ESTABLISHING A NEW SCHOOL AT WILLIAM & MARY

I. Executive Summary

In alignment with William & Mary's strategic vision to provide the most personal learning experience of any public university, and in support of the university's strategic plan (Vision 2026) as well as its ongoing commitment to academic excellence, William & Mary officials propose the establishment of a new school of Computer Science, Data Science, Applied Science, and Physics (official name to be determined at a later date). Once approved, it will become the first school to be created at William & Mary in over fifty years. The four units that comprise the New School share a strong commitment towards engaging in externally funded PhD-level research, while simultaneously providing exceptional undergraduate education in the fields of Applied Science, Computer Science, Data Science, and Physics. Because these four units are all PhD-granting, highly productive STEM units, they require more autonomy (budgetary, curricular, and organizational) than they currently enjoy in order to reach their goals. In addition, all four units feature vibrant graduate programs that nurture the growth of a distinctive culture focused on research, external grants and career preparation for scholars and future academics.

This initiative to establish a New School is driven by several key objectives:

- **Addressing student and employer demand:** In recent years there has been a rising demand from undergraduates for class offerings in the academic fields that comprise the new school. At the same time, there has been increasing demand for graduates of these programs by a thriving sector of our economy. The establishment of a new school will address these demands, enhancing the employment prospects of William & Mary graduates in the process.
- **Elevating William & Mary's national profile**: The establishment of a new school will elevate William & Mary's national profile by putting a spotlight on components of our university that have become areas of exceptional strength. The four academic fields elevated by the new school are currently undergoing rapid change. They are also attracting heightened interest from business sectors that are driving the nation's economic growth.
- **Strengthening research and faculty recruitment:** The establishment of the New School will facilitate the recruitment and retention of world-class faculty who are essential to producing groundbreaking and impactful research. This will in turn bolster the university's research portfolio (including state, federal, foundation, and philanthropy opportunities), expanding and strengthening its graduate programs, and attracting even more exceptional students going forward.
- **Promoting interdisciplinary collaborations:** The proposal for a new school highlights the need to maintain the excellence of William & Mary's programs by fostering interdisciplinary collaborations throughout the university. Faculty in the four departments that make up the New School have already identified innovative models to support such collaborations.

In sum, the establishment of a new school at William & Mary offers a response to student, faculty, and employer demands by adopting a forward-looking strategy that positions the university at the forefront of academic excellence and dynamic innovation. Once created, the new school will help to ensure that the university remains competitive, relevant, and adaptive to the ever-evolving needs of our students and the broader academic community. Considering that the four departments that comprise the New School already exist, the establishment of the proposed new school amounts to an administrative restructuring of academic units that can be accomplished at relatively small cost and risk.

This document features the following five sections: (1) information on the operational blueprint of the proposed new school (hereinafter referred to as the "New School"); (2) data on student demand and the New School's academic offerings; (3) a profile of the research contributions of the New School; (4) a brief summary of the emerging landscape that the New School will occupy; and (5) a timeline featuring past, current, and future activities related to the creation and implementation of the New School. Appendix I summarizes key arguments for the proposed administrative change by its member departments, while Appendix II presents a draft template of the proposal content. Appendix III offers a summary of budget parameters (present and projected) for the New School.

II. New School Blueprint

II.a Operational Summary: Membership and Academic Offerings

The New School will consist of four units: Applied Science, Computer Science, Data Science, and Physics. As of 2022-23, these units are home to 71 faculty, 9 administrative assistants, 23 post-doctoral researchers, and 4 visiting/adjunct faculty. These four units are currently conducting searches for 7 faculty hires (5 tenure-eligible, 2 teaching). Table 1 summarizes this membership per unit.

Table 1: Academic personnel distribution across the four member units

Applied Science	**8** Tenure eligible (TE) faculty (6 Professors, 2 Associate Professors) **1.5** Administrative **2** Post-doctoral Researchers **1** TE search currently underway
Computer Science	**23** Tenure eligible faculty (7 Professors, 5 Associate Professors, 11 Assistant Professors) **4** Teaching (TF) faculty (2 Teaching Professors, 1 Associate Teaching Professor, 1 Assistant Teaching Professor) **3** Administrative **1** Post-doctoral Researcher **3** Visiting/Adjunct faculty **2** TE and **2** TF searches currently underway
Data Science	**7** Tenure eligible faculty (1 Professor, 1 Associate Professor, 5 Assistant Professors) **3** Teaching faculty (3 Associate Teaching Professors) **1.5** Administrative **2** Post-doctoral Researchers **1** Visiting/Adjunct faculty **1** TE and **1** TF search currently underway
Physics	**24** Tenure eligible faculty (16 Professors, 5 Associate Professors, 3 Assistant Professors) **2** Teaching faculty (2 Teaching Professors) **3** Administrative **18** Post-doctoral Researchers **1** TE search currently underway

The New School will house all academic offerings administered by these units going forward. The degrees currently offered by the four units in the New School are listed in Table 2.

