

# 2014-16 Strategic Plan

## Institute for Advanced Learning and Research [885]

### Mission

*The Institute for Advanced Learning and Research serves as a regional catalyst for economic transformation. The Mission will be accomplished through applied research, advanced learning and economic development.*

### Vision

*The Institute for Advanced Learning and Research will be recognized as a valued regional leader by successfully leveraging resources and partnerships.*

### Values

**Creativity and Passion:** The Institute for Advanced Learning and Research (IALR) sustains an energetic work environment by fostering innovation, encouraging risk-taking, learning from mistakes, celebrating current and past achievements, and promoting individual growth and creativity.

**Character and Respect:** IALR defines our relationships and community by valuing and embracing individual diversity, teamwork, constructive conflict, integrity, honesty, fairness, caring, and mutual respect.

### Finance

#### Financial Overview

For the fiscal year that concluded June 30, 2014 (FY 2014) the Institute for Advanced Learning and Research's (IALR) primary source of funding was the state appropriation of \$6,123,574. Additional revenues during this fiscal year include rental income, grants from private foundations, and final proceeds of federal and capital grants.

During FY 2014 the finance department worked diligently to accomplish enhancement of cash management functions to enable greater utilization of state appropriations and to establish cost containment measures for operational expenditures. Staff development and cross training for a multifunctional finance team was completed allowing the team to achieve their goal of closing each month within five days of month-end. Greater financial efficiencies were realized for the agency with the final conversion of the Financial Systems (Phase 3) that included barcode retrieval of fixed asset data along with the development of, and modification to, internal processing procedures.

It is important to note that even with improved financial policies and procedures, the agency remains at a crossroads and must develop sustainable solutions beyond its campus. Although a hybrid entity, IALR's goal is to make a difference in the lives of those residing within the region. The challenge, as well as the inhibitor, is obtaining adequate funding to allow IALR to move forward with new and innovative programs and services.

Interdependence between the agency's three vital components is the key to success and sustainability: applied research with a focus on commercialization, advanced learning where "education meets experience" and economic development as the net result.

IALR is placing emphasis on four main areas: aerospace/automotive, agriculture (bioenergy crops), food and beverage, and polymers and plastics. IALR also defined analytical technologies as a research area of interest. In the advanced learning realm, IALR is committed to supporting workforce development initiatives as well as advancing and expanding STEM-H (science, technology, engineering, mathematics and health).

To reach sustainability in all areas, it is critical that IALR receive an increase in funding. Even a modest increase to the base budget would make a difference.

It is integral to IALR's success to ensure continued engagement with regional partners, connecting with the needs of industry, and capturing occasions to provide experiential learning opportunities, especially with Virginia Tech, Averett University and regional community colleges.

IALR is an innovative organization working to provide economic benefit to the region. The agency's strategic plan emphasizes the creation, development and commercialization of technology critical to Southern Virginia's economic prosperity. The IALR is aligning its research programs with the strategic economic plans of the Southern Virginia Region and of the Commonwealth. These plans include advancing Virginia's existing businesses, attracting new businesses and making Virginia the Energy Capital of the East Coast by growing traditional and alternative energy production, jobs and investment.

## Biennial Budget

	2015 General Fund	2015 Nongeneral Fund	2016 General Fund	2016 Nongeneral Fund
Initial Appropriation for the Biennium	6,123,574	0	6,123,574	0
Changes to Initial Appropriation	-306,179	0	-306,179	0

(Changes to Initial Appropriation will be 0 when the plan is created. They will change when the plan is updated mid-biennium.)

## Customers

### Anticipated Changes to Customer Base

**DECLINING POPULATION:** The population in the agency's footprint is declining (U.S. Census Data 2013 Estimate). The Institute for Advanced Learning and Research (IALR) is challenged with maintaining the number of participants that attend advanced learning programs as well as the number of attendees to conference center events.

**AGING POPULATION:** Coupled with a declining overall population is the increase in the number of residents over age 65; 1.8 million by 2030 in Virginia according to Virginia's Four-Year Plan for Aging Services. IALR will continue to evaluate the impact of the "Age Wave" as it relates to the types of outreach programs provided to the region. The Age Wave will also impact workforce development as the trend continues for retirees to go back to school for additional training in their chosen career or to develop a new career.

