

# Ottawa's Biotech and Life Sciences Landscape

**VBP-ITP 2004  
Information Session  
June 29, 2004**

**Presented by: Rick Norland  
Executive Director  
Centre for Biopharmaceutical Manufacturing**

# Ottawa's opportunity to play lead role for Canada ...

- **Excellence in Science**

- Stem cells/Genomics/Proteomics/Systems Biology
- International Regulome Consortium (France, UK, US, Singapore, Italy, Canada)

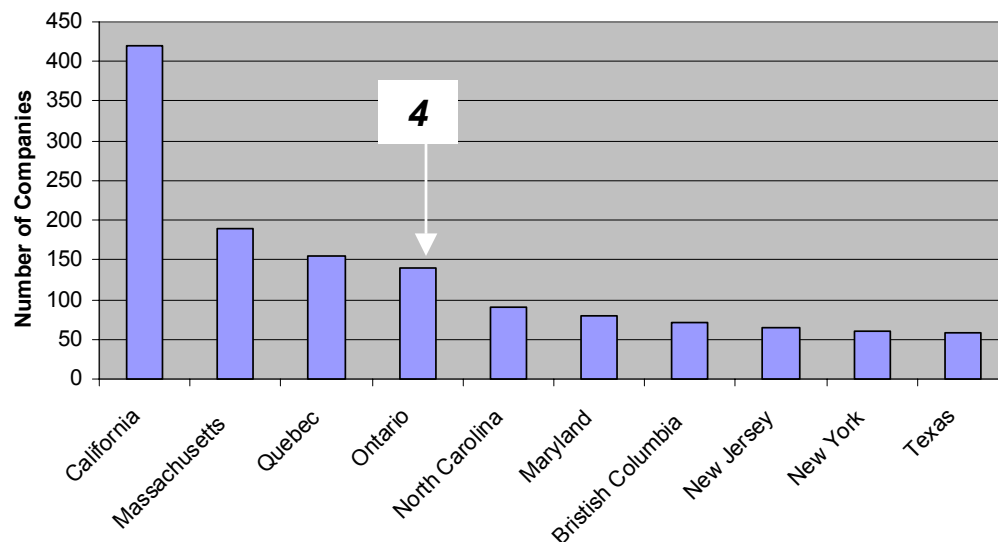
- **A National Strategy Biopharmaceutical Manufacturing**

- Centre for Biopharmaceutical Manufacturing (CBM)
- International Consortium (Training, Regulatory Foresight, Capacity)– North Carolina, UK and Sweden

- **Bioproducts Based Eco-industrial Cluster**

- Biofuels, Kyoto, novel bioproducts
- Partnerships – Netherlands, North Carolina, Ontario

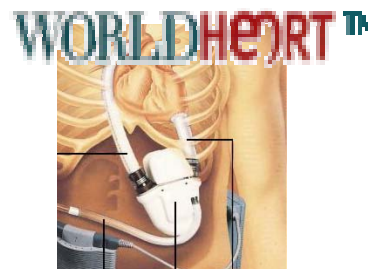
North America's Biotechnology Centres



***We believe that we can position  
Ottawa into TOP 10 Biotech  
Centres in North America***

# A BREADTH OF TECHNOLOGY

- **MDS Nordion** (radiotherapies)
- **I-STAT Corporation** (Abbott) (biochips)
- **logen Corporation** (enzymes, biofuels)
- **Zelos** (Discovery - osteoporosis)
- **World Heart Corporation** (cardiovascular devices)
- **Epocal** (biochips)
- **Liponex** (Discovery – Cholesterol lowering)
- **Stempath** (Discovery – stem cells, cardiovascular disease, MD)
- **PRA International** (CRO)
- **Ionolytics** (Proteomics, Instrumentation)
- **Gangagen Biotechnologies** (phage technologies- ID)
- **Pfizer** (Viagra)



- 6,000 Employees across 44 research institutes:

- Carleton University (9 centres)
- University of Ottawa (15 centres)
- Ottawa Hospital (3 centres)
- University of Ottawa Heart Institute
- Royal Ottawa Health Care Group (ROHCG)
- Canadian Stroke Network (CSN)
- Canadian Blood Services
- Canadian Food Inspections Agency
- National Research Council of Canada (4 centres)
- Agri-Food & Agriculture Canada - ECORC
- Environment Canada
- Health Canada
- Canadian Institutes of Health Research
- National Energy Board
- Natural Resources Canada



OTTAWA HEALTH RESEARCH INSTITUTE  
L'INSTITUT DE RECHERCHE EN SANTÉ D'OTTAWA



**ICPET/ITPCE**



**NRC-CNRC**



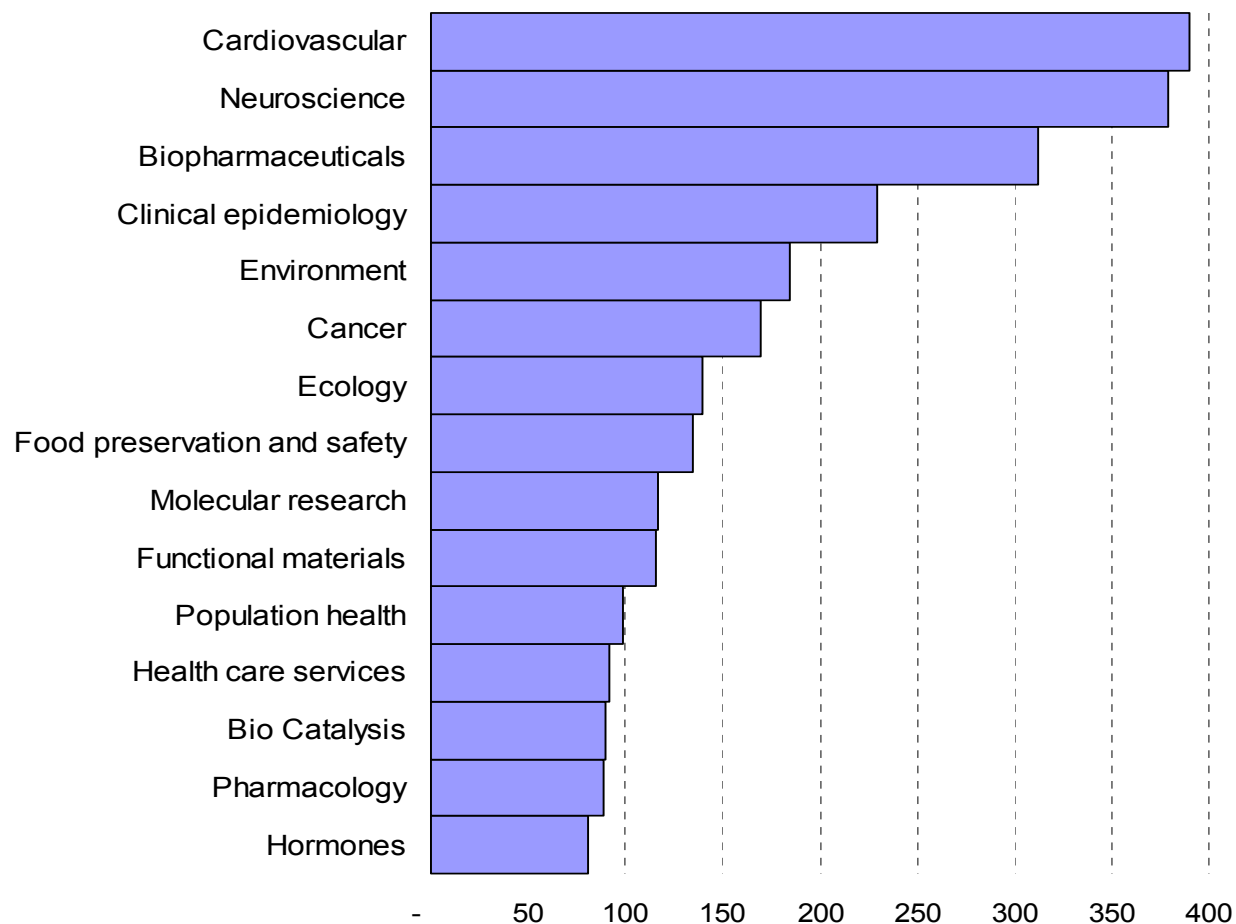
Université d'Ottawa · University of Ottawa



