Overview

Now in its 28th year of operation, the Ben Franklin Technology Partners of Southeastern Pennsylvania (BFTP/SEP) is a Venture Development Organization that strives to stimulate economic growth and innovation through regional initiatives that accelerate the development and adoption of technology and promote technology-based entrepreneurship. The organization’s goals are to:

1. Grow technology companies that create high-tech jobs in Pennsylvania;
2. Provide and leverage risk capital and business services for emerging and growing technology entrepreneurs;
3. Move ideas to market by creating and implementing comprehensive, integrative technology commercialization models;
4. Catalyze partnerships in order to mobilize the region for large scale regional technology opportunities;
5. Promote an understanding of the important contributions innovation, technology and entrepreneurship make to the regional economy; and,
6. Develop a sustained institution characterized by excellence through acknowledged organizational competencies.

Since 2001 alone, BFTP/SEP has committed over $50 million to more than 400 early-stage and established technologies companies; BFTP/SEP client companies created or retained more than 3,000 high-tech jobs and raised more than $1 billion in follow-on investment. In 2010, BFTP/SEP was ranked the 16th national venture fund by number of deals, as reported by PWC MoneyTree™.
BFTP/SEP is part of the Ben Franklin Technology Partners (BFTP), a statewide technology-based economic development network whose mission is to stimulate Pennsylvania’s economy through technological innovation. BFTP operates regionally through four independently governed, non-profit, partner organizations located throughout the Commonwealth. As one of the partner organizations, BFTP/SEP is located in Philadelphia, serving five counties of Southeastern Pennsylvania.

BFTP/SEP and its BFTP counterparts focus on technology-based entrepreneurial endeavors, viewing them as significant engines of growth. In support of these companies, the BFTPs deliver resources to help drive that growth, including:

- Investing risk capital in emerging technology-based enterprises and established businesses;
- Providing hands-on technical and business expertise to spur enterprise growth and accelerate commercialization activities;
- Delivering customized solutions that draw on an extensive network of public and private resources, including universities, federal laboratories and research institutions.

While all of the BFTPs strive to stimulate Pennsylvania's economy through technological innovation, each Partner has significant latitude in designing its approach toward that goal. During development of the BFTP business model in the early 1980s, Commonwealth leaders recognized that each organization must be provided a level of independence in order to be able to formulate their own strategies and programmatic content within their communities to form dynamic public/private partnerships focusing on the most impactful endeavors for their own particular region. Therefore, when one examines the four Partner organizations, there is not a single blueprint. Instead, it is recognized that what might work in Philadelphia is different than what works in the less densely populated counties of central Pennsylvania. This regionalization has enabled the program to stay current, to continuously evolve, and to remain a dynamic partner with its specific communities.

The programmatic elements of BFTP/SEP arose out of regional necessity. The greater Philadelphia region is the most populous region of the Commonwealth. It is institutionally, culturally, ethnically, and economically diverse. The late 1970s through
the mid-1980s represented a time of surmounting economic challenges for the region with the demographic shift to the suburbs of both human capital and tax revenues, and local repercussions from the restructuring of US manufacturing. Civic leaders recognized that the region required a different type of economic development: a model based on technology and innovation to leverage the extensive intellectual assets found within Southeastern Pennsylvania.

While BFTP/SEP’s mission has not changed during the nearly three decades of operations, the strategies to achieve its goals have. In its original manifestation, like the other partners in the network, BFTP/SEP was established as a program of the area universities focused primarily on diversifying the region’s economy by funding university R&D Centers of Excellence and university/industry technology development projects. The partners became 501(c)(3) orgs after the first sunset review of the program’s enabling legislation.

In the mid-90s through the turn of the century, BFTP/SEP refocused its efforts and emphasis toward direct funding for smaller enterprises, both with and without direct university partnering. The governance of the organization became more industry/business-driven, requiring a 51 percent private industry board, and its programmatic elements became more focused on providing risk capital to enterprises to support their start up, product development and commercialization needs.