**INCREASE IN STUDENTS DUE TO ON-SITE EDUCATIONAL PROGRAMS:** The agency has partnered with New College Institute, Danville Community College, Danville Public Schools and Pittsylvania County Public Schools to bring the Academy of Engineering & Technology (AET) program to IALR's campus in Fall 2014. There are 24 students enrolled which will add to the agency's regular Governor's School student population. Additionally, the agency continues working with Danville Community College to obtain funding for CAPSTONE, a flow-cell machining program, that will bring 40 students to the IALR campus during the first year with anticipated growth to 140 and upward as the program expands. The revised goal, necessitated by funding needs, is to begin the CAPSTONE program by Fall 2015. These students will join the Piedmont Governor's School and AET students who are already housed in the IALR Main building, thus increasing the on-site student population.

### Current Customer List

Predefined Group	User Defined Group	Number Served Annually	Potential Number of Annual Customers	Projected Customer Trend
Student	K-12 Students	8,083	48,977	Increase
Adult	K-12 Educators	385	3,700	Increase
Higher Education Institutions	Private and For-Profit 4 and 2 year institutions, and other public educational insitutions/regional education centers in Virginia	13	72	Increase
Adult	Adult 18 - 65 years old	1,889	191,648	Increase
Consumer	External Conference Event Attendees	16,963	188,000	Increase
Consumer	Community Participants	1,730	85,675	Increase
General Assembly	Elected Senators and Delegates	140	140	Stable
Local or Regional Government Authorities	City Councils and County Board of Supervisors wthin the agency's footprint	33	65	Increase

## Partners

Name	Description
Outreach Programs	Chambers of Commerces in the Service Region; area non-profit service organizations; private business; local government; K-12 school districts
Research Programs	Research & Development Labs, Colleges, Businesses
Technology Programs	Entities increasing the level and types of technology available in the service area region
Academic Programs	Higher Education Institutes; Community College System; K-12 school districts

Economic Developers	City, County and university based economic development offices throughout the service region; the Southern Virginia Regional Alliance (SVRA); regional economic development organizations such as MidAtlantic Broadband and the Commonwealth Center for Advanced Manufacturing; state agencies such as the Virginia Economic Development Partnership and Department of Agriculture
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## Agency Goals

### • Forge effective public and private partnerships

#### Summary and Alignment

This goal includes key strategies in business recruitment and development, workforce preparation, and applied research. Although a hybrid entity, the Institute for Advanced Learning and Research (IALR) is committed to making a difference in the lives of those residing within the region. Toward that end, it is critically important that IALR develop sustainable solutions beyond its campus. These solutions can only be accomplished by developing and maintaining strong partnerships with area economic developers, chambers of commerces, businesses and industries, and educational institutions including both K-12 and postsecondary levels.

#### Associated State Goal

Economy: Be a national leader in the preservation and enhancement of our economy.

#### Associated Societal Indicator

Employment Growth

#### Objectives

#### » Support and provide workforce preparation opportunities within the region

##### Description

The Institute for Advanced Learning and Research (IALR) will enhance workforce preparation opportunities within the region by collaborating with business and educational partners to continue existing workforce preparation programs along with developing and providing new opportunities. Maintaining a well prepared workforce with the appropriate skill sets is critical to retaining existing businesses as well as to recruiting new industry to the area.

##### Objective Strategies

- Support the region's efforts to become a Certified Work Ready Community and encourage use of the National Career Readiness Certificate
- Launch the Capstone program in collaboration with Danville Community College
- Launch the Academy of Engineering & Technology (AET) in collaboration with K-12 school divisions, New College Institute, Virginia State University, Danville Community College, Danville City and Pittsylvania County Public Schools
- Support development of a Cradle-to-Career effort in partnership with Averett University
- Continue to serve as the location for Governor's School, and provide space and technology for distance learning classrooms for Averett University and Virginia Tech University
- Establish expanded adjunct faculty, guest lecture partnerships and short courses
- Increase IALR's collaborative efforts with SoVa Motion and the National Tire Research Center to upgrade the Modeling and Simulation equipment

##### Measures

- ◆ Number of active economic development, business development and applied research projects for which there is a known deliverable
- ◆ Number of science, technology, engineering and mathematics (STEM) participants
- ◆ Ratio of dollar value of "in-kind" services provided to the region in the advancement of the Institute for Advanced Learning and Research's mission of economic transformation (numerator), over State Appropriations (denominator).

