

Strategic Plan
(2012-2014 Version 1)

Institute for Advanced Learning and Research (885)
Agency Plan

Mission Statement

The Institute for Advanced Learning and Research (IALR) develops and attracts technology and talent critical to Southern Virginia's economic prosperity.

Vision Statement

The Institute for Advanced Learning and Research (IALR) will enable economic and community transformation in Southern Virginia.

Values

Creativity and Passion: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.

Information Technology

Current Operational IT Investments

Planning is underway to revamp existing conference rooms and classrooms with updated technology. Working closely with the conference center staff the IT department will determine what upgrades will be scheduled. One of the major goals with this plan is to replace older analog technology with modern digital technology. The Finance and IT departments are working closely to implement a replacement accounting and document management system for the organization. (Note that the Institute for Advanced Learning & Research's (IALR) IT department does not participate in the VITA program.)

Factors Impacting the Current Agency IT

Several factors will impact the technology operation at the IALR. One factor is to be able to secure funding to maintain a cutting edge facility with base budget and a capital replacement fund. Also, as the academic and research programs expand, there will need to be additional IT personnel to support the operations and programs in these areas.

Proposed IT Solutions

The research and academic programs are growing. Because of this growth the Information technology operations will need to grow as well.

Financial Overview

For the fiscal year that concluded June 30, 2012 (FY 2012) The Institute for Advanced Learning and Research (IALR) was funded by a combination of grants from Federal, Tobacco Commission and local sources; State of Virginia appropriation funds; and smaller sources such as indirect cost recovery and rental income. In FY 2012 our State appropriated budget was \$5,522,968.

The IALR needs to increase its research and development (R&D) capacity in order to serve the needs of the polymer and chemical manufacturing industry cluster in the Southern Virginia Region. The General Assembly's addition of \$597,907 to our base budget for each year in the 2013 – 2014 Biennium, specifically for polymer and chemical advancement, will allow IALR to purchase equipment to serve the needs of established and new polymer and chemical manufacturing businesses, and hire scientists with skills in Polymer Chemistry, Materials Science and Analytical Chemistry. The increase in R&D capacity will enable the IALR to provide support to our business and academic partners so together we can produce or refine new products, technologies or processes that will lead to job creation. This capacity can also provide support to our economic development partners as they work to recruit new businesses to the region.

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.

Budget Component	2013 GF	2013 NGF	2014 GF	2014 NGF
Base	5,525,061	0	5,525,061	0
Changes to Base	597,907	0	597,907	0
Total	6,122,968	0	6,122,968	0

Agency Goals

- Revitalize the economy of Southern Virginia through innovative technologies

Goal Summary and Alignment

This goal supports IALR's vision of enabling economic and community transformation in Southern Virginia. Strategies connected to this goal include (1) developing and implementing bio-based energy and other emerging alternative energy strategies; (2) supporting research and development of novel and enhanced plant materials that have commercial relevance and value; and (3) fostering appropriate partnerships, both internal and external, to support economic revitalization. In addition to aligning with the State's long term goal regarding the economy, it aligns with the State's Economy objective of assisting companies that are making investments and creating jobs in Virginia.

Long Term Goal

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

Objectives for this Agency Goal

Objective

Revitalize the economy of Southern Virginia through innovative technologies with sustainable energy and technology.

Description

The Institute for Advanced Learning & Research (IALR) will develop and implement bio-based energy and other emerging alternative energy strategies that can enhance economic revitalization in Southern Virginia by increasing commercial ventures.

Objective Strategies

- Create jobs because of the Sustainable Energy and Technology Center (SENTEC)
- Develop an R&D Chemistry program focusing on service and research contracts that benefit and enhance regional businesses.
- Develop and implement bio-based energy and other emerging alternative energy strategies that can enhance economic revitalization
- Develop sustainable bio-based technology
- Identify and develop collaborative partnerships for the commercialization of bio-based technologies

Measures

- IALR will leverage State funds to obtain Grants & Contracts that factor into the Productivity Index

Measure Class **Productivity** Preferred Trend **Increase** Frequency **Annually**

Data Source and Calculation

This calculation will be determined by dividing total revenues received by the total state appropriations during the Fiscal Year as documented in the Finance Office.