Environment  
Canada

Environnement  
Canada

## Number of Researchers in Top 15 Research Categories

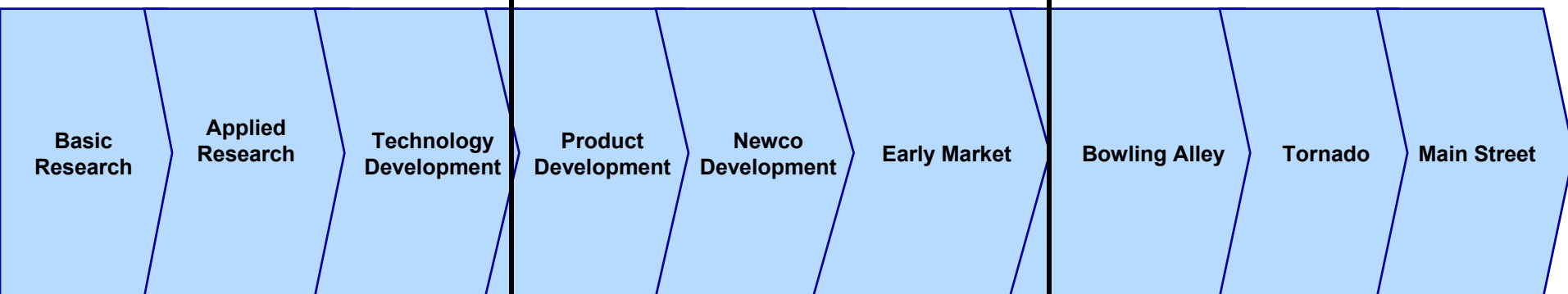


# Ensuring The Activities/Infrastructures Meet the Needs

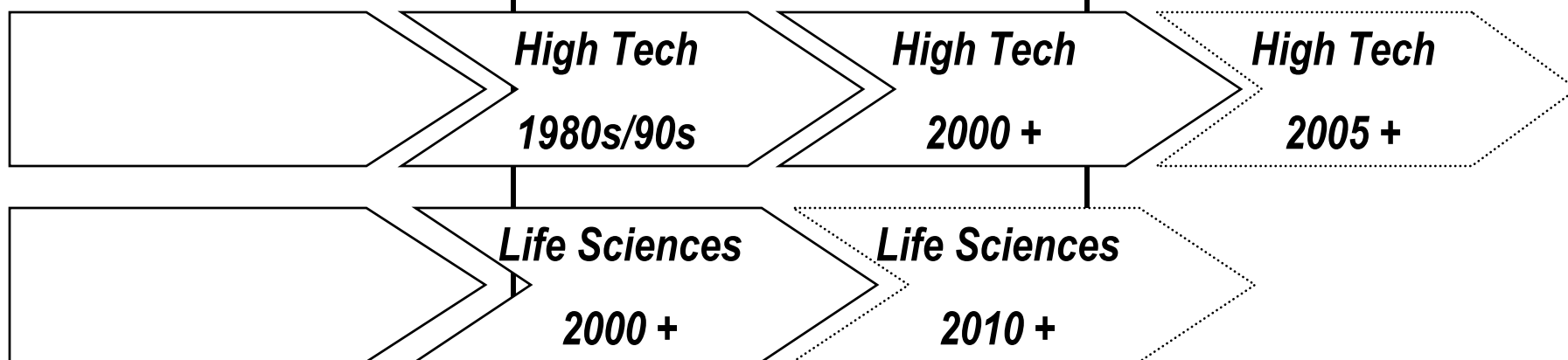
## Value Creation

## Value Capture

## Value Expansion



## Understand the Companies



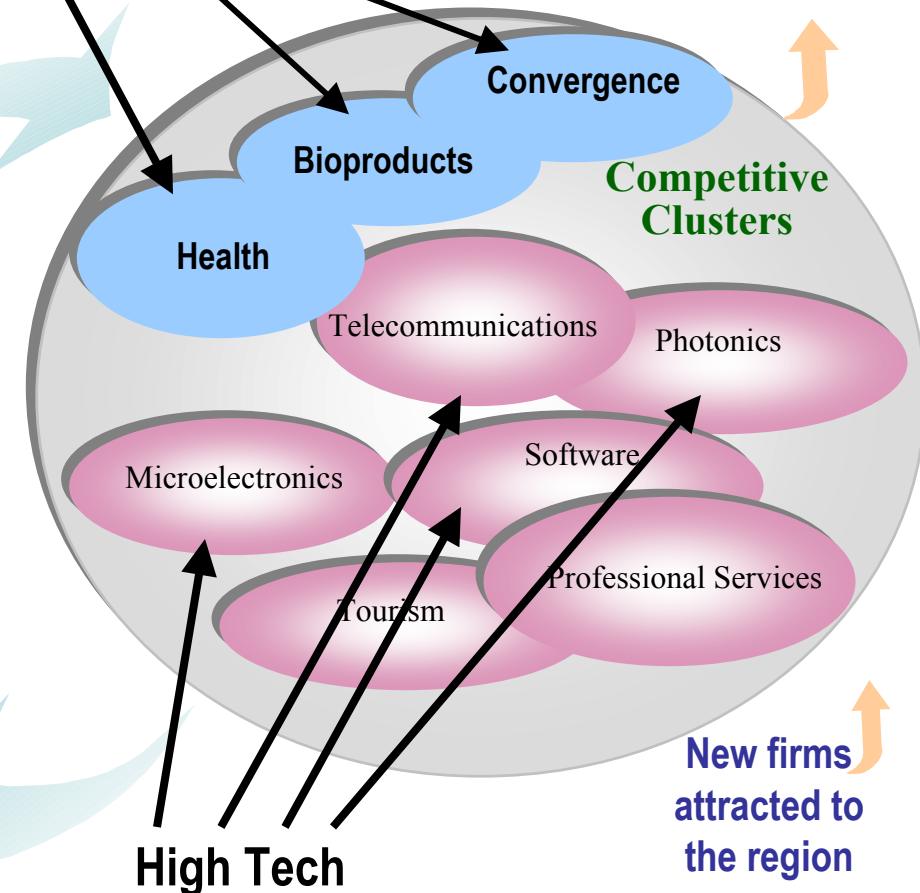
Source: Thorington Corporation

Recognized as one of Ottawa's seven economic generators.

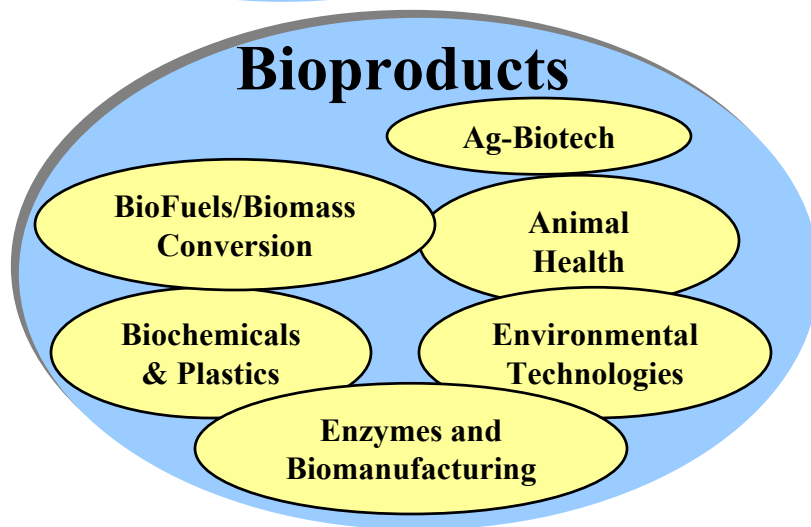
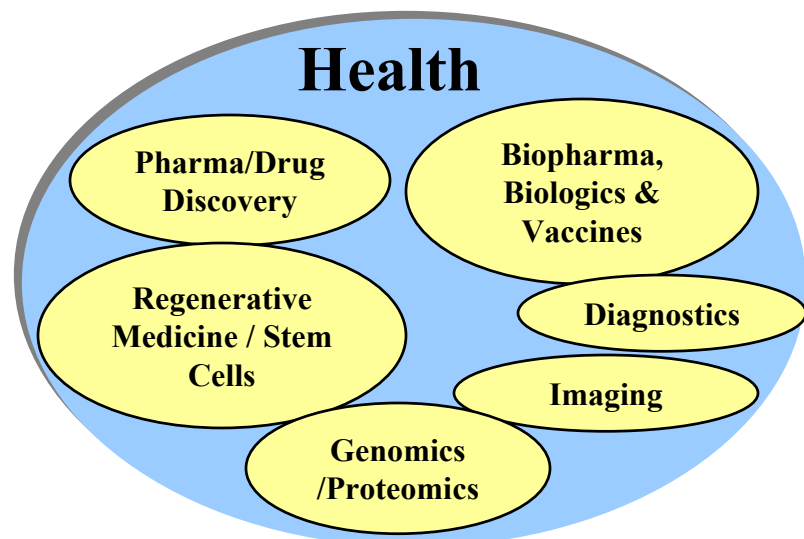
## Quality Economic Foundations



