University Spin-Off Companies

a Saskatchewan-Manitoba success story

Highlights

Highlights of an economic impact study commissioned by the Prairie Intellectual Property Management Network

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SPIN-OFF Company

an incorporated commercial entity that is formed either:

- as a result of technologies and/or know-how developed (or derived) at an academic institution,
- to further develop technologies at an academic institution by providing funding, or
- to provide a service: either new, or one that was originally offered by a department within the academic institution.

About the Network

Prairie Intellectual Property Management Network

The Prairie Intellectual Property Management Network was established in 2007 and encompasses institutions in both Manitoba and Saskatchewan. The Network is designed to **create synergy** between the institutions and to fast-track the transfer of knowledge and new technologies to the **commercialization** stage.

The Prairie Intellectual Property Management Network has been funded by the Tri-Council Intellectual Property Mobilization Program (IPM). The partners of the tri-council are: Natural Sciences and Engineering Research Council of Canada (NSERC), Canadian Institutes of Health Research (CIHR), and the Social Sciences and Humanities Research Council (SSHRC).

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Prairie IPM Network members:

- University of Regina
- University of Saskatchewan
- University of Manitoba, which also represents:
  - Brandon University
  - CancerCare Manitoba
  - Health Sciences Centre (Winnipeg)
  - Red River College
  - St. Boniface General Hospital
  - University of Winnipeg

About the study

Why a study?

We wanted to develop a baseline to determine as accurately as possible if there are regional economic benefits from university spin-off companies, and if so, what those benefits are, and in what quantities. We know it's important to share our experience and results widely with other stakeholders.

We are aware of 78 spin-off companies that have been generated from the Prairie IPM Network partners. Our collective knowledge of these companies is limited to the companies that have self-identified as spin-offs or have been brought to our attention by other means. Tracking of companies dates back to 1972 at the University of Saskatchewan, 1984 at the University of Manitoba, and 2004 at the University of Regina.

Methodology. Researchers asked for information from 53 'live' companies for the fiscal year 2007. Twenty-six of these companies (51%) responded to the survey. Those companies identified as closed or inactive (25) were contacted to confirm current status.

To read or download a complete PDF copy of the survey report, please visit our web site at **www.usask.ca/research/ilo.**

Company Creation Pipeline

The early-stage companies eligible for participation in this survey had to at least be incorporated to be considered for inclusion. Each of the Network institutions is currently assessing the suitability of several technologies for company creation activities. Below are the number of potential companies in their respective pipelines at the time of writing the report. These conceptual start-up companies will only be formed if the required criteria are met in each respective institution/incubator program.

Start-up Pipeline

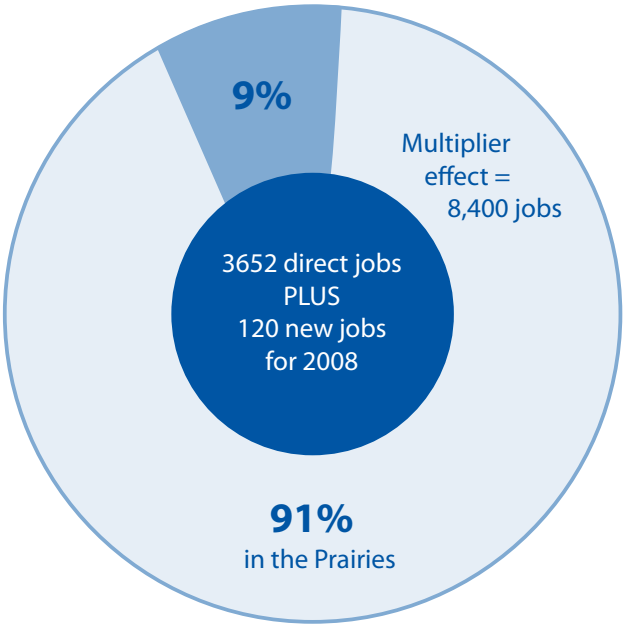
Manitoba Cluster – 3 University of Regina – 2 University of Saskatchewan – 2

What we learned...*highlights*

- Of the 78 companies identified, 53 have survived (were active and operational) to the time of survey (March 2008). These 53 companies have generated **3,652 jobs**, with **91%** of these jobs **located** in Saskatchewan and Manitoba. The largest company in the portfolio has 850 staff members in two Canadian locations.

