

**BUILDING A 'CONNECT-LIKE' ORGANIZATION IN CHICAGO:  
CONNECTING ILLINOIS' AMAZING TECHNOLOGY  
RESOURCES**

**Economic Development Council  
Technology Commercialization Task Force**

*Proceedings of the May 15, 2006 Forum*

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## *Preface*

The Technology Commercialization Task Force of the Economic Development Council hosted a Forum entitled “Building a ‘CONNECT-like’ Organization in Chicago: Connecting Illinois’ Amazing Technology Resources” on May 15, 2006. The following paper reports the Forum’s proceedings based on the transcript of that event.

The Technology Commercialization Task Force would like to thank the Illinois Global Partnership, Inc. and the Illinois Information Technology Association for underwriting the program. Also, our thanks go to Bill Testa and the Federal Reserve Bank of Chicago for hosting the wonderful breakfast that accompanied the Forum; Lewis Matuszewich and the Economic Development Council; all of our sponsors for this program series; and Sarah Galer for editing these proceedings.



# **BUILDING A ‘CONNECT-LIKE’ ORGANIZATION IN CHICAGO: CONNECTING ILLINOIS’ AMAZING TECHNOLOGY RESOURCES**

## **FORUM PROCEEDINGS**

### ***Introduction:***

***Christopher A. Bloom, Bell, Boyd & Lloyd LLP, and Chairman of the Technology Commercialization Task Force of the Economic Development Council***

*Chris Bloom is a Partner in the Intellectual Property Department of Bell, Boyd & Lloyd LLP. He concentrates his practice in technology and intellectual property with a particular emphasis in biotechnology and information technology. Chris sits on the Board of Directors of the Economic Development Council and is Chairman of its Technology Commercialization Task Force Steering Committee.*

The Technology Commercialization Task Force of the Economic Development Council is focused on how to build the best environment it can to develop the technological resources in our community. Over the last year, the Technology Commercialization Task Force has examined in-depth the issue of technology commercialization. These efforts included conferences and forums involving more than 20 speakers and over 150 participants representing more than 100 companies and organizations in the community. In September 2005, the Task Force integrated all it had learned into a “Roadmap” for technology commercialization in the Chicago area. This Forum is designed to further the objectives described in the Roadmap.

### **Roadmap Report Findings**

The Roadmap Report had three findings:

First, the improvements and revival of the general economy suggest that it is time for the Chicago area to renew its commitment to technology commercialization. The region’s under-tapped research base offers a substantial economic opportunity if properly exploited. An ongoing benchmarking of progress made in commercialization of technology and attendant economic benefits is needed to keep the region and its interested organizations “on the road,” focused on its directions, goals, and achievements.

Second, the Chicago area must more effectively survey its existing technology assets and identify its key strengths. These technology opportunities and their economic impact need to be understood and communicated. The Chicago area needs to market and promote its technology activities. This marketing should be broad-based, directed to the Chicago area itself, to the nation and to the world. The efforts to “brand” Chicago will pay off in commercialization locally and throughout the Midwest.

Third, we need to continue to expand our efforts to provide connectivity in the region. This is the finding on which this Forum is focused. We need to connect multiple “pockets”:

- Academic researchers with entrepreneurs;
- Manufacturers with new technology;
- Financial resources with new ventures; and

- The region with the international community.

### **Providing connectivity**

In the Roadmap, we called for the establishment of a resource organization to provide connectivity, benchmarking, marketing and support for technology commercialization in the region. We said that the community should build a resource modeled somewhat on the San Diego CONNECT<sup>®</sup> program, involving all aspects of the technology community, focusing on economic development through commercialization of technology which would interact with the international community.

The functions of that resource should include leadership, connecting all of the community and its resources, supporting existing trade associations and other public and private initiatives, providing information and data, recognize and communicate technology strengths in the region and focus economic development resources on the technology sector.

The Roadmap report said “successful regions create a hospitable environment in which leaders emerge, an entrepreneurial culture is developed and successful start-up companies develop.” Following on this Roadmap, these Forum proceedings include presentations from experts in technology entrepreneurial success:

- Overview by Wilbur H. Gantz, Executive Chairman of the Board, Ovation Pharmaceuticals, Inc.;
- Perspectives on creating connectivity:
  - Stuart Henderson, Partner and Biotechnology Practice Leader for Europe, Deloitte, UK;
  - Duane Roth, Chief Executive Officer, CONNECT<sup>®</sup>, San Diego;
  - Richard C. D. Fleming, President and Chief Executive Officer, St. Louis Regional Chamber and Growth Association; and
- Discussion Moderated by Mitch B. Hein, Chief of Staff, Illinois Medical District.

We welcome your participation in this effort.

**Overview: The Entrepreneurial Perspective**  
**William Gantz, Executive Chairman, Ovation Pharmaceuticals**

*Bill Gantz is Executive Chairman of Ovation Pharmaceuticals, a specialty pharmaceutical company located in Deerfield, Illinois. Ovation is a classic venture capital-backed company. It operates based on \$150 million raised from Golder Rauner, a big venture capitalist in Chicago and it currently markets 18 FDA approved products, with four in the pipeline. Bill Gantz is a true poster child for technology entrepreneurs. He founded Pathogenesis in 1992 and eight years later sold it for \$720 million dollars. Before that, he had a 25-year career at Baxter, serving as president of that company from 1987 to 1992. He is one of Chicago's real local entrepreneurial success stories. He learned skills in the large pharmaceutical arena and successfully applied it to ventures.*

**Raising Money is Very Tough**

It does not matter where you are in the country. It is tough to raise money. It is not only tough on the first round when people talk about getting angel money. It is also extremely tough when you get venture capital money and you are getting ready to do an Initial Public Offering (IPO). After starting Pathogenesis, one partner told me: "You know Bill, raising money is really tough." I said: "Look, at Baxter we have raised hundreds of millions of dollars on these road shows. I know how to do this." However, the toughest thing I ever did in my life was to do an IPO with a two week road show and to never quite be sure whether or not you are going to have money at the end of the run. So, keep in mind that raising money is tough.

**Building a Biotech Company is Even Tougher**

Building a biotech company is tough. First of all you need to raise huge amounts of money. We are talking about 100, 150, 200 million dollars to get a product into the marketplace. Over a 10 year period, you have to think about raising a lot of money continuously. You have to put together a lot of different skills: scientific, manufacturing, finance and you have to recruit a lot of people. With skilled, capable people, you will put together an organization that is going to work. So, keep in mind building one of these start-up companies is tough.

**You Can Never Get Enough Support and Help**

In biotechnology, we outsource a lot of what we do. You need good partners all over the place. We outsource manufacturing. Intellectual property is our lifeline: you need to have absolutely outstanding people working with you on intellectual property, because if that does not hold up, you do not have a company. The government has helped us with 404 so far, and that requires enormous amounts of effort from the people in the public accounting arena. And certainly, last but not least is we are very dependent on universities for their science and expertise. When you start one of these biotech companies, you need every bit of support and help you can get from outside your company.

Now, I would like to give you a brief background of the few companies that I have been involved with starting, to give an idea of my experiences. First, let me talk about the strengths and the challenges we had in Seattle, where Pathogenesis was located. Then I want to go through the strengths and challenges in Chicago with Ovation. And last, I would like to leave you with some thoughts that I have on supporting new business development in Chicago.

## **Pathogenesis**

Pathogenesis, Inc. was started in 1992. We raised \$42 million, which at that time was the second most amount of money that had been raised for biotechnology. We had an interesting set of circumstances. My partners in this venture were two scientists from the University of Washington. That is why we located in Seattle, very simply. We had some interesting investors – they were actually

national. We had a group of Carlyle Partners, whose CEO is David Rubenstein in Washington DC, a private group, Fred Wilpon, who is owner of the New York Mets, and then last of all, in Seattle, Bill Gates. That was one of the lucky breaks. When you are doing a venture start-up, you need a lot of money. When Bill Gates invested money in Pathogenesis, every single businessman in the city of Seattle wanted to invest in us. So, we were really successful in that first round.

From the very day we started, our goal was to build laboratories, which we did in Seattle, and to get FDA approved products to the marketplace. We focused on one area: cystic fibrosis patients with very serious lung disease. We developed an inhaled antibiotic that turned out to work extremely well.

One of the things you often need to succeed is a good break. It turns out that while we were doing research, two doctors at the University of Washington Children's Hospital had developed this drug. They came to me and said "Can you help us bring this to the marketplace." We went out, worked with the Cystic Fibrosis Association and, in 1997, we received approval from the FDA. One of the happiest days of my life was December 23, 1997, when the FDA said "We are going to approve your drug. Now you have two choices: you can wait here for an hour while we get all the signatures or we can mail it to you." Guess what I did? I waited. The drug turned out to be very successful. Last year, it had \$250 million in sales. Chiron, a big pharmaceutical company on the West Coast, came in, made an offer for us in cash, and the board sold the business.

## **Ovation Pharmaceuticals**

So there I was, sitting around with nothing to do, and I decided I would take a look at starting another business. I went around and talked to a number of possible investors throughout the country, primarily in New York, Chicago and San Francisco. I wanted to start what we call a specialty pharmaceutical company. Simply put, we buy other products that have been approved by the FDA that large pharmaceutical companies, for one reason or another, do not want to

**PATHOGENESIS, INC**

- Started in 1992 and raised \$42 million
- Built labs in Seattle
- Built a business in anti-infectives starting with a basic research platform
- Inhaled antibiotic for CF patients
  - IPO – November 1995
  - FDA Approval – December 1997
  - TOBI – 2005 sales - \$225,000,000.
- Sold to Chiron in 2000 for \$730,000,000

continue to sell. We also develop our own products so that we have a pipeline of new products coming along in the future. So we went to GTCR Golder Rauner, a large private equity firm here in Chicago. They invested \$150 million in the company and we set up our offices and clinical development program in Deerfield, Illinois.

The first products that we acquired were from Abbott - the nicest negotiation I have ever had. We only had to go ten miles up the road to visit them. We now have eighteen products on the market and this year we expect to do \$120 million in sales. But the most exciting part of this for me has been that we have four products that are in development. We filed our first new drug application to the FDA in December and are hopeful to have approval for it by the beginning of next year. We have three other products that are in the pipeline, two of them actually in clinical trials right now. Our research has been focused very much on central nervous system diseases and oncology. In fact, each of the four products that we have is for the central nervous system, three of which treat epilepsy.

