The “New” Virginia Economy: Not Business as Usual
Translating Education and Workforce Efforts into Economic Success
Panelist Slides

November 21, 2014
Educational Challenges & Recommendations

Superintendent Pamela R. Moran, Ed.D.
Albemarle County Public Schools
November 21, 2014
Challenge: Transition from 20th Century to Contemporary, Creative Economy

- Our industrial base has shifted.
- Jobs that fit the profile of 21st century key industries are disappearing and being replaced by lower paying jobs.
Challenge: Increase Rigor in the Face of Shifting Demographics

- The poverty level is increasing, as is limited English proficiency.

- Demographic shifts yield opportunity gaps.

Changing Demographics in Albemarle

Economically Disadvantaged

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Limited English Proficient

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Challenge:
Align PK-12, Higher Education & the Workforce Community

- As three detached entities, we do not work together to create effective strategies to combat critical issues.

- Our goals and objectives lack alignment, which yields intangible results.
Challenge: Ensure Students Have Access to Necessary Resources

- Preparing our students for success hinges on access to high-quality teachers, modern learning facilities, broadband, and contemporary technologies.

- Success in the workforce requires integration of the skill sets acquired through core subjects that are being taught as if they are disconnected.

- Across the state, professional development occurs by chance, dependent upon the resources available in each school system.
7 Opportunities to Work Together

Align Education Pipeline to Lifelong-Learning:

- Provide high school seed funding to build Innovation Zones.
- Focus on integrated curriculum and assess mastery of soft, applied/technical, and thinking skills.
- Facilitate the transition to adulthood by increasing access to internships and independent study and emphasizing digital portfolio development.
- Redefine Career & Technical Education to support the creative economy.

Close Opportunity Gaps:

- Invest in building teaching workforce capacity.
- Systematically build a statewide pre-K program.
- Ensure access to broadband/technology devices.
Every Learner’s Success Matters!

Graduates who have actively mastered the lifelong-learning skills they need to succeed as 21st century learners, workers and citizens

Our community, our quality of life, and our economic vitality
Billy K. Cannaday, Jr., Ed. D.
Creating a Diversified 21st Century Workforce
Creating a Diversified 21st Century Workforce

• Diversified Faculty: Content and workplace understanding

• Graduates with “T-shaped” credentials

• Aligned PreK-16+ system of education
21st Century learning, work, and life skills design

Skills and Competencies valued across all workplaces and roles

Critical Thinking  Communication  Collaboration
Creativity/Innovation

Unmatched knowledge of a high demand skill, process, service, or product
Workforce Challenges and Opportunities

Bill Murray, Ph.D.
Managing Director of Public Policy,
Dominion Resources
Key Challenge: Our Competitors Have Four Times as Many People—We Need All Hands on Deck

Projected Population 2025 (in millions)

- United States: 347
- India: 1352
- China: 1471
We Need to Prevent Losing Talent at All Stages

**Early Years**
You actually can be a scientist, engineer, or even a statistics teacher in college if you don’t take Algebra by age 12

**K-12 Education**
What if all of higher education thought of mid-career adults like MBA programs do?

**Middle Age**
We need more employment models between full-time work and full-time retirement

**Retirement Age**
Retirees make great career coaches, because they’ve actually worked and managed a career

- Under-employment of young adults, worries about a “lost generation"
- Returning veterans are a key opportunity to build the world’s best workforce
Cognitive Dissonance

STEM Summit 2013: How do we get more women interested in STEM careers?

Health Workforce Taskforce 2013: How do we get more men interested in healthcare careers?
Three Things Educators May Wish to Consider

✓ Less exclusionary messaging on STEM—it really is never too late, even if you take Algebra in your thirties

✓ Discard the phrase “mid-skill;” there’s nothing mid-skill about welding a $5 billion pipeline, operating a nuclear station, restoring power after a hurricane, or constructing a modern building

✓ Recognize that employers are a lot more about what an applicant can do than what degree they have (and just as a reality check try to remember the last time someone asked you what your GPA was)

  ▪ By the time you get a new degree program set up for the hot field of the moment it may well have peaked already
Three Things the State May Wish to Consider

- An online portal for accessing apprenticeship opportunities for high school graduates

- Forming partnership with community colleges and employers to launch a crash program aimed at rapid re-employment of 2008-2014 college graduates currently working in low-skilled jobs
  - This is hard for four-year institutions to hear, but the community colleges can help their graduates develop the needed career skills and it is happening already, albeit without a formal program