Table 2: Degrees currently offered by member units of the New School

Undergraduate Degrees	**BS** and **BA** in Computer Science (major and minor) **BS** in Data Science (major and minor) **BS** in Physics (major, minor, and Engineering Physics, Applied Design, and Pre-Med tracks) **Minors** in Applied Science (Bioengineering, Materials Science and Engineering tracks)
Graduate Degrees	**MS** and **PhD** in Applied Science (including the Data Science track and other current concentrations) **MS** in Computer Science (incl. 5-year BS+MS program), **MS** in Computer Science with Specialization in Computational Sciences, **MS** in Computer Science with specialization in Computational Operations Research **PhD** in Computer Science and **PhD** in Computer Science (specialization in Computational Sci) **Graduate Certificate** in Data and Computer Science **MS** and **PhD** in Physics

The New School will not receive direct admissions from high school applicants; rather, students in good standing in their second year at William & Mary will be admitted, so long as they meet established expectations for major declaration already laid out by the participating units. Faculty of the New School will

continue to assist in staffing COLL courses in the Arts & Sciences, offer their popular service courses for majors of all Arts & Sciences majors (introductory Physics, Computer Science, and Data Science courses are essential offerings for all W&M students), and serve on university committees as appropriate. These actions are intended to minimize any disruptive effects on Arts & Sciences (A&S). Additionally, the New School will partner with A&S as appropriate in their joint pursuit of interdisciplinary and collaborative activities. The provost has expressed on many occasions the university's commitment to fully support the departments and programs that will remain in Arts & Sciences.

II.b Organizational Structure

While the exact structure of the New School administration will be determined by an implementation committee working in conjunction with a newly appointed dean, William & Mary officials have begun to lay out the broad contours of a nimble and effective administrative model for the New School. Figure 1 (below) offers a possible model for such a structure, which includes at least three new hires: (1) a Dean, (2) a Director of Finance, and (3) an Associate Director for Advancement and Outreach. The New School may also feature Associate Dean positions for Undergraduate Programs, and for Research and Graduate Programs. These positions are more likely to be filled from the ranks of existing faculty members. Additionally, an advisory board will support the New School by providing the dean with guidance and feedback as needed.

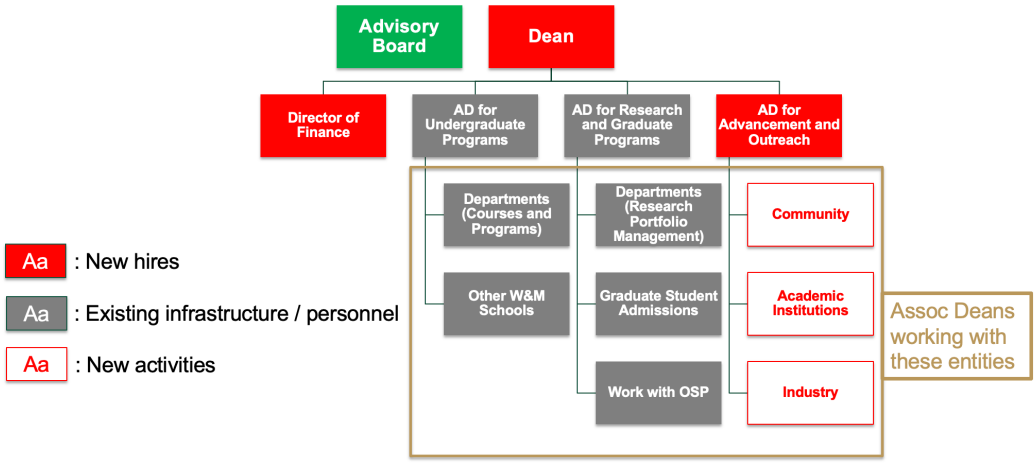

Figure 1: Sample structure of the New School

II.c Budget Considerations

Because the member units of the New School (each staffed with their own full-time faculty and administrative staff) already exist, much of the New School's operations are already supported by university funds. In FY 2023, the operations of these four units were supported by a budget of $17,903,000 (including $14,500,000 in department-owned funds). Once the units move to the New School, their budgets will transfer to the New School as well, making this portion of the New School activities cost neutral. The New School's budget will evolve based on growth, and in accordance with student demand.

Table 3: Cost breakdown of new hires identified in Figure 1

New Position	Estimated Salary
Dean	$375,000
Associate Dean	$160,000
Director of Finance	$140,000
Dean's Executive Assistant	$65,000
Total without benefits	$740,000
Total with fringe benefits	**$1,100,000**

The additional costs associated with the establishment of the New School arise from new administrative hires that are required for the proposed administrative structure identified in the previous section. This cost is summarized in Table 3, and the total cost estimate of $1.1M is indicative of the *additional* level of support that may be deemed necessary to establish the proposed New School.

III. Student Demand for New School Offerings

III.a Significant Increase in degrees conferred

Student demand for the offerings of the four New School units has been steadily increasing at William & Mary. Table 4 summarizes the 10-year growth of these units in terms of undergraduate degrees conferred (2013 vs 2023). As we can see, while the total number of degrees conferred (first and second majors) in A&S overall grew by 5.4%, the degrees in Computer Science grew by 216.7%, and in Physics they grew by 185.7%. Data Science, which did not exist in 2013, added a robust 49 new majors in 2023. (Applied Science does not currently maintain its own undergraduate program).