Now, let me turn to some of my experiences.

### **Strengths and Challenges in Seattle**

Seattle turned out to be a very good place to start up our business and raise money. As soon as we had some key leaders on board, we had an excellent ability to raise money there. But we also kept our ability to raise money on a national level. We never focused on just staying in Seattle although that base was really important to us. The University of Washington was extremely helpful. I had two people there, the dean of the school of public health and the dean of the medical school, who were very supportive. For example, we shared a National Academy scientist. He worked half time at the university, half time at the company. That type of flexibility was extremely important for me in getting the company up and started.

Also our landlord was extremely helpful. A lot of times, people want all kinds of deposits and guarantees. This landlord gave us a lease without that requirement. In fact, he even bought shares in the company.

Since we were setting up a research base, our ability to hire researchers, particularly in the biology area was strong. The University of Washington has a very strong base in biology research.

Now, it was not perfect. There were challenges. One challenge, interestingly enough, was finding people with chemistry backgrounds, because they are concentrated in New Jersey and the Midwest, with companies like Lilly and Upjohn. These chemists did not want to go to Seattle where it was raining all the time. And if it was tough to move chemists, relocating any manufacturing and marketing people turned out to be such a challenge that we set up our marketing offices in Chicago.

We had to deal with the Food and Drug Administration and the Cystic Fibrosis Association in Washington, DC. Flying across the country was not easy. I always wasted two days. However, overall, Seattle was a good place to get a business started.

## **Strengths and Challenges in Chicago**

Now let me turn to Ovation. In this case, we had capital from one group, GTCR Golder Rauner, who has been just absolutely fabulous to work with. But, keep in mind that they fund companies throughout the United States and do not just focus on starting companies in Chicago.

Chicago has been a fantastic place to hire the people we need. I have Abbott ten miles up the road; Baxter across the street; and then interestingly enough, with the Skokie laboratory closed down by Pfizer, there are a lot of very talented people that have wanted to return to live in the Chicago area. Therefore, we have put together an outstanding team, and guess what? I have no competition for these people.

Chicago has very strong intellectual property resources. When I was in Seattle, my intellectual property lawyers were in Chicago. We have found that there are three or four law firms in Chicago that have absolutely superlative intellectual property groups. Also, our relationships with the universities in Chicago have been very good.

Now, there are some disadvantages to Chicago. One is the problem of venture capital, of seed money. I had the good fortune of finding the group that I got my funding from but I know that it is really tough to raise money here, much tougher than in other areas. There can also be a challenge in recruiting scientists focused on basic science. People are a little hesitant to come to Chicago because there are not many biotech companies. If the job that brought them here does not work out, there are few other options. But all in all, we have found Chicago is a great place to start a business.

## **Supporting New Business Formation in Chicago:**

### ***Availability of Capital***

If you are in biotechnology, you think about capital a lot and you know the early stage is really challenging. There are not many experienced venture capital firms in the area, although I do see now the start up of some organized interest groups, which is encouraging.

### ***Access to World-Class Research and Ideas***

There is no question that Chicago is blessed with a number of outstanding universities: Northwestern, University of Illinois, University of Chicago and IIT. I do not know exactly what the growth rate is, but they certainly have improved the research space devoted to life sciences in the last ten years. However, universities also have to have a passion about starting businesses. In Seattle, the University of Washington really encourages their faculty to be entrepreneurial. The researchers want to get a business started and make a lot of money. I do not see the same type of passion here.

### ***Availability of Physical Facilities***

Physical facilities are another area that is very important. These are expensive to set up, certainly in the life sciences. I am encouraged by Forest City Enterprises setting up space in Skokie at the Illinois Science + Technology Park, the former Pfizer facilities. These are the best laboratories in the country. As I look forward, this should be a key resource for the future. Forest is an experienced developer of laboratories throughout the United States.

***Experienced General Management***

The availability of a skilled workforce is very important. With the companies we have in Chicago, I do not care whether you are talking about regulatory or clinical science or basic research, we have a skilled group in Chicago.

***Role of Government***

Government, I think, has a role, but I think we have to be realistic in this business about what that role can be. I do not look for the government to give me money. We will raise our money if we have good ideas. What I want the government to do is to be supportive and to help develop contacts. Look at what happened with BIO 2006: the support we had from Jack Lavin and the State, and from Mayor Daley here in Chicago, was outstanding. I could not have asked for any more help than we got through them. That is the support I want.

All in all, let me end with the following thought: I see no reason why Chicago cannot be a place where you can very successfully build new businesses. Is it easy? No. Is it going to take effort? Yes. But we are on the right track. We need to get to work and see what we can do to improve the environment and take advantage of what we have.

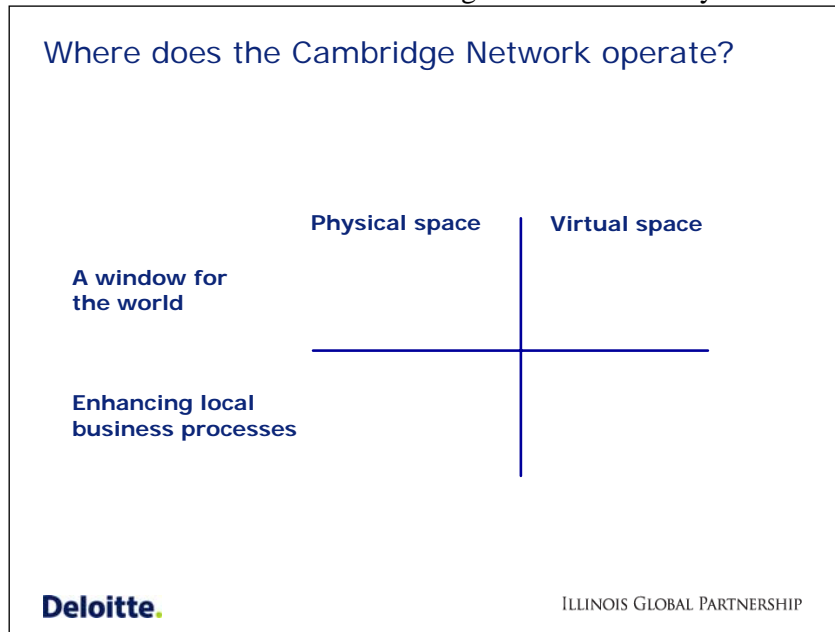
## Perspectives on Creating Connectivity

### **Cambridge, England: Stuart Henderson, Partner and Life Science & Healthcare Practice Leader for Europe, Deloitte, UK**

*In the last 25 years, Cambridge, England, has become a Mecca for technology companies, earning the title in economic development circles, the “Cambridge phenomenon.” It went from virtually nothing in 1980 to today with 1,300 companies in this community of about 200,000 people. Stuart Henderson is an accountant by trade but that it is the smallest of his skills. He is a major business consultant to the biotech industry. He built the biotechnology practice for the late Arthur Andersen accounting firm. He was one of the founding participants in the European Biotechnology Roundtable. He was part of the decision process that helped frame the Cambridge Network. He was the first corporate sponsor even before the famous Eastern Region Biotech Initiative was formed and he still sits on its steering committee. There is probably no one else who could give us a better picture of what it is like to build and make a community of technology than Mr. Henderson, who is now at Deloitte.*

### **Building a Connect-Like Organization in Chicago: Two Models for the Price of One**

Cambridge, England, has been a world-class seat of learning for the last 800 years and has produced many great minds including Isaac Newton, Charles Darwin, Crick and Watson, Ernest Rutherford, Frank Whittle and Stephen Hawking. Seventy-nine Nobel Laureates – 14 since 1980 – have come out of the university and it is credited with the elucidation of the double helix and the creations of the jet engine and computer. However, Cambridge had a shortcoming: its economic capital fell way short of its intellectual capital.

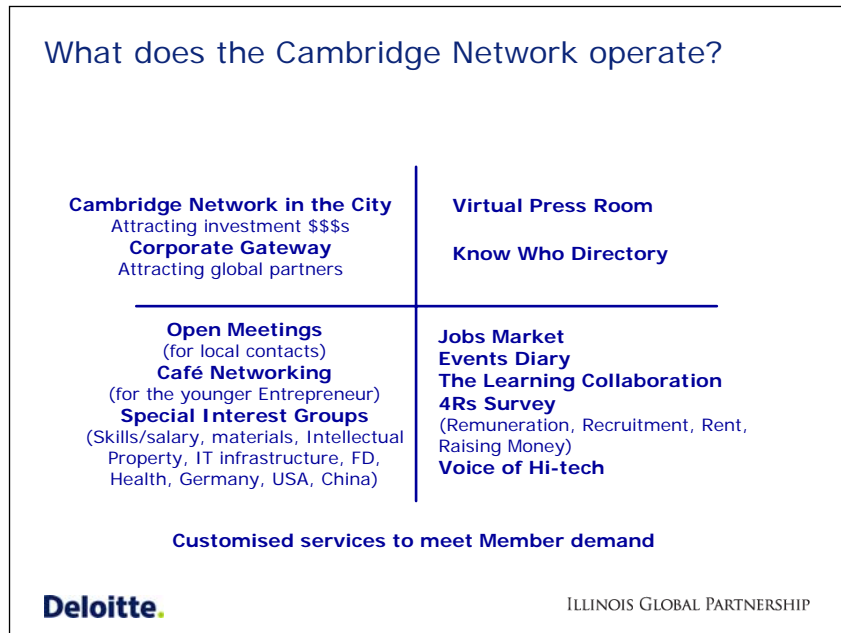


Thankfully, this has changed. Nowadays, Cambridge is the location of Europe's leading knowledge-based business clusters in such areas as genomics, stem cells, drug discovery, silicon, wireless, ink jets, advanced materials and fuel cells. It has great companies doing research including BP, Microsoft, Schlumberger, 3M, Pfizer, Gensyme, GSK and Amgen. Five of its companies have taken themselves from start-up to one billion dollar market capitalization within the last ten years. In fact, by 2004, Cambridge was receiving 25 percent of all UK venture capital.

