GFCC
GLOBAL FEDERATION OF COMPETITIVENESS COUNCILS

UC San Diego

University and Research Leadership Forum





EVENT REPORT

San Diego Study Trip

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This report was written by Elaine Rodriguez and Roberto Alvarez.

The GFCC is a nonprofit, 501(c)(3) organization as recognized by the U.S. Internal Revenue Service. The GFCC's activities are funded by contributions from its member organizations.

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San Diego Study Trip

Opening Letters

A Message from the GFCC Leadership

The GFCC University and Research Leadership Forum (URLF) study trip to San Diego, held in partnership with the University of California San Diego from July 22-23, was a tremendous success. Under the visionary leadership of Chancellor Pradeep Khosla and his exceptional team, UC San Diego exemplifies the transformational role universities play in driving place-based innovation—a concept that lies at the heart of this phase of the URLF. As visionary leaders, they have guided UC San Diego toward becoming a catalyst for economic transformation within San Diego and beyond, building one of the most vibrant innovation ecosystems in the world.

A distinguished group of industry, government, and academic leaders from the GFCC community joined two days of lively discussions on universities as growth engines of the innovation economy and their role in reshaping local economies. Our members witnessed firsthand an impressive level of commitment from organizations and leaders across San Diego to building the future. This dedication remains an inspiration that our colleagues have carried back to their home institutions and regions.

San Diego—a city that transformed itself from a Navy town into one of America's most vibrant innovation hubs—provided the perfect setting for these activities. The region's civic culture, dating back more than a century before UC San Diego itself was founded, and its convergence of health sciences, technology, and defense-driven research served as an inspiring backdrop for discussions on the evolving role of universities in addressing local and global challenges. From the Design and Innovation Building to the DIII-D National Fusion Facility, participants experienced a region that has built, over more than a century of deliberate civic investment, one of the world's most productive innovation ecosystems.

Across the world, universities are anchors in our communities, especially in times of transformation and turbulence. They play well-known roles in education and training, but they also bring communities together and drive economic growth. This is crucial now more than ever, as recent technological advancements, such as those we are all watching unfold in the AI domain, are happening at an unprecedented pace. As we all recognize, universities can and should capitalize on these new opportunities for impact.

Having Chancellor Khosla as its inaugural chair, the GFCC launched the URLF in 2016 to be a platform for leaders to collaborate on rethinking and reshaping the future of higher education for impact. In the knowledge economy era, universities are fundamental growth engines, blurring the lines and driving change in the communities they serve.

Focused on place-making innovation, the current phase of the URLF's trajectory was initiated in 2024 and had a key moment during our first study trip to Birmingham, U.K., a pioneer initiative hosted by Aston University. In this new phase, we are examining how universities serve as catalysts of social change and economic transformation within their communities and regional economies, particularly in the context of a rapidly evolving global digital innovation economy. Following the visit to Birmingham, we had our second stop in Lisbon in 2025.

The San Diego study trip marked the third stop on a journey that will include many other universities and cities around the globe in the years to come. We could hardly be in a better place in the United States. San Diego is a city that transformed tremendously and a lot of that is linked to the University of California San Diego (UCSD).

San Diego's journey offers valuable lessons in how deliberate civic investment, sustained over generations, can build an enduring innovation economy. Unlike ecosystems built around a single anchor institution or industry, San Diego's strength lies in the density and interconnection of its research institutions—more than 80 in a single metropolitan area—and in a civic culture, dating back to the city's earliest days as a health-focused enclave, that has continually mobilized private and public leadership around long-term regional investment. The city's success in fostering a thriving ecosystem where universities, corporations, government, and investors work together demonstrates how sustained collaboration—built up over decades rather than mandated from the top—can catalyze transformation.

Throughout the study trip, participants explored pioneering initiatives that exemplify this collaborative model. The Design and Innovation Building puts maker spaces, design labs, and startup offices in a single building, supporting founders from early-stage ideas to growing companies and hosting 28 resident startups in its Triton Entrepreneurship Center alone. The Qualcomm Institute demonstrated the power of cross-disciplinary research, pairing global economic modeling with public-facing risk tools built for local government partners. Illumina and the DIII-D National Fusion Facility illustrated how San Diego's ecosystem spans both fast-moving commercial biotechnology and long-horizon national science infrastructure, each reinforcing the region's identity as a global center of scientific leadership.

UC San Diego's research enterprise generates roughly $2 billion annually and has produced more than 1,000 startup companies since 1990, some 450 of which are still operating today and have raised over $13.5 billion in combined funding. Through its Office of Innovation and Commercialization and initiatives such as the Goeddel Family Technology Sandbox, developed in partnership with Thermo Fisher Scientific, the university has built the infrastructure to move discoveries into the market and to train the people who will build the next generation of companies.

We extend our heartfelt thanks to **Chancellor Pradeep Khosla**, **Vice Chancellor Corinne Peek-Asa**, **Associate Vice Chancellor Paul Roben**, **Marquise Coney**, **Lisel Gorell-Getz**, and the entire UC San Diego team, as well as to all our members and fellows for their leadership, dedication, and commitment to the GFCC mission.

Today's challenges demand collective solutions, and the GFCC remains committed to fostering the collaboration they require. In San Diego, leaders exchanged experience, compared what works across very different national contexts, and surfaced insights that will travel back to their own institutions and regions.

If San Diego proves anything, it is that innovation economies are built by people willing to invest long before the returns are visible. The journey continues in Tsukuba this February. We hope leaders working to build innovation economies that are both durable and inclusive will join us there.



Charles "Chad" O. Holliday Jr.
Chairman, GFCC



The Hon. Deborah L. Wince-Smith
President, GFCC

A Message from UC San Diego Research and Innovation

We are thrilled to share reflections from the GFCC University and Research Leadership Forum study trip to San Diego, held in partnership with UC San Diego over two days that brought together extraordinary energy, ideas and ambition from across the globe.

Hosting this gathering was a genuine privilege, allowing us to welcome a remarkable cross-section of countries and innovation ecosystems to our campus. It is powerful to see leaders from other corners of the world converging in one room, each bringing a distinct perspective, yet all animated by the conviction that universities can be engines of transformation.

San Diego stands as a prime example. We are a region shaped by decades of deliberate, sustained civic investment, and we were proud to showcase what that investment has built. UC San Diego's research enterprise generates roughly $2 billion annually and has launched more than 1,000 startup companies since 1990, at least 450 of which are thriving today, having raised over $13.5 billion in combined funding.

Our Design and Innovation Building brings networking, makers spaces, design labs, and startup offices together under one roof, propelling founders from first spark to scaling company, with 28 resident startups in the Triton Entrepreneurship Center alone. And through our Office of Innovation and Commercialization and initiatives like the Goeddel Family Technology Sandbox, built in close partnership with Thermo Fisher Scientific, we continue building the infrastructure to move discovery into the world and train the innovators who will shape what comes next.

This forum reminded us that innovation is never a solo pursuit. Innovation, at its core, is a process of partnership. Our faculty, staff, students and partners came away energized and genuinely grateful for all we learned alongside our fellow participants.
Universities can serve as catalysts of social change and economic transformation in a rapidly evolving global digital economy. Research has exponential benefits around the world. We can preserve integrity and compliance without burying collaboration in bureaucracy and we can forge truly global partnerships even where markets and regulations diverge.

With so much unfolding around the world right now, much of it exciting, some of it unsettling, this is precisely the moment to champion innovation as a global partnership. We hope this San Diego forum reaffirmed for all of us that universities are anchors for their communities, especially in times of transformation and turbulence, thanks to the collaborations and trust built patiently over decades.

Our deepest thanks to the GFCC leadership and all of the attendees, we couldn't be more excited for future partnerships and collaborations.



Corinne Peek-Asa
Vice-Chancellor for Research and Innovation, UC San Diego



Paul Roben
Associate Vice Chancellor, Innovation and Commercialization, UC San Diego

Built, Not Born: The Manufactured Advantage Behind San Diego's Innovation Economy

San Diego is easy to misread. The climate is generous, the coastline is spectacular, and it's tempting to conclude—as many do—that the region's innovation economy is simply what happens when you put smart people somewhere pleasant enough to stay. The GFCC's recent study trip told a different story. Almost nothing about this ecosystem was inherited. Nearly all of it was built by people who refused to accept "no" as a final answer.

