



UIDPConnect 2020 CONFERENCE REPORT

September 21–25, 2020

Hosted Virtually by UIDP



Strengthening
University-Industry
Partnerships

CONFERENCE AT A GLANCE

UIDPConnect 2020 was originally scheduled to be held in-person at Penn State University. However, due to COVID-19 restrictions, UIDP developed a completely virtual conference that allowed participants to access content from anywhere in the world. Attendees played an active role watching, listening, and participating via live Q&A and interactive tools. Several project sessions were offered, including *COVID-19 Discussion Series Follow-up: Contracting & Partnership Topics: Virtual Recruiting During a Pandemic; Creative Approaches to Meeting Academic and Corporate Talent Needs: Joint Employment; and Virtual U-I Engagement: Engineered Serendipity.*

UIDP was fortunate to secure the services of more than 130 subject matter experts, and over 1000 participants from around the world took part in this event. Live presentations have been completed, and conference attendees can download materials and watch close to 50 session recordings 24/7—whenever it is convenient for them.



UIDPCONNECT
2020



DAY ONE

MONDAY – September 21, 2020

Keynote: Update on Key OSTP Activities to Strengthen the U.S. R&D Enterprise

Moderator: Ellen Kosik Williams, Corning Incorporated

Presenter: Kelvin Droegemeier, Director OSTP

Participants were updated on the US government's [Office of Science and Technology Policy](#) (OSTP) activities, including [President's Council of Advisors on Science and Technology](#) (PCAST), the National Science and Technology Council's (NSTC) Joint Committee on the Research Environment (JCORE; research security, reduction of research administrative workload), multi-sector partnerships, and efforts directed at strengthening the R&D enterprise as a result of the COVID pandemic.

Takeaways:

- **PCAST issued a report in June 2020** that made bold recommendations for American leadership in Industries of the Future (IoTF)
- **The underpinning pillars** are enhancing multi-sector engagement, creating new institutional structures integrating IoTF, ensure a qualified and diverse workforce.
- **The White House recently announced** a new billion-dollar-plus investment in AI and quantum centers and institutes, along with a K-12 initiative in quantum information science. The investment includes significant private sector and university dollars leveraged against Federal funding.

New Models for Engaging Graduate Students: An Industry Perspective

Moderator: Ashley Chan, Penn State University

Presenters: Jason Rauscher, Corteva Agriscience • Nathan Silvernail, PPG

Companies are increasingly looking to recruit graduate students for internships and jobs because of their in-depth knowledge of a specific field. Session shared how organizations from three different industries are creating new, experiential platforms for meeting and connecting with top graduate students.

Takeaways:

- **PPG's Pitch competition for STEM colleges:** Students give a 2-minute pitch of their graduate research. Student benefits: improves communications, presentation, and soft skills. Industry benefits: Exposure to new technologies, faculty, university techniques and recruitment.
- **Corteva Agriscience is a global plant sciences industry symposia series.** Is student driven empowering future plant scientists. The benefits are learning, networking, career, and soft skills development. Is open to private industry participation including competitors as speakers, attendees, and sponsors.
- Both programs encourage student development and unique leadership building opportunities.



Innovation in a Crisis: Why it is More Critical than Ever

Moderator: Erik Roth, McKinsey & Company

Presenter: Laura Furstenthal, McKinsey & Company

Prioritizing innovation today is the key to unlocking post crisis growth. The COVID-19 pandemic has upended nearly every aspect of life, from the personal (how people live and work) to the professional (how companies interact with their customers, how customers choose and purchase products and services, how supply chains deliver them). [McKinsey & Company](#) has worked with thousands of organizations across industries and found that the majority of executives expect the fallout from COVID-19 to fundamentally change the way they do business over the next five years, and yet very few feel prepared to capture the new opportunities that are emerging. How should companies that believe in the innovation imperative pivot to pursue it today? Laura Furstenthal and Erik Roth discussed how innovators can navigate the crisis and emerge stronger in the next normal.

Takeaways:

- **Choose innovation:** it is a choice. Organizations that take a “through cycle mindset” and maintain or accelerate their focus on innovation during a crisis significantly outperform organizations that focus their energy on solely protecting their core.
- **Rediscover customers,** which should not be siloed to a market research function but rather approached as a coordinated effort across the organization or the local ecosystem to take in as much feedback and input from customers as possible across channels, recognize patterns, and elevate the most valuable customer problems to solve.
- **Evolve the business model:** all great innovation happens at the intersection of a customer need, technology to deliver a solution, and a business model to monetize and scale. As value pools shift, the ability to explore and rapidly pivot to find customer-centric models to create and capture value will be a major predictor of success.

The National Artificial Intelligence Research Institutes Program

Moderator: Sujata Banerjee, VMware

Presenter: Erwin Gianchandani, NSF

In October 2019, the [National Science Foundation](#) (NSF) launched a new program – the National Artificial Intelligence (AI) Research Institutes – jointly with other federal agencies to support multi-disciplinary, multi-institutional “virtual” institutes, at the level of up to \$20 million over five years per institute. The AI Institutes aim to advance foundational and use-inspired AI research as well as workforce development. Together with the U.S. Department of Agriculture National Institute of Food and Agriculture (USDA NIFA), U.S. Department of Homeland Security Science and Technology Directorate (DHS S&T), U.S. Department of Transportation Federal Highway Administration (DOT FHWA), and U.S. Department of Veterans Affairs, the National AI Research Institutes seek to accelerate advances in six key areas in the initial year: trustworthy AI; foundations of machine learning; AI-driven innovation in agriculture and the food system; AI-augmented learning; AI for accelerating molecular synthesis and



manufacturing; and AI for discovery in physics. This session provided attendees an opportunity to learn about how they can participate and benefit from this program.