#### » Increase applied research activity

##### Description

The Institute for Advanced Learning and Research (IALR) will fully utilize employed scientists as well as scientists affiliated with university partners to increase applied research activity at IALR that will, in turn, impact economic development within the region.

##### Objective Strategies

- Work with research universities to aid in fully understanding the performance of key crops/plants/soil to identify and develop commercialization opportunities

- Vet the viability of a unique advanced materials and structures testing center in conjunction with the National Institute of Aerospace, the National Aeronautics and Space Administration, and Virginia Tech University to provide industry with a specialized service and create a mechanism to further workforce development
- Identify and collaborate with those utilizing polymers (commercial and academic) to expand knowledge and improve processes
- Support further development of innovative technologies with the Commonwealth's research universities including but not limited to Virginia Tech, Old Dominion University and the University of Virginia.

Measures

- ◆ Number of known deliverables for active economic development, business development and applied research projects
- ◆ Ratio of dollar value of "in-kind" services provided to the region in the advancement of the Institute for Advanced Learning and Research's mission of economic transformation (numerator), over State Appropriations (denominator).

» **Contribute to existing business expansion and development**

*Description*

The Institute for Advanced Learning and Research (IALR) will support existing industry in the region and enable expansion through partnerships that utilize the expertise of our scientists and our existing equipment. The use of these existing resources can result in a significant cost savings to existing industry. Additionally, such a partnership can promote creative opportunities for existing industry. Through collaboration with the Southern Virginia Regional Alliance, the Virginia Economic Development Partnership and other partners, IALR will also provide resources to regional economic development offices to enhance recruitment of new businesses to the region.

*Objective Strategies*

- Support and assist economic developers within IALR's footprint with recruiting new businesses
- Obtain agreements with existing industries for contract research to be performed at the Institute for Advanced Learning and Research
- Support SoVA Motion and the National Tire Research Center in their efforts to expand
- Strengthen and support entrepreneurs such as the Launch Place and university partners
- Continue and improve collaborative relationships with key groups such as the Southern Virginia Regional Alliance, Virginia Economic Development Partnership, Mid-Atlantic Broadband Communities Corporation and the Commonwealth Center for Advanced Manufacturing

Measures

- ◆ Number of active economic development, business development and applied research projects for which there is a known deliverable
- ◆ Number of known deliverables for active economic development, business development and applied research projects
- ◆ Ratio of dollar value of "in-kind" services provided to the region in the advancement of the Institute for Advanced Learning and Research's mission of economic transformation (numerator), over State Appropriations (denominator).

» **Support and assist economic developers within the Institute for Advanced Learning and Research's footprint with recruiting new businesses**

*Description*

The Institute for Advanced Learning and Research (IALR) will partner with economic development representatives within the agency's footprint to promote the region and enhance opportunities to recruit new businesses to the area. During fiscal year 2014 IALR partnered with the Southern Virginia Regional Alliance to aid in solidifying and strengthening economic development efforts.

*Objective Strategies*

- Strengthen and support entrepreneurs (e.g. Launch Place and/or university partners)
- Provide support to regional economic developers

Measures

- ◆ Number of known deliverables for active economic development, business development and applied research projects
- ◆ Ratio of dollar value of "in-kind" services provided to the region in the advancement of the Institute for Advanced Learning and Research's mission of economic transformation (numerator), over State Appropriations (denominator).

• **Build the region's science, technology, engineering, mathematics and health (STEM-H) capacity**

**Summary and Alignment**

This goal aligns with the Institute for Advanced Learning & Research's (IALR) mission of developing and attracting technology and talent critical to Southern Virginia's economic prosperity. IALR will advance and expand professional development opportunities for PK-12 teachers and other educators, facilitate science, technology, engineering, mathematics and health (STEM-H) disciplines throughout the PK-12 curriculum, develop and implement collaborative programs that anticipate the needs of the region, and develop and implement an educational pathway to facilitate PK through graduate education. In addition to aligning with the State's long term goals, these actions align with the State's Education objective of maximizing higher education access and with the State's Economy objective of building additional educational and innovation capacity in Southside Virginia.