- Applying accepted multiplier effect principles, we can predict that the Prairie IPM Network spin-off companies have **created about 8,400 jobs** (including direct, indirect and induced impacts). And, **7,613** of these jobs have been created in **Saskatchewan and Manitoba**, showing the local impact on job creation. (Figure 1)

Figure 1: Job Creation at a Glance



- The Prairie institutions described in this study collectively average **2.2 company starts per year**. However, the number of companies formed annually has tapered off in recent years, possibly due to the slowdown in the venture capital industry. This mirrors trends seen by academic institutions in both Canada and the U.S.

- These companies face tremendous challenges in sourcing financing. The **funding gap** for Prairie companies is **large and growing** due to the concentration of early-stage and seed investment in B.C., Ontario and Quebec.

- Despite this challenge, **78%** of the surviving spin-off companies have set up operations **close to their source institutions**, facilitating effective public-private research collaborations and delivering economic impacts directly to the region.

Company Profile

SED Systems:
From the Prairies to Outer Space

SED Systems, incorporated in 1972, is the oldest company in the survey population. Its origins lie in 1965, when the University of Saskatchewan's Institute of Space and Atmospheric Sciences set up a new group called the Space Engineering Division that was responsible for designing and building rocket instrumentation for upper atmospheric studies.

SED Systems has grown and evolved from a small internal division of the university with five employees to a leading developer of satellite, communications and defense technologies with over 275 employees and an annual sales volume of about $60 million. Their customized 125,000-square-foot facility was built in 1987 at Innovation Place Research Park and includes an open-architecture manufacturing area that allows for flexible integration of new product lines.

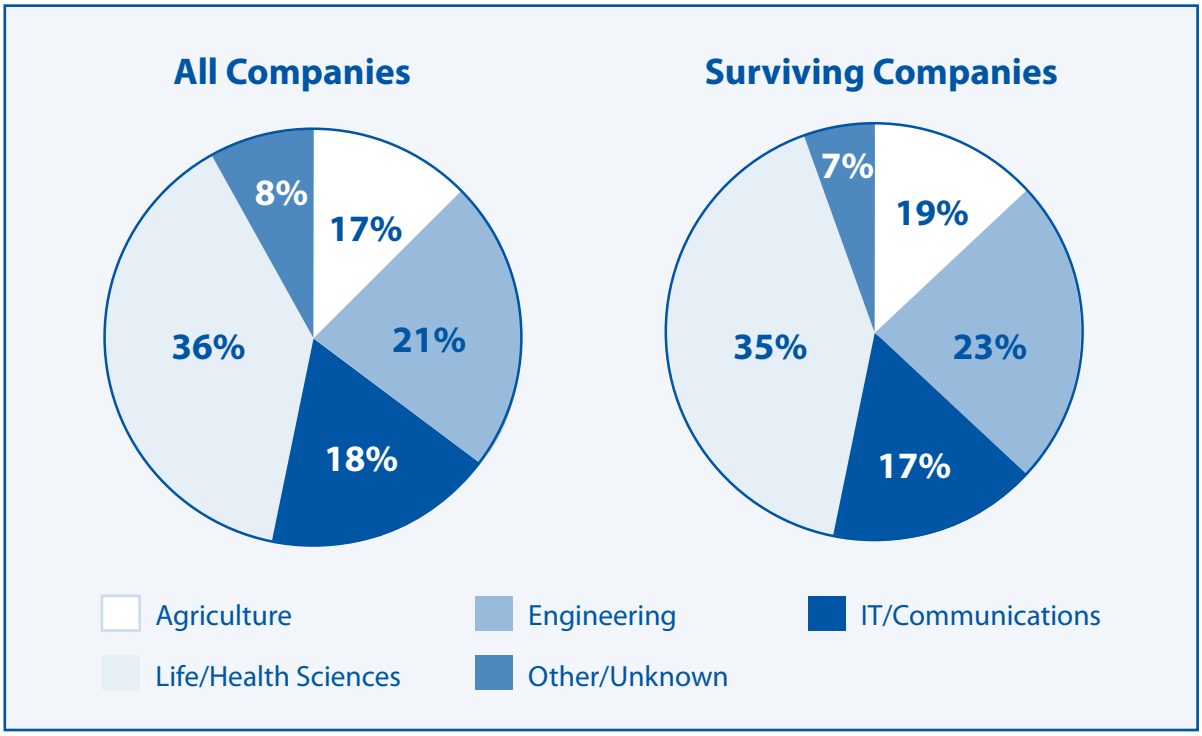
SED's technology solutions have a global impact; their systems are deployed worldwide and operate on six continents. Some examples of their activities include: Developing and manufacturing deep space antenna systems for the European Space Agency; testing the Canadarm-II (the International Space Station's robotic manipulator); management systems for XM Radio, and operations support for the Canadian Space Agency's RADARSAT-1 and -2.

