



UNITED STATES' EXPERIENCE

TITLE: BioGenerator – Comprehensive System for Bioscience Enterprise Creation in St. Louis



Country: United States

Institution: BioGenerator

Type of Institution: Private

Other institutions involved: BioSTL– provider/donor

Donald Danforth Plant Science Center - provider

Saint Louis University – provider

University of Missouri – St. Louis – provider

Washington University in St. Louis – provider

St. Louis County Economic Council –provider

St. Louis (City) Development Corporation - provider

Date: ongoing

Countries involved: USA – donor, through U.S. Department of Commerce Economic Development Administration

Webpage: www.biogenerator.org

Context

St. Louis, like many U.S. regions, is experiencing a difficult transition from an “old economy” manufacturing-based economy to a 21st-century innovation-based community. While St. Louis is fortunate to have an extraordinary concentration of world-class scientists (academic and corporate) in medical and plant biosciences, the region lacked the entrepreneurial culture to fully capitalize on local discoveries, attract additional talent, and create lasting economic growth.

To address this critical need, top philanthropic, business, and academic leaders created BioSTL and the BioGenerator, who have worked over the past decade to develop the infrastructure to support a growing cluster of bioscience commercialization activity.

Central to this regional transformation is a comprehensive set of support programs at the BioGenerator

for new-company creation. The BioGenerator builds successful, sustainable bioscience companies by providing 1) pre-seed or seed investment funds; 2) advice, networks to expertise, and in-depth management support; and 3) access to pre-incubator lab space and equipment.

Support has come primarily from philanthropic contributions with additional support from U.S. Department of Commerce Economic Development Administration's i6 and Jobs and Innovation Accelerator Challenge grants.

The goal is to reduce barriers to commercializing very early innovations and facilitate the creation of new bioscience companies that can create jobs and increase economic activity.

Objectives

The general objectives are to increase economic activity in the St. Louis region through the creation of new bioscience companies that will attract wealth, create jobs, and grow the region's economy. The BioGenerator's support program for enterprise creation is an illustration of how a region can come together to capitalize on its strengths to transform and modernize its economy through startup activity, while directly meeting challenges presented by downsizing in mature companies. The combination of expertise, facilities, and investment capital offered by the BioGenerator constitutes a uniquely comprehensive approach to building new companies from the earliest stages.

Relevance

St. Louis is a world leader in academic and corporate bioscience research and development. St. Louis' bioscience strengths encompass both medical sciences concentrated in an urban neighborhood of the City of St. Louis largely surrounding Washington University in St. Louis' medical school and a plant science and tech node located in suburban St. Louis County around Monsanto Company's world headquarters and the Donald Danforth Plant Science Center, the world's largest independent plant science research facility.

However, for many years the region lacked robust infrastructure and the entrepreneurial ecosystem to fully capitalize on local innovations to capture the economic benefit from its bioscience research and development. Further, regional institutions regularly ranked below average on measures of commercialization.

The BioGenerator programs aimed at earliest stage commercialization have allowed the region to capture the economic benefit of the intellectual assets in the region. Further, when the region experience major corporate downsizings (primarily in pharma) that left talented scientists and business people looking for new employment opportunities, the BioGenerator programs afforded an avenue for many of these individuals to become entrepreneurs and start their own companies, yielding a new sub-cluster of drug development startups, and helping to make a positive out of the layoffs.

Implementation

The BioGenerator supports entrepreneurs and startups primarily through the modalities of technical assistance and financial support. Programmatically, these activities encompass 1) pre-seed or seed investment funds; 2) advice, networks to expertise, and in-depth management support; and 3) access to pre-incubator lab space and equipment.

The BioGenerator provides early-stage capital, usually in the form of convertible notes, through its pre-seed Spark Fund (usually up to \$50,000) and its Seed Fund (up to \$250,000). Investment programs cost-effectively advance the translational research and business strategies needed to de-risk innovative technologies and provide initial evidence of commercial viability.

BioGenerator staff and a roster of 13 Entrepreneurs In Residence (EIRs - serial entrepreneurs or

individuals with deep industry expertise) provide a wide array of strategic advisory services, including:

- advice and counsel to those considering formation of startups (faculty/staff/students, independent scientists, entrepreneurs, technology transfer offices)
- Management support during initial company formation
- Help in shaping business and technical plans, and intellectual property strategy
- Financial modeling, marketing assessment, competitive intelligence
- Design of technical milestones to attract follow-on investors
- Help in recruit technical and business talent to form stronger teams
- Referrals to consultants with specialized expertise, e.g. FDA regulatory expertise
- Referrals to service providers, e.g. corporate, legal, contract research
- Rigorous due diligence (technology and business aspects)
- Help in attracting co-investment (shares due diligence package), and follow-on investment
- Ongoing support during funding period including service on Boards of Directors

Lab facilities, capital equipment, and office space are provided at no cost to promising but very early stage (pre-incubator) companies. In the earliest phases of commercialization, the pre-equipped BAL allows researchers and entrepreneurs to establish lab operations and to initiate proof of concept studies without having to raise additional capital to purchase most equipment and rent lab/office space.

