

# CHALLENGES AND SUCCESSES

**PURDUE**  
RESEARCH FOUNDATION

2020 ANNUAL REPORT  
COVID-19 PANDEMIC EDITION



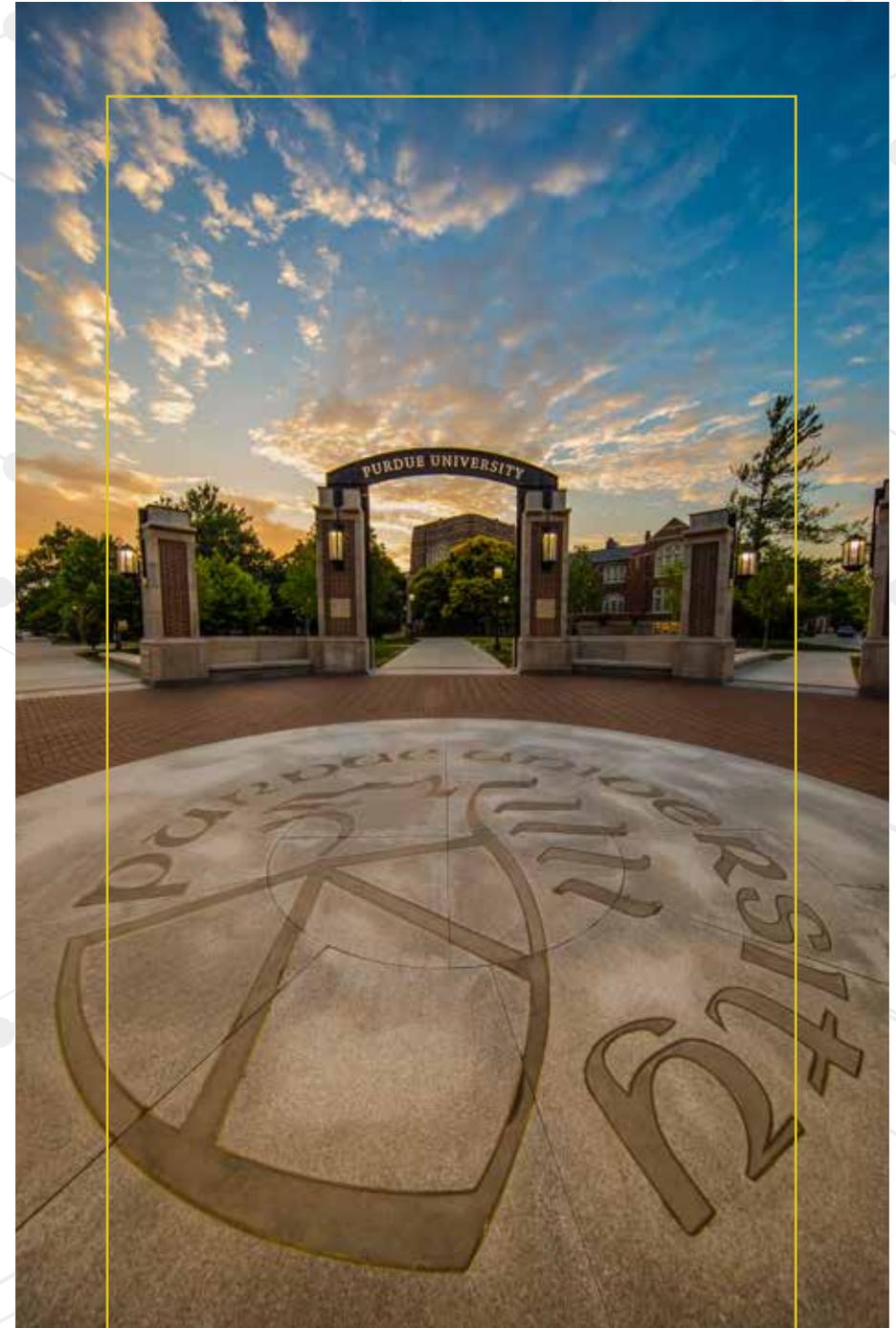


# *ADVANCING THE MISSION OF PURDUE UNIVERSITY*

**Purdue Research Foundation supports  
Purdue University's land-grant mission by helping  
the University improve the world through its  
technologies and graduates.**

- Patenting and commercializing Purdue technologies
- Building places to encourage innovation, invention, investment, commercialization and entrepreneurship
- Making equity available to students to finance their Purdue educations

Purdue Research Foundation also owns and manages the Purdue Research Park, several satellite technology incubators and works to acquire real estate for University expansions.



Purdue Memorial Union seen through the eastern entrance to campus.

