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Life Sciences in Manitoba

Poised for Growth



State of the Industry 2012

March, 2013

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Executive Summary

Poised for Growth

This is the first industry survey completed by the Life Science Association of Manitoba. As a baseline, it will provide us with a sense of size and scope of the life science industry.

The life science industry continues to evolve and grow with the survey participants comprising not only the traditional life sciences - health technology and medical device sectors but also industrial biotech, functional foods and nutraceuticals and agricultural biotech sectors.

The life science industry directly employs over 7,700 individuals consisting largely of highly qualified personnel (41% having a bachelor's degree or higher level of education), generates more than \$800 million in annual revenues and invests more than \$52 million in research and development. Despite the fact that a large percentage of Manitoba life science companies are pre-revenue, this industry contributes more than \$1 billion directly to the Manitoba economy.

The industry is in its infancy with 41% of the 71 respondents being in existence for 10 years or less, with a significant proportion of businesses still being in the pre-commercialization phase. As the industry grows, it faces many challenges to reach commercial success. Broadly summarized those issues are:

Access to Capital

Feedback from the participants suggests that commercialization is one of the most significant challenges with investment required for both capital purchases and research and development activities. Enhanced tax programs like Science, Research and Experimental Development (SR&ED), investor credits and other government programs, which create opportunities to leverage funds, can assist life science companies regardless of the stage. This industry will only be successful if we create an environment where the capital-intensive early/mid stages of development are supported.

Limited Market Opportunities

A stronger local market could prove to be invaluable to early stage products, as the revenue generated can facilitate a company's growth outside of Manitoba. The community needs to support innovation, not only in the research stage, but when there is a product. Over 50% of the respondents indicated that lack of access to the local market was an issue for their company.

Labour Force Issues

Access to a skilled work force was also raised as a significant issue and more work needs to be undertaken to provide the necessary education and training that companies require to build a suitably skilled and sustainable workforce. This includes an increase in resources to provide training and the means to develop local internships, which create local leaders in business.

Manitoba has several unique competencies within life sciences. Our agricultural base provides us with a critical mass of high quality biomass to produce biomaterials and to develop nutraceuticals and functional foods. Historically, Manitoba has been home to experts in medical devices/diagnostic imaging and we are poised to develop a second generation of these companies. However, in order to achieve our potential we need to work as a collective to overcome the shared issues that exist in this diverse industry.

Competition in the life science industries is now truly global and for a small market such as Manitoba to be viable, it becomes critical that we develop policy and execute on that policy as a unified group; government, private sector, health care institutions, universities and the public all working together with a sense of urgency. The life science industry in Manitoba is dependent on one of our core strengths - the willingness to work together to form partnerships in order to achieve mutual success.

This report provides details on the issues the life science industry is now facing and highlights our current successes.

Thank you for your interest in the Manitoba life sciences.

Background and Methodology

The intent of this report is to review and communicate the state of the life science industry in Manitoba. Survey respondents provided feedback on the current status of their company's products, positions and growth expectations.

In the fall of 2012, LSAM and Deloitte LLP ("Deloitte") surveyed leaders of life science companies located in Manitoba. Those surveyed represent businesses from small start-ups to large public companies and include research and development companies, manufacturers, service providers, consultants and distributors of life science products.

The life science industry includes organizations that:

- use biotechnology or biological processes to develop products that improve health and well-being;
- develop applications to improve the diagnosis, prevention and treatment of disease;
- create new agricultural alternatives; and
- revolutionize traditional industry sectors, such as oil and gas or information technology.

This year's report includes life science companies and organizations active in the following sectors:

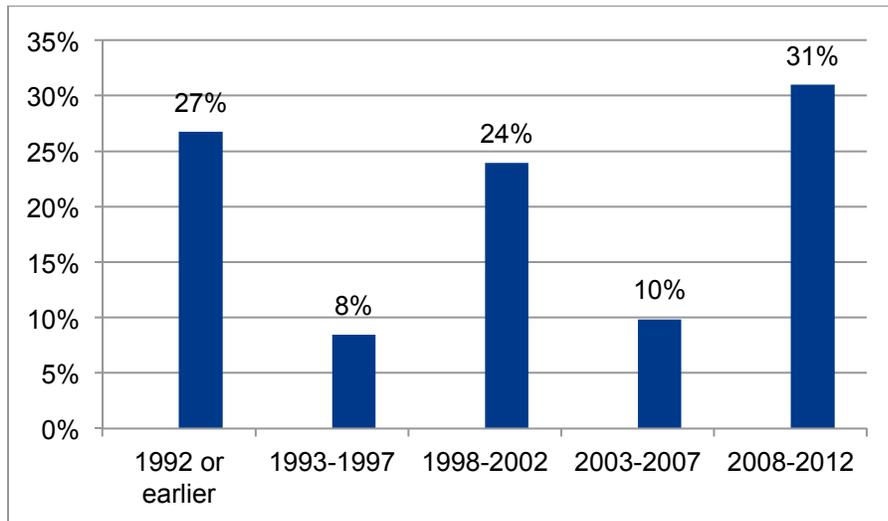
- agricultural biotechnology
- bioinformatics
- environmental biotechnology
- health biotechnology and pharmaceuticals
- industrial biotechnology and bioprocessing (also referred to as biofuels, biorefining or clean technology)
- medical technology and devices
- natural health products and nutraceuticals

The intent of this report is to review and communicate the state of the life science industry in Manitoba. Survey respondents provided feedback on the current status of their company's products, position and growth expectations. The survey was distributed electronically to 221 life science company representatives. To supplement this report, information from other surveys conducted by LSAM was used, as well as information available from the public domain. In certain cases, respondents have chosen not to answer all questions. Caution should be used in extrapolating these results to the entire population of companies in the industry. The results are intended to stimulate dialogue, provide a current snapshot of the industry, and offer directional support for business leaders and government agencies to help the life science industry in Manitoba grow. Of the 221 companies surveyed, partial or complete results were compiled from 71 respondents, providing a response rate of 32%.