- Active Partnerships Forged

Measure Class **Agency Key** Measure Type **Output** Preferred Trend **Increase** Frequency **Annually**

Data Source and Calculation

IALR will measure its active partnerships by the number of individuals involved (25 or more) and/or the level of financial resources committed (100,000 or more per year - not counting IALR staff salaries/wages or fringe benefits).

- Advance and expand Science, Technology, Engineering and Math (STEM) educational opportunities for Southern Virginia

Goal 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 and mathematics (STEM) 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.

Long Term Goal

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

Societal Indicator: Poverty

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

Societal Indicator: Poverty

Objectives for this Agency Goal

Objective

Advance and expand Science, Technology, Engineering and Math (STEM) educational opportunities for Southern Virginia

Description

By advancing opportunities in the science, technology, engineering and mathematics (STEM) area, the Institute for Advanced Learning & Research (IALR) aligns with the Secretariat Priority of attracting and preparing young people for STEM areas.

Objective Strategies

- Create strategic partnerships with educational organizations and the business community to leverage resources to support capacity development
- Develop STEM programs to promote interest and pathways to success

Measures

- Number of science, technology, engineering and mathematics (STEM) participants

Measure Class Measure Type Preferred Trend Frequency

Data Source and Calculation

This measure is calculated by totaling the number of participants who attend a science, technology, engineering, mathematics and health (STEM-H) program, course or workshop offered as documented in the Advanced Learning Department.

Programs and Service Areas for Agency

- 53421: Regional Research, Technology, Education, and Commercialization Services

Customers

Pre-Defined Customer Group	User Specified Customer Group	Customers Served Annually	Potential Annual Customers	Projected Trend in # of Customers
Adult	K-12 Educators	348	3,493	Increase
Adult	Adult Education Services	1,068	193,598	Increase
Student	K-12 Students	7,025	48,267	Increase
Student	Interns	16	50	Stable
Consumer	Conference Center Programs	1,523	3,500	Increase
Manufacturing	Manufacturers	5	7,675	Increase

Key Risk Factors

The Institute for Advanced Learning and Research (IALR) needs to increase its revenue stream so as to enable research and development, and educational programs, to be pursued. This revenue stream needs to be over and above state funds which cannot be relied upon. Without a concerted effort to maintain and increase state funds, and increase the number of grants and contracts awarded, the mission of the IALR will be severely compromised.

Factors that will have a significant impact on the agency over the next four years include:

State Budget: State appropriations must be used to provide operational funds to enable a functional Institute for Advanced Learning and Research (IALR) and the ability to pursue research and development (R&D). It is essential that IALR maintain our state budget to cover basic costs and enable staff to bring in extra revenue in grants and contracts.

Revenues: The IALR must generate extra funds to enable pursuit of relevant R&D providing maximum commercial impact.

Hiring Researchers and staff: Difficulty in identifying and attracting competent staff skilled in science, technology, engineering and mathematics (STEM) poses a risk to IALR.

Shrinking size of local industry/manufacturers: Lack of capital for companies to grow and also for new companies to start-up in the region will impact IALR.

Products and Services

STEM Outreach: The agency provides science, technology, engineering and mathematics (STEM) outreach programs for K-12 and community college students, and continuing educational opportunities for teachers.

Commercial Plant Sales: The agency's commercial spin-off, the Dan River Plant Propagation Center (DRPPC), produced the VT Spirit triploid daylily and the Lady Astor Rose. Danville adopted the Lady Astor Rose as the official City Flower and is planting it in beds throughout the City. The DRPPC is collaborating with local tobacco farmers to enable them to benefit from this commercialized entity.

Analytical Chemistry: This Lab will be restricted and used primarily for contracted work for companies requiring ISO (International Organization for Standardization) certified test results.

Energy Center: The Sustainable Energy Technology Center (SENTEC), one of five such energy centers in the Commonwealth, is a regional asset for the development of alternative energy. The Center's first tenant, Virdia, occupies the entire first floor and is a leading developer of extraction technologies for conversion of cellulosic biomass to highly refined fermentable sugars and high quality lignin.

