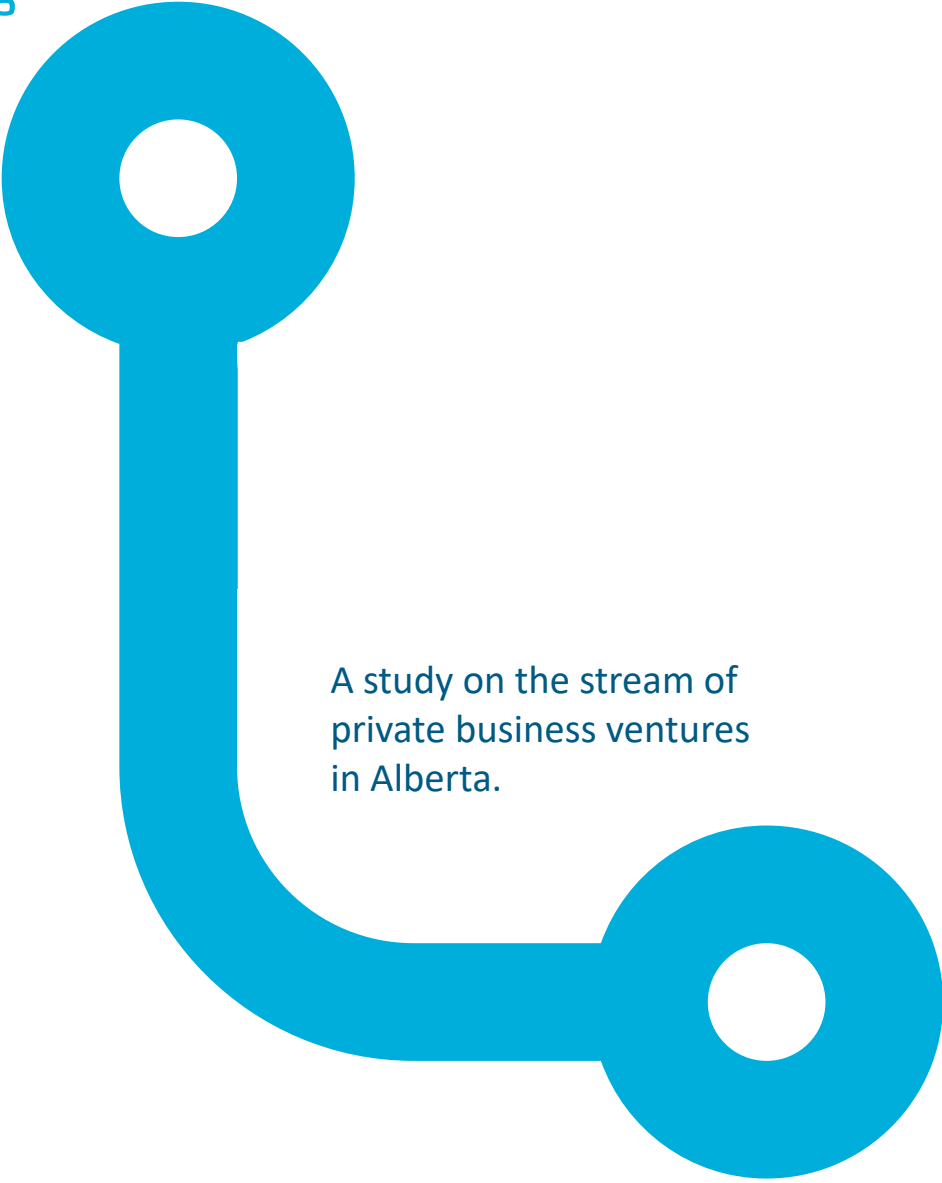


Alberta Technology Deal Flow Study

September 2016



A study on the stream of
private business ventures
in Alberta.


albertaenterprise

Technology Deal Flow in Alberta



MESSAGE FROM KRISTINA WILLIAMS,
PRESIDENT AND CEO

The objective of this study is to provide stakeholders with a shared understanding on the strength and make-up of technology deal flow across sectors and regions in Alberta.

Entrepreneurship is woven into the fabric of Alberta and this is an exciting time of growth for investors and technology companies. Alberta Enterprise is working to help build a more sustainable, diversified technology industry in Alberta, one where home-grown innovation is encouraged and technology entrepreneurs have greater access to venture capital. It was identified early on that while deal flow is an indicator of a thriving ecosystem, it is often difficult to track and poorly understood. Alberta Enterprise commissioned this study to build on the 2009 and 2012 reports, to bridge this knowledge gap and to provide insight into the technology deal flow landscape in Alberta.

Thank you to all participants of this study, whose support made this report possible. We hope that this report provides valuable insights and helps your organization to continue to serve, support, or fund promising companies in our technology industries.

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Introduction to the Alberta Technology Deal Flow Study

It has been almost four years since the 2012 Alberta Deal Flow Study was released and since then the overall technology ecosystem has grown considerably. Deal flow is an indicator of the health of the overall technology ecosystem and this study seeks to provide stakeholders with a shared understanding of the make-up of technology deal flow across sectors and regions in Alberta.

“Deal Flow” is the stream of private business venture investment opportunities sought by venture capital, angel and other investors for the purpose of making a return.

TECHNOLOGY COMPANIES INCLUDED IN THE STUDY

Validated deal flow in the study met the following criteria:

- Headquartered in Alberta
- Active between February and June 2016
- Privately held
- Produce a technology-based product
- May be software, hardware, equipment, devices, chemicals, pharmaceuticals, and any product offerings that required development and/or R&D

Note: Does not include value added resellers, integrators, or distributors.