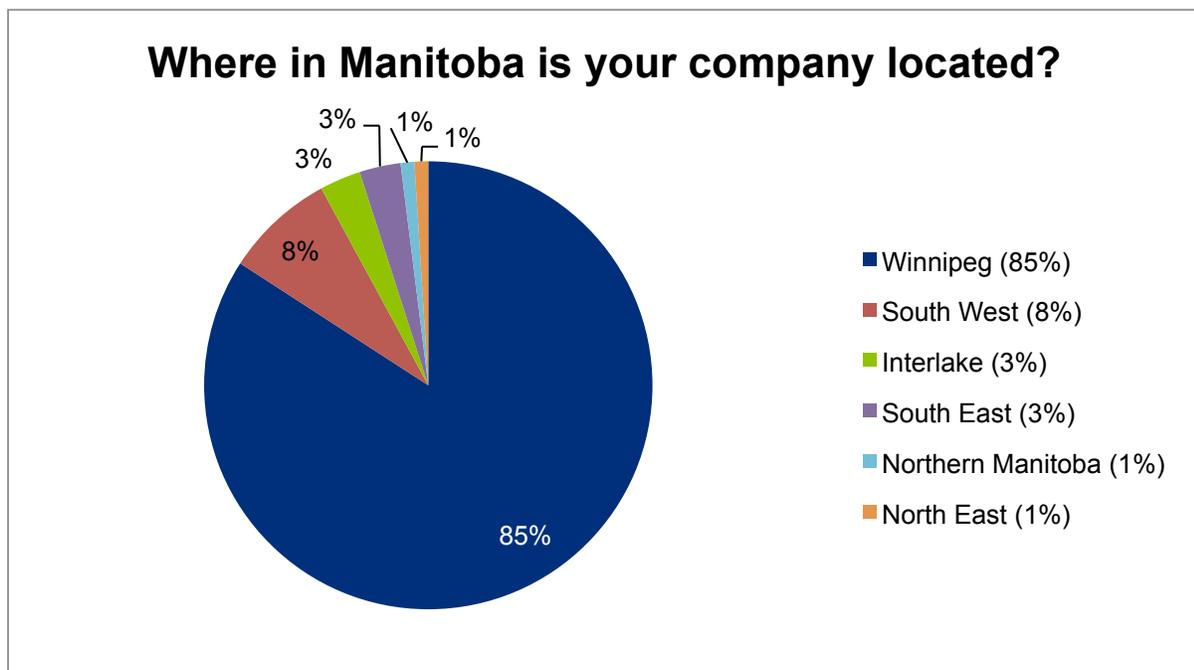
Overview of Eompanies

When was your company established?

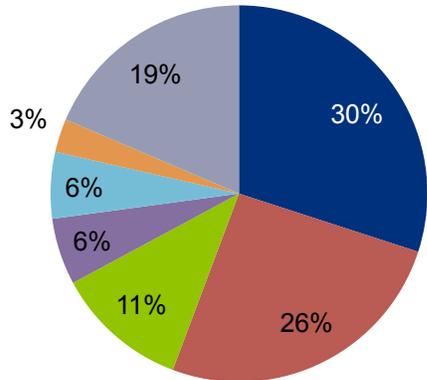
As expected, the largest cohort of companies were created in the last 4 years, while those created in the mid 1990's and mid 2000's represent the smallest groups of companies in Manitoba.



Most life science companies (85%) are headquartered in Winnipeg with the remaining 15% located in other areas of Manitoba with the South West, South, and Interlake each having at least 3% of all life science companies located in their region.



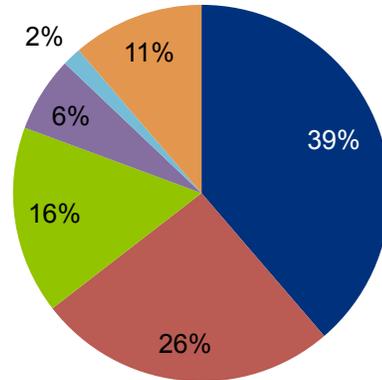
In which sector or sectors would your company be classified?



- Medical technology & devices (30%)
- Health biotechnology & pharmaceuticals (26%)
- Industrial biotechnology & bioprocessing (includes clean technology) (11%)
- Agricultural biotechnology (6%)
- Bioenergy (6%)
- Medical technology & devices, Community based Respiratory Services (3%)
- Other including service providers (19%)

The two largest sectors of the life science industry are medical technology & devices and health biotechnology & pharmaceuticals, which together account for 46% of the industry. Industrial biotechnology & bioprocessing makes up a further 10% of the industry.