Process Intensification Research Center: Evaluations of specialized equipment enabling manufacturing process determinations to be made on a small scale have been successfully completed. The agency will provide consultative services on a fee for service basis and will also create a collaborative partnership to develop the Center.

Bio-based Products: The bio-based products sector contains two important economic engines for rural America: agriculture and manufacturing. Bio-based products include biopolymers, key ingredients used in the manufacture of plastics. A survey of Southern Virginia polymer companies identified a need for support in the evaluation of novel chemicals, manufacturing processes and product design, including biopolymer R&D. The agency is positioning itself to provide the assistance needed.

Trends

Rankings & Customer Trends

The Institute for Advanced Learning & Research (IALR) plans to develop intergenerational educational programs that provide opportunities for a continuum of learning. The development of lifelong learning programs for older adults is especially important to address the "Age Wave" demographic shift identified in the Council on Aging 2011 annual report. The report stated "the number of Virginians over the age of sixty will increase from 1.4 million (17.8% of population) in 2010 to 2.3 million (23.9%) in 2030."

Science, technology, engineering and mathematics (STEM) interest is increasing regionally as well as on a state and national level. The IALR has upgraded technology in the STEM Mobile Lab and is planning on an expansion of the Mobile Lab to enable a greater number of students in the Lab at any given time. The STEM Mobile Learning Lab allows us to reach our service region and beyond, while providing learning opportunities for individuals of all ages.

The IALR's contribution to economic revitalization in the region will continue to focus on partnerships, collaborative projects, and intern opportunities with area businesses, colleges, and school systems. During FY2012 IALR's efforts increased the economy in the area by \$10M in capital expenditures and first year salaries.

The City of Danville saw a small decrease in the number of business licenses issued in FY2012 but is experiencing a modest increase during FY2013. The IALR is optimistic this increase will continue and plans to intensify outreach to business customers by providing creative and engaging opportunities. The IALR is also completing an assessment of area businesses to identify opportunities for providing technical and research resources that may otherwise not be available to smaller companies.

The challenge confronting the IALR is encompassing the diversity of customers within our expansive footprint.

Trend Name	Trend Area
Revenues	Decrease
R&D Expenditures	Increase
Maintenance & Repair Costs	Increase

Performance Highlights: Service Performance & Productivity Initiatives

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. There are a total of 17 scientists, technicians, postdoctoral and graduate students working on IALR research programs. Additionally, there are 1 undergraduate, 2 high school interns and 1 educator intern working in the research area.

During FY2012 the state-of-the art LEED (Leadership in Energy & Environmental Design) Sustainable Energy Technology Center (SENTEC) was completed and the full space was leased prior to the April grand opening. The building itself demonstrates sustainable energy in action. The total financial benefit to the community exceeded \$10M during the first year.

The Tobacco Commission's award of \$1.8M enabled the IALR to partner with ProteiosBio to focus on commercialization of protein products and with Chemtex aimed at propagation and trait improvement of the *Arundo donax* bioenergy crop.

The IALR is expanding outreach to area polymer and chemical manufacturers to initiate collaborative opportunities. Partnerships with local K-12 school systems, universities and community colleges are also expanding.

During FY2013 the IALR will see the number of employees in research, development and commercialization increase as we utilize the additional appropriation targeted for polymers and chemical collaborations.

Management Discussion & Analysis

Future Direction, Expectations, and Priorities

The Institute for Advanced Learning and Research (IALR) is currently working on developing and attracting technology and talent critical to Southern Virginia's economic prosperity. As a regional resource, IALR's research centers are providing the basis for a new economy in Southern Virginia. Virginia Tech (VT) and IALR research faculty manage innovative programs that increase regional economic growth through sponsored research, product testing and commercialization. The innovative strategies that are currently being used to revitalize the economy include a focus on sustainable energy, high value horticulture, and forest products. These strategies 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.

