomics, and metabolomics, combined with data science, to enable personalized and precision medicine.
    - Design and optimize medical devices and systems for personalized healthcare, including wearable and implantable devices, telemedicine, and remote patient monitoring technologies.
    - Investigate bioinspired and biomimetic materials, structures, and systems, with potential applications in advanced manufacturing, energy harvesting, and environmental sustainability.
  - Sustainable Urban Technologies and Climate Resilience:
    - Focus on the development of technologies for urban planning, sustainable energy sources, energy storage and conversion technologies, smart and sustainable cities, energy-efficient building materials and designs, and environmental monitoring.
    - Develop sustainable water and waste management systems, including water treatment, recycling, and reuse technologies.
    - Investigate climate change mitigation and adaptation strategies, including carbon capture, climate modeling, and resilient infrastructure.
  - Smart Materials and Semiconductor Technologies:
    - Invest into reliable and innovative semiconductor technologies to enhancing the domestic semiconductor industry and supply chain, driving economic growth, and ensuring national security.
    - Focus on smart materials and advanced manufacturing techniques can lead to breakthroughs across various sectors, including healthcare, aerospace, and energy, and positioned as a leader in creating sustainable and transformative solutions for the future.
  - Human-Centered Artificial Intelligence, Robotics, Communications, Cyber-Physical Systems, and Emerging Technologies:
    - Explore advancements in AI, machine learning, and data science, with an emphasis on ethical AI, fairness, transparency, and robustness in AI systems.
    - Invest in robotics research, specifically in the areas of human-robot interaction, collaborative robotics, brain-computer interfaces, and neurotechnology.
    - Support the development of next-generation wireless networks, cyber-physical systems, and autonomous systems, including drones, urban air mobility, and ground vehicles, emphasizing safety, security, privacy, reliability, and efficiency.

- Focus on the convergence of digital technologies, such as quantum computing, and virtual/augmented reality (VR/AR), to drive innovation across various industries.

- **RI 1.2:** Improve VCU processes and procedures supporting the tracking and reporting of VCU research expenditures Establish a publicly- accessible dashboard with current College data and links to relevant university resources in order to demonstrate transparency, accountability, and a commitment to improve.
  - *Simple, real-time award and expenditure tracking system*:
    - Easy to use, real time dashboard for applications, awards, expenditures.
    - Simple system reachable with a link that gives in basic terms how much spent (with 1-2 columns, not that many) on what and how much remaining budget is there in each index (which is updated every day).
    - Generate automatic reports for indexes (maybe once or twice per year)
  - *Transparency* in expenditure across the college
  - Repository for the current/active projects/funds across for the purpose of awareness across CoE.

- **RI 1.3:** *Expand and amplify the societal impact of VCU CoE-led innovations, including market and startups launched in the commonwealth.*
  - **Foster a strong innovation ecosystem:** Encourages innovation and entrepreneurship by providing resources, mentorship, and networking opportunities for students, faculty, and researchers. Create on-campus incubators, accelerators, and innovation hubs.
  - **Collaborate with local and regional partners:** Establish partnerships with other universities, research institutions, government agencies, and industry leaders to share resources, knowledge, and expertise.
  - **Invest in technology transfer:** Strengthen the university's technology transfer office, with vital role in transforming research and innovations into market-ready products and services. Offer training and support to researchers, facilitate patent filing, and negotiate licenses and contracts with external.
  - **Promote interdisciplinary collaboration:** Encourage collaboration between different departments and disciplines within the university, which can lead to innovative solutions and products that address complex societal challenges.
  - **Enhance experiential learning opportunities:** Offer students real-world experiences through internships, co-ops, and project-based courses, which can inspire them to pursue innovative solutions and start their own ventures.
  - **Engage alumni and local entrepreneurs:** Utilize the extensive network of successful alumni and entrepreneurs in the region to mentor, advise, and provide financial support for VCU-led startups and projects.
  - **Develop educational programs:** Create specialized courses, workshops, and degree programs focused on entrepreneurship, innovation, and technology commercialization to

equip students with the necessary skills and knowledge to launch and grow successful ventures.

- **Organize events and competitions:** Host entrepreneurship-focused events, conferences, and competitions to provide a platform for showcasing VCU-led innovations and connecting with potential investors, partners, and customers.
- **Market and communicate successes:** Highlight the achievements and successes of VCU-led innovations, startups, and research initiatives through various communication channels, such as press releases, social media, and university publications, to raise awareness and attract further support.