This change did not occur on its own. The community needed a platform to bring its assets together and to help with commercialization. Cambridge now has two different organizations, the Cambridge Network and ERBI, to help connect its technology resources together.

### The Cambridge Network

The Cambridge Network was set up to raise the profile of the Cambridge technology community and to attract inward investment. It is a sharing organization that gives our 1,300 high tech enterprise members what they want and need. It links like-minded people from business and academia to each other and to the global high technology community. The Network acts as a window for the world and as a showcase for the Cambridge brand.



The Network was founded by a small group of highly motivated leaders with modest funding. The goal was accomplished, very simply, because there was a meeting of minds. The Network would not exist without its founders: 3i, Amadeus Capital Partners, Analysys, Andersen Legal (now Taylor Wessing), Arthur Andersen (now Deloitte), NW Brown and the University of Cambridge.

The Cambridge Network facilitates efforts by its members to work together and leverage their collective resources in new ways by using a variety of technology, knowledge and people-based tools to enhance business processes both on a local and a global scale. The Network’s success in maintaining the “Cambridge Phenomenon” depends on its ability to respond quickly to members’ needs in a responsible, cost-effective and fair manner with quality services.

The Network’s services include a “know who” directory, attracting investment and global partners, a virtual press room, training materials, surveys, open meetings, special interest groups and customized services to meet member demand.

### The Eastern Region Biotechnology Initiative (ERBI)

The East of England region has a very significant biotechnology community of 600 organizations (including more than 220 biotech companies, 360 professional and non-bio services, 100 medical device companies, 30 institutes and universities, and 20 multinationals). ERBI’s objective is to bring groups of companies together and to facilitate the growth of biotechnology in Cambridge and the East of England. Its funding comes from its 290 member organizations, sponsors, activities and consulting (for public bodies). Public money is only

accessed for discrete initiatives. ERBI has two types of activities: growing the top line (networking, conference, trade missions) and growing the bottom line (special interest groups).

ERBI is sponsored by Acambis, Alizyme, Bayclays, Cambridge Research Park, Deloitte, Lundbeck, Morrison & Foerster, PPD, Scrip and Taylor Wessing.

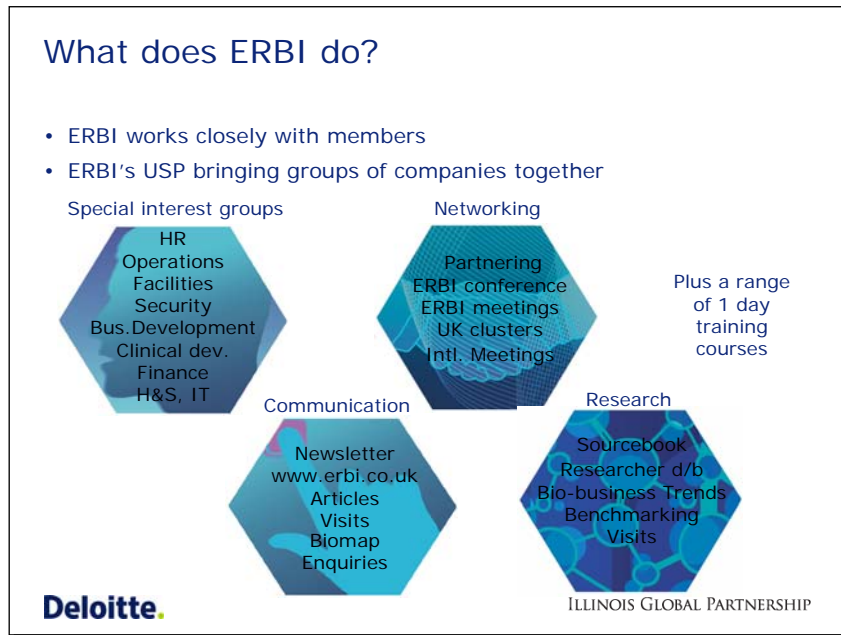
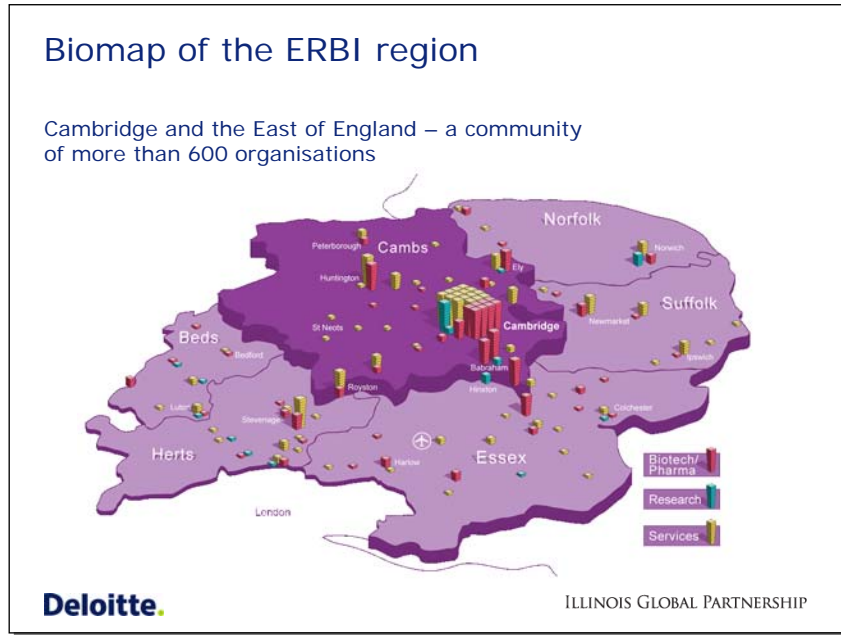
**Measuring Success**

The success of the Cambridge Network and ERBI is defined by growth in membership. They also work to attract and retain commercial CEOs and to keep people interested in contributing to the direction of the organizations.

**Pitfalls**

There are many things to look out for when setting up organizations like the Cambridge Network and ERBI. I will leave you with some pitfalls that marked our road along the way:

- Public money – know what metrics you are committing to;
- Do not become “too establishment”;
- Be ruthless with governance;
- Be wary of the advice of the “one-hit wonder” entrepreneurs;
- Beware the balance between real people and the “hangers-on”;



- Be careful of protecting the turf vs. partnership;
- Never stop listening to members; and
- Delivering mediocrity is not sustainable.



*San Diego, California*  
*Duane Roth, CEO, CONNECT®*

*Duane Roth is Chief Executive Officer of CONNECT®, a collaboration around commercialization of technology. It was founded by economic development groups in the San Diego area and since it's founding in 1985, it has been involved in the creation of over 1,000 new companies – an amazing track record. Prior to joining CONNECT®, Duane Roth held a couple of senior management positions at major pharmaceutical companies: Johnson & Johnson and Wyeth. Then he founded his own company, Alliance Pharmaceuticals Corp, where he is still the Chairman of the Board.*

**The CONNECT® Story**


I am going to tell you the story of CONNECT®, how it happened and some of the things you might consider when trying to create a CONNECT-like organization in Chicago.

In the mid 1980s, San Diego was dependent on four industries: tourism, the military, defense contracting and the savings and loans industry. Then



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- Founded in 1985 by UCSD
- Research Institutions
- Service Providers, Entrepreneurs, VC's
- Commercialization of Research
- Education - Entrepreneurialism
- Advocacy on behalf of Innovation

 3

the Gorbachev and Regan Summit took place, which caused savings and loans to implode. We lost a huge number of clusters we had depended on for so long. However, nobody wanted to leave San Diego. People were willing to sit down and talk about risk and possible action. The head of the Economic Development Corporation, Dan Pegg, drove up to the Torrey Mesa and had a meeting with the Chancellor of the University of California in San Diego, Richard Atkinson. Dick was at Stanford in the 1950s and he said, “Dan, the science and technology in San Diego is every bit as good as we had at Stanford when Silicon Valley was created, but we need to teach people what happened in Silicon Valley. It is about entrepreneurship, it is about risk, it is about technology transfer, it is about many things.”

That was really the genesis of CONNECT®, which was formed in 1985. The main people responsible in addition to Dan Pegg and Dick Atkinson were Irwin Jacobs the founder of QUALCOMM, the first wireless company in our region; David Hale, the CEO of our first biotech company, Hybritech; Buzz Woolley, a partner in Gerrard Capital, our first Venture Capital firm; Robert Weaver, managing partner of the accounting firm Deloitte, Haskins

and Sells; and Mary Walshok, who headed up UCSD Extension and served as the organizer.

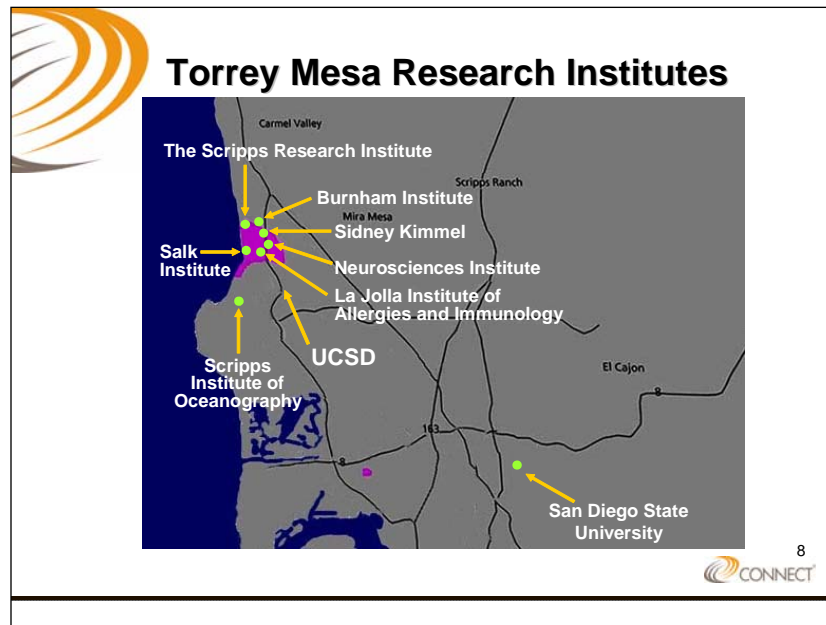
Those people met and agreed we needed to form an organization and figure out what to do to spur commercialization of innovative science and technology in our area. Their first decision was to hire Bill Otterson, a semi-retired software CEO, to lead the organization. Everything I am telling you had to do with that decision. Our success was really due to this one man and his vision and passion for entrepreneurship that brought everybody together. He was not a genius; he just knew how to get people and organizations to collaborate.