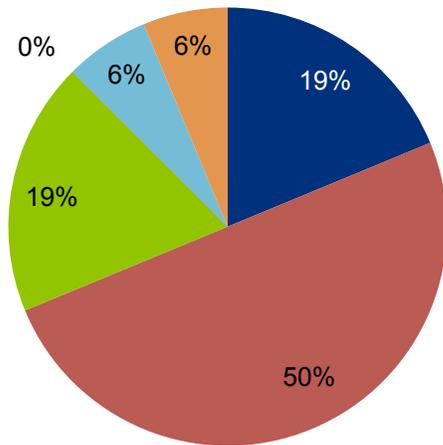
In which category or categories would your company be classified?



- Research & Development (39%)
- Consulting, contract research or other service provider (26%)
- Manufacturing (16%)
- Distributor, wholesale or retail (6%)
- Health Service Provider (2%)
- Other (including service providers) (11%)

Among survey respondents, 39% are involved in R&D and 26% are involved in consulting, contract research or providing other services. Many companies are diversified and active in more than one category.

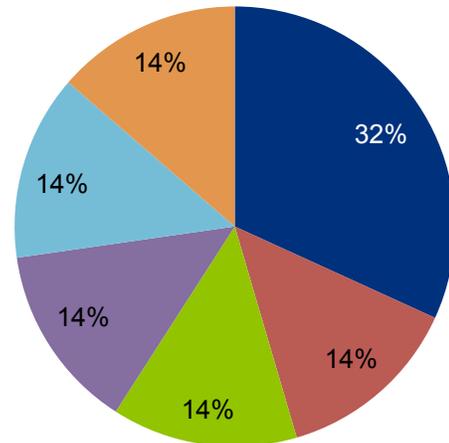
For your health biotechnology & pharmaceutical product, in which phase of development is your lead product?



- Marketed product (19%)
- Research & Development (50%)
- Phase 1 (19%)
- Phase 2 (0%)
- Phase 3 (6%)
- Pre-Clinical Trials (6%)

Of the health biotechnology & pharmaceutical company survey respondents, 50% have their lead product in the research and development phase, 25% are currently in phases 1 through 3 of clinical trials, and 19% have their lead product on the market

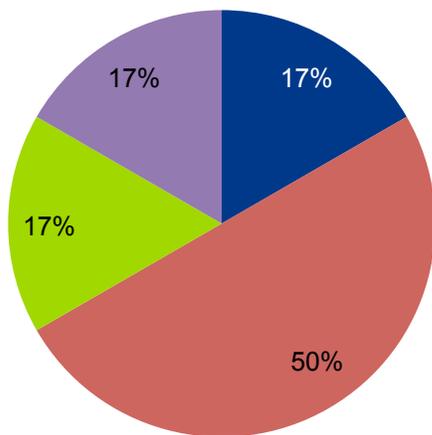
For your medical technology & device product, in which phase of development is your lead technology or device?



- Marketed product (32%)
- Research & Development (14%)
- Product demonstration or prototype (14%)
- Product engineering (14%)
- Regulatory approval (14%)
- Scale-up manufacturing (14%)

Almost one third (32%) of medical technology & device company survey respondents have a product that is already on the market. Respondents indicated that 14% of lead products are in the research and development phase, while 14% are in the product engineering phase.

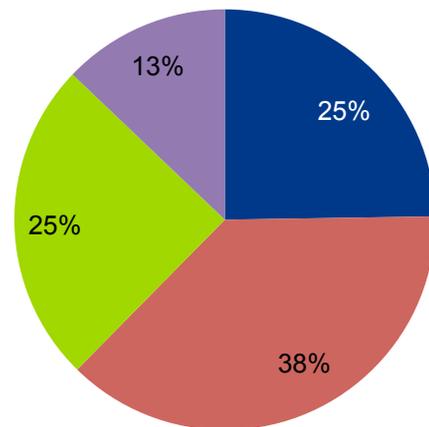
For your agricultural biotechnology, natural health or nutraceutical product, in which phase of development is your lead technology or product?



- Marketed product (17%)
- Research & Development (50%)
- Regulatory approval (17%)
- Scale-up manufacturing (17%)

Of the agricultural biotechnology, natural health, and nutraceutical company respondents, 50% have their lead product in the research and development phase

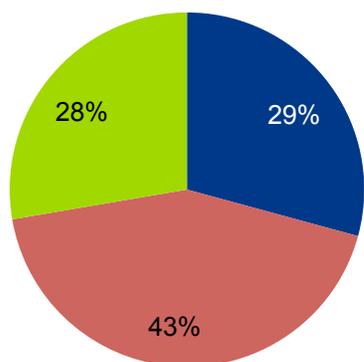
For your industrial biotechnology and bioprocessing technology or product, in which phase of development is your lead technology or product?



- Marketed Product (25%)
- Research & Development (38%)
- Full scale plant (25%)
- Pilot plant or demonstration plant (13%)

Over one third (38%) of industrial biotechnology and bioprocessing technology company survey respondents have a product in the research and development phase. Half of the survey respondents have their lead product on the market or have a full scale plant.

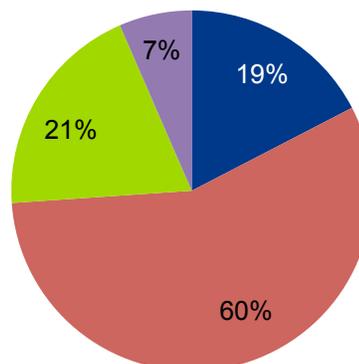
How would you classify your company in its life cycle?