Hail Purdue

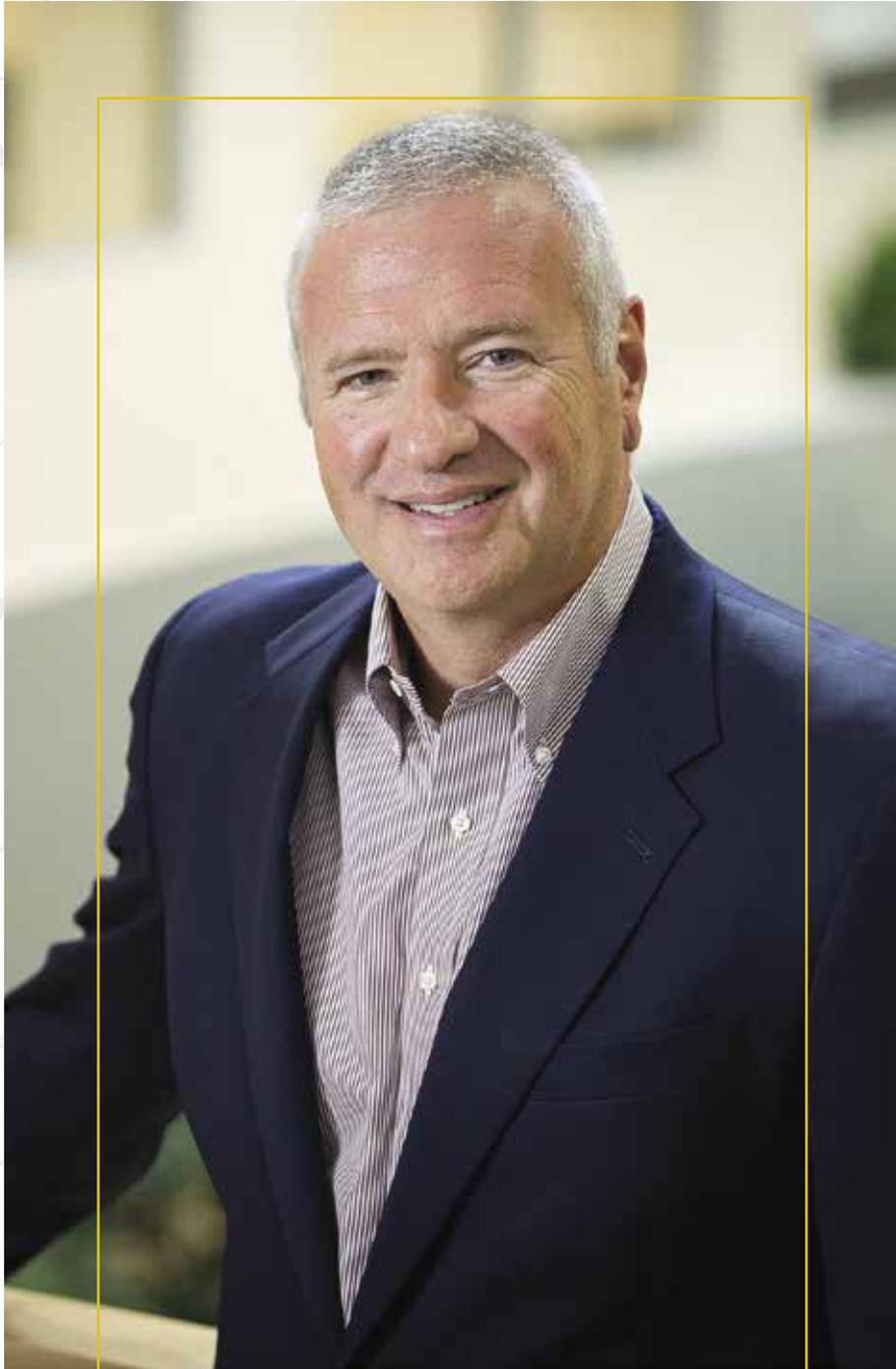
Hail, Hail to Old Purdue!  
our old gold and bl

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Convergence Center for Innovation and Collaboration is private industry's front door to Purdue University.



## *MESSAGE FROM BRIAN EDELMAN*

*Despite the challenges of the COVID-19 pandemic, the Foundation saw yet another incredible year of success and growth. We also laid a strong base to advance our initiatives through 2021 even as the pandemic continues to invade our lives and well-being.*

When the famed Waterford Apple landed at midnight in New York City's Time Square to usher in 2020, it is realistic to say that not a single soul could have predicted how a global pandemic would change nearly every aspect of our lives.

As COVID-19 started to take its grip on Indiana and the nation, our stellar team at the Purdue Research Foundation and our partners at Purdue University prepared to make big changes to address this challenge. They certainly rose to the occasion!

One of our first initiatives was the formation of the Remote Working Well Team to expedite a smooth and successful transition for employees to work from home.

Throughout this year, every single area of the Foundation quickly changed direction with a focus of staying safe while advancing our goals. Those departments include Accounting and Financial Reporting; Economic Development Office; Facilities and Real Estate; Finance; Human Resources; Information Systems; Investments; Marketing and Communications; Office of Technology Commercialization; Placemaking; Purdue Foundry; Purdue Research Park and Economic Development; and Purdue for Life Foundation.



**As a special thanks of recognition to the entire Purdue Research Foundation team who faced the challenge of COVID-19 together, we want to celebrate our PRF “family” by including their names and faces throughout this annual report. Their photos are included on their respective departmental pages. Here are my departmental members: David Broecker, Gary Cottingham, Bill Fox, Troy Hege, Brandee Sommer.**

I could not be more proud of the PRF team. Throughout 2020, we came together and took care of each other as we continue to do so.