Takeaways:

- **AI is one of the industries of the future** that is critical to the nation's economy and security. The NSF established the National AI Research Institutes program, together with other federal agencies and now industry, to support a set of national hubs for universities, governments, industry, and non-profits to advance AI research and education with longer-term sustained funding. These AI Research Institutes aim to expand the frontiers of AI to create transformational technologies and breakthroughs benefitting both science and society.
- **NSF cultivates partnerships** with other agencies, the private sectors, and nonprofits in areas of mutual interest to jointly support research frontiers.
- In the case of the AI Research Institutes, the government-university-industry collaboration enables the institutes to address AI work in a wide range of areas, incorporates many different perspectives, and allows multiple organizations to work together to create significant new research capabilities while developing the next generation of talent to ensure a future well-trained workforce.

UIDP Academy Workshop: Corporate Engagement Center Models

Part 1 - Case Studies: Strategic Considerations for Transitioning to a Centralized Corporate Engagement Model

Moderator: Priya Baboo, Penn State University

Presenters: Paul Jensen, Drexel University • Anna Koulas, Drexel University • Brad Fravel, Virginia Tech • Russ Kilman, SEI • Michael Ruger, Comcast

Three universities that recently made the transition to a centralized corporate engagement model presented case studies on the strategic considerations that led to the transition. One of their industry partners shared perspectives on how they are starting to see benefits/are benefiting from the holistic engagement. Each case study covered:

- structure and reporting lines of corporate engagement at their university.
- strategic considerations for transition to a centralized corporate engagement model.
- how the centralized model has/is impacted/impacting different industry engagement areas – giving, sponsored research, recruitment, workforce development, entrepreneurship etc., and
- an industry partner's perspective on how the holistic engagement approach has benefitted them.

Takeaways:

- **A central corporate engagement center** allows for a multi-dimensional and multi-faceted holistic relationship with industry partners.
- **When done right**, this model increases communication and data sharing amongst internal university departments as well as with outside partners.



- **Variations exist** in the centralized approach to corporate engagement, ranging from all unit-level industry coordinators reporting up to the central team to unit-level industry coordinators reporting to their appropriate unit heads to dual reporting at unit heads and central team. When considering a central corporate engagement model, please select a reporting structure that will work for your institution.

UIDP Academy Workshop: Corporate Engagement Center Models Part 2 - Panel: Effective Academic Stakeholder Coordination for Holistic Corporate Engagement

Moderator: Priya Baboo, Penn State University

Presenters: Crystal Leach, University of Georgia • Peter Dorhout, Kansas State University • Patrick Govang, Cornell University • Marc Gibson, University of Tennessee, Knoxville • Stella Wixom, University of Michigan

The panel included representatives from universities that followed different corporate engagement models, from centralized to decentralized to hybrid. The objective of the panel was to highlight examples of internal stakeholder coordination approaches that have worked successfully (and not so successfully), to lead to holistic corporate engagement. The panel discussed:

- structure of corporate engagement in each institution.
- examples of approaches being followed to improve campus stakeholder coordination for holistic engagement with their corporate partners; and

Takeaways:

- **Key tenants** to a centralized corporate engagement model: Shared information, common leadership, common goals, stand-alone resources for the central unit.
- **The central unit** manages the portfolio and shares the relationships across other units.
- **The degree to which a corporate partner is connected to a central point of contact or a specific unit is directly tied to the corporate partner's needs.** For companies looking for a wholistic relationship, a central point of contact manages the relationship. For companies looking for one-off, transactional, or limited engagements, a decentralized approach is taken.

Managing a Global Team During a Pandemic

Moderator: John Kastanas, Caltech

Presenter: Karina Edmonds, SAP

This session discussed the challenges of starting a new role in the middle of a global pandemic and how to build an effective team during a crisis. Karina Edmonds started her role at [SAP](#) as the world faced a global pandemic, and she shared lessons learned while balancing uncertainty. We discussed how you get to know your team, build connections, and engender trust over video calls. She also discussed how SAP's mission of "Helping the world run better and improving peoples' lives" is more relevant now than ever.



She shared her plans to connect with top-notch universities and students around the world as companies and universities are undergoing a digital transformation.

Takeaways:

- **Karina shared her experiences stepping into managing a global team at SAP during COVID-19.** Though tangential to the topic, our community was interested in SAP's model of partnering with universities. Karina explained how her global engagement teams have worked with the German government and European Union for research funding in partnership with universities. SAP generally uses the same tools and programs to work with multi-national universities with modest modifications based on social geographical norms. They have had success using this model.
- **To keep remote employees engaged and motivated, Karina holds routine meetings in immediate teams and multi-national teams to facilitate open and transparent communication.** She uses key performance indicators (KPIs) to motivate and evaluate success and progress. Notably, her KPIs align with SAP's overall goals and are agreed upon and adjusted by the accountable individuals and teams. Socially engaging employees is essential to building relationships and rapport in immediate and across groups. Karina uses "coffee corners" and cross-team "meet n' greets" via web platforms.
- **Karina's advice to managers is to check in with colleagues on a regular basis and to the extent possible provide an opportunity to discuss mental/emotional state.** Acknowledge that we are still undergoing a global pandemic and that it is normal to feel anxious or higher level of stress. She suggests managers not be afraid to show their own vulnerabilities. It is important to ensure transparent communication in a remote setting. She encourages managers to set good examples by maintaining reasonable work hours and encourage employees to take time "away" at home, even while the pandemic does not allow them to travel physically.

University Innovation: What Are They Doing? What Can They Learn from Industry?

