



Our goal is clear: help our clients move their innovative products to production

Annual Report

2016





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Letter to Stakeholders

2016 marked another year of economic challenges for Alberta and Albertans, and therefore served to emphasize the need for a renewed effort to diversify our economy. For the past nine years, ACAMP has been at the forefront of supporting this effort.

Our services and capabilities are fundamental to micro/nano product development in the Province of Alberta, providing access to specialized equipment and experienced senior engineering team with product development backgrounds who have successful track records of taking products to market. This expertise is available to entrepreneurs and small and medium size companies (SMEs) that could not otherwise afford it. While not all product development efforts make it to market, some do, and we feel extremely fortunate and proud to have been involved in our clients' journeys.

ACAMP itself is on a journey: to be the "sought after go to" organization for micro/nano product development assistance in Western Canada. To that end, in 2016 we invested significant efforts in a number of areas, but three in particular stand out. First, we established the documentation, controls and procedures necessary to achieve ISO9001:2015 certification (planned for 2017), which improves our ability to deliver with the quality and consistency that our clients expect and require. Second, we expanded our capabilities in low-temperature co-fired ceramic (LTCC) design and assembly, which will enable clients to explore the use of this promising technology in their product solutions. Third, we leveraged our international network to establish a new industry consortium focused on autonomous systems and driver assistance (the SITI consortium, described below), aiming to provide even greater opportunities for Alberta technology companies to enter new markets.

We look forward to working with our partners and clients in the coming years, continuing our shared quest to establish Alberta on the world stage as a provider of unique and market-leading micro/nano-enabled solutions.

Sincerely,

Ken Brizel, CEO



Highlights



Building Our Global Network

“The world is flat”, according to Thomas L. Friedman of the New York Times. Many of ACAMP’s clients are addressing global markets, and compete against companies from all over the world. Furthermore, their supply chain, channel, and technology partners are frequently beyond Alberta’s—and Canada’s—borders. ACAMP is able to leverage its expanding international network of Multinationals (MNE), research organizations and other technology companies to assist clients with their global reach.

SITI (Smart Infrastructure & Transportation Initiative)

This past year, ACAMP was approached by the Alberta government’s Department of Economic Development and Trade to explore ways to support Alberta-based development of products and solutions for advanced driver-assistance and intelligent systems. Alberta companies have already developed similar and/or complementary industrial technologies in energy, mining, and agriculture. Determining how these developments could be leveraged for transportation applications could open up significant new market opportunities for Alberta-made technology companies.

In response, ACAMP leveraged its global network to establish an industry consortium focused on exploiting this opportunity. Four large multinationals have committed to join and provide the majority of funding required: Magna International (largest automobile parts

manufacturer in North America), Harman International Industries (world leader in connected car systems), STMicroelectronics (Europe’s largest semiconductor chip maker), and BYD (Chinese manufacturer of rechargeable batteries and world’s top selling plug-in electric car manufacturer). The proposal was recently submitted to the Province and approved in February 2017 for funding.

International Speakers

During 2016 our well-attended seminars featured speakers from around the world, presenting on topics such as Smart Cities, Advanced Monitoring Systems and Autonomous Systems.



Enhancing our Value to Clients

EURIPIDES2

In 2016, ACAMP continued its involvement on the Board of EURIPIDES2, a Europe-based association of MNEs, SMEs, and research institutes focused on supporting the development of smart electronic systems. ACAMP works continuously to understand and anticipate our current and future clients' needs, and we respond by making strategic investments as required.

Quality Management System

Being able to deliver quality product in a repeatable and efficient manner is critical to many companies' success, and ACAMP is no exception. ISO9001:2015 is an international standard globally recognized as an effective and comprehensive quality management system, and ACAMP's clients—and their customers—are increasingly demanding adherence to the ISO9001 standard.

Low-temperature Co-fired Ceramics (LTCC)

Low temperature co-firing technology presents advantages compared to other packaging technologies. The ceramic is generally fired below 1,000 °C permitting co-firing with highly conductive materials such as silver, copper and gold. LTCC also features the ability to embed passive elements, such as resistors, capacitors and inductors into the ceramic package, minimizing the size of the completed module. LTCC opens up new possibilities for our clients' product designs, so in 2016 ACAMP invested in both equipment and expertise to support LTCC-based packaging.

Client Spotlight

Giving patients a reason to smile

SmileSonica Inc. is an Edmonton-based technology company focused on the research, development, manufacturing, and commercialization of medical devices for dental and health care applications. Their Aevo System™ enhances the physiological processes associated with orthodontic treatment. Regular use of the system during orthodontic treatment facilitates faster tooth movement and decreases orthodontically induced tooth root resorption. The Aevo System™ has now been approved for sale in 35 countries, including Canada, Australia and the European Union.

