

BioVectra



Experiential Learning – A Business Perspective

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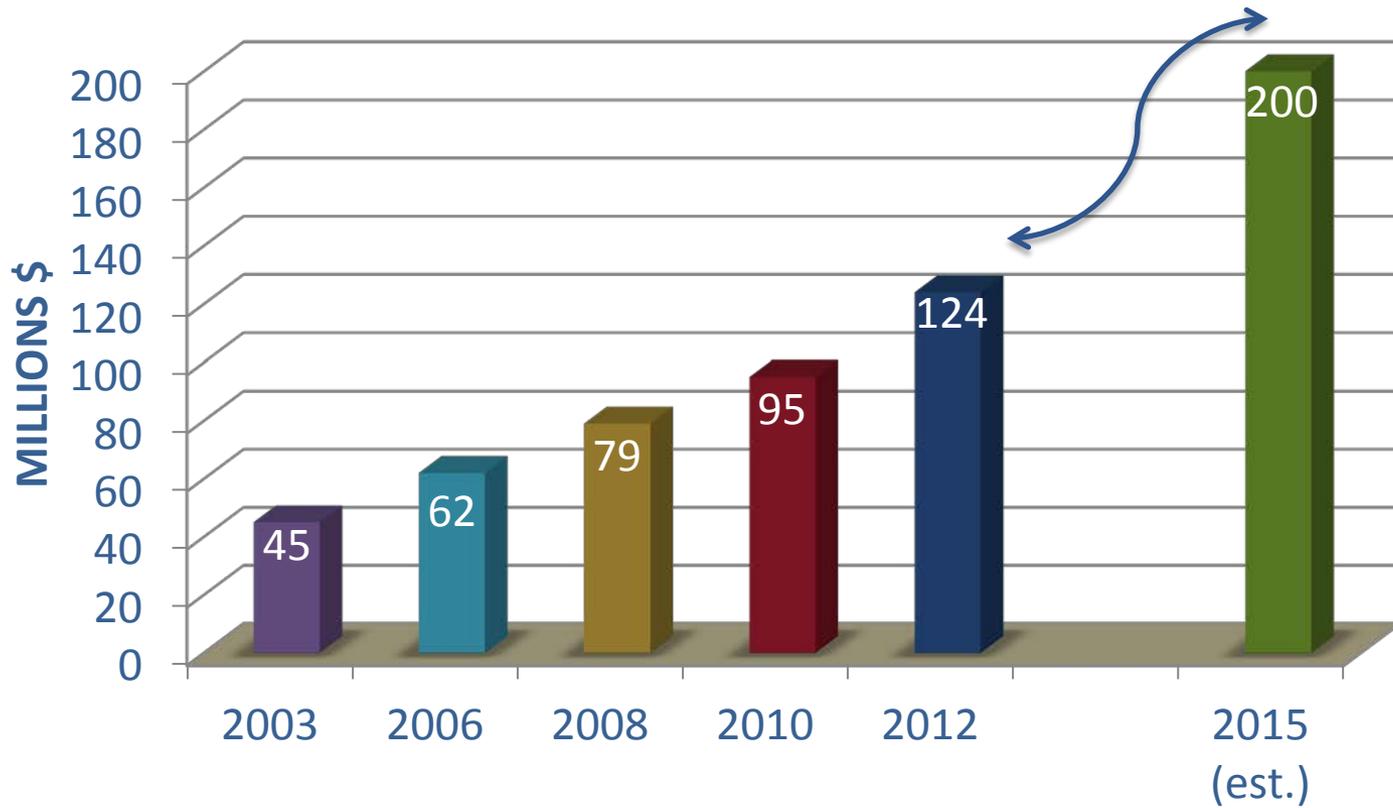
BioVectra Inc.

