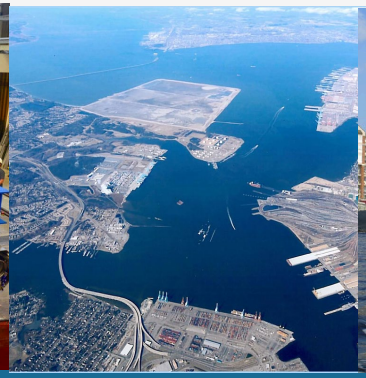
HAMPTON ROADS
EXECUTIVE ROUNDTABLE



Building Our World-Class Digital Talent and Innovation Pipeline

Nancy L. Grden, President & CEO
CONVERGENCE - September 28, 2023

GO Virginia Region 5:

Priority Industry Clusters: 2021 Growth & Diversification Plan
(2023 Update Underway)

- Port Operations, Logistics, and Warehousing
- Advanced Manufacturing
- Cybersecurity, Data Analytics, and Mod-Sim
- Shipbuilding and Ship Repair
- Water Technologies
- Uncrewed Systems and Aerospace
- Clean Energy
- Life Sciences

Situational Assessment Scan Strategic Pathways for Advancing Data Sciences in Hampton Roads

- ***Executive Summary***
- ***Overview and Key Findings***
- ***Strategic Implications***
- ***Partnership of Roundtable, ODU, W&M***

September 2023

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Project Objective and Approach

Forward-looking and market-driven situational assessment of Data Sciences in Hampton Roads: To advance talent development, applied research, entrepreneurship, and collaborative innovation.

- Applications of data science to specific industries and markets – leverage industry and university/federal lab activities and competencies found within a region - key to identifying and advancing regional growth opportunities.
- **Three key steps for project effort:**

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The “Story Line” for Hampton Roads Data Sciences Pathway: Summary of Key Findings and Recommendations

- Data science applications and innovation activities are ramping up in Hampton Roads – job gains in data science-related occupations stand out in the region, with increasing awareness from regional stakeholders
- Federal civilian and military activities are by far the largest data science employer in region, while job openings are led by the region’s Defense Contractors and Healthcare Organizations
- Talent generation is growing, but lags state and national trends and is not sufficient to meet demand in more technical and advanced areas of data sciences
- Emerging base of research activities in the region with significant enhancements and planned investments underway that can position the region nationally if coordinated across the region’s research institutions to reach scale
- Expanding and unique Digital Infrastructure in the region is resulting in a ramp-up of data operations centers and supports through the regional fiber ring the future growth of Data Science activities across the region, such as for Health Disparities and Coastal Resilience
- Industry engagement and deployment in Data Sciences activities is uneven with few broad-based industry collaborations, need for stronger connections to growing academic programs, and concerns on depth of industry deployment

Emerging Data Sciences Innovation Ecosystem in Hampton Roads

Innovation Ecosystem Element	Leading Regional Assets	Highlights of Regional Position
Basic Research	Research Universities: ODU, W&M Federal Labs: NASA, JLab	• Emerging with existing but small research base and many planned enhancements • New Joint Institute with Jlab-ODU advancing
Applied Research & Translation	VMASC (Defense) HRBRC (Population Health) Possible Jlab National User Real-Time Supercomputing Facility	• Established strengths in systems engineering with VMASC • Emerging efforts in population health at HRBRC • Base of SBIR companies
Talent Generation	Old Dominion University; W&M; Christopher Newport University; NSU Norfolk State University	• Growing academic programs, but lagging state and U.S. trends • Business Analytics largest area and well-aligned with industry demand • Advanced Computing fields falling short of demand
Innovation	DSIP Defense SBIR/STTR Innovation Portal – Proposal Submissions 757 Accelerate Powered by TowneBank	• VC activity in a very small cohort of successful companies – but limited pipeline • Robust base of SBIR companies largely focused on defense applications
Industry Competitiveness	Region's Defense Contractors & Military Bases Port of Virginia Region's Digital Infrastructure: Int'l Undersea Cables + Regional Fiber Ring	• Region transforming into a leading Internet Hub involving a wide-array of Data Center operations • Limited industry collaborations and networking activities in data sciences • Concerns that industry application more towards data analysis than data sciences

