

Building Regional Innovation Clusters: The San Diego Story

Mary Lindenstein Walshok
Associate Vice Chancellor, Public Programs
Dean, University Extension

Long Island Innovation Index 2012
Launch Event
January 2012

In the Early 1950's

San Diego had NONE of the assets one associates with technology hubs today:

- Land and facilities dedicated to research and education.
- Large, competitive basic research institutions.
- High levels of patenting and licensing.
- Angel and venture capital essential to starting and developing businesses.
- The talent – technology entrepreneurs and technology business startup know-how.
- Access to global partners and markets for advanced technology products.

In the 1960's

San Diego was a tourism and real estate development center on the Pacific Ocean which was losing its valuable defense contracting industries developed during World War II. It was referred to in the August 17, 1962 issue of *TIME Magazine*, as “Bust Town, U.S.A.”

Today

San Diego (a city of 1.3 million) is a major global science and technology hub.

- **UC San Diego – with > 29,000 students, > 1,000 faculty, > 2,000 researchers and post docs, is #5 in research funding in the United States and ranked #15 in the world by Shanghai Jiao Tong University in *Academic Ranking of World Universities* (2011).**
- **The once barren Torrey Pines Mesa now has 75 research institutions which combined competitively receive more than \$3 billion annually in basic research funding and +/- 7,000 filings/awards of patents annually.**
- **San Diego has six distinct clusters of globally traded, knowledge-based industries.**

Historical Context

- **Topography and climate unsuited to large-scale agriculture or industrial growth.**
- **Physical isolation and lack of transportation infrastructure inhibiting significant commercial growth.**

The Dawn of the Pacific Century

- **Leverageable assets exploited for growth:**
 - A mecca for health seekers, utopians, and tourists;
 - Early research institutions: Marine Biological Station, the Scripps Metabolic Clinic;
 - A hub of small family farms and businesses;
 - Big ideas about the potential of the shallow harbor.
- **The Spanish-American War, the Panama Canal, and the growth of the military metropolis.**

Post World War II San Diego – R&D for the Military

- **Need: the need for diversification of industries.**
- **Leadership: Vannevar Bush, John Jay Hopkins, Roger Revelle, Jonas Salk, Edmund Keating.**
- **Zoning: dedicating Pueblo lands to light industry and R&D by providing contiguous plots of land to GA, Salk, UCSD (old Camp Matthews), TSRI.**
- **Private Sector: private funds for talent and facilities to match public investments.**