ACAMP has worked with SmileSonica for several years, providing access to engineering know-how and specialized equipment. ACAMP also assembled many of the components used in the first units for clinical trials.

Without ACAMP's support over the last 8 years our company would not be where we are today.

Cristian Scurtescu
MSc, PEng, Founder and CEO



World-class pipeline monitoring

Founded in 2007, Hifi Engineering Inc. is a Calgary-based developer of turnkey distributed fiber optic sensing systems sensors, hardware & visualization software focused on downhole and pipe applications. Hifi uses best-in-class sensor technology, hardware and software platforms to provide high quality data for its customers. Hifi's technology is backed by over 33 patents, and strategic investors include Enbridge Inc. and Cenovus Energy Inc. ACAMP has worked with Hifi for several years, providing specific engineering and design skills during the product development phase.

We are pleased to have been partnered with ACAMP over the past number of years for our advanced technology development requirements. ACAMP represents a significant solution for companies such as Hifi

Steven Koles
President & CEO



Team Spotlight

LTCC & Microfluidics

LTCC (Low Temp Co-Fired Ceramic) has huge benefits at high frequencies and harsh environments such as energy and mining. Ceramic substrates have excellent physical and electrical properties at high frequencies enabling Radar, Lidar and many other antenna designs. ACAMP's LTCC process is the only production facility in Canada.

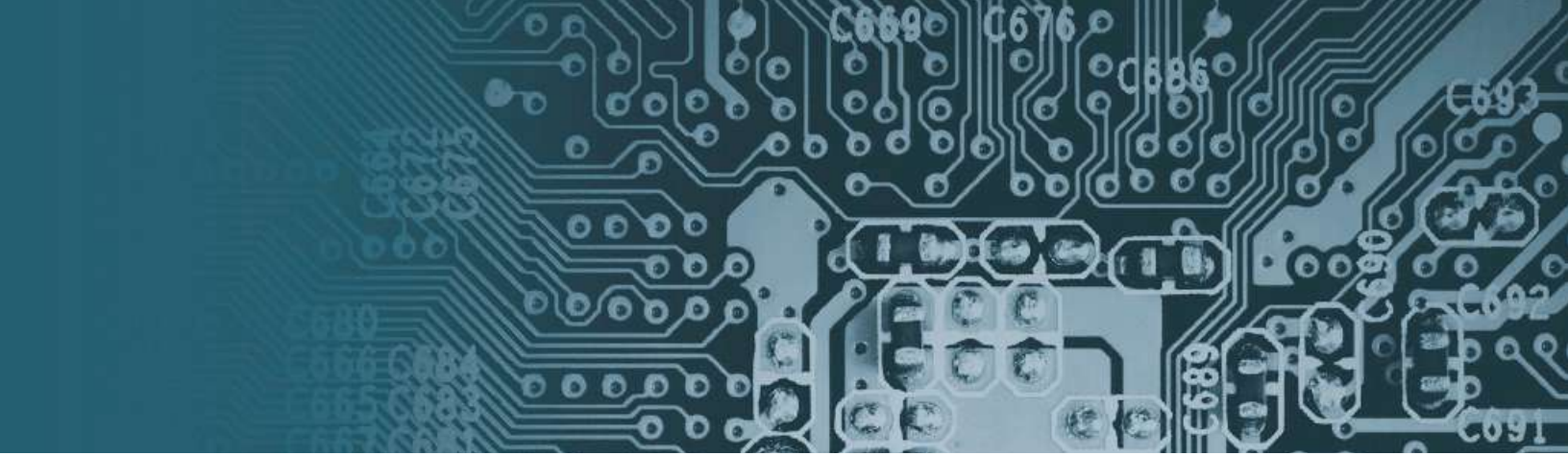
Microfluidics are micro systems in applications such as Wearables, Point of Care, Sequencing, Personalized Medicine, and Drug Discovery. ACAMP sees an increasing trend in industry activities toward bringing these solutions to market. Many start-ups and spin-offs with brilliant intellectual property are appearing. Alternatively, there are promising products being pushed by the established Medical Device and Pharmaceutical industry.

Micro Electro Mechanical microfluidic devices are often made from a plastic/glass/silicon/silicone layer covered by additional layers. Bonding or the sealing strength between the layers could be critical to the performance of the device. ACAMP selects the appropriate scalable processes for bonding which best fit device's important surface requirements such as contact angle, chemical/solvent or biological contaminants, inhibitory agents, roughness, or optical/fluorescence issues.

