

My Visit to Two Research Universities in San Diego: University of California at San Diego (UCSD) and San Diego State University (SDSU)

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Research is the soul of a university. Whatever bars of excellence one chooses to measure the quality of a university, research has to be one of them.

Ever since I came to UTD three years ago, I noticed that one of the on-going discussions in the Metroplex was how to accelerate UTD to become a world-class university. Therefore, as its first Vice President for Research and Graduate Education, I sense the urgency of selecting national institutions that could serve as bars of excellence for UTD to reach.

Unquestionably, San Diego California is on the Global hightechnology -- especially bio and info technologies -- radar screen. With over 450 biotechnology companies, many are household names in the business, dotting its landscape, San Diego is one of the top three regions in the nation with a robust "bio-economy".

There are two research universities in the region: the University of California at San Diego (UCSD), one of the powerhouses of the University of California system, and the flagship campus of the California State University system (CSU), San Diego State University (SDSU). I do not believe that I am exaggerating that there is universal recognition that these two universities, especially UCSD, are one of the primary reasons for San Diego to be what it is today.

Since many of the research universities in the Metroplex -- for sure UTD is one of them -- intends to also be the economic and intellectual driving forces for the region, it seems to me that the high profile UCSD and SDSU can indeed serve as our role model.

That is why I was so pleased when Dr. A. Stephen Dhams, Executive Director of the California State University Programs for Education and Research in Biotechnology (CSUPERB), Director of the Center for Bio/Pharmaceutical and Biodevice Development and Professor of Chemistry, invited me to meet with the research leaderships of both SDSU and UCSD.

Both UCSD and SDSU have gorgeous campuses -- of course, the fantastic weather on the day I visited, and I probably could have picked any day of the year, did not hurt its beauty! While UCSD is green and sprawling, I actually find the SDSU campus, which is in sort of a canyon, more intriguing. Perhaps that is the contrast I get that intrigued me, coming from the absolutely flat campus of UTD.

On this trip, I met with, besides Dr. Dahms, the following individuals:

Dr. Thomas R. Scott, Dean of the College of Science and Interim Vice Chancellor of Research and Professor of Biology of SDSU

Dr. Mary L. Walshok, Associate Vice Chancellor for Extended Studies and Public Service and Adjunct Professor in the Department of Sociology of UCSD

Dr. Richard Attiyeh, Vice Chancellor for Research and Dean of Graduate Studies and Professor of Economics of UCSD

Dr. Gail K. Naughton, Dean of the College of Business Administration of SDSU

Dr. Stephen L. Weber, President of SDSU

I am very grateful to all of them that despite their busy schedule, they were able to spend a significant chunk of their time with me. I am also very grateful to Dr. Dahms who drove me around San Diego!

Unfortunately due to my short stay, I did not have time to learn about how UCSD and SDSU went about the business of technology transfer and intellectual property. Having such strong bio programs, I suspect it must have

a very robust program. Perhaps on my next trip, I will learn more about that aspect.

UCSD

To my surprise, UCSD is as old (or as young) as UTD. It wasn't until 1960 that the UC Board of Regents authorized the development of a San Diego campus. As we know, it was 1961 that the three Texas Instruments founders, Cecil Green, Eugene McDermott and Eric Jonsson founded UTD.

In merely forty years, UCSD emerged as one of the truly great universities in the world. Some of the data I collected from my discussions with UCSD colleagues convinced me that it has both the name and the substance to go with its greatness.

First, there are 62 faculty members in UCSD who are members of the most elite science "club" of the United States, the National Academy of Science. This makes UCSD the 7th ranked in the total number NAS members for a single institution. By comparison, in the University of California system, UCSD ranked 2nd, after UC Berkeley, which has 124. It is also worth noting that in Texas, UT Austin has 11, UT Southwestern Medical Center in Dallas has 14 and Texas A and M has 5. UTD has 2. ***In fact, it is sobering to note that the entire State of Texas has 47, which means that UCSD alone has more than our State.***

Second, UCSD has 13 faculty members who are members of the most elite engineering "club" of the United States, the National Academy of Engineering. In comparison, UT Austin has 41 and Texas A and M has 14. UTD has 2.

Third, UCSD has one of the most elite undergraduate student bodies. With an entering freshman class of about 4000 in the fall of 2004, the average SAT is around 1290. I am pleased to note that while UTD's admits some 1400 freshman in 2004, the average SAT is around 1230, which is not significantly different from UCSD. I do believe that for a University to be great, having outstanding undergraduates is probably as vital as any other criterions.

Fourth, UCSD certainly broke into the National scene in science and technology when it was awarded by the National Science Foundation in the mid-eighties to fund a San Diego Supercomputing Center (SDSC) <http://www.sdsc.edu>. Indeed, SDSC, which is on campus, together with the Pittsburgh Supercomputing Center (PSC) (<http://www.psc.edu>) and the

National Center of Supercomputing Applications (NCSA) (<http://www.ncsa.uiuc.edu>) are the “tripartite” of academic high performance computing in the United States.