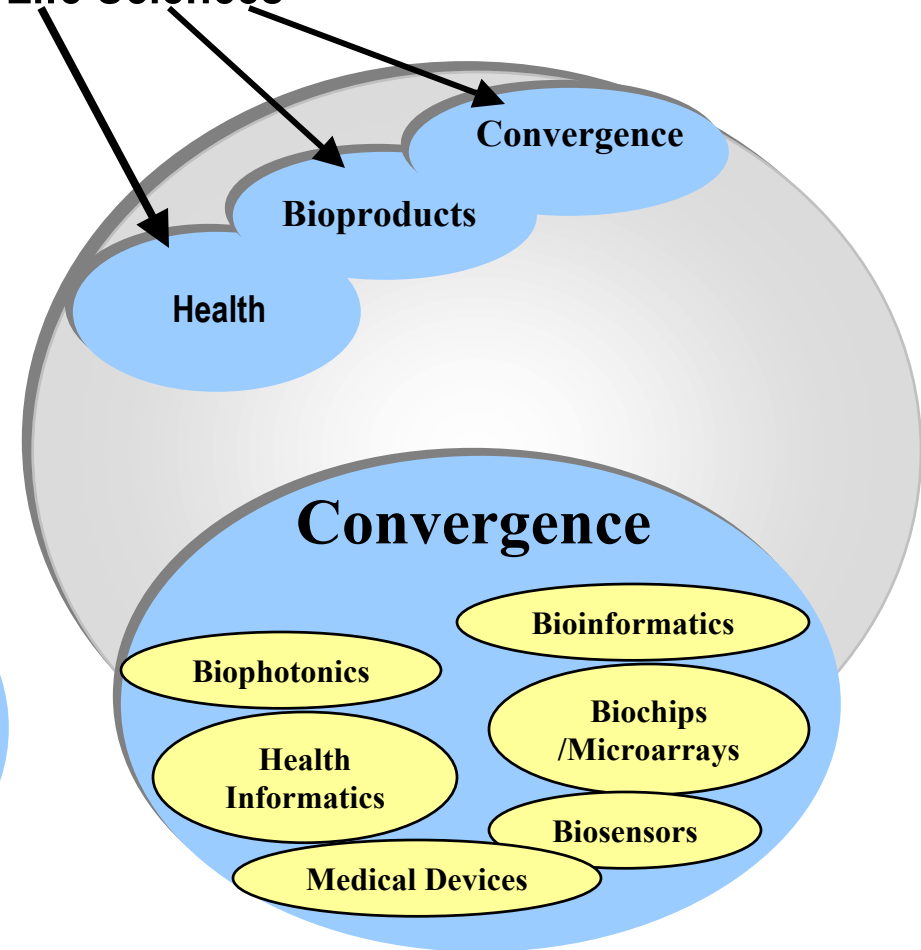
## Life Sciences



# Sector Overview: Ottawa's Life Sciences Clusters

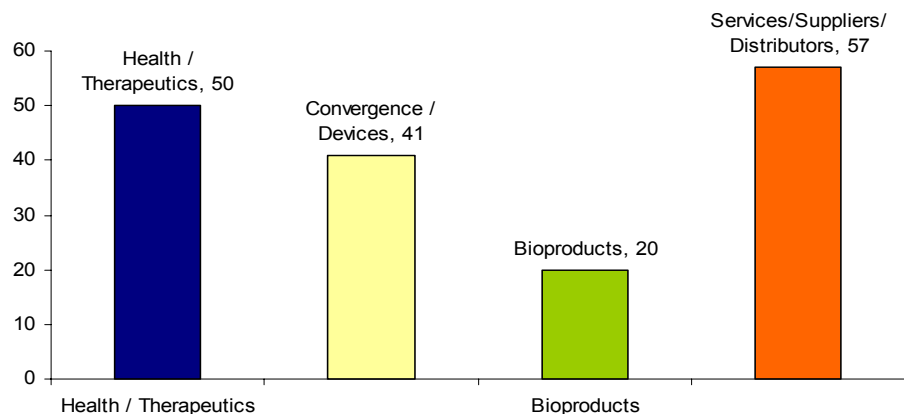


## Life Sciences



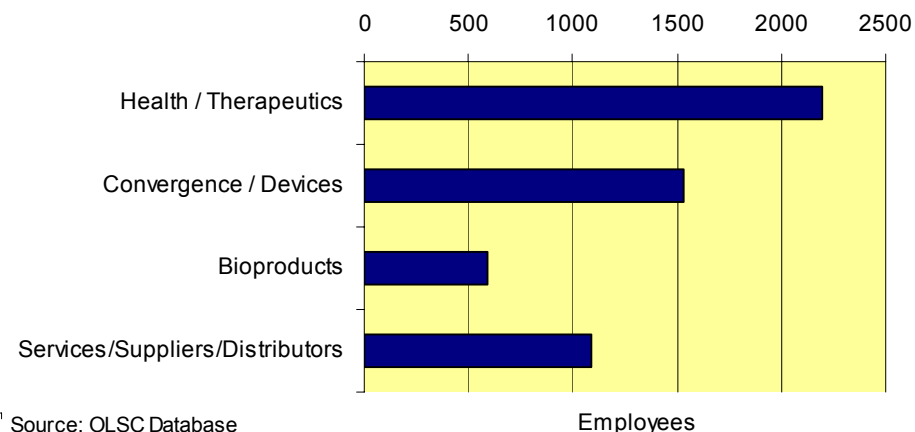


**Ottawa and Eastern Ontario Companies  
by Sector Grouping, 2003**



Source: OLSC Database

**Ottawa and Eastern Ontario  
Company Employment by Cluster Grouping, 2003**

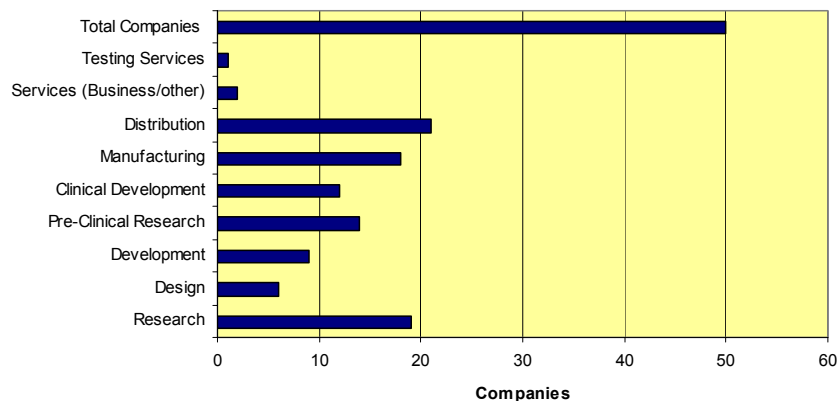


Source: OLSC Database

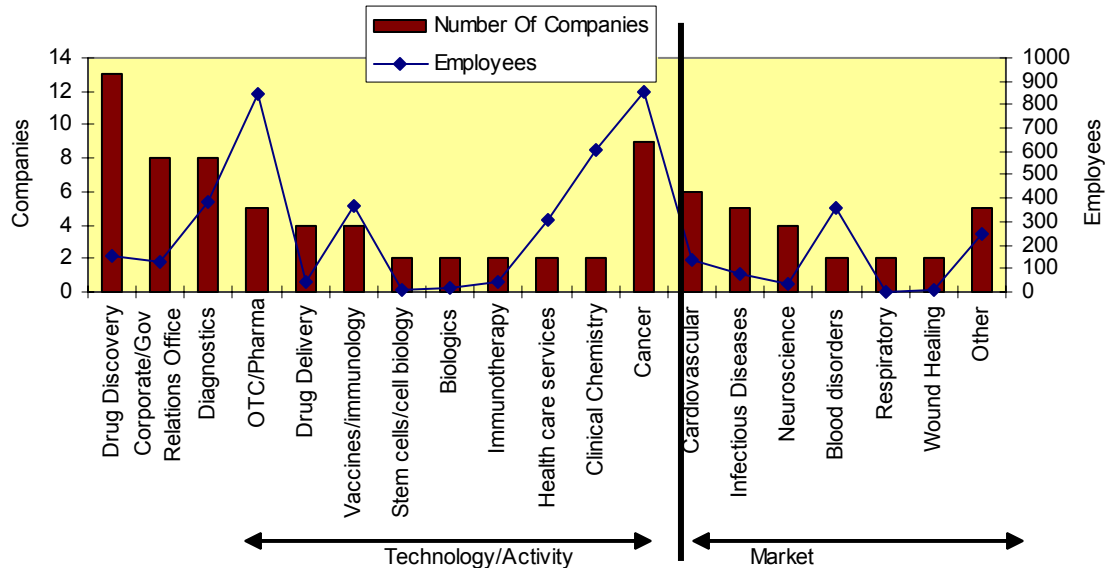
*For more details on individual  
clusters see BCIP Part II Document*

[www.bioplan.ca](http://www.bioplan.ca)