#### Associated State Goal

Education: Elevate the levels of educational preparedness and attainment of our citizens.

#### Objectives

##### » Advance and expand Science, Technology, Engineering, Mathematics and Health (STEM-H) educational opportunities for the Southern Virginia region

###### Description

By advancing opportunities in the science, technology, engineering, mathematics and health (STEM-H) area, the Institute for Advanced Learning & Research (IALR) aligns with the Secretariat Priority of attracting and preparing young people for STEM-H areas. Providing and promoting STEM-H opportunities contributes to workforce preparation as well as business recruitment and retention.

###### Objective Strategies

- Support development of a regional 'career expo' to expose middle school students to career paths and opportunities
- Co-sponsor and produce the annual STEM-H Summit
- Become actively involved with the State's STEM-H pipeline initiatives and increase work-based learning/training programs
- Identify and implement opportunities to assist K-12 teachers in obtaining STEM-H endorsement
- Collaborate with regional industries and work with local school systems to provide opportunities for teachers to gain on-the-job experience that can be taken back to the classroom
- Support development of career pathways aligned with the identified industry sectors and STEM-H opportunities
- Provide summer camp opportunities for K-12 students
- Collaborate to obtain a larger STEM Mobile Lab

###### Measures

- ◆ Number of science, technology, engineering and mathematics (STEM) participants
- ◆ Ratio of dollar value of "in-kind" services provided to the region in the advancement of the Institute for Advanced Learning and Research's mission of economic transformation (numerator), over State Appropriations (denominator).

#### • Support and inspire life-long learning

##### Summary and Alignment

More so than ever in the past, life-long learning has become the norm and expectation of today's society. No longer is high school and college graduation sufficient to maintain skill sets and the ability to adapt in a fast paced work environment. Additionally, "Virginia's Four-Year Plan for Aging Services" reports that lifelong learning ranks high as a positive influence in maintaining health and overall quality of life for older adults. The Institute for Advanced Learning and Research is committed to supporting and promoting life-long learning opportunities.

##### Associated State Goal

Education: Elevate the levels of educational preparedness and attainment of our citizens.

##### Associated Societal Indicator

Lifelong Learning

#### Objectives

##### » Increase opportunities for the region's citizens to participate in life-long learning activities

###### Description

The Institute for Advanced Learning and Research will encourage, provide and facilitate life-long learning educational opportunities.

###### Objective Strategies

- Provide recertification and continuing education opportunities

- Provide computer literacy classes and internet access for the public at large
- Broadcast classes from/to partnering institutions leveraging the Institute for Advanced Learning and Research's technology and infrastructure
- Facilitate and provide Massively Open Online Courses (MOOC) and cohort based environments
- Provide workshops and seminars of interest to the region's citizens
- Encourage the Institute for Advanced Learning & Research (IALR) staff to seek life-long learning opportunities

#### Measures

- ◆ Ratio of dollar value of "in-kind" services provided to the region in the advancement of the Institute for Advanced Learning and Research's mission of economic transformation (numerator), over State Appropriations (denominator).

## Major Products and Services

### Services provided by the agency include:

- Workforce development
- Internships for high school and college students as well as educators
- Scientific research and development
- Researchers' expertise and lab equipment available to small business owners through consultative services and contract research
- Program management services (commercialization, applied research & educational)
- STEM Mobile Lab travels to schools and organizations
- Advanced Learning loaner equipment program for educators
- Summer Camps to increase students' exposure to STEM
- Economic development support provided by competent experienced personnel
- Programs that focus on the adult learner
- Distant learning classrooms
- Conference Center space and services

### Anticipated changes to services include:

- Funding limitations will reduce the number of research and advanced learning programs the agency is able to provide and significantly restrict the agency's ability to partner with other institutions to develop and provide new research related initiatives as well as educational and workforce development programs
- Lack of additional space will restrict research and development projects

## Performance Highlights

The Institute for Advanced Learning & Research (IALR) is an innovative organization working toward providing economic and social benefit to our community. We are working to align IALR research programs with the strategic economic plans of our region and of the Commonwealth. Bio-based materials, traditional polymers, newly developed nanomaterials, and composites are all areas of interest in IALR's applied research department. During fiscal year 2014, biopolymer research using plant-derived proteins allowed the casting and production of films with improved plasticity and opacity quality over and beyond the prior year's research efforts.