- Emerging phase (radically new products; with frequent changes, high technical uncertainty but broad R&D focus) (29%)
- Growth phase (gradual increases in process innovation; at least one stable, high-volume product design emerges) (43%)
- Maturity phase (mostly process innovation, aimed at cost reduction, incremental or next generation product innovations) (28%)

43% of Manitoba's life science companies are in their growth phase. Of the remaining respondents, 28% classified themselves as a mature company and 29% as an emerging company.

What phase do you expect your company to be in by 2014?

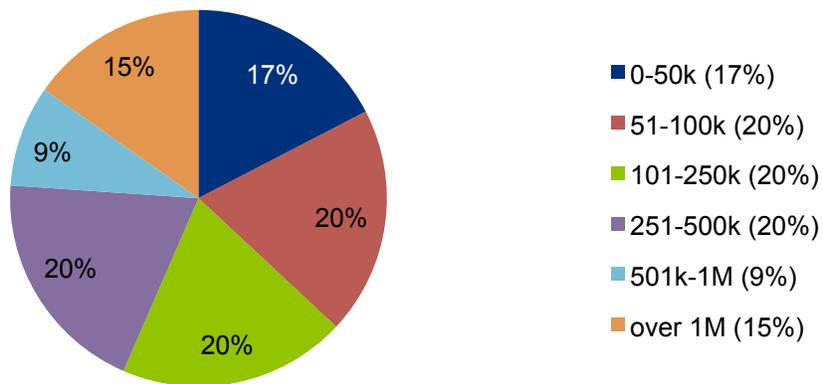


- Emerging phase (radically new products; with frequent changes, high technical uncertainty but broad R&D focus) (19%)
- Growth phase (gradual increases in process innovation; at least one stable, high-volume product design emerges) (60%)
- Maturity phase (mostly process innovation, aimed at cost reduction, incremental or next generation product innovations) (21%)
- Establish cash flow (7%)

More than half of respondents indicated that they expect their company to be in a growth phase by 2014, with 19% expecting to still be an emerging phase company in 2014. One third of companies expect to move from an emerging phase into a growth phase in the next two years.

Research and Development Spending

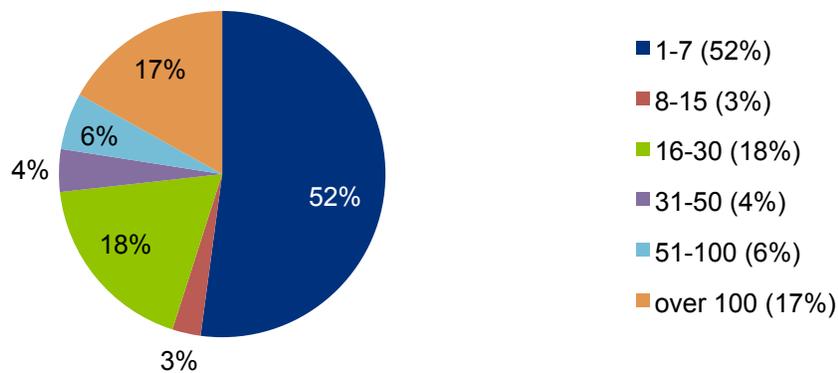
In the last 12 months, how much did your company spend on Research & Development?



It is estimated that life science companies in Manitoba combined spent over \$52M on R&D in the last 12 months. Those performing R&D spent an average of \$383k per company.

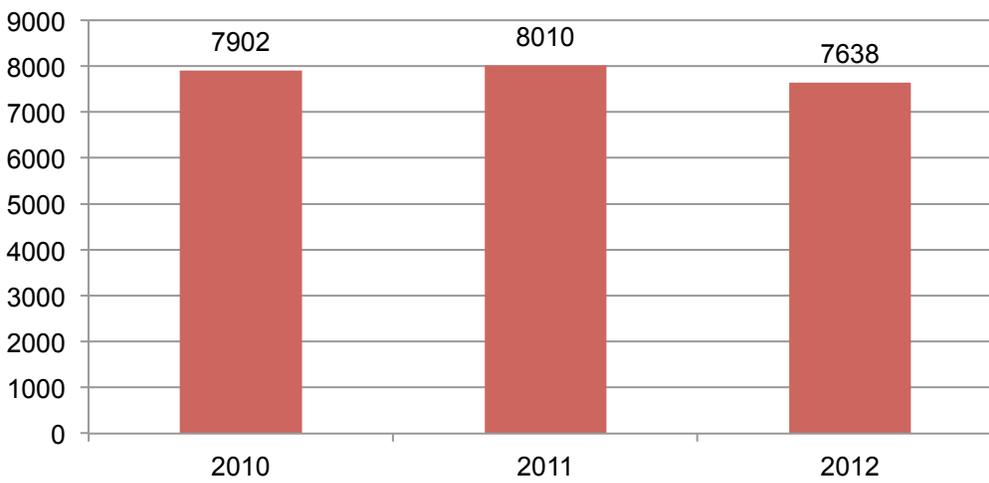
Human Resources

In 2011, what was the number of people employed by your organization (across all locations)?

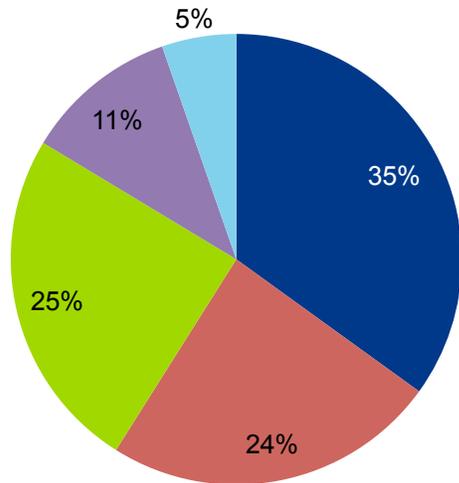


Over half of all companies surveyed have between 1 and 7 employees, and 18% of respondents indicated that they have between 16 and 30 employees.

