

San Diego State University Strategic Plan: Economic Development Working Group Report

Introduction

Communities have come to recognize the importance of “anchor institutions” in metropolitan regions. Public and private entities committed to their locations, anchor institutions have dramatic impacts on cities and regions, influencing their identity, culture, and economy. Recognizing the ties between their own success and that of their regions, many universities have embraced their roles as anchor institutions and assumed greater responsibility for economic and community development. In fact, universities present a special opportunity to impact their regions because of the scale and breadth of human, cultural, and economic resources they control, including many of the attributes required for successfully economic and community development – leadership, expertise, capital, land, and tools for innovation.

Historically, SDSU’s economic impact has been characterized in terms of operational dollars spent (\$893 million, generates a regional impact of \$896 million), jobs created (9,000 in the region and more than 11,000 statewide), and alumni earnings attributable to SDSU degrees (\$4.2 billion, creating an additional \$6.5 billion in industry activity)¹. However, a growing appreciation for the role universities play in the future innovation-based economy presents new opportunities for SDSU to highlight additional opportunities and future contributions to regional economic growth.

Whereas the lion’s share of the R&D 100 Award-winning U.S. innovations in the 1970s came from corporations acting on their own, most of the R&D 100 Award-winning U.S. innovations in the last two decades have come from partnerships involving business and government, including federal laboratories and federally-funded university research. Today, approximately two-thirds of the award-winning U.S. innovations involve some kind of inter-organizational collaboration—a situation that reflects the more collaborative nature of the innovation process and the greater role in private sector innovation by government agencies, federal laboratories, and research universities.

Now, with university research seen as a core component to long-term sustainable economic growth, SDSU has the opportunity and incentive to further develop its Teacher/Scholar strengths. This report outlines potential strategic initiatives that will help SDSU maintain and improve its position as an anchor institution with respect to economic development through three key goals: **1) Evolving SDSU’s innovative culture; 2) Strengthening key areas; 3) Enhancing community outreach and collaboration.**

This thematic structure provides the opportunity to look internally and identify new opportunities on campus that enhance SDSU’s anchor status, identify and grow existing best practices, and translate those findings, capabilities, needs and wants to the larger community that SDSU serves, and which, in turn, supports SDSU’s continued growth and success.

¹ ICF International (2007). San Diego State University: Measuring the Economic Impact on the Region – Final Report. Prepared for San Diego State University, 72p.

The findings of the Economic Development Working Group suggest that an effective overall target to contextualize SDSU's past successes and continue to grow SDSU's economic impact will be to: Strengthen campus innovation and entrepreneurship, including technology transfer, incubators, translational research and creation of new business opportunities.

The goals and activities outlined below are designed to impact all three of the university's co-equal missions of education (improving student preparation for an innovation-based and entrepreneurial economy), research (improving faculty access to research opportunities, collaborations, and vehicles for translation), and community service (exposing regional partners to SDSU research, curricula, students, and faculty and enhancing regional partnerships). Long-term execution and growth of one or more of the tactics outlined below may warrant administrative advocacy at a campus level. At a minimum, widespread marketing of SDSU's community contributions should have a high priority in the next decade.

1 GOAL – Evolve the Culture: Make innovation and entrepreneurship (and active marketing of those activities) a part of the culture of each SDSU unit, as appropriate with institutional mission and focus by developing appropriate support mechanisms and reward systems.

1.1 Tactic: Encourage the inclusion of economic development as a core component of each SDSU College's mission statement.

While economic development will fit some colleges more naturally than others, there are opportunities to help contextualize the development of traditional educational and research enterprises as beneficial to economic development. Support, resources and mentoring should be provided across colleges to assist in the promotion of economic development as a core institutional initiative, and include, where appropriate, recognition of those efforts in the College mission statement.

1.2 Tactic: Recognize, as appropriate, commercialization of research results into the formal faculty and staff reward structure.

