

Article

Transforming Pittsburgh's Economic Ecosystem and Clusters

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INTRODUCTION

THE PITTSBURGH REGION'S recovery and transformation from an economy dominated by heavy industry to a balanced and diversified economy throughout the region has been documented by many publications during the past decade. Pittsburgh is rightfully viewed as a model for post-industrial transformation and is positioned to provide sustainable careers and a high standard of living for its people. This article will not attempt to tell that broad economic recovery story again, but instead will focus on one important aspect of the story: the rise of Life Sciences/Biotech as one of the key clusters driving the Pittsburgh story. I had the privilege of being at the table for much of the planning and execution that went into the development of this cluster. In this article, I hope to provide a unique view of the key elements of the plan for Life Sciences in the Pittsburgh Region. From my perspective, there were five key elements to the regional strategy that supported the results achieved over the past 20 years. They include: Analysis and Planning, a Targeted local Cluster Development Initiative, Public Policy and Program support from the State, a unique collaboration between the two premier research and educational institutions in the region, and the cooperation and support of existing local economic development organizations. This article will explore each of these five areas and concludes that together they provided a unique and effective strategy for targeted cluster development, and broad-based leadership.

ANALYSIS, PLANNING AND TARGETS

In the early 90s, as it was becoming increasingly apparent that the traditional industries in Pittsburgh would not be able to sustain the region, regional leaders facilitated by the Allegheny Conference began an analysis and targeting initiative. To bring a fresh set of eyes to the problem, Michael Porter and his team from the Harvard Business School were engaged to help with the process. Literally hundreds of leaders from business, academia, philanthropy and government were engaged in a process of analyzing the relative strengths and weaknesses of various segments of the Pittsburgh economy. That analysis was coupled with data on what growth opportunities presented themselves. The result was an identification of five clusters comprising a combination of regional strengths relative to national averages and potential growth opportunities. These clusters included three traditional sectors of the Pittsburgh economy and two potentially new ones. The traditional ones were *advanced manufacturing, energy and financial services*. The two new ones were tech-based and included *information technology and the life sciences/biotech sectors*. The latter two being driven by the large and growing research base occurring at the University of Pittsburgh/UPMC, and Carnegie Mellon University among others.

This planning and targeting initiative led to the development of regional programs, including a group referred to as the Working Together Consortium and the launch of a regional life sciences/biotech cluster initiative which became known as the Pittsburgh Life Sciences Greenhouse.

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PITTSBURGH LIFE SCIENCES GREENHOUSE

In the late 90s, regional leaders came together to work on the development of a regional Life Sciences/ Biotech cluster. Battelle Labs out of Columbus, OH was engaged to do the data analysis and gather input from all the regional stakeholders. The report that came from these efforts concluded that a new regional organization was needed to be the catalyst for the life sciences cluster. At the same time, then Governor Ridge was proposing a unique way to use funding from the national Tobacco Settlement to kick start economic activity in the Life Sciences across the state. Based on the success of the Pittsburgh Digital Greenhouse (PDG) model (a prior cluster development initiative focusing on electronics and robotics), Governor Ridge proposed the creation of three Life Sciences Greenhouses in Philadelphia, Hershey and Pittsburgh using a model similar to the PDG. As a result, the Pittsburgh Life Sciences Greenhouse was created in 2001 to drive the development of the cluster.

The operational plan called for a small, experienced and multi skilled team to build out and execute the plan. This Initial team totaled 10 people and eventually was supplemented with several Executives in Residence to provide leadership, industry related expertise and connections.

Initial funding came from the state in the form of a \$33 million commitment to the Pittsburgh Life Sciences Greenhouse. Greenhouse staff, with support from the newly created board, raised additional funds bringing the total funding to \$100 million to support the first five years of operations. The bulk of the additional funding came from regional foundations.

The Greenhouse business plan called for the development of technology and commercialization in the fields of therapeutics, medical devices, Bio tools, diagnostics and Health care IT. The overall intent was to accelerate technology commercialization with support for seed and early stage companies, connect those companies to investors and to relocate Life Sciences companies from outside the region. The plan also called for significant funding to go to the universities to enhance our research and translational development capabilities, including packages that would allow the universities to attract additional world-class research faculty to the region. An advisory committee was formed to evaluate proposals and select the ones that best matched promising research with market opportunities and capital thus increasingly the likelihood of commercialization. Funding would also be used to support technology transfer from the universities, including wet labs during the early incubation stages. In addition, early stage funding would be

available to translate university research into commercial technology along with pre-seed and seed funds. The plan included a novel Executive in Residence program that would utilize experienced life science executives who were in between assignments to work with the early stage companies to assist them in business planning, fundraising, milestones management etc. Finally, a networking community would be developed to regularly communicate with all involved parties and to provide sharing of best practices across the cluster.

In addition to this targeted regional support, the state provided additional support through two major statewide initiatives. The first was as mentioned before, Governor Ridge proposed (and got approved) a unique use of tobacco settlement funding focused on development of the life sciences industry across the state. In addition to the afore mentioned hundred million dollars allocated for the three greenhouses across the state, \$60 million was set aside for venture capital investments in the life sciences and over \$20 million a year was set aside to invest in expanding research capabilities at the universities. In 2003, after Governor Rendell's election, he proposed a massive stimulus package designed to jumpstart the state's economy, including significant investments in tech-based economic development. Some of the programs that were eventually approved by the state legislature included an additional \$310 million in venture capital investments, a geographically targeted keystone innovation zone program that would establish physical zones adjacent to the universities and special tax credits for companies that established operations there, additional faculty start up attraction package money was also made available and finally a tradable research and development tax credit was implemented. Taken together the state and regional investments that were being made in the development of the Pittsburgh cluster were likely the most significant anywhere in the country.