Twenty years later, CONNECT<sup>®</sup>'s purpose has not changed. We are still in the business of trying to commercialize innovation that takes place at research centers. We have about two hundred members, we have a membership model, we do not take money from government agencies and we do not take money from anybody that we help. We have to be and will always be a neutral broker, the little brother, a trusted source where there is no agenda except to tell you what we really think, through our volunteers, about your ideas and business decisions.

Science, technology and money are obviously key focuses. The landscape has certainly evolved over twenty years. In that time, we have seen a thousand companies start up - about one company a week. So it has quite a long track record that is accelerating to a point where I cannot keep track of it.

### Why San Diego? Research Institutions, People and Money

The key connections needed to create a successful CONNECT-like organization exist in many places throughout the world, in many places in the US and certainly in Chicago. First, it starts with great research institutes. Those are the most difficult if you are starting from scratch. Governor Bush of Florida is trying to create them but it takes time. It will take twenty, thirty years to get those institutions up and running. Second, you have to have talented people who understand entrepreneurship and understand the businesses that you are trying to develop. Third, you need money.



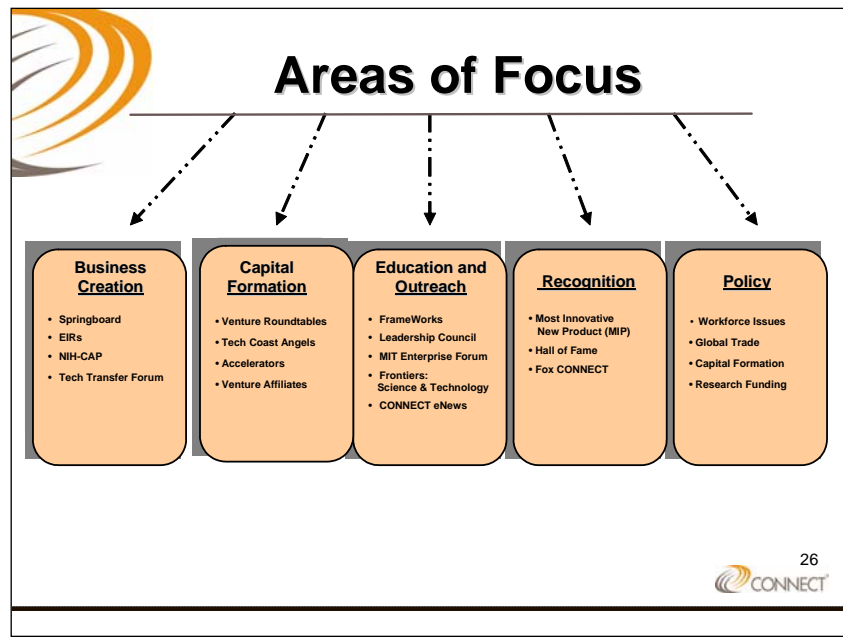
So let's start with research and what happened in San Diego. A hundred years ago, the Scripps Institute of Oceanography was the only thing that existed on Torrey Mesa. Roger Rebel, who was at Scripps, took a look around and he had a vision for the University of California – La Jolla. Later, it became the University of California – San Diego; that was only forty-five years ago. Two years later, another man, Jonas Salk, said “I think I’ll put the Salk Institute here.” At that moment, the entire area became a location for sound scientific research. Now, the area is home to numerous institutions that provide research, training and education to support innovation. San Diego has had a technology convergence of companies in telecom, information technology, energy and the environment, defense and security, electronics and bioscience. There are 50,000 high-tech employees in a four mile radius.

Sources of capital are another essential element for success. Availability of grants, angel investors, commercial banking, venture capital and investment banking are essential.

The San Diego met all of these crucial conditions for developing a technology cluster. The area has been blessed with plentiful research, talent and money. The key element to its success, though, was collaboration. Through CONNECT®’s professional and strategic partnerships and with the assistance of capital providers, the number of new businesses in San Diego’s technology cluster has grown by leaps and bounds.

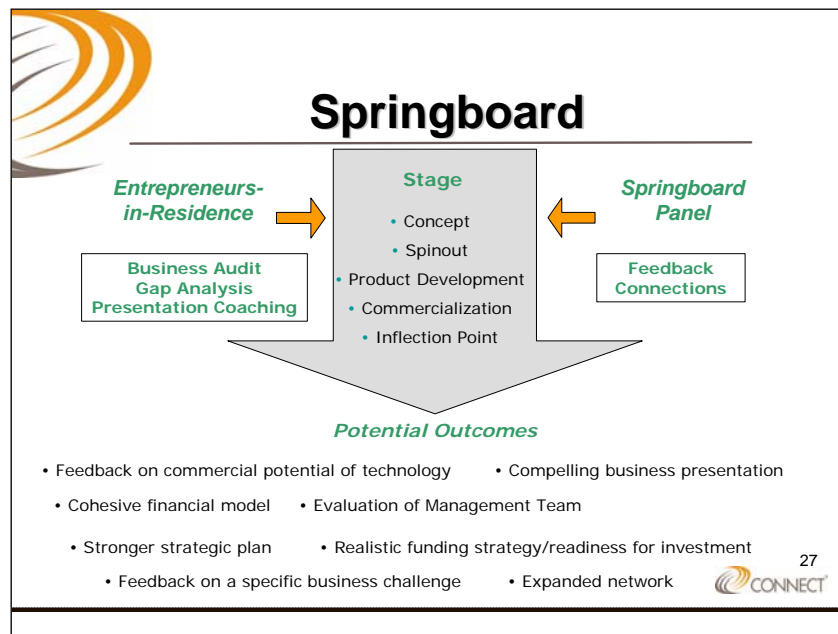
**Areas of Focus**

CONNECT® has five main areas of focus: business creation, capital formation, education and outreach, recognition and policy. A major initiative in business creation is our Springboard program, in which a panel of experts, comprised of volunteer entrepreneurs-in-residence, academic, financial and business professionals, gives would-be



entrepreneurs rigorous feedback on the commercial potential of their technology. CONNECT® also offers educational programs to help with preparation for these intense, two hour springboard sessions.

CONNECT<sup>®</sup> also has several affiliate programs, including Tech Coast Angels, an angel investor group; CCAT, which works on the conversion of military technology; MIT Enterprise Forum, which does case studies in front of a live audience; social networking; an annual competition for the most innovative new product; accelerator formation; and San



Diego Venture Day, whose goal is to get international venture community to San Diego, present new research and build relationships with local VC community.

San Diego, successful as it has been, faces continuing challenges in the technology industry. Qualified personnel can be hard to find. Housing costs can be off-putting to potential employees. Finding industrial land for later stage operations and seed capital can be difficult. Litigation and regulation can have a stifling influence. These difficulties help open the door for increased activity in other regions including Chicago, Indianapolis and St. Louis.

**St. Louis, Missouri**  
**Richard Fleming, President and Chief Executive Director**  
**St. Louis Regional Chamber and Growth Association**

*Dick Fleming is President and Chief Executive Director of the St. Louis Regional Chamber and Growth Association. He started out in the economic development arena and for 25 years now has been an active civic entrepreneur, engaged in initiatives to revitalize cities and metropolitan areas in Atlanta, Denver and, most recently, St. Louis. The statistics on what St. Louis has done are staggering. Under his direction, the region has gained over 100,000 net jobs. St. Louis' America's BioBelt Center focused on raising venture capital with the help of Mr. Danforth and using public funds to create a 21<sup>st</sup> century Biotechnology Center. In the past year, Battelle has just finished their third study of the St. Louis region and has been helping them with their plant biosciences initiative. It has been a remarkable civic collaboration. It is the best example of a Midwest community with similar challenges to Chicago that brought its community together to support technology.*

**The St. Louis Regional Chamber & Growth Association (RGCA)**

I am going to share an organizational framework of civic infrastructure from what is arguably a new kid on the block. As the thread of comments in this report and the EDC Roadmap indicate, we all owe a great debt of gratitude to the folks in San Diego. CONNECT<sup>®</sup> has become such a robust model for each of our communities and their willingness to share their experience has been remarkable.

A number of years ago, a banker, Walter Wriston, had a saying that capital goes where it is invited and stays where it is welcomed. I think that is an absolute norm now. Economic development has become something vastly different now than how we described economic development of just ten years ago. At that time it was primarily focused on recruiting and expanding existing businesses. The melding of entrepreneurial development in tech transfer and commercialization is now very much a part of the experience that each of our communities is experiencing.

**Organization: Genesis and Formation**

Ours is more an evolutionary model but we have incorporated a number of new dimensions of economic development in more recent years. The organization that I head is the regional, bi-state entity, including the roughly 25% of our membership in Illinois. It traces its roots back to the Chamber of Commerce in St. Louis which was established in 1836.

We worked with the Chamber and the Regional Economic Development Organization and a good government think-tank. In 1973, our organizations were merged together. I was recruited to head the new organization.

St. Louis still has twenty-one Fortune 1000 headquarters with mergers and acquisitions. However, the economy in St. Louis went through three multi-year economic development campaigns that began in 1995. Before that time, we had experienced a record decade of no net job growth. It was a very flat economic environment and what is worse; there was no regional ethics on how to approach our economic development or our public policy. So,

through the campaigns of 1995, two five-year periods, the goals were: first, to begin to work together to think and act as a region and, second to create overall net job growth.

In the robust economy of the late nineties, we got our share of net new jobs in the region. At the same time, we began to identify both the need and the opportunity to focus on the technology sector, an organized community that enjoyed the benefit of some great research institutions: At Washington University, the Medical School usually ranks number two or three in line with Hopkins behind Harvard. However, we were not materializing any kind of economic development out of the great research institutions that we had at Washington University or St. Louis University or the botanical gardens or other new institutions that have been created.