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Stakeholder Perspectives on Demand Drivers

Military Operations

- Strong demand for business analytics for military operations in the region given high-level command responsibilities for organizing, manning and equipping forces
- Base of homegrown defense providers, including SBIR awardees and VMASC, with emphasis on model-based systems engineering skills serving broader national defense needs

Shipbuilding & Off-Shore Wind

- Manufacturing oriented activities in Hampton Roads
- Each has a strong preventive maintenance requiring that will benefit from data sciences
- Growing use of data sciences for addressing applied business problems in shipbuilding, tapping growing digitization of manufacturing processes and machinery

Healthcare and Health Disparities

- Regional health providers utilizing data sciences for patient engagement, improving healthcare delivery and risk management
- Increased community engagement activities on addressing health disparities using data sciences

Port Operations and Logistics

- Port of Virginia is one of the nation's leading ports in the use of technology in its operations – has an "automated yard" that supports tracking, inspections, scheduling, etc. and requires increasing use of data analytics and cybersecurity.
- Broader logistics community deploying more traditional data analysis tools and still need to make the leap to more advanced data sciences

Climate & Coastal Resilience

- ODU active in coastal resilience and NASA active in climate research with JLab seeking to increase their research focus as part of new Data Sciences efforts.
- Region offers ongoing testing, demonstrating and scaling activities underway with RISE engagement of innovation companies working in coastal resilience and climate adaptation and ODU's research offshore wind turbines testbed -- one of two offshore energy research lease sites in the U.S.
- Communities in Hampton Roads actively seeking to address challenges of sea level rise and coastal resilience

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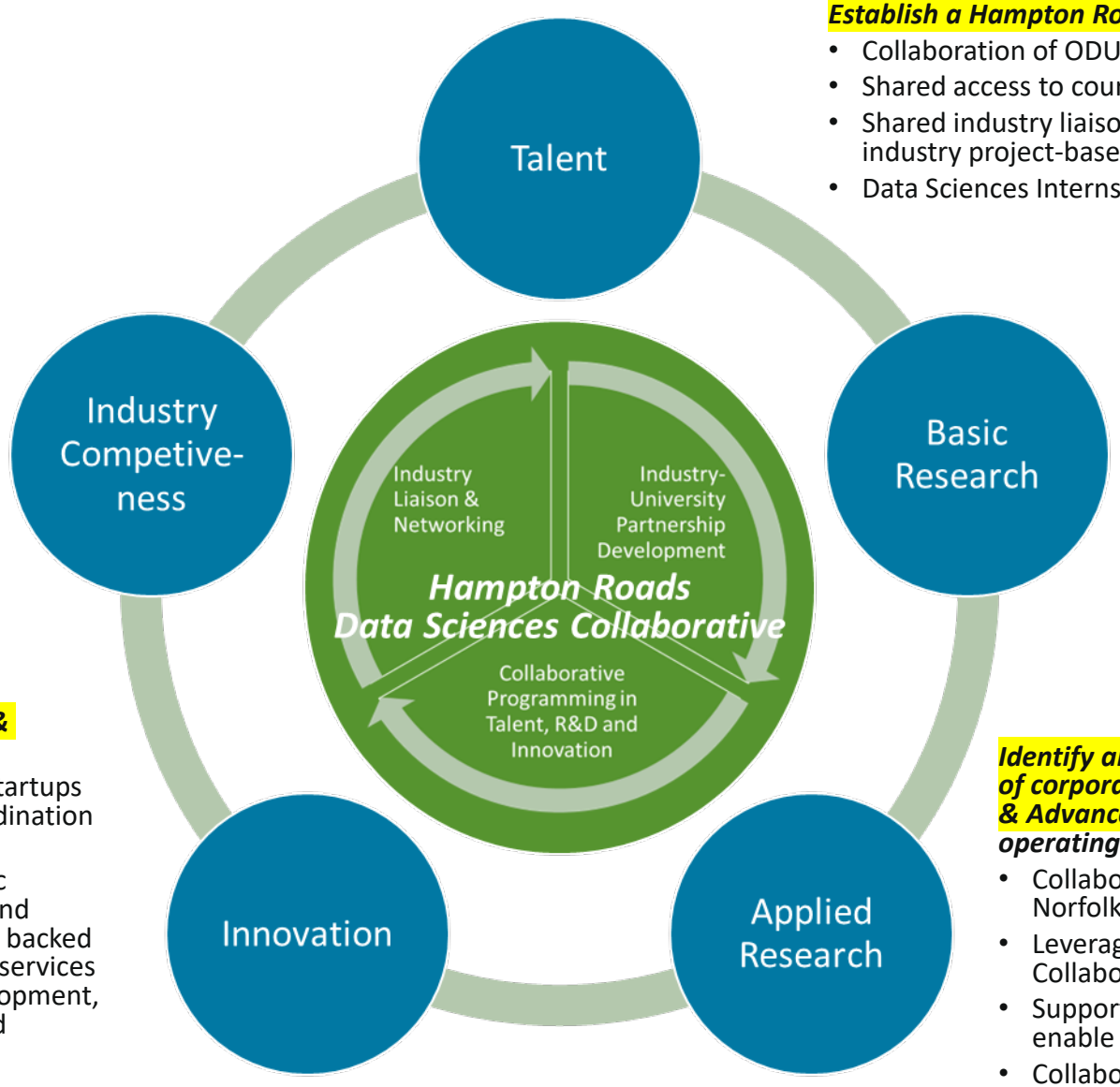
Summary of Strategic Action Plan