Built through Persistence

The founding of UC San Diego itself is not a story of institutional momentum—it's a story of institutional resistance, overcome by persistence. Establishing the campus took nearly a decade: from the state's initial feasibility request in 1955, the Regents attached escalating conditions before finally approving construction in 1960, with the campus opening to students in 1964.

Local industry, the military, and even voters had to help close the gap: General Dynamics contributed $100,000 and pledged another $1 million, alongside backing from the Chamber of Commerce and other San Diego firms; the Navy agreed to reroute flight paths over the proposed campus site; and city voters agreed twice to transfer hundreds of acres of public land to comply with the Regents' demands.

That pattern didn't end with the university's founding—it became the region's operating model. When San Diego's venture capital base collapsed to nearly nothing by the mid-2010s, local leaders didn't wait for outside investors to rediscover them. They spent years personally flying to Silicon Valley, bringing VCs back to see companies that hadn't yet earned a check, absorbing two years of "not yet" before investment returned—and eventually compounded into a sustained $4-5 billion in annual capital. When base closures threatened to gut the regional economy in the 1990s, civic and business leaders didn't lobby to save the old economy; they built a new one around workforce, not incumbents, betting that companies would follow talent even if the region couldn't compete on offering companies themselves.

Collaboration by Design

The other pattern that recurred throughout the trip is less often named directly: San Diego collaborates as well as it does partly because its structure leaves little alternative. Dense ecosystems like Boston or the Bay Area concentrate many comparable research universities in close proximity, and that concentration produces rivalry as readily as it produces collaboration. San Diego's institutions are spread thin enough by comparison that competing against each other yields little; helping each other yields a great deal.

That's a structural condition rather than a cultural achievement and naming it that way is useful: regions cannot simply decide to be collaborative, because incentives have to support the choice. It also raises a question San Diego hasn't had to answer yet. If the region's institutional density continues to grow, will the collaborative habits hold — or will they turn out to have been a function of scarcity all along?

Real Advantage is Built

If there's a case study to draw from San Diego, it isn't "attract the right amenities and the rest follows." It's closer to the opposite: the amenities came after the investment, not before it. The Navy came because civic leaders lobbied for it. The research institutions came because private money and stubborn advocacy overcame formal rejection, multiple times. The venture capital came back because people did the unglamorous work of rebuilding trust with investors who had already left. San Diego's real advantage isn't something it has. It's something a specific, repeated group of people kept doing, long after most regions would have taken no for an answer.

This is not really a story about San Diego. It's the story of competitiveness everywhere. Lisbon built a thriving innovation ecosystem without the capital markets or large domestic market that global hubs typically rely on, competing instead on quality of life and an openness that turned a small country into a magnet for international talent. Birmingham, facing a national economy where London absorbs most of the country's capital and attention, is betting instead on what it actually has: the youngest and one of the most diverse populations in Europe and an innovation district built to convert skills and social mobility into regional economic strength. In every case, the endowment was beside the point. What separated these regions from the many others with similar assets was the willingness to keep investing before the returns were visible, and to keep going after the first, second, and third rejection. Competitiveness is not inherited. It is built — deliberately, expensively, and by people who decided the work was worth doing anyway.



Roberto Alvarez
Executive Director, GFCC



Elaine Rodriguez
Director of Operations, GFCC



San Diego Study Trip

Discussion Sessions

San Diego: A Place to Learn, Connect, and Build

SPEAKERS:
Corinne Peek-Asa, Vice-Chancellor for Research and Innovation, UC San Diego, USA
Chad Evans, Executive Vice President & Chief Operating Officer, Council on Competitiveness, USA
Roberto Alvarez, Executive Director, GFCC, Brazil

The San Diego Study Trip opened on the morning of July 22 at UC San Diego's Design and Innovation Building — home to the university's Office of Innovation and Commercialization, with shared workspaces, maker labs, and incubator suites where faculty inventors, student entrepreneurs, and early-stage startups work side by side.

Peek-Asa framed the day around a core conviction: while universities can pursue teaching and research largely on their own, innovation is fundamentally different — it cannot succeed without external and global partners. She challenged participants to hold a set of open questions throughout the day: how to pursue research for the world's benefit, how to preserve integrity and compliance without burying partnerships in bureaucracy, how to build genuinely global partnerships despite the reality that markets and regulations differ from region to region, and how to advance local economies while remaining meaningfully connected to a global network.

She closed by naming time as an institution's scarcest resource and advocated for what she called "pragmatic incrementalism" — taking deliberate, careful steps while never losing sight of the larger goal of building trusted, long-term partnerships. She also cautioned against the risk that convening spaces like this one can become self-selecting echo chambers and urged participants to use the day's sessions to surface concrete, actionable next steps rather than abstract takeaways.

Chad Evans, speaking on behalf of GFCC Founder and President Deborah L. Wince-Smith, highlighted San Diego as the third stop in the GFCC's University Research and Leadership Forum study trip series, following Birmingham in 2024 and Lisbon in 2025. He framed the day around the role universities play as anchors in their communities, particularly in moments of transformation and turbulence: beyond education and training, they are increasingly pivotal drivers of socioeconomic transformation and economic growth. That role sits at the center of the GFCC's work on how universities shape innovation ecosystems in the digital age — through entrepreneurship, community engagement, and sustainable development — and it grows more urgent as technological change, particularly in AI, accelerates.

Evans noted that UC San Diego has pursued a deliberate strategy centered on industry partnerships, technology commercialization, and convening power, linking industry, government, investors, and researchers into a highly integrated innovation network. He closed by framing the GFCC's goal for the day as fostering collective learning and surfacing new opportunities for collaboration, both within San Diego and across innovation ecosystems worldwide.

Roberto Alvarez framed the day around the GFCC's guiding principles of “learn, connect, and build” while noting that nine different countries across all continents were represented among the delegates.

He then walked through the structure of the day ahead: an opening presentation on UC San Diego's approach to innovation and commercialization, followed by a global exchange on how different regions build innovation frameworks, a deeper look at the ecosystem behind San Diego's success, and a fireside chat with Chancellor Khosla. The afternoon would turn to industry-academia partnerships, talent development in the AI age, and the broader question of how institutions compete through disruption. Alvarez encouraged participants to challenge assumptions and bring perspectives from their own regions into the discussion.



Global Leaders gather at the Design and Innovation Building, UC San Diego, July 22, 2026

The University as a Catalyst: UC San Diego's Strategy for Commercial Success

PRESENTER:
Paul Roben, Associate Vice Chancellor, Innovation and Commercialization, UC San Diego, USA

Commercialization as Public Benefit
UC San Diego builds commercialization around public benefit rather than revenue maximization — moving discoveries from its roughly $2 billion annual research enterprise into public use as fluidly as possible, with the deeper value lying in the resulting relationships and ongoing collaboration with industry rather than in licensing income itself. The process works as a continuous loop rather than a linear pipeline: researchers disclose inventions, the university evaluates novelty and patent strategy, technologies are then licensed, spun out as startups, or developed further, and the resulting economic and social benefit fuels new research, closing the cycle. The Office of Innovation and Commercialization (OIC) acts as a partner to innovators at every stage of that loop, not a gatekeeper at the end of it, and core university funding — not return-based compensation — supports the office, removing any institutional incentive to prioritize revenue over impact.

The cycle runs at substantial and consistent scale year over year: in fiscal year 2025 alone, UC San Diego logged 431 invention disclosures, 134 license agreements, and 114 issued U.S. patents, while supporting 14 licensed startups and generating over $256 million in industry-sponsored research funding — figures that have held strong and fairly stable across the past eight fiscal years, with early signs of renewed growth in disclosures and industry funding this year.

This system produces startups spanning AI-driven cardiac and sepsis diagnostics (Vektor Medical, Healcisio), 3D-printed prosthetics (LIMBER), safer battery chemistry (South 8), hardware cybersecurity (Cycuity), and sustainable materials (Genomatica) — evidence that the university's commercialization strategy translates research into companies across a wide range of sectors, not concentrated in any single field.

Removing Friction from Technology Transfer
UC San Diego deliberately simplifies and de-risks the technology transfer process itself through "EZ/Open Flow Innovation" — standardized instruments like a 5% equity license and a two-page startup license agreement that remove friction for founders and cut the time and legal complexity typically involved in licensing university IP. In exchange for a full, exclusive, worldwide license to the underlying IP, the university takes a flat 5% equity stake as of signing, without a board seat or other active governance role; founders' main ongoing obligation is periodic reporting on progress.