The emphasis for BFTP/SEP during the past decade has been to help build a collaborative, networked, regional environment to stimulate growth. The organization has instituted new investment models, new university commercialization partnerships, and sought a greater regional presence and visibility in an effort to foster greater economic growth and prosperity.

Therefore, while the mission of BFTP/SEP has remained relatively unchanged, the execution of that mission has changed as a result of both the evolving economic factors that have affected both the Commonwealth of Pennsylvania as well as the southeastern region of the state, as well as the knowledge and lessons learned that have been gained over 28 years of conceptualizing, developing and managing a variety of programs.

**VDO Programs and Services**

BFTP/SEP has invested in innovative enterprises and created commercialization pathways and partnerships in Southeastern Pennsylvania by focusing on three core areas:

1. Capital, through its investment programs;
2. Knowledge, through its technology commercialization programs and university/industry partnerships; and,
3. Networks, through its regional initiatives.

Across all three areas, the organization identifies regional needs in terms of capital, technology or innovation infrastructure. It then responds either by developing new programming or partnering with others to expand and/or amplify services. BFTP/SEP
often will seed new ideas by being the first investor, but then ensures that a systemic approach is taken that can be modeled, evaluated, and either spun-out or shut-down as needs and performance indicate. In fact, the leadership of the organization believes that much of the TBED infrastructure within the region can find roots in a partnership with BFTP/SEP.

A summary of the current BFTP/SEP’s programs and services is provided below.

**Financial Capital**

BFTP/SEP invests between $100,000 and $750,000 across multiple rounds in information technology, life sciences and physical sciences companies located throughout Southeastern Pennsylvania. Funding from BFTP/SEP can be used for prototype refinement, product or process development, and/or commercialization efforts. The leadership of the organization believes that what makes its financial capital programming highly valued by the community is its due diligence process.

The BFTP/SEP due diligence process involves multiple steps and begins with the review of the applicant’s Non-Confidential Executive Summary by the appropriate BFTP/SEP investment group director (one for each of three sectors; information technology, life sciences or physical sciences). The director’s review will focus on technology, commercialization and other business matters, and will often identify opportunities to strengthen one or more of these areas in order to increase the applicant’s competitiveness for BFTP/SEP funding. Based on the feedback of the director, the applicant will then decide whether or not to submit a full application.

If the company decides to move forward in the process, the application is then submitted to a sector-specific Technical Advisory Committee, comprised of volunteer technical reviewers representing the academic, corporate and entrepreneurial communities, who evaluate the technical merits of the application. The reviewers engage the applicants to identify any technical issues that may render the application less competitive. Forms are provided to record reviewer comments and scores. Technical weaknesses identified during this process may prevent the application from advancing to the next step in the due diligence process – a review of business issues.
The business due diligence process is conducted by outside compensated reviewers. This review focuses on management, market, financial, intellectual property and project issues. The reviewers visit the applicant company and make background calls to evaluate these issues. A template is provided to the reviewer to ensure consistency in format and issues addressed. At the discretion of the director, an attorney may be retained to review the applicant’s intellectual property (“IP”). The focus of this review is to ensure that the technology is protected with an IP position that offers sufficient freedom to operate and sufficient exclusivity with barriers to entry.

The next step in the process is a review of the applicant’s “pitch,” together with the other due diligence materials assembled to that point, by an Investment Advisory Committee comprised of volunteer investment professionals, service providers and entrepreneurs. As with the technical reviewers, a separate committee exists for each of the three technology sectors. Forms are provided to record reviewer comments and scores. These committees advise staff on the selection of applicants to be forwarded to the BFTP/SEP Board Investment Committee with a funding recommendation.

Investment Group staff then submits its funding recommendations to the Board Investment Committee via an Investment Committee template and discusses these recommendations via conference call. The Committee engages staff to ensure that relevant issues have been addressed. The recommendations of this committee are then presented to the full BFTP/SEP Board of Directors for approval via a Project Approvals recommendation.