**Ottawa and Eastern Ontario Health-Related Organizations, 2003**

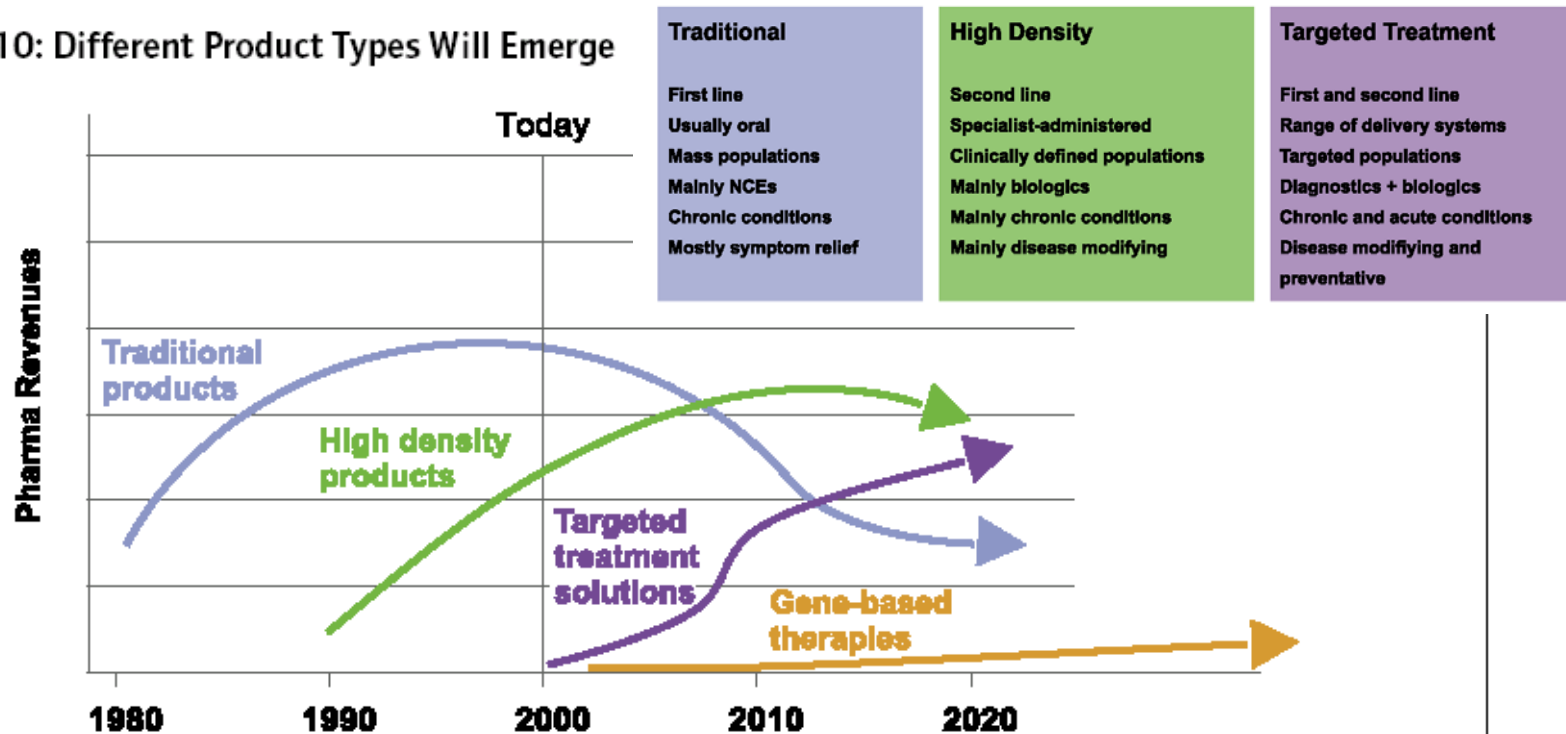


**Health-Related Companies in Ottawa and Eastern Ontario, 2003**



# “The Re-Tooling of Pharma”

Figure 10: Different Product Types Will Emerge



Source: *Pharma 2010: The Threshold of Innovation*



## Genomics and Transgenics

- Ottawa Genomics Consortium, Children's Hospital of Eastern Ontario, Ottawa General Hospital Research Institute, National Research Council

## Tissue Engineering/Gene and Cell Therapy/Xenotransplant

- Apotex Biotechnologies, Ottawa Health Research Institute, University of Ottawa Eye Institute, Children's Hospital of Eastern Ontario.

## Neurodegenerative Diseases

- Ottawa Stroke Consortium for Applied Research, Aegera Oncology, Institute for Biological Sciences-NRC, CroMedica and the Ottawa Health Research Institute.