Table 4: 10-year growth of undergraduate degrees conferred for New School units

Unit	Baccalaureate Degrees in 2013	Baccalaureate Degrees in 2023	Percent change
Computer Science	30	95	+216.7%
Data Science	-	49	-
Physics	14	40	+185.7%
Arts & Sciences Total	1,693	1,785	+5.4%

The growth rates of Computer Science and Physics were the two highest within Arts and Sciences during the 2013-23 period, followed by International Relations (+44%, from 66 to 95), Classical Studies (+36%, from 14 to 19) and Biology (+32%, from 105 to 139).

In 2023, with a total of 184 undergraduate degrees conferred, the three programs contributed 10.3% of the A&S baccalaureate degrees conferred. In terms of graduate degrees, in 2023 Applied Science (11: 2 MS and 9 PhD), Computer Science (24: 16 MS and 8 PhD), and Physics (13: 6 MS and 7 PhD) conferred 39.3% of the graduate degrees of A&S (48 out of 122). Focusing on PhD degrees in particular, the 24 degrees conferred by these 3 units in 2023 represent 80% of the overall number of doctorate degrees conferred by Arts and Sciences (30 in 2023). Over the period 2021-23, these three units have conferred 66% of the doctorate degrees of Arts & Sciences (64 out of 97).

III.b Significant increase in enrolled undergraduate majors

Data on enrolled majors in Computer Science, Data Science, and Physics are shown in Table 5. As of Spring 2023, the three New School units are collectively home to 598 majors, or 9.1% of the Arts & Sciences. This represents an increase of 15% from the previous year (520 majors), compared to the university-wide growth (3.5%) over that same period.

Table 5: Declared majors in New School Units (2022 and 2023)

Unit	Enrolled Majors 2022	Enrolled Majors 2023	Percent annual change
Computer Science	295	331	+12.2%
Data Science	119	155	+30.2%
Physics	106	112	+5.7%
University Total	6,370	6,593	+3.5%

IV. Research Profile of the New School

The four units comprising the New School already grant PhD degrees. The four units also share a strong commitment towards pursuing externally funded research and publishing in high-impact publications. Because these are rapidly evolving fields with graduate education and graduate-level research informing undergraduate offerings as well, it is crucially important that these units remain at the forefront of their respective fields.

IV.a Sponsored Research Profile

In FY 2023, the combined level of research expenditures for three of the four New School units (Physics ($4.8M), Applied Science ($1.2M) and Computer Science ($2.3M)) totaled $8,403,760. This amounted to 65.5% of the total research expenditures of Arts & Sciences that year ($12,829,313), as shown in Figure 2. (Data Science only started fully operating in August 2022; during the first year of its operations, it collected $1.8M in externally funded research projects).

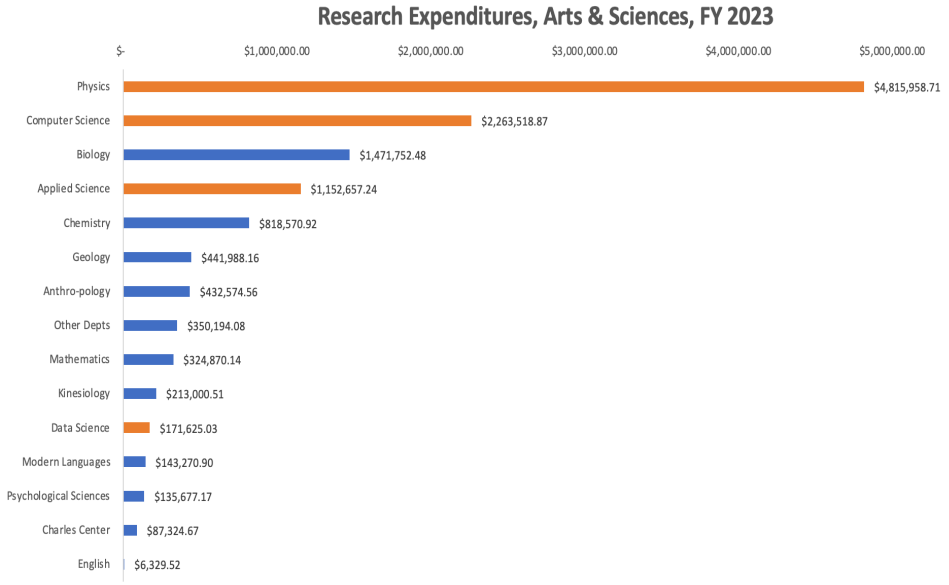

Figure 2: FY 2023 research expenditures in Arts & Sciences
(New School units shown in orange)

Five-year trends in research expenditures for the period 2019-2023 are shown in Figure 3 (below). They show growth of 25.9% in research expenditures within the units of the proposed New School over that same period. These figures suggest a healthy projection for the research portfolio of the New School. In addition, the assessment is certain to be even more positive once it accounts for the emergence of Data Science research projects as a full contributor to these figures.