Centralized Licensing, Distributed Engagement

A single centralized office handles IP licensing, but industry engagement plays out across campus, with individual schools maintaining their own industry relationships and points of contact — engineering, biological sciences, and health sciences, for instance, each engage corporate partners differently. The university designates lead contacts for major cross-campus industry relationships while letting each school retain ownership of its own partnerships, and it prioritizes long-term relationships with industry over one-off funding.

The nature of those relationships is also shifting: a growing share of industry support now arrives as philanthropic giving rather than through traditional research contracts, and philanthropic capital itself is moving toward structures that resemble venture investment. Both trends require universities to adapt how they receive, structure, and steward external funding — and to connect philanthropic capital more deliberately to the innovation cycle.

Spaces that Support Founders

The Design and Innovation Building (DIB) houses a maker space, a design lab, and the Triton Entrepreneurship Center, which alone hosts 28 resident companies — including designated "IP-free" spaces where founders can build outside a research-lab context and keep ownership of what they create there. Ownership elsewhere depends on a project's connection to university resources rather than on who created it: work produced using research funding, research labs, or funded research employment belongs to the university, while undergraduate work generally does not, since coursework typically falls outside funded research.

The university encourages founders to disclose ambiguous cases, and it will confirm in writing whether the IP belongs to them, giving prospective investors certainty. Beyond the building itself, campus-wide resources range from the Institute for the Global Entrepreneur and StartBlue (an ocean enterprise accelerator) to the Rady School's Sullivan Center for Entrepreneurship and Innovation — embedding commercialization support across schools and disciplines rather than centralizing it in a single office.

Students as a Core Input

UC San Diego treats student engagement as a core input to the innovation pipeline and views it as the most sustainable form of regional economic development available — less about formal instruction than about exposing students to practitioners' real experiences and building the confidence to identify solutions rather than only problems.

In FY26, OIC-affiliated programs served over 7,000 participants (5,000+ unique students) through 130+ pop-ups, office hours, and events, supported by more than 200 mentors, and more than 100 academic programs across campus now build entrepreneurship into their core curriculum.



Photo by Miss Kehaulani /Wonderstruck Photgraphy: Design and Innovation Building, July 22, 2026.

Programs range from foundational entrepreneurship training to applied, industry-facing work — including i4X, which pairs multidisciplinary student teams with real-world challenges that companies, government agencies, and nonprofits bring directly to campus; each team works with a company-nominated mentor over a structured multi-week period, often leading directly to internships and jobs. Student engagement now reaches even younger grades, including a partnership between OIC and a local school that introduces middle schoolers to entrepreneurship.

Cross-University Initiatives

Additionally, the Office of Innovation and commercialization plays several roles in forward-looking cross university initiatives, such as: the Goeddel Family Technology Sandbox (accelerating life sciences and biomedical research), a Science Research Park under development, the Naval Innovation, Science, and Engineering Center and "The Forge" (both developed directly in response to needs that national security end users expressed), and the newly announced Blue Horizon Space Institute, which unites the university's strengths in life science, climate science, and space systems under a single research identity. These efforts reflect a broader philosophy: to ground research priorities in the needs of real end users, to ask not only what the university can research but what the public and its partners actually require, and to direct part of the research agenda toward strategically significant, large-scale ventures.

Catalyzing Tomorrow: A Global Exchange on Innovation Frameworks

MODERATOR:
Corinne Peek-Asa, Vice-Chancellor for Research and Innovation, UC San Diego, USA

DISCUSSANTS:
Hala Madanat, Distinguished Professor and Vice President for Research and Innovation, San Diego State University, USA
Miguel Athayde Marques, Vice-Rector for Infrastructural and Strategic Development & Professor of Management, Católica Lisbon School of Business& Economics, Universidade Católica Portuguesa, Portugal.
Mark Orams, Deputy Vice-Chancellor Research, Auckland University of Technology; Co-founder and Co-chair of the International Coastal and Marine Tourism Society (ICMTS), New Zealand

This session compared how different regions turn breakthrough ideas into economic drivers, working from the premise that innovation ecosystems are inherently local — a strong regional fabric has to come first, before it can extend outward through global connections. The cases of San Diego, Lisbon, and Auckland were initially featured to spark the conversation.

San Diego packs unusual density into a relatively small metropolitan area, with more than 80 research institutions clustered together, and roughly 60% of graduates stay in the region after finishing their studies — effectively training the full range of talent an innovation ecosystem needs, from technical founders to the HR and finance professionals who support them. That density runs deepest in life sciences, where decades of institutional connective work have built out incubators, accelerators, and other supporting infrastructure. Technology, by contrast, lacks the same depth and connective tissue, and the region has yet to establish a clear hub or a defined leadership voice to drive a comparable vision for that sector.

Lisbon's emergence as an innovation hub is a recent phenomenon, built substantially on its ability to attract international talent. Foreign-born residents make up roughly 18% of the Lisbon metropolitan area's population, a third of them with higher education, and the city recently ranked third in the world for quality of life. Portugal's near-universal fiber-to-the-home infrastructure — 95% of households — reinforces that appeal. International students reinforce the pipeline directly: 70% of the master's students at one Lisbon business school come from outside Portugal, and while many graduates return home for higher salaries elsewhere, a meaningful share stay and join the local startup scene. The city now hosts operations from 70 unicorns, though only four originated there; the rest relocated to take advantage of Lisbon's talent base, permitting environment, and tax incentives.

New Zealand's contribution centered on turning small scale and geographic isolation into a source of competitive advantage rather than a constraint. With roughly five million residents and no university as large as UC San Diego, the country has still produced globally significant companies and achievements — including Weta Workshop's visual effects work on major film franchises, Rocket Lab's position as the third-largest orbital launch company in the world, and Team New Zealand's sailing victory over the United States in the 1995 America's Cup. Orams captured the underlying logic in a quote from physicist Ernest Rutherford: "We don't have much money to do this, so we're going to have to think." He extended that same logic to Auckland University of Technology itself, New Zealand's youngest university, built around diversity — more than 120 nationalities represented among its staff and students — and around a conviction that a technology transfer function exists to have impact, not to make money.

The discussants offered concrete examples of what productive university-industry collaboration looks like in practice. A joint venture between Portugal's Critical Software (originally a University of Coimbra spinout) and BMW has grown from roughly 200 employees to over 3,000 in six years, developing digital infrastructure and autonomous driving systems for BMW's electric vehicle lines — a partnership that has since expanded to include Airbus. Separately, a five-year research partnership between a Lisbon university's biotechnology school and a California-based synthetic biology company funded 45 new full-time researcher hires, growing that school's research staff by 25% while generating shared intellectual property.

Asked what each region still lacks looking five years ahead, discussants converged on similar themes despite their different starting points. San Diego still needs a defined technology hub to match its life sciences cluster, along with more intentional, deliberate connection-building rather than relying on organic outcomes. New Zealand's challenge lies less in infrastructure and more in confidence: operating from a position of limited scale and resources can breed hesitancy to take risks, and Orams argued that self-belief — the same quality that carried Team New Zealand to victory against a far better-resourced opponent — matters as much as material resources in determining whether a region takes the steps needed to compete globally.





Left: Mark Orams, Auckland University of Technology, New Zealand
Right: Miguel Athayde Marques, Universidade Católica Portuguesa, Portugal.

The San Diego Effect – Building a World-Class Innovation Ecosystem

MODERATOR:
Paul Roben, Associate Vice Chancellor, Innovation and Commercialization, UC San Diego, USA

PRESENTER:
Mary Walshok, Associate Vice Chancellor for Public Programs and Dean of Extension at UC San Diego, USA

DISCUSSANTS:
The Hon. Jerry Hultin, Distinguished Fellow, GFCC, USA
Mike Krenn, Managing Director, Prebys Ventures, USA
Vincent Mudd, Managing Partner / Market Leader, Steinberg Hart, USA
Bernadett Petri, Managing Director at the Hungarian Development Promotion Office (MFOI), Hungary

Mary Walshok[1] kicked off the session by highlighting that San Diego's innovation ecosystem predates UC San Diego itself by more than half a century, and civic culture laid its foundation. Ambitious business leaders and civic advocates built the infrastructure, relationships, and institutional appetite for research and discovery before the university existed, and that civic culture continues to shape the region's collaborative character today.