The ACAMP team has core expertise in development, and proprietary technology for fabrication of devices made of a variety of material systems PMMA: Polymethyl methacrylate, a.k.a acrylic glass or Plexiglass, PC: Polycarbonate, such as Makrolon or Lexan, PS: PolyStyrene, Popular plastic used for cell culture containers such as Petri Dish, COC: Cyclic Olefin Copolymer, is a thermoplastic polymer, COP: Cyclic olefin polymers, is a thermoplastic polymer.

Inertial Test & Characterization

Inertial navigation systems (INS) or Inertial measurement units (IMU) include at least a computer or controller and a platform or module containing accelerometers, gyroscopes, or other motion-sensing devices. The INS is initially provided with its position and velocity from another source (a human operator, a GPS satellite receiver, etc.) and thereafter computes its own updated position and velocity by integrating information received from the motion sensors. The advantage of an INS is that it requires no external references in order to determine its position, orientation, or velocity once it has been initialized. An IMU works by detecting the current rate of acceleration using one or more accelerometers and detects changes such as rotational attributes such as pitch, roll and yaw using one or more gyroscopes.

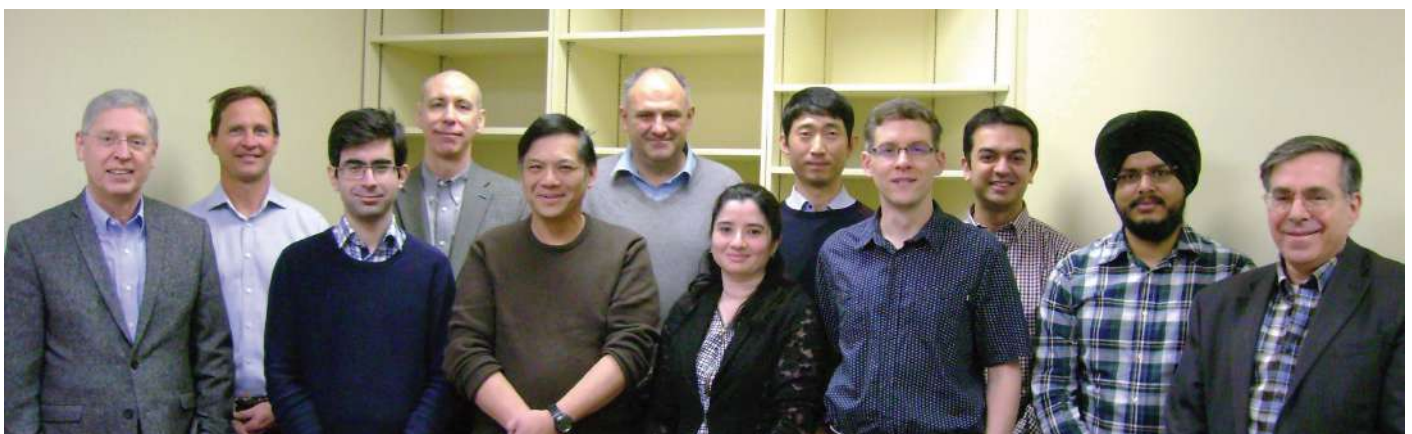


ACAMP takes products to market through careful planning, from concept to design, through development, testing and finally production. our facilities are equipped to aid in the integration of inertial technology with state-of-the-art inertial testing & characterization using in-house 3-axis rate table, complete design, assembly and test infrastructure, in-house ceramic hybrid LTCC packaging & assembly and a suite of product commercialization services.

Inertial technologies applications include navigation systems, motion sensors, downhole drilling systems, agriculture, health & medical, consumer electronics and geomatics.



Edmonton Team



Calgary Team

Leadership



Ken Brizel, CEO

Ken has more than 30 years' experience in managing high technology organizations. An executive with US, European and Asian operational experience over \$100M within high technology based industries. Hands-on business leader and mentor with extensive background in strategy, business development, planning, team building, sales, marketing, engineering, operations and manufacturing. He most recently served as CEO of LightPath Technologies a NASDAQ public company headquartered in Florida with manufacturing operations in Shanghai China. Prior to this, he was a Senior Vice President for Strategy and Business Development at Oplink Communications, Director of Strategic marketing and DSP Business Unit for AT&T/Lucent Microelectronics and senior management positions at GE/RCA and startup Star Semiconductor. Mr. Brizel holds a Master's Degree and Bachelor's Degree in Electrical Engineering and concentration in solid state physics from RPI (Rensselaer Polytechnic Institute) and was awarded the David Sarnoff Award Gold Medallion for Outstanding Technical Achievement at RCA for building the QMOS product line.