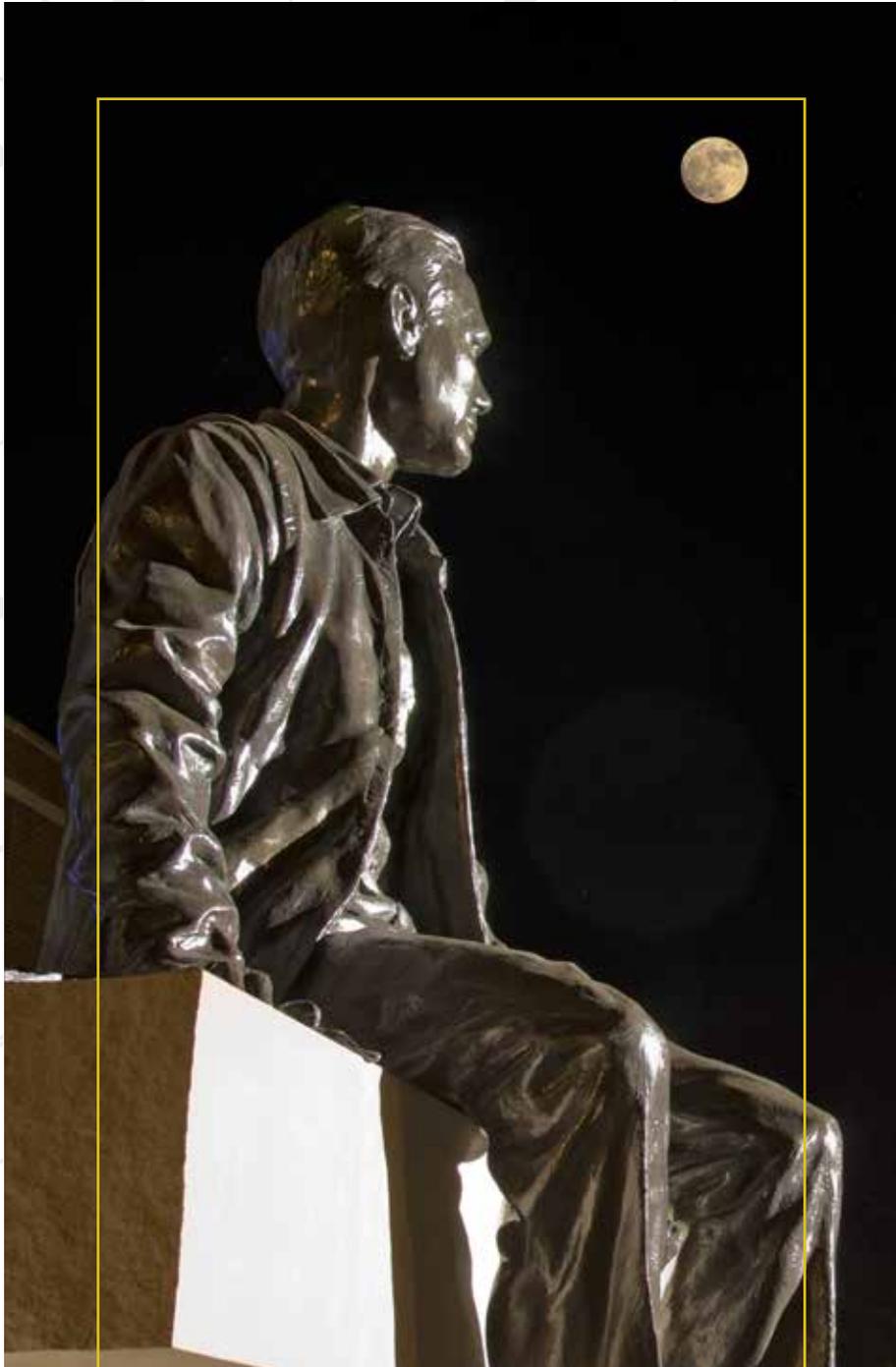
The successes of our team could fill a book. Here are just a few:

- The Foundation directly served the University during this pandemic by helping to turn an animal testing lab in the Purdue College of Veterinary Medicine into a COVID-19 testing lab.
- Our team also worked to turn former graduate student housing owned by the Foundation into a health, isolation and quarantine facility for students and others in need of such a space.
- Purdue’s commercialization ecosystem, led by the Office of Technology Commercialization, generated significant growth through patent applications, issued patents, technology disclosures, startups and licensing deals.
- The Purdue Foundry saw another great year for startup creation, including several startups with work related to the pandemic and technologies to help those impacted by the coronavirus.

- The Foundation’s Economic Development and Placemaking teams adjusted to major changes to turn 2020 into one of our best years ever. We continue to grow Discovery Park District into an innovative environment full of opportunities.
- Our Finance and Investment teams worked tirelessly to keep our team at full strength during a time of employment uncertainty for many businesses and maintained solid financial strength for the Foundation and the University endowments.

2020 has been filled with uncertainty, tragedy and triumph, both here at home and across the globe. It has been a year marked by challenge and change – for communities, families and workplaces.

Yet, with all the challenges this year has brought, the Foundation and its partners saw great progress across our pan-Purdue ecosystem. You can read more highlights of these successes in this annual report, where you will find stories about innovative technologies, robust startups, exciting economic development opportunities and much more.



Neil Armstrong earned a bachelor's degree from Purdue's School of Aeronautics and Astronautics in 1955.

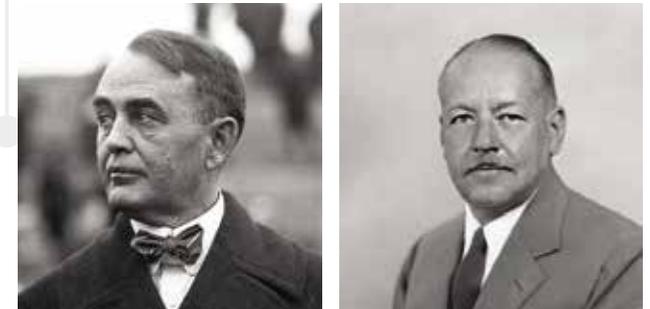
# PURDUE RESEARCH FOUNDATION

## AGELESS CHALLENGES

*Just as the founders of the Purdue Research Foundation had the fortitude and vision to create the Foundation in 1930, the same year America's Great Depression crippled the country, the leaders of the Foundation continued to advance its mission throughout the 2020 COVID-19 pandemic.*

As the coronavirus took hold across the globe, America faced its own crippling through the tragic loss of life and well-being. The economy slowed to a crawl, educational institutions from K-16 closed, restaurants and other public gathering places closed, even religious services, a primary right in America's Constitution, were ordered not to convene in large groups.

Through it all, the Foundation's team worked remotely to meet its 2020 goals and added new emergency measures to provide Purdue University with assistance throughout the year and continue initiatives already in progress.



David Ross (left) and Josiah Lilly (right) founded Purdue Research Foundation in 1930.



These projects include:

- Remote Working Well Team: Reimagining the Employee Experience.
- COVID-19 testing: On-campus testing ability for the coronavirus that helped bring Purdue students back to campus in the Fall of 2020.
- Quarantine space: Demolition plans for the Purdue Village were put on hold to provide 900+ individual living spaces where students and others exposed or diagnosed with COVID-19 could quarantine or isolate.
- Purdue for Life Foundation: Creation of a new organization uniting the Purdue Alumni Association and the University Development Office under the Foundation's umbrella.

More information about these initiatives are in this report.

Our founders, David Ross, a prolific Indiana inventor, and Josiah Lilly, president of Eli Lilly and Co., each donated \$25,000 to establish the Purdue Research Foundation. They also were individuals who lived through the 1918 influenza pandemic (H1N1 virus). About 500 million people, or one-third of the world's population, became infected with this virus. Worldwide, at least 50 million people died with about 675,000 deaths occurring in the United States.

While it is too early to finalize the data for the 2020 COVID-19 pandemic, it is safe to say that Ross and Lilly would have approved of the way Purdue University and Purdue Research Foundation managed and still advanced the mission that they established in 1930.