The 2016 Alberta Deal Flow Study is a collaborative effort, including data from:

- 200 industry stakeholders, including venture capital firms, investors, business incubators, research and technology commercialization organizations, industry associations and forums invited to participate in the study
 - Over 50 stakeholders promoted the survey, of which 29 further participated by submitting lists of technology companies for a total of 6,194 names to validate
- 357 survey responses collected, including 252 completed by founders and employees of unique Alberta-based technology companies, representing 18% of 1,373 total companies identified
- 11 publicly available data sources, company directories and online forums yielding 436 technology company names
- The 2012 Deal Flow Study including 927 technology companies

Technology Ecosystem is growing

The overall technology ecosystem within Alberta is continuing to grow, supported by strong growth in technology deal flow and investment opportunities within the province. Out of the 927 technology companies identified in 2012, 443 were found to still be operating in Alberta today. While outside the scope of this study, it is important to note that companies no longer included in the study may have been acquired, moved to other regions, or ceased operations.



There are **1,373** technology companies headquartered in Alberta, **up 48%** from almost 4 years ago



Of the 927 technology companies identified in 2012, **about half** are still operating today



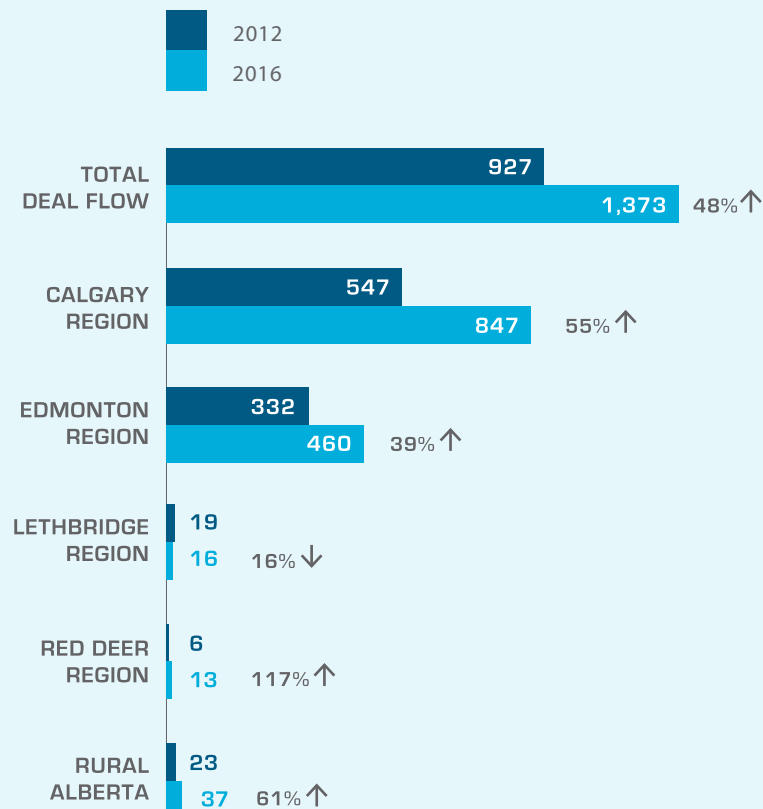
95% of technology companies are headquartered in either the **Calgary** or **Edmonton** regions

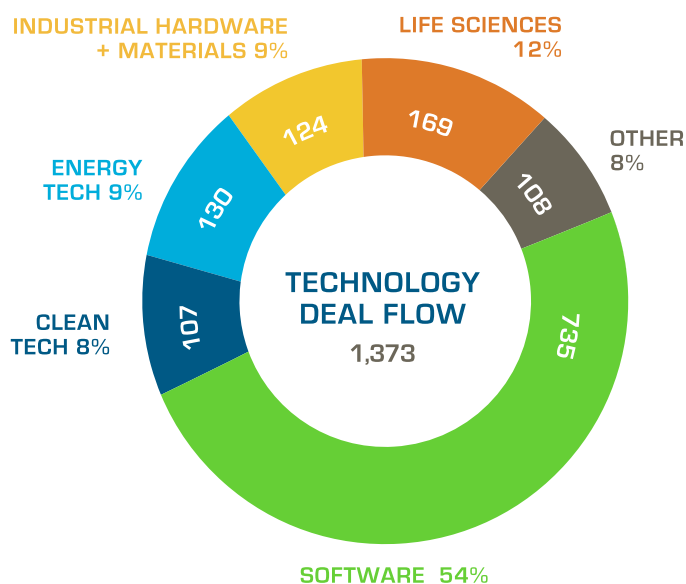


Calgary has seen a **55 %** increase in technology companies over the last 4 years and **Edmonton** has seen a **39%** increase

1,373 TECHNOLOGY COMPANIES WERE IDENTIFIED ACROSS ALBERTA IN 2016, UP FROM 927 IDENTIFIED IN 2012

Technology Deal Flow in Alberta





Technology spans Diverse Sectors and Industries

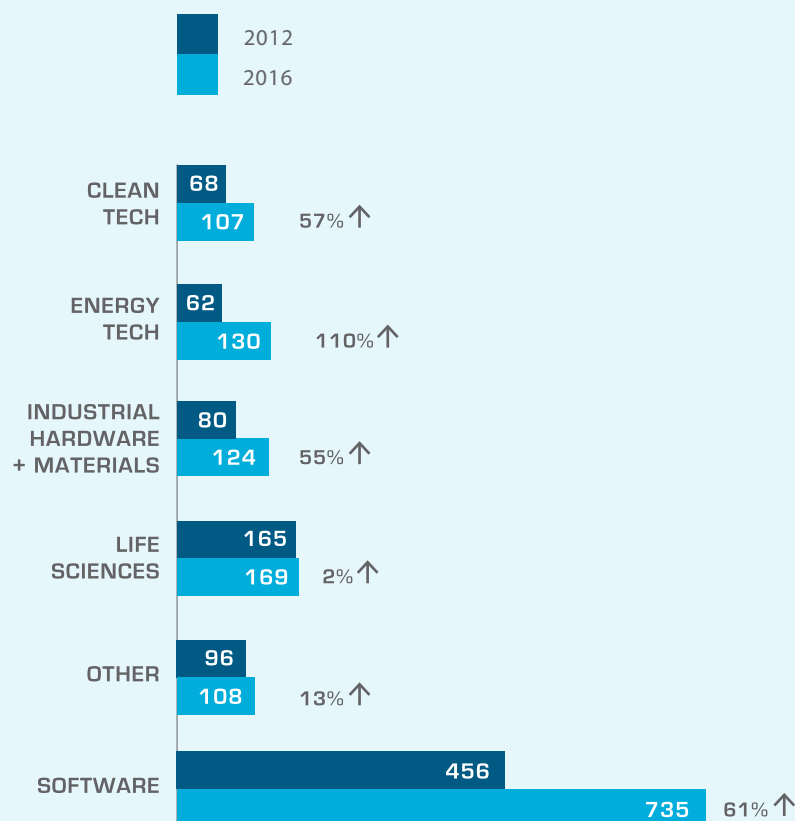
The technology industry in Alberta is diverse, including companies operating in software, life sciences, energy tech, industrial and material tech, electronics and instrumentation, and clean tech industries. See appendix for sector definitions.