The region's identity took root in the late nineteenth century as a health retreat. Wealthy Midwestern and Northeastern families — including the Scripps and Spreckels families — relocated to San Diego seeking a warm, health-giving climate, at a time when industrialization was fueling widespread concern about pollution, disease, and urban living conditions. That founding impulse explains why San Diego built major research institutions in medicine and natural history decades before it built a university: the city holds the second-oldest natural history museum in the country, one of the world's most significant zoos, and what eventually became the Scripps Research Institute all trace back to this early wave of health-focused philanthropy.

The region's identity took root in the late nineteenth century as a health retreat. Wealthy Midwestern and Northeastern families — including the Scripps and Spreckels families — relocated to San Diego seeking a warm, health-giving climate, at a time when industrialization was fueling widespread concern about pollution, disease, and urban living conditions. That founding impulse

[1] *Walshok's account draws on research she and historian Abraham J. Shragge published in Invention and Reinvention: The Evolution of San Diego's Innovation Economy (Stanford University Press, 2014), which traces this civic history in full.*

explains why San Diego built major research institutions in medicine and natural history decades before it built a university: the city holds the second-oldest natural history museum in the country, one of the world's most significant zoos, and what eventually became the Scripps Research Institute all trace back to this early wave of health-focused philanthropy.

Federal geopolitical shifts opened the next chapter. As the United States expanded its focus toward the Pacific in the early twentieth century, San Diego's civic leaders lobbied aggressively — and successfully — to secure the Pacific Fleet's home base. Civic leaders dredged the harbor themselves to accommodate Navy ships, hosted private events for federal officials, and built political relationships in Washington to draw military and, later, wartime research investment into the region.

World War II accelerated that trajectory decisively. San Diego became one of a handful of cities the federal government designated as critical to the war effort, driving major infrastructure investment and drawing top scientific talent into the region — UC San Diego in fact began as the University of California's War Research Center. When the war ended and the region's military-dependent economy faced an uncertain future, civic and scientific leaders — most notably Roger Revelle — made the case that sustained federal research investment, not military contracting alone, could anchor the region's economy going forward. That case drove the rezoning of Torrey Pines Mesa for research and light industry, setting the stage for the university's founding.

Establishing UC San Diego took real institutional persistence: the UC Board of Regents rejected the proposal three times, and it took an infusion of private funding — including a million-dollar personal commitment from General Atomics leadership — before the Regents finally approved the campus. The Salk Institute's founding followed a similar path, with Jonas Salk choosing La Jolla specifically for its scientific ambition and Pacific Ocean setting.

UC San Diego's early growth strategy also broke from convention. Rather than growing from the bottom up, the university's first chancellor built the faculty from the top down — combining junior faculty salary lines to recruit senior, already-distinguished professors away from institutions like Princeton and Berkeley. That same strategy inadvertently opened a path for exceptional women scientists who had been shut out of formal faculty positions elsewhere: Maria Goeppert Mayer, previously relegated to working as her husband's unpaid lab collaborator, joined UC San Diego as a full professor and won the Nobel Prize in Physics two years later — a fact San Diego's local newspaper reported at the time under the headline "La Jolla Housewife Wins Nobel Prize."

From its founding, UC San Diego's research identity combined health and technology — a convergence that feels contemporary today but was, in fact, embedded in the region's DNA from its earliest health-focused origins.

But how this amazing case connects and relates to the perspectives of others in the room and even experiences from other places? This was the moto of the conversion that followed.





Left to right: Mary Walshok, UC San Diego, USA; Deborah Gordon, Senior Fellow, GFCC; Bernadett Petri, Hungarian Development Promotion Office (MFOI), Hungary; Vincent Mudd, Steinberg Hart, USA

Vincent Mudd built out the story from civic origins into the modern economy. Rather than competing to attract already-established companies, San Diego's economic development strategy in the 1990s — developed as military base closures threatened the regional economy — deliberately targeted talent and workforce first, on the logic that companies follow workforce rather than the reverse. Regional business and economic development organizations coordinated around this strategy, integrating the private sector directly into problem-solving with universities, the military, and government. That same period brought a reframing of the region's geography: rather than sitting at the periphery of North America, San Diego's position on the Pacific and its binational border with Mexico placed it at the center of a "mega-region" spanning both American continents — a framing the region has used deliberately in bids for major international events, including two Olympic bids and a successful 2024 World Design Capital designation. Retaining companies, rather than simply attracting them, has depended on building an ecosystem deep enough that a company's workforce won't relocate with it — making the region, not the company, the sticky asset.

Mike Krenn pointed out that San Diego's venture capital base essentially collapsed by the mid-2010s, with several major funds that had operated in the region shrinking to nothing. Rather than accept the resulting narrative that the region lacked capital, an industry group called Connect — funded collectively by the region's five universities along with local law firms, banks, and accounting firms — began actively courting Silicon Valley VCs, hosting them in San Diego to meet promising local companies. Investment was slow to follow at first, but by the third year, VCs began writing checks rather than risk missing out on companies that had already raised capital and chosen to stay. Annual venture investment into the region grew from roughly $1 billion to a sustained $4–5 billion range, concentrated heavily in life sciences, with a self-reinforcing dynamic emerging: strong local companies keep students in the region after graduation, those students eventually found their own companies, and each successful outcome makes it easier to raise capital for the next one.

Bernadett Petri drew European comparisons underscoring that similar dynamics can emerge outside the U.S. context, though not through direct institutional replication. Examples from Belgium, the Netherlands, Finland, and Hungary illustrate that a university anchor alone is insufficient without a deliberate mechanism to translate research into companies — something often missing in European ecosystems — and that permanence of cooperation, not just its existence, determines whether these mechanisms function over time. A necessary ingredient across these cases is a shared regional narrative, which proves difficult to build in parts of Central and Eastern Europe still working through disparities rooted in the Cold War era; Budapest, for instance, performs near the EU's average level of innovation activity, while a region only 90 miles away performs at roughly half that level — a gap echoed in similarly close but unevenly performing regions elsewhere in Europe.

Two additional conditions emerged from the discussion as essential to translating local innovation into lasting competitiveness. First, a great idea ultimately needs access to a market large enough to sustain it — smaller countries with strong innovation records still need pathways to scale into global markets, since digital distribution has lowered the barrier to reaching those markets but intensified the competition once there. Second, government's role works best when regulation does two things simultaneously: providing genuine safety and oversight while also actively encouraging growth, rather than functioning purely as a containment mechanism — and government should support innovation with funding and infrastructure without directly picking which ideas succeed, since that kind of centralized decision-making tends to narrow toward personal agendas or inefficiency rather than genuine merit.

A Fireside Chat with Chancellor Pradeep K. Khosla

Chad Evans, Executive Vice President & Chief Operating Officer, Council on Competitiveness, USA

in conversation with **Dr. Pradeep K. Khosla**, Chancellor, Joan andIrwin Jacobs Chancellor's Endowed Chair, UC San Diego

A Culture Built on Cooperation
San Diego's institutions relate to one another differently than those in older, denser research regions. Where cities like Boston or Pittsburgh concentrate many comparable universities in close proximity — a concentration that produces rivalry as readily as it produces partnership — San Diego's institutions operate with enough distinct focus and geographic breathing room that cooperation consistently yields more than competition would. That dynamic shapes how the region's universities, civic organizations, and industry engage with one another, and it has been a genuine asset in building the ecosystem.

Vision as Something Found, Not Imported
The most transferable leadership lesson from the conversation was also the least dramatic: a strategy that holds is usually one the institution already contained. Khosla arrived without a preconceived plan for growth and spent his early tenure listening — to faculty, students, staff, and the surrounding community — on the premise that a vision people recognize as their own generates far more momentum than one delivered from outside. That method surfaced the central tension of a public research university: San Diego regards UC San Diego as its own institution, while the university's mission reaches the state, the nation, and the world. Neither claim is wrong, and resolving the friction required explaining how a global research mission complements, rather than displaces, the locally focused roles that the California State University system and community colleges already serve.

Access as the Organizing Idea
Much of what has changed at UC San Diego over the past decade resolves into a single principle: expanding access, understood broadly enough to cover who gets in, what they can reach once there, and how permeable the institution is to the world around it.

In admissions, that means holistic review rather than a single ranking metric, and a student body in which roughly 40% qualify for Pell Grants — families for whom a degree represents a very large share of household resources. Social mobility, on this view, is not an aspiration but something that should be visible in institutional outcomes. Physically, it means converting a campus students once left every evening into a place they inhabit — more than 12,000 new residential beds, alongside recreation and community infrastructure. The conviction behind it: connecting a university to its wider community, including its less affluent members, advances the institutional mission rather than threatening it.