How many people did you employ in Manitoba between 2010 and 2012?



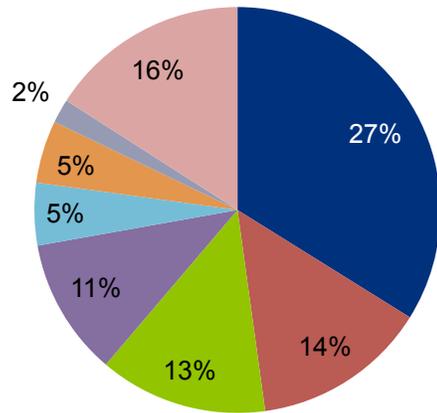
What level of education do your employees have?



- High school diploma (35%)
- Post-secondary diploma (24%)
- Bachelors degree (25%)
- Masters degree (11%)
- PhD degree (5%)

Almost two thirds (65%) of employees in Manitoba's life science companies have a post-secondary degree or diploma

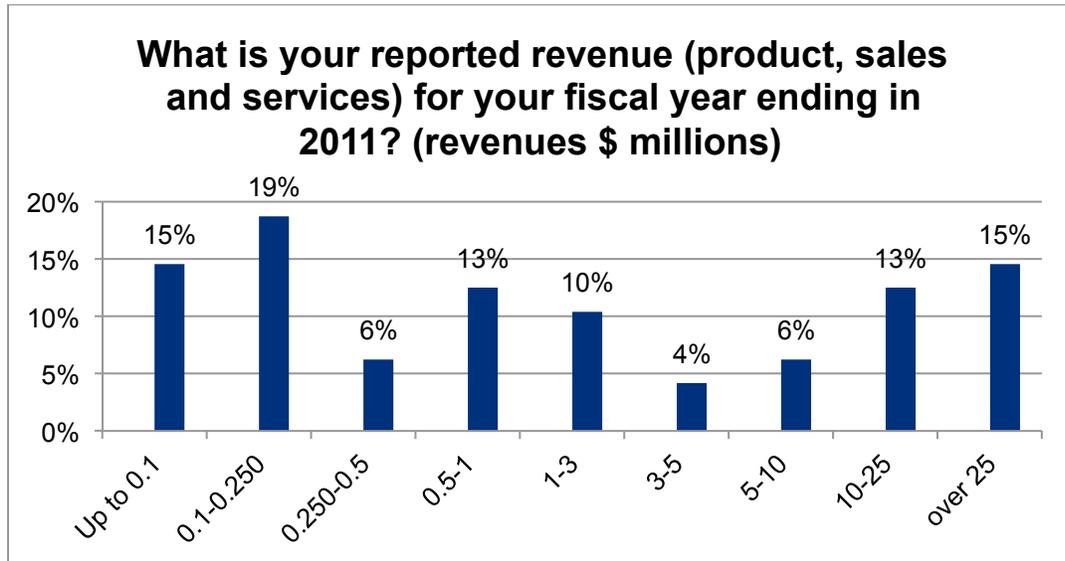
What critical positions are the most challenging to fill in your company?



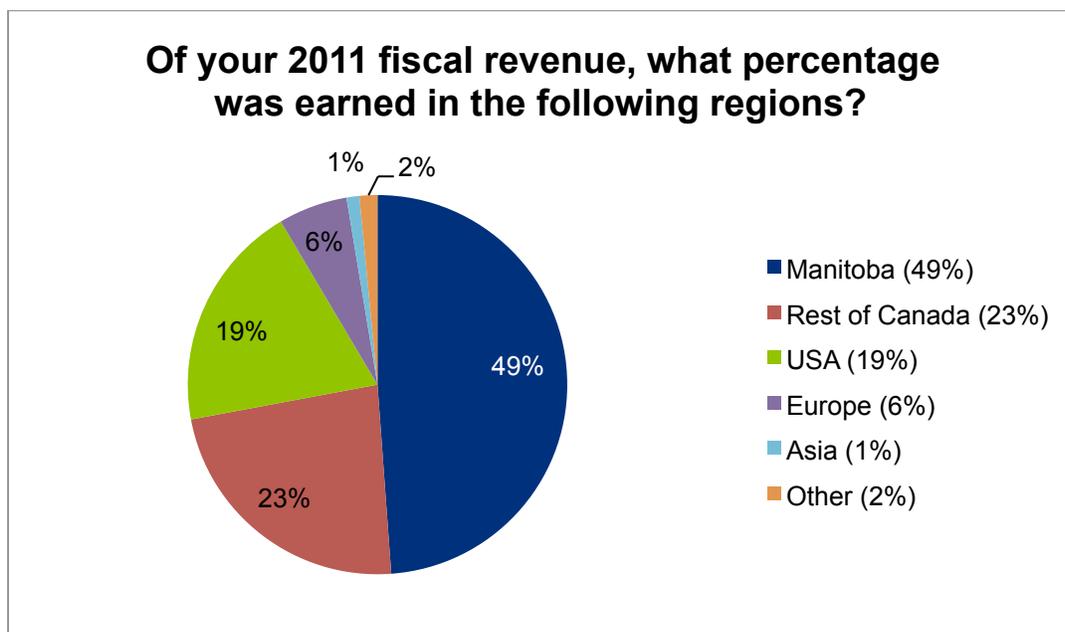
- Business Development (27%)
- Engineering (14%)
- Chief Executive Officer (13%)
- Chief Scientific Officer (11%)
- Regulatory Affairs (5%)
- Clinical & Medical Development (5%)
- Chief Financial Officer (2%)
- Other (16%)

According to survey respondents, business development, engineering, and CEO positions are the most difficult to fill.