Energy tech category showed the most growth, more than **doubling in size**

Clean tech, industrial hardware & materials, and software categories all showed **significant growth** from 2012 to 2016

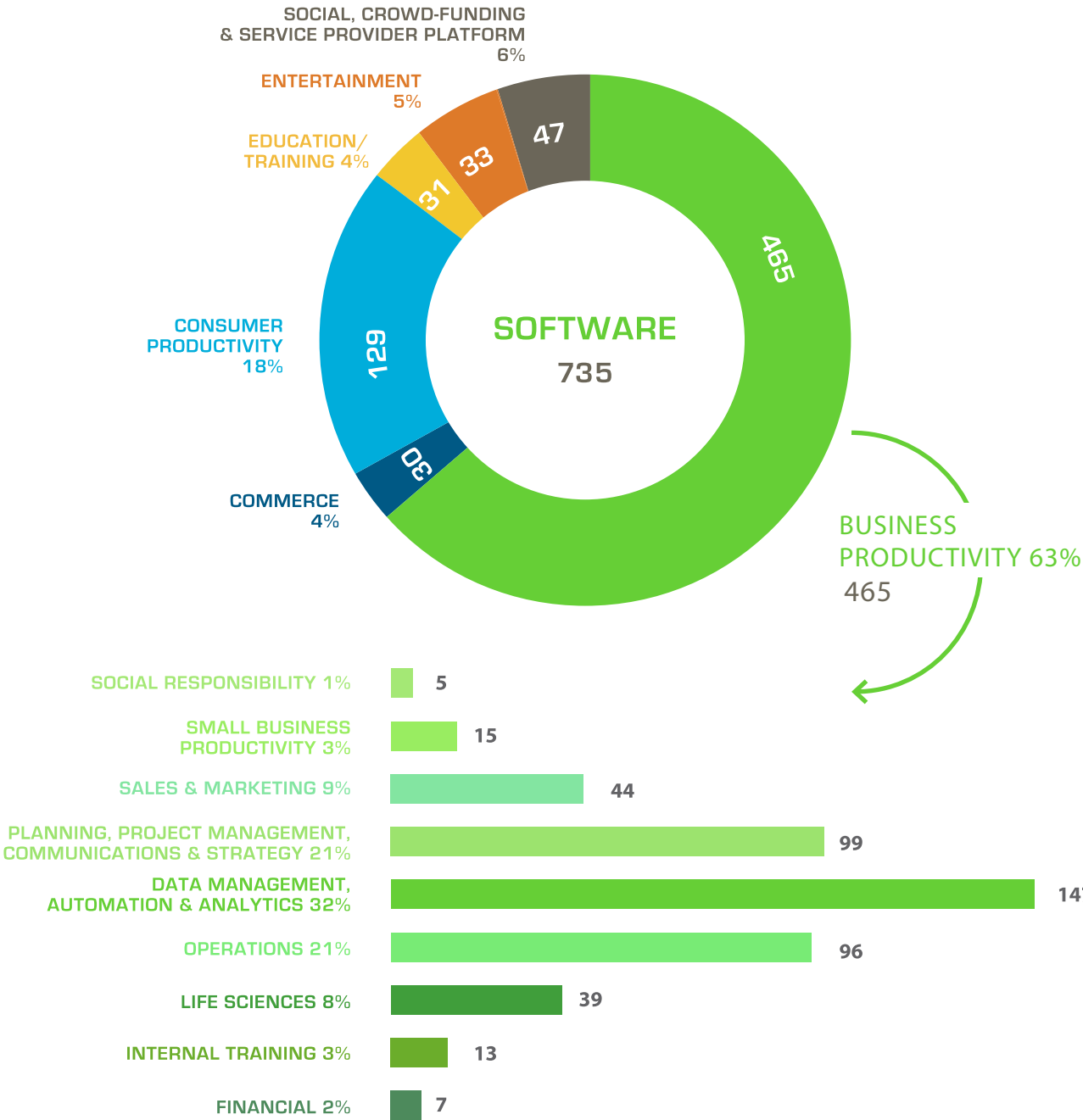
Software represents **54% of deal flow** in Alberta in 2016, up from 49% in 2012

TECHNOLOGY DEAL FLOW IN ALBERTA



Software is a Significant Driver of Growth

The software sector is large and growing, accounting for 735 companies (54%) of all technology companies in Alberta. Within software, 465 of these companies (63%) focus on business productivity.





Number of **software companies** increased **61%** from 456 companies in 2012 to 735 in 2016

Business productivity software aims to **help businesses more efficiently convert inputs** such as labour and capital **into outputs** such as goods and services.



Business productivity software **represents over a third** of all technology companies in Alberta

Strength & Make-up of Technology Companies

The following findings on business, funding, product development, and founder stats are from an online survey of 252 technology companies headquartered in Alberta, conducted from April to June 2016. This response represents approximately 18% of the 1,373 identified technology product companies in Alberta.

Edmonton and Calgary region companies represent 95% of all identified companies and 96% of all survey responses.