Above: Purdue Research Park today (left) and in 1963 (right).  
Below: Senator Birch Bayh and Ralph Davis.



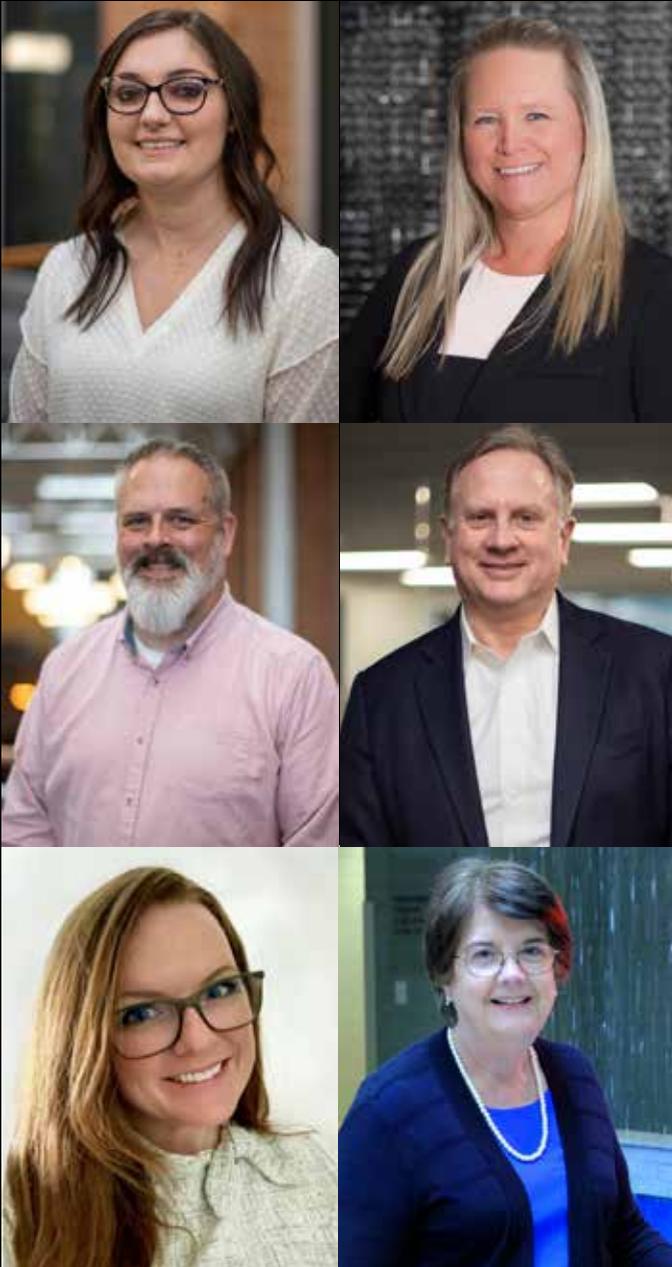
# *COVID-19 FIRST ACTIONS: REMOTE WORKING WELL TEAM*

## **REIMAGINING THE EMPLOYEE EXPERIENCE**

*It is important to recognize that no matter where a person works, they need the tools and support to continue to innovate and produce while being cognizant that what works for one person may not necessarily work for another. Each team member has different challenges, and providing them with achievable goals and the right assets to perform can lead to success for them and the Foundation.*

One of the Foundation's first actions in response to the anticipated magnitude of the pandemic was to form the Remote Working Well Team. This Team manages the responsibility of directing the assistance, guidance and resources that team members need to reach performance objectives while being respectful of their personal lives and challenges.

The goal of the Team is to identify ongoing, fluctuating challenges and create solutions for remote workers and for those employees whose positions require them to be physically in their respective on-site work areas.



Purdue Research Foundation's Remote Working Well Committee:  
Breanna Benn, Deanna Bush, Ed Johnson, Wade Lange,  
Alicia South-Hurt, Barb Tyner.

## AREAS OF CONCENTRATION

- Work-Life Integration
- Communication
- IT Adaption
- Resources
- Touchpoints for Future Assistance

The Team is comprised of individuals from various departmental areas. Members are Breanna Benn, Physical Facilities and Real Estate; Deanna Bush, Placemaking; Ed Johnson, Information Systems; Wade Lange, Purdue Foundry; Alicia South-Hurt, Marketing and Communications/Economic Development; and Barb Tyner, Human Resources.

As anticipated, technology resources remained paramount for most remote workers and the Foundation's Department of Information Systems made it work by finding new ways to remotely update or fix technological systems and find ways for team members to digitally meet using Microsoft Teams, WebEx and other communication platforms.

Physical facilities has the responsibility of keeping the Foundation's 70-plus buildings sanitized and ensuring that safety protocols as outlined by the State of Indiana and CDC recommendations are followed in all facilities.

Other areas required just as much attention such as frequent and transparent communication, flexibility in work schedules, respect for team members and the unknown personal challenges they face, and maintaining relationships with internal and external partners all while working to meet the Foundation's goals.

The staff received virtual opportunities to participate in mental health webinars and yoga sessions as an initiative to focus on wellness and mindfulness during the pandemic.