IALR maintains ISO (International Organization for Standardization) certification for the agency's Analytical Chemistry Lab.

The agency's plant science research enterprise focuses on biotechnology; using the knowledge and experience gained from research to provide tools that will help lead to a stronger economy. Performance highlights in horticulture research include the beneficial microbe inoculation program that has shown enhanced growth and biomass accumulation for tobacco, indicating the potential to enhance regional tobacco crop yields. Tissue culture efforts have produced several school color daylilies, while plant breeding efforts have created several new ornamental lines for Amaryllis, as well as promising mutants with enhanced growth and biomass (Arundo), increased phytonutrient contents (tomato) and increased seed oil yield per acre (pennycress). "Smart Tables" were set up and successfully trialed to bring automated, robotic and remote sensing capabilities to plant growth analysis and environment monitoring for research and contract services

Parallel to IALR's research initiatives are advanced learning programs designed to increase learning opportunities, particularly in the STEM (science, technology, engineering, mathematics) disciplines and targeting "pre-K to gray." In March 2014, IALR hosted the second annual Southern Virginia (SOVA) STEM-H (-health) Summit, an event developed by IALR in partnership with New College Institute and the Southern VA Higher Education Center. The Summit brought together regional K-12 school districts, higher education institutions, businesses and community organizations with a focus on creating the next generation of STEM innovators. Over 140 high school students explored career options in STEM-H fields and over 100 educators and industry members participated in the Educator and Industry Convention. The STEM Summit represents a

best-practice of how regional collaborations can develop STEM capacity and this concept has been replicated in other parts of the Commonwealth.

The STEM Mobile Lab serves local K-12 schools, community non-profits and community colleges by traveling throughout the region to provide hands-on experiences. The Mobile Lab serves as a cost-efficient, non-duplicative resource that provides unique equipment and lab activities to students and citizens of all ages. Robots, 3-D printers, and collaborative technology activities engage students in teambuilding and problem solving. There were 11,686 participants who explored the STEM Mobile Lab during fiscal year 2014 including 385 teachers. A total of 32,184 participants benefited from spending time on the STEM Mobile Lab since fiscal year 2011.

The Academy of Engineering and Technology (AET) program began in Fall 2012 as a collaborative partnership between New College Institute, Virginia State University, Martinsville City Schools, and Henry County Public Schools. In Fall 2014, a new collaborative partnership between IALR, New College Institute, Virginia State University, Danville Community College, Danville Public Schools and Pittsylvania County Public Schools will begin with 25 Juniors enrolled in the engineering track on the IALR campus. The summer component of the program, known as Industry Fundamentals, began in June 2014 providing students with the opportunity to participate in a two-week paid experiential learning experience at IALR, New College Institute, and various industries throughout southern Virginia and North Carolina.

IALR's Advanced Learning department has increased the agency's focus on adult learners and is now offering both computer classes for any age adult along with STEM engagement for GED students. IALR also partnered with Danville Community College, Pittsylvania County 4-H Club and Library, Danville Science Center, Reynolds Homestead and the Center for Energy Efficient Design to reintroduce the Southside Summer Adventure (summer camps for K-12 students) which has been a huge success with 208 registered participants and waiting lists for many of the camps.

During IALR's reorganizational efforts the agency evaluated whether to expand its economic development involvement. A strategic partnership with the Southern Virginia Regional Alliance (SVRA) was formed enabling IALR and SVRA to work together to market the region globally to accelerate job growth and increase the tax base within the targeted footprint. Improvements in the economy, both nationally and internationally, have led to an increase in project inquiries into Southern Virginia. Through IALR's economic development outreach efforts, the agency has seen an increase in project inquiries through state, consultant and utility partners during the first half of calendar year 2014. It is anticipated that this trend will continue over the next 12 to 18 months as IALR increases marketing and outreach efforts.