It should be noted that all of BFTP/SEP’s review processes engage the technology, business and investment community, helping to create a vibrant innovation system. Hundreds of qualified individuals participate as volunteers in these processes, ensuring that BFTP/SEP and its applicants receive input suited to the applicant’s technology and market. In addition, each applicant receives a written technical and/or investment due diligence report that provides value added for further use even if the company is not selected for an investment or technology commercialization engagement award. Companies use these reports both to make course corrections and reapply or to secure match funding – always a requirement of the BFTP/SEP processes. The full due diligence process (from application to Board approval) takes 9 to 11 weeks.

In summary, the due diligence process is a very extensive and tested process for evaluating early stage opportunities in a way that engages the community. The process is credited with helping to build the entrepreneurial community in the region as well as providing a level of “comfort” to risk capital investors. The young companies often will use the BFTP/SEP due diligence report to secure additional investments.

In addition, the community is pleased with the process because individuals are able to view new technologies, be afforded the opportunity to socialize with other interested parties, and review investable deals. Often private investors will invest before BFTP/SEP has a chance to offer a term sheet, which the organization views as a “win,” since a regional company has received the required financial capital while freeing up the BFTP/SEP funds to invest in another deal.
BFTP/SEP has over 130 companies in its investment portfolio representing $28 million invested, in most cases as subordinated convertible debt with detachable warrants. The amount invested annually varies depending on the funding received from the state as well as the fund’s return on investment. On average, the level of investment has been approximately $5 million per year.

In addition to the direct company investments, BFTP/SEP over the years also has invested in several regional venture funds, including: the Ben Franklin/Progress Capital Fund, LP; BioAdvance, LP; Eastern Technology Fund (now SeventySix Capital); Emerald Stage2 Ventures, for which it is the General Partner; and others. It also seeks opportunities to support and partner with the entrepreneurial initiatives of others in the region, including an IT boot camp, Dreamit Ventures I, LP; Dreamit II, LP; Project Liberty (a media-centric incubator); the MidAtlantic Angel Network; and the Minority Angel Investor Network.

Business Advisory Services

Business Support Services for Portfolio Clients: BFTP/SEP has spent significant resources (both time and funding) since its inception in helping to develop a robust business assistance service network in the region. As a result of these activities, the organization believes that today there is a critical mass of established networks of service providers that adequately meet the needs of the region’s technology-based entrepreneurial community. Now, BFTP/SEP provides direct business support services only to its portfolio client companies and to those who have a programmatic relationship with BFTP/SEP (i.e. through one of its university partnerships). For companies not yet ready for investment, BFTP/SEP makes referrals to other regional service providers.

With regards to the business support services to portfolio clients, the organization does not adopt a programmatic approach, preferring instead to identify the company’s specific needs and address those either directly or through the BFTP/SEP network of providers. A portfolio manager is assigned to each company along with specialty consultants to provide company-specific expertise in business development and product and service commercialization. The process provides extensive business model review and development, along with C-level business growth and management support, market access services, and expert service providers.

Furthermore, the capital that BFTP/SEP invests is predicated on reaching milestones, with a stage-gate process to ensure progress. Therefore, the nature of the investment comes with hands-on assistance and expertise. BFTP/SEP staff and its network of advisors provide practical business advice on all aspects of managing, growing and assisting both emerging enterprises and established businesses, pursuing new avenues for growth in an ever-changing, global marketplace.

In addition to the customized, one-on-one assistance and coaching, BFTP/SEP organizes events designed to address common topics identified through its work with portfolio companies. Through its Almanack Series, BFTP/SEP reaches out to alumni and other expert resources to meet with groups of its portfolio companies for in-depth discussions of particular issues of interest. A popular Almanack event is BFTP/SEP’s annual Venture Showcase, an investor-only conference at which portfolio companies have an opportunity to pitch to the region’s angel and venture investors.
Technology Commercialization: BFTP/SEP focuses on two discreet types of activities under the banner of technology commercialization. The first is direct commercialization assistance to companies via three specific programs:

- **Technology Commercialization Fund**: BFTP/SEP provides direct loans of no more than $50,000 to companies to assist in the development of scalable prototypes, product field testing, and product validation. The fund is viewed as a feeder fund into the investment group, with the commercialization work focused on developing an eventual pathway to market. Over the past 5 years, the Technology Commercialization Fund has helped more than 225 companies to solve product development and commercialization challenges.