Moderator: *Ann Gabriel, Elsevier*

Presenter: *Randy Hall, University of Southern California*

Universities are old institutions. The newest university in the U.S. News and World Report top 25 was founded 100 years ago. The oldest was founded in the 17th century. By contrast, the average age of the five companies in America with the largest market capitalization is just 30 years. These top five companies, like universities, are in the business of preserving, collecting, communicating, and acting on information. During this session, we explored how universities can modernize to increase their impact in light of the rapid pace of change that is occurring elsewhere, and how they can overcome the many forces (both from inside and outside) that impede innovation. In particular, we explored how to overcome the boundaries that constrain the creative energies of faculty—and the ability of universities to prepare students, research, and clinical care for future societal needs—learning from practices in the most innovative companies.



Takeaways:

- **Universities and companies differ in many ways** that are enshrined in the institution missions and the roles they play in our society, but increasingly they compete with each other, for reputation, influence, and customers.
- **Prominent companies have evolved in a fraction of the time that most universities have existed**, which may be attributed to organizational fluidity to serve diverse and changing needs, internal investment in R&D aimed at advancing the organization and focus on providing value to shareholders and customers.
- **Fundamentally differing, universities can still learn from industry perspectives while fulfilling their mission.** They can learn from companies by looking at industries' approach to streamline processes, realign organizations, and capture researcher innovation, to better serve their students, sponsors, patients, and the public at large.

DAY TWO TUESDAY – September 22, 2020

Keynote: Laboratories of the Future – A Look Ahead from the DOE Office of Science

Moderator: Laurie Ellen Locascio, University of Maryland

Presenter: Chris Fall, DOE

Science is about service – about a commitment to expanding human knowledge and driving discovery – and fosters innovation, technology development, and economic progress. This commitment, coupled with unique, world-class capabilities, is what makes the [Department of Energy's \(DOE's\) Office of Science](#) an indispensable pillar of leadership in science and technology. Established following World War II, the Office of Science is the nation's largest federal sponsor of basic research in the physical sciences and the lead federal agency supporting fundamental scientific research related to energy.

Takeaways:

- **The DOE is entering its 8th decade** with roots traced to development of the atomic bomb during WWII. The Laboratories of the Future (LOTF) is an experiment transformation into the optimal research organization, that produces groundbreaking research.
- **LOTF timeline Phase I:** Idea gathering, Vision refinement, Community Buy In, Release and Dissemination; Phase II: Implementation.
- **Focus on Issues:** impact, role, and purpose of the labs; infrastructure, agility, accessibility, attracting a diverse and inclusive world class staff, external partnerships, and governance.



Catalyzing Translational Innovation in University-Industry (UI) Collaborations

Moderator: Soo Bang, BMS

Presenter: Chris Austin, National Center for Advancing Translational Sciences

Because the efforts of the [National Center for Advancing Translational Sciences](#) (NCATS), by design, complement and empower those of other NIH institutes and centers, academia, the private sector, and the nonprofit community, UIDPConnect 2020 is a fitting forum to amplify NCATS's mission. By emphasizing collaboration, innovation, deliverables, and team science, NCATS hopes to serve the public as a catalyst to enable others in the medical research ecosystem to work more effectively together at bringing patient therapies to fruition quicker.

Takeaways:

- **NCATS focuses on** being different in every way. Successful translation requires diverse teams since validation to intervention development takes about 20 different disciplines.
- **Many scientific collaborations come from chance interactions.** NCATS attempts to systematize that; each NCATS project is a collaboration of industry, academics, and funding connections.
- **Urgent public health issues** like COVID-19 and opioids, show importance of translation advances through data sharing and removing nonscientific issues that kill projects.

The Impact of COVID-19 on Industry-University Engagement

Moderator: Jonathan Thurley, Penn State University

Presenters: Bridgette Dean, Lockheed Martin • Phillip Yu, PPG

Since March 2020, the world has been retooling how it works after the COVID-19 pandemic disrupted business as usual. In this session, leaders in the academic and corporate community discussed how university-industry collaboration was transformed. The panelists shared their thoughts on the current situation and on whether U-I engagement will fundamentally change because of the viral outbreak.

Takeaways:

- **While creating new processes and learning technology** have been a challenge, the use of virtual platforms has enhanced and expanded the number of recruiting events and the outreach to the talent pipeline across multiple universities to gauge student interest.
- **Virtual recruiting** allows companies to interview more students as interviews can be conducted outside the normal workday which has attracted more candidates and companies are experiencing much success at reduced costs.
- **Proactive communication** is beneficial to maintain relationships with faculty, staff, and collaborators. The projected industry investment in universities in the coming year is stable or declining making continuous evaluation of business critical.



Panel | Industry Award Vehicles in Support of Faculty Research

Moderator: Kathy Lynch, Yale University

Presenters: Michael Leskiw, Massachusetts Institute of Technology • Michael Hodges, Princeton University • Jim Pinkelman, Microsoft • Deborah Stokes, Dell

Increasingly, technology companies are offering innovative research award programs to foster collaboration and innovation with academia. These programs call attention to valuable and promising bodies of research and provide opportunities to build connections between leading academic and industry scientists. While many of these programs are announced as “unrestricted gifts,” there is a trend to add terms, conditions, and additional criteria, making it difficult for universities to process these awards as intended by the funders. This session invited a distinguished panel to explore these programs and the mutual value they offer to faculty, universities, and industry; to share experiences on goals and objectives; and to discuss and explore differences in our administrative systems and requirements to better facilitate the management of these valuable programs.

Takeaways:

- **It is incredibly valuable** to have transparent communication up front to ensure there is alignment of intended outcomes.
- **Many awards are announced as gifts**, but arrive with terms and conditions, which can change it from a gift to sponsored research, that can require universities to redirect their time and energy.
- **These collaborations aid workforce development** and create a healthy pipeline of talent.