The agency's conference center is an essential element for IALR's mission to drive economic development in Southern Virginia. Our Danville location highlights the surrounding area, accessibility to major expressways while offering exceptional conferencing services. IALR's conferencing services is a technologically advanced setting having options that will satisfy any event needs from executive and professional training to workshops, trade shows, receptions and single and/or multiple day conferences. Fiscal year 2014 saw an increase in space utilization with businesses opting to utilize our conferencing and meeting rooms.

## Staffing

Authorized Maximum Employment Level (MEL)	0
Salaried Employees	42
Wage Employees	3
Contracted Employees	0

## Key Risk Factors

Risk factors that are having a significant impact on the agency and will continue to do so in the near future include:

**RESEARCH:** Research funding via contract research grants and other sources is becoming more competitive, which impacts IALR's ability to expand the program. Additionally, during the past year IALR engaged in an overall reorganization of the agency to better align the department with regional needs. This led to unavoidable delays in hiring a polymer engineer and a natural products chemist which slowed the progress in some research initiatives such as bio-based film development, plant-derived molecule development as well as the spinning-tube-in-tube (STT) program development.

**ADVANCED LEARNING:** The 6 county, 2 city region that IALR serves is experiencing high unemployment and a high poverty level, which together have contributed to a declining population. With a declining population comes a reduction in the potential participant target for advanced learning programs. Increased options for online learning reduce the need/demand for face-to-face programming. A risk factor of lesser degree is the fact that IALR is not located on a bus line which hinders growth in community participation.

**ECONOMIC DEVELOPMENT:** The areas of training and workforce development are impacted by the national economy and global trade. More locally, threats to the region through environmental issues (coal ash spill, for example) are impacting efforts to recruit new businesses to the region. While not at risk at this moment, the success of regional economic development efforts depends heavily on continued support (both financial and organizational) on the part of local partner organizations as well as regional and state funding partners (e.g. Tobacco Indemnification Commission, Mid-Atlantic Broadband).

**ADMINISTRATIVE AREAS:** Like many agencies, IALR struggles with containment of benefit costs, funding for positions and training/employee development. Difficulty in identifying and attracting competent staff skilled in science, technology, engineering and mathematics (STEM) poses a risk to IALR. IALR is continually assessing demands placed on aging technology equipment due to high-usage and is concerned with the possibility of critical equipment failures. IT upgrades are contingent upon funding and prioritized based on the degree of funding received by the agency.

**FACILITIES:** The agency's main campus building and building systems are beginning to age, having been completed in 2004. IALR's current buildings are nearing capacity which places limitations on expansion of research and educational endeavors.

## Management Discussion

### General Information About Ongoing Status of Agency

The integrated mission of the Institute for Advanced Learning and Research (IALR) includes research, advanced learning and economic development. These components build upon existing regional strengths. The IALR is working on ways in which talent and resources can be used especially through collaborative efforts. These efforts are of special importance as the IALR works toward providing local manufacturers with opportunities that will enable them to compete in a global marketplace.

The agency will utilize the unique resources in our business and research community to optimize its polymer/chemistry and agricultural research venues. IALR's research efforts are geared toward creating opportunities for business and workforce development in these areas. During fiscal year 2014 IALR explored bio-composites (blending our assets in agriculture and polymers/chemistry) and agriculture research that included work with high value horticulture in conjunction with Virginia Tech, one of the agency's founding institutions. Research work continues on energy crops including Miscanthus and Arundo Donax.

Research work is also being performed with plant proteins as a source for polymers and enhanced crop performance to provide natural molecules that can be an alternative for those derived from petroleum. IALR's research labs have expanded from those dedicated to plant science to include those focused on polymer characterization and processing. During fiscal year 2014 IALR labs supported existing grants, internal research and local industry support.

Moving forward, IALR research endeavors will focus on application and commercialization of the products, technologies and processes developed by our scientists and technicians. While serving existing industry is an important aspect of the applied research mission, significant investment is being made in new product development that builds on technology and knowledge created within Virginia's basic research institutions, universities, NASA Langley, and Jefferson Lab to name a few. IALR's applied research organization expects to supplement the state budget allocation via commercial contract research awards, Federal or other institutional grants and business fee-for-service activities.