## Cardiovascular Diseases

- University of Ottawa Heart Institute

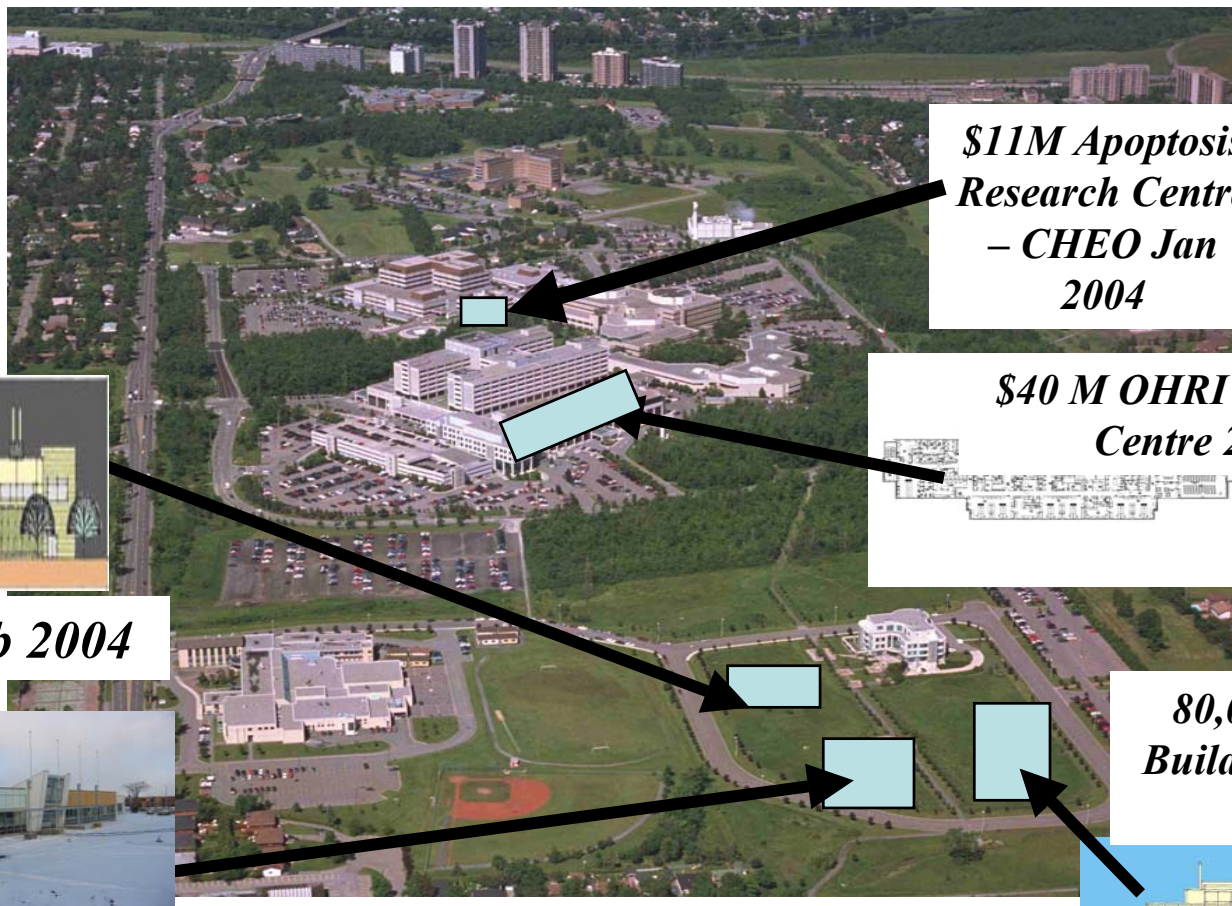
## Nuclear Medicine

- MDS Nordion, IS2 Research, Thompson and Nielsen Electronics, Adherex, Aegera Oncology, Ocell, Ottawa Regional Cancer Treatment Centre, Institute for Biological Sciences-NRC, and SynChem Research.

## Vaccines/Immuno-therapeutics

- Coley Pharmaceuticals, Institute for Biological Sciences-NRC, Ottawa Health Research Institute, University of Ottawa, Health Canada, Canbreal, Merck Frosst, Variation Biotechnologies

# Health Cluster: OLSTP & the General



***\$11M Apoptosis  
Research Centre  
– CHEO Jan  
2004***

***\$40 M OHRI Stem Cell  
Centre 2004***

***OBIC Feb 2004***

***80,000 sq. ft.  
Building Spring  
2005***

***Gamma Dynacare  
January 2003***



## Research

*Oncolytic Viruses (OHRI), Apoptosis (CHEO), Medicinal Chemistry (U Ottawa, Pharmaceutical Sciences), Nuclear Medicine (ORCC), Medical Physics/Imaging (Carleton U), Radiation Standards (NRC-IRS)*