## REMOTE WORKING WELL EMPLOYEE SURVEY RESULTS

*The Remote Working Well Team has conducted surveys to gauge employee satisfaction with the Foundation's tools and response.*

95%

RESPONDED THAT REMOTE  
WORK TOOLS **SUPPORTED**  
THEIR WORK WELL

90%

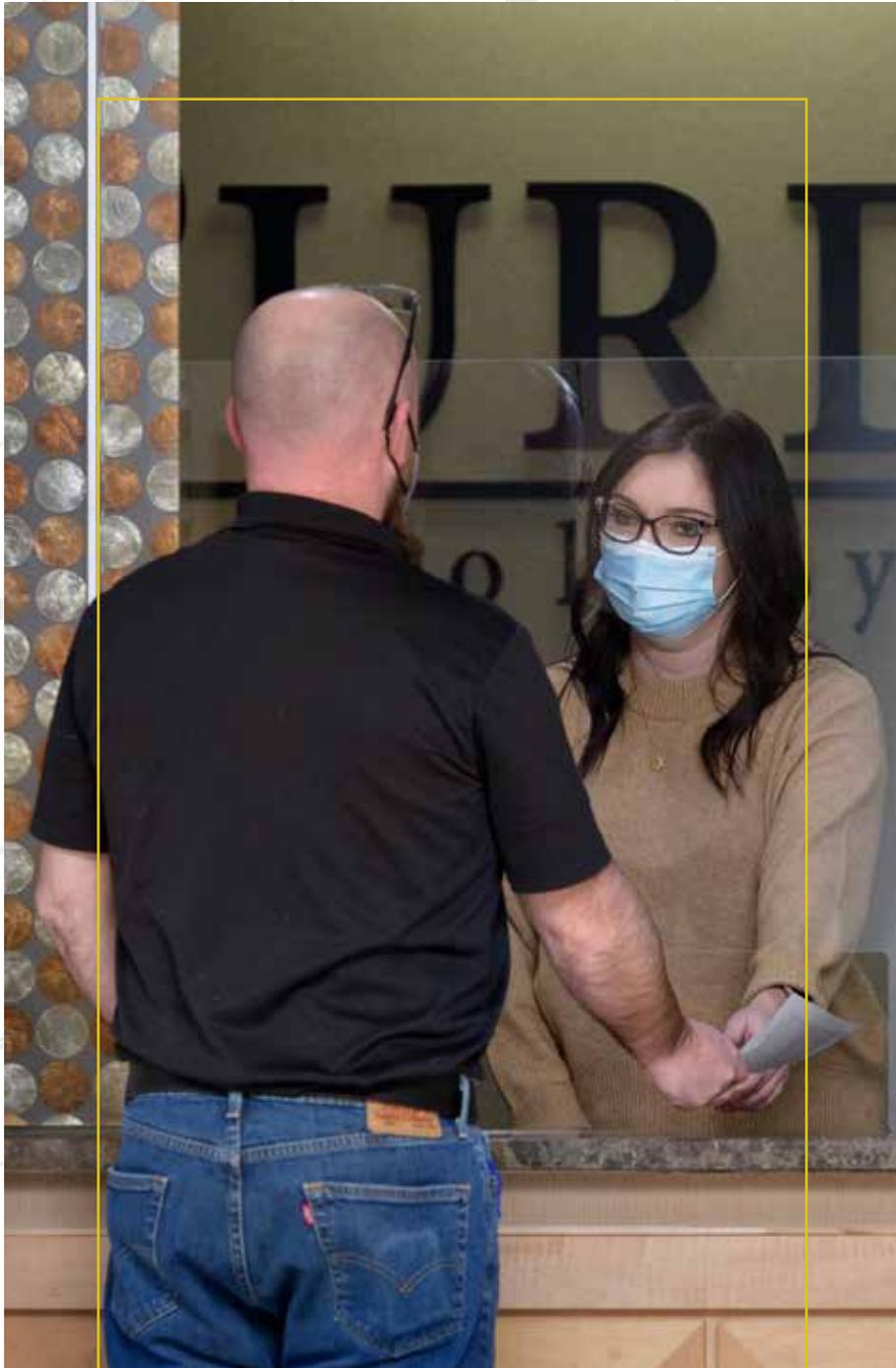
SAID THEIR **ENTHUSIASM**  
FOR WORK WAS THE **SAME**  
OR **HIGHER**

98%

**KNEW WHAT WAS**  
**EXPECTED** OF THEM  
EVERY DAY

90%

PREFER A **REMOTE OR**  
**HYBRID WORK** ENVIRONMENT  
IN THE FUTURE



## *SERVING OUR MISSION*

### **PROTECT PURDUE: TENANTS AND VISITORS**

*The Foundation manages more than 1,500 acres and 75-plus buildings in multiple locations around the State of Indiana where thousands of students, faculty, tenants, entrepreneurs and others live, work, play and learn. Keeping these people safe throughout the pandemic was, and continues to be, a primary goal.*

In the early days of COVID-19, Rich Michal, Vice President and Chief Facilities Officer, worked daily with Jeremy Slater, Assistant Vice President of Real Estate and Facilities, Jason Yoder, Senior Operations and Project Manager, and many others to make and keep the buildings safe and functional.

"It's been a huge task, and my team has worked on-site the whole time," Yoder said.

Breanna "Bre" Benn, Client Communication and Engagement Manager, works on the front lines in the Herman and Heddy Kurz Purdue Technology Center, the Foundation's administration building.

"My job is to connect with visitors and tenants in the buildings and help them with whatever they need. This has certainly been a different kind of year, but I have gotten closer to the tenants. People want and need personal interaction and even with the safety glass and social distancing, it has worked. In fact, I've even gotten closer to tenants in other buildings as they

“Our tenants faced their own challenges throughout the past year and we have done everything we can to keep them safe and we followed all CDC guidelines. Communicating with them on a regular basis also is pivotal.”

**RICH MICHAL**

VICE PRESIDENT AND CHIEF FACILITIES OFFICER

reach out to me,” she said. “Team-wise, we did a lot of cross-training and I’ve learned what other areas like IT and Finance do. My physical facilities colleagues certainly help me a lot. We’re all helping each other.”

Like nearly all buildings during this time, freestanding hand sanitizers were placed in the entrances of facilities, facial masks became mandatory, clear acrylic glass was placed in visitor reception areas, and sanitation of frequently touched areas are just a few of the health and safety precautions taken.

“One of the challenges was to increase air purification processes. We’ve done this is by running the HVAC systems 24/7 which increased the intake of outdoor air into the building,” Yoder said. “We also replaced the numerous roof-top air filters more frequently and conducted regular testing.”

Other safety actions and processes include:

- Placing footholds on interior doors to create “hands-free” opening.
- Increasing computerized control systems to identify and repair issues immediately.
- Working with the USPS to create P.O. Box slots for tenants to reduce handling and sorting of mail.



Brice Turpin, Assistant Facilities Manager, replaces HVAC filters at the Convergence Center for Innovation.