One Region, Two Countries

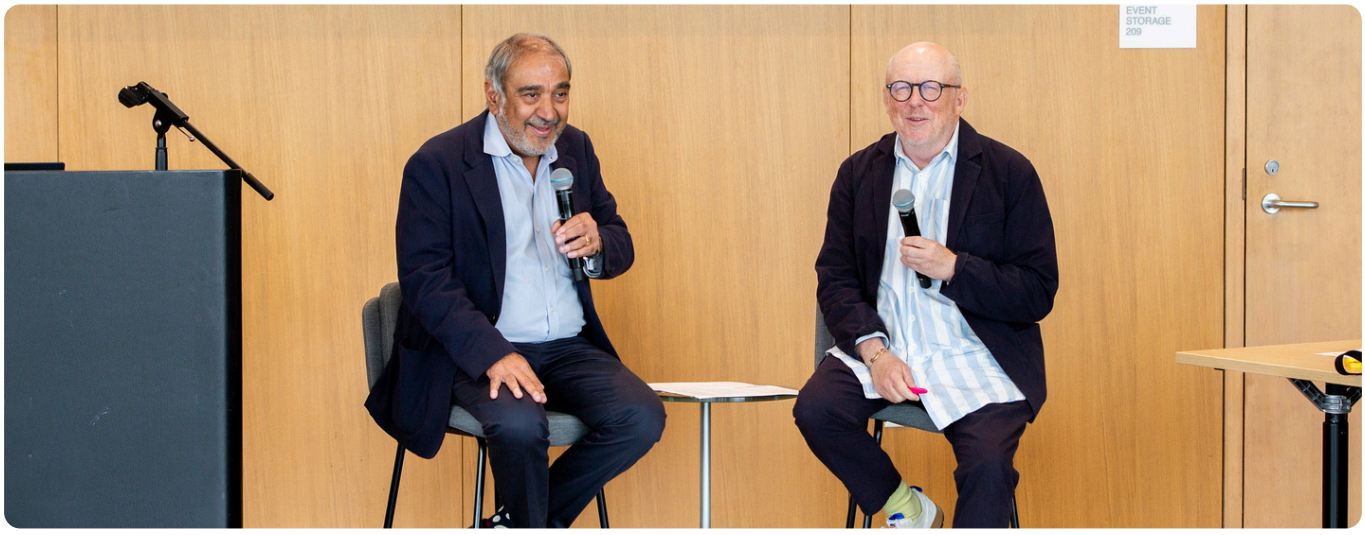
The same logic of permeability extends across the border, where San Diego and Tijuana function less as two cities divided than as one metropolitan region that happens to span a national boundary. Industrial capacity sits on both sides, and the combination — not either half alone — is what defines the region's economic identity. In drone manufacturing and biomedical devices, a single product can cross the border five times before it is finally manufactured and sold, with design, component sourcing, assembly, and testing distributed across both countries as a matter of routine.

Daily life follows the same pattern. Crossing is largely seamless for those who do it regularly, and the differences between the two sides — in food, in cost of living, in how people move through their day — are smaller than the similarities. That reality is difficult to see from a distance, and national policy conversations tend to treat the border primarily as a line of separation rather than as the operating context for a deeply integrated economy. The gap between how the region actually works and how it is understood is one of the more consequential blind spots in current policy debate.

What Institutions Reward Versus What They Value

Innovation, in Khosla's framing, is not reducible to startup formation. It is a way of approaching problems that appears as readily in someone rethinking an ordinary job as in someone founding a company — a definition that, taken seriously, should change what universities recognize and reward.

Mostly, it hasn't. Tenure processes still favor narrow disciplinary excellence and undervalue the work that increasingly drives impact: cross-institutional collaboration, leadership in professional bodies, service that doesn't map onto conventional metrics. UC San Diego addresses this partly through the chancellor's authority to decline a tenure recommendation, used sparingly to flag cases that underweight service — a corrective, but one that highlights how poorly standard academic incentives track the behaviors institutions claim to want.



Left to right: Chancellor Pradeep K. Khosla, UC San Diego & Chad Evans, U.S. Council on Competitiveness.



GFCC Members and Fellows at sessions durin the San Diego Study trip.

Industry Engagement as Untapped Opportunity

Industry-funded research has expanded substantially, yet the largest opportunities remain ahead — particularly in large-scale technology development, where partnerships of the kind now common between major companies and research universities are still underdeveloped. Attitudes across campus continue to shift, though parts of academia remain cautious about closer collaboration with industry.

A Model Others Have Learned

American higher education's global soft power rested on something specific: it showed that a university system could generate companies and entrepreneurs, not just publications. That advantage is harder to sustain now, because the model has been studied and adopted widely enough that it no longer distinguishes American institutions the way it did twenty years ago. The implication is that partnership has to be built on something other than exporting a template. Khosla's own international work, including his role as chair of the Board of Regents for the University of Bologna's Rwanda-based efforts, has moved toward collaborations driven by educational and cultural impact in underserved regions rather than by the financial return that motivates many satellite-campus ventures.

What Constrains and What Sustains

The binding constraint on further growth is neither strategy nor ambition but resources — specifically a younger alumni base and philanthropic network than older peer institutions enjoy, which keeps every year's fundraising a high bar. Asked what sustains the work, Khosla pointed not to rankings or metrics but to parents and graduates expressing gratitude directly, and to the same habit that shaped his arrival: continuing to listen rather than assuming the answers are already in hand.

Bridging Academia and Industry – Corporate Partnerships in Action

MODERATOR:
Patrick Coleman, Director Corporate Relations, UC San Diego, USA

PRESENTERS:
Laurent Coulon, Director of Global Enterprise Solutions, Termo Fisher Scientific, USA
Sara Werner, Executive Director of Strategic Programs, School of Biological Sciences, UC San Diego, USA

DISCUSSANTS:
Mmboneni Muofhe, Deputy Director-General for Socio-Economic Innovation Partnerships at South Africa's Department of Science, Technology &Innovation (DSTI), South Africa
Zaimizi Hamdani, Senior Vice President, Business & Chief Operating Officer, Universiti Teknologi PETRONAS, Malaysia

Coulon and Werner framed the UC San Diego–Thermo Fisher Scientific partnership, now roughly five years into a planned ten-year arc, as a deliberate departure from transactional vendor relationships toward something built for long-term value, innovation, and impact. That shift wasn't incidental — university and company leadership set out explicitly to move beyond one-off purchasing agreements, and the resulting structure spans five strategic themes: technology integration, collaborative research, workforce development, operational and supply chain sustainability, and shared communications around wins.

The centerpiece of the partnership is the Goeddel Family Technology Sandbox, which brings cutting-edge, high-cost scientific instrumentation onto campus through a placement model that requires no upfront capital investment from the university. Consolidating multiple instrumentation areas — including cryo-electron microscopy and mass spectrometry — under a single roof was a deliberate design choice, intended to create the kind of informal cross-pollination where a researcher using one tool notices another's and starts a new collaboration. That structural bet has paid off directly in research outcomes: cross-sector work through the Sandbox has advanced precision therapies for human disease and integrative structural biology work combining multiple platforms to answer questions neither technology could resolve alone.

Workforce development runs through every level of the education pipeline, not just graduate and postdoctoral researchers. Programs reach high school and community college students through undergraduates, graduate students, and working professionals seeking to upskill, using multi-day hands-on workshops, a new Advanced Technologies Lab Course built around Sandbox instrumentation, and degree and certificate programs still in development. Quarterly "career treks"



Left to right: Patrick Coleman, UC San Diego; Jeffrey Gold, University of Nebraska; Hala Madanat, San Diego State University.

bring roughly 30 students at a time to Thermo Fisher's own facilities, and a Department of Education–funded video series documents career pathways that a life sciences degree can open, aimed at students who may not realize how broad those options are.