A major goal for the IALR is the development and commercialization of technologies concerned with the conversion of agricultural and forestry based materials into products required by bio-energy and bio-product based industries. This goal is directly aligned with the renewable energy plan of the Commonwealth of Virginia, and also in the support of existing and new businesses, represented by the polymer and chemical manufacturing industry cluster in Southern Virginia. This industry cluster is actively seeking support to develop industrial biotechnology to enable the introduction of bio-based products into their product lines. The region also recognizes the importance of polymer manufacturers, along with wood products, as a key manufacturing specialization for economic development in the region. This recognition emphasizes advanced manufacturing and represents a diverse range of technologies and skill sets.

53421: Regional Research, Technology, Education, and Commercialization Services

Description

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

Mission Alignment and Authority

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 will partner 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.

Lastly, the IALR through all of these activities and through its conference center, is attracting high-tech companies and intellectual capital to its service 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."

Customers for this Service Area

Anticipated Changes to Customers Base

As our plans mature and our facilities and personnel continue to come online, the Institute for Advanced Learning & Research (IALR) expects to be able to serve an increasing number of diverse constituents throughout our service region and beyond through innovative technologies in a number of areas such as sustainable energy and technology, high value horticulture and forestry products, polymer science, and educational outreach programs.

IALR's conference center has been very focused and strategic in actively pursuing business and conferencing activities. The conference center is reaching out wherever and whenever possible to identify strategic partnerships and look for ways to leverage and pool assets in the community and the region in an effort to broaden the possibilities and expand the potential.

Current Customer Base

Pre-Defined Customer Group	User Specified Customer Group	Customers Served Annually	Potential Annual Customers	Projected Trend in # of Customers
Adult	K-12 Educators	347	3,700	Increase
Adult	Adult 18 - 65 years old	1,913	191,648	Increase
Student	K-12 Students	7,631	48,977	Increase
Consumer	External ICC Event Attendees	22,095	188,000	Increase
Student	High School & College Interns	32	50	Increase

Partners for this Service Area

Partner	Description
Academic Programs	Higher Education Institutes, Community College System
Research Programs	Research & Development Labs, Colleges, Businesses
Outreach Programs	Chamber of Commerces in the Service Region, area service organizations
Technology Programs	Entities increasing the level and types of technology available in the service area region
Economic Developers	City & County Economic Development Offices throughout the service region

Products and Services

Factors Impacting the Products and/or Services

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.

Anticipated Changes to the Products and/or Services

IALR faculty and staff are 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 provide expanded services.

Listing of Products and / or Services

- Research and Commercialization
- Advanced Learning
- Outreach
- Community Engagement
- Institute Conference Center
- Audio & Visual Technologies that support internal and external Conference Center activities
- Coordinating networking events for business leaders and economic developers
- Contractual Research

Financial Overview

Budget Component	2013 GF	2013 NGF	2014 GF	2014 NGF
Base	5,525,061	0	5,525,061	0
Changes to Base	0	0	0	0
Total	5,525,061	0	5,525,061	0

Objectives for this Service Area

Objectives for this Service Area

Objective

Revitalize the economy of Southern Virginia through innovative technologies with sustainable energy and technology

Description

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Objective Strategies

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- Develop sustainable bio-based technology
- Identify and develop collaborative partnerships for the commercialization of bio-based technologies

Alignment to Agency Goals

- Revitalize the economy of Southern Virginia through innovative technologies

Measures

- Active Partnerships Forged

Measure Class Measure Type Preferred Trend Frequency

Data Source and Calculation

IALR will measure its active partnerships by the number of individuals involved (25 or more) and/or the level of financial resources committed (100,000 or more per year - not counting IALR staff salaries/wages or fringe benefits).

Objective

Advance and expand Science, Technology, Engineering and Math (STEM) educational opportunities for Southern Virginia.

Description

IALR will increase the number of Science, Technology, Engineering and Math (STEM) programs, courses and workshops offered by 10% each fiscal year.

Objective Strategies

- Create strategic partnerships with educational organizations and the business community to leverage resources to support capacity development
- Develop STEM programs to promote interest and pathways to success

Alignment to Agency Goals

- Advance and expand Science, Technology, Engineering and Math (STEM) educational opportunities for Southern Virginia