Rosy Amlani, CFO & VP Business Development

Rosy Amlani is a CMA with more than 20 years' experience in both government commercialization activities and private accounting practice. Rosy has held a management role in government and driven her team to analyze business cases for funding, reviewed targeted support for Western Economic Diversification , actively participated in the development of new commercialization organizations and initiatives, directly supported Alberta investments of over \$200M towards economic diversification. In 2005 was directly involved in the creation of the Alberta Centre for Advanced MNT Products (ACAMP). Rosy has dedicated her career to building and developing strong relationships in the innovation community. Through direct and indirect support, she has helped Alberta companies grow their revenue beyond what they could have achieved by themselves.



Andrew Carroll Vice President, Product Development Engineering

Andrew is a Professional Engineer with extensive business management experience in the areas of Strategic Planning, Corporate Services, Mergers & Acquisitions and Operations Management. Andrew started his career as a Production Engineer in the oil sands operations in Western Canada. He then moved on to more senior management positions in several fuel delivery, service and manufacturing businesses in the energy industry. He has broad experience managing Corporate Services groups including engineering and quality control, fleet & transportation, procurement and warehousing and project management. In addition he has managed numerous acquisitions and divestiture transactions over his career. Andrew has a Bachelor's of Mechanical Engineering from the University of Calgary and an MBA from the Richard Ivey School at the University of Western Ontario.

Warren Sheydwasser	ACAMP Chairman, President/CEO of Soltare Inc
Dr. Sergio Kapusta	ACAMP Vice-Chairman, Former Chief Scientist for Royal Dutch Shell and General Manager of Physics & Materials Research at Shell International E&P Inc.
Jayson Tymko	ACAMP Director, J2 Capital Corp, President
Kevin Keough	ACAMP Director, Alberta Prion Research Institute, Executive Director
Chris Erickson	ACAMP Director, Founder of Pangaea Ventures
Amolak Grewal	ACAMP Director, President & CEO, HumanEdge Global and previously the COO for ATB
Ken Brizel	ACAMP Director & CEO

Financial Statements of ACAMP Inc.

Alberta Centre For Advanced Mnt Products

Statement of Financial Position

December 31, 2016, with comparative information for 2015

Assets	2016	2015
Current Assets		
Cash and cash equivalents	\$ 1,444,108	\$ 1,849,541
Accounts receivable	186,148	212,745
Prepaid expenses and deposits	77,820	68,341
	1,708,076	2,130,627
Capital assets, net of accumulated amortization of		
\$11,309,360 (2015 - \$9,919,578)	4,036,067	5,182,638
	\$ 5,744,143	\$ 7,313,265
Liabilities		
Current liabilities		
Accounts payable and accrued liabilities	\$ 362,021	\$ 168,029
Deferred revenue		4,922
	362,021	172,951
Fund balances:		
Capital fund	4,369,230	5,182,638
Operating fund	1,012,892	1,957,676
	5,382,122	7,140,314
Commitments		
	\$ 5,744,143	\$ 7,313,265

See accompanying notes to financial statements.

On behalf of the Board:

Statement of Financial Position

December 31, 2016, with comparative information for 2015

	Operating fund	Capital fund	2016 Total	2015 Total
Revenue				
Government of Alberta grants	\$ 2,000,000	\$ 400,000	\$ 2,400,000	\$ 2,000,000
Western Economic				
Diversification Canada grant				497,635
Customer service fees	1,021,798		1,021,798	2,548,208
Other	24,185		24,185	34,618
	3,045,983	400,000	3,445,983	5,080,461
Expenses:				
Salaries and benefits	2,907,279		2,907,279	2,567,252
Amortization		1,393,306	1,393,306	1,575,837
Rent	223,354		223,354	196,505
Consultants	176,945		176,945	624,655
Office and general	152,021		152,021	143,835
Advertising	80,184		80,184	70,557
Repairs and maintenance	13,133	66,837	79,970	66,264
Travel	58,958		58,958	58,250
Materials and supplies	57,391		57,391	32,606
Professional fees	47,574		47,574	17,792
Telecommunications	21,652		21,652	31,260
Professional development	12,775		12,775	26,329
	3,751,266	1,460,143	5,211,409	5,411,142
Other income (expense):				
Interest income on short-term investments	26,518		26,518	30,172
Realized foreign exchange loss	(3,851)		(3,851)	(4,444)
Realized loss on short-term investments	(13,957)		(13,957)	(19,244)
Loss on disposal of capital assets		(1,476)	(1,476)	
Deficiency of revenues over expenses	\$ (696,573)	\$ (1,061,619)	\$ (1,758,192)	\$ (324,197)

Partners



Funding

ACAMP gratefully acknowledges the generous financial support of the following organizations:





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ACAMP (Alberta Centre for Advanced MNT Products) is a not-for-profit organization that provides specialized business services to MNT clients including Marketing & Business Development, Product Development, Packaging, Assembly and Manufacturing.





acampTM
ALBERTA CENTRE FOR ADVANCED MNT PRODUCTS