While the working group recognizes functional limits on compensation for faculty and staff, formal recognition of the value of scholarship for commercialization or translation of research results (exclusive of publication) should be included into the Reappointment, Tenure and Promotion process. This effort should enhance the Teacher/Scholar model, providing *additional* opportunities for faculty to demonstrate significant contributions to their field outside of traditional scholarship. Where applicable, staff that contribute to the development of industry relationships that may lead to future collaboration, sponsored research, research translation and/or hiring of students should be recognized, especially where those outcomes may not specifically be indicated in their job description or objectives.

1.3 Tactic: Build upon SDSU's proven model of innovation acceleration to be recognized as a national leader in 'fast tracking' discoveries from the laboratory to the marketplace.

Over the past decade SDSU has become a national leader in the development of new generations of entrepreneurs and cutting edge technologies to help secure the homeland, solve critical national

defense needs, and address new energy technologies and markets. Anchored by the nationally recognized Lavin Center for Entrepreneurship and core federally-funded commercialization programs, new technological innovations have been forged as well as new companies created supporting the commercialization of these technologies led by young entrepreneurs. SDSU should consider how to leverage the existing expertise on early-stage technology development and apply best practices to university-based technology.

2 **GOAL – Strengthen Key Areas:** Enhance opportunities to build SDSU’s vibrant economic development infrastructure through selected novel programs, improved processes and reduced inefficiencies.

2.1 **Tactic:** Invest in cluster hires in multi-disciplinary areas that will promote cross-campus collaborations, enhance competitiveness, and build centers of excellence.

Innovation and entrepreneurship should be incorporated as considerations for new faculty hiring strategies that enhance SDSU’s technical capabilities in selected core competencies. Departmental “Champions” for entrepreneurship and/or Teaming should be identified and mentored by existing SDSU expertise (e.g., CCAT and SD-ADT) to facilitate and accelerate cross-disciplinary collaboration and translation of research findings. Faculty Champions may be supported by release time to incentivize and facilitate their participation.

2.2 **Tactic:** Identify and implement “speed courses” or “boot camps” as training opportunities for faculty, graduate students, and post-docs in entrepreneurship, technology commercialization and intellectual property.

Innovation and commercialization programs at SDSU and elsewhere have repeatedly demonstrated value in training faculty, graduate students, and post-docs in entrepreneurship strategies. Post-docs use their training to improve their long-term job prospects, either as faculty or in industry. Students commonly engage in cross-pollination of ideas between technical and business disciplines (often leading to new ventures), and “manage-up” their faculty advisors with regard to entrepreneurship. Faculty that directly participate learn about new resources and opportunities on campus and beyond, and may acquire new entrepreneurial skills that will support their personal efforts to spin-out a new company based on their research discoveries. Multiple programs presently exist that could facilitate entrepreneurial training on campus such as Kauffman FastTrac, Start-Up Weekend, or SDSU-based programs that could be provided via a Faculty Champions Retreat.

2.3 **Tactic:** Identify best practices of incubators, clusters, and university programs; and adopt and fund those practices to promote translation of university technologies to commercial enterprises.

SDSU has grown campus opportunities for innovation-based translation through internal incubators (e.g., the Zahn Center, the Donald P. Shiley Bioscience Center, the Lavin Center for Entrepreneurship) and federally-funded technology commercialization centers (e.g., the Center for Commercialization of Advanced Technologies (CCAT), the San Diego Advanced Defense Technology Cluster, the Jobs and Innovation Accelerator). These programs have been engineered to explore and implement novel models for technology transfer and commercialization. Most of them take traditional ideas of

technology transfer and expand them into a multi-faceted, market-driven approach that leverages the unique and diverse capabilities of industry, academia, and government. These initiatives create new employment opportunities; new company formations; new innovations for energy conservation and robotics, new technologies to better protect our homeland; and solutions to critical national defense problems. These programs should be recognized and expanded to provide training to university faculty, post-docs, and students, and best practices should be implemented to accelerate the translation of university technologies. Exploring these programs will also allow SDSU to expand its role in supporting the development of non-university based technologies and help identify ways for faculty and students to become engaged in external commercialization efforts.