## Contract Research Clinical Trials

*Ottawa Regional Cancer Centre (Trials), Chalmers Research Group (CRO), PRA International (CRO), Canadian Leukemia Study Group (Trials Network)*

## Diagnostics/Instrumentation/Software

*Canbreal (Breast Cancer Diagnostics), IS2 Research (Imaging), Gamma Dynacare (Testing), Delft Instruments (treatment software), Thomson & Nielsen (dose monitoring systems)*

## Therapies and Therapeutics

*MDS Nordion (TheraSphere®, Cobalt Radiotherapy, Zevalin (IDEC), Adherex (Mesna, STS, NAC, Exherin, Angiolytics), Aegera Oncology (XIAP antisense therapy [anti-apoptotic]), Coley Pharmaceuticals (Promune™, CpG oligos), Canadian Blood Services (Cancer and bone marrow therapies)*

# Ottawa Cancer Strengths



OTTAWA HEALTH RESEARCH INSTITUTE  
L'INSTITUT DE RECHERCHE EN SANTÉ D'OTTAWA



Children's Hospital of Eastern Ontario



IS2 RESEARCH Inc.

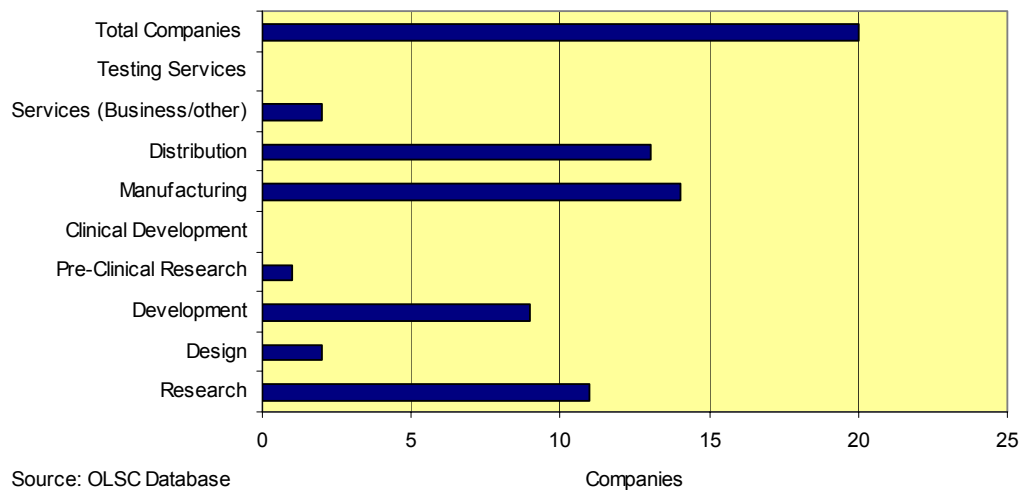
Thomson | Nielsen



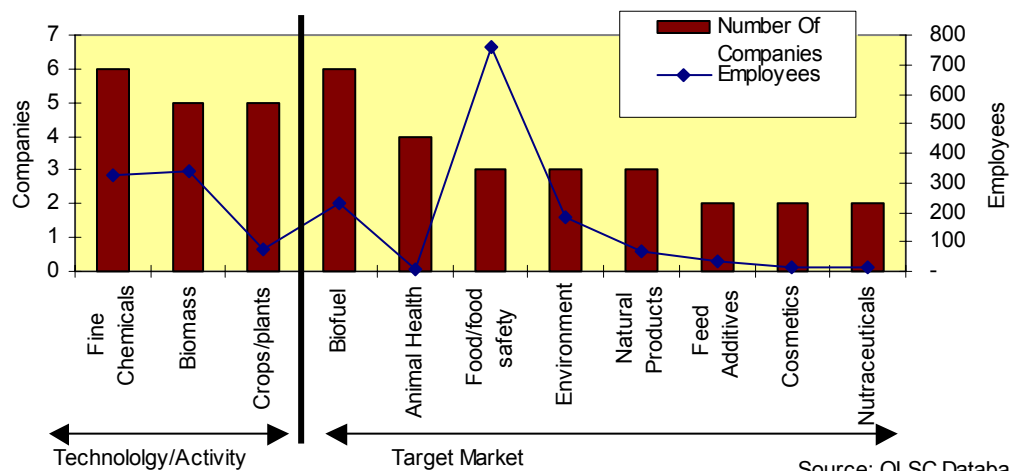
- 16 products in cancer pipeline
- 10 products on market
- Over 60 clinical trials