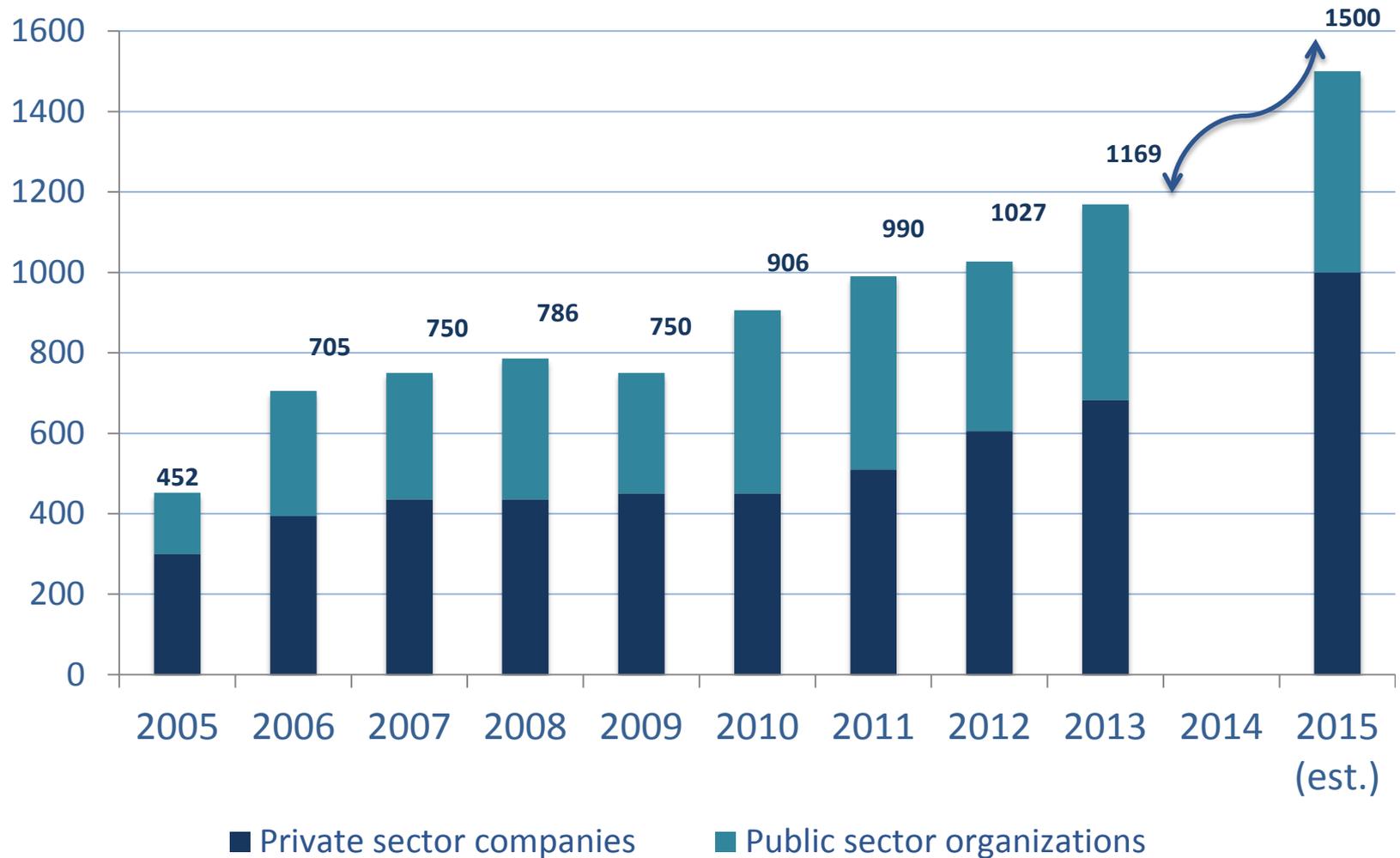
- **Founded in 2001; origins 1970**
- **240 employees; 140 in September, 2012**
- **BioVectra is focused on pharmaceutical and biotechnology manufacturing and services**



- **Quality Group – 53**
- **Research and Development – 15**
- **Sales & Marketing – 10**
- **Administration & Support – 17**
- **Manufacturing & Engineering – 145**







The bioscience sector's direct and indirect (supply chain) GDP contributes more to the Island economy than the **seafood product preparation and packaging and fishing sectors combined.**

The bioscience sector generates a similar level of GDP compared to the **banking sector and the accommodation and food services sector.**