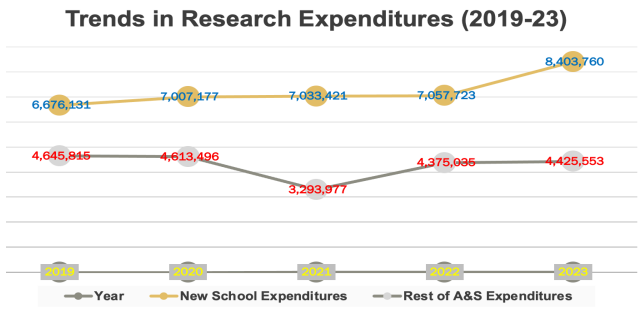

Figure 3: Five-year trends in research expenditures of New School units and the rest of A&S

(excluding Data Science, which was not established until 2023)

Figure 4 frames the New School units' research expenditures with the university-wide portfolio. As we see, the $8,403,760 of the three units represent 15.4% of the university total (Williamsburg and VIMS combined, $54,567,003). When considering the Williamsburg campus total alone ($32,004,583), the New School units' expenditures represent 26.3% of that portfolio.

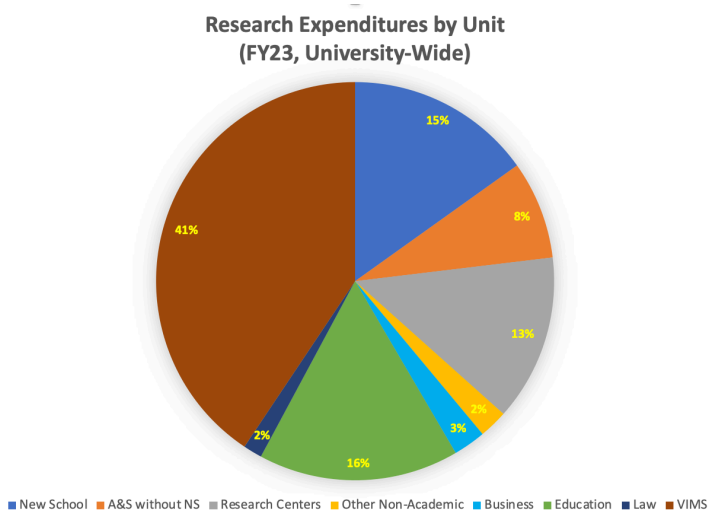

Figure 4: FY 2023 university-wide research expenditures per unit

IV.b Research Impact: Citations

Figure 5 shows the affiliations of the top-30 most-cited W&M authors, with the New School units contributing 54% (16/30) of these top-cited researchers.

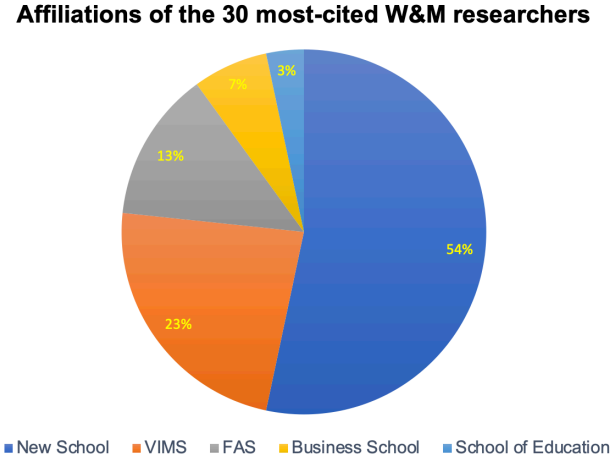

Figure 5: Research impact contributions: New School units are the academic home of 54% of the top-30 most-cited William & Mary authors (source: scholar.google.com)

V. The New School and the Emerging Workforce and Regional Landscape

William & Mary appears well positioned to place increased emphasis on computing, data science, and physics in the years ahead. As noted above, student interest in these programs at William & Mary is strong: the university has witnessed a 39% increase in applicant interest for these fields as a whole over the past 10 years. Below we frame the workforce landscape in the corresponding disciplines, and some relevant regional trends.

V.a Workforce Landscape

Nationwide, there is strong demand for **computer science** experts in government and public sectors, in corporations of all sizes, in nonprofit organizations, and at colleges and universities. A principal reason for this growing demand is the economy's greater need for professionals in information security, cloud computing, and big data collection and analysis. Moreover, as firms increasingly expand their operations to digital platforms, professionals with computer science and information systems degrees will be responsible for implementing their goals, and demand will grow, resulting in an even more promising IT job outlook in the years ahead. The Bureau of Labor Statistics (BLS) projects a 22% growth in computer and IT jobs (15-1221) from 2022-2032 (a trend characterized as *much faster than average*). About 3,400 openings for computer and information research scientists are projected each year, on average, over the decade. The highest concentrations of employment are in the California, Florida, Virginia, Texas, and Maryland.

Data science jobs are increasing as well as big data and technology industries experience skyrocketing growth. Data science graduates in particular have been fully employed in a variety of positions in nearly every industry including health care, retail, and technology (with a special concentration of growth in northern Virginia in particular). This trend is expected to continue for the foreseeable future, even as the number of graduates substantially increases. The U.S. Bureau of Labor Statistics projects a 35% growth in data science jobs (15-2051) from 2022-2032 (a trend characterized as *much faster than average*). About 17,700 openings for data scientists are projected each year, on average, over the next decade. The highest concentrations of employment are in the DC metro area, California, New York, Texas, and Florida.