UNIVERSITY OF PITTSBURGH/ CARNEGIE MELLON UNIVERSITY COLLABORATION

One of the hallmarks of Pittsburgh's overall recovery from the loss of its traditional industrial base, is the collaboration model it uses to address major public policy issues. This began with the advent of the Allegheny Conference, which is still viewed and studied all over the world as a unique model for regional cooperation among businesses, academia, philanthropy and government. This model of cooperation was exemplified once again by a unique collaboration between the leaders and staff of Pitt and CMU.

Part of the basis of this close working relationship in the Life Sciences arena is the natural overlap of research and expertise at the two institutions. The simplest way to explain this is Pitt has deep capabilities in the Bio world and CMUs depth is in the Digital world. The combination of the two brings unique solutions to modern life sciences treatments and patient care. One of the examples of this close working relationship, is the fact that Pitt Chancellor Mark Nordenberg and CMU President Jerry Cohen agreed to co-chair the board of the PLSG. Sharing responsibilities, they led the development of the business plan which was adopted by the board and carried out by staff. Their example also attracted other key leaders from the region to participate, providing the PLSG with a world class set of directors which enhanced the success of the organization. Because of the personal example they set, the message was clear to the research teams, tech transfer organizations and others at their respective institutions that working together to develop this key sector of the region's economy was critically important.

In furtherance of their commitment to working together, an office of strategic economic development was created that reported jointly to Mark and Jerry. During this period, the research base continued to grow and the intensity around tech transfer increased. This stimulus for startup formation, plus the work the PLSG was doing resulted in an increase of startup activity from 2-3 new companies (NewCo's) per year in the Life Sciences to 20-30 achieving, one of the key objectives for the formation of the PLSG.

LOCAL PARTNERS

One of the goals of the PLSG was to create a community of stakeholders in the development of the Life Sciences Cluster in the Pittsburgh region. This need was addressed multiple ways. The first was by partnering with other complementary economic development organizations in the region. The Allegheny Conference and its marketing arm, the Pittsburgh Regional Alliance were partners from the start. The ACCD was actively involved in the initiation of the PLSG and continued their involvement post opening. They assigned one of their board members to sit on the board of the PLSG to maintain close coordination between the two organization's agendas. In addition, the PRA, whose task is business attraction and retention in the region, works with the PLSG on company attraction activity. Today the greenhouse activities have generated over a dozen existing life science companies moving to the Pittsburgh region to establish operations because of the ongoing momentum being built in the cluster. The second area where cooperation has been ongoing is with other early stage funding organizations in the

region. Innovation Works has been a close partner with the PLSG combining their early-stage investment funds with the PLSG's to bring greater depth of funding coverage to promising companies and technologies. In addition, the needs of individual companies can be matched up with local venture capital firms or angel investors, a syndication process that the PLSG executive in residences coordinate. Finally, there has been an ongoing effort to connect with and keep all key stakeholders updated on the goals, progress and issues surrounding the greenhouse mission. This includes regular individual and group interactions with key stakeholders in the research community, healthcare, philanthropy, business and government. This broad attempt to bring together all of the stakeholders allows for ongoing input to the PLSG Staff, including how to improve its execution and how to connect appropriate stakeholders where collaboration will have a benefit. This natural inclination in the Pittsburgh region to work together has been in the DNA of Pittsburgh leadership since the early 1940s and continues to show its benefits in initiatives like the Pittsburgh Life Science Greenhouse.

EARLY STAGE INVESTING

One of the mayor issues highlighted by the Battelle report was the lack of early and growth stage capital available in the region to support fledgling life sciences companies. When the PLSG was formed, Innovation Works (a state sponsored early stage tech investor) was the primary source of these funds and historically has been oversubscribed. A few institutional venture capital firms also were based in Pittsburgh, but the level of investing was not enough to address the growing start up activity. The state's investments in venture capital via the Tobacco settlement and Governor Rendell's stimulus provided a jumpstart and, with private matching money, moved the region forward during the 2000s. UPMC Enterprises, a division of the world class University of Pittsburgh Medical Center was formed to commercialize and invest in promising technologies and has had a positive impact in the region. Unfortunately, in spite of the state's stimulus efforts the region still faces a dearth of venture capital. It is currently estimated that we are receiving only 10% of the venture investing expected based on the level of research activity in the region. And while it is fair to say that the available capital has improved since 2000, it is still the most frequent critique mentioned regarding the development of the cluster and thus is an ongoing issue.

FINAL THOUGHTS

It was not my intent to do an exhaustive data-driven analysis about whether the PLSG achieved its objectives. That is a subject for another article. However, I do have some summary observations I would like to make. My perspective comes from having been the founding CEO of the PLSG, then the Secretary for Community and Economic Development for the Commonwealth of Pennsylvania during the time the state made its stimulus investments in the Life Sciences industry. Finally, I am the retired CEO of the Allegheny Conference, a key partner with the PLSG throughout its history.

Overall, I think there is no doubt that the cluster is larger and stronger than it was in 2001. The research base has grown significantly since that time and hundreds of new products have been developed and put into the market that originated from local life sciences research. The rate of startup activity is an order of magnitude larger than 20 years ago and thus the business side of the cluster is larger and more robust. New and exciting complementary organizations now exist including LIFEX that will continue to help drive the growth of the cluster. How much of this can be attributed to the PLSG is debatable, but there is no doubt that the Pittsburgh Region Life Sciences Cluster is better than it was when the PLSG was formed in 2001.