SED enjoys a close association with the University of Saskatchewan and views the university as a source of highly skilled workers. SED regularly engages students in internship, co-op and summer positions through partnerships with the University of Saskatchewan and Regina. SED Systems became a division of CALIAN Ltd., a wholly owned subsidiary of CALIAN Technologies Ltd. (TSX: CTY) in the late 1980s.

SED
a division of CALIAN Ltd.

- The survey results suggest that spin-off company survival rate is **independent of technology type,** indicating that the key driver of spin-off company success is people (specifically, the management team). (Figure 2)

Figure 2: Sectoral distribution of all companies compared with the surviving company sub-population



- The presence of a serial entrepreneur can have a substantial impact not only in terms of strategy implementation, but also on securing venture financing. **Thirty-eight percent** of respondent companies indicated that their management teams included the participation of a **serial entrepreneur**.

- The companies surveyed range from mature companies to fledgling firms, with both public and private companies in the portfolio. **Eighteen percent** of the spin-off companies are publicly traded, with a collective **market capitalization** of **$6.9 billion** (as of May 2008).

- In 2007, a small proportion of public companies held share offerings, raising **$16.7 million**. In addition, a small proportion of privately held companies reported **private investment of $31.5 million**, increasing the **total** amount of funds raised in 2007 to **$48.2 million**. When you consider that **78%** of companies are retained regionally, this translates to a significant investment in the Prairie Provinces. Remember, this means $48.2 million in **one year alone!**

Company Profile

Cangene Corporation:
A key member of Manitoba's life science cluster

Cangene Corporation (TSX:CNJ), is one of Canada's largest biopharmaceutical companies. The company is based in Winnipeg, Manitoba but they are also active in Ontario, California, Maryland and Florida. In 2007, they were ranked 35th in a global analysis of biotechnology companies by revenues. Founded in 1984, the company is emerging as a world leader in developing and manufacturing medical countermeasures against infectious disease-based bioterrorism agents. Their business is built on a suite of platform manufacturing technologies, with a solid pipeline of four approved drugs, two more submitted for regulatory review and several others in earlier stages of development.

Their lead approved hyperimmune (antibody-derived) product, WinRho®SDF, prevents hemolytic disease of the newborn (a serious blood-type incompatibility between the mother and fetus) and immune thrombocytopenic purpura (ITP) (a blood platelet disorder). Cangene's expertise in developing hyperimmune biopharmaceutical products has led to contracts with the U.S. government worth more than a billion dollars over the last five years. They are #29 on a list of the top 100 civilian contractors to the U.S. Government and provide biological therapeutics for the Strategic National Stockpile (medicines and medical supplies for public health emergencies).

Cangene also provides contract research, development and manufacturing services to other biopharmaceutical companies, as well as government organizations. The company was the first tenant of the University of Manitoba's SmartPark and has expanded their main facilities to meet production and manufacturing needs. Cangene is a cornerstone member of Manitoba's emergent life sciences cluster. The sector includes 41 biotechnology companies that generate over $200 million in annual revenues and employ 2,300 people. Five key companies engage over 80% of the workforce: Cangene, Apotex Fermentation Inc., Biovail Corporation, Monsanto Canada and Vita Health.

CANGENE

- **Fifty-two percent** of respondent firms forecast they will be hiring in **2008**, creating about **120 new jobs.** Only **10** of these new jobs will be **outside the two prairie provinces,** and the majority **(84%)** will be in research or manufacturing positions.

- Companies reported that **20% of their staff are alumni** of their associated institution, and about **60%** of companies participate in **graduate or co-op programs**. Spin-off companies act as important receptors and training partners for skilled talent coming from universities. Reversing the "brain drain" is critical to future success in retaining skilled workers.

The Bottom Line

The technology companies sourced from universities have the potential to be key drivers of the growing knowledge-based economy. University spin-off companies stay close to home and thereby provide significant long-term contributions to the development of sustainable innovative regional economies. These clusters of technology companies create highly skilled jobs, invest in ongoing university research, purchase services from other local companies, and reinvest in the community.

