Cyber Security & Intelligent Autonomous Systems in Alberta

Ken Brizel – CEO ACAMP

Who and What is ACAMP

- ACAMP is a unique industry led product development centre supporting advanced technology commercialization

- From sensors to systems

- ACAMP is the only advanced technology product development group in Canada that provides support at each stage of product development process through to production

- Created AST Consortium in 2016 now 42 Members

- ACAMP was established in 2007 and currently has 40 multidisciplinary engineers

- Presently supports over 400+ clients - www.acamp.ca

EDMONTON
1919 - 94ᵗʰ Street NW
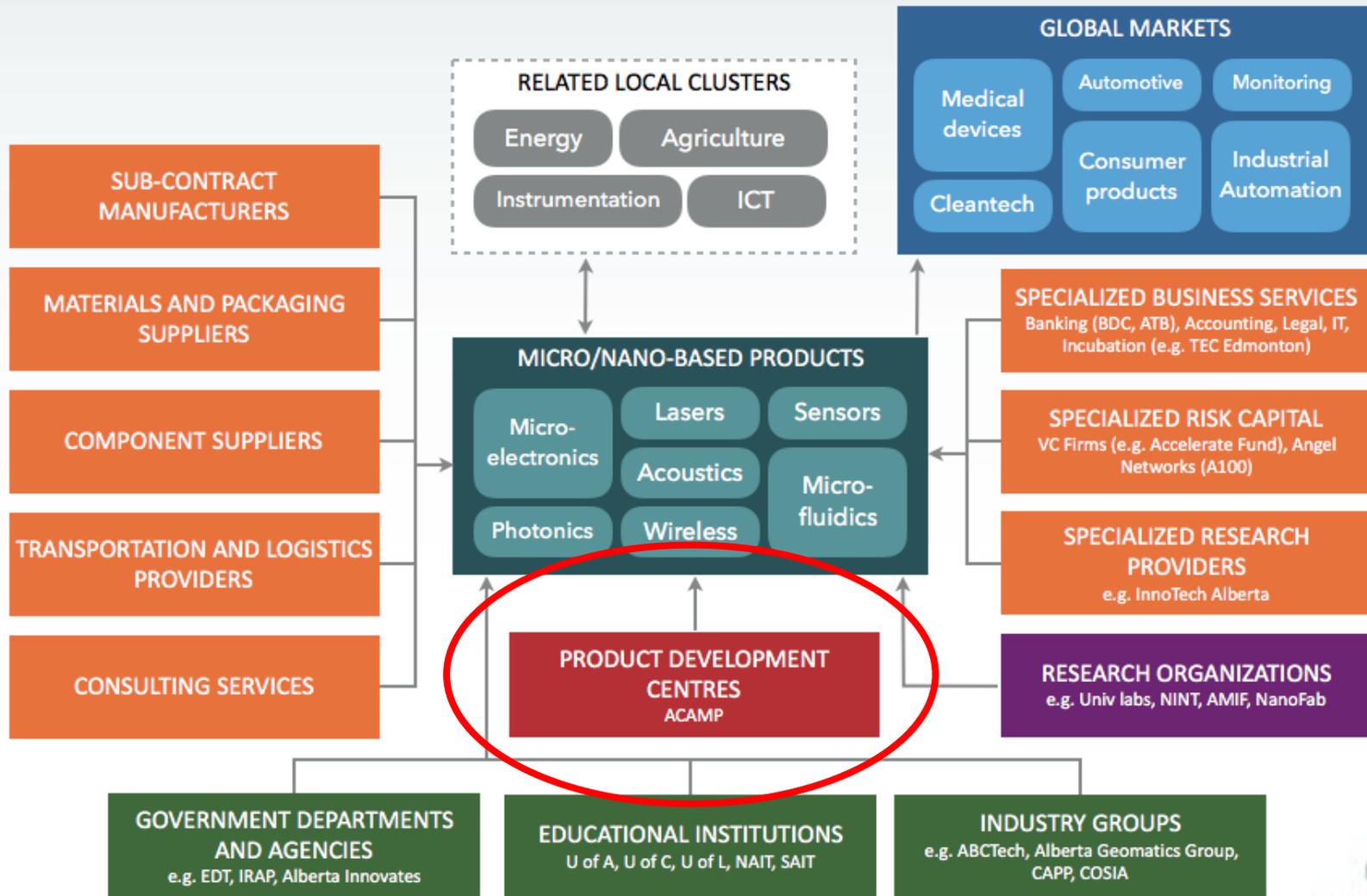3623 - 44 Avenue East Unit 101 EIA