Research and testing services, the federal government, and education are the major employers of **physics** graduates. Students with a physics degree are especially well-positioned to take advantage of the market trends in computer and data science. The U.S. Bureau of Labor Statistics projects a 5% increase in physicist jobs (19-2012) from 2022-2032 (a trend characterized as *faster than average*). About 1,500 openings for physicists are projected each year, on average, over the decade. The highest concentrations of employment are in the California, Illinois, Maryland, Colorado, and New York. In addition to these traditional employment pathways, our Physics majors also pursue careers in engineering and tech fields, often benefiting from their Engineering Physics and Applied Design (EPAD) track experience. Approximately 50% of our Physics graduates took jobs in technical positions (ranging from web developers and systems engineers to business technology and financial analysts), making the workforce aperture of our physics offerings much broader and thriving than traditional programs in the field.

According to a 2023 study from the U.S. News and World Report, the positions of information security analyst, software developer, and data scientist are ranked among the top jobs in the nation in terms of pay and demand. This is reflected in national student enrollment trends, with student enrollment in computer and information sciences at four-year institutions growing at the fastest pace among all majors in the period 2019-2023 (a 30.7% growth over that period, from 455,077 to 595,212). This may be the most important indicator of growing and sustained interest in the academic offerings of the New School.

V.b Regional Trends

New academic schools and units recently established in the Commonwealth (at George Mason, UVa and ODU) cannot truly be viewed as competitors for the New School going forward. William & Mary's exceptional faculty and students in these academic disciplines - combined with its long tradition of deep commitment to the liberal arts and sciences - will shape and influence the offerings of the New School, allowing it to shine even more brightly in this academic space. By emphasizing collaborative research and other interdisciplinary connections with the rest of the university, the student experience at William & Mary will be elevated in fields outside the core offerings of the New School, setting it apart from its peers within the Commonwealth.

This past year, several new schools emphasizing the disciplines and fields that comprise the New School have been established, demonstrating an emerging nationwide trend at universities with a wide variety of profiles. The institutions that have chosen to occupy this space in the academic landscape range from national universities to small liberal arts colleges. Examples include a new College of Computing, Data Science, and Society that was launched at Berkeley, a new College of Computing at the New Jersey Institute of Technology,

a new School of Computer and Data Sciences at the University of Oregon, and a new School of Computing and Information Sciences launched at the liberal arts-oriented Willamette University.

In addition to these academic trends, the New School will be a direct beneficiary of current developments in the Commonwealth. In October 2023, the Federal Government selected Jefferson Lab (JLab, a Department of Energy National Laboratory) in Newport News as the lead for a new High Performance Data Facility (HPDF). This $300-500M effort will transform JLab from a single mission National Lab (in Physics) to a lab pursuing a broader agenda that matches that of the proposed New School -- namely computing, data, and physics. This presents yet another growth opportunity for William & Mary's New School. New School units have already been collaborating with JLab, with Physics leading these collaborative activities for W&M. The evolution and substantial growth of JLab's portfolio will allow us to build on this established relation and diversify and augment these connections. Moreover, an on-going study by SRI International (primarily through its Center for Innovation Strategy and Policy) on behalf of the Commonwealth and coordinated by SCHEV (SCHEV RFP 245-120922) has recommended the establishment of a Data Science-focused collaborative across universities in the Hampton Roads/Peninsula region. Substantial funding is likely to support this activity in the years to come.

VI. Timeline and Implementation Process

This proposal to establish a New School of Computing, Data Science and Physics follows an extended process of the university soliciting input from and deliberating at length with multiple entities throughout the William & Mary community. In May 2022, the provost formed an ad-hoc design work group to explore the possibility of establishing a new unit in Computing, Data Science, and Engineering. The design team included the heads of Computer Science (CSCI) and Applied Science (APSC), representatives from all four William & Mary schools, and members of the dean's office in A&S. In June 2022, the group began to focus its efforts more specifically on a proposal for a school in CSCI, Data Science (DSCI), and Applied Science (APSC). In October 2022, the provost met with representatives of the Faculty of A&S (including members of the Faculty Affairs Committee) to discuss the state of the proposal. Following those meetings, the provost delivered the design work group's draft report to the faculty for more widespread consideration and feedback.

In December 2022, the provost appointed fifteen members to a university-wide Steering Committee for Computing, Data Science, and Applied Science. The Committee was asked to provide relevant data and options for moving forward in a report due by the end of the spring 2023 semester. To that end, it scheduled weekly meetings on Wednesdays during the spring semester, alternating between committee meetings and subcommittee meetings. It also invited comprehensive feedback from the community by (1) holding various town halls (both virtual and in-person); (2) attending meetings with faculty and student groups as well as other groups; and (3) conducting multiple on-line surveys.