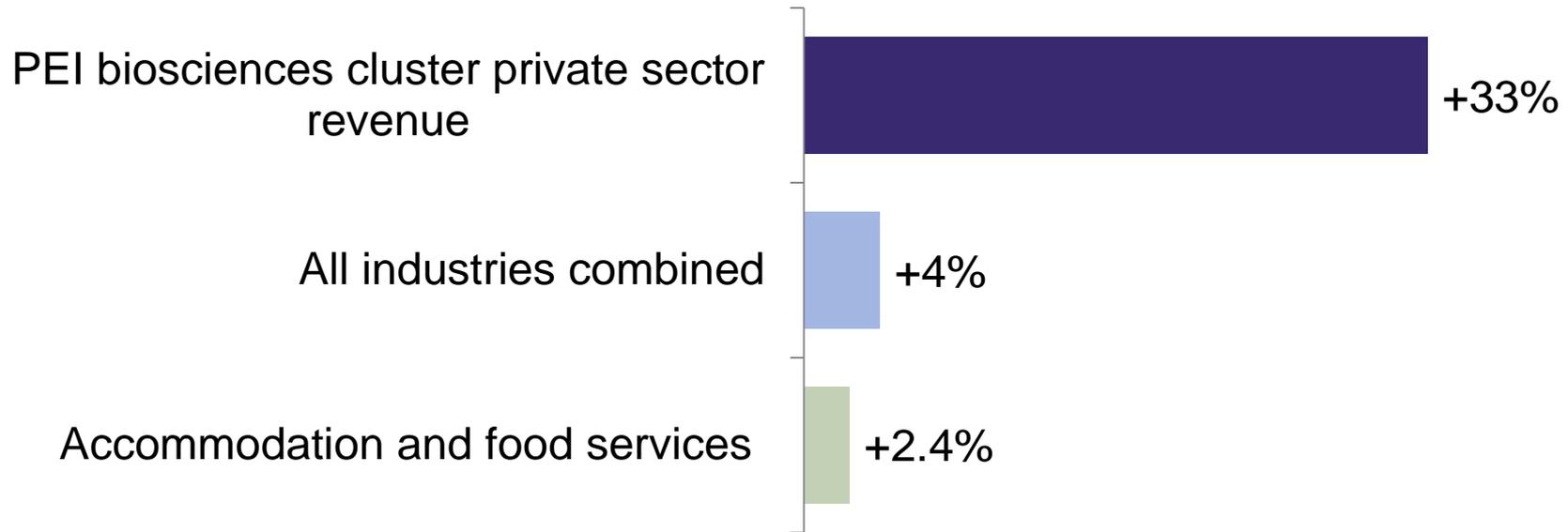
Total PEI Bioscience Cluster GDP (including direct, indirect and induced effects) represents **2.7 per cent of total GDP on the Island.**

Average annual employment income comparison (2012)

