

Photonics Workshop of January 17, 2019

Atelier du 17 janvier 2019

Location: NRC, 1200 Montreal Road, Building 50, Ottawa

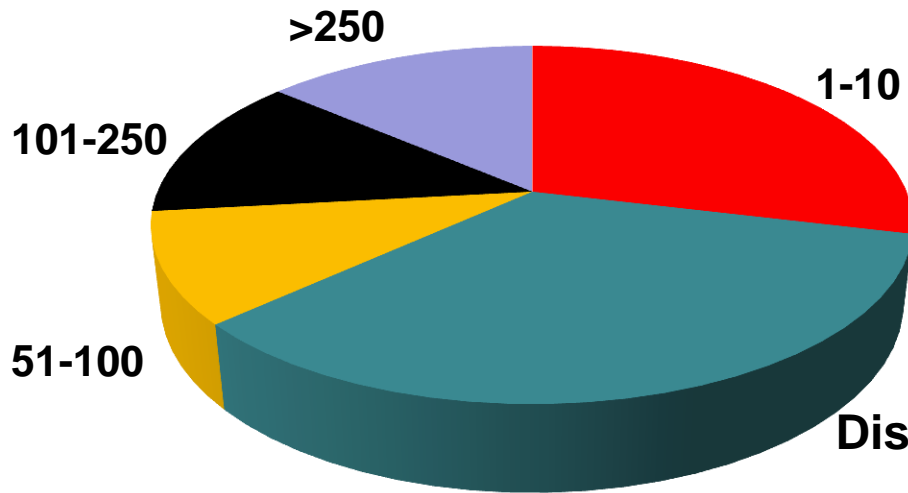
Time	Subject	Presenter
08:30	Introduction	Robert Corriveau, CPIC Marie-C. Ferland, Optonique Thomas Ducellier, NRC
08:50	Communications	Chris Ritchie, OCE
09:10	Defense	Richard Lestage, DRDC
09:30	Manufacturing	Frank Defalco, CME
09:50	Medical	Tim Pope, INO
10:10	BREAK	
10:40	Canada's National design Network Photonics Technology Directions	Robert Mallard, CMC Microsystems
11:00	Light-on-Board	David Rolston, Reflex Photonics
11:20	Imaging	Harry Page, Pleora
11:40	Photovoltaics/Energy	Karin Hinzer, U. of Ottawa
12:00	DISCUSSION on IMPORTANT TECHNOLOGIES AND APPLICATIONS for 2019-2020	Robert Corriveau, CPIC Marie-C. Ferland, Optonique
12:30	LUNCH	
13:30	Presentation and discussion on the NRC High and secure throughput Networks for rural and remote communities	Thomas Ducellier, NRC
16:30	CLOSURE	

Workshop

- To develop an approach for increasing the impact of photonics in Canada
- To discuss the new NRC program on High Throughput networks.

Robert Corriveau, CPIC
Marie-Christine Ferland, Optonique
Thomas Ducellier, NRC

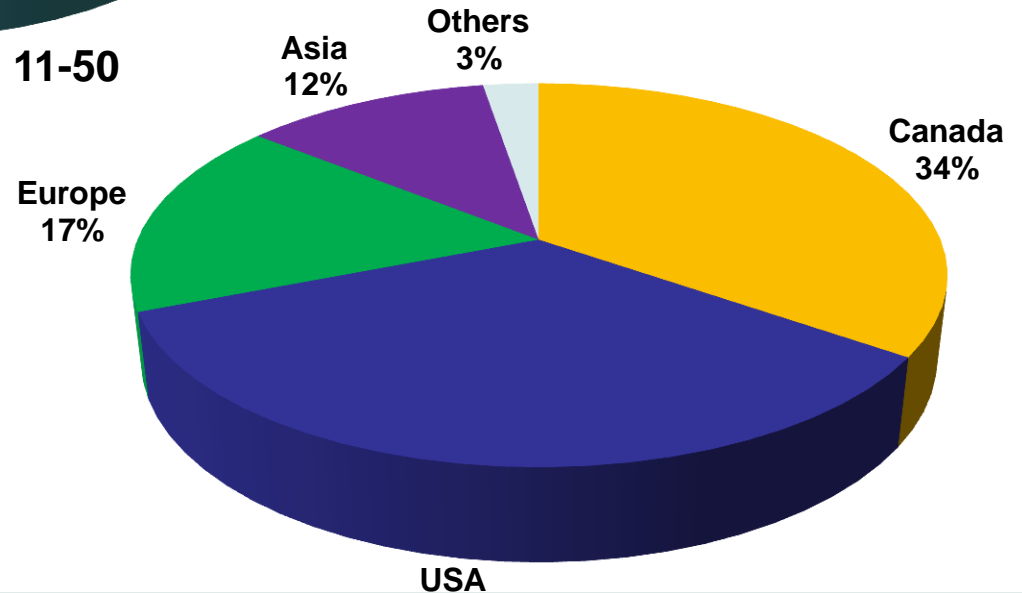
Distribution of Photonic Companies by Number of Employees