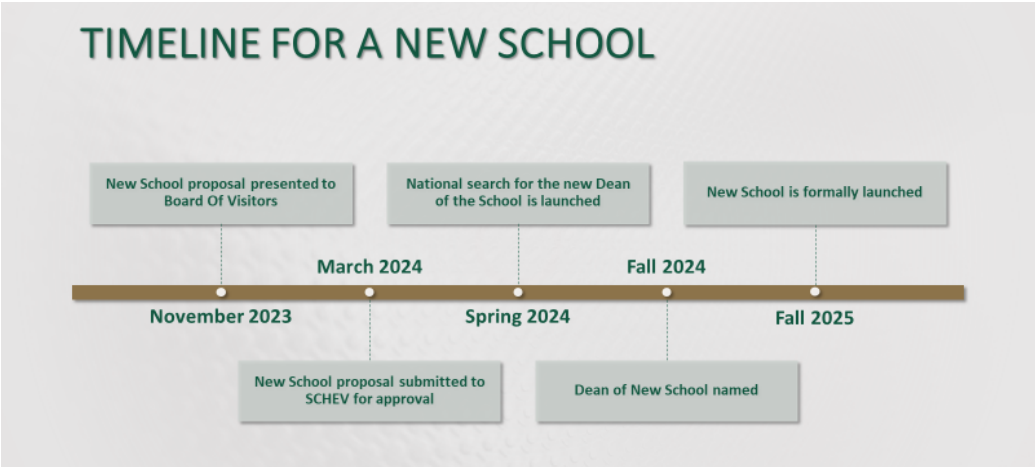

Figure 6: Timeline of next steps

Recognizing that expertise in computing, data science and applied science extends well beyond the faculty of the CSCI and APSC Departments (CSCI currently houses the DSCI unit), the Steering Committee invited requests for inclusion from other departments and programs who were interested in participating in this new academic unit. In response, the Physics Department expressed a desire to be an additional founding member of the new academic unit along with CSCI, DSCI and APSC. William & Mary officials chose to incorporate Physics into the New School proposal; they also considered all the other feedback that was generated.

The provost had on-going discussions with Faculty Assembly about the New School throughout the past year. On September 26, 2023, she discussed the key conceptual and operational parameters of the New School proposal, answered questions from assembly members and had the opportunity to receive additional feedback. The timeline for the next steps going forward can be seen in Figure 6.

An implementation committee will be formed by the provost in consultation with Faculty Assembly and other stakeholders to facilitate the transition phase. An internal and external market analysis will also take place to determine the formal name of the New School. As depicted in the timeline shown above, after BOV approval in November, the crucial next step in the establishment of a New School will be the development and submission of a proposal to SCHEV by March 2024 (see Appendix II for a draft template of the proposal content). Subsequently, a national search will be conducted for a dean to lead the New School, with the target of formally launching it in Fall ’25.

APPENDIX I: EXCERPT FROM THE SPRING 2023 STEERING COMMITTEE REPORT: "THE ARGUMENT FOR A NEW SCHOOL”

The core argument for the New School, as articulated by the leaders of the involved programs, was included in the Steering Committee Report appendices. It is also included below for quick reference.

Argument for a New School

A shared belief in liberal arts and science education

We all share a commitment to the fundamental principle of liberal arts education at W&M. Liberal arts education does not exist in the absence of strong, diverse fields and disciplines. Instead, it thrives by recognizing and respecting their distinct features and by providing educational opportunities that blend their strengths.

Accordingly, our mission is to provide pathways to knowledge for our students by establishing bridges across such disciplines. But, in order for our liberal arts education to be on par with the reputation of William & Mary and the outstanding quality of our students, these pathways need to connect academic peaks that represent the leading edge of each field. We must therefore be able to ensure that our individual units meet the standards of excellence that are defined in their respective fields. The faculty at William & Mary pride themselves as teacher-scholars and teacher-researchers. While scholarship and research come in different shapes across different fields, they are rather well-defined within each field. Exceptional professors in English tend to have similar profiles and exceptional professors in Computer Science tend to have similar profiles. However, these two sets of profiles are rather dissimilar. Our goal therefore is to respect the distinctiveness of each field and to allow each member of our academic community to pursue excellence as defined within their disciplines while ensuring that we work together for the benefit of our academic offerings.

The vertical dimension of graduate education

The principle of holistic education that is the driving force behind the liberal arts approach, is not applied only horizontally across fields, but also vertically within fields. Graduate education and graduate-level research are informing undergraduate offerings to keep them at the forefront of their respective fields. For academic fields that are undergoing rapid growth and change, a strong graduate program is a necessity and not an option for high-quality undergraduate education that is not inferior to other universities in Virginia. Typically, in such fields, the top teachers are also the top researchers.

The units that proposed the new school (Applied Science, Computer Science, Data Science) and the unit that has most recently expressed a desire to join (Physics) are prime examples of academic areas experiencing such rapid growth and change. Therefore, their faculty must be actively engaged with graduate-level research to ensure the quality of their undergraduate course offerings and research opportunities. From advances in cybersecurity, smart devices, and artificial intelligence and their implications on privacy and society, to developing new biomaterials and answering once intractable questions in nuclear, particle, condensed matter and plasma physics via computational methods, faculty of these units individually and jointly are pursuing scientific breakthroughs that advance science and reshape their disciplines. And when all units work together their potential impact is even stronger, as is the case with quantum computing, with physics and applied science focused on hardware-related issues, and computer and data science focused on developing appropriate algorithms and applications. The excitement in these areas is driving more students to William & Mary and our programs. Students come to W&M expecting that their teachers be experts in these topics. In order for our student degrees to be passports to successful careers, the immense value of our students’ liberal arts education must be complemented by an equally robust education within these four fields.