In 1998, we husbanded a technology group called the Technology Gateway Alliance. Since then, we have undertaken a pretty rigorous set of activities in our second economic development campaign that ended in 2004, looking at our clusters, getting Michael Porter from Harvard to assist, initially, and then Battelle to help us on a road mapping process on plant life sciences information technologies and advanced manufacturing. We stepped back and said “How does this fundamentally change how we are going to do our economic development?”

Fast forward to today. As we continue to evolve, certain of those functions have been integrated into our on-going economic development. A person on our staff’s primary focus is working with the VC community and with early stage companies as they come out of their incubators to make sure that they have what they need to stay in the community. We are going to partner in creating a new organization called Innovate in St. Louis that will be formally announced in June.

### Operating Models

RCGA is a 501(c)(6) organization. We also have an affiliated 501(c)(3) called the State of St. Louis Foundation as well as several virtual entities. Rather than spin off and create a whole infrastructure that has to be serviced and nurtured and funded, in a variety of cases we have created virtual organizations located within our other organizations –

**Operating Models**

Boards/Governance Structure:

- **RCGA** – large board (100), small executive committee (17)
- **State of St. Louis Foundation** – small board (9)
- **Technology Gateway Alliance** – board (25)
- **Greater St. Louis, Inc.** – board of trustees (17)
- **Plant & Life Sciences Coalition** – advisory board (32)
- **IT Coalition** – advisory board (19)
- **Innovate St. Louis, Inc.** – small board (15)

the Technology Gateway Alliance, Greater St. Louis, Plant & Life Sciences Coalition and IT Coalition.

### **Budgets, Resources, and Staffing**

In terms of overall budget and staffing, RCGA has a \$10.2 million operating budget. Just under a million of that comes from earned income but the remainder is distributed roughly 50/50 between about 140 economic development investors from within our membership and the membership base of about 4,000. The Plant & Life Sciences Coalition is jointly funded with the Danforth Foundation, while the recently formed IT Coalition is jointly funded with the CIO community. Innovate St. Louis will be funded by foundations along with the business community.

Innovate St. Louis is the closest thing to a model that directly parallels the kind of organization that you are speaking of here and the experience of San Diego. It will focus on improving the culture of innovation and entrepreneurship in the region overall in a cluster-specific set that the technology gateway is focused on as well as IT and plant life sciences. This effort initially is being led by a member of our board, Bill Peck, who was the 14-year dean of the Medical School of Washington University, who's devoted tremendous civic energy to this effort. The focus of the Center will be to identify potential innovators and entrepreneurs in technology to facilitate their access to mentors, to the kind of networks that they need, the educational opportunities and the capital support that they need. Further, it will inventory the most extensive range of early stage technology and enterprises that we can do, to collaborate closely with the function that we have created within economic development, focusing on venture capital and recruitment and retention of early stage entrepreneurs. The pattern continues here in terms of a springboard again, a model that Duane Roth touched on early.

### **Operational Success: Case Study Example**

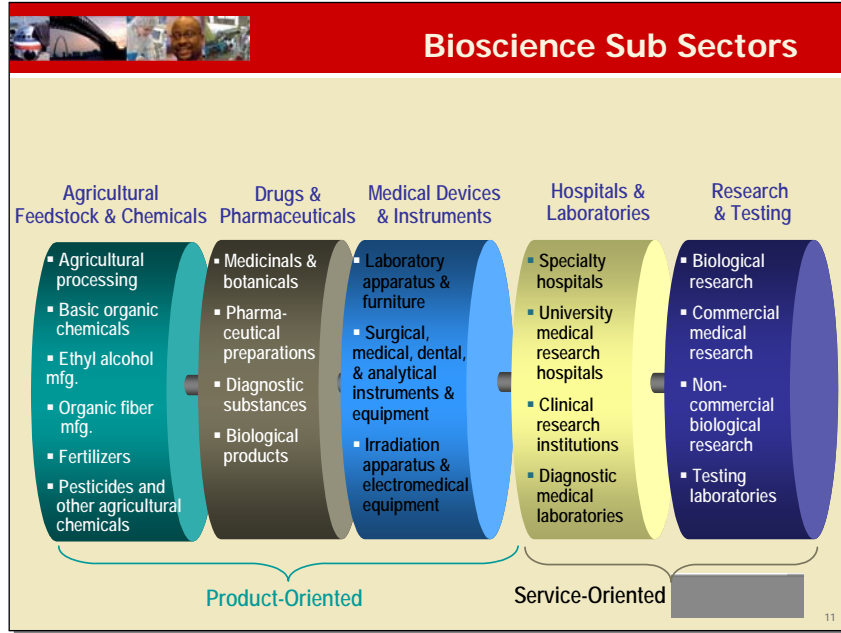
We are relatively new. We began the strategy I am going to share with you in 2000. And we had Battelle work with us at the outset and we had Walt Plosila, who heads the technology practice at Battelle, come back last year and do a retrospective of what has been achieved, what has not, and where the areas of concern are. I am going very briefly share those with you.

The context of this case is a plant life sciences strategy in the biotech area. The Brookings Institution evaluated 61 regions and there were four that it acknowledged to have the research capacity and base with which to build the next wave of biotech clusters: Chicago, Detroit/Ann Arbor, Houston and St. Louis. Also, at BIO 2006, BIO itself and Battelle had an opening press conference where they identified four areas in the U.S. as emerging biotech regions: Baltimore, Chicago, Phoenix and St. Louis. Jon Van, a reporter with the *Chicago Tribune*, did an excellent series of articles during BIO, including one stating that the biotech industry is "all grown up and has places to go." I would submit among the places to go are Chicago and St. Louis. In fact, I have had occasion recently to participate in the CEOs for Cities sessions in Chicago and a gentleman from Virginia Tech, Rob Lang, had an interesting presentation on the mega-regions trend that he sees happening. We have tried for so many years to take opportunities beyond cities to metropolitan areas. Rob's point is that we really should be thinking about even bigger regions. In biotech, Chicago and St. Louis have a complimentary synergy and there are opportunities for us to work together in a very systematic way overtime.

**Bioscience Sub Sectors**

Of course, the range of pieces of the biotech space are multi-faceted and each of us have our own distinctive competitive advantages.

In the case of what St. Louis went through back in 2000, Battelle did an analysis of what we had. We had over 330 existing plant life sciences institutions that employed 23,000 people, generating \$11 billion of economic activity and the average salary was just under \$70,000 a year in our community, which is why each of our communities works hard to generate more of these kind of activities – for wealth creation.



**St. Louis Biobelt Strategy**

Battelle benchmarked nine already established regions including San Diego, the Research Triangle and others. They did a SWOT analysis and came out with a discreet five-part strategy with a number of very specific actions, items on short term and long term, ranging from establishing the image and the positioning of the region which led to our branding effort: the Bio-Belt, the Center of Plant Life Sciences: Building the kind of entrepreneurial culture particularly focused on young firms; capturing local commercial potential; the whole tech transfer commercialization area; Ensuring a progressive business climate: this has less to do with big companies than with emerging companies and revitalization of a center city or fixing an airport. The fifth and final area focuses on workforce.

**St. Louis BioBelt Strategy**

<p><b>Strategy One:</b></p> <p>Establish a national and international image for St. Louis as the leading center in plant sciences and a major center in life sciences.</p>	<p>Establish an external and internal focused brand name campaign to raise awareness and understanding of the St. Louis region among key plant and life science audiences in the region, U.S., and worldwide.</p>	Immediate	\$500,000-\$2,000,000/year
	<p>Develop an active "alliance marketing" effort to identify and attract plant and life sciences business prospects and key investors to the region.</p>	Immediate	Up to \$1,000,000 per year for three years
	<p>Form a Missouri plant and life sciences coalition including research, agriculture, medical, and plant science, as in Illinois.</p>	Short Term	\$250,000-\$500,000 State and Private
	<p>Leverage federal support to establish a federally-supported national institute or center in St. Louis to become the center for key R &amp; D affecting the plant and food sciences.</p>	Long Term	To be determined
	<p>Leverage bi-state congressional delegation to maximize federal discretionary spending in plant and life sciences to further build the region's strengths.</p>	Long Term	Project by Project Funding

I am quickly going to go through the sub-pieces of those five strategies, just to give you a sense of what we have been focusing on. We intentionally established a very ubiquitous brand. We considered the “Bio-belt” to go from Champaign-Urbana to Purdue. We do not want to be necessarily geographically bounded just by the definition of the St. Louis region. We emulated iBIO. We did not have a Missouri Biotech organization so we created MoBIO to be an advocacy force at the statewide level. We focused long term on leveraging support to establish a national plant sciences institute with competitive research funding such as NIH does in the medical sector.

**St. Louis BioBelt Strategy**



**Strategy Two:**


Build an entrepreneurial culture that supports and nurtures new, young firms in plant and life sciences.

Establish a dedicated Commercialization Fund and a Seed Fund within the operations of a Technology Business Formation and Commercialization Center to spur commercialization and company formation.	Immediate	\$20m
Establish a local privately-managed, dedicated Life Sciences Venture Fund for early to late stage investments	Immediate	\$100m private
Increase the efficiency and scale of plant and life sciences networking in the region.	Short Term	\$500,000-\$750,000/year
Expand the expertise level and knowledge base of business service providers located in the region in order to increase their support to the plant and life sciences industry.	Long Term	Internal Dollars



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**St. Louis BioBelt Strategy**



**Strategy Three:**

Take advantage of the region's intellectual capital resources to capture its commercial potential and applications locally.

Establish an R & D voucher tax credit program in Missouri to build higher education-industry partnerships.	Short Term	\$2m in refundable state tax credits
Encourage the region's higher education institutions to review their intellectual property/technology transfer policies to stimulate increased partnering with industry and technology commercialization.	Long Term	Internal Resources
Focus on successful implementation of Danforth Plant Science Center to position the region as an innovator and coordinator within the plant sciences.	Long Term	\$100m over next five years



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The second strategy focused on building an entrepreneurial culture. We started with virtually no early-stage life sciences venture capital. We put forward a challenge that would generate at least \$100 billion of that activity. The good news is we are going to recruit Bill Danforth who, in addition to coming from the Danforth family was the president of Washington University for 24 years before he retired several years ago. Dr. Danforth has spearheaded the coalition that we established to drive implementation of a number of these initiatives.