- **RI 1.4:** *Develop a VCU-CoE comprehensive communications approach to disseminate public impact results and their role in inclusive knowledge creation and experiential learning for the next generation of innovators across all disciplines.*
  - **Develop a clear communication plan:** Create a strategic communication plan that outlines the goals, target audiences, key messages, and tactics to be employed.
  - **Create a strong brand identity:** Develop a consistent and recognizable brand identity that reflects the college's commitment to innovation, inclusivity, and experiential learning. This can include a unique logo, color scheme, and messaging that can be used across all communication channels.
  - **Leverage digital channels:** Utilize the college's website, social media platforms, and email campaigns to share success stories, research breakthroughs, and experiential learning opportunities.
  - **Establish a dedicated blog or news portal:** Create a central platform where faculty, students, and alumni can contribute articles, insights, and updates on projects, research, and innovations. This showcases the college's expertise and impact across disciplines.
  - **Produce multimedia content:** Develop engaging multimedia content, such as videos, podcasts, and infographics, to showcase the college's achievements and initiatives in a visually appealing and easily digestible format.
  - **Collaborate with internal and external partners:** Work closely with other departments, research centers, and community organizations to co-create content, share resources, and cross-promote initiatives.
  - **Highlight student and faculty achievements:** Regularly recognize and celebrate the accomplishments of students, faculty, and alumni, demonstrating the college's commitment to nurturing the next generation of innovators and leaders.
  - **Organize events and webinars:** Host events, workshops, and webinars that showcase the college's research, innovation, and experiential learning opportunities, while also providing a platform for networking and collaboration.
  - **Engage with the media:** Build relationships with journalists and media outlets to secure coverage and amplify the college's impact on a local, national, and international scale.
  - **Monitor and evaluate:** Regularly assess the effectiveness of the college's communications efforts by tracking key performance indicators (KPIs) and adjusting strategies as needed to ensure continued success.

RI 2: Build a collaborative research culture that powers meaningful change and impact and is based on ethics, integrity, inclusive practices, and critical and analytical thinking.

- **RI 2.1:** Prioritize inclusive research that advances the creation of new knowledge and public impact
    - **Encourage open dialogue and collaboration:** Promote a culture where researchers can openly discuss ideas, challenges, and opportunities. Encourage collaboration through joint lab meetings, seminars, and conferences from different departments and schools/colleges to promote knowledge sharing and interdisciplinary thinking.
    - **Establish dedicated support services:** Create a dedicated support structure that provides resources, guidance, and training for researchers to develop inclusive research practices.
    - **Support inclusive within existing and new programs:** Expand on the programs such as Vertically Integrated Projects (VIP) program, to develop new programs and initiatives that include K-12, HBCU, community colleges, other MSIs.
    - **Establish interdisciplinary research clusters:** Promote the formation of interdisciplinary research clusters that address real-world problems.
    - **Create inclusive hiring and promotion policies:** This includes hiring faculty from diverse backgrounds and disciplines, promoting inclusive practices within the department, and ensuring that diversity is taken into account during tenure and promotion decisions.
    - **Prioritize mentorship and professional development:** Implement programs such as mentorship programs, workshops, and networking events that support the professional growth of faculty and students, with a particular focus on underrepresented groups.

- **RI 2.2:** Advance community engagement as a standard for knowledge co-creation and public impact
    - **Create a community advisory board:** Establish a board made up of community leaders and stakeholders who can provide input and guidance on research projects, and define the public impact of proposed research centers in order to ensure that community needs and perspectives are considered.
    - **Develop community-based research projects:** Encourage faculty and students to work on research projects that involve direct collaboration with community partners.
    - **Develop mechanisms for feedback and accountability:** Create channels for community partners to provide feedback on research projects and engagement initiatives.
    - **Organize community engagement events:** Host events like workshops, seminars, and conferences that involve community members, local organizations, and other stakeholders.
    - **Foster long-term community partnerships**: Build sustainable relationships with community partners by identifying shared goals and supporting ongoing collaborations.

- **RI 2.3:** Develop approaches and mechanisms that ensure knowledge creation is a prominent opportunity for students and trainees.

- **Dedicate resources:** Departmental/College support for managing standardized forms (training grants, biosketches, etc.)
- **Facilitate interaction and feedback mechanisms:** Offer "town hall" meetings to promote communication and interaction among different groups.
- **Promote undergraduate research opportunities:** Develop a robust undergraduate research program, providing students with the chance to work alongside faculty members and graduate students on research projects.
- **Establish research-focused mentorship programs:** Pair students and trainees with faculty or experienced researchers who can guide them through the research process.
- **Support student-led research initiatives:** Encourage and support student-led research projects, clubs, and organizations that provide opportunities for students to engage in knowledge creation outside of the classroom.