A distinctive feature of the partnership is its Technology Fellows program, funded through a gift from the Goeddel family, which allows postdoctoral researchers to spend up to half their time working directly in the Sandbox. Fellows serve as the first point of contact for new users navigating the space, help design and deliver curriculum, and work directly alongside industry partners — while still pursuing independent research. Two fellows from the program's first cohort have already gone on to lead facilities of their own, an early marker of the pipeline's effectiveness. Sustainability commitments extend across the supply chain shared by both institutions. A campus-wide cold-chain delivery system has completed more than 1,500 deliveries and avoided an estimated 6,000 kilograms of CO2 emissions, alongside a pipette tip recycling program that began as a UC San Diego pilot and has since scaled into a national rollout across other Thermo Fisher customers. The partnership has also worked to expand the diverse supplier base available to both organizations, using each side's networks to widen the other's access to minority-owned businesses.

Coulon and Werner were candid that the partnership's real difficulty was never the underlying contract or IP terms — that part, they noted, is comparatively easy. The harder work has been sustained relationship-building: taking the time to understand that the same words often carry different meanings across academic and corporate cultures, and recognizing that genuine trust, not formal agreements, is what lets partners raise problems directly and resolve them without damaging the relationship. Both noted an unexpected benefit as well — each has become an informal internal connector, someone colleagues in their own large organizations now turn to in order to find the right person on the other side.

Muofhe described South Africa's effort to reposition mining from a "sunset industry" narrative to a "sunrise" one — starting by convening mining houses directly to identify their biggest challenges, then structuring a jointly funded R&D program around those priorities, with both government and industry contributing capital. The resulting program spans decarbonization and digitization of mining operations, and the use of predictive technology to anticipate safety incidents before they occur, tied to the broader recognition that decarbonizing economies depends on the critical minerals mining produces. A significant part of the effort addresses workforce transition directly: engaging labor representatives alongside employers in the program's design, with dedicated retraining and education for communities affected as mining operations change.

On partnership durability specifically, Muofhe pointed to an existing decade-long collaboration with an Australian partner, recently extended for another ten years, as evidence that long-horizon partnerships like the one UC San Diego and Thermo Fisher described are achievable elsewhere — and argued that when partnerships are sustained long enough, they eventually become part of an institution's culture and DNA rather than remaining a standalone initiative. He also flagged a structural concern working against that goal: South Africa's R&D investment as a share of GDP has been declining, driven largely by shrinking industry-side investment.

Hamdani described Universiti Teknologi PETRONAS's origins as a university founded by industry, for industry, with a seven-month industrial internship built into every student's program since the university's founding. The university has increasingly extended that same close-partnership model beyond its founding energy sector relationships, reaching toward semiconductor manufacturers with a significant Malaysian presence — a deliberate strategic push, since Malaysia's semiconductor industry remains concentrated in manufacturing rather than design or advanced packaging, and building deeper R&D relationships with those companies means learning a genuinely different technical language than the university's traditional oil-and-gas partners. A newly launched Bachelor of Integrated Engineering program reflects a similar cross-disciplinary instinct, built around problem-based learning co-taught with industry partners and designed to teach students how to learn continuously rather than to master today's technology alone.

A recurring theme across all three panelists was necessity as the real driver of durable collaboration — that these partnerships work best not when treated as isolated grants or contracts, but when both sides come to genuinely need each other to succeed. Hamdani noted a related internal tension universities face in that process: industry partners typically want results on quarterly timelines, while meaningful research often requires longer horizons — Universiti Teknologi PETRONAS has responded by deliberately weighing roughly 80% of its research toward applied, industry-relevant work, leaving about 20% for open-ended, curiosity-driven inquiry.

Education Frontier – Developing and Scaling Talent for the Digital Economy

MODERATOR:
Chad Evans, Executive Vice President & Chief Operating Officer, Council on Competitiveness, USA

PRESENTER:
Rajesh Gupta, Dean, School of Computing, Information and Data Sciences; Founding Director, Halıcıoğlu Data Science Institute, UC San Diego, USA

DISCUSSANTS:
Razvan Bologa, Innovation Coordinator and Professor at the Computer Science Department, Bucharest University of Economic Studies – ASE; CEO and Founder, Nextlab.tech, Romania
Jeffrey Gold, President, University of Nebraska, USA

Technical knowledge now loses commercial value within five to six years, and universities can no longer expect students to complete a single multi-year credential and carry it through a career. Europe's response has taken shape as micro-credentials: short, stackable courses that let students design personalized learning paths rather than choosing from a fixed curriculum. Bucharest illustrates what this can build over time — a metropolitan area of four million people that, over three decades of deliberate investment, has grown a workforce of roughly 85,000 ICT specialists, drawing companies like SAP, Oracle, Adobe, and Amazon, supported by 1,500 university-industry partnerships focused specifically on building technical talent.

No single region holds enough talent to compete alone in the current technology landscape, and regions increasingly need to pool talent and expertise across borders rather than compete in isolation — a dynamic reinforced by recent geopolitical shifts like the EU-Mercosur trade agreement, which are actively reshaping global trade patterns.

UC San Diego's approach to closing the gap between academic knowledge and practitioner-level skill leans heavily on direct industry involvement in teaching itself. The university's data science programs enroll roughly 1,600 students, and last year alone, 79 industry professionals — not university faculty — supervised 72 year-long student projects directly with corporate partners, working alongside 44 traditional faculty members. This reflects a broader recognition that industry practitioners, not academic researchers, now hold the most current expertise in fast-moving technical fields — echoing a shift that last occurred with semiconductors, but at a larger scale.

Delivering this kind of hands-on, industry-relevant education requires significant infrastructure investment, not just curriculum design. Compute capacity for AI coursework alone now demands data center cooling capacity in the multi-megawatt range, since courses that once ran comfortably

on standard infrastructure now require dedicated GPU access at a scale that makes commercial cloud computing prohibitively expensive for sustained use.

University bureaucracy creates a real constraint on how quickly curriculum can adapt to fast-changing fields. Formal course approval processes can take the better part of a year, so some programs have started operating new offerings informally — outside the standard approval pipeline entirely — simply to keep pace with what students actually need heading into job interviews. Lifelong learning, not one-time credentialing, should define a university's core mission going forward. Technologies now permeate daily life and professional practice fast enough that periodic, continuous upskilling has to become the norm rather than the exception — and this requires universities to invest seriously in continuing and professional education, not treat it as a secondary offering.

Roughly half of the U.S. workforce has no college degree at all, and research universities are not necessarily well-positioned to serve that population directly — raising a genuine question about who takes responsibility for educating the majority of the labor force outside the traditional university pipeline. Several concrete efforts aim in that direction regardless: one UC San Diego program has developed pre-college engineering curriculum now used in 21 local school districts, training over two dozen teachers and reaching roughly 10,000 high school students; a separate dual-credit program lets high schoolers earn college credit directly; an online high school serves students across all 50 states and internationally; and a philanthropically funded outreach program delivers state-certified STEM curriculum, at no cost, to several hundred thousand middle and early high school students nationwide.

Two structural barriers have historically kept non-traditional students out of university-level coursework: the admission process itself, and the difficulty of exiting with something credential-bearing short of a full degree. Removing formal admission requirements for individual courses — and designing certificate pathways that stack toward an eventual degree — addresses both barriers directly, letting students without a prior credential build toward one incrementally, on their own schedule.

Some projections suggest that scaling access further, to the 75% of the population, will eventually need postsecondary training, which exceeds what research universities alone can realistically deliver. The more viable path involves research universities building advanced educational technology platforms and training other institutions to deliver instruction at scale, rather than attempting to educate that volume of students directly. Venture capital remains largely uninterested in funding this kind of educational infrastructure, which constrains how quickly it can develop — compounded by the fact that many technical fields genuinely require hands-on interaction with physical systems, simulation environments, and equipment that pure remote instruction cannot replicate.

A New Innovation Playbook: Competing through Disruption

MODERATOR:
Roberto Alvarez, Executive Director, GFCC, Brazil

PRESENTER:
Dr. Albert "Al" P. Pisano, Professor and Dean, Jacobs School of Engineering; Walter J. Zable Endowed Chair of Engineering; Special Advisor to the Chancellor, UC San Diego, USA

DISCUSSANTS:
Richard Billingham, Chief Operating Officer and Governor of the Engineering Academy, Aston University, UK
Deborah Gordon, Senior Advisor, Longview Fusion Energy Systems, Inc.; Senior Fellow, GFCC, USA
Mohamed Firouz Asnan, President, Universiti Teknologi PETRONAS, Malaysia

The session opened with a central proposition: the world may need more than new innovation solutions — it may need a new innovation operating system. Business models, economic structures, global alliances, education systems and career paths are all being disrupted at speed. Technological change is accelerating alongside geopolitical competition, efforts to secure critical resources, climate pressures and the emergence of new frontiers in areas such as space, advanced biology, the deep sea and the brain. Roberto Alvarez framed this as a period between paradigms — a state of "liminality" in which the roles of universities, companies, governments and innovation ecosystems themselves need to be reconsidered.