While these fields are advancing their essential body of knowledge, they are also impacting the broader academic community, and society at large. From Data Science research, generative artificial intelligence arrived to dominate the news with the emergence of ChatGPT, changing everyday life and even education.

Computer science research in cybersecurity is guaranteeing the integrity of elections and safeguards our personal information. In the realm of applied science, biomolecular engineering has impacted nearly every aspect of our daily lives from developing RNA-based vaccines and “smart drugs” to providing novel bioinspired materials such as self-healing concrete and sustainable, “green” alternatives to plastics. Indeed, synthetic biology has engineered safe microorganisms that can degrade plastics polluting our oceans and bioremediate toxic chemicals poisoning our environment. In Physics, there has been great excitement and recent progress towards the development of quantum computers and fusion energy, where the latter depends both on experimental efforts and the application of high-performance computing to model plasma behavior and reactor design. Accordingly, interest in these fields exceeds the fields themselves, and we want to ensure the presence of pathways for interdisciplinary collaborations, ranging from the collaborative development of innovative COLL offerings and undergraduate student experiences, to the development of joint faculty collaborations across campus that can lead to innovative sponsored research projects.

The need for a new administrative structure

The units pursuing the establishment of the new school are driven by the need to remain at the forefront of their rapidly evolving domains. This requires agility in their pursuit of new academic offerings, whether they are COLL courses, certificates, or joint degrees (e.g., on cybersecurity, with the Business and Law Schools), and a level of financial autonomy that will facilitate targeted growth and the continued critical mass of research groups. A&S represents a heterogeneous collection of departments and programs, with differing goals and priorities; a single administrative structure can neither adequately represent nor provide optimal support for this range of constituents. Decisions made in the name of broader interests have often served to discount the specialized needs of the units who initially proposed the formation of a new school. The fact that Physics has expressed a willingness to join the Applied Science, Computer Science and Data Science units in their effort is a reflection of the fact that Physics has experienced similar difficulties.

It is our conviction that administrative autonomy should not result in academic disconnect. Students should be able to take dual majors across the new School and A&S, or Business, or Education, or VIMS in the future, and there is no structural reason to limit this ability. There is also no structural reason for the establishment of a new school to limit the ability of these units to continue collaborating with other units, just like there is no structural mechanism within A&S to actually ensure interdisciplinary collaborations. In order to move from collaborations by happenstance to a programmatic support for them, the new school can be designed to include formal structures to foster interdisciplinary collaborations (e.g., in the form of thematic “collaboratories”, or through formal affiliation models for individual faculty or programs).

The proposed new school will be a smaller unit with a shared mission and vision that will provide the administrative nimbleness that is desired by the engaged units. When designed with mechanisms in place to foster participation and collaboration, the new school could actually have the potential to expand interdisciplinary collaborations and opportunities beyond what is currently afforded within A&S.

APPENDIX II: TENTATIVE OUTLINE OF SCHEV PROPOSAL

The SCHEV Proposal will be an Organizational Change proposal. While the exact structure of the proposal will be finalized with SCHEV feedback, below is a draft template of the proposal content.

1. Background
2. Purpose of Proposed Change
3. Mission
4. Closure/Consolidation of Existing Units?
5. Rationale for Proposed Change
6. Academic Programs
7. Resources
    a. Administration
    b. Faculty
    c. Graduate Assistants, Student Workers
    d. Space
    e. Other Costs
    f. Miscellaneous
8. Budget
9. Appendices
    a. Current Organizational Structure
    b. Proposed Organizational Structure
    c. Report of the CDSAS Steering Committee
    d. Organizational Structure within the Proposed School

APPENDIX III: PRELIMINARY FINANCIALS

Current operation budget of the four units

In FY 2023, the operating budget of the four units amounted to **$17.9M** (which included **$14.5M** of department-owned funds). This budget also includes dedicated Data Science and Computer Science funds (targeted funds contributed by the Commonwealth and marked specifically for these two programs) as follows:

- Tech Talent Investment Program: **$1,384,198**
- Data Science Fund: **$1,270,000**

Once the units move to the New School, their budgets will transfer to the New School as well, making this portion of the New School activities cost neutral. This budget will continue to evolve based on growth, and in accordance with student demand.

Projected cost of new hires

The additional costs associated with the establishment of the New School arise from new administrative hires that are required for the proposed administrative structure (see Section II.b). This cost has been summarized in Table 3 of section II.c (total cost estimate of **$1.1M**). This cost represents the *additional* level of support that may be deemed necessary to establish the proposed New School.

Generated tuition

Assessing the tuition generated by a unit in a liberal arts environment where students are expected to take courses beyond their major is an inherently complicated task. The tuition generated by the first majors (junior and senior classes) of these 4 units in FY23 was estimated to be **$11,575,000**. Considering a similar tuition pattern for the pre-major phase of these students (freshman and sophomore classes), the total university tuition generated by students pursuing degrees in these four units annually is roughly estimated to be **$23M**.