Advanced learning, where education meets experience, is integrated into every IALR research project through activities such as teacher internships as well as high school and college student internships, Governor's School student projects, researcher development and technical team development. The agency provides educational access via the Piedmont Governor's School, distance learning classrooms used by Virginia Tech and Averett University, and technical equipment made available to Danville Community College, Southern Virginia Higher Education Center and Virginia Tech. New programs initiated during fiscal year 2014 include the Academy of Engineering & Technology in partnership with the New College Institute, a Research-to-Commercialization Learning Agreement with the New College Institute, Workforce Forward with the Southern Virginia Higher Education Center and New College Institute, and public school system focused Aerospace Education with the Virginia Space Grant Consortium, NASA and the National Institute for Aerospace. Additionally, the STEM (science, technology, engineering and mathematics) program, that takes the science mobile lab to classrooms in schools throughout the footprint, continues to be very successful.

IALR's economic development department is responsible for aligning the agency's efforts with the need for economic and community transformation. IALR is committed to assisting local and State economic developers in any way possible as evidenced by the agency's renewed focus through a partnership with the Southern Virginia Regional Alliance (SVRA). The agency's first commercial spin-off, Dan River Plants, was launched July 1, 2013. Nine employees were initially trained around technology developed at IALR. This start-up business is projected to create at least 30 jobs by 2016. Seed funding was provided by the Danville Regional Foundation and IALR's Foundation.

Every initiative undertaken by IALR is evaluated on whether the project/action/activity will have an economic impact in measurable meaningful ways.

### Information Technology

#### Synopsis of current IT state:

Technology enhancements for IALR's instructional and meeting rooms continues to be refreshed using interactive touch screen technology integrated to standard display equipment of projector or computer, significantly improving the overall meeting, presentation and learning experience. During fiscal year 2014, IALR completed the upgrade to a real-time integrated Financial Accounting System, enabling greater efficiencies in the financial operations.

Other information technology solutions include beta testing cloud technologies using third party service providers for backup/recovery of data storage and intranet file sharing reducing the number of physical servers. IALR continues to research, test and evaluate technology solutions for multiple users' desktop and research lab data capture/retrieval.

#### The agency's most significant future technology needs include:

- Upgrading classroom and conference space wiring and audio/video equipment to digital format enabling webcasting, interactive distance learning classes and rebroadcasting of instruction using internet protocol
- Evaluation, implementation and training users on a software system that captures metrics in an efficient and productive manner

### Estimate of Technology Funding Needs

### Workforce Development

A significant number of managers will reach retirement age within the near future at the Institute for Advanced Learning & Research (IALR). 72.7% of managers are age 50 or older; 36% of managers are within 5 years of retirement. The wide disparity with the age of the current workforce (69% age 40 or older; 19% ages 30 to 40, and 12% below 30 years of age) makes it challenging to adequately implement a succession plan. Management is identifying key and hard-to-fill positions, scanning existing workforce for potential, and establishing steps needed to provide professional development. Development, skill and competency needs are incorporated into the performance review process and continuing education is encouraged.

Recruiting/retaining challenges include finding experienced, qualified individuals in the region's available workforce, especially in the science, technology, engineering and mathematics (STEM) fields. Efforts are focused on enhancing knowledge and skills throughout the organization. Through partnerships with the CSIIP (Commonwealth STEM Industry Internship Program) and local organizations, IALR sponsored internship programs working with 8 high school and college level students in STEM-related training as a potential solution to recruitment issues.

The IALR researchers are engaged in a collaborative discussion with corporate businesses (locally, state-wide and nationally) to strengthen the research efforts through expanded research and contractual services, and with presentations at national and international conferences.

Due to IALR's unique structure the state does not appropriate positions for the agency. Because IALR operates with a small, highly skilled, specialized workforce, the primary challenge the agency is facing is providing pathways for upward mobility.

### **Physical Plant**

The Institute for Advanced Learning and Research's (IALR) Main campus building contains administrative offices, research areas and a conference center along with leased space to entities engaged in research related activities. IALR Main is ten years old and is beginning to need increased maintenance.