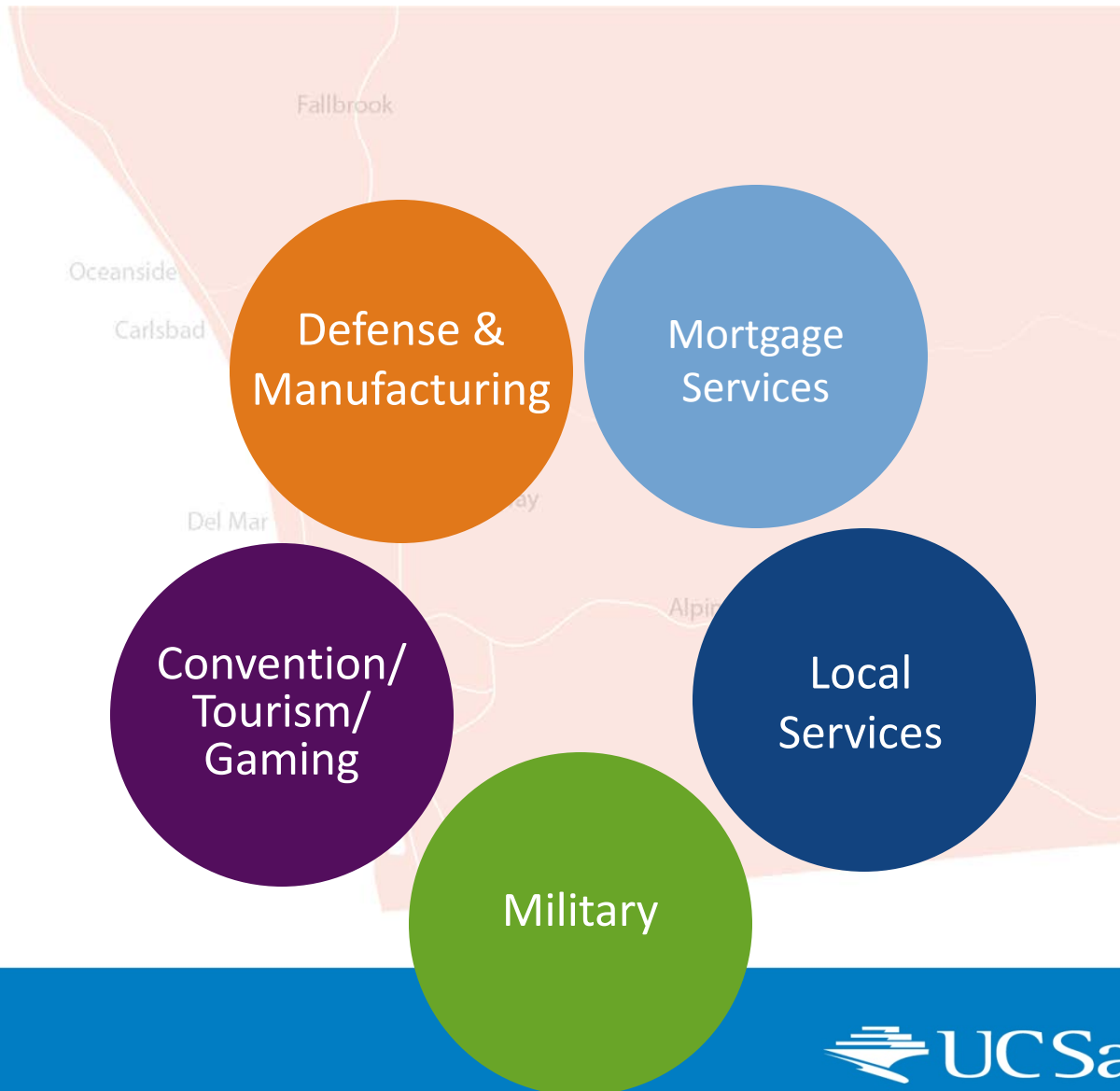
Building Research Excellence: A Unique Strategy

- **Attracting top level, well connected talent with a promise of ‘freedom’.**
- **Leveraging defense/national security relationships to attract R&D dollars (the Cold War).**
- **Building a physical AND social infrastructure supportive of innovative, cross-disciplinary and collaborative research.**
- **Retaining connections to the users of knowledge, in particular, military and health sectors.**