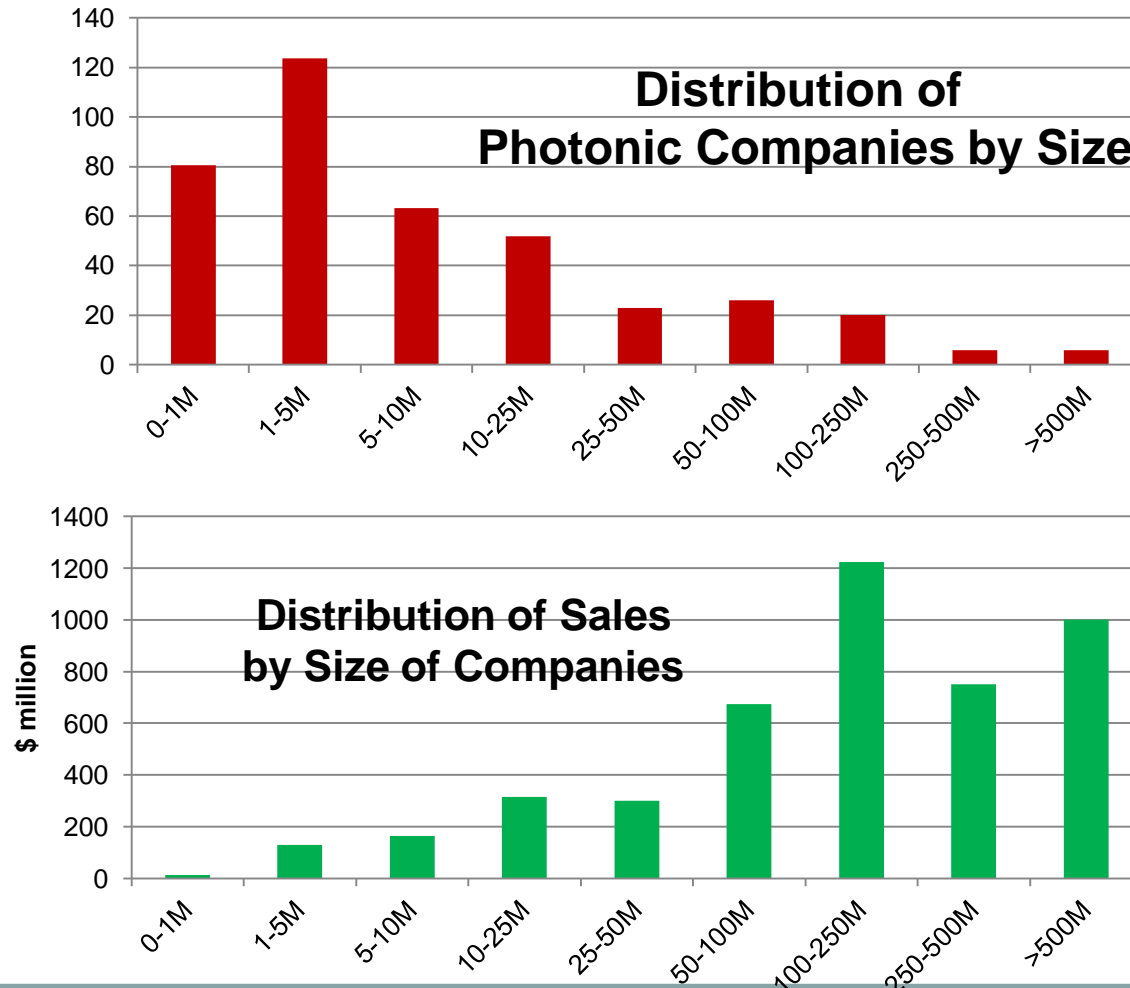
Results from the 2015 Survey of Canadian Photonic Industry:

400 photonic companies
\$CDN 4.6 billion sales
25,000 employees

Distribution of Photonic Sales



86% of sales are by 20% of companies

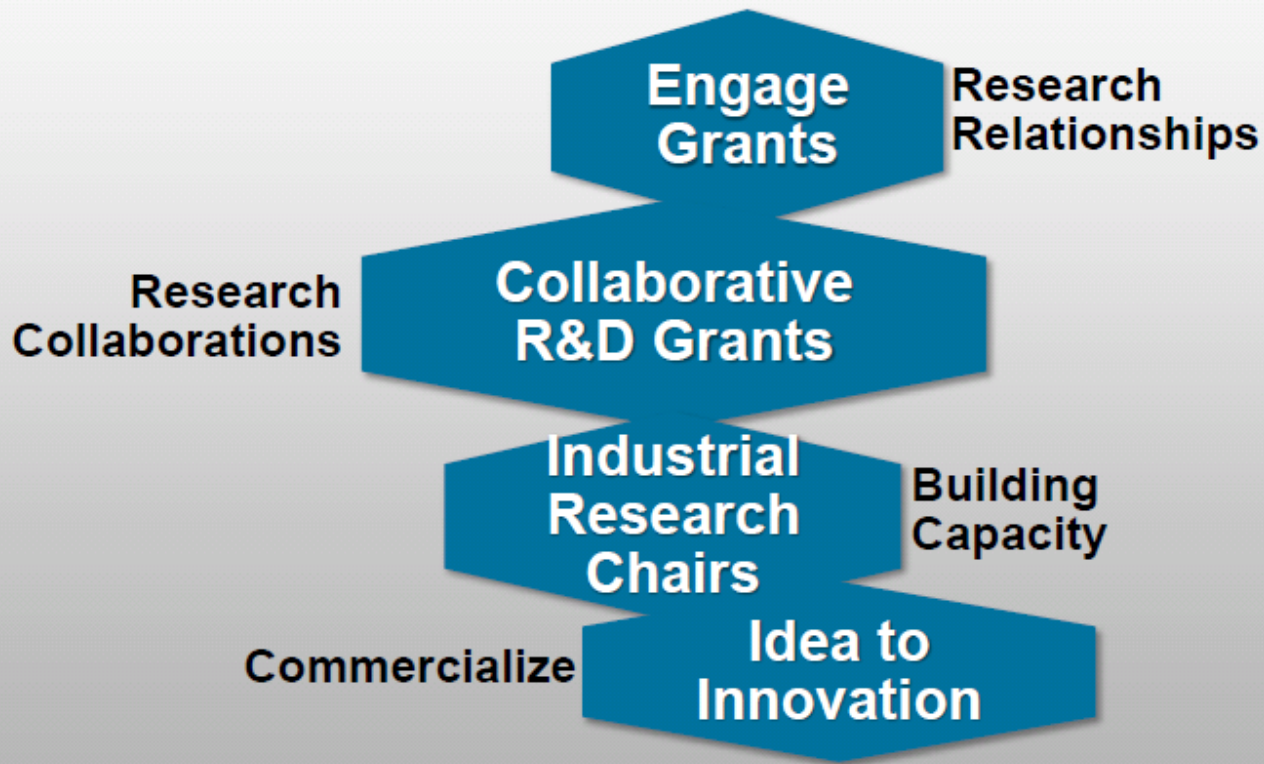


36 Photonic Universities and 11 Research Centres



- Research Centres**
- C2MI
 - Canadian Light Source
 - Canarie
 - CMC Microsystems
 - DRDC
 - INO
 - Novika
 - NRC
 - Optech CCTT,
 - ...