The thread that ran through it is that Washington University, St. Louis University, the McDonald foundation and a number of institutional players in our community are involved in each one of those venture funds. We have been able to successfully attract the interest of Peter Brook and the

folks that created Vectis, in terms of creating outside activity in venture capital. We emulated the tech coast angels and launched a year ago our the Arch Angels. We have also established an institution to complement our advanced technology incubators in the form of an entity called the BioGenerator. John McDonnell has driven this small institution. Its exclusive purpose is to deal with early-stage companies, early-stage technologies that are coming out of the university that have not even formed companies yet. It has a combination

of a proof of concept with funds of about \$15 million of pre-seed capital and it is very intensively staffed by a technical individual who assists these companies as they get ready to go into one of our two advanced technology incubators.

The third strategy is built around capital resources to capture the commercial potential. It is focused on several areas of

our tech transfer policies. There's been a massive change of both attitude and function in our universities. This is one I think our university chancellors would be the first to acknowledge that we have a long way to go but it is very much on the agenda. Plus, our other activities are complimenting that.

Strategy four has to do with business climate issues. Some of those have less to do directly with the sector, some deal directly with it. One area that has been identified as having a

**St. Louis BioBelt Strategy**

<p><b>Strategy Four:</b></p> <p>Insure a progressive business climate to foster and sustain the growth of the region's plant and life sciences industries.</p>	Undertake a comprehensive review of Missouri's state and local tax structure to establish a level playing field for R&D activities and put in place new tax preferences that help grow the plant and life science industries	Short Term	Impact on state tax revenues dependent on recommendations made
	Provide financing through a state technology financing authority for specialized technology facilities and tenant improvements	Short Term	Up to \$50m over five years
	Develop research parks to leverage strengths in plant and life sciences and offer high quality business locations	Short Term	Funding through financing recommendation above
	Establish a more problem-solving, technical assistance approach to regulatory issues and simplify zoning and planning administration	Long Term	Internal resources
	Pursue key quality of life investments in the region, such as the upgrading of airport services and efforts to rejuvenate downtown St. Louis	Long Term	Funding determined on project by project basis

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**St. Louis BioBelt Strategy**

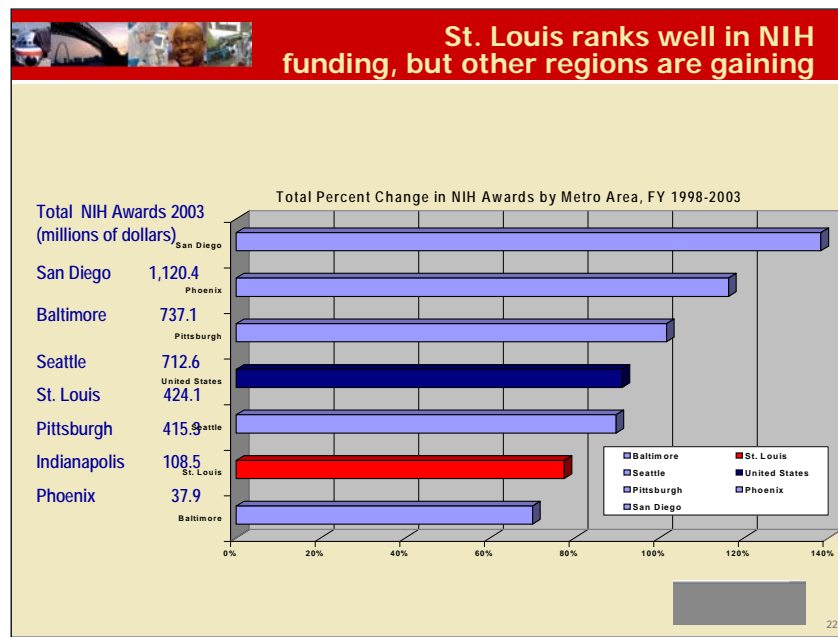
<p><b>Strategy Five:</b></p> <p>Build, attract, and retain a quality workforce.</p>	Expand and scale up co-op and intern programs for plant and life sciences students	Short Term	\$350,000 per year
	Encourage higher education institutions to review and revise their curriculum as necessary to serve new fields and interdisciplinary efforts in plant and life sciences	Immediate	Internal Resources
	Continue to develop and expand community college and vocational partnerships such as vocational education/community college 2+2 programs, with special outreach to inner city minority youth.	Short Term	\$500,000 to \$1,000,000 up to three years

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complete lack of capacity was multi-tenant facilities. The multi-tenant wet lab facilities that graduates of our incubators – the Monsantos and Pfizers and Sigmas – are more than satisfied with their needs in that area. However, we needed to create an early stage incubator.

That has taken the form of two major initiatives. A thousand acre area creating a public purpose development entity composed of the universities and the business community called Cortex is now underway. It has been designated to use the public development powers and has actually bought the land and built the first 180,000 square foot building. It is now occupied 50% by one of the tenants that has just graduated from the Center for Emerging Technologies, one of our early successes in that area. But other issues in this area have included such things as dealing with the dysfunctional airport. We have finished a runway expansion for \$1.2 billion. We have started a turnaround of our downtown. Our downtown was a negative, despite the fact that it had great architecture and also, other than Chicago, the second largest central business district in terms of work-time population but it had really gotten tired. Over the last five years, we generated over \$3.5 billion of renovation of spaces which were highlighted recently in the feature story in *USA Today*.


The last area deals with the work force and the whole talent issue and the recalibration of the educational institutions. Even before this strategy was completed, our community college system had created an associate degree program in biotech and had students enrolled. There are a number of initiatives that have taken place in this area. They are critically important to the whole talent base.



## Measuring & Communicating Success

Battelle did a retrospective last year and picked eight benchmark regions for purposes of better evaluation: Baltimore, because of the big initiative happening with Hopkins and the development around the university; Phoenix; Indianapolis and Pittsburg, being much more in a new stage of their programs.


Well-established programs such as San Diego, Seattle and Saskatoon because they are so focused on the plant sciences. The report also compared the size and level of the employment base concentration in St. Louis to all metro areas in the U.S. This is the bases on which the evaluation was done.


**St. Louis' Plant & Life Sciences Industry Outpacing U.S. in All Sectors**

- Increases in all four sub sectors, with growth rates significantly outpacing the U.S.
- Ag Feedstock & Chemicals 37% higher than US average, Research & Testing 31% higher than US average
- Sub sectors pay between \$58K and \$69K/yr, significantly above St. Louis average private sector wage of \$36,607


**St. Louis ranks in Top 25 among US metropolitan areas measured by employment concentration in bioscience sub-sectors.**

- ✓ Ag Feedstock & Chemicals – 13<sup>th</sup>
- ✓ Drug & Pharma – 19<sup>th</sup>
- ✓ Medical Devices & Equipment – 25<sup>th</sup>
- ✓ Research & Testing – 15<sup>th</sup>
- Total Biosciences – 17<sup>th</sup>**

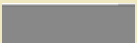


In terms of our sectors, the evaluation said that St. Louis' plant life sciences is out-pacing the rest of the United States in each of the sectors that we were focusing on. On the academic bioscience R&D, Washington University continues to be a strong asset, ranking number two nationally in its NIH awards. St. Louis as a whole ranks well in NIH awards but the

caution was other regions were gaining significant increases in relative share and in other markets. Venture capital increase during the tech bust obviously was low, but St. Louis had the largest increase nationwide during that time. It was a very positive finding. St. Louis ranked high in the number of bioscience degrees awarded. In terms of overall bioscience workforce, we have the largest, with 80,000 people.


**St. Louis competitive with benchmark regions, but investments will be needed to maintain position**  
*(continued)*

Area	Benchmark Findings	Implications for St. Louis
Seed-Stage Venture Capital	About half of benchmarks have programs to increase supply of seed-stage capital	St. Louis is unique in being able to catalyze formation of new venture funds. Deeper pools of later stage capital as well as pre-seed to seed capital will be needed in the future
Research Parks & Incubators	All have well developed initiatives for bioscience research parks and wet lab incubators	St. Louis has made progress in developing its research park infrastructure: CORTEX/BioMed21, additional building and facilities at CET and NIDUS, Corn to Ethanol plant at SIU-Edwardsville
Talent	Offer technician training, introducing new graduate bioscience programs, providing entrepreneurial skills training for faculty and others	Associate degree in biotechnology offered by SLCC, NIDUS and CET provide entrepreneurial training, successful Executive in Residence program. SLU bioinformatics initiative. Efforts may need to be expanded
Business Environment	Changes made to business tax credits to support tech firms	Missouri's R&D tax credit no longer funded. Need to work to build much more support at the state level to deliver concrete results as well as resolve stem cell issue



**Battelle Assessment of Benchmark Regions**

Battelle did a plus and minuses over a snapshot of this period of time in terms of the benchmark cities. The key retrospective issue that they identified was the ability to market the region as a distinctive place. The expansion of venture capital, the increased resources that have gone into commercialization and tech transfer, the significant investment in new research facilities are all necessary to maintain our leadership position.

Battelle’s findings implicated that St. Louis needs to take several actions to further strengthen its plant science niche. It must press its exiting advantages (Danforth Center, Nidus, etc.) to maintain a unique strength; ensure that all St. Louis institutions make steady investment in world-class R&D talent in the biomedical sciences; continue to be a national leader in bioscience innovation in technology commercialization (capital & commercialization); and insure that the State government steps up to the plate as is occurring elsewhere, including:

- 2007 allocation of tobacco settlement funds occurs for St. Louis to remain competitive;
- Additional support for research and tech commercialization in St. Louis and throughout the state;
- Funding for capital facilities.