Al Pisano grounded the discussion in UC San Diego's experience. The university generated more than 1,000 startups between 1990 and 2025, around 450 of which remain active today, with more than $13 billion in cumulative funding. Yet Pisano argued that even this pace is insufficient for an economy in which speed increasingly determines competitive advantage.

His broader message was that the traditional university commercialization model is becoming outdated. Startups often need to remain inside the university environment longer, retaining access to laboratories, talent and mentorship while becoming strong enough to operate independently. That, in turn, requires more flexible intellectual-property models that allow companies to build assets investors can value while still benefiting from university infrastructure. UC San Diego has experimented with "IP-free zones" and with separating foundational university patents from more specific company-owned intellectual property.

The implications go beyond technology transfer. Successful innovation increasingly requires disciplines well outside engineering and business, including social sciences and health fields that

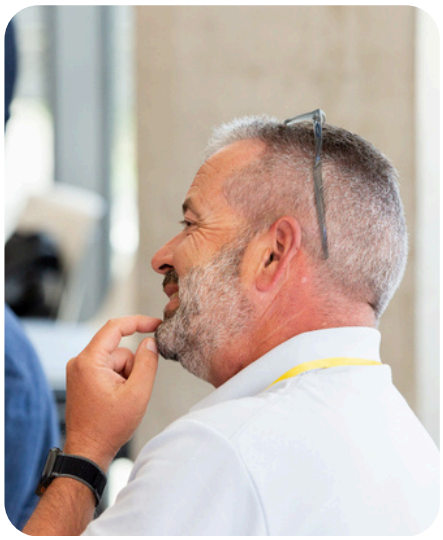
can address adoption, behavior and acceptance. It also requires innovation ecosystems that extend beyond individual campuses and regions. Manufacturing, supply chains, regulation, industrial partnerships and routes to market must be considered much earlier, particularly in a world of geopolitical friction and supply-chain vulnerability.

Pisano also highlighted the potential of multinational startup structures. A UC San Diego collaboration with Japanese partners combined U.S.-based AI imaging technology with Japanese clinical and manufacturing capabilities through linked entities in both countries, allowing the venture to access funding pools that would otherwise have been unavailable. The example illustrated a broader point: global collaboration can be embedded directly into the architecture of new ventures.

Richard Billingham brought a complementary perspective from the United Kingdom, where universities continue to generate strong science but frequently struggle to create or catalyze the creation of commercial value from it. Financial pressure across the higher education system adds another constraint, making institutional reinvention more difficult precisely when it is most needed. Drawing on the experience of the Birmingham innovation strategy, Billingham argued for a shift from linear pipelines toward platforms that bring researchers, companies, investors, regulators and other actors together concurrently. Innovation should increasingly start with real-world challenges rather than with technology searching for an application, and universities should place more emphasis on accelerating adoption than on maximizing ownership of intellectual property.

He also stressed that innovation requires a full funding stack rather than isolated grants. Research funding, proof-of-concept capital, equity and infrastructure finance must connect across the path from discovery to scale. At the same time, innovation systems need what Alvarez described as "speed ambidexterity": the ability to support technologies moving at radically different tempos, from AI and digital applications that can advance in weeks to biotechnology, energy and industrial systems that may require years.





Left: Roberto Alvarez, GFCC, Brazil
Right: Richard Billingham, Aston University, UK

That same logic applies geographically. Rather than trying to reproduce every capability locally, regions should specialize where they have genuine strengths and connect globally to the complementary assets they lack.

Mohamed Firouz Asnan added the perspective of Malaysia, where both higher education institutions and the broader economy face the risk of being trapped by legacy models. He noted how far South Korea has advanced relative to Malaysia over recent decades and argued that universities must become much more deeply integrated with industry.

At Universiti Teknologi PETRONAS, that means inviting companies to conduct R&D with the university and bringing real industrial problems into the research environment rather than producing technologies first and seeking buyers later. The university is also concentrating its capabilities around selected priorities, including energy security, health, sustainability and biodiversity, with an emphasis on "regenerative futures" that go beyond reducing harm toward actively restoring natural systems.

Malaysia's place within ASEAN further reinforces the case for scale through connection. Rather than assuming that each country must possess every capability, the region can pool talent, problems, markets and research assets across a population of more than 660 million people. Deborah Gordon pushed the discussion beyond institutional mechanics, arguing that the central question is not simply what is wrong with existing systems, but how much change is actually required. She also cautioned against treating competition only as a contest to defeat others. Productive competition can instead push organizations and economies to improve their own capabilities.

Her example of GTE Sylvania illustrated the risk facing incumbents. The company was strong in analog signal processing but declined to invest aggressively in emerging digital technologies when Bill Perry urged it to do so. Perry left and built a company around the opportunity Sylvania had dismissed. The lesson was straightforward: organizations can be most vulnerable when current success makes them slow to recognize the next technological transition. Innovation strategy therefore needs to resemble portfolio management, building multiple capabilities rather than relying on a single expected winner.

The discussion on Europe reinforced a similar concern about institutional speed. Bernadette Petri noted that funding itself is not necessarily scarce: the European Union commits roughly €93.5 billion to research and innovation. Yet commercialization outcomes remain weak, with only a minority of thousands of funded projects demonstrating strong market potential. Lengthy funding procedures and insufficient follow-on capital further widen the gap between research and commercial deployment.

Across the session, speed became one of the most consistent themes. The challenge is not only the speed of technological development, but also the speed of decision-making, financing, university processes, regulation and collaboration. Many innovation institutions were designed for a slower environment and are now being asked to operate against technology and market cycles that move much faster.

Capital remains critical and abundance of capital cannot be assumed across the world. This makes institutional design even more important outside the most capital-rich ecosystems. Where financial resources are constrained, innovation systems need to become better at connecting assets, reducing friction and mobilizing capabilities already present across institutions and geographies.

Alvarez closed by emphasizing that this places greater strategic value on networks and connections themselves. Innovation systems cannot focus only on CAPEX — laboratories, facilities and other physical assets. They also require sustained OPEX to build partnerships, curate ecosystems, connect markets, convene actors and operate the networks through which opportunities move.

The discussion ultimately pointed to three broad shifts. Boundaries are becoming more permeable — between universities and companies, local and global ecosystems and research and commercialization. Connections are becoming a form of infrastructure that requires deliberate investment. And new technological and economic frontiers are expanding the opportunity space, from the bioeconomy and advanced energy to space and other emerging domains.
The resulting playbook is not simply about producing more innovation. It is about building systems that are faster, more connected, more multidisciplinary and more capable of turning knowledge into adoption, companies, markets and economic transformation.



San Diego Study Trip

Site Visits

Design and Innovation Building

Hosted by **Paul Roben**, Associate Vice Chancellor, Innovation and Commercialization, UC San Diego and **Lisel Gorell-Getz**, Director of Program Development in the Office of Innovation and Commercialization, UC San Diego

The day closed with a walking tour of the Design and Innovation Building itself and home to UC San Diego's Office of Innovation and Commercialization. Its four floors each serve a distinct function: The Basement's early-stage entrepreneurship programming on the first floor, a shared makerspace and design lab above it, and the Triton Entrepreneurship Center on the fourth, which alone houses 28 resident startup companies.

Walking the building gave participants a tangible sense of what Paul Roben had described earlier in the day as UC San Diego's "IP-free zones" — spaces, including parts of this building, specifically designated so that founders can build and develop their companies without entangling their work in university research IP claims. Seeing resident companies working side by side, often just steps from the research labs their technology originated in, illustrated the tight physical and cultural loop between research, commercialization, and company-building that had been the throughline of the day's earlier sessions.

The tour also offered a more informal, exploratory close to the day — a chance for delegates to see UC San Diego's innovation ecosystem in practice rather than in slides, and to speak directly with resident founders and student entrepreneurs working in the building in real time.



GFCC delegation during visit to the Design & Innovation Building, UC San Diego (July/2026)

Qualcomm Institute

Hosted by **Ramesh Rao**, Director of the Qualcomm Institute at UC San Diego.