Establish a Hampton Roads Data Sciences Talent Institute

- Collaboration of ODU, W&M, Norfolk State and CNU
- Shared access to courses
- Shared industry liaison staff from HR D/S Collaborative for industry project-based learning and mentors
- Data Sciences Internship and Graduate Fellowship Program

Promote Regional Networking and Deployment of Data Sciences

- Target networking and programming in data sciences for leading industry clusters
- Support peer-driven networking events around data sciences including meetup groups, incumbent worker short courses and technical seminars
- Establish a Data Sciences Industry Deployment Pilot Initiative for Supply Chain and Logistics Applications to small and mid-sized enterprises (SMEs) with matching grants for planning and accessing consultants



Create an "umbrella" Multi-Institutional Data Sciences Center of Excellence focused on applications relating to lead industry clusters

- Collaboration of Jlab, NASA Langley, ODU, W&M, Norfolk State and CNU
- Create multi-institutional faculty fellows in data sciences to collaborate on project-based research topics
- Provide access to pilot grants to help compete for larger federal research funding

Promote Data Sciences Innovation & Entrepreneurial Development

- Create a cohort of data sciences startups via targeted programming in coordination with 757 Accelerate
- Advance a data sciences economic gardening initiative to serve "second stage" SBIR and emerging venture backed companies with access to growth services include market and product development, mentoring and revolving loan fund

Identify and advance opportunities for the development of corporate innovation centers focused on Data Sciences & Advanced Computing with major corporations operating in the region

- Collaboration of Jlab, NASA Langley, ODU, W&M, Norfolk State and CNU
- Leverage Industry Partnerships function of the HR D/S Collaborative
- Support proof-of-collaboration matching grants to enable industry-university partnerships to be initiated
- Collaborate with leading industry cluster organizations – HR Biomedical Research Consortium, HR Maritime Collaborative, Coastal Virginia Center for Cyber Innovation

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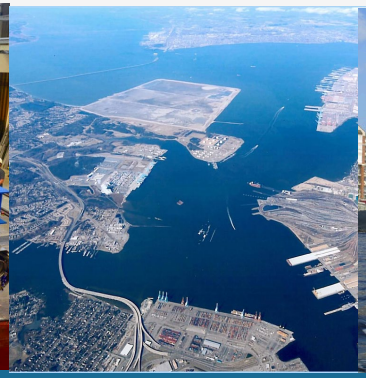

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