Revenue

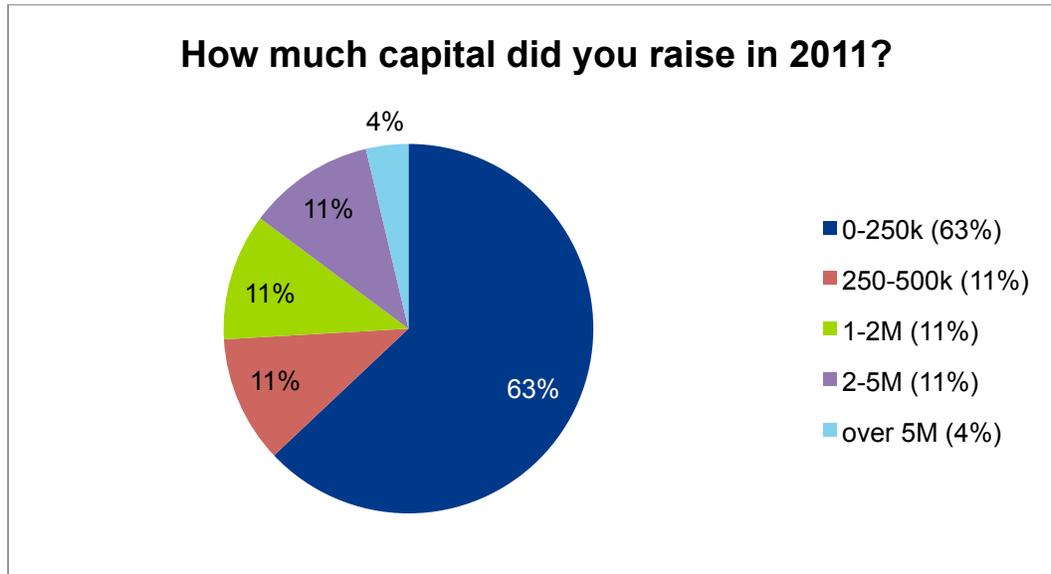


Over one third (38%) of survey respondents earned less than \$500k in the 2011 fiscal year while the same percentage earned \$3M or more. As an industry, life science companies earned over \$800M in revenue last year.



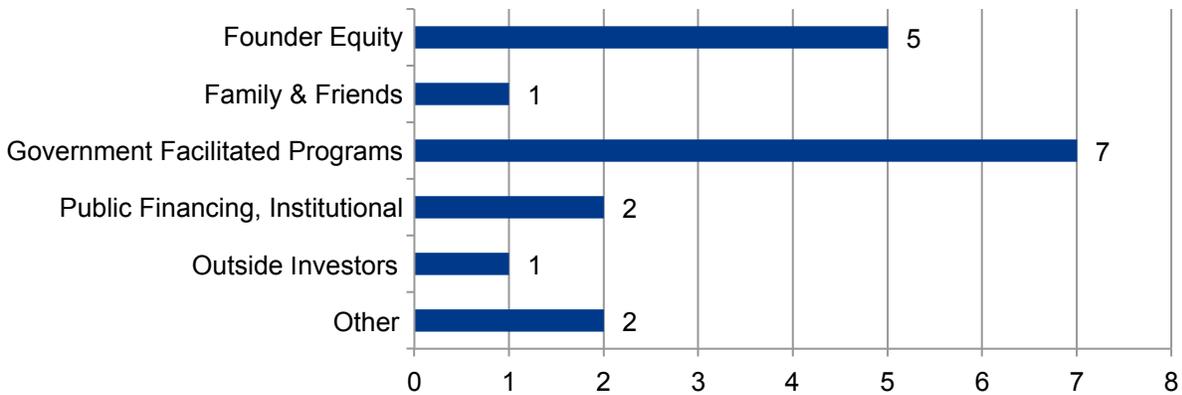
Almost half of 2011 fiscal year revenue was earned in the Province of Manitoba while another 23% was earned in the rest of Canada.

Financing



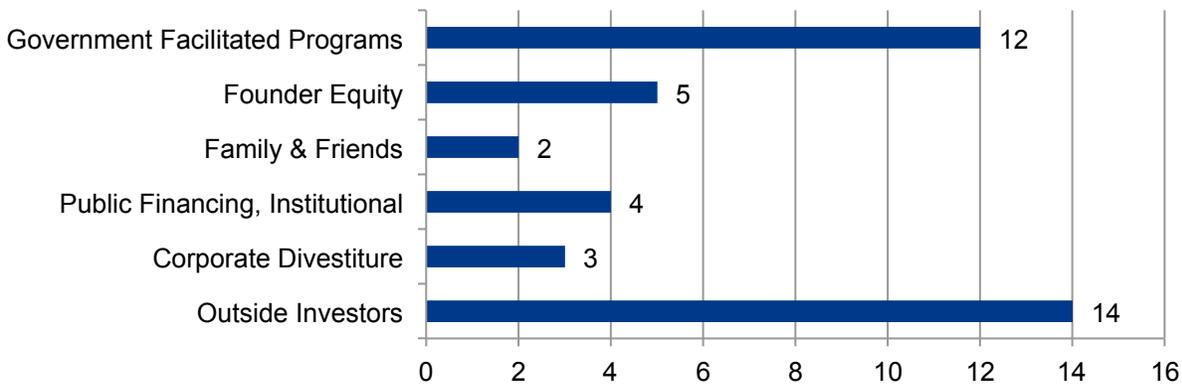
Close to two thirds of survey respondents raised less than \$250k, however the average amount raised was over \$870k, highlighting that several companies raised a large amount of funds in 2011. The 31 respondents raised approximately \$27M

For the capital raised in 2011, which sources did you use to raise the funds?