Ottawa and Eastern Ontario Bioproducts Companies, 2003



Ottawa and Eastern Ontario Bioproduct Companies, 2003



## Research

**NRC-ICPET** (processing), **Agriculture and AgriFood Canada** (bioprocessing, genomics, proteomics, earth sciences), **Canadian Food Inspection Agency** (animal health, diagnostics), **Environment Canada** (environmental technologies), **Carleton University** (biology, environmental technologies), **University of Ottawa** (chemistry, catalysis biology, environmental genomics), **Kemptville College** (agriculture), **collège d'Alfred** (agriculture)

## Contract Research

**AgExcel** (identity-preserve, molecular farming), **AgBios** (regulatory), **Xenos Laboratories** (regulatory testing)

## Products/processing expertise

**Ensyn** (pyrolysis), **logen** (industrial enzymes, fermentation and biofuels), **Topeia** (biodiesel), **Gangagen** (agriculture/ environmental phage technologies), **Casco** (bioproducts), **Alltech** (specialty feeds), **Tricounty Protein** (cold crushing), **Natunola** (cosmetics, gels, nutraceuticals), **BASEF** (chemicals), **McEwen** (ethanol), **Seaway Valley** (ethanol).

ICPET/ITPCE



Research at ICPET



Environment  
Canada

Environnement  
Canada

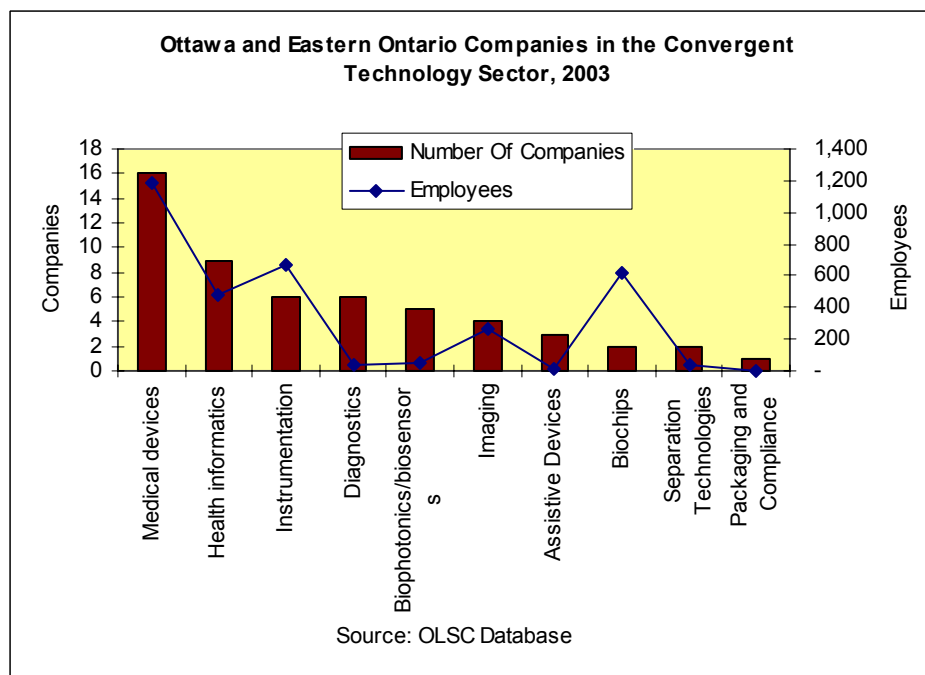
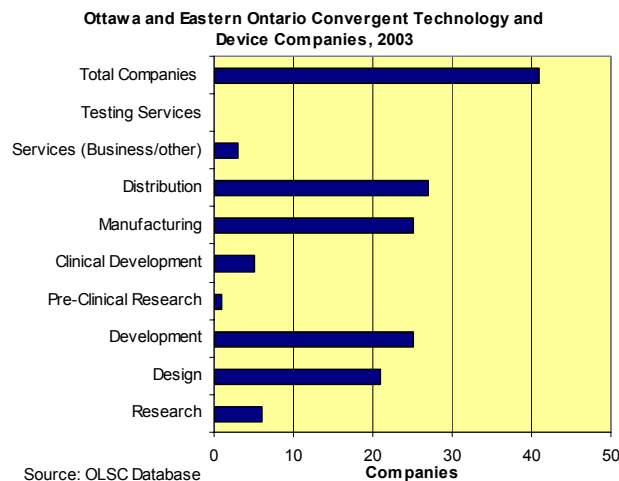
Université d'Ottawa · University of Ottawa

