



## Institutional Approaches to Research and Innovation and Public Statement on the Annual Commercialization Plan

### **Our Approach - The Three Ps**

By harnessing the power of environment sustainability and advanced product design, ARIO is establishing leading expertise in sustainable lifecycle development. From energy to waste, Loyalist College specializes in consideration of the entire product lifecycle to help industry become more sustainable, resilient, and globally competitive.

At the core of this approach is a focus on the foundational pillars that support community transformation:

- **People:** Equip students and employees with the training and knowledge to transform communities through purpose-driven and industry-aligned applied research opportunities.
- **Products:** Develop products that make people healthier and communities more sustainable through the use of natural products, reduced waste and new value creation in re-engineered lifecycles.
- **Purpose:** Ensuring that, throughout the design, development, and commercialization process, we create an inclusive culture in applied research that embodies the principles of Equity, Diversity and Inclusion (EDI) and integrates with the United Nations Sustainable Development Goals (SDGs).

### **Target Areas**

Loyalist College intends to achieve regional, provincial and national prominence as a leader in the following priority areas:

### **PRODUCTS: APPLIED CLEANTECH AND THE BIOECONOMY SOLUTIONS**

Transitioning to a green economy is a national high priority for Canada and cleantech companies are at the core of this transformation. Bio-cleantech comprises a wide range of clean technology-based sectors which convert renewable resources, such as agricultural and forestry by-products and residues, into value-added products. Biomass is becoming the future of chemical industries. Bio-based products are redefining industrial and consumer products by integrating renewable, biological raw materials to innovate a wide range of products including bio-plastics, surfactants, bio-lubricants, cosmetics, enzymes

and pharmaceuticals produced from non-food biomass and crops as well as waste streams.

Large enterprises in the biopharmaceutical, agri-food and natural product sectors (e.g., NovaVive Inc., Parmalat, Kellogg, Redpath, Procter & Gamble) are located in the Quinte region. This critical mass of biopharmaceutical, food and natural products companies along with many small and medium enterprises (SMEs) have little or limited R&D capacity required to improve their processes and utilize bio-mass waste created through their processes. This translates into a significant need for applied research and innovation in the Quinte region and the opportunity for Loyalist to become a locally and nationally recognized hub for bio-cleantech and advanced manufacturing innovation.

Interviews with the Quinte Economic Development Commission, highlighted that:

- approximately 3,000 people are employed in the agri-food sector in the Quinte region (King, 2020).
- with over 30 large enterprises and a healthy number of small and medium enterprises (SMEs), the agri-food sector is a significant driver of economic activity in Belleville and the surrounding region.
- Increasing biotechnology capacity at Loyalist College will respond to industry demand for applied bio-cleantech related research services, helping the region attract investment and retain and grow opportunity for the agri-food sector.

## **PEOPLE: SOCIAL INNOVATION, HEALTH AND WELLNESS**

The Quinte region continues to face socio-economic challenges that require innovative solutions. Loyalist College has several faculty researchers and students in the School of Health, Human and Justice Studies involved with social innovation projects related to community health challenges and addressing the needs of marginalized or underrepresented groups in the area (e.g., The Home Share Program and Youth Collective group). Several community partners are engaged in these projects, including the John Howard Society, Hastings Paramedic Services, and Quinte Immigration.

In 2018, Loyalist renovated the third floor of the Northumberland Wing in the Kente Building for students in the health, human services, social development, and public safety programs to collaborate on integrated programming, projects and applied research. Virtual simulations allow students and workers across a variety of disciplines to practice focused assessments, utilize critical thinking skills, and 'intervene' safely online while working as part of an interprofessional team to respond to a crisis. This innovative experiential learning space houses interprofessional simulation labs, high-tech classroom environments, and state-of-the-art student spaces. The recent approval for Loyalist to deliver a standalone nursing degree program has created a requirement for more scholarly and applied research in health care and an opportunity to utilize the labs and

high-tech classrooms to solve challenges. The simulation labs will be integral in developing this capacity and differentiate the Loyalist BScN from other college degree programs.

## **PURPOSE: ADVANCED MANUFACTURING AND SUSTAINABLE LIFECYCLE DEVELOPMENT**

Loyalist College recently signed the [Sustainable Development Goals Accord](#), officially committing to weaving the United Nations Sustainable Development Goals (SDG) into our education, applied research, leadership, operations, administration, and community engagement activities. Addressing a range of global social, economic and environmental challenges from climate change to food security, the 17 SDGs provide a blueprint to build a more equitable and sustainable world.

The future will need products and power (energy management, storage, land use), but the implementation requires purpose, a vision and approach of sustainability and regeneration. Sustainable farming, vertical integration as well as residential and agricultural land-use innovation.

The Bay of Quinte region has a rich manufacturing history and Loyalist College has developed deep experience with supporting industry through the transition to advanced manufacturing and automation processes.