The Crises of the 1980's: Focus on Commercialization

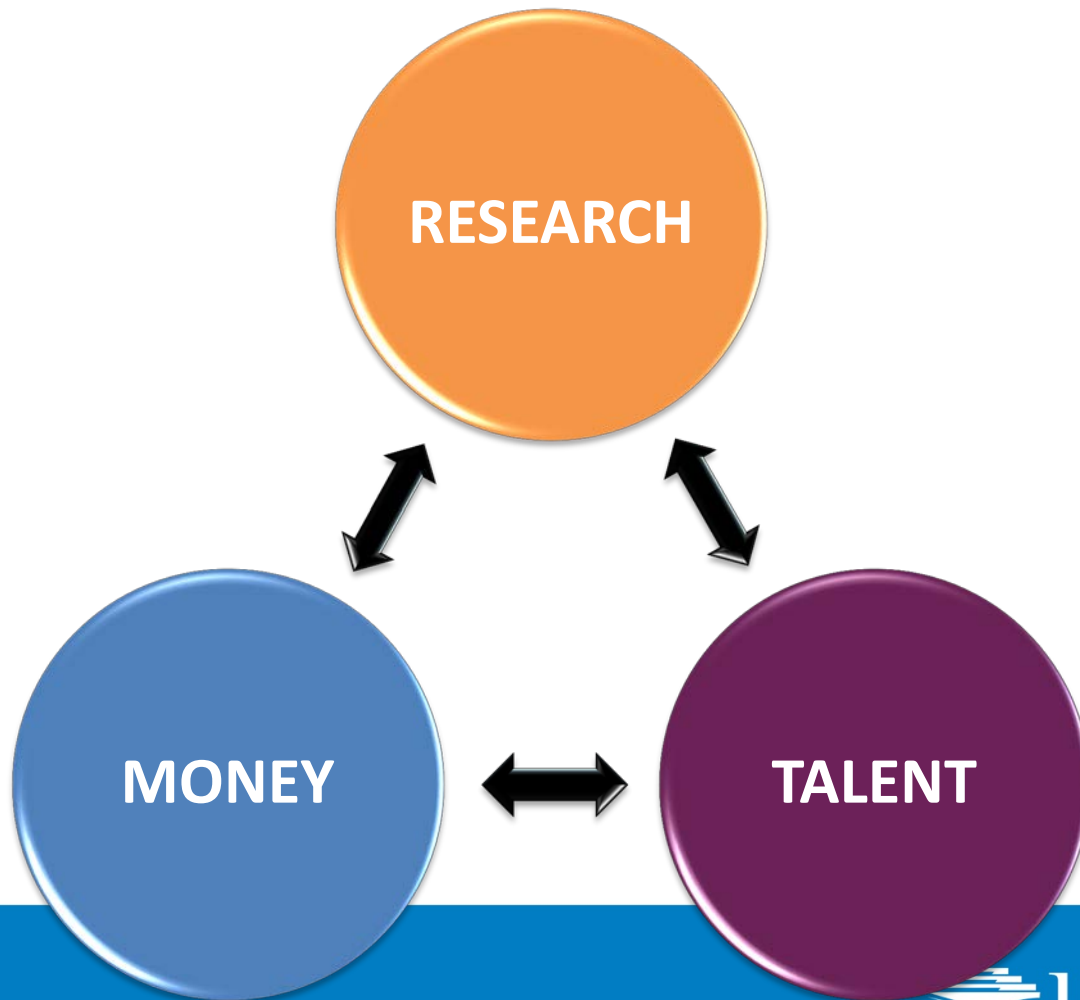
- **Savings & Loan crash, unsuccessful business attraction efforts, end of the Cold War.**
- **Isolated successes – IMED, IVAC, ISSCO, Linkabit, Hybritech.**
- **Commitment to amplifying these successes into clusters of wealth and job creating companies.**
- **1985 – the birth of CONNECT.**

Major San Diego Employers in 1985



Why San Diego?

Key Conditions for an Innovation Cluster



San Diego “Innovation Culture”



COLLABORATION

- Help each other
- Region above company
- Political issues matter

The Core

The Scripps Institution of Oceanography (1903)

U.C. San Diego (1960)

Salk Institute (1960)