# SERVING OUR MISSION

## PROTECT PURDUE: COVID-19 TESTING AND SAFETY

*Thousands of K-12 and higher education institutions across the country announced in late spring of 2020 that they would continue with remote learning in the fall due to COVID-19.*

***Purdue University was not one of those.***

Critical to the success of this bold prediction was the means to test students, faculty and staff for the coronavirus on a regular basis and as a way to track the virus and prevent it from spreading. In those early days of the pandemic, testing ability for the virus was limited and in high demand and a growing consensus was to just stop everything and wait until the "virus went away."

Shops, restaurants, bars, governmental facilities and many other establishments had closed with no information on when or at what capacity they would be able to reopen. People stayed in their homes, and when they did venture out they wore masks, glasses and other protective gear and maintained a social distance of six-feet apart from each other.

In preparation of students' return to campus in the fall, Purdue's coronavirus testing ability became an important early initiative established in



The Animal Disease Diagnostic Laboratory performs Polymerase Chain Reaction (PCR) tests for COVID-19.

partnership among Purdue University College of Veterinary Medicine, Purdue Research Foundation, the Indiana State Department of Health and multiple Indiana hospitals.

David Broecker, Chief Innovation and Collaboration Officer for the Foundation and initial Implementation Leader for the Protect Purdue plan, was tasked with coordinating and leading the initiative to establish a human testing site at Purdue that was Clinical Laboratory Improvement Amendments (CLIA) approved.

The Indiana Animal Disease Diagnostic Laboratory – located in Purdue's College of Veterinary Medicine – was already certified to do CLIA animal testing, but not human testing.

In order to secure human testing approval for the Purdue lab, Broecker needed proof of concept that what we were doing was within the CLIA guidelines. He began working with the Purdue vet school, the Indiana Department of Health and Fort Wayne-based Parkview Health.

Typically, these approvals can take months, but within a few days, Broecker received 11 coronavirus test samples taken from Parkview ICU patients and hand delivered them to the DiaCarta CLIA lab in Richmond, California. He returned to Indiana the same day with the test results. It was a testing breakthrough for that time and provided the proof of concept needed to demonstrate that COVID-19 test results on humans can be conducted within a 24-hour timeframe. This action laid the groundwork for these tests to be conducted at Purdue.

Parkview provided clinical oversight and expertise on obtaining the CLIA license and setting up the lab for human testing, it was just a matter of days when the Purdue vet lab became CLIA certified. The Indiana State Health Department began human diagnostic testing.

“The College of Veterinary Medicine has a long history of providing services to protect animal and human health,” said Willie Reed, Dean of the Purdue College of Veterinary Medicine. “Providing COVID-19 testing is yet another way to support the citizens of Indiana during this unprecedented public health crisis.”

Dr. Kenitra Hendrix, Director of the Purdue-based Animal Disease Diagnostic Laboratory, said the lab had a unique opportunity to assist with COVID-19 testing in Indiana because of the lab’s expertise in providing infectious disease testing and immunity surveillance for animals across the state.

“Our laboratory is uniquely positioned to contribute skills and expertise in the detection of pathogens to the fight against COVID-19, while maintaining our diagnostic support of animal health and the safety of the food supply,” she said.

“It still takes several days to get results that are sent out to central labs across the country,” said Dr. Michael J. Mirro, Chief Academic Research Officer at Parkview Health. “Even the new tests are limited by supply constraints. What Purdue has done is fantastic and shows the ingenuity

associated with creative problem solving. Paired with the significant amount of time invested by the Parkview lab team, we believe this will have a positive impact on the state’s testing capacity.”

Within weeks, testing expanded across Indiana in collaboration with other hospitals, with all samples sent directly from partner hospitals to the Animal Disease Diagnostic Laboratory at Purdue.

“This was something none of us had faced before so it was all an open question, but because all those involved had a strong health and diagnostic background we were able to work together and make it happen,” Broecker said.

By mid-July, Purdue expanded the testing program by establishing a partnership with out-of-state partners Rutgers University and Vault Health. This new partnership enabled Purdue students to be tested for COVID-19 through a remote kit sent to students’ homes. The process involves a secure telehealth visit between the student and a Vault Health testing supervisor, who assists the student in completing the saliva test and packaging the sample for overnight shipping to a lab for processing.

The ongoing coronavirus testing project continues to be a cross-disciplinary, collaborative effort with the Indiana State Department of Health, Parkview and other state medical facilities, Purdue University, Purdue Research Foundation and the Purdue community.

“Indiana continues to increase our capabilities and preparedness for rapidly testing patients to support our front-line health care workers,” said Indiana Health Commissioner Kris Box, M.D., FACOG. “We are grateful to Purdue and the Animal Disease Diagnostic Laboratory for helping to make testing more available for Hoosiers who are helping others during this pandemic.”



# *SERVING OUR MISSION*

## **PROTECT PURDUE: COVID-19**

*An important protocol recommended by the World Health Organization and the U.S. Centers for Disease Control and Prevention was that any individual exposed to COVID-19 should isolate for 14 days.*

Like most large, public universities, the majority of Purdue students live in residence halls across the campus and that population density was another challenge faced by those working to keep students, staff and faculty safe. In preparation of students returning to campus in the fall, Purdue President Mitch Daniels tapped the Foundation to find a space where students and staff could go should they need to isolate or quarantine.

Purdue Village, an apartment complex of about 400 apartments, had been on the demolition list before the pandemic hit to make way for the Discovery Park District. This complex has been used for student and graduate student housing since the early 1960s, with some buildings still housing graduate students and their families. The land and complex are owned by the Foundation and are part of the long-term \$1 billion-plus Discovery Park District to redevelop the western land adjacent to the Purdue campus.

Demolition plans were put on hold and the Foundation had 117 days to make some of the Purdue Village facilities practical and scalable to provide 900-plus living spaces where students could isolate or quarantine.

"This project was, and is, about taking care of students and finding the safest and most convenient place for students who needed to use the space," said David Broecker, Chief Innovation and Collaboration Officer for the Foundation and implementation leader for the Protect Purdue plan who was tasked with transforming the apartments for use as single isolation and quarantine areas. "It's another way the Foundation is serving Purdue during this pandemic."

