2018-20 Strategic Plan

Institute for Advanced Learning and Research [885]

Mission

The Institute for Advanced Learning and Research will serve as a regional catalyst for economic transformation through applied research, advanced learning, and workforce 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, 2017 (FY 2017) the Institute for Advanced Learning and Research's (IALR) primary source of funding was the state appropriation of $6,115,383. Additional revenues during this fiscal year include rental income and private foundations grants.

Essential to IALR's mission is applied research and workforce development utilizing education programs and skills enhancement training. Research at IALR continues to excellent relationships with regional growers, entrepreneurs, existing industries and academic institutions in areas of plant science, precision agriculture, polymers, and chemistry assisting with process improvements and developing greater efficiencies. Advanced Learning provides educational resources and programs to promote STEM (Science, Technology, Engineering, and Math) opportunities to students and adults, the new mobile "Inspiration Lab", internships for high school and college students and is the host site for Academy for Engineering and Technology and the Piedmont Governor's School for Mathematics, Science and Technology.

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, and attracting new businesses to the region..

Biennial Budget

	2019 General Fund	2019 Nongeneral Fund	2020 General Fund	2020 Nongeneral Fund
Initial Appropriation for the Biennium	6,115,383	0	6,115,383	0
Changes to Initial Appropriation	0	0	0	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 Agriluture

Agency Goals

- **Enhance the region's competitive advantage through effective partnerships**

    Summary and Alignment

    Objective 1: Increase and enhance public partnerships Objective 2: Maintain and increase private partnerships Objective 3: Sustain associational and organizational partnerships

    Associated State Goal

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

Associated Societal Indicator

Employment Growth

Objectives

» **Increase and enhance public partnerships**

Description

[Nothing Entered]

Objective Strategies

• Prioritize partnerships with K-12 divisions in the IALR footprint

• Work collaboratively with Virginia Tech, Danville Community College, Averett University, and other higher educational institutions

• Identify and cultivate partnerships to secure resources to benefit the region

Measures

» **Maintain and increase private partnerships**

Description

[Nothing Entered]

Objective Strategies

• Coordinate targeted partnerships with industry partners

• Identify and cultivate partnerships to secure resources

• Catalog and work with key industry sectors to drive economies of scale for economic development

Measures

» **Sustain associational and organizational partnerships**

Description

[Nothing Entered]

Objective Strategies

• Expand opportunities with Virginia Cooperative Extension and others

• Increase leadership roles and presence at regional, state, and national events/organizations

Measures

• **Affect long-term advancements by utilizing IALR's capacity and expertise**

Summary and Alignment

Objective 1: Research, analyze, and benchmark 2-3 potential economic development solutions Objective 2: Utilize IALR's capacity by increasing value-added services

Associated State Goal

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

Associated Societal Indicator

Employment Growth

Objectives

» **Research, analyze, and benchmark 2-3 potential economic development solutions**

Description

[Nothing Entered]

Objective Strategies

• Research and identify new applied research areas

• Maximize conference services for potential local/regional economic impact

- Develop anecdotes of success and identify needs for new and existing industry

  Measures

» **Utilize IALR's capacity by increasing value-added services**
Description
[Nothing Entered]

Objective Strategies
- Provide fiscal and project management resources to initiatives in support of regional economic development

- Lead the execution of at least two regional career development events annually

  Measures

- **Encourage, implement, and communicate transformative solutions**
  Summary and Alignment
  Objective 1: Support and enhance workforce solutions Objective 2: Increased utilization of IALR's innovative technologies Objective 3: Communicate IALR's mission and engage stakeholders
  Associated State Goal
  Education: Elevate the levels of educational preparedness and attainment of our citizens.
  Associated Societal Indicator
  Lifelong Learning
  Objectives

  » **Increased utilization of IALR's innovative technologies**
  Description
  [Nothing Entered]

  Objective Strategies
  - Expand and improve IALR's infrastructure to support innovation

  - Create technology-rich learning environments to support the effective use of technology

    Measures

  » **Communicate IALR's mission and engage stakeholders**
  Description
  [Nothing Entered]

  Objective Strategies
  - Expand and measure quality communication technologies to support IALR initiatives

  - Facilitate targeted outreach efforts to promote IALR initiatives

  - Revitalize website to best engage current and potential partners

  - Utilize IALR Board members as ambassadors to engage the broader community

  - Engage industry as a key ally in regional development meetings and visits

    Measures

  » **Support and enhance workforce solutions**
  Description
  [Nothing Entered]

  Objective Strategies
  - Expand and measure quality communication technologies to support IALR initiatives

  - Facilitate targeted outreach efforts to promote IALR initiatives

- Revitalize website to best engage current and potential partners

- Utilize IALR Board members as ambassadors to engage the broader community

- Engage industry as a key ally in regional development meetings and visits

Measures

Major Products and Services

Services provided by the agency include:

- Workforce and Career development including Capstone Precision Machining
- 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 Inspirational 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
- Dan River Year AmeriCorps Program
- Regional STEM and Career Development

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.

The Institute continues its commitment to a strategic focus on economic development through its partnership with and leadership of the Southern Virginia Regional Alliance (SVRA) to promote Southern Virginia both nationally and globally. IALR has worked with local economic developers to identify and support projects that local economic developers and prospects have developed into positive announcements with outcomes that have impacted the tax base with three new company announcements and five existing company expansions leading to 128 jobs and over $52.195 million in capital investment in the region. There has also been a significant increase in prospect activity and marketing of the region at regional, state and international levels with enhanced partnerships with the Virginia Economic Development Partnership.

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.

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

Title   **File Type**

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

	2019 General Fund	2019 Nongeneral Fund	2020 General Fund	2020 Nongeneral Fund
Initial Appropriation for the Biennium	6,437,245	0	6,437,103	0
Changes to Initial Appropriation	-321,862	0	-321,856	0

Supporting Documents

Title   **File Type**