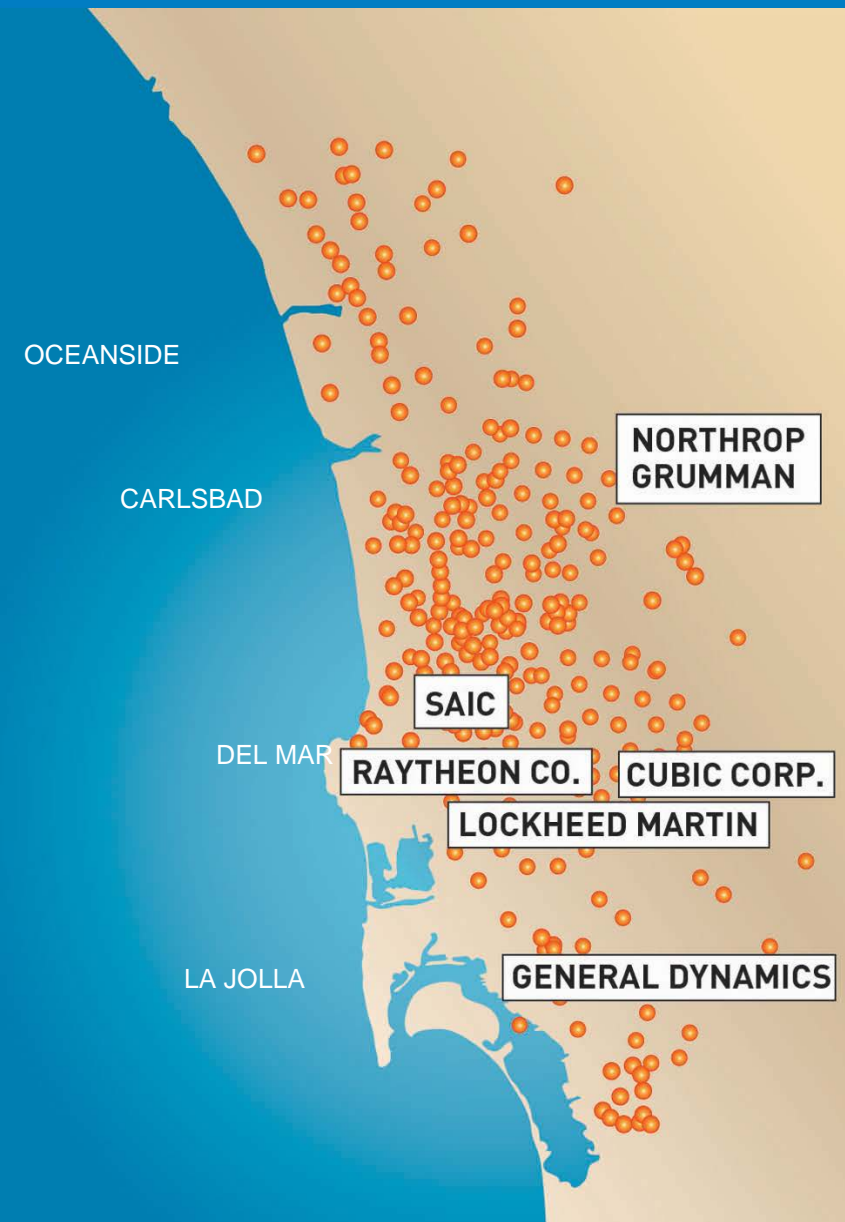
Today there are over 75 research institutes in San Diego, with five founded in the last two years.



Defense and Security

Convair was formed in 1943 by a merger of Ruben H. Fleet's Consair and Vultee.