Survey data was self-reported by founders and employees of technology companies. To qualify, respondents declared they “work for or own a company headquartered in Alberta that produces a technology-based product” with technology being defined as including “software, hardware, equipment, devices, chemicals, pharmaceuticals, and any product offerings that required development and/or R&D (not including value added resellers, integrators, distributors and resellers of high technology).”

SURVEY RESPONSES BY LOCATION

	All identified technology product companies headquartered in Alberta by region	Survey Responses by region	Survey Responses Rate by region
Calgary Region	847	153	18%
Edmonton Region	460	90	20%
Lethbridge Region	16	3	19%
Red Deer Region	13	5	38%
Rural Alberta	37	1	3%
TOTAL	1,373	252	18%



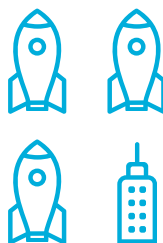
74% of companies reported less than \$1 million in annual revenue



1 in 5 technology companies reported over \$1 million in annual revenue



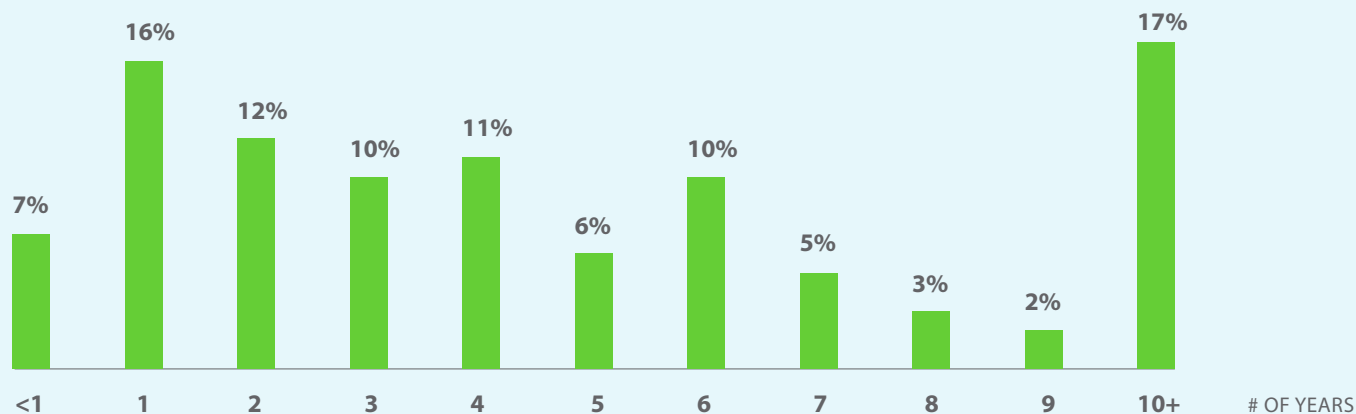
Half of Alberta technology companies have **5 or more full time employees**



3 out of 4 technology companies surveyed self-identify as a “startup”

NUMBER OF YEARS IN BUSINESS

% OF TECHNOLOGY COMPANIES



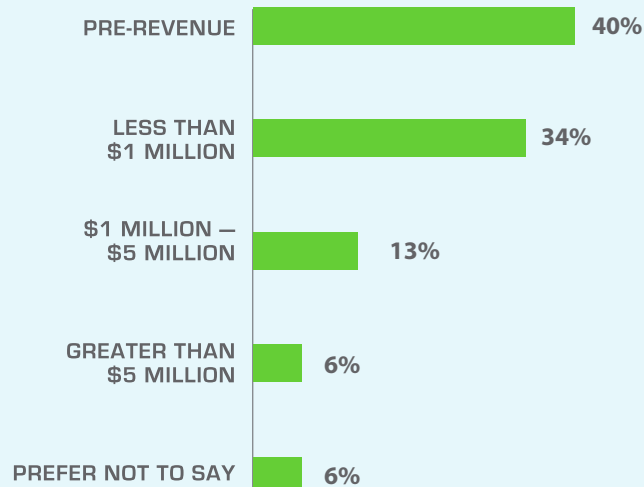
Business Stats

NUMBER OF FULL-TIME EMPLOYEES

1-4	51%
5-9	20%
10-24	13%
25-49	7%
50-99	5%
100+	1%
Prefer not to say	2%

ANNUAL REVENUE

(MOST RECENT FISCAL YEAR)





3 in 4 technology companies surveyed are **currently seeking funding**



A third of technology companies surveyed have **raised over \$1 million to date**

TOP SOURCES OF FUNDING

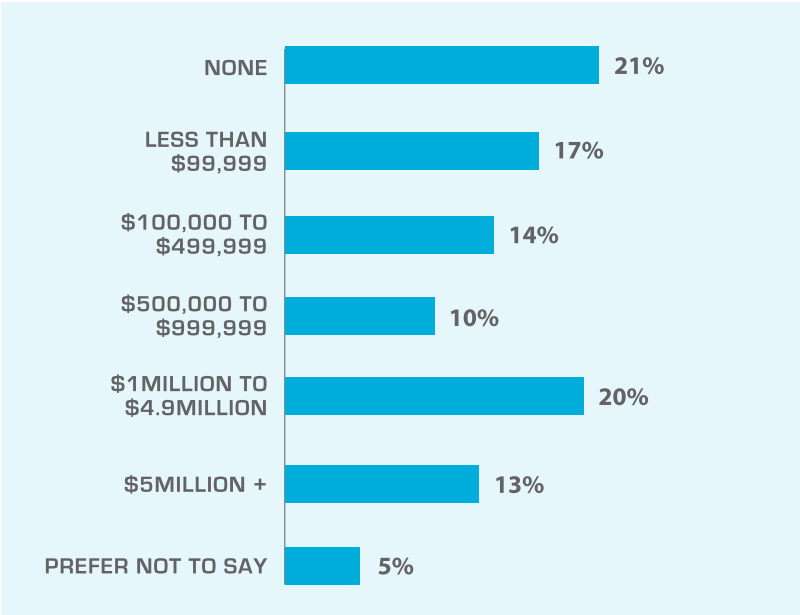
Respondents selected all that apply.