Key Industry Partnerships Programs



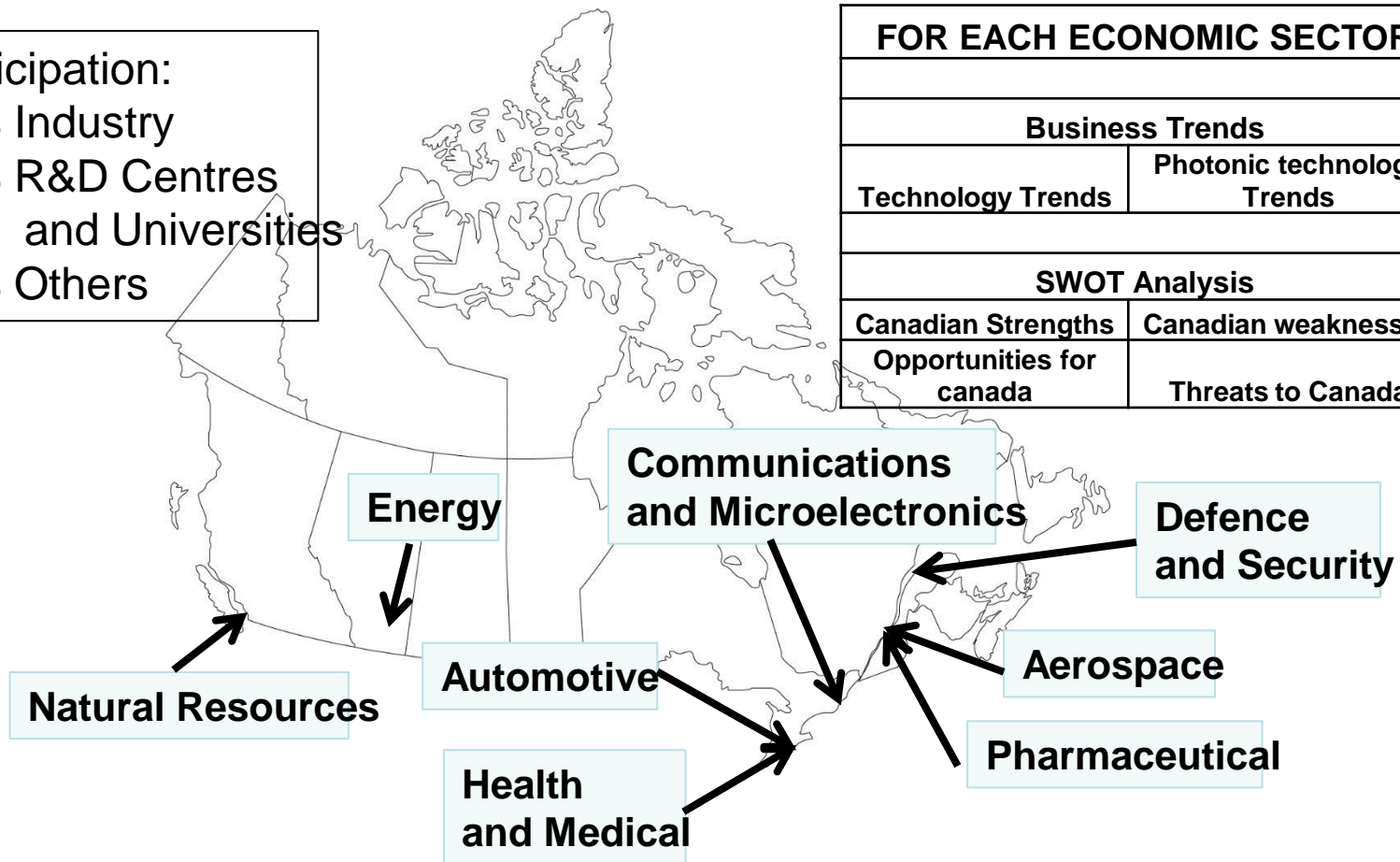
Innovation /

Note: The whole Partnership Programs are presently under review

Distributed Workshops on the Key Canadian Economic Sectors

Participation:
 43% Industry
 33% R&D Centres
 and Universities
 24% Others

FOR EACH ECONOMIC SECTOR	
Business Trends	
Technology Trends	Photonic technology Trends
SWOT Analysis	
Canadian Strengths	Canadian weaknesses
Opportunities for canada	Threats to Canada



Photonics for the Aerospace Sector

Business Trends

Advanced manufacturing
Reduce weight and power consumption
Optimization of flight parameters
Inspection and maintenance
More efficient lighting
High resolution displays
Flight passenger experience
(entertainment, connectivity, etc.)

Energy Sector

Business Trends

The industry is looking for efficiency improvement
Energy industry (oil & Gas as well as solar) need better monitoring capabilities at all levels
Trend is toward sustainable energy and renewable resources
Solar energy is moving from provincial to municipal support

Photonics for the Automotive Sector

Business Trends

Advanced manufacturing of light weight composite material
Secure connected vehicle for navigation and car-to-car communications
Vehicle-to-vehicle direct sight communications
Automobile lighting with new efficient sources
Laser welding for efficiency and faster production
Green technologies for energy, weight reduction and low fuel consumption

Natural Resources Sector

Business Trends

Strong price pressure for the mining sector
Strong social pressure on the environment issues
Many NR industries are traditionally low tech, it has difficulty to invest in new technology
Lack of technology skill for labors limits introduction of new technology
Reducing cost by using technology

Communications and Microelectronics Sectors

Business Trends

Strong pressure on power and cost reduction

at all levels (joules/bit and \$/bit)

Dramatic increased requirement for bandwidth

with datacom, HD video and the Internet of Things

Short reach interconnects for data centres

Security is critical for data communications

The Pharmaceutical Sector

Business Trends

Globalisation of pharmaceutical industry

Growing use of generic drugs

Outsourcing R&D to SMEs and universities

Precision medicine with personalized pathology and genomics

Point-of-care diagnostics

Defense and Security Sector

Business Trends

This sector needs pervasive technologies such as photonics

Cyber security is of growing importance

Information overload and data integration is becoming problematic

Alliances are necessary since security is a global concern

They need better, faster, smaller and lower cost equipment

Health and Medical Sector

Business Trends

The emerging Big Data drives the new business models with internet, the cloud, data interpretation, etc.

Aging population requires increasing medical services

Increased use of wearable systems and telemedicine

Distributed healthcare delivery

Need more efficient equipment (lower cost, better performance)

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