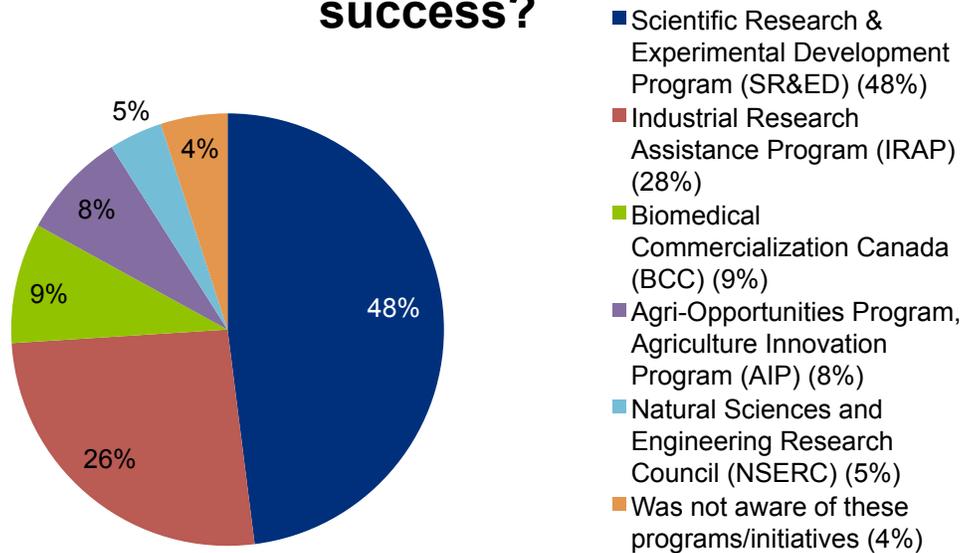
Founder equity and government facilitated programs dominated as sources of funding in 2011.

Going forward, which sources do you intend to pursue to raise capital?



Life science companies in Manitoba anticipate continuing to leverage government programs, however, they are pursuing outside investors to capitalize their companies for growth.

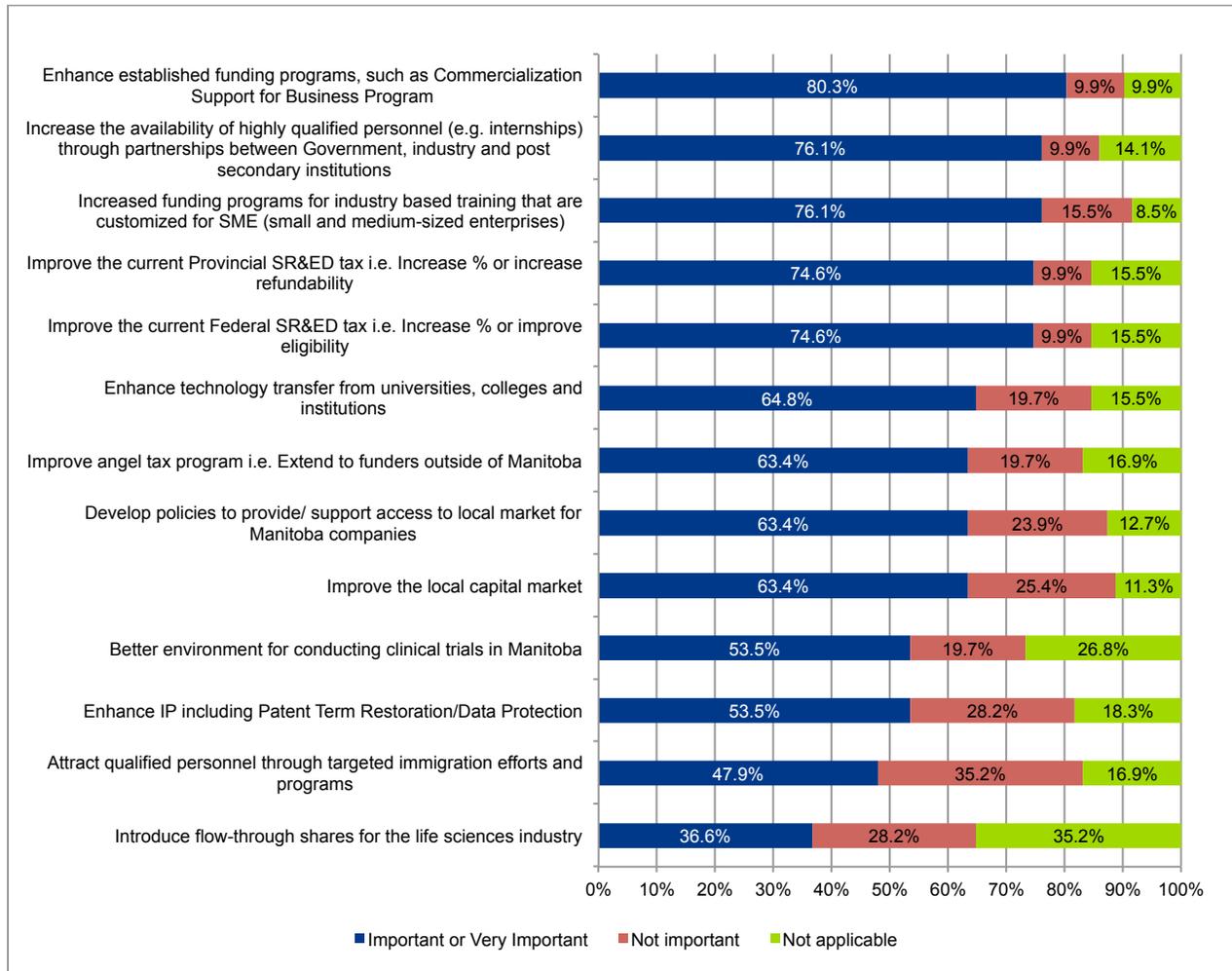
Which government-supported initiatives have you used that you would consider most crucial to your success?