Fifth, in the past 25 years, UCSD established some 90 endowed chair professorships. The value of the endowment ranges from a quarter of a million dollars to several million dollars. These chairs are occupied by world-renowned scholars, and a significant number of them are in bio-related areas.

Sixth, ten members of UCSD’s faculty are Nobel laureates. By contrast, UTD has 2.

Seventh, as I mentioned earlier, there is a close connection between the robust Bio-economy of San Diego and UCSD, and one of the reasons why UCSD could serve in this capacity is precisely because of its intellectual power. Many of the world-renowned research activities in UCSD are in bio-related areas. Apart from the fact that it is dotted with bio-related research centers (such as the Center for Molecular Genetics), it also has one of the top ranked research medical schools (16th). In ranking, it is tied with UT Southwestern Medical Center in Dallas. As a comparison, UC San Francisco, probably the best medical school in California, is 6th ranked and UCLA is 14th ranked.

Eight, UCSD’s research income in 2003 is around \$600 million. The medical school accounts for about half the amount, or \$300 million. The rest of the campus is around \$300 million. By contrast, UT Austin, which does not have a medical school, is around \$350 million and UT Southwestern is around \$270 million. The combined research income of four research universities in the Metroplex (UTD, UT Arlington, UNT and SMU) is less than \$100 million.

SDSU

SDSU is a much older university than UCSD, with over 100 years of history. It is the flagship campus of the California State University system (CSU system). The CSU system is massive. It has 22 campuses and over 400,000 students. As its flagship, SDSU has some 36,000 students (as compared to the 24,000 of UCSD, the 55,000 of UT Austin and the 14,000 of UTD). Since it has only 360 acres of land, as opposed to the 1100 acre of UCSD, it did seem a bit more crowded than UCSD.

It is interesting for me to learn that in California, all campuses of CSU system is “forbidden” to offer doctorate degrees by them. This obviously made any campus wanting to become “research oriented” a very difficult process. However, as in all “barriers”, there are ways to get around it.

In order to develop its research profile, SDSU established some 8 joint doctorate programs with UCSD, and a few with other UC campuses, such as UC Davis, UC Irvine and UC Santa Barbara. For example, its chemistry PhD is a joint program with one of the most powerful chemistry departments in the country, the 10th ranked chemistry department of UCSD. Students who are admitted to the PhD program of “SDSU”, will go back and forth between UCSD and SDSU, and will be rigorously trained in the same manner as the UCSD graduate students in chemistry. It is interesting for me to note that in the Ph.D. diploma, it will have both SDSU and UCSD insignias. This is to inform the world that both institutions certify such a doctorate recipient.

Perhaps the most startling aspect of SDSU is its rapid rise in funded research revenue. According to the data I collected, in 1983, SDSU’s research income is around \$25 million. In 20 years, it grew to \$166 million. Armed with large research dollars, I can envision that SDSU is poised to burst into the national scene as one of the vital research universities.

By its own “admission”, SDSU is joined “at the hips” with the greater San Diego community. Many teachers in the K-12 in the San Diego school district are alumni of SDSU, so are the large highly skilled biotechnology workforce, which is driving the San Diego economy. From my discussion with Dr. Dahms, I see that his tentacles are reaching deep into the bio academic and commercial communities of San Diego in particular and California in general.

Epilogue

On the evening of the day I was in San Diego, President Stephen L. Weber of SDSU, a most charming individual, extended a very gracious invitation to me to be a guest at his table at the BIOCom banquet. At the table, I met also Dr. Gale Naughton, the new Dean of the School of Business Administration.

With some 1500 movers and shakers in the biotechnology world attending the banquet, it was a most impressive event.

The most impressive part of the program, in my opinion, was the hilarious keynote speech by Bob Dole, the former Republican Presidential candidate. It was my first encounter of Bob Dole (other than those boring speeches he made on TV during his 1996 campaign). He was a great speaker, with an incredible dry humor. The audience was literally “rolling on the floor” with the many jokes he was cracking, one after another.

According to its website (<http://www.biocom.com>),

“BIOCOM is a premiere life science industry association representing more than 450 member companies. The association focuses on initiatives that positively influence the growth of the life science industry, including capital formation, public policy, workforce development, and scientific discovery and development.”

These are the 450 biotech companies in the San Diego region. They form the backbone of San Diego’s robust bio-economy. From all the speeches I heard, I noticed that both SDSU and UCSD are deeply involved in this organization. Hence by extrapolation, they must also be deeply involved in the bio-economy of San Diego.

(A sidebar: While I was eating, I felt someone tapped my shoulder. I turned around, and would you believe it, it was Bob Dole! He put his "good hand" forward, and said "Hi, I am Bob Dole". Naturally I shook it, but did not return the courtesy to say that "I am Da Hsuan Feng". I am sure he would not remember even if I did! I guess once a politician, always a politician, even when he no longer needed votes anymore!)

UCSD and SDSU are obvious bars of excellence. There is much we can learn from San Diego!