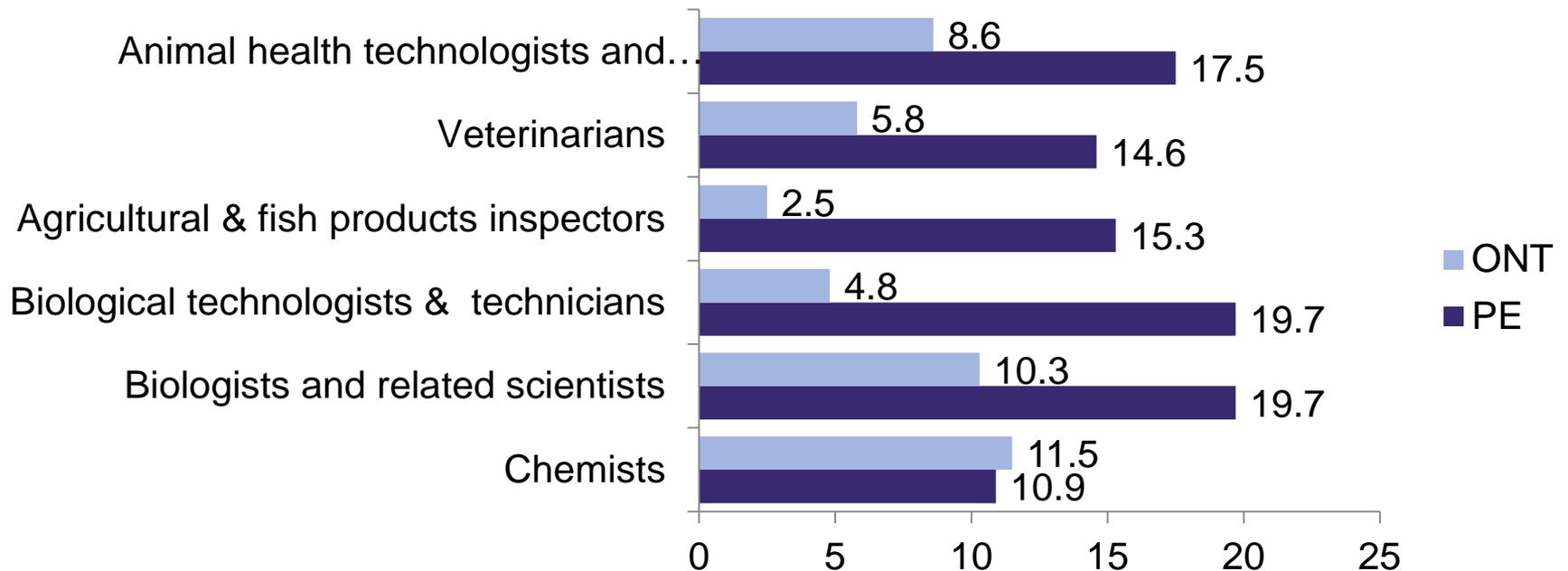


**Average annual employment income (direct and indirect) for the bioscience sector in 2012.*

PEI industry output growth (2006–12) – average annual growth rate (%)

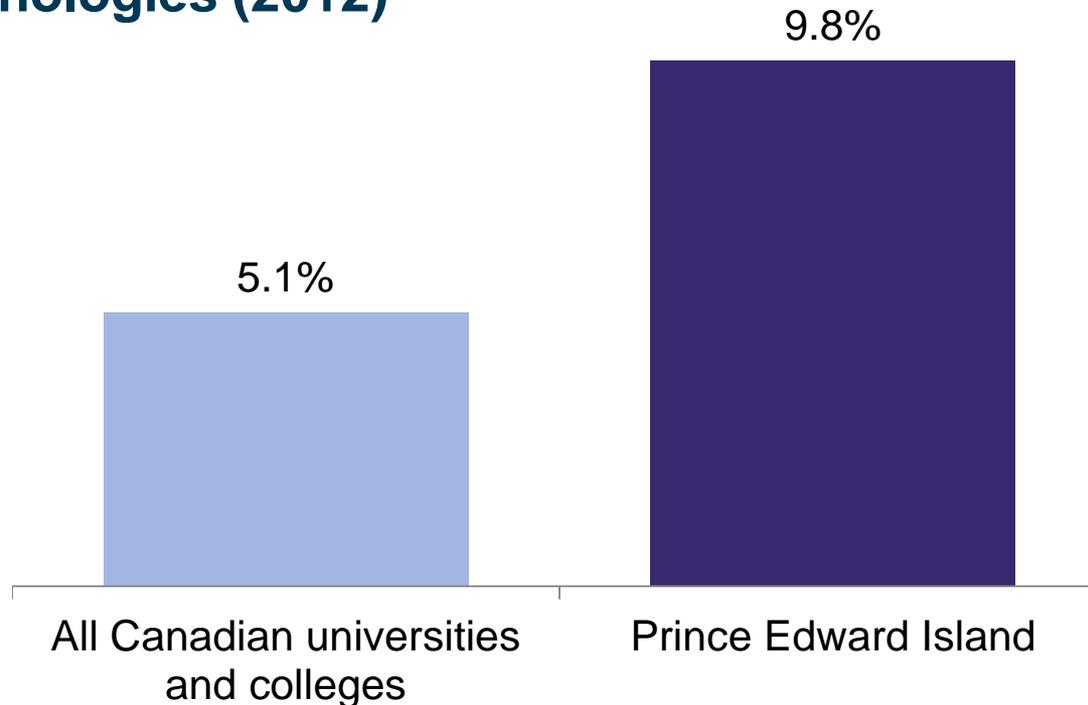


People working in bioscience-related occupations per 10,000 in the overall labour market



The talent pipeline

Percentage of total university and college enrolments in physical and life sciences programs and related technologies (2012)



- Scientist, researcher
- Quality assurance/quality control/regulatory
- Production, process engineers
- Management, business development, and administration



Examples from job postings:

- Education: Ph.D., Master of Science, Bachelor of Science, Holland College Bioscience Technology Program or equivalent
- Research and lab experience
- Private-industry experience related to company's scientific focus



Examples from job postings:

- Science, engineering
- Understanding of HACCP, GMP compliance, regulatory requirements and processes, quality management systems
- Work experience required could include biotechnology, pharmaceutical/biologics, natural health products, animal/fish health products, production/manufacturing, cGMP-regulated environment



A Transformative Future

- UPEI's School of Engineering will **redefine the region** through an **industry-driven** model based on real-world collaboration, problem solving, and innovation.
- The UPEI School of Engineering is a **transformative opportunity** building on **existing strengths** and **best practices** for effectively connecting higher learning, industry, and economic prosperity.
- The UPEI School of Engineering is an investment in the future through **sustainable programming, global outreach, and knowledge-based and export-related economic benefits.**