NSF Convergence Accelerator: An Update on Progress

Moderator: Radha Sen, Avery Dennison

Presenter: Doug Maughan, NSF

The NSF launched the [NSF Convergence Accelerator](#) in 2019 as a new organizational structure to accelerate the transition of use-inspired convergence research into practice in areas of national importance. Convergence research is a critical mechanism for solving many vexing research problems, especially those stemming from complex social and/or scientific challenges. The guiding rationale of the NSF Convergence Accelerator is that to deliver progress on scientific and societal challenges, it is necessary to take an approach at the highest level of interdisciplinarity and to involve multiple kinds of partners and stakeholders, including researchers and the ultimate users of research products.

This session described the progress to date, including details of the 2019 cohort of awardees working on the Harnessing the Data Revolution and Future of Work at the Human Technology Frontier Big Ideas, and results for those teams selected for Phase 2. Doug Maughan also talked about the recent award for the 2020 cohort working on Quantum Information Technology and AI-Driven Innovation via Data and Model Sharing. He provided the plan and strategy for the Convergence Accelerator going forward. Most importantly he discussed how UIDP partners and attendees can get involved with NSF’s Convergence Accelerator.



Takeaways:

- **NSF has a new program** with a new way of doing things focused on convergence research to solve national challenges at an accelerated pace with hands-on program management.
- **They are using a non-traditional NSF approach.** Their bottom line is to deliver to the American people something usable and impactful that can be sustained in the long-term.
- **The program requires non-academic partners** to be included, and projects can be led by non-academic entities. By design, they are incentivizing collaboration between academia and industry to produce focused and clearly defined deliverables.

How Cargill's Partnerships Help Drive Innovation

Moderator: *Tony Boccanfuso, UIDP*

Presenter: *Florian Schattenmann, Cargill*

As new players enter the food and agriculture industry, big companies face new challenges that requires us to work differently. Small startups can move faster than we can. Big players in other industries, like tech, are getting into food and agriculture in new ways. This conversation focused on the important role that external partners play in innovation in today's evolving world.

Takeaways:

- **A recent significant change** for organizations has been sustainability as a focus point; there are multiple ways to engage with national and local government.
- **Cargill** is identifying their core strengths and looking at the areas in which they are the world leader; in these key areas the company is doubling up.
- **To be a good partner** it is pertinent to have your own capability and then connect with other companies and universities to achieve further success. Building a competency completely from scratch can be difficult so often acquisition is a preferable tool.

Panel | Promotion and Tenure, Innovation, and Entrepreneurship (PTIE)

Moderator: *Moderator: Joan Lorden, UNC Charlotte*

Presenters: *Karl Mundorff, Oregon State University • Rich Carter, Oregon State University*

The [Promotion and Tenure, Innovation, and Entrepreneurship](#) (PTIE) effort seeks to expand university promotion and tenure (P&T) guidelines and practices for faculty to recognize more inclusively innovation and entrepreneurship (I&E) impact. Faculty engagement in I&E provides tangible benefits to the faculty, students, university, and society. The PTIE Coalition (65+ universities and 10 national organizations) has been established to address these issues using a collaborative, networked systems approach to change. Rich Carter, PI, professor and faculty lead for innovation excellence and Karl Mundorff, co-PI and executive director for innovation and entrepreneurship (both from Oregon State

University), shared details about the project, the process, the current outcomes and how you can become involved.

Takeaways:

- **Universities want to recognize I&E efforts in P&T.** Increasingly institutions are integrating I&E in combination with economic development as a specific mission within their strategic priorities.
- **The best approach appears to be a Network System Approach to Change.** This national conversation (network systems) approach should enable universities to move in concert with one another, and to ensure a shared understanding when it comes to faculty hiring and external review during the promotion process.
- **The most important output** from a university is the people it supports. The benefits to this output can be seen in the: training of its students into graduates, and development and support of its faculty.

DAY THREE

WEDNESDAY – September 23, 2020

The Swedish Way of Doing Things: Opportunities and Peculiarities

Moderator: *Karen Heidelberger, Deerfield Management*

Presenters: *Richard Cowburn, Karolinska Institutet • Kristina Sandstrom, J&J/Janssen*

As a single faculty medical university, [Karolinska Institutet](#) is heavily dependent upon collaboration and partnering to ensure that knowledge generated can be applied and implemented in some shape and form to benefit human health. Extensive Swedish and global partnering occurs with both public and private actors in the form of healthcare providers, patient organizations, agencies and other bodies, higher education institutions (HEIs), and the life science and other industries. The close integration of a larger proportion of Karolinska Institutet research and education with the Stockholm regional healthcare system provides a strong opportunity to create value around the understanding of human health and disease and in the fields of translational and personalized medicine. One peculiarity of the Swedish system is a law known as the teacher's exception or professor's privilege. This law allows academic staff to generally own and have the right to exploit the results of their work, unless otherwise agreed. Application of this law has several consequences for how Karolinska Institutet and other Swedish HEIs partner with industry, work with tech transfer, provide support to entrepreneurs as well as help set up and support start-up companies. Experience and examples of how Karolinska Institutet creates, manages, and improves its partnerships with industry were presented and opened for discussion.

Takeaways:

- **As a single faculty medical university,** collaboration with other stakeholders and organizations is critical for us to transform knowledge and co-create ideas into new learnings and better healthcare.