- 78% Personal Savings
- 50% Government Grants
- 46% Friends and Family
- 38% Angel Investors
- 14% Banks
- 13% Venture Capital Investors
- 4% Crowd-funding

Funding Stats

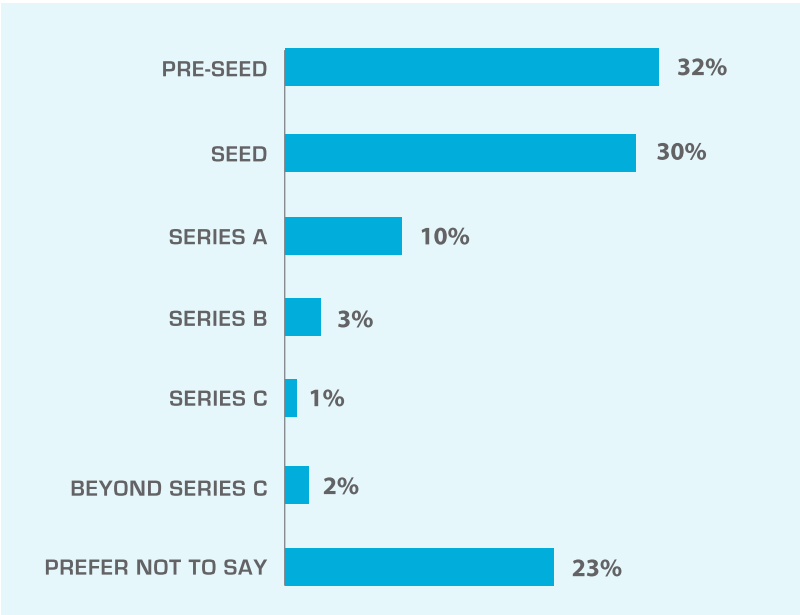
FUNDING RECEIVED TO DATE

% OF TECHNOLOGY COMPANIES



LAST ROUND OF FUNDING RAISED

% OF TECHNOLOGY COMPANIES





1 in 2 technology companies have a SaaS component



3 in 10 technology companies offer a mobile application



Over a third of technology companies have achieved traction and are scaling

Product Development Stats

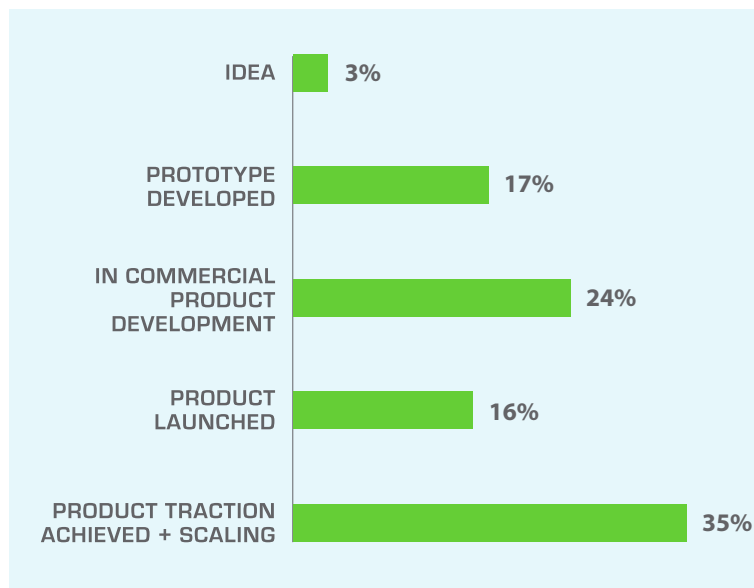
TOP PRODUCT DESCRIPTIONS

Respondents selected all that apply to their product offering, as many products may be described by one or more of the following elements

47%	Software as a service (SaaS)
39%	Business productivity
37%	Analytics/big data
30%	Enterprise solution
30%	Mobile
27%	Internet of Things (IoT)
18%	Industrial equipment/device
16%	Consumer equipment/device
16%	Geomatics/GIS
15%	Social media/platform
13%	Healthcare equipment/device
13%	Consumer productivity
5%	Industrial chemicals
4%	Pharmaceutical drugs

STAGE OF PRODUCT COMMERCIALIZATION

% of Technology Companies





1 in 5 technology companies have at least **1 female founder**



9 in 10 technology companies have at least **1 technical founder**



27% of technology companies have an **average founder age of 18-35 (millennial)**

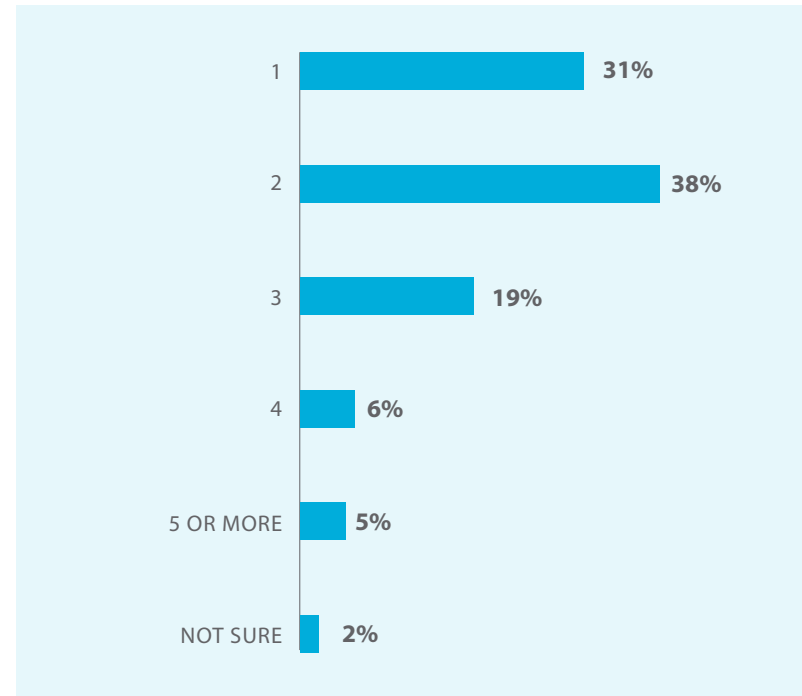


7 in 10 technology companies have at least **1 founder with previous experience in a startup**

Founder Stats

NUMBER OF FOUNDERS

% OF TECHNOLOGY COMPANIES



Appendix

ABOUT THE RESEARCHERS



Alberta Enterprise commissioned the 2012, and 2016 Alberta Deal Flow Studies to address a critical knowledge gap identified in the technology sector.