The Institute exemplifies the kind of cross-disciplinary convening the study trip had explored in theory the day before — a space where researchers from wildly different fields work side by side, using shared technology infrastructure to tackle problems that don't fit neatly inside a single academic department.

The visit centered on a demonstration by UC San Diego economists Fabian Trottner and Marc-Andreas Muendler, who presented a computational model tracing how local economic disruptions propagate through the global economy. Using scenarios such as a potential closure of the Strait of Hormuz, the model illustrated how a single chokepoint disruption or supply chain shock in one region can cascade outward, reshaping trade flows and economic outcomes far beyond its point of origin — a live demonstration of exactly the kind of interconnected risk many delegates had raised in the previous day's discussions on regional competitiveness and global supply chains.

Tommy Sharkey, a Research and Development Engineer at the Qualcomm Institute, presented a second project with a more local, applied focus: a public-facing dashboard built in partnership with the County of San Diego to track community-level risk indicators in real time. Where the economic modeling demonstration illustrated global interdependence in the abstract, Sharkey's dashboard offered a concrete example of the same underlying capability — translating complex data into something directly usable by public sector decision-makers — applied at the scale of a single county and its residents.

Together, the two presentations highlighted the same underlying premise of using cross-disciplinary research and computational infrastructure to inform decisions that matter well beyond academia.



GFCC delegation during visit to Qualcomm Institute, UC San Diego (July/2026)

Illumina

Hosted by **Katie Harmeyer**, Senior Territory Account Manager, Illumina

Illumina is one of the clearest examples in San Diego's biotech ecosystem of a company whose founding story traces directly back to the region's research institutions. Founded in San Diego in 1998, the company has grown into a global leader in genomics, now employing roughly 8,600 people worldwide, serving customers in more than 165 countries, and generating annual revenue of approximately $4.3–4.4 billion — with an installed base of around 21,000 sequencing and array instruments deployed globally. The company remains headquartered in San Diego, and its presence in the region reflects the same research-to-commercialization pipeline that had been the throughline of the previous day's sessions: Illumina stands today as one of the most visible proof points of San Diego's ability to turn university-adjacent scientific talent into a globally dominant company.

The visit included a retrospective on the company's history, tracing the strategic bets that shaped Illumina's trajectory from a startup into the dominant platform in DNA sequencing technology — decisions around core technology investment and platform strategy that, in hindsight, positioned the company to capture and hold leadership in a field that has since become foundational to modern medicine, agriculture, and forensic science. The company also previewed its latest developments, reflecting Illumina's continued evolution beyond its original sequencing hardware business into a broader platform spanning oncology, reproductive health, and multi-omic drug discovery — underscoring how a company born from a research-driven, entrepreneurial culture continues to evolve by making similarly deliberate strategic bets on where the science, and the market, are heading next.



GFCC delegation during visit to Illumina (July/2026)

DIII-D National Fusion Facility

Hosted by **Dr. Anantha Krishnan**, Senior Vice President of the Energy Group, General Atomics.

Operated by General Atomics on behalf of the U.S. Department of Energy's Office of Science since the late 1980s, DIII-D is the largest magnetic fusion research facility in the United States — a tokamak device that confines plasma at temperatures exceeding ten times that of the sun in pursuit of controlled fusion energy. The facility recently surpassed 200,000 experimental cycles, or "shots," since it began operating, and draws more than 700 researchers annually from over 100 institutions spanning U.S. national laboratories, academic institutions, and industry, both domestic and international.

DIII-D traces its lineage back to fusion research General Atomics began in the 1950s, evolving through a series of earlier "Doublet" tokamak designs before reaching its current configuration in the mid-1980s. That decades-long institutional commitment to a single, hard scientific problem — sustained well before fusion attracted the level of public and investment attention it enjoys today — offered a striking counterpoint to the study trip's broader theme of rapid technology cycles and fast-moving commercialization: fusion research operates on a fundamentally longer time horizon, where progress is measured in incremental scientific milestones accumulated over decades rather than product cycles measured in months.

DIII-D is explicitly structured around open access — researchers from any institution or nationality can propose experiments, with facility time allocated by merit review rather than institutional affiliation. That openness situates DIII-D as a distinctive model within the study trip's broader conversation about research infrastructure: a nationally significant, capital-intensive scientific asset, operated by a private company for the federal government, but functioning as shared infrastructure for the global fusion research community — directly relevant to the ongoing international effort to develop ITER and, ultimately, commercially viable fusion power.



GFCC delegation during visit to DIII-D National Fusion Facility (July/2026)



Lisbon Study Trip

Key Takeaways

Key Takeaways from the San Diego Study Trip

Two days of discussion involving leaders from nine countries surfaced the same structural questions in very different contexts. What follows organizes what participants can act on by the kind of institution facing the decision.

For Universities

- **Rethink how long startups stay.** Deep tech ventures need years of maturation, but a company assigning all its IP to the university indefinitely becomes "uninvestable". Create designated spaces where founders retain ownership of what they build and set clear criteria for when a venture transitions out.
- **Fund your technology transfer office from core funds, not licensing returns.** Removing structural incentive to extract value from founders enables the establishment of frictionless instruments — a flat equity stake, a two-page license — and generates more activity than a self-funding office does.
- **Bring practitioners into teaching and clear the path for them.** In fast-moving fields, current expertise sits outside the university. Industry professionals supervising student projects work, but it might collide with traditional processes, such as course approvals (which can take the better part of a year). The solution needs to address the tension between quality control and relevance.
- **Align recognition and reward with the result you want.** If your strategy emphasizes impact and collaboration, build evaluation that rewards them. Faculty follow the incentive, and the incentive is yours to design.
- **Treat student engagement as economic development.** Building entrepreneurial capacity in students is the most durable investment a university can make in its region — which is why UC San Diego's programs reach more than 7,000 participants annually, supported by 200 mentors and over 100 academic programs with entrepreneurship built into the curriculum.

For Regions and Cities

- **Build workforce, rather than employer incentives.** Companies relocate easily; workforces do not. With roughly 60% of graduates staying, San Diego made leaving expensive for companies.
- **Build the incentives that make collaboration rational.** Cooperation holds when institutions gain more from it than from competing. Design for that rather than assuming goodwill will carry it.
- **Repurpose existing assets.** San Diego repositioned itself at every inflection point by repurposing infrastructure and assets built for a previous era. The capacity to repurpose matters more than the accuracy of any single strategic bet.
- **Understand your region's geography.** San Diego and Tijuana operate as one economic region, with products crossing the border repeatedly before reaching market. Recognizing that reality is what allows a region to build on it.

For Companies and Investors

- **Budget years, not months, to build relationships**. Contracts and IP terms are the straightforward part. Discovering that "talent", "impact" and “Partnership” mean different things on either side takes far longer — and getting there is what makes the rest work.
- **Enter partnerships you actually need.** Collaborations built on mutual necessity outlast those built solely on goodwill, because both sides have reason to keep them alive.
- **Aim for absorption, not renewal.** A partnership sustained long enough becomes normal practice, surviving leadership and funding changes because nobody has to defend it.
- **Place infrastructure where the researchers already are.** Companies that put equipment inside a university get something no customer survey provides: continuous observation of how their technology performs at the edge of what it was designed to do, from the people most likely to push it past those limits. On the other side, the university gets access to high-cost resources it could not otherwise afford.

None of these require the conditions San Diego had. They require vision, intention, and collaboration between academia, industry, government, and civil society. That is ultimately what the URLF study trips are for. Each stop — Birmingham, Lisbon, now San Diego — offers a different answer to the same question, and none of them can be copied wholesale. What travels is not the model but the disposition: a willingness to look honestly at what a region actually has, to build deliberately on it, and to keep going when the returns are still years away.



The GFCC

About the GFCC

The Global Federation of Competitiveness Councils (GFCC) is a network of leaders and organizations committed to enhancing sustainable growth through competitiveness strategies, amplifying and accelerating their evolution and best practices worldwide. The GFCC has pioneered the development of global competitiveness principles and members continue to co-create cross-border thinking and action on the field.

The GFCC is a global organization founded in 2010. Our network spans more than 30 countries across every continent and is composed of two key groups: members who secure their place through yearly dues, and distinguished experts who are invited to join as fellows.

By connecting businesses, civil society organizations, universities and government agencies, the GFCC enables shared learning and access to world-class expertise for transformation. With a hands-on approach and focus on collaboration, the GFCC helps its members build and deploy strategies.

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