- Drawing on lessons learned from the many successful mid-career MBA programs in the state to make other opportunities available to mid-career adults to advance or, when needed, reboot their career
COMMONWEALTH AT THE CROSSROADS

Post-Recession

• US Downsized private and public workforces
• Aggressive moves by competitor states
  – Business-friendly policies & regulations, Increased marketing efforts, Enhanced incentive packages & programs
• Fewer economic development projects in the marketplace, creating intense global competition
• No longer rely on accolades and rankings
  – Just last week, Virginia fell to No.4 in the Forbes Best States for Business study (Virginia had previously never ranked lower than No. 2)
  – Dropped from No. 1 in 2011 to No. 8 in 2014 in CNBC’s Top States for Business
• Anemic job creation
FEDERAL PRESENCE

- 19 Military Installations
- 100+ Federal Facilities
- 540+ Federal Leased or Owned Properties
- 65+ Unique National Guard Facilities
- 25,000+ Federal Contractors

Source: Systems Award Management, GSA, VEDP
VIRGINIA JOB CREATION (12/2007-9/2014)

Great Recession: 143 jobs lost

Recovery: 127 jobs gained

Source: Bureau of Labor Statistics
REGIONAL VIEW - HAMPTON ROADS

Assets
- Federal Assets: Naval Facilities, Wallops Island
- Port of VA
- Skilled/Educated workforce, trained military personnel
- Higher Ed: William & Mary, ODU, EVMS, Norfolk State, VCCS
- Tourism: Colonial History, Oceanfront, Naval History
- Companies: Huntington-Ingalls, STIHL, Perdue Farms, Alcoa-Howmet

Challenges
- Remote connectivity to population centers, citizens desire to maintain local culture
- Dependence on military

Strategies
- Diversify economy to reduce impacts of sequestration
- Promote environmentally-based/agribusiness development
- Global Attraction, especially Port supported
- Strategic Partnerships with Federal and State Assets
REGIONAL VIEW - VALLEY

Assets
• Distribution Assets: I-81, I-64, Inland Port, Heartland & Crescent NS Rail Corridors
• Strong manufacturing base: Food Processing, Life Sciences
• Tourism: Mountains, Rivers, Blue Ridge Parkway
• Higher Ed/Innovation: VA Tech Carilion School of Medicine, JMU, VMI, Shenandoah University, VCCS, SRI
• Strong Agricultural Industry
• Companies: Rubbermaid, MeadWestVaco, Advanced Auto, McKee Foods

Challenges
• Citizens desire to maintain local, rural culture
• Mountainous terrain, lack of large flat land parcels

Strategies
• Target industry outreach: Food & Beverage, Hospitality, Advanced Manufacturing
• Tourism, Outdoor Industry, Emerging Business
• Support Existing Business

Regional Marketing Organizations
Roanoke Regional Partnership • Shenandoah Valley Partnership
HEADWINDS OF CHANGE – SME

**ECONOMIC FACTORS**
- Access to capital
- Health Care costs
- Energy costs
- Regulations, Federal and State
- Workforce, soft skills and tech skills

**CUSTOMER INTERESTS**
- Succession Planning
- Balance: Market vs. Assistance
- Government Contract Diversification
- Customer Contract diversification

**TECHNOLOGICAL INNOVATIONS**
- Technology Evaluation, the pace of acceptance and adoption...
- Cyber security
- Additive Manufacturing Automation

**PLATFORMS**
- Mobile computing
- Cyber security
- Cloud computing

**STANDARDS**
- ISO Standards
- ROHS
- CE
- ITAR
- Import/Export: Harmonized codes etc
- OSHA
- EPA
- DOL regulations
- Medical device standards

**STANDARDS**
- ISO 9001 - 2015
- ROHS (2)
- Food Standards - GMO, HACCP
- NIST Standards

- Baby Boomer retirees
- Lack of succession planning
- Re-shoring
- Adapting to new markets, diversify customer base

- Diverse workforce
- Finding new markets
- Ability to innovate

- Supply Chain
- Contract Manufacturing
- Start up management talent…transition

- Diverse workforce
- Finding new markets
- Ability to innovate

- Skilled Labor Pool – Cost Share
- Cost Reductions
- Operating capital
- Short term ROI

- Diverse workforce
- Finding new markets
- Ability to innovate

- Unmanned transport machines
- Humanoid robots
- Model Simulations as enabling technology
- Technology life cycle costs

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TALENT AND WORKFORCE RESOURCES

INSTITUTIONS OF HIGHER LEARNING
VIRGINIA’S HIGHER EDUCATION

Source: VEDP, 2011
VIRGINIA’S RESEARCH ASSETS CREATE NEXT-GEN AEROSPACE TECHNOLOGIES

There are 255 aerospace firms employing 30,300 people, which creates a direct economic output of $7.2 billion. In the past ten years, 67 aerospace industry companies have announced almost 7,400 jobs and over $1.7 billion in investments.