Supporting prosperity, innovation, the knowledge economy



UPEI School of Engineering

Symposium Highlights

- ✓ Innovation & innovation management
- ✓ Entrepreneurship
- ✓ Advanced technologies
- ✓ Project management
- ✓ Dynamic and globally savvy teams



- ✓ Strong endorsement of local and global industry and key stakeholders for economically relevant focus areas
- ✓ Unique in Canada
- ✓ Develop on best practices
- ✓ Industry-based, project-driven

- ✓ Appeal to global market
- ✓ International educational institution partnerships
- ✓ International experience-based learning
- ✓ Industry partnerships and lab space

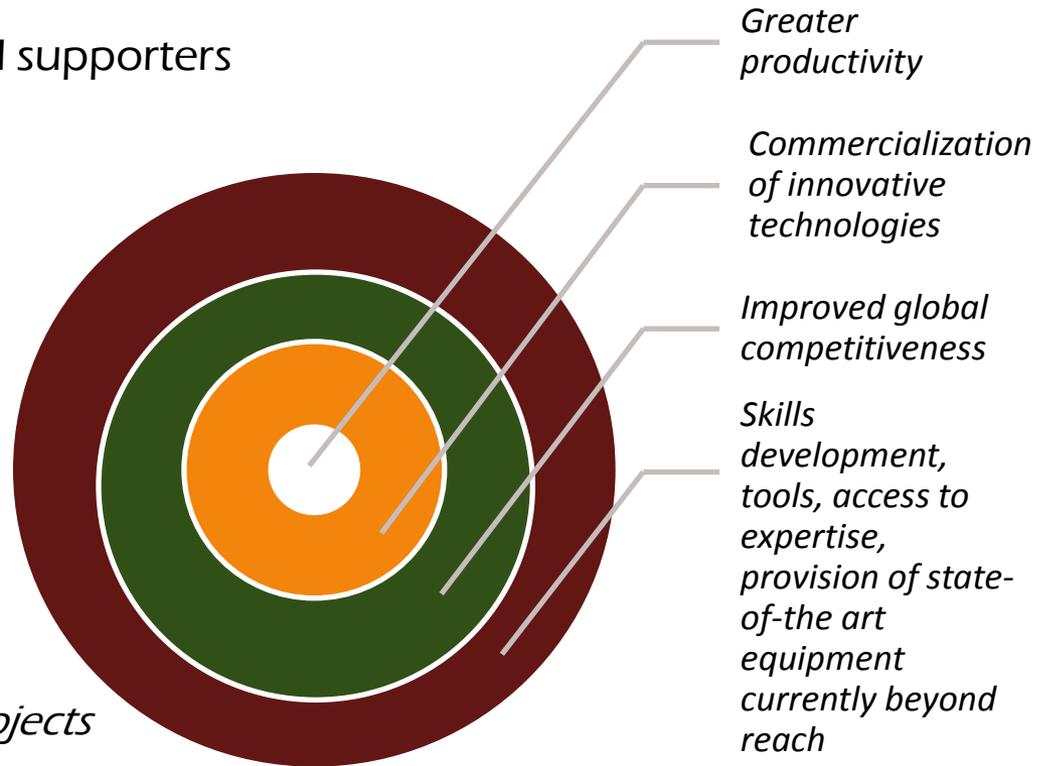


Benefits of Partnering with Industry

Clinic approach would be unique in Canada with student/faculty teams working on *real-world challenges* and *solutions* in collaboration with industry (as paying clients).