2.4 **Tactic: Strengthen technology commercialization and technology transfer ecosystem.**

Other universities and programs have seen great return in translating research by providing sufficient time to faculty and students to pursue translational/applied research projects. Existing practices that prioritize relationships over (royalty) revenue should be recognized and strengthened. Focus should be renewed on opportunities for collaborative sponsored research, and cooperative research and development programs that lead to future commercialization opportunities. SDSU should establish an evaluation process that competitively awards release time to faculty pursuing research with translation potential and existing industry partners.

2.5 **Tactic: Establish proof-of-concept funding mechanisms.**

SDSU should secure, either through philanthropic gifts, or established equity fund practices, sufficient funding to facilitate advanced and competitive research that shows promise for translation into the marketplace. Targeted funding can be low cost with good payoff.

3 GOAL – Enhance Community Outreach and Collaboration: Support systematic engagement with all sectors of the San Diego economy, including private businesses, public sector agencies, and nonprofit organizations.

3.1 **Tactic: Develop an Industrial Affiliates (Partnership) program to enhance our ability to support university faculty and staff in the commercialization of industrial products and services.**

Early engagement with industry partners has been shown to be an extremely effective strategy for designing and executing translational research and development at the university. Among other impacts, federal funding is much more likely to be awarded to university/industry teams than to universities or commercial concerns alone (for awards open to all entities). In addition, early engagement with commercial partners guides research questions and experiments to produce relevant results that facilitate rapid translation of discoveries. Industrial Affiliates will be exposed to research capabilities and interests, curricular core competencies, student capabilities, and workforce development opportunities in exchange for reasonable membership fees and advisory responsibilities. Industrial Affiliate targets may be identified through a SD Business Journal Book of Lists or existing collaborations.

3.2 Tactic: Support the Industrial Affiliates program or Corporate Board to help facilitate industry connection to campus capabilities, provide intellectual feedback, and connect faculty strengths with industry needs.

New structures to enhance university/industry collaboration in the form of events and advisory committees should be supported. As part of a larger outreach and communication effort, an SDSU Idea Portal similar to Shell GameChangers (http://www.shell.com/home/content/future_energy/innovation/game_changer/) or Syngenta ThoughtSeeders (<https://www.syngentathoughtseeders.com/>) could be developed and maintained to provide ready access to university-scale evaluation of community or industrial ideas and challenges. These programs are industrial portals that accelerate collaborations with external parties and maximize innovation potential for high-performing technologies. They serve as one-stop destinations to share ideas, monitor project status, track submissions and receive feedback.

3.3 Tactic: Leverage Industry Advisory Board to educate key sectors about SDSU's anchor institution role and bring key personnel from local enterprises on campus for direct engagement with faculty and students.

Advisory boards can provide faculty visibility on current needs and trends to improve curriculum development. Graduates of SDSU's programs have long been full participants in the economic life of the community supported by evolving and relevant curricular offerings. Board members can also sponsor and advise student organizations, act as guest lecturers in the classroom, and mentor individual students. Board members can become advocates for SDSU within their own organizations, helping SDSU take full advantage of its position as an anchor institution for the region. As they become engaged with SDSU and educated about the criticality of SDSU's research and teaching to the future of their own enterprises, board members can become effective allies and generators of philanthropic activity.

3.4 Tactic: Leverage the College of Extended Studies (CES) to facilitate rapid deployment of novel and/or ongoing programs targeted at the lifelong learning needs of the region.

By providing a continuously updated innovation resource to the community, SDSU will simultaneously facilitate ongoing access to SDSU research, curricula, and student and workforce capabilities to industry professionals and thought leaders in the innovation economy. CES is a core conduit to the community. Faculty should be trained in efficient ways to engage CES to design and provide impactful course content that may serve to elevate visibility of their research, keep curricular offerings current and relevant for traditional students, and provide new opportunities to support cutting-edge research on campus.