CALGARY
Bay 1 - 1470 & Bay 3 -1480 28th Street NE

We focus on electronics hardware, firmware, sensors, and embedded systems. We are the only advanced technology product development group in Canada that provides a full range of support at each stage of the product development process.

Alberta's Technology EcoSystem

ACAMP 2017 Highlights

49
New Clients

Completed
147
Projects

7
companies taking products to market

Over
4,480
HQP Trained

100%
Of clients would return for new services

Over
93%
SME's

over
355
clients since inception

36
AST Consortium Members

92%
Alberta-based clients

3
workshops and seminars hosted

6
Patent filings for clients

AST Consortium
Advanced Systems for Transportation

Vision

> AST consortium will be a world leader in its ability to accelerate the delivery of autonomous systems into transportation by bringing together requirements with world class experienced personnel

Mission

> Accelerate AST products to market by investing in and supporting the development of autonomous systems through hardware, firmware and software expertise along with testing and characterizing the developed products.

Objectives

1. Facilitate informative, multi-directional communication between industry, government and applied research.
2. Identify and invest in opportunities to commercialize new AST products and services both locally and internationally.
3. Support the eco-system and grow the economy in Alberta around advanced systems for transportation
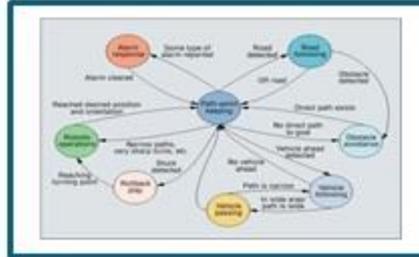
Security and Safety

| Perception | Comprehension | Projection | Communication |

Perception: Radar, Lidar, Camera, GPS, IMU, Ultrasonic, Mapping

Comprehension: Sensor Fusion, Machine Learning & Artificial Intelligence, Human Machine Interface, Robotics