We have learned that there are certain ingredients necessary for successfully building tech clusters. You need high quality research institutions, actively

**St. Louis competitive with benchmark regions, but investments needed to maintain its position**

Area	Benchmark Findings	Implications for St. Louis
<b>Overall</b>	Significant investment ranging from \$75 - \$510 million Targeting sub sectors and areas of convergence	Re-examine core competencies/tech platforms to identify niche areas Examine opportunities for technology convergence
<b>Research Capacity Building</b>	Investing in bricks and mortar, bioscience research and recruitment of "star" faculty	BioMed21 and other investments in research facilities compare favorable but lack of state support is an issue
<b>Industry Partnerships</b>	All provide funding for university-industry research collaborations	St. Louis does not have such a mechanism. Lack of state funding puts St. Louis at a competitive disadvantage
<b>Tech Transfer &amp; Comm.</b>	Most provide funding for commercialization projects, although most can only support a few projects a year	Bear Cub Fund and SLU addressing issue. Business model of Biogenerator may need to be changed to provide funding for very early-stage exploratory work. Level of resources may not be commensurate with size of research enterprise

**Battelle Assessment of Benchmark Regions**

Region	Highlights of new activity	Vector of change
Baltimore	Major research park development in Baltimore	
Indianapolis	Opened first wet-lab incubator in Indianapolis, housing spin-offs from IU, joint ventures with Lilly/Dow/Roche, several new VC initiatives	
Phoenix	Recruitment of T-Gen, \$400 million investment in ASU and UA, new downtown clinical research center	
Pittsburgh	Major commitment of life science funds to Greenhouse, opened wet-lab incubator, stimulating new faculty recruitments	
San Diego	Loss of momentum in ag-biotech, Scripps expanding in FL	
Saskatoon	Recruitment of Pyxis animal genomics start-up, sifting veterinary research into broader virology focus, leveraging bioprocessing expertise to focus on food, fiber and energy applications	
Seattle	Spin-offs acquired, less entrepreneurial energy, significant new development of commercial wet-lab space, de facto research park in South Lake Union, Bio21 proposal to use tobacco settlement funds	
St. Louis	More than \$500 million invest in venture capital, creation of Biogenerator, significant number of new start-up companies, BioBelt brand established	

engaged with industry and skilled at transferring technology. You need mechanisms to promote intersectoral networking. You need indigenous early stage technology-oriented seed and venture capital as well as federal and other outside discretionary funding. You need a long-term perspective. You need an adaptable and creative civic infrastructure.

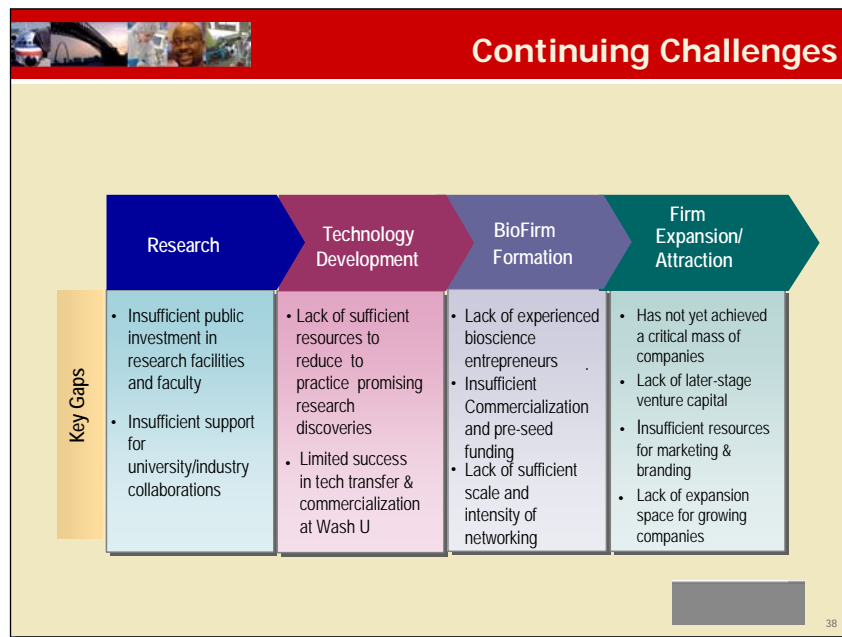
### Key Accomplishments, 2000-2005

St. Louis has achieved several key accomplishments since 2000:

- Plant and medical sciences recognized as key to economic future;
- Greater national recognition of St. Louis as center for sciences through BioBelt branding;
- Greatly expanded venture capital market - \$500 million invested in locally managed life science venture funds;
- Increased resources for commercialization, tech transfer, university collaboration – Biogenerator;
- Significant investment in new research facilities and start-ups;
- 1,000-acre CORTEX, CET and NIDUS Tech Incubators;
- Growing plant and medical science research base;
- Recruitment and expansion of major life science corporations.

### Lessons Learned

There are several important ingredients for building a critical mass of tech firms. Your region must have high quality research institutions, actively engaged with industry and skilled at transferring technology. You need the mechanisms to promote intersectoral and B2B networking. Indigenous early stage technology-oriented seed and venture



capital as well as federal and other outside discretionary funding is important. You must also have an adaptable and creative civic infrastructure and a long-term perspective. The requirements for success must also include sustained state support; resolving the issue of stem cell research with the state legislature; building support within the larger business community to support capital and other efforts; greater collaboration, both within the

region and between St. Louis and other regions of the state; and a more cohesive approach to business partnering.

### **The Brand Platform**

St. Louis's Bio-belt brand includes three key pillars of a high quality of life, quality workforce, central location and economic diversity as well as a fourth dimension of being business friendly. You can have it all here: access to a workforce, access to different lifestyles, big city amenities without the hassles of big city living, a sense of being connected and a community that is "centered" in location and character. St. Louis provides the ideal balance between living and working. While there are some continuing challenges, we are successfully working to show the world that our region truly is, "Perfectly Centered. Remarkably Connected."

## *Discussion*

*Moderator: Mitch Hein, Chief of Staff, Illinois Medical District*

*Mitch Hein, Chief of Staff of the Illinois Medical District served as moderator for the following discussion session. Mitch is an entrepreneur who has been involved in establishing a company in San Diego and a company in Chicago.*

The entrepreneurial spirit has been alive and well in Chicago for a long time. For example, if you look at the bottom of projector screens, there is a label that says Daylight. The Daylight screen company was actually an entrepreneurial venture from Chicago which began in 1908. There was a woman in Chicago who actually sprayed the screen in the movie theater in silver paint, which was the start of the Daylight Screen Company. The Illinois Medical District is located where the facilities and the plant for the Daylight Screen Company used to be.

**Question:** *We have one person clearly that has experienced Chicago and has come back here and I think three that are observers. What is the one thing that is difficult for you to tell us that we really ought to hear? I thought maybe we could start with the three people who came from out of town. Chicago has great opportunities but it also has some challenges. So what is the thing that we don't want to hear that we really ought to?*

**Mr. Roth:** First of all, I grew up in Iowa, where my parents worked a farm. I have great respect for what is going on in the Midwest, but I think the difference between what I have observed in California, and in San Diego in particular, is that we are much more likely to take risks because if you fail, it's not the end. In fact, I go out of my way to find the people who have had difficulties in their business, call them and get my arm around them. That is part of this community. That is different than the Midwest in general. The Midwest where I grew up, if you are a farmer, which I was, my parents were, if you bought land and bought land and failed, you were ashamed. You were punished, you were disgraced, so people like my father were very reluctant to take risks, to borrow money, to do things that I think he had to do. You know this attitude that you cannot start businesses that have risks because they could fail and if they fail, that is just unacceptable. So I think you have to do that and you have to support the losers every bit as much as you do the winners.

Chicago has opportunities but also challenges. The main difference between the Midwest and California is that people are much more likely to take risks, "if you fail, it's not the end". In the Midwest, if you fail, this is the end, so you cannot start businesses that have risks, because they can fail. I think that what you have to do is to support the losers as much as you do the winners

**Mr. Fleming:** I'd extend the map a bit as I have done this work in Atlanta and Denver before being recruited in St. Louis. St. Louis and Chicago have some parallels, although Chicago is much bigger. However, in St. Louis, there is a large number of great individual institutions that are vertically rather than horizontally connected. The extraordinary example of the kind of cooperation we heard about in San Diego began to happen after we took leadership trips to San Diego and Boston a couple of years ago, with 125 of our

leaders, our mayor, our county executives, CEOs, the heads of universities and so on. The trip was capitalized with a thirty million dollar cash investment by St. Louis University and the BJC healthcare complex, to pursue jointly the development of that area. The great asset is that you get them to work more horizontally, in addition to their outstanding vertical excellence in their fields.

**Mr. Henderson:** One thing I am concerned about is that whenever an organization tries to create something really meaningful, people are too obsessed with being inclusive of everything and everyone.

**Mr. Gantz:** One of the differences I have noticed between Chicago and Seattle is that many of the people who have created wealth through their activity in Seattle, including Microsoft people, Starbucks etc., go back and invest in new companies. I've not seen that type of dynamic in Chicago.

**Question** *If you were forced to list the three or four dynamic elements that took the situation you found 10-15 years ago and made it into an entrepreneurial environment, what would they be?*

**Mr. Roth:** In my presentation, I tried to play out why I thought it happened. In looking back on history, first there was a need, there was a crisis and there was a restlessness in the community about how are we going to survive. Getting the people right in the beginning of one of these endeavors is also essential. The cross-section between CONNECT's six founders was absolutely indispensable. This was not started by mid-level management but top people who remain, to this day, involved. The last thing is place. You saw in my presentation how important the cluster around that very concentrated area, which allows communication. Place matters.

**Mr. Henderson:** Actually getting people who have equal standing, so nobody is feeling overruled. And people with humility are key; our founder didn't understand the community he was going into but he had the humility to learn.

**Question:** *What about connecting universities? One of our great challenges is to get them to see their shared interests.*

**Mr. Henderson:** Ninety percent of the UK's biotech activity is in a triangle between London, Oxford and Cambridge. One of the organizations is the I10 (a group of the ten most prestigious universities in the UK) who share their experiences, particularly in the area of technology transfer and interacting with the commercial world. Something in the UK that is getting much better is that fragmentation is nonsense when you are trying to play in a global market.