A modification and expansion of uninterruptible power supply to support disaster recovery and prevent loss of data is required to bring the IALR into full compliance with Virginia's Continuity of Operations Plan (COOP) and disaster recovery standards.

Long term growth needed for the IALR's applied research programs to attract additional high technology enterprises requires extra space to house funded research projects and research services.

## **Supporting Documents**

<b>Title</b>	<b>File Type</b>
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## Regional Research, Technology, Education, and Commercialization Services [53421]

### Description of this Program / Service Area

The IALR service region includes: Danville City, Pittsylvania County, Franklin County, Halifax County, Henry County, Martinsville City, Mecklenburg County, and Patrick County.

### Mission Alignment

The Institute for Advanced Learning and Research (IALR) develops and attracts technology and talent critical to Southern Virginia's economic prosperity through advanced learning, strategic research and commercialization, outreach programs, and advanced networking and information technology. The IALR partners with higher education institutions, as well as public and private bodies and organizations in the region, as a means to that end.

One primary goal of this effort is to establish a strong research and development infrastructure enhanced by commercialization activities, which will enable companies to relocate to the region to be close to the capabilities that enhance their products and services. Another focus is to provide educational programs that will increase the region's skilled labor force and attract higher-paid, technology-driven employment to the region.

The IALR mission aligns with the Secretariat Priority of "Attracting and preparing young people for the STEM (science, technology, engineering, and math) areas and other disciplines." The mission also aligns with the Commonwealth's focus on encouraging "economic growth while preserving the environment by using energy more efficiently and by harnessing clean, alternative -- but still affordable -- energy sources."

### Products and Services

#### Description of Major Products and Services

Advanced Learning programs that build the region's STEM capacity

STEM Mobile Lab that travels, and provides hands-on experience, to schools within the region and beyond

Summer camps that provide affordable exposure to STEM subjects

Support of internships

Audio & Visual Technologies that support internal and external Conference Center activities

Conference center services

Contract research that supports existing businesses

Exploratory research utilizing the region's agricultural and polymer assets

New business development/expansion

Intellectual properties (IP) creation

Affordable access to the expertise of on-staff scientists with a variety of backgrounds and disciplines

Affordable access to lab equipment that many companies and entrepreneurs do not have available to them

### Anticipated Changes

With continued state revenue shortfall forecasts, the agency is focusing on obtaining more contracts, grants and increasing commercialization opportunities. These areas are very competitive. IALR is collaborating with our partners in a concerted effort to increase funding to enable us to maintain current advanced learning and research related services and to provide expanded services in these areas as well as to contribute to economic development within our footprint.

### Factors Impacting

The economic downturn during prior years resulted in the majority of area businesses either eliminating services or seeking alternative means of obtaining needed services which, in turn, impacted the services the Institute for Advanced Learning & Research (IALR) can provide to the citizens and businesses in the region. The state's revenue shortfall, and subsequent elimination of funding for all new programs, significantly impacted IALR's ability to expand the services provided to the citizens of our region.

IALR's main campus building is a very modern, forward thinking and impressive facility which helps our region overcome the "mill town" reputation. However, the building is now ten years old and in need of technology updates as well as maintenance to overcome normal wear and tear on a building of this age. Although the agency has done some upgrades, the level of funding received will impact when this much needed

work will be completed.

### Financial Overview

The IALR is an innovative organization working to provide economic benefit to the Region. The IALR strategic plan emphasizes the creation, development and commercialization of technology critical to Southern Virginia's economic prosperity. The IALR is aligning its research programs with the strategic economic plans of the southern Virginia Region and of the Commonwealth. These plans include advancing Virginia's existing businesses, attracting new businesses and making Virginia the Energy Capital of the East Coast by growing traditional and alternative energy production, jobs and investment.

#### Biennial Budget

	<b>2015 General Fund</b>	<b>2015 Nongeneral Fund</b>	<b>2016 General Fund</b>	<b>2016 Nongeneral Fund</b>
Initial Appropriation for the Biennium	6,123,574	0	6,123,574	0
Changes to Initial Appropriation	-306,179	0	-306,179	0

### Supporting Documents

**Title** **File Type**