- **Professors privilege** exemption provides that IP generated by Swedish researchers in academia is owned, and can be exploited, by them as individuals and entrepreneurs.
- **Sweden has a long history of life science big data.** The system allows for crossing and combining data sources including +100 healthcare quality registers of multi-generational data linking deeply into complex human disease. The partnership with Janssen global organizations (Global Commercial Strategy Organisation and R&D), is structured, and governed to enable a solid foundation for collaboration to deliver actionable results, and enable also academic advancement, outreach, and talent development.

Keynote: How Innovation Works

Moderator: Kevin Byrne, TUFF

Presenter: Matt Ridley, author of the recently released *How Innovation Works: And Why It Flourishes in Freedom*

The talk described how innovations from the steam engine to the search engine came about: generally, in a less heroic, less planned, and less individual way than we imagine. Innovation is a gradual, emergent, collaborative, serendipitous process involving lots of trial and error. This has implications for how innovation policy should be done.

Takeaways:

- **Innovation cannot exist without collaboration.** It thrives when resources are accessible and flourishes when people are encouraged and able to freely move from one concept to another.
- **Contrary to what many believe, innovation is a gradual process.** Matt Ridley describes the process as a linear process similar to evolution and human genes evolving, new technology builds off previous design to fit the needs of society and consumer demand to develop over time.
- **In the context of COVID-19, innovation has been constrained by policy,** fixed thinking, large-scale organization, and government. We've now seen that it is possible to dismantle these barriers and we can and should encourage innovation to move toward growth and smarter ways of creating more by using and consuming fewer resources, to bring technology and research developments into actuality in a scalable and accessible way.

Panel | Entrepreneurship and Innovation: Building Industry Connections to the Startup Ecosystem

Moderator: Karen Temple, University of Toronto

Presenters: Evan Facher, University of Pittsburgh • Mike Matthews, EMD Group • James Delattre, Penn State University

This session presented and highlighted effective and new/unique models of programs that connect companies to a university's entrepreneurial ecosystem.



Takeaways:

- **Enablers of partnering success** shared by the [University of Pittsburgh](#) include: clarity of purpose, culture and processes are friendly to industry engagement, active alliance management of key industry partners, industry engagement across the university is coordinated and timely, and robust partnering capability established university-wide.
- **Penn State** shared that to enhance the quality of their start-up pipeline they have made a significant commitment over the past five years and opened up 21 innovation hubs (launch boxes) across Pennsylvania; each of these hubs is completely unique, focusing on the local ecosystem and identifying the strengths and challenges in the community.
- **EMD Group** explained that there is another step beyond university incubators that needs to happen before a university start-up is ready to engage with a mature business unit so they have created external partnerships that specialize in deep tech start-ups and have a longer incubation period.

Navigating Internship and Experiential Learning in a Virtual Pandemic: Insights and Opportunities

Moderator: *Suzanne Helbig, UC Irvine*

Presenter: *Dana Gharda, Lam Research Corporation*

In this current climate, COVID-19 and social distancing have created new challenges for students and recent graduates to truly leverage their internship experiences. Companies have pulled back on hiring in some cases, and young jobseekers looking to jump start their careers are left wondering how to effectively iterate their plans. This discussion dove into ways to navigate this new reality for students, companies, and campuses alike. It also explored the silver lining of opportunities and how to gain new insights, positioning all parties for success.

Takeaways:

- **Tips for companies** on how to convey brand and culture in a virtual environment.
- **Awareness of the challenges** and opportunities campus and company partners are facing regarding remote internships and remote recruiting.
- **Tips for students** on how to prepare a pitch for remote recruiting.

NOAA Science & Technology: Accelerating Innovation in the 21st Century

Moderator: *Samuel Bentley, LSU*

Presenter: *Tim Gallaudet, NOAA*

As the nation's premier ocean, weather, and atmospheric science agency, the [National Oceanic and Atmospheric Administration](#) (NOAA) constantly conducts world-class research to improve the lives and livelihoods of American citizens. NOAA recently developed strategies in five key science and technology (S&T) focus areas to guide transformative advancements in the quality and timeliness of NOAA's products and services across our mission areas. NOAA's strategies in the fields of (1) Unmanned Systems



(UxS), (2) Artificial Intelligence (AI), (3) Cloud Computing, (4) the use of advanced methods to analyze material such as DNA, RNA, or proteins, called 'Omics, and (5) Data, will help NOAA more efficiently and effectively adopt the breakthrough S&T applications to help deliver the world's best weather forecasts and to grow the American Blue Economy. NOAA Deputy Administrator Tim Gallaudet, Ph.D., Rear Admiral, U.S. Navy (Ret.), led an engaging presentation on how NOAA is utilizing these S&T strategies, in particular NOAA's AI strategy, to advance efforts across NOAA mission priorities, with a special emphasis on ocean mapping, exploration, and characterization.

Takeaways:

- **NOAA focus areas** have goals and objectives designed to collectively coordinate across NOAA to accelerate NOAA's next generation earth science capabilities.
- **NOAA uses AI** to better assist in emergency management and detect rip currents from coastal imagery. Embarking on ocean mapping, exploration and characterization advances understanding of the terrain and a discovery of new species as well as identifying hazardous conditions.
- **Private and public partnerships** contribute to the NOAA team effort to advance science and technology and help accelerate the American economic recovery in the wake of COVID.

The Bay Area Science and Innovation Consortium (BASIC): A Regional Collaborative Platform

Moderator: *Dorota Grejner-Brzezinska, The Ohio State University*

Presenter: *Jeff Welser, IBM*

Operating for more than 20 years, [The Bay Area Science and Innovation Consortium](#) (BASIC), is a regional collaborative platform for the San Francisco Bay Area's scientific research community. Its board is composed of leaders of the major research universities, the directors or deputy directors of the region's federal laboratories, independent laboratory presidents and directors, and corporate CTOs and head scientists. In addition to facilitating communication across companies and institutions, it has helped bring new research programs and funding to the region, hosts U.S. and overseas visitors, advocates for research investment and for policies supportive of technology innovation, and publishes on topics related to research and innovation in the San Francisco/Silicon Valley Bay Area.