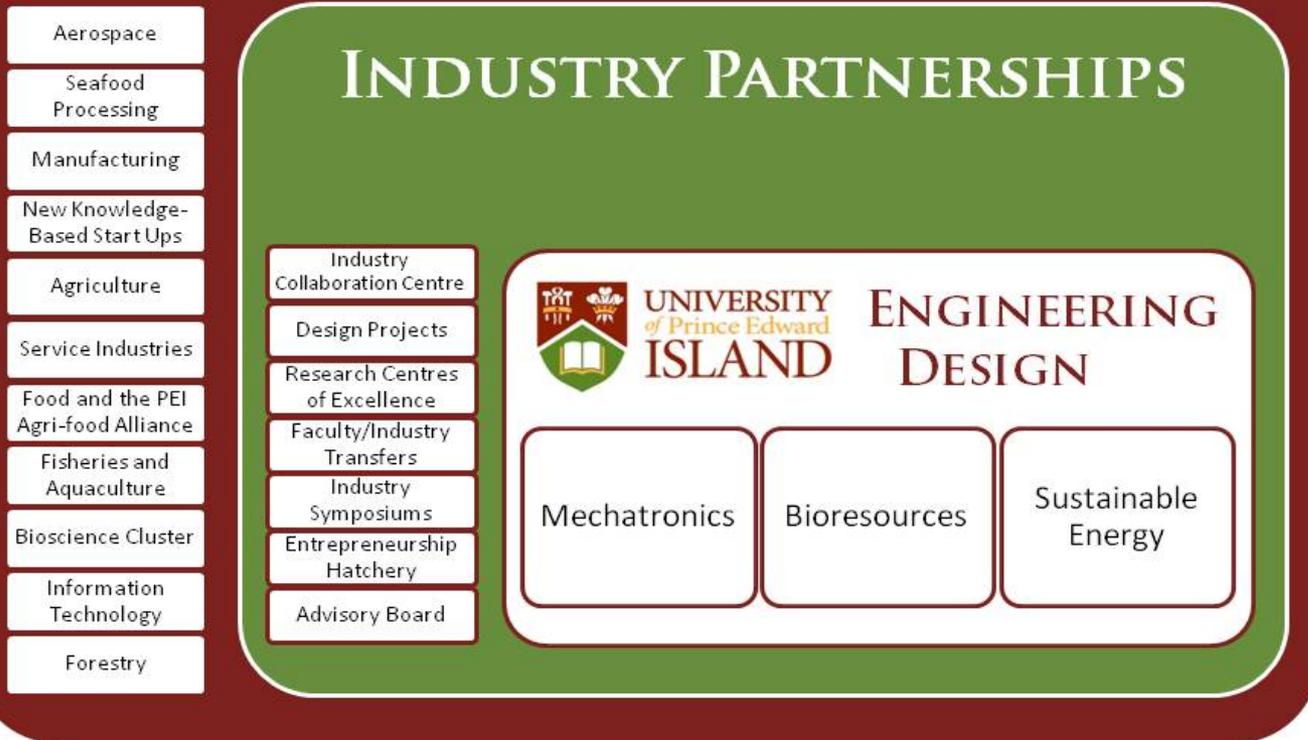
Industry would serve as educational supporters and partners via:

- *Advisory boards*
- *Industry consortia*
- *Support for scholarships, endowments, and donations*
- *Mentorship*
- *Employment*
- *Business partnerships*
- *Establishing research centres*
- *Assisting with entrepreneurship hatchery start-ups*
- *Industry collaboration space/projects*



Economic Relevance of the Focus Areas

ECONOMIC RELEVANCE



Bioscience Technology Program

- The two-year diploma program has been a direct source of highly qualified laboratory personnel since its first graduating class in 2008.
- Creates the biotechnologists needed to support the emerging bioscience sector.
- Graduates master scientific theory and gain experience related to pharmaceuticals, nutraceuticals and the environment, food, and agricultural sciences.
- Program involves in-classroom study.
- Activity-based learning in working laboratory.
- On-the-job training and experience through industry placement.

BioScience Technology Program

Industry Engagement/Collaboration

- Strategic objective is to become a regional centre for collaboration and training in biotechnology and the life sciences.
- Closely associated with regional industry – PEI BioAlliance serves as an industry and research liaison organization.
- Recently involved in contract training (technicians from Agriculture and AgriFood Canada) and several NRC-IRAP-funded collaborations with companies in both PEI and New Brunswick.

- Sixty-one graduates to date.
- 2012 Grad Survey indicates an employment rate of 100 per cent.
- Grads are employed by companies such as BioVectra, Novartis, Sekisui Diagnostics, Canada's Smartest Kitchen, Centre for Aquaculture Technologies Canada, Island Abbey Foods, Nautilus Biosciences Canada, Neurodyn, Solarvest, Somru Bioscience, and Technology Crops International.
- *Maclean's* magazine heralded the program as one of 2011's "Red-Hot Postgraduate Programs" in Canada.
- Strong praise from industry and graduates.



Bachelor of Science – Biotechnology

Joint Degree

- Under development: Bachelor of Science in Biotechnology; joint degree between Holland College & UPEI.
- In final stages of approvals prior to submission to MPHEC.