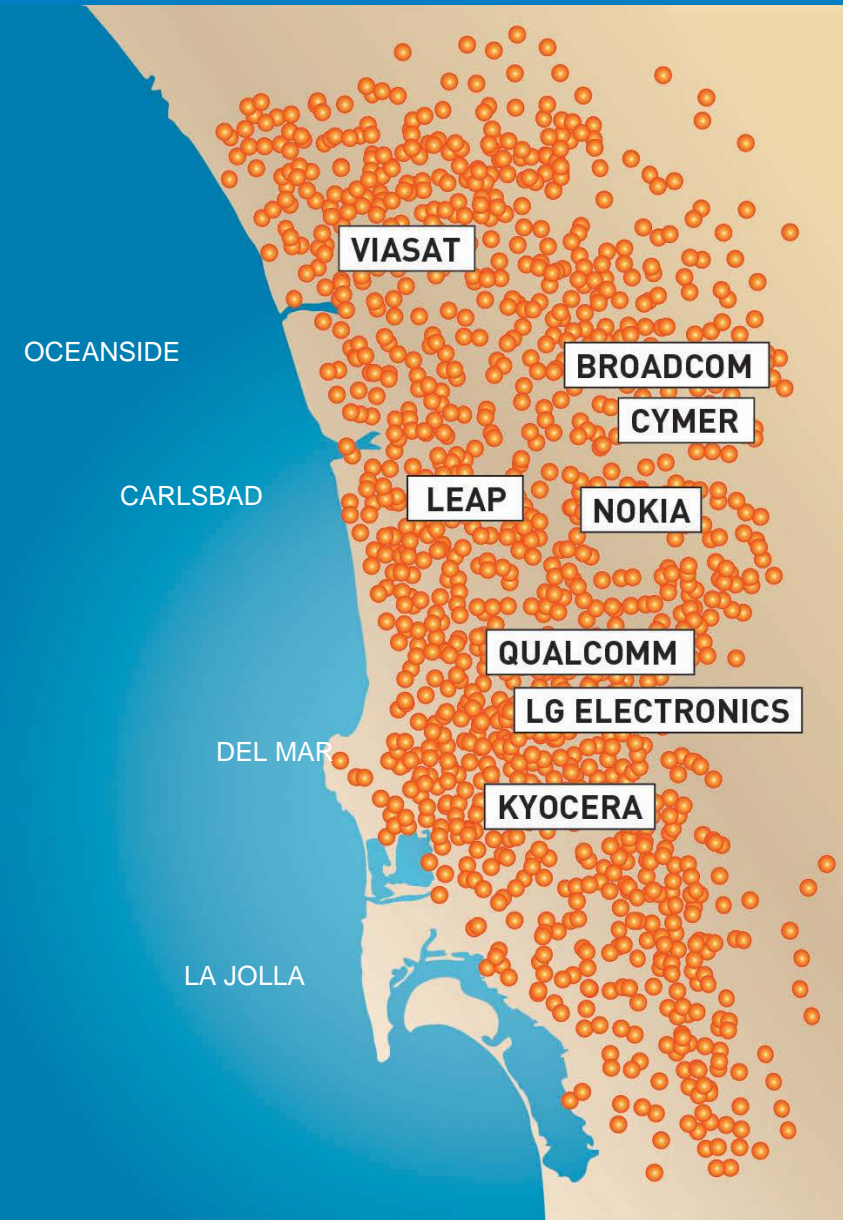
Today there are more than 260 Defense and Security Companies operating in San Diego.