Takeaways:

- **Formed among research community** to maintain the area's rich eco system of diverse institutional collaboration and growth.
- **Ongoing outreach** to "newer" tech players like Google and Facebook.
- **Scaling diversity** by expanding system, minimizing barriers, and creating fluid interactions for a global marketplace of ideas.



Creative Approaches to Meeting Academic and Corporate Talent Needs: Joint Employment

Moderator: Sandy Brown, UC San Diego

Presenters: Randy Hall, USC • Daron Green, Facebook

Companies and universities face ongoing challenges in meeting their workforce needs. One recent approach is the joint employment of talented professionals in high demand fields such as computer science. This is still considered novel by many organizations, but a growing portfolio of case studies uses different tactical and strategic approaches that meet the needs of companies, universities, and the employee. This session highlighted the results of an ongoing UIDP project looking at the myriad of issues and approaches that should be considered in proactively (or reactively) considering such arrangements.

Takeaways:

- **A sustainable model is needed** to retain and attract key talent in high demand fields of technology. Focus on enhancing teaching, catalyzing innovation at companies and universities, and creating efficiencies, while maintaining fairness to employees and organizations.
- **Computer science and AI** are most sought, but the next wave may include tech related fields, including materials science, psychology, and economics.
- **Be proactive with long-term views** of what success looks like on both sides and seek alignment. Communicate and understand the stakeholders and the joint employee, including motivations, what really matters, and how joint employment moves the work and institutions forward.

DAY FOUR

THURSDAY – September 24, 2020

The bp-ICAM – A Partnership that Delivers Material Progress

Moderator: Bridget Moloney, University of Waterloo

Presenter: Sheetal Handa, bp

Attendees learned about the [bp- International Centre for Advanced Materials](#) (ICAM), which is a partnership between bp and four world leading universities in the field of materials science and engineering. The session covered the center from inception, the last 8 years of operation, the lessons learned, and the future strategy.

Takeaways:

- **Materials play a critical role** across a large number of industrial operations. Having a fundamental scientific understanding of how materials behave in the environments that we operate in is critical to addressing current and future challenges.

- **The bp ICAM is a center for advanced materials research** in partnership with 4 world class universities and has currently 48 research projects and generated a significant number of publications and patents.
- **The bp-ICAM will play an important role in the materials challenges** to reach goal of net zero by 2050; including computer aided materials design and testing; learning and mimicking nature.

Comparing R&D Investments Around the World

Moderator: *Jennifer Hebets, Mars Incorporated*

Presenters: *Sandra Planes Satorra, OECD • Fernando Galindo Rueda, OECD*

The increasing importance of knowledge-based capital, both for competitiveness and to address socio-economic challenges, benefits those countries with strong public research and the ability to effectively use research findings to innovate. It therefore becomes ever more important to understand how public investments in research can generate the greatest impacts on innovation.

Takeaways:

- **Science-industry knowledge transfer** takes place through a wide diversity of channels, formal and informal. Countries are implementing multiple policy instruments to promote knowledge transfer. These instruments fall into three categories, financial, regulatory, and soft.
- **[The Organisation for Economic Co-Operation and Development \(OECD\)](#)** recently launched a knowledge transfer policy interactive toolkit to provide guidance on the design and implementation of policies in this field and facilitate access to hundreds of relevant resources. The toolkit is part of the OECD/EC STIP Compass portal – an international Database on Science, Technology, and Innovation Policies.
- **Knowledge transfer policies are increasingly leveraging opportunities** offered by the digital transformation (e.g. digital platforms to connect potential partners, crowdsourcing). There is also a stronger focus on supporting new modes of science-industry co-creation and on strengthening international collaborations to address grand societal challenges.

New Challenges in the Global Research Landscape: Role of Universities in Enhancing U-I Partnerships

Moderator: *Asheq Rahman, Elsevier*

Presenters: *Theresa Mayer, Purdue University*

As research is globalized to address grand challenges coupled with the emergence of new countries with an increasingly large research footprint both in terms of quantity and quality, this session discussed how US universities are working to enhance university industry partnerships to maintain its lead in science and technology. Discussion included how universities are leveraging industry partnerships to enable economic development in regions underserved by the new industries, helping to diversify the workforce and provide new talent to industry, provide cutting edge research, all while safeguarding national interests.



Takeaways:

- **Universities are focusing more on the impact of their research** beyond the publication on papers. They are actively working to translate their research results into significant impact on society.
- **There is an opportunity to attract companies** to university areas with a lower cost of living than on the coasts and the ability to create an economic opportunity zone.
- **The U-I partnership helps to address the current talent gap.** The collaborations help universities to understand where the talent gap exists and how they can help close that gap.

Strategic Roadmapping

Presenter: *Stewart Witzeman*

The hockey player Wayne Gretsky famously said, 'I skate to where the puck is going to be, not to where it has been.' Similarly, strategic planning involves a process of determining where an organization wants to go, rather than an analysis of where it has been. Key to this strategic analysis is the development of the plan, or roadmap, of needed steps to effect such change. Strategic Roadmapping is a technique for linking strategic vision with the development of needed organizational capabilities that enable achieving short and longer-term strategic goals. This is usually done as an internal exercise but for many companies viewing capability needs outside their organization, including academic partners, can make the roadmaps more robust. Universities can similarly deploy the tools of roadmapping to determine future direction and 'preferred partners'.