Broecker, the Foundation's Physical Facilities team and other partners across campus and the community including the Tippecanoe County Health Department worked together and had the facilities up and running before the students returned to campus in August.

At its peak of use to-date, highest occupancy was 26% of the 900-plus beds made available for isolation and quarantine.

The Foundation's contribution to serve Purdue during the pandemic is one piece of a very large puzzle that touched every single area of the Purdue campus and its leaders.

"At 8:30 every morning we had a team meeting with President Daniels and reviewed the data that went onto a dashboard and studied what was happening across campus and what areas needed our attention," he said. "We knew that 99% of controlling the virus was controlling behavior – people needed to wear masks, frequently wash their hands, stay socially distant – all those things helped which is one reason why the Protect Purdue Pledge that students made when they returned to campus is so effective."

Protect Purdue Pledge is a pledge made by students and others on campus to: Protect Myself. Protect Others. Protect our Purdue Community.

"The lesson is that you can't fight the virus. It is what it is," Broecker said. "You just have to determine what capabilities you can use to keep people safe and remain flexible because the virus is always changing. We are doing that to the best of our ability."

*As of the end of classes at Thanksgiving, we had identified 2,770 total student cases at Purdue. Less than one percent ever went past the fourth level of a six-level severity index devised by our Medical Advisory Team. More than 80% were completely without symptoms or had no more than one mild symptom, such as a headache or temporary loss of taste. Our 200+ positive cases among staff were only slightly more severe.*

*During the entire semester, we saw only 7 hospitalizations, most very short-term and non-life-threatening. The nearly 1,000 beds we assembled to house those isolating (because positive for the virus) or quarantining (because of a contact and potential positive status) were never more than 26% occupied.*

**PURDUE PRESIDENT MITCH DANIELS**  
JANUARY 4, 2021 OPEN LETTER



## *BACK A BOILER – ISA FUND*

**IT'S NOT A LOAN. AND YOU'RE NOT ALONE.**

*Back a Boiler Income Share Agreement is part of Purdue Moves: Affordability and Accessibility, a multifaceted program created by Purdue University President Mitch Daniels to make higher education more affordable and to reduce student debt. Managed by the Purdue Research Foundation, the program was launched during the 2016-17 academic year as an alternative to private loans for students who need additional funding to pay for their education.*

### **HELPING STUDENTS**

- Nearly 1,000 Purdue students from 150 majors have utilized the program, equal to more than 10% of Purdue's private student loan volume for the student population eligible for Back a Boiler.
- More than \$18 million from 1,650+ contracts has been disbursed to students through Back a Boiler since its inception, averaging more than \$10,000 per student and payment terms ranging from 7 to 10 years, including a six-month grace period following graduation.
- All Purdue colleges are represented in the student participation. The top seven colleges represented are: Engineering, Polytechnic Institute, Health and Human Sciences, Science, Liberal Arts, Agriculture and Krannert School of Management.



## HOW THE PROGRAM WORKS

An Income Share Agreement is a contractual agreement in which a student receives education funding in exchange for an agreed upon percentage of post-graduation income over a set number of years. Participants in Back a Boiler also may apply for available funding support from the Pave the Way program offered as a philanthropic component through the University Development Office.

## WHO IS ELIGIBLE

Back a Boiler – ISA Fund is available to Purdue’s sophomore, junior and senior level students enrolled at the Purdue West Lafayette campus for the fall, spring and summer academic sessions. All undergraduate educational programs and professional degrees in PharmD and the DVM Program in the College of Veterinary Medicine are eligible. Students, parents or guardians who have questions about the program or are interested in learning more may email [BackaBoilerinfo@prf.org](mailto:BackaBoilerinfo@prf.org)

## OTHER PURDUE UNIVERSITY AFFORDABILITY MEASURES INCLUDE:

- Purdue University President Mitch Daniels held tuition flat for a 10th year in a row for the upcoming 2021-22 academic year, and through the following academic year of 2022-23. This means students on the West Lafayette campus will be paying nearly the same in tuition and fees as they were in 2012-13.
- At least eight graduating classes will earn their Purdue degrees without ever having seen their tuition increase ... and the last time there was a tuition increase at Purdue, today’s freshmen were in elementary school.
- The number of Purdue students who graduated debt-free in 2018-19 was 59% compared with 39% nationally. Annual student borrowing at Purdue has been reduced by \$59 million between 2012 and 2020, and total student loan amounts are now below 2013 levels.