**Question:** *Comment about the new initiative of the CBC?*

**David Gulley, University of Illinois:** One important thing in terms of getting universities together, trust was very important. A couple of years ago, we put a challenge in front of the research universities, by putting on the table a significant sum of money, \$50 million over ten years, to allow our scientists to find an area where there were strengths among the three but where individually we could not afford all the things we needed to do it successfully.

**Question:** *Do you have any idea of what you think is a good ratio between the actual biotech companies and the support service?*

**Mr. Gantz:** So much depends on the companies and the stage that you are in. I would say a lot depends on where you are on the stage of development of your company.

**Mr. Roth:** In the CONNECT<sup>®</sup> organization there are 200 members. About a quarter of that membership is leadership from the institutions and the deans, like the dean of engineering at San Diego State, the dean of engineering at UC San Diego and so on. Another quarter comes from the service providers, the legal and accounting firms, plus the capital providers, the venture capitalists who sit on the board of partners. The next quarter is industry, CEOs from broad representations of technology fields like software, life sciences, and any of the technologies that we have. And the final group is all of these organizations I showed. Every one of them has an official seat on our board so that we do not go directions where the others do not know what we are doing. The other thing about what I showed is about how to handle these research institutions that do not want to collaborate. We are on so many boards in San Diego that collaborations come easier. So when the new chancellor was coming in San Diego a year ago, I was on the Surge Committee; I explained to Marianne how it works in San Diego. That attitude is persuasive in trying get to people to collaborate. They know that they could be taken to the woodshed but they are instead offered an opportunity to get on board.

**Question:** *Duane, could you tell us about the importance of this membership concept as opposed to sponsorship?*

**Mr. Roth:** After Bill Otterson died, we put in a director, a new person from the Silicon Valley, and it did not go very well. The reason it did not go well is that he changed from a membership model to an underwriting model. So suddenly, instead of 200 members paying \$10, 15, 20,000 a year to maintain this mission, we were really relying on a dozen or so major underwriters. And that is where the organization started taking on a different personality. So membership, by the time I took over a year ago, had dropped to 20. From 300 to 20, back up to 200. Neutrality is a key point. I and my people do not make any investments in any of these companies, and that is powerful, because if I start doing that, I lose my neutrality.

**Question:** *How much time do you spend cultivating the established companies versus the new companies versus putting the two together versus getting money since all of you mentioned the need, especially for that early-stage in pre-venture capital?*

**Mr. Fleming:** Eighty percent of your deals are going to be a function of companies that are already there. In many cases, working with established companies who, when they go through expansion alternatives, need to be treated like a recruited company because you can be sure that someone else who is trying to take them in is treating them like a recruited company. For the emerging companies, it is a relatively new piece of what we have integrated into our more traditional economic development program, and the focus there is going to be graduates and current tenants of our three technology parks, our two life sciences incubators and our IT incubator.

**Mr. Roth:** I believe that the industry is going to go through a revolutionary change. Everything is so complicated today, in terms of discovery, product development and the delivery of those products globally. It is impossible, in my opinion, that ten years from now one or two organizations would be so good at all of those things. Think of three interlocking circles. The first one is the engine we call discovery. There is a middle circle, which I call development. In that circle, there are all the things we wish we did not have to do but that we have to do. Everything from formulation, pre-clinical testing and animal models, to process development, initial manufacturing, and clinical research organizations, outsourcing, although, I do not see it as “outsourcing,” I see it as value add and that is – for Chicago, St. Louis and Indiana – having assets that are underutilized. The final “D” is delivery. I think big pharma, big bio, especially pharma, organizations who are going to focus on marketing and distribution. You do not even think about manufacturing, you only think about prototype development. Those companies are three to ten people, and the day they are formed they know that three people are going to buy them and that is how they get funded. If they can raise a lot more money, and create lot more value, they go on. If you take these three interlocking circles, you in Chicago and St Louis and Indiana, and all the places that are trying to break in, you can participate in some of the risk taking and probably make more on the upside. But the big companies, I think, that are growing their R&D budgets, they’re now 15, 17, 18% of sales, are going to take that money and go shopping because it is easier to shop when you need it than to just keep feeding this machine that has not been very prolific. Listening to you today, and thinking about where you would fit, if I could bring people to you, and you solve these problems, you would benefit from it and eventually become more competitive.

**Question:** *I’d like to go back to the academics, and the discovery circle. We have a lot of academics at UIC. You talked about getting academics involved. Our academics seem to think that their role is the only role, and I was wondering if you had any tips on how to help them out.*

**Mr. Roth:** What I have done recently is use the springboard concept. I invite people to bring new discoveries to the technology transfer office, so that we can take a neutral look at it. If the science is great science but not good for a company or a business, let the twelve

people that are around the table tell the inventor that instead of the university's tech transfer guy, because the faculty will just think that tech transfer does not know what it is doing, or at least there is that perception. So you have this opposition that takes place between faculty and tech transfer. You are not going to fix it by changing the people, you have very strong people on the faculty, you have tech transfer people that are very bureaucratic in nature, and you are just not going to change that no matter who you are. In the middle, you can put something like connectors neutral, and bring it in. The tech transfer person sitting in the back of the room, listening to twelve people getting excited about an idea, they are immediately back, filing the IP, and going with it. If, on the other hand, the news is bad, it gets delivered by somebody other than tech transfer. That is pretty hard to argue against.

**Mr. Fleming:** Creating this sort of virtual environment where these kinds of things can take place and it does not hurt to have a message from the top, saying that it is ok to do it.

*Question:* The concept of pre-competitive collaboration keeps coming up, and I'm wondering whether part of that culture of collaboration is built by the ability of venture capital in the community and the fact that it may not be this competitive for a limited amount of resources.

**Mr. Roth:** I think that the VC community does help break that down. Organizations like CONNECT<sup>®</sup> and Biocom bring these things down because they get people to talk. But the other problem you have, in an area like Chicago, is that Abbot and Baxter did not like each other very much and everybody admits that these two companies were very competitive with other and that is not healthy. I think that is beginning to change a little bit, and that's important. But think of the culture that has developed in these companies and when you have trained people for twenty years to hate the other guys and then you ask them to go out to the community and collaborate when they become entrepreneurial. It is the wrong message and I think you are going to have to work on the big guys to help them understand. When I hear the CEO of Pfizer talking about pre-competitive ideas, I know that the world is changing. People are going to have to collaborate a lot more. You know, there is plenty of time to compete. But, in my mind, competition is way down the road. Everybody in my generation, we started new companies, we had to do the discovery and we had to build up pilot plans, production capability and pre-clinical capability, and all of that cost enormous amounts of money. And once that was done, we moved on to clinical.

*Question:* I am curious how you build that culture, and how you worked in San Diego to build the culture, because with the structures I've seen, you've got membership organizations that are limited in their reach I think, and I'm curious if you'd use the media to do that, if you'd use neighborhood connections, because I'd love to hear if there has been a business that got held up by neighborhood groups that weren't included. I know you said that you included everybody but how do you get that consciousness raised by people? Are you using the media? Do you have marketing groups within your group to disseminate information? How are you doing that?

**Mr. Gantz:** My comment about Seattle neighborhood groups is that you have to know Seattle to appreciate how active they are on any little issue that you can imagine so that was a very “Seattle” issue rather than a global issue. The comment I am interested in is how, at least in an area like Chicago, which has so much activity going on, you bring these places together.

**Mr. Roth:** I mentioned to somebody earlier in my discussion that you cannot do what we have done in San Diego because of the geographical footprint but the closest is what CONNECT Sweden did. CONNECT Sweden has got a similar challenge. These people are spread out much further than you are, but they actually created an umbrella connect, and have four satellites that operate under that umbrella and that works beautifully. Last year I did about fifty springboard panels, CONNECT Sweden did 194. I have 600 panelists they have 3000. So if I would do it in an area that is geographically complex, I would probably do it through many avenues. Think of what would have happened in the Bay Area had they done this in San Francisco. They have three clusters up there. The reason they do not collaborate or the universities do not collaborate, is that they have three clusters: South San Francisco, Emeryville, and Palo Alto.

**Mr. Fleming:** I think the mindset of the community is really critical. Six years ago, in life science, we did not think of it in community terms, we did not think of it in economic development terms. We tried to market the idea in our own community. I do not know if it is the case here in a much bigger market, but our local media is the last to get it and so we started pushing ourselves out there as sort of the new kid. I can’t underestimate the value of the leadership trip. For people that have never been on one of our leadership trips back home, the substance is terrific. When we went to Seattle, we had Bill Gates’ dad, the chancellor Washington, two of their top IT people. They were terrific people but the more important thing is to get 125 of your leaders away from home for three days and more importantly two nights, having beers at 11 pm, who had never talked to one another, I mean we had CEOs who had never talked to one another much less community leaders, original organizations and business leaders. Now on your point about the community process, you can imagine doing 1,000 acre redevelopment in the area of eminent domain today, and that mechanism that got transferred to a private non-profit organization about six weeks ago has eminent domain power in an environment which is very hysterical about eminent domain right now, and we have got a board of 29 members, and the reason it happened that way was the institutions that were involved really did engage in the effort. Navigating the boundaries, we did not take a residential unit that was occupied. Integrating the community in situations like that is a reality of life if you’re going to do this kind of development.

**Question:** *With such a diverse economic base, a part of the economy is rising; it makes up for the other that is not doing so well. How do you engage people to become part of leveraging these resources that we just are not getting from our great institutions to our people even in the venture capital community? How do you get the people part of it?*

**Mr. Henderson:** People should feel embarrassed by not being able to get joined up to exploit those assets. When you start embarrassing academically brilliant people they really feel uncomfortable.

**Mr. Fleming:** It also works for CEOs, the story they tell about this 100 year effort to merge the city and county of Louisville, which happened three or four years ago. Louisville has all kinds of political scientists, but the thing that ultimately solved the issue after it had failed so many times was that the census pointed out that if they did not merge, in the next census Lexington would be a bigger city than Louisville. People can be content with what they have until they see what they could be. The best way to see it is to look at what others have done.

**Mr. Roth:** What we were really talking about today is trying to change the culture, which is really hard to change. So my recommendation is that you do not try to change it, you try to start a new one. I think the public will be with you if you get the right leadership, the right vision and then you find a lot of time to talk about it.