UIDP held two workshops on Strategic Roadmapping in 2019, one at UIDP 28 at NC State University and one at the Oxford UIDP Summit. These workshops validated the utility of roadmapping as a tool for deeper university-industry strategic partnerships as well as the high interest among UIDP members on the topic. This presentation discussed work to date on this topic, potential areas for further study with the goal of developing a Quick Guide on Strategic Roadmapping.

Takeaways:

- **A strategic planning tool**, used for communication for long term strategy of markets, products, technologies and supporting activities. Used for gap analysis, partner discussion and development of shared goals and priorities.
- **Adequate resources are required.** Top Level support is essential for success. Roadmap must be aligned with clearly defined strategy and vision used in an iterative approach.
- **Strategic partnerships defined** in terms of general characteristics: multi-faceted, formal governance structure, multiple touchpoints, focus includes future work/directions informed by longer term strategy.



Virginia Tech's Innovation Campus

Moderator: *Patricia Bou, CannonDesign*

Presenters: *Brandy Salmon, Virginia Tech University*

[Virginia Tech](#) has set the bar as a leading land-grant university since its founding. When the school launched in 1872, meeting the mission meant offering a curriculum that provided future farmers, trade workers, and soldiers with practical knowledge and personal education around topics like hygiene, health, and manners. Today, that drive to serve means partnering with business and industry to accelerate workforce development and technology. The [Innovation Campus](#) will bring together hundreds of new graduate students, dozens of new faculty members, and numerous industry partners. The campus will triple Virginia Tech's footprint in Northern Virginia and will be a magnet for leading tech talent, research, and education.

Takeaways:

- **Virginia Tech's Innovation Campus** was part of the successful bid to lure Amazon's second HQ2 based in part on RFP requirements of a highly educated labor pool and strong university system.
- **The innovation campus is being built in North Potomac Yard, Alexandria** near the new HQ2 within what will be a new innovation district, with corporate buildings, mixed-use housing, and many other amenities.
- **This effort was a catalyst for the Commonwealth of Virginia** to enhance an environment for innovation and economic growth.

University-Corporation Partnerships to Achieve Sustainability Goals

Moderator: *Kelsey Evans, University of Texas, Austin*

Presenter: *Josiah McClellan, Corteva Agriscience*

In June, [Corteva Agriscience](#) announced its 10-year commitments to advance sustainability throughout the global food system. The goals span a wide range of initiatives for farmers, the land, communities where employees and customers live and work, and in its own operations. Improvements in soil health, on-farm productivity, climate action, water stewardship, biodiversity, supply chain transparency and worker safety, among others, are included. Achieving these goals will require collaborating with partners across the value chain, including universities. In this presentation, Corteva shared opportunities for the role that universities can play in helping the company achieve its sustainability goals.

Takeaways:

- **Corteva is an Agri science business** spun from the DowDuPont merger.
- **Partnerships with universities include** basic, applied, contract research and development. Through community engagement, reaching disadvantaged demographics, and aiding in workforce recruitment.



- **Their Open Innovation portal** provides grants and collaboration opportunities focused on innovation through research acceleration and then deployment of those technologies.

NVIDIA's Academic Engagements through a Research Lens

Moderator: David Reed, University of Florida

Presenter: Sandra Skaff, NVIDIA

[NVIDIA](#)'s invention of the GPU sparked the AI revolution, which stemmed from an academic research lab. This revolution has been fueled by industry-academia collaborations that enabled several research breakthroughs and consequently innovative products that had not been possible before. NVIDIA engages with AI researchers at all levels who have been influencing both academia and industry trends. This session provided an overview of NVIDIA's latest research engagement programs as well as provide a few success stories. It also provided a brief overview of programs in the education space.

Takeaways:

- **NVIDIA is experienced and eager to partner with researchers** to help them leverage their many collaborative programs, innovative technology, and products.
- **They have built successful and mutually beneficial partnerships with universities** including the University of Florida, the University of Oxford, and the University of California Davis and are actively seeking to connect their technology with more great universities and researchers.
- **Universities and researchers interested in learning more about NVIDIA using the resources below, can connect with us at academicengagement@nvidia.com for additional questions and partnership inquiries:**
 - Leverage all NVIDIA Technology platforms—Sign up for NVIDIA's Developer Program: <http://developer.nvidia.com/join>
 - Get the latest information on NVIDIA technology and resources for academia—Sign up for NVIDIA's Higher Education and Research newsletter: <https://www.nvidia.com/en-us/industries/higher-education-research/#subscribe-me-solutions>
 - Learn about the latest breakthroughs in AI, HPC, graphics, networking, and more—Register for NVIDIA's GTC conference: www.nvidia.com/GTC

DAY FIVE

FRIDAY – September 25, 2020

Can You Say What Your R&D Strategy Is?

Moderator: Alan Blatter, Edgewell

Presenters: Ned Calder, Innosight • Freddy Solis, Innosight

As technology development increases in complexity and R&D budgets become more constrained, leaders need to ensure that they have a clear perspective for how technology investments will support



the long-term sustainability of the organization. Yet many organizations lack a well-defined R&D strategy that makes specific choices about why, where, and how the technology organization will create new capabilities for the organization. Based on literature and our experience working with many R&D organizations, we discussed five questions that should be on the top of all leaders' agendas.

Takeaways:

- **Innosight** was founded by Clay Christensen to help large organizations drive transformational change and continue to be innovative – in many types of organizations R&D activities are critical for driving transformational change
- **The drivers of R&D productivity** are declining. Investment dollars are stretched as the number of investment spaces increases, as well as the complexities of technology development
- **This requires organizations to be more intentional about strategic decisions**, investments, and clarity of the impact on talent, capabilities, and resources over short and long term. UI collaboration has an important role to play here that requires understanding long-term strategy of companies, having a clear view of the future environment, the linkages of organizations, and potential near-term steppingstones where research could make a difference.