Alberta Enterprise promotes the development of Alberta's venture capital industry by investing in Venture Capital funds that finance early stage technology companies. Alberta Enterprise is investing \$175 million in venture capital funds, focusing on funds that have a strong commitment to Alberta – including a full-time presence in the province. The organization also supports Alberta's technology ecosystem by connecting investors, entrepreneurs, and experienced technology executives who share our passion for building a bright, innovative Alberta.

Since its inception, Alberta Enterprise has committed \$105 million for investment to nine venture capital funds and the Accelerate Fund, covering a diverse range of forward-looking industries including clean and energy technologies, information and communications technologies, life sciences, and agriculture and food.

More information can be found at www.alberta-enterprise.ca



Uncommon Innovation advises on product marketing and product management strategies for technology-focused and knowledge-driven organizations. Uncommon Innovation has been supporting the Alberta startup ecosystem for almost a decade and believes success requires creating the right product for the right market at the right time. With years of new product development, management and marketing experience, our team offers insights that result from real, hands-on experience with technical issues and business challenges.

More information can be found at www.unco.ca

THANK YOU TO PARTICIPATING ORGANIZATIONS

Thank you to our community partners who helped in promoting and filling out the online deal flow study. Also, thank you to the venture capital firms, investors, business Incubators, advisors, research and technology commercialization organizations, industry associations and forums who submitted deal flow lists. This study would not have been possible without your valuable support.

STUDY PARTNERS AND PROMOTERS

32 Degrees Capital	BDC Healthcare Venture Fund	Chrysalix Venture Capital	McRock Capital	TEC Edmonton
A100	Boast Capital	District Ventures	Microlynx Systems	TECTERRA
Alberta Council of Technologies	Bullish Ventures	EnerTech Capital	NAIT	Uncommon Innovation
Assembly	Calgary Economic Development	Evok Innovations	National Research Council Canada	Verdex Capital (AVAC)
Avrio Capital	Catalystica	Hunter Centre for Entrepreneurship and Innovation	Pangaea Ventures	Venture Capital Association of Alberta (VCAA)
Azure Capital	Chic Geek	Innovate Calgary	Startup Calgary	W21C
BioAlberta	Critical Path Group	iNovia Capital	Sustainable Development Technology Canada	Yaletown

Methodology

The 2016 Alberta Deal Flow Study is the third comprehensive study conducted on the topic. The first was undertaken in 2009 by the Ministry of Enterprise and Advanced Education (Advanced Education and Technology at the time) and the second was published in 2012 by Alberta Enterprise Corporation. By maintaining as much consistency as possible in methodologies, comparative insights are possible now and into the future.

7,861 company names were submitted in total, comprised of 4,831 non-duplicate entries that were each individually evaluated and categorized.

The study involved three main data gathering processes outlined below.

1. Soliciting and collecting lists of known deal flow from key industry stakeholders involving extensive 1:1 follow-up to encourage participation.
2. Identifying public directories and manually pulling data relating to potential technology companies operating in Alberta.
3. Distributing an online survey to founders and employees of technology companies in Alberta.

Once the data was aggregated, an extensive validation and classification process began. Each deal flow submission was investigated through online sources to determine that 1) they are headquartered in Alberta, 2) are currently in operation, and 3) are selling a technology-based product. Once qualified, further research was conducted on a 1:1 basis to determine the best category and subcategory fit, based on the classification scheme outlined in the Appendix.

Validated deal flow in the study met the following criteria:

- Headquartered in Alberta
- Active between February and June 2016
- Privately held
- Produce a technology-based product
- May be software, hardware, equipment, devices, chemicals, pharmaceuticals, and any product offerings that required development and/or R&D

Does not include value added resellers, integrators, distributors, or resellers



7,861 company names were evaluated



357 surveys were completed, including **304** by founders and employees of companies from **252** unique technology product companies



927 companies from the **2012** study were individually re-evaluated and **443** were included



436 companies were identified as candidates from **11** public directories



29 Industry stakeholders submitted **6,194 companies** for consideration

Classification Scheme and Sector Breakdowns

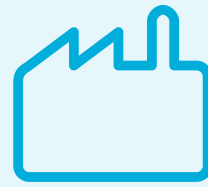
FIRST CLASSIFICATION TIER



**CLEAN
TECH**



**ENERGY
TECH**



**INDUSTRIAL
HARDWARE
& MATERIALS**



**LIFE
SCIENCES**



SOFTWARE



OTHER

Note: Companies were classified based on best fit, though some may have attributes of several categories



Clean Tech —

technology products that are not primarily software based that have a focus on reducing waste and requiring as few non-renewable resources as possible

GREEN CHEMICALS & MATERIALS

Clean technology products that are either new chemical compositions or innovative materials that minimize the use and generation of hazardous substances

RECYCLING, WASTE & REMEDIATION

Clean technology products focused on reducing waste and reversing or stopping environmental damage

WATER AND WASTE WATER

Clean technology products that are reducing water usage, improving waste-water processing and analytics, and supporting environmentally responsible water usage

INFRASTRUCTURE

Clean technology products that are related to physical structures and facilities

RENEWABLE POWER SOURCES

Clean technology products relating to power sources that create energy from resources which are naturally occurring and a theoretically inexhaustible source of energy