National Institute for Aerospace — conducts research and awards advanced degrees in aerospace engineering through a partnership with nine universities

Commonwealth Center for Aerospace Propulsion Systems — a joint UVA / Virginia Tech / Rolls-Royce research effort

National Center for Coatings, Application, Research, and Education — develops applied coating solutions with manufacturers in its advanced manufacturing laboratories
ACTIONS TO MOVE FORWARD

• Align and Invest in **Talent** Development Coalitions and Capabilities
  – Create Regional “Front Doors” - Business Services Teams - delivering talent with credentials that are meaningful to business (VEDP/VJIP)
  – Support strategic investments in:
    • Non-credit training & certifications – VCCS, DOE
    • Apprenticeships – DOLI
    • Distributed education – PRODUCED in Virginia (UVA); Commonwealth Graduate Engineering program (VT, UVA, VCU, GMU, ODU)
    • Higher Education Equipment Trust Fund
  – Assess the impact of a Virginia Talent Investment Loan Program (VSBFA)
ACTIONS TO MOVE FORWARD

- Map, Brand and Connect Virginia’s *Innovation* Resources to Support Growth of a Diverse Business Ecosystem
  - Support business-sector led higher education research consortiums in strategic sectors that connect world-class intellectual capabilities with Virginia businesses
    - Commonwealth Innovation Centers: CCAM, CCALS, Catalyst, MAAP, VOWDA, VNECA
  - Support high-growth companies through demonstrated state stakeholder coalitions that maximize business transition from federal-dependency to new markets
    - Genedge, VEDP, CIT, SBDC, VCEN, VT, ODU, VSU, PHCC = Coalition focused on high-growth second-stage companies in targeted sectors
  - Invest in entrepreneurial education programs (Local K-12)
ACTIONS TO MOVE FORWARD

• Catalyze *Regional* Strategies in Talent and Innovation Capabilities
  – Provide support to map regional capabilities and workforce to use as baseline to drive strategies that ensure sustainable and healthy economies (Planning District Commissions, EDAs, State Partners, Business Leaders)
  – Support regional economic development initiatives and organizations that ensures connectivity with business leaders (Various state agencies)
DIVERSIFYING AND INNOVATING THE NEW VIRGINIA ECONOMY

Senate of Virginia
November 21, 2014
Presentation to Virginia Senate
November 2014

Linda Fowler, Founder
Regionerate Approach

**Identification:**
What are your assets and how could they be connected?

**Activation:**
What are your priority collaborative investments?

**Support:**
How do you leverage and sustain collaborative innovation?
Challenges and Opportunities

• Firms need support to grow and thrive:
  ➢ Talent
  ➢ Broader Markets
  ➢ Technology and Expertise
  ➢ Funding

• Regions need to improve coordination and collaboration to support targeted opportunities for greater impact
Model: Integrated Asset Networks

- **Entrepreneurs and Innovation**: Networks to support entrepreneurs and existing companies
- **New Career Networks**: More flexible and responsive set of options for individuals and companies
- **Regional Branding**: New, coherent, compelling stories of how a region can leverage strengths to transform its economy
- **Place-Based Investments** that support recruitment and retention of businesses and employees
Key Focus Areas to Support Virginia Businesses

- **Trained workers**- talent development system that is flexible and demand-driven
- **Broader markets**- new customers/new markets including international
- **Access to new technologies**- federal labs and university facilities, expertise, and IP
- **Funding resources** to support firms and the innovation ecosystem
Hampton Roads Region- UVS Case Study

• *Conducted Industry Analysis and Asset Mapping* to determine market opportunities and gaps in innovation infrastructure

• *Linked and Leveraged Regional Assets* such as intellectual property, applied research, testing facilities, incubators, education programs, seed funding, expertise

• *Applied for Proof of Concept Center funding*
New and Emerging Market for Hampton Roads

Aerospace/Aviation Cluster

IT Cluster

Defense/Security Cluster

Unmanned Vehicle Systems Cluster

Aerial/Underwater Monitoring of:
- Ports
- Agriculture

Cyber-Security (enabled by remote sensors, robotics, nano-satellites)
Recommendation #1: Trained Workers