Distribution of tasks

BioSTL has convened or orchestrated collaborations among 38 top business and academic leaders. These stakeholders meet quarterly to build trust and a cooperative environment, to avoid duplication of effort, and to combine strengths to achieve regional goals. The collaboration led, to among other things, the comprehensive set of support programs for new-company creation and commercialization embodied in the BioGenerator, established by BioSTL in 2003 as its non-profit venture development organization.

The collaboration also led to the region's i6 and JIAC Challenge awards from the U.S. Department of Commerce. BioSTL built the collaborations and the BioGenerator executed the programs by providing support to individual entrepreneurs and companies.

For the i6 and JIAC specifically, universities, entrepreneurs, investors, non-profits, foundations, private sector companies, and state and local governments are collaborating to promote commercialization of bioscience innovations. Specifically, universities help funnel innovations into the program where entrepreneurs can work to form companies around the discoveries. State and local governments provide financial support to investment programs and incubator facilities to help new companies grow. Private sector companies provide financial and strategic support. These stakeholders meeting regularly to ensure that the distribution of tasks works well and gaps in the region's commercialization ecosystem are filled collaboratively.

Achievements and results

- Established and nurtured 38 bioscience startups -- \$5 million in non-profit investment has attracted \$132 million in additional funding – leverage ratio exceeds 26 to 1
- A fast-growing entrepreneur-in-residence program (increased from 1 to 13 EIRs in past year) supports over 100 startups.
- BioGenerator Accelerator Labs (BAL) pre-incubator facility, opened Fall 2010, houses 20 companies; 5 already graduated to traditional incubators.
- BAL companies (very early-stage) have secured more than \$10 million – and over 50 customers from 15 countries.

Almost all of these companies represent new economic activity that would not exist but for BioGenerator. (For example, of the 50 individuals in the BAL, only 5 were previously involved in St. Louis

startups.)

Unexpected achievements

One unexpected achievement of this experience was the retention of many talented scientists and business people looking for new employment opportunities following the downsizing of a major corporate research & development facility in the region. The BioGenerator programs aimed at earliest stage commercialization (esp. pre-seed investment and access to free lab space) were a timely community response to the corporate downsizings in St. Louis (primarily in pharma and precipitated by an international corporate merger). The BioGenerator programs afforded an avenue for many of these individuals to become entrepreneurs and start their own companies, yielding a new sub-cluster of drug development startups, and helping to the best of a negative economic impact for the region.

Experience and sustainable results

The BioGenerator has reached its own successful ‘proof of concept’ with its comprehensive system becoming a proven mechanism for bioscience commercialization. It has validated St. Louis’ rich supply and untapped potential of commercially-viable innovations.

BioSTL recently secured 5-year, \$10 million commitments each (totaling \$30 million) from Washington University, BJC HealthCare (the region’s largest health system), and regional foundations to continue building the St. Louis bioscience ecosystem. A majority of these funds will grow and sustain the BioGenerator’s programs. An additional \$3.5 million in corporate commitments have been raised. These funds will provide the necessary resources to extend the BioGenerator’s pre-seed and EIR programs that were piloted with the federal i6 and Jobs Accelerator grants. Support from private donors and the State of Missouri are allowing the BioGenerator to expand its Accelerator Labs, nearly tripling capacity to support early-stage, pre-incubator bioscience companies.

Further, future returns from the BioGenerator’s ‘evergreen’ investment program will provide some additional sustainability as funds are recycled back into the program.

Modalities that are considered appropriate to facilitate the exchange of this experience

- Information sharing
- Experts visits
- Technical tours
- Videoconference
- Workshops

Previous experiences that show the potential for replication of this experiences

The lessons learned in building the BioGenerator’s comprehensive bioscience commercialization support system have been thoroughly integrated with regional economic development efforts across other sectors. For example, in 2010, St. Louis County Economic Council has utilized the BioGenerator as a partner and BioGenerator board and staff leadership as advisors in shaping its new Helix Center incubator and Helix Fund co-investment fund. BioGenerator’s due diligence is often used by Helix Fund, the Missouri Technology Corporation, and other investors. Further, the BioGenerator has been viewed as a model venture development organization during St. Louis’ recent Regional Entrepreneurship Initiative process. Utilizing Economic Development Administration (EDA) funds, St. Louis County engaged JumpStart Community Advisors to provide an outside perspective on how St. Louis could better align its entrepreneurship efforts. Throughout the REI evaluation, JumpStart upheld the BioGenerator as a model program that could be replicated across other industry sectors in the region.