- **Technology Commercialization Network (TCN)**: Designed to assist companies in addressing near-term technical needs by utilizing greater Philadelphia area research institutions, the TCN provides consulting and use of laboratory facilities, drawing upon the resources of more than twenty universities and research institutions with whom it partners under a standard MOU.

- **Ben Franklin Commercialization Solutions**: Individualized solutions that span the continuum from assessment to commercialization to capital, Solutions are designed to address the different requirements of early stage companies as well as mature enterprises (see Figure below).

The second discreet technology commercialization activity that BFTP/SEP has been pursuing aggressively over the past ten years is the revision of its university technology commercialization model, including seeking and winning funding from the Commonwealth of Pennsylvania’s university research/commercialization initiative launched under the Ben Franklin Technology Development Authority. These funds have helped to build partnerships with regional institutions to drive commercialization in particular areas of technology. BFTP/SEP works with regional universities to help form industry/university consortia for a specific platform technology. A university outsources the technology commercialization function to BFTP/SEP and partners with it on both federal and state proposals. The overarching goal of the activity is to accelerate the commercial application of new technologies by connecting private companies with regional universities in technological areas of mutual interest in ways that enable identification of barriers and opportunities for growth.
Four examples of recent consortia include:

- **The Nanotechnology Institute™ (NTI)** is a novel partnership that has succeeded in removing barriers to enable and accelerate the commercialization of institutional research. Created in 2000, the NTI's founders recognized that overcoming these barriers to innovation and entrepreneurship in the 21st century requires completely new thinking and new structures. The NTI addresses this challenge by uniquely combining the following key elements: (1) a core public investment of funds carefully managed by a leadership team that integrates faculty, economic development experts, and university tech transfer officials; (2) multi-university participation through a novel, comprehensive IP-pooling and revenue-sharing strategy among its 13 institutional partners; (3) strategically targeted funding to universities and small businesses that incentivizes faculty-industry collaboration and prioritizes university IP with commercial potential; (4) strong emphasis on interdisciplinary, regional strengths, and high quality research; (5) integration of commercialization experts in oversight and program review; and (6) extensive outreach, networking, information sharing, and marketing efforts. These activities are generating tangible outcomes at an accelerating pace: in the past three years the number of new IP assets, technology licenses and new company spinoffs has exceeded all activities in the previous seven years. More importantly, these activities are now being reflected in real economic growth for the region in terms of job growth. This reflects not only the maturation of nanotechnology in general, but the success of the NTI model in particular. The NTI was recently awarded the 2011 Honorable Mention for Partnerships with Education Institutions from the International Economic Development Council.

- In 2009, Temple University launched the Pennsylvania Environmental Technologies for the Pharmaceutical Industry (PETPI) program, designed to create a worldwide hub for research and development focused on the green manufacture of medicines. BFTP/SEP is a founding partner in the program, which secured $1.6 million from Pennsylvania's Ben Franklin Technology Department Authority. PETPI is part of the Water & Environmental Technology (WET) Center, a National Science Foundation (NSF) Industry/University Cooperative Research Center. BFTP/SEP is the marketing arm for PETPI and WET. In August 2011, the WET Center was awarded a $1 Million NSF grant to support its efforts to establish Greater Philadelphia as a hub for the development and commercialization of water treatment technologies. BFTP/SEP is a funded partner in this award, and is coalescing a multi-state regional water consortium to further the area's water interests.
• Also in 2009, Philadelphia University, Drexel University and BFTP SEP created the Pennsylvania Advanced Textile Research and Innovation Center (PATRIC). PATRIC provides leading-edge expertise to test, develop and create advanced textiles that support industrial development and growth in a range of biological and technological applications. The Center secured $1.2 million from Pennsylvania’s Ben Franklin Technology Development Authority.