Projection: Steering, Braking, Transmission/Drive
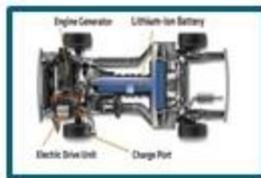
Communication: Cellular, Satellite, Wireless
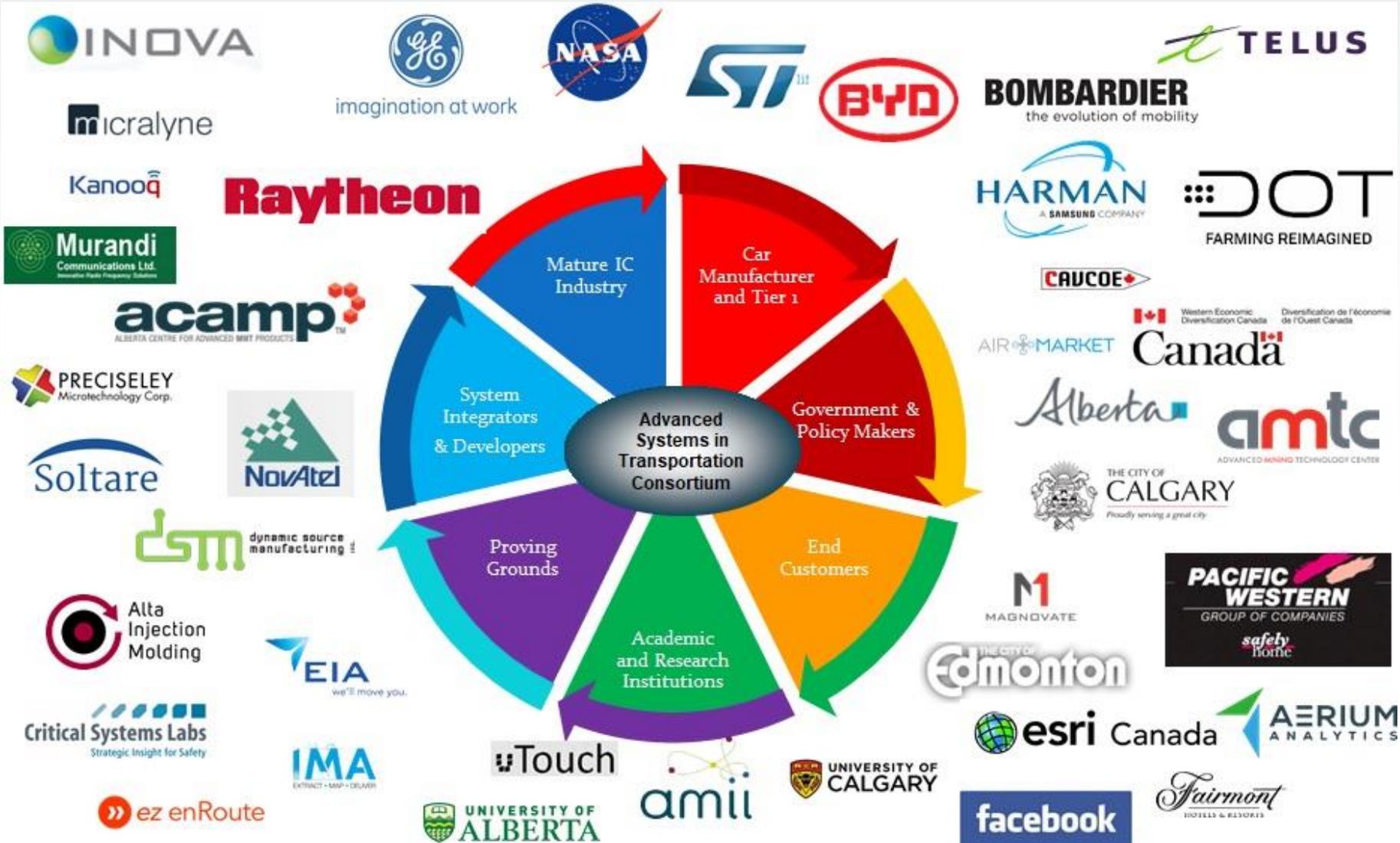
Trends in Urban Transportation

Intelligent Autonomous

Systems capable of intelligently navigating and responding to complex operating environments with little to no human input

Connected

Systems of objects, such as devices and infrastructure, capable of communicating and interacting over wireless networks

Electrified

Systems that use electric power rather than fuel from carbon based sources such as fossil fuels

Shared

Systems, usually digital platforms, that enable the sharing of assets or services

- These numbers reflect annual US incidences alone, resulting in:
  billions worth of property damage,
  lost work hours,
  lawsuits and insurance claims,
  emergency vehicle failing to reach its intended destination.

Security ATV Project Goals

- ACAMP has developed an autonomous security patrol system for Edmonton International Airport.

- The system will :

  - ✓ Operate autonomously over long range

  - ✓ Conduct routine patrols of the perimeter

  - ✓ Detect security threats & intruders

  - ✓ Identify wildlife versus humans

  - ✓ Send pictures and video feeds

  - ✓ Report back to Security

Platform Autonomous Vehicle

✓ Donated by BYD

✓ Modified drive by wire

✓ Operate autonomously

✓ Platform for AST

✓ Level 2.5 today

C6 Project Concept

Developing Self-Driving Shuttle for travel on predefined routes or geo-fenced locations, such as:

- Within university campuses

- Corporate parks

- Residential communities

- Transportation hubs & Airports