A significant number of respondents (75%) consider NRC-IRAP, NSERC, or SR&ED funding critical to the success of their organizations. It is important to note that these government-supported initiatives have varying degrees of accessibility, application requirements and available funding.

Issues Facing the Industry

What issues is your company facing as part of Manitoba's life science industry?



Globally, the life science industry offers tremendous economic potential while facing increasing competitive challenges from developed and emerging markets for talent, ideas and capital. In Manitoba, the industry delivers economic diversification; it attracts and retains highly educated people; and it promotes intellectual property development in the province. Manitobans benefit when the rate of technological development and commercialization can compete with other global jurisdictions. The life science industry is already making a substantial contribution to the province's research and development capability, intellectual capital and knowledge-based economy. As the capacity for commercialization of life science products and services grows in Manitoba, the industry will move closer to achieving its full potential.

Manitoba is continuing to work on new ideas and improvements to the technology development and commercialization ecosystem. Creation of the Commercialization Support for Business program, as well as, increasing refundability of the provincial SR&ED tax credit for qualifying companies are steps in the right direction, yet as the responses indicate, both programs should consider additional improvements to assist the life science industry.

Industry Participation

LSAM and Deloitte would like to thank all the survey participants. The following participants agreed to be acknowledged in this report.

3M Canada
Acryl Design Ltd.
AcSION Industries
Ade & Company Inc.
AgFibre Technologies Inc.
Aikins, MacAulay & Thorvaldson LLP
Apex Graphics
Apotex Fermentations
Arterial Stiffness Inc.
Bellwyck Packaging Solutions
Best cooking pulses, Inc.
Brett Young Seeds
CanAm Bioresearch Inc.
Cangene Corporation
CardioVox Canada
Celtic Power
Channel Systems Inc.
Composites Innovation Centre
Cubresa
DiaMedica
Element Life Science
ELF Industries
Emission Free
ErosionControlBlanket
Excellent
Eyewear Evolution
Flax Power Ltd.
Genesys Venture Inc.
GVI Clinical Development Solutions.
Haplotech Inc
Hill Top Research
Intelligent Hospital Systems
KAM Scientific Inc.
Kane Biotech
Kelwin Management Consulting
Koven Technology Canada
Lifeart Prosthetics Inc
Manitoba Agri-Health
Research Network
Manitoba Hydro
Marsala Biotech
Marsh Canada Limited
McPharma Biotech
Medicure Inc.
Manitoba Fitness Council
Miraculins inc.
Myers Group
Orthopaedic Innovation Centre
PerioDiagnostics
pH Probe
PharmEng Technology
Prairie Bio-Energy Inc.
Prairie fire growth ventures
Prairie Pulp & Paper Inc.
QAVARA Group Inc.
RANA Respiratory Care Group
Saunders
SciMar
Solalta Advisors Ltd.
Sphaera Technologies Inc.
Sunwest Consultants Ltd.
SWM International
TR Tech
Valeant Pharmaceuticals
Vidir Biomass
Virtuistix Inc.
Vita Health Products Inc.
Viventia Biotechnologies
Dr. Magdy Younes
YRT Ltd.
Zyme Fast Inc.

Need More Information?

LSAM

The Life Science Association of Manitoba (LSAM) is a membership driven, not-for-profit, sector association based in Winnipeg, Manitoba, Canada. LSAM is dedicated to a vibrant and sustainable Manitoba life science industry focused on the creation and production of innovative tools and products through scientific advancements to improve the daily life of the global population and to increase industry-wide economic growth. LSAM's activities are focused in four key strategic goals:

- To be a connector for people, information and ideas;
- To support the development of Manitoba's human resource capacity;
- To strengthen the business environment for members; and
- To provide a strong voice for the life science industry in Manitoba.

For information on the Life Science Association of Manitoba and the work that we do please contact

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Deloitte's Life Science Practice

Deloitte professionals have experience working with life science companies across the country and globally to assess their strategic options, assist in forming, establishing and maintaining partnerships and alliances, develop commercialization strategies, enhance revenues, improve operating efficiencies, optimize asset utilization, strengthen management teams, provide due diligence and valuation support as part of a transaction, implement tax efficient structures, streamline the complexities related to industry auditing and accounting, mitigation enterprise risk, and provide negotiation and advisory assistance.

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