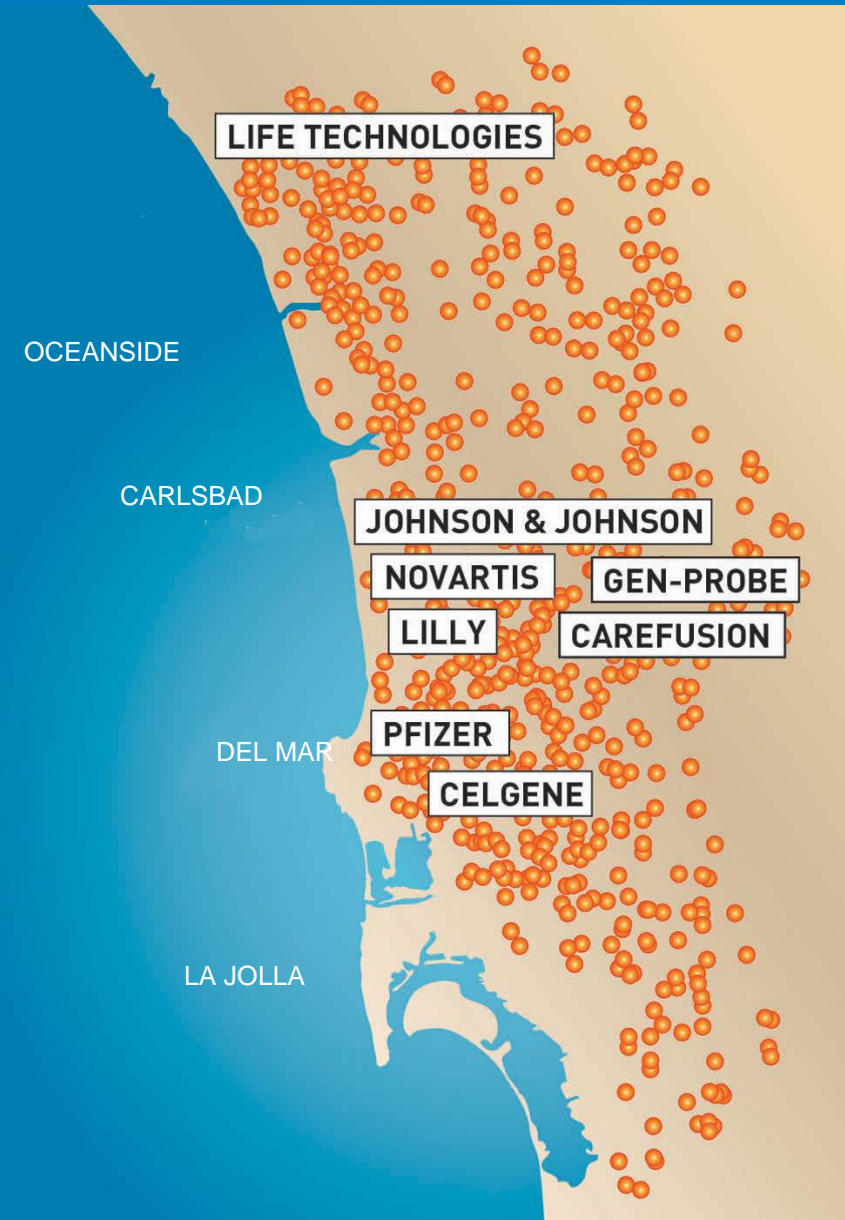


IT / Wireless / Software

Linkabit was founded by UC San Diego professor Irwin M. Jacobs in 1968 as the first “high tech” communications company in San Diego.

Today there are more than 3000 IT, Wireless and Software Companies operating in San Diego.





Life Sciences/Biomedical

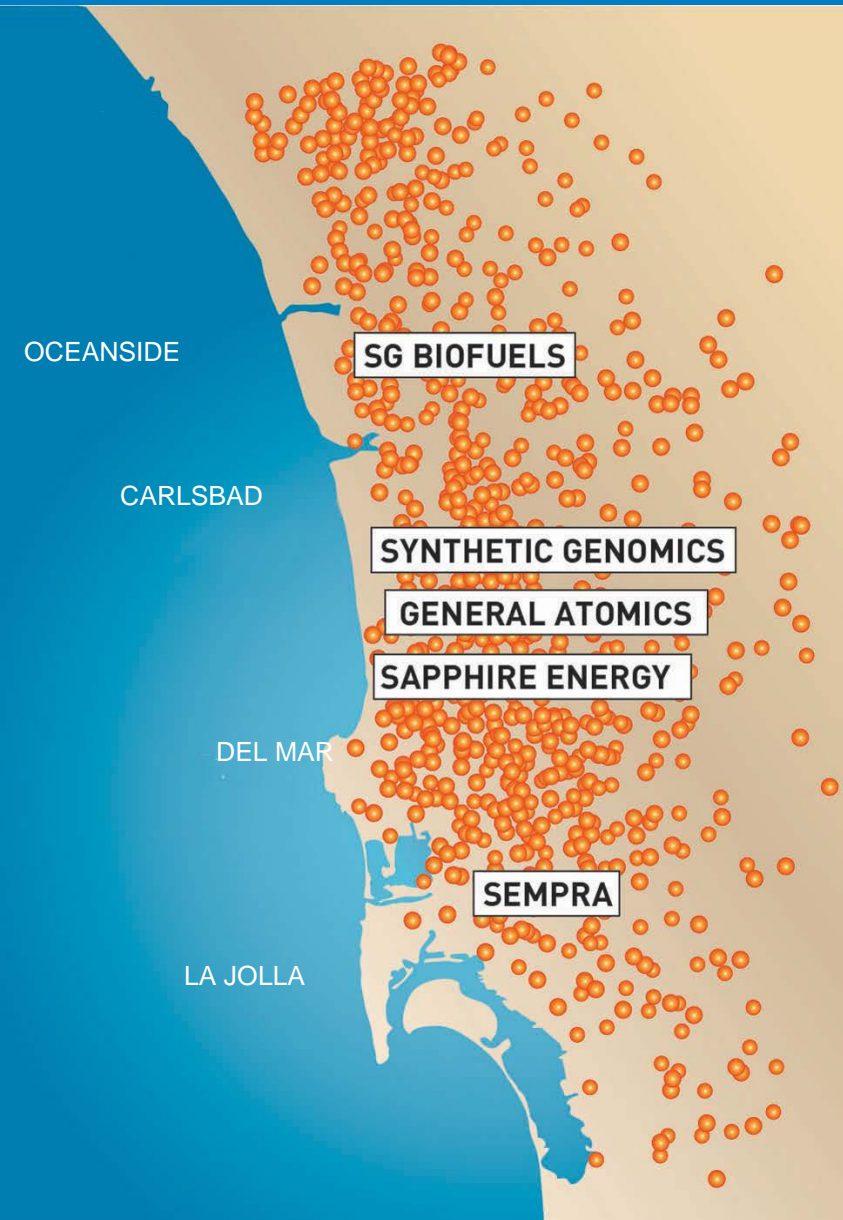
Hybritech was founded in 1978 by UC San Diego professors Ivor Royston and Howard Birndorf as the first “biotech” company in San Diego.