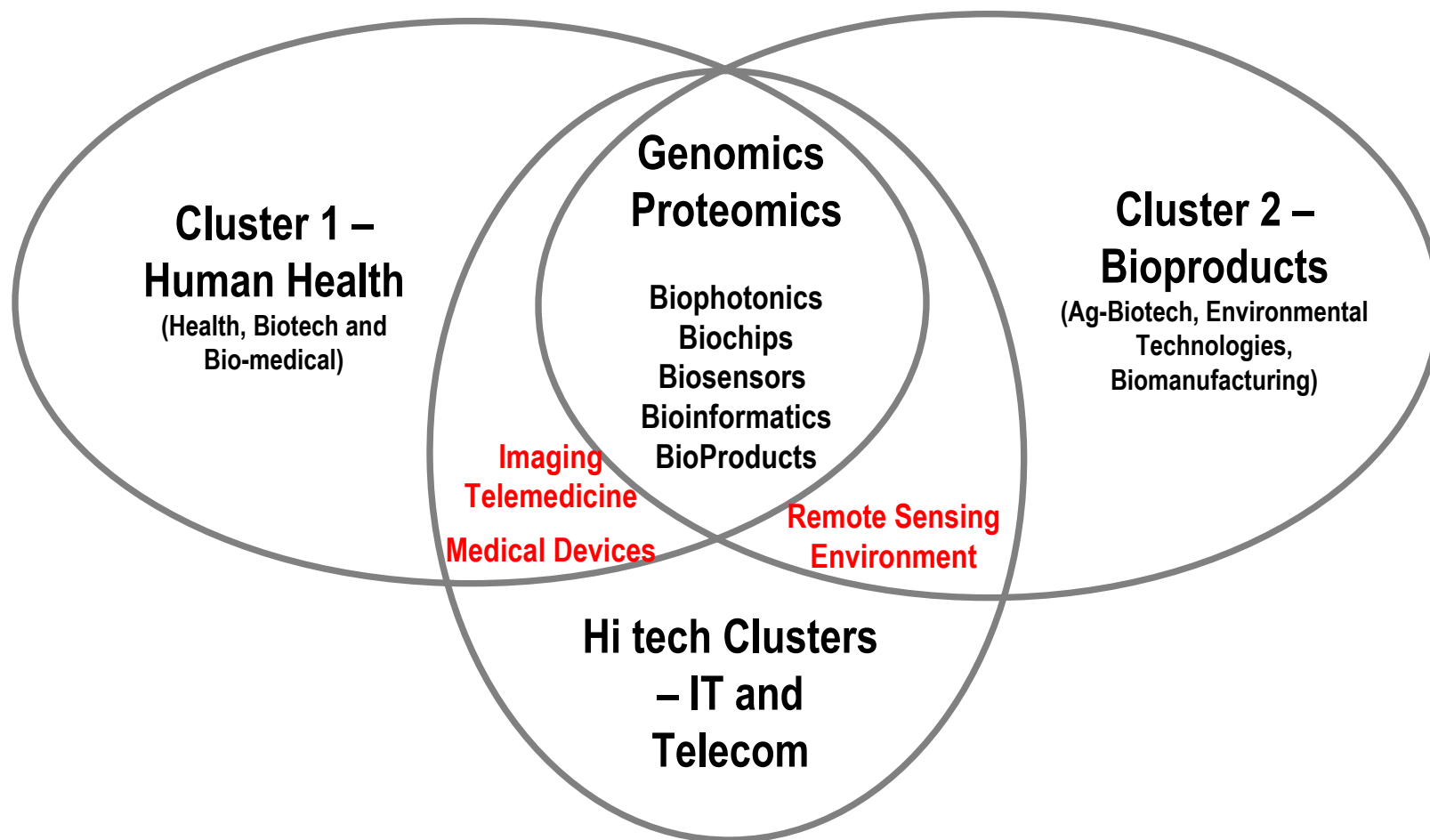


- OBIC Farm/Greenbelt Research Farm
- Bioproducts Strategy



# Convergent Technologies





## Research

**ICPET, NRC – SIMS, IBS, IMS** (nanotechnology, microelectronics, biochips, biophotonics, informatics), **University of Ottawa/OHRI** (biophotonics), **Carleton University** (medical physics)

## Technical Training

**Algonquin College** (photonics, computer engineering), **NCIT** (information Technologies), **Vitesse** (biophotonics, IT), **Carleton University** (computer engineering, biomedical engineering), **University of Ottawa** (biomedical engineering, computer engineering)

## Contract Research

**Photonics Fabrication Facility** (prototypes), **U of Ottawa Heart Institute** (device evaluation, telemedicine), **World Heart Corporation** (device evaluation), **Carleton University Design Centre** (prototypes), **Mosaïd** (chip design), **Design 1<sup>st</sup>** (prototype)

## Products

**Epocal** (biochips), **Iatroquest** (biosensors/biophotonics), **Ionalytics** (mass-spectrometry), **Zarlink** (chips), **QNX Software** (embedded software development tools), **I-stat** (clinical biochips), **Gridiron** (bioinformatics), **March Networks** (telemedicine), **CDC** (telemedicine)



National Research  
Council Canada

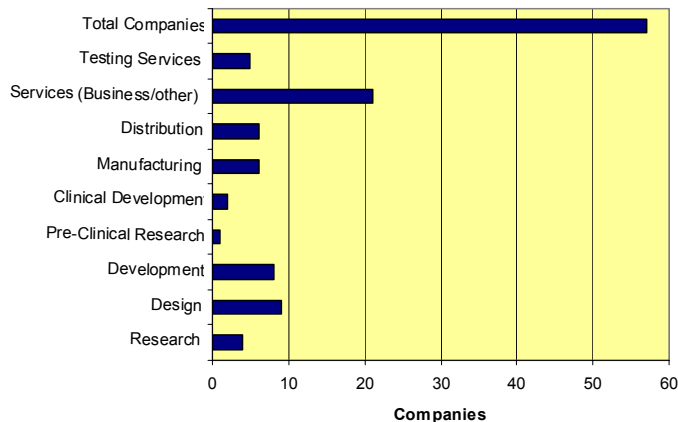
Conseil national  
de recherches Canada



- **Advanced Biophotonics Consortium**

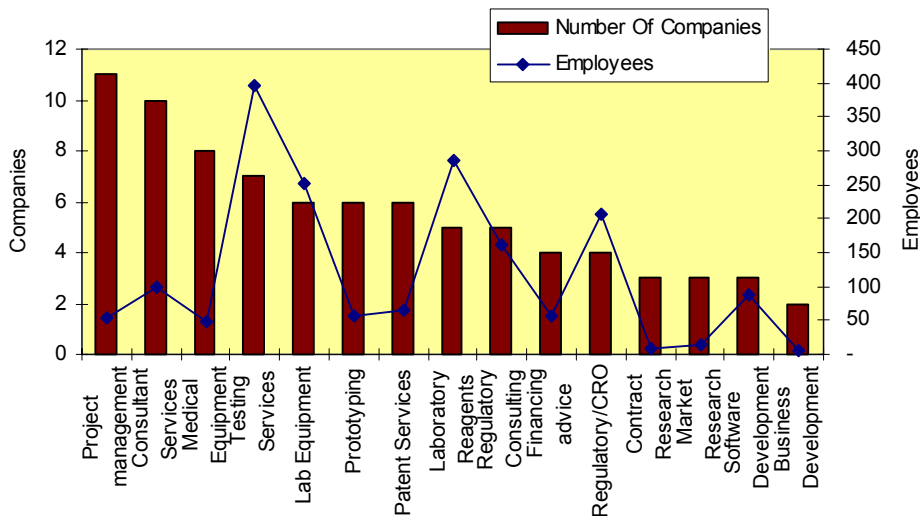
# Support Services Cluster

**Biotech-related Service Companies in Ottawa and Eastern Ontario, 2003**



Source: OLSC Database

**Ottawa and Eastern Ontario Companies Offering Biotech-Related Services**



Source: OLSC Database

# Questions?