- **RI 2.4:** Implement strategies where collaboration and team science-based approaches yield public impact across disciplines.
  - **Invest in CoE current strength:** Extend the survey of the CoE research expertise and identify teams (senior leadership, junior faculty), and invest in strengths already existing in the CoE.
  - **Establishing interdisciplinary research centers:** Establish or expand the current centers to bring together faculty and students from different disciplines to work on projects related to a particular area, such as sustainable energy.
  - **Joint research appointments:** Establish joint research appointments that allow faculty members to work with colleagues from other departments or schools within the university.
  - **Interdisciplinary graduate courses/programs:** Establish interdisciplinary graduate courses/programs providing opportunities to work with faculty from different departments/schools, and encouraging students to think critically and collaboratively across fields.
  - **Collaboration spaces and tools:** Create physical spaces and provide technology tools that facilitate collaboration between researchers from different disciplines.
  - **Support for interdisciplinary research:** Support faculty and researchers in pursuing interdisciplinary funding opportunities. Examples include training and guidance to help them develop strong collaboration, grant writing support, seed funding for preliminary research, and teaching release for establishing collaboration.
  - **Incentivize and reward collaboration:** Create incentives for faculty, students, and researchers to engage in collaborative research projects. This could include special funding opportunities, recognition in tenure and promotion decisions, or awards that celebrate interdisciplinary achievements.

RI 3: Implement a research infrastructure model that is scalable, nimble and ready for growth.

- **RI 3.1:** Implement strategies where collaboration and team science-based approaches yield public impact across disciplines.
  - **SAME LIST OF STRATGIES in RI 2.4.**

- **RI 3.2:** Expand training grants and trainee positions.
  - **Enhance existing/Develop new training programs:** Review existing training programs to identify areas for improvement, and gaps for new programs aligned with the priorities of funding agencies. Work with faculty and trainees to enhance the curriculum, provide more mentoring and professional development opportunities, and offer more hands-on training experiences.
  - **Foster a culture of training and collaboration:** Include providing incentives for faculty to mentor trainees, recognizing outstanding trainee achievements, and promoting a collaborative and supportive environment for trainees. Also involve creating opportunities for faculty members and trainees to collaborate on research projects, as well as providing support for interdisciplinary research teams.
  - **Develop partnerships with industry:** Partnering with industry can provide additional funding opportunities and help to align research priorities with industry needs.
  - **Support trainee career development:** Provide resources and support for trainees to prepare for careers in academia, industry, government, and other sectors. This could include career counseling, networking opportunities, and training in entrepreneurship and business skills.
  - **Increase outreach and recruitment:** Develop strategies to increase the visibility of our training programs and attract a diverse pool of applicants. This could include targeted advertising, participation in conferences and career fairs, and outreach to underrepresented groups.

- **RI 3.3:** Prepare for growth by establishing performance metrics, analytics, and infrastructure strategies (e.g., reduced administrative burden)
  - Use available data to create more valuable reports: Faculty and research administrators input a large number of data that can be useful to identify performance metrics and analyze collaboration opportunities, but these data is not easily or widely accessible or is missing key components. Recommend working with central offices to create reports from available data that could better assist departments and decision makers.
  - Create tools and efficiencies to reduce burden on day-to-day tasks of faculty and departmental administrators.
  - Improve training opportunities for faculty and research administrators and examine training currently offered. Improve resources available to faculty and research administrators on VCU's website.

- Support hiring and growth of qualified research administrators. VCU has seen a large amount of turnover in research administrators since 2020. Research administrators play a large role in reducing administrative burden or faculty and ensuring the compliance of research projects. In order to maintain current research levels and prepare for growth, VCU needs to support the growth and hiring in this field and become more competitive with other universities.

METRICS OF SUCCESS
- Research funding and portfolio
  - >$60 million (double the amount of 2022) in annual external sponsored awards
  - 3% to 5% increase in total federal research awards per fiscal year
  - Double the number of patents, licensing, partnerships and startups.
- Ranking
  - Top 50 U.S. public research universities, National Science Foundation ranking (measured by total research expenditures)
- Public impact (impactful research across all disciplines)
  - Increase faculty effort and number of new faculty hires (including URM)
  - Increase students (undergraduate and graduate, including URM) and postdoctoral fellows engaged in research.
  - Increase number and quality of publications, scholarly articles, proceedings and communications.