• The Pennsylvania Green Growth Partnership (PAGGP) links industry, university, economic development groups and non-profits to solidify and grow the Commonwealth’s position as a national leader in the rapidly emerging green building marketplace. BFTP/SEP joined Philadelphia University to launch the Partnership in 2000, before green technology was high on the region’s agenda. The Partnership now includes Temple University, Villanova University, and the Pittsburgh Green Building Alliance. The PAGGP has successfully assisted more than 150 companies.

Regional Initiatives

In an effort to catalyze partnerships in order to mobilize the region to “get behind the next big idea,” the leadership of BFTP/SEP has spent considerable time and resources over the last five years to play a pivotal role in launching broad regional technology initiatives. Two examples of this priority are described briefly below.

• The Greater Philadelphia Innovation Cluster for Energy Efficient Buildings (GPIC), an Energy Innovation Hub is led by Penn State University and funded with $129 million by the US Department of Energy and other federal agencies. GPIC seeks to improve energy efficiency and operability and reduce carbon emissions of new and existing buildings, and to stimulate private investment and quality job creation in the Greater Philadelphia and larger Mid-Atlantic region. BFTP/SEP manages the development, deployment and IP management functions for the consortium.
• Home to energy-sector entrepreneurs, multinational corporations, investment capital resources and leading researchers, civic leaders believe that greater Philadelphia is the nexus of the Mid-Atlantic energy hub—Power Valley. Seeded with $10 million from the Commonwealth of Pennsylvania’s Alternative Energy Development Program, BFTP/SEP is making investments and developing partnerships to create new enterprises, new products and new economic growth opportunities.

Moving the Needle

The impact of the BFTP/SEP financial capital programs, in particular the due diligence methodology, is significant. The organization’s role in the community as the clearinghouse for the most promising ideas that have been thoroughly vetted is a critical component for the region’s risk capital continuum. BFTP/SEP is viewed by the regional technology community as the organization that provides the earliest deal flow from which the pipeline is filled with promising, value-added opportunities.

Organization

At any given time, BFTP/SEP has approximately 30 FTEs on staff. In terms of the amount of resources dedicated to the various business groups, the investment group has been the largest area of activity, historically. However, with the growth of GPIC, the organization’s technology commercialization activities and administrative functions also have grown. Today, the organization’s resources are almost evenly divided between the three groups: investments, commercialization, and administration.

The Board of Directors of BFTP/SEP is comprised of 25 individuals, primarily from the private sector with a few academic representatives. There is a heavy concentration of individuals from the investment community as well as private sector CEOs and technology leaders. The board is actively engaged in strategic planning as well as serving on the investment committees and other committees.
Summary of Key Success Factors

There are a number of key success factors that have enabled the success that BFTP/SEP has achieved. The first and foremost is the deep professional competency and knowledge of the organization’s staff. The leadership of BFTP/SEP believes that its work cannot be successfully conducted by a group of generalists. If a VDO is truly going to bring added value to the companies that it engages with, then the staff must have a deep knowledge of the industry sector, bringing the technology to market, and the intricacies of risk capital. Furthermore, the staff must be mission driven and truly love what they do. At the end of the day, an organization that has people who are committed to the mission of the entity can and will figure out any challenge presented.

Secondly, BFTP/SEP has positioned itself to be a value-adding partner in the region. One partner stated that BFTP/SEP is a respected asset in the community because the staff “thinks with you.” In other words, the staff adds value to any partnership it enters into because they are constantly pushing the envelope in terms of what is possible for the region to achieve, offering up viable solutions and alternative options.

Finally, the leadership of a VDO must be able to really listen. The first thing that the BFTP/SEP president did when she came to the organization was to listen to her staff by interviewing each one of them one on one. She met with her board and with people within the community to try to get a sense of what people thought of the organization as well as what they thought were the most important issues in the region. As she said “That information helps shape the approach that BFTP/SEP takes. That’s not to say that leaders don’t have their own ideas. All leaders come in with their own game plan, but to understand the nuances of how one can move that game plan forward and in fact whether the concepts in it are the correct ones, one needs to develop a good ear.”