The BioGenerator’s work is also disseminated nationally through peer networks, like SSTI where BioSTL and BioGenerator share best practices with peers from across the U.S. Additionally, in September 2012, BioSTL & BioGenerator were invited to take part in a White House event titled, “The Innovative and

Entrepreneurial University: Higher Education, Innovation and Entrepreneurship in Focus.” Hosted by the Office of Innovation and Entrepreneurship at the EDA, the event connected university research leaders with leaders in innovation and commercialization. Additionally, BioSTL was one of three organizations nationally looked to by officials of the White House Office of Science and Technology Policy (OSTP) and the National Economic Council (NEC) to comment on the federal framework for supporting innovation and commercialization.

Human, operational and institutional capacities to transfer this experience to other countries

The BioGenerator maintains a staff of 6 and a roster of 13 Entrepreneurs In Residence, all of whom are eager to share the lessons learned with other RIAC members. The institution frequently hosts expert visits from peer organizations to share best practices and potentially replicate models. The organization also frequently conducts technical tours of its pre-incubator facility for entrepreneurs, investors, and peer organizations. BioGenerator members also frequently participate in workshops and on conference panels to share the organization’s experience.

BioSTL and the BioGenerator conduct frequent communications efforts through social media, a newsletter, and other channels. These operational activities might further dissemination lessons learned.

Good practices and concrete lessons

The BioGenerator learned that a successful commercialization program must support all aspects of company formation and robust deal flow must begin with support at the earliest stages of commercialization. The BioGenerator began as a standalone seed fund, designed to make \$250,000 investments that would advance pre-company technologies to venture financings. After initial, pent-up demand, deal flow soon dried up. The BioGenerator learned that most university technologies are still too early and require significant proof of concept before private investors show interest – a challenge many regions face. For the BioGenerator, generating quality deal flow at the seed stage necessitated focusing resources on earlier, pre-seed opportunities.

A first step was to create a pre-seed investment program, the Spark Fund, to provide smaller investments (roughly \$50,000) to test commercial proof of concept and reach milestones that are prerequisites to attract seed stage funding. St. Louis’ i6 Challenge award helped pilot aspects of this proof-of-concept program.

The BioGenerator also learned that it does not make good financial sense for these early-stage enterprises to commit to dedicated labs. Rarely did a new company fully utilize incubator space and/or expensive lab equipment. Often, labs and equipment sit idle as companies devote time to data analysis. Yet, many incubator models necessitate a company to pay for separate equipment and individual labs often larger than needed. BAL companies are able to move much more quickly and with dramatically more efficient use of capital compared to traditional incubator settings.

Finally, the BioGenerator learned that capital and facilities only enable success when a quality, experienced team drives a new company toward appropriate milestones. To help new entrepreneurs and startups design and achieve such milestones and secure funding, the BioGenerator launched an Entrepreneur In Residence (EIR) program to help fill talent gaps in the region’s entrepreneurial ecosystem. St. Louis’ Jobs Accelerator award helped pilot aspects of this program.

Experiences and subjects to learn from other RIAC members

How to attract additional investors into startup companies, especially investors who crossover into new industries and international investors looking for opportunities in the U.S.

Opportunities for clinical trial and other research and clinical partnerships

Partnering opportunities with & between: researchers; entrepreneurs; and mature corporate strategic partners

Interest and needs for foreign companies to establish initial locations in the U.S. to help them access U.S. markets.

Business development opportunities for contract research/manufacturing organizations to explore potential contracts with companies/institutions in other countries, i.e., for St. Louis-based firms to provide services in other countries and for St. Louis-based firms to secure services from international contract companies.

Key persons involved in the design, implementation, and evaluation

Eric Gulve, President - BioGenerator, gulve@biogenerator.org

Charlie Bolten, Vice President - BioGenerator, cbolten@biogenerator.org

Donn Rubin, President & CEO - BioSTL and Chairman, BioGenerator, drubin@biostl.org

Author of this story

Benjamin Johnson

Program Director

BioSTL

U.S.A.

bjohnson@biostl.org