Energy Tech —

technology products that are not primarily software based relating to the efficient, safe, environmentally friendly and economical extraction, conversion, transportation, storage and use of energy

TRANSPORTATION, STORAGE & USAGE

Energy technology products relating to the movement, storage and usage of energy resources

DEVICES

energy technology product that is a thing made or adapted for a particular purpose, especially a piece of mechanical or electronic equipment

GENERATION / CONVERSION

Energy technology products involved in the process of changing one form of energy to another

EXTRACTION

Energy technology products focused on the extraction and production of oil and gas



Industrial Hardware and Materials — technology hardware, chemicals or material products

ELECTRONICS/ INSTRUMENTATION

Thing made or adapted for a particular purpose, especially a piece of mechanical or electronic data recording and controlling equipment

CHEMICALS

New industrial chemical compound

MATERIALS

Innovative new industrial material

MACHINERY

Industrial equipment or apparatus using or applying mechanical power and having several parts, each with a definite function and together performing a particular task

INFRASTRUCTURE

Industrial technology products that are related to physical structures and facilities



Life Sciences —

technology products that are not primarily software based relating to living organisms, including the fields of health care, agriculture, and biotechnology

EDUCATION/ TRAINING

Life sciences products, not primarily software based, relating to training and education purposes

DIAGNOSTICS

Life sciences device or machine assisting with the identification of the nature and cause of certain phenomenon

NUTRACEUTICALS & FUNCTIONAL FOODS

Foods or supplements containing health-giving additives and having a medicinal benefit

THERAPEUTICS

Treatment, therapy, or drug relating to the treatment of disease and the action of remedial agents

AGRICULTURE

Life sciences products, not primarily software based, focused on cultivating land, raising crops, and feeding, breeding, and raising livestock

MEDICAL DEVICES

Life sciences product that is a thing made or adapted for a particular medical purpose, especially a piece of mechanical or electronic equipment

PHARMACEUTICALS

Compound manufactured for use as a drug to diagnose, cure, treat or prevent disease



Software — programs and other operating information used by a computer

BUSINESS PRODUCTIVITY

Software products aiming to increase business productivity and efficiency

COMMERCE

Software products relating to consumer activities around buying and selling

EDUCATION / TRAINING

Software products serving consumers in their pursuit of knowledge, education and training

CONSUMER PRODUCTIVITY

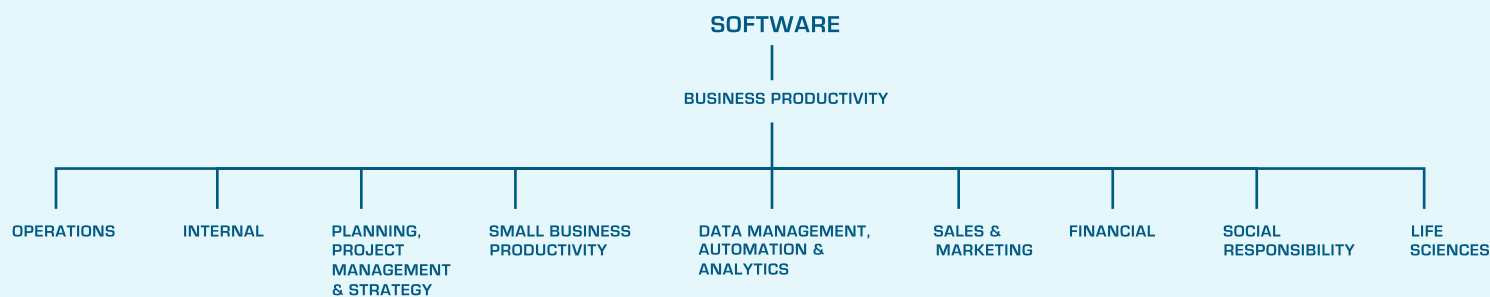
Software products aiming to increase consumers' productivity and efficiency

ENTERTAINMENT

Software product focused on holding the attention and interest of an audience, or gives pleasure or delight

SOCIAL, CROWD-FUNDING & SERVICE PROVIDER PLATFORM

Software products aiming to connect consumers with other consumers or businesses



Data Management, Automation and Analytics – business software relating to big data, process automation and analytics

Financial – business software focused on financial information management, analysis, and processes

Internal Training – business software relating to internal training and education programs

Life Sciences – business software based relating to living organisms, including the fields of health care, agriculture, and biotechnology

Operations – business software to do with day-to-day operations including health and safety, logistics, and other operational processes

Planning, Project Management, Communications and Strategy – business software relating to planning and strategy decision-making, project management, and internal communications and information management

Sales and Marketing – business software focused on improving sales and marketing productivity and efficiency

Small Business Productivity – business software involved in helping small businesses be more efficient, either through general solutions or highly specialized niche products

Social Responsibility – business software related to social responsibility, employee engagement and wellness programs and charitable giving



Other —

Technology products that are not primarily software based that don't particularly fit in the categories outlined above

EQUIPMENT

Technology products that are things made or adapted for a particular function, especially a piece of mechanical or electronic equipment

ROBOTICS

Technology products that deal with the design, construction, operation, and application of machines capable of carrying out a complex series of actions automatically, especially one programmable by a computer

AEROSPACE

Technology products relating to aviation and space flight

CONSUMER PRODUCTS

Technology products that are not primarily software based that focus on consumers

NANOTECHNOLOGY

Technology products with components with dimensions and tolerances of less than 100 nanometers, especially the manipulation of individual atoms and molecules

TELECOM

Technology products relating to the transmission of information, as words, sounds, or images, usually over great distance, in the form of electro-magnetic signals