Indirect generated through extramural funding

In AY 2023, research expenditures generated by Applied Science ($1.15M), Computer Science ($2.26M) and Physics ($4.82M) amounted to $12.83M. The total indirect cost generated by these expenditures of Applied Science ($291,145), Computer Science ($521,311) and Physics ($1,200,702) in AY 2023 amounted to **$2.0M**.

As mentioned in Section IV.a, Data Science is in the process of building a research portfolio comparable to Applied and Computer Science, having already collected $1.8M in externally funded research projects. Annual Data Science research expenditures should reach an additional ~$350K of annual indirect funds for the New School, bringing its total annual indirect generation to **~$2.4M**.

Growth opportunities

The growth trends of the units in terms of majors and research expenditures are communicated in Sections III and IV respectively. A growth of majors in 2024 by15% (similar to the growth from 2022 to 2023) would lead to a growth of generated tuition by **$1.7M** (upper class majors), and **$3.4M** overall (for all four years). Similarly, a growth in research expenditures by 10% (half of the 2022-23 growth of Figure 3) is projected to generate an additional **$250K** in recovered indirect funds.

Beyond these trends, four additional drivers for revenue growth are currently available for the New School.

1. The recent selection of nearby JLab by the Department of Energy to develop a High-Performance Data Facility (HPDF, a project with a budget in the range of $300-500M) is providing obvious growth opportunities for the New School units. First, HPDF is expected to generate growth of research activities in all four units of School. Additionally, the corresponding regional influx of new high caliber researchers in the fields of computing, data science, and physics, should result in numerous opportunities for high caliber Affiliate and Bridge Faculty to be added to the New School in the years to come. Lastly, there will be opportunities to offer training to current and incoming Lab personnel.

2. Furthermore, a study commissioned by SCHEV and conducted by SRI on the “Design and Feasibility of a Data Science Innovation Collaborative in Hampton Roads / Tidewater” has recommended that the Commonwealth supports the Data Science program at W&M with an additional annual fund of **$750K** to support new faculty hires and research activities. Furthermore, the study also recommends a funding model

comparable to the existing Commonwealth Cybersecurity Initiative (CCI) to support innovative research activities, student internship opportunities, and technology transfer activities for the local Data Science academic entities, with a proposed annual budget in the **$3-$4M** range. We can reasonably expect that our School will benefit from these activities as well.

3. Computer Science is already close to meeting its 2029 TTIP target of 121 majors per year. With the new school in place and new initiatives for undergraduate certificates and concentrations expected in the coming years, we are in fact well positioned to ask the State for an increase in our TTIP funding. TTIPs offers $34K per additional student. CS projects to surpass 150 majors per year by 2029, which amounts to $1M in additional funding.

4. Finally, while the member units of the New School maintain robust undergraduate and PhD programs, entry graduate programs in these fields (including MS and Graduate Certificates) remain underexplored. There exist numerous opportunities to offer certificates, executive programs, micro-credentials, and MS-level training to companies and other agencies here and in the broader DC area. Sample new programs include: (1) an MS in CS Pathways (for students lacking a formal undergraduate degree in computing); (2) an MS in Cybersecurity; (3) an MS in Data Science; and (4) an MS degree in Quantum Computing (jointly offered by all 4 units).

A total of 40 students in these programs (averaging an annual tuition of $25K each) would generate **$1M** annually in tuition. A newly appointed Dean and an Associate Dean for Advancement and Outreach will likely explore these and other philanthropy opportunities.

Table 6: Projected budget model including major revenue and expense trends: major budget line categories (column 1), current budget lines (column 2), projected budget lines for FY25, FY26 and FY27 (columns 3-5), and relevant assumptions (column 6). FY24 revenue streams exceed expenses, a pattern that will continue, with future revenue growth allowing for School growth to align student demand and research growth with new faculty lines.

Category	FY24	FY25	FY26	FY27	Assumptions
Expense: Operational Cost	($17.9M)	($18.9M) Note: S, D1	($20.8M) Note: S, D2, C1	($22.4M) Note: S, C2	**D1, D2:** Hiring of a Dean in FY25 (D1, $500K, including fringe benefits), and the rest of the Dean team in FY26 (D2, $600K, incl. fringe). **S:** Annual salary raises by 3%.
Income: Dedicated Funds (TTIP and DATA)	$2.65M	$2.65M	$3.4M Note: C1	$4.4M Note: C2	**C1, C2:** Incorporation of potential gradual raise of TTIP and DATA Commonwealth fund support (by a total of $1.75M) starting in FY26 (C1, $750K) and continuing in FY27 (C2, $1M)
Income: Tuition generated (majors & pre-majors)	$23M	$27.3M Note: T	TBD	TBD	**T:** Tuition estimate for FY25 includes a projected growth in majors of 15% and a tuition rate increase of 3%. Tuition estimates beyond FY25 will be projected based on further analysis, aligning student demand with additions in faculty FTE.
Income: New graduate level tuition revenues (new programs)	-	-	$1.0	$1.5M	See item 4 of Appendix III
Income: Indirect generated (F&A)	$2.0M	$2.4M	$2.7M	$3.0M	A 20% increase in FY 25 due to the addition of the Data Science portfolio, 10% increases in FY26 and 27