- Understand employer demand for critical occupations (e.g., Machinists)
- Design new flexible maps for careers pathways and education pathways
- Link training to new technologies and changing workplace needs.
Recommendation #2: Broader Markets

• Understand what percentage of products and services are being imported into region
• Work with large buyers to understand the white spaces in the industrial value chain and close the gaps
• Support companies and startups to access timely market intelligence
• Provide export assistance
Hampton Roads Case Study: Sensors

- Search, detection, & navigation instrument manufacturing with over 400 employees is a major industry in the region.
- Data suggests a relatively small supply base located in the region in the industries that would typically show up.
- Value chain gaps in industries like: software development, industrial high speed drives, electrical equipment, and guided vehicle production (both air and underwater).
Recommendation #3: Access to New Technologies

• Create networks to solve common technical challenges such as Joining and Bonding of Dissimilar Materials for Lightweight Structures

• Showcase Technologies for investors and companies based on market pull

• Replicate distinctive practice models such as Adopt a City and Technology Road Shows that link NASA expertise to small companies
Link Technology Sources to Technology Adopters with a Market Pull Model

U.S. Manufacturers
Technology-based growth and competitiveness needs

Technology Needs of U.S. Manufacturers

Making the Connection
• Connecting manufacturers with solutions and opportunities
• Providing product development & commercialization assistance
• Leveraging 3rd party partners

Technology Sources
Technologies available for commercialization from the Nation’s Research Laboratories:
• Universities
• Federal Labs
• Private Sources

Technologies Translated into Product Concepts
Recommendation #4: Funding Resources

• Create a balanced portfolio of funders-federal, state, private, and philanthropic-needed to support ongoing efforts
• Align co-investors to seed, incubate and scale what works
• Cultivate strong corporate community support
• Collaborate on federal grants
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<th><strong>Pam Moran</strong></th>
<th><strong>Billy Cannaday</strong></th>
<th><strong>Bill Murray</strong></th>
<th><strong>Liz Povar</strong></th>
<th><strong>Linda Fowler</strong></th>
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- Focus on integrated curriculum and assess mastery of soft, applied/technical, and thinking skills.  
- Facilitate the transition to adulthood by increasing access to internships and independent study and emphasizing digital portfolio development.  
- Redefine Career & Technical Education to support the creative economy. | Diversified Faculty  
- Prepare and retain the next generation of teachers.  
- Focus on critical shortage areas including career and technical education, mathematics and those teaching high need students.  
- PreK 16+ System Focus  
- Ensure alignment of Virginia’s K-16+ system (curriculum, assessment, accountability, and accreditation) produces a diverse high-quality workforce. | Establish an online portal for accessing apprenticeship opportunities for high school graduates.  
- Form partnership with community colleges and employers to launch a crash program aimed at rapid re-employment of 2008-2014 college graduates currently working in low-skilled jobs.  
- Draw on lessons learned from successful mid-career MBA programs in the state to make other opportunities available to mid-career adults to advance or, when needed, reboot their career. | Talent Development Coalitions  
- Create Regional Workforce “Front Door” Business Services Teams.  
- Assess the impact of a Virginia Talent Investment Loan Program.  
- Map, Brand and Connect Innovation Resources  
- Support business-sector led higher education research consortia.  
- Support high-growth second-stage companies through stakeholder coalitions.  
- Maximize business transition from federal-dependency to new markets.  
- Invest in entrepreneurial education programs. | Targeted Worker Training  
- Map employer demand for critical occupations.  
- Link training to new technologies and changing workplace needs.  
- Close Opportunity Gaps  
- Invest in building teaching workforce capacity.  
- Systematically build a statewide pre-K program.  
- Ensure consistent access to broadband/technology devices.  
- “T-shaped” Credentials  
- Incentivize the K-16+ system to graduate students with skills and competencies valued across all workplaces.  
  - Critical thinking  
  - Communication  
  - Collaboration  
  - Creativity  
  - Innovation | | | Broaden Regional Markets  
- Identify products and services being imported into a region.  
- Work with large buyers to close the gaps in industrial value chain.  
- Support startups access to timely market intelligence.  
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  - Creativity  
  - Innovation | | | Regional Development Strategy and Innovation Capability  
- Map regional capabilities and workforce to drive strategies that ensure sustainable economies.  
- Support regional economic development initiatives that ensure connectivity with regional business leaders. | | | Coordinate Funding Resources  
- Create a balanced portfolio of federal, state, private, and philanthropic funders  
- Align co-investors to seed, incubate and scale what works.  
- Cultivate strong corporate community collaboration for federal grant applications. | | |