The Role of Intellectual Property in Partnerships and Commercialization

Moderator: Kelly Sexton, University of Michigan

Presenter: Andrei Iancu, USPTO

The [United States Patent and Trademark Office](#) (USPTO) plays an important role in advancing innovation and supporting tech transfer, and the current Director, Andrei Iancu, shared an update on USPTO operations during COVID-19, policies to protect IP abroad, and initiatives to expand the innovation ecosystem.

Takeaways:

- **Our innovation economy requires energizing now.** Sweeping innovation upgrades are happening at USPTO to simplify, improve and quicken patent processes.
- **A top US priority is improving the disparity of innovation among** women, underrepresented groups, and geographical disparities. The National Council for Expanding American Innovation initiative provides UI and community involvement in developing a national strategy- and comprehensive plan to improve innovator inclusivity.
- **Patent code 101 has not changed since it was written in 1790.** But court interpretations have changed creating ambiguity in patent examinations and issuance. A recent exam of new USPTO guidelines revealed those guidelines are working well relating to uncertainty to consistency of examinations and examiner results.

Facilitating Academic-Industrial Partnerships: An NSF-Chemistry Perspective

**Please note that this session is not available for playback*

Moderator: Barclay Satterfield, Eastman

Presenter: David B. Berkowitz, NSF



Government Engagement & Economic Development Perspectives on academic-industry partnerships and how the [NSF Chemistry Division](#) can seek to achieve its goals through supporting these collaborations.

Takeaways:

- GOALI, INTERN and CCI-Collaborations = NSF-CHE I-U Partnership Mechanisms
- I-CORPS, STTR/SBIR = NSF IIP Pathways from Academic Research to Commercialization
- Industries of the Future (IoT) Offer Opportunities for Future I-U Partnerships

The Digital Battlespace and the Need for Industry & Academic Partnership for Emerging Technologies

Moderator: *Muyinatu Bell, Johns Hopkins University*

Presenter: *Charles Johnson-Bey, Booz Allen Hamilton*

The [National Defense Strategy](#) states that “to compete in this complex and contested security environment, the U.S. must be prepared to operate across a full spectrum of conflict, across multiple domains at once.” As a result, the Digital Battlespace is emerging as the multi-dimensional (time, physical space, the electromagnetic spectrum, and data) theater of operations in which operations are coordinated across the domains of land, sea, air, space, and cyber, and in which information is the primary discriminator. This talk discussed some of the technology challenges facing the U.S. and a push to drive the Department of Defense (DoD), NSF, National Telecommunications and Information Administration (NTIA), and other agencies to establish funding to focus and drive success through academia. This session helped to focus U.S. universities on issues critical to the U.S. and provided a workforce base that may want to continue these efforts in private industry, academia, or the federal government after graduation.

Takeaways:

- **Warfare in the coming century will be defined as a digital battlespace.** Future battles will increasingly take place in the digital realm.
- **A major challenge for defense leaders** is to be able to adapt to emerging global technology trends and continually modernize. Focus has largely been on hardware, but the most advanced hardware will not guarantee mission success unless we have full value of the data and access to it.
- **There is a need for** more people to enter this workspace and it needs to be a diverse group of individuals to help the U.S. maintain its edge in the digital battlespace.

Panel: READDI for Future Pandemics: Leveraging the Power of an Open Science Drug Discovery Partnership

Moderator: *Julia Ronlov, OHSU*

Presenters: *John Bamforth, University of North Carolina, Chapel Hill • Kumar Saikatendu, Takeda*



The COVID-19 pandemic caught the world unprepared. Can an open science approach to research collaboration thwart the next one? This session provided an overview of how the [Eshelman Institute for Innovation](#) from the University of North Carolina's top-ranked pharma college envisioned the [Rapidly Emerging Antiviral Drug Discovery Initiative](#) (READDI), a public-private partnership to discover and develop five novel anti-viral drugs in five years so we're ready the next time around. We examined how it happened, what still needs to be done, and what lessons can be taken from this approach to accelerate private/public innovation.

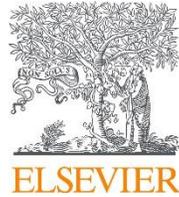
Takeaways:

- **Goal of READDI** is to be ready and prepared for another COVID-19 like event; Pharma needs to play a very critical role in developing therapeutics for a virus that does not even exist. It is clear that we didn't have a plan for these types of events; we need to be part of the solution for having a future plan for pandemics to make us feel better that something good came out of this period of time.
- **The biggest challenge has been** the complexity of collaboration amongst 20 universities and over a dozen pharma companies (example: trying to build a digital native environment using Teams that allows all of these players to collaborate in a way that puts walls around READDI so that projects are managed within one entity).
- **To support this initiative**, go to [READDI.org](#) and there is the opportunity to volunteer or to share new ideas; there has already been an outpouring of volunteer contributions with this initiative but they are seeking help from anyone that is willing to help.



Strengthening
University-Industry
Partnerships

UIDP thanks Elsevier for its financial support of this event



The UIDPConnect 2020 conference report is not intended to be a detailed record of the entire proceedings. Please contact UIDP at info@uidp.net if you have any questions or comments on this report.

About UIDP

UIDP is a solutions-oriented forum where academic and industry representatives find better ways to work together. Our membership, comprising top-tier innovation companies and world-class research universities, identifies issues affecting university-industry relations and seeks new approaches to partnership and collaboration. Together, we produce tools and resources to help members make a greater impact. We don't just talk about problems. We solve them. Learn more at uidp.org.

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April 12-15, 2021

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