COMPUTING

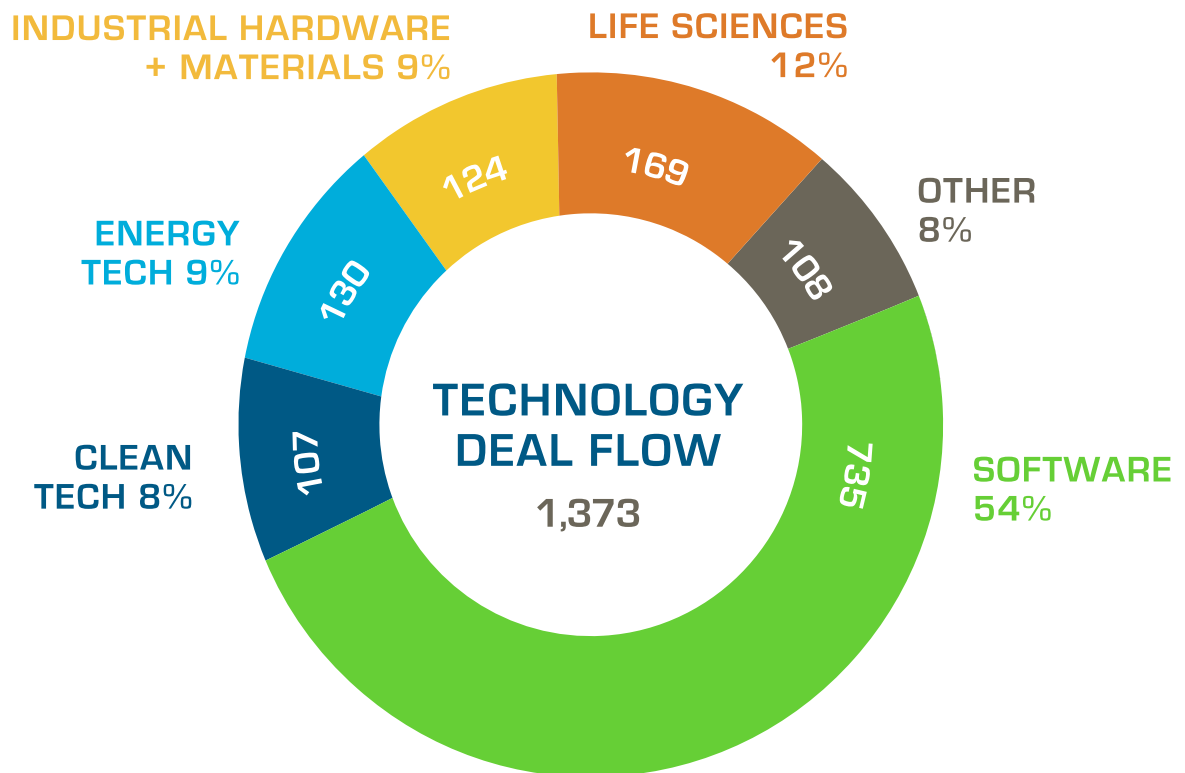
Technology products focused on utilizing computer technology to complete a task

ENTERTAINMENT

Technology products that are not primarily software based that focus on holding the attention and interest of its audience

Deal Flow Sector Results

Breakdown of all deal flow identified in the 2016 Alberta Technology Deal Flow Study, by sector and sub-sector classifications.



Deal Flow Sector Results

Breakdown of all deal flow identified in the 2016 Alberta Technology Deal Flow Study, by sector and sub-sector classifications.

SECTOR	DEAL FLOW IDENTIFIED	PERCENTAGE
CLEAN TECH	107	8%
Green Chemicals and Materials	12	11%
Infrastructure	13	12%
Recycling, Waste and Remediation	24	22%
Renewable Power Sources	37	35%
Water and Waste Water	21	20%
ENERGY TECH	130	9%
Devices	37	28%
Extraction	67	52%
Generation/Conversion	12	9%
Transportation, Storage and Usage	14	11%
INDUSTRIAL HARDWARE & MATERIALS	124	9%
Chemicals	15	12%
Infrastructure	17	14%
Materials	23	19%
Machinery	25	20%
Electronics/Instrumentation	44	35%
LIFE SCIENCES	169	12%
Agriculture	27	16%
Diagnostics	35	21%
Education/Training	3	2%
Medical Devices	50	30%
Nutraceuticals and Functional Foods	16	9%
Pharmaceuticals	9	5%
Therapeutics	29	17%
OTHER	108	8%
Aerospace	2	2%
Computing	11	10%
Entertainment	1	1%
Equipment	2	2%
Nanotechnology	8	7%
Robotics	10	9%
Consumer Products	41	38%
Telecom	33	31%

SECTOR	DEAL FLOW IDENTIFIED	PERCENTAGE
SOFTWARE	735	54%
Business Productivity	465	63%
Data Management, Automation and Analytics	147	32%
Financial	7	2%
Internal Training	13	3%
Life Sciences	39	8%
Operations	96	21%
Planning, Project Management, Communications and Strategy	99	21%
Sales and Marketing	44	9%
Small Business Productivity	15	3%
Social Responsibility	5	1%
Commerce	30	4%
Consumer Productivity	129	18%
Education/Training	31	4%
Entertainment	33	4%
Social, Crowdfunding and Service Provider Platform	47	6%
TOTAL DEAL FLOW IDENTIFIED	1373	100%

Comparison Summary of past Alberta Technology Deal Flow Studies

YEAR DATA COLLECTED (snapshot in time)	2016	2012	2009
STUDY PARTICIPATION			
Number of organizations invited to participate	200	200	156
Number of participating organizations	55	50	38
Participation rate	28%	25%	24%
Number of deal flow submitted	6,194	4,000	1,387
TOTAL DEAL FLOW IDENTIFIED	1,373	927	736
BY REGION			
Calgary	62%	59%	67%
Edmonton	33%	36%	31%
Lethbridge	1%	2%	1%
Red Deer	1%	3%	1%
BY SECTOR			
Clean Tech	8% (107)	7% (68)	7% (53)
Energy Tech	9% (130)	7% (62)	10% (77)
Industrial Hardware and Materials	9% (124)	9% (80)	11% (84)
Life Sciences	12% (169)	18% (165)	17% (128)
Other	8% (108)	10% (96)	5% (39)
Software	54% (735)	49% (456)	48% (355)