How the institutions create spin-off companies

The survey focused on spin-off companies arising from institutions involved in the Prairie IPM Network. It's important to note that this cluster of institutions use widely different intellectual property (IP) management models. It doesn't appear that these differences have an impact on spin-off company success. These models of IP ownership vary from 100% inventor-owned to 100% institution-owned with different versions in between. Ownership and revenue sharing are mutually exclusive and range from equal shares in revenues to scenarios that are negotiated ad hoc. In most cases both ownership and revenue sharing relevant to developed technology are laid out in the respective faculty's collective agreements. Company creation support models also vary widely.

Each office has a different set of metrics used to determine what technologies constitute a potential company creation opportunity. In general, the key elements include:

- a platform-type technology (multiple application/multiple product potential),
- an entrepreneurially-inclined company creation champion (sometimes the inventor),
- a solid market,
- a patentable position, and
- a reasonable expectation of financing success.

Company Profile

DiaMedica Inc.:
Sharing access to skilled management

DiaMedica (TSX:DMA) was incorporated in 2000 to commercialize a revolutionary technology platform for the treatment of Type II diabetes. The company is based on the discoveries of Dr. Wayne Lautt, a Professor at the University of Manitoba, and was recognized in 2007 as one of "Canada's Top 10 Life Science Companies"™. Their lead candidate, DM-71, just completed positive Phase IIa clinical trials in Canada.

Clinical trials are an expensive part of technology development. In order to efficiently use their available capital, DiaMedica has partnered with Genesys Ventures Inc. (GVI), a private Winnipeg-based incubator, to access management expertise. According to L. Michael Coutts, Director of Business Development for Genesys Ventures, "We add value by providing shared access to high quality human resources important to company development on the business, regulatory and IP management side, which allows companies to focus their resources on technology advancement." With three drug candidates in simultaneous clinical trials, this focus on applying resources to product development bodes well for DiaMedica's investors.

Genesys utilizes an enhanced incubation model where GVI staff actively participates in company development by providing a tailored mix of services to accelerate product development. Their Winnipeg facility allows early stage companies to share facilities and research and management infrastructure. GVI provides experienced clinical trial management, document control programs, regulatory affairs and quality assurance expertise, and intellectual property management knowledge. They help facilitate private financing through their network or provide assistance accessing public markets, including providing investor relations expertise. GVI has a strategic alliance with CentreStone Ventures, an early stage life sciences fund that is physically located at the GVI facility.

Genesys Ventures Inc. was established in 1997 by Dr. Albert Friesen, an experienced bio-entrepreneur who has helped found several health industry companies including Rh Pharmaceuticals (now Cangene Corporation), ABI Biotechnology (acquired by Apotex Inc.), Novopharm Biotech Inc., Genesys Pharma Inc., and KAM Scientific Inc. Genesys has been actively involved with a number of other Prairie IPM Network start-up companies, including: Medicure (TSX:MPH; AMEX:MCU) and Cronus BioPharma.

How are we doing?

So what does all this information mean in terms of how these two provinces are doing in creating and encouraging growth of spin-off companies? Perhaps surprisingly, we're doing well. When compared with two "best practice" institutions in Western Canada – The University of British Columbia (UBC), ranked 6th in North America for their company creation activities, and the University of Alberta – we see from Figure 3 that we are well positioned in terms of results (the number and success rate of companies, as well as job creation).

Figure 3: Comparable spin-off company creation in Western Canada

	Prairie IPM Network	UBC	University of Alberta
Total # of spin-off companies	78	117	82
# of live spin-offs	53	70	69
% inactive/closed	32%	41%	10%
# of jobs created (survey response rate)	3577 (81%)	1907 (75%)	934 (64%)

So what happens next?

Based on this research, the Prairie IPM Network has received validated feedback on which services are most valuable to their spin-off company clients.

We need to strengthen the Network, and increase our communication and networking activities – to identify ways for our current and future companies to combine complementary processes or products and increase their market strength.

We need to continue to promote the possibilities for, and successes of, spin-off companies through presence at technology fairs and other ongoing communication efforts.

And, using this data as baseline information, we will survey in the future in order to measure the growth of these companies and the impact of improving the Network's services.

We invite participation from all stakeholders at any time. Please contact us by any of the ways shown on the back cover.

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For more information on the Prairie IPM Network, contact the Partner nearest you:

University of Saskatchewan ILO
Lorna Shaw-Lennox, *Start-Up Company Specialist*
P: 306.966.7338
lorna.shaw-lennox@usask.ca

University of Regina ILO
Janet Berriman, *Technology Transfer Officer*
P: 306.585.4269
Janet.Berriman@uregina.ca

University of Manitoba Technology Transfer Office
Garold Breit, *Executive Director*
P: 204.612.5937
garold_breit@umanitoba.ca