Today there are more than 600 Life Science / Biomedical companies operating in San Diego.

Energy and Environment

General Atomics was founded in 1955 as San Diego's first Energy Company by General Dynamics.

Today there are more than 700 Energy and Environmental Companies operating in San Diego.



Sport Innovators

San Diego's Sport Innovators traces back to the founding of Gordon and Smith Surfboards in 1959.

Today there are more than 600 Sport Innovator Companies operating in San Diego.



Keys to San Diego's Transformation

What San Diego did over a 40-year period to enable its transformation and leadership position:

- **Made good land use decisions and infrastructure development;**
- **Built excellence and reputation quickly through great scientists and world class science;**
- **Engaged a major commitment of time and resources from the private sector;**
- **Had the wisdom to develop the talent needed to commercialize and run science based enterprises;**
- **Relied on an entrepreneurial and collaborative culture;**
- **Nurtured a commitment to building a special “place”.**

Implications for Long Island

- **Accurately assess the economic grooves that have been built by traditional industries, out of which new and innovative industries can potentially grow.**
- **Develop a comprehensive approach to mapping intellectual assets and human capital assets and gaps.**
- **Pay attention to cultural and social legacies and practices which have characterized the region, with attention to whether or not they are enabling or inhibiting entrepreneurship.**

Implications for Long Island

- **Engage in a comprehensive assessment of sources of leadership outside traditional industries, foundations and enterprises that have dominated the more traditional landscape, i.e. where are the civic entrepreneurs? Who are the leaders of new entrepreneurial companies? What is the role of leadership in knowledge-creating institutions?**
- **Mobilize local investors, as well as government and foundation resources, in shifting the region's direction. This has to be done in a manner that assures two ROIs – “return on investment” and “return on involvement.”**
- **Give significant attention to the characteristics of place and the key dimensions of place that bind people to a community and motivate them to continue to preserve or enhance the quality of life of the community through economic initiatives productive of sustainable prosperity.**

Conclusion

“Before wealth can be created, human beings have to learn to work together and, if there is to be subsequent progress, new forms of association have to be developed.”

“While we associate economic growth with technological development, organizational innovation has played an equal, if not more important role since the beginning of the industrial revolution.”

Economic historians Douglass North and Robert Thomas (P47 of “Trust”)