# *DISCOVERY PARK DISTRICT*

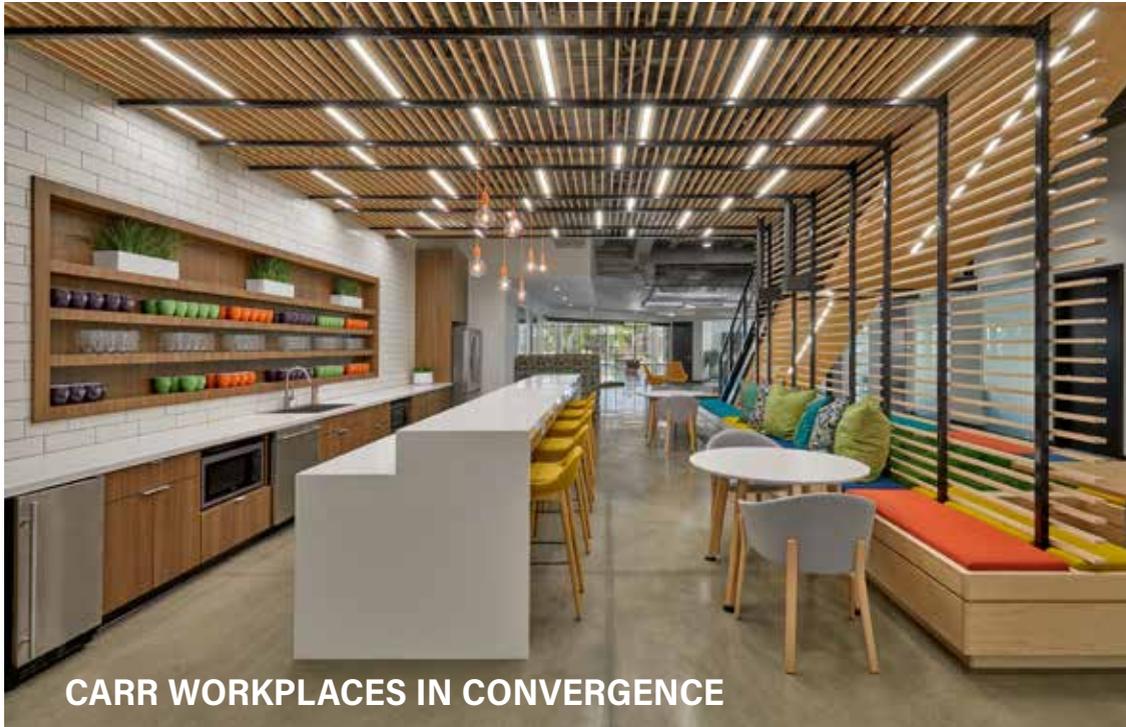
## **GROWTH AND ADVANCEMENT**

*As many construction and economic development projects slowed down or stalled across the globe due in large part to the pandemic, the Foundation's Discovery Park District continued to show strong growth and expansion.*

"The pandemic has been highly disruptive to our daily lives, so we weren't sure what to expect and were pleasantly surprised as it has not curtailed our long-term construction projects and we had only minor delays with some projects," said Rich Michal, the Foundation's Vice President and Chief Facility Officer. "There is a strong demand for what we do with startups and collaboration opportunities with Purdue so it is natural that entrepreneurs, investors, corporate leaders and others want to be physically close to us."

The focus of the growth centers on the \$1 billion-plus Discovery Park District. Adjacent to the west side of Purdue University campus, this 450-acre District is a thriving, walkable, urban setting that provides a unique opportunity to collaborate with thought leaders, visionaries, researchers and students at the University.

Already well established in the District are research, development and manufacturing facilities for Rolls-Royce North America, SAAB Global Defense and Security and Schweitzer Engineering Laboratories. These and other combined projects represent a more than \$229 million investment to date with an additional \$1 billion-plus planned in the area.



**CARR WORKPLACES IN CONVERGENCE**



**CONTINUUM MOVES TOWARD COMPLETION**

# **Discovery Park** D I S T R I C T

“ The District’s reputation as a preeminent environment for intellectual discourse and high-tech commercial enterprise is well recognized across the U.S. with site selectors, investors and international companies. As we move past this pandemic, we are in a prime position to do more than survive, we will thrive.”

**JEREMY SLATER**  
ASSISTANT VICE PRESIDENT  
REAL ESTATE AND FACILITIES

# DISCOVERY PARK DISTRICT

## GROWTH AND ADVANCEMENT

“ Every project is important to us and we are committed to ensuring that all short- and long-term plans will safely continue through this pandemic. We anticipate it could be close to the end of 2021 before things return to a new type of normal. But that said, we also know that by the end of the year we will have met our projected goals and advanced the Foundation’s mission.”

**RICH MICHAL**  
VICE PRESIDENT AND  
CHIEF FACILITIES OFFICER

*Throughout the year, Discovery Park District continued to expand and secure new developments to support the District’s mission to establish a long-term goal of creating a unique enterprise where people can live, work, play and learn.*

The Foundation and its master plan partner Browning Investments LLC has seven major projects underway or completed in the District. These projects include up to 7-million-square-feet of laboratories, advanced industrial and manufacturing facilities, collaborative office spaces, retail establishments, restaurants, residential housing, green space and walking paths. The District includes access to the Purdue University Airport with a 7,000-foot runway – a public airport that provides important transportation for national and international visitors.

### **Other new enterprises and expansions in the District include:**

- Convergence, a 145,000-square-foot, five-story office building serves as a bridge to further support connections among Purdue University researchers with technology commercialization and startup creation.
- Aspire, an 835-bed apartment complex now open at the corner of State Street and MacArthur Drive. The four-story, three-building community features a variety of studio, two- and four-bed apartments and smart home technology.
- Provenance, a family community under construction with more than 50 single family homes, three structures for two- and three-story townhomes and an apartment complex.
- Continuum, a three-acre apartment and commercial development.

## SCHWEITZER ENGINEERING LABORATORIES

The first product, a relay box, rolled off line at the Schweitzer Engineering Laboratories (SEL) in Purdue's Discovery Park District this year. The box will stay at the District's three-story building. SEL began work on the \$20 million, 100,000-square-foot facility for electric power research in 2019. The facility supports 300-plus new high-tech jobs and serves as an anchor in the District. Edmund O. Schweitzer III, founder, President and Chief Technology Officer of Schweitzer Engineering Laboratories, and his wife, Beatriz Schweitzer, took part in the ceremony.



"SEL being right next to Purdue gives great opportunities for students, faculty and people in the Lafayette and West Lafayette communities," said Schweitzer, a Purdue alumnus (BSEE 1968, MSEE 1971).

## SAAB

Saab Global Defense and Security USA continued work on a \$37 million project to support production of the U.S. Air Force's next-generation Boeing T-7 Red Hawk jet trainer. The Saab facility will manufacture a significant portion of the Boeing T-7 Red Hawk advanced pilot training aircraft, which will help train future U.S. Air Force pilots for generations to come. Hiring began this year, with an anticipated 300 new jobs when the facility is fully open and operational.



## NEWMAN ROAD UNDERPASS

The Newman Road project to build a wider, safer roadway complete with a new railroad bridge near State Road 26 and Newman was completed this year. The \$12.5 million project added many features to the section and helps enhance safety and access.

A widened roadway allows for two-way traffic, and the lowering of the roadway allows larger, heavier trucks to pass under the railroad bridge. A lighted multi-use path for pedestrians and bicyclists completes the project.

"The improved thoroughfare provides a safer path of travel for residents and visitors of West Lafayette and Purdue University," said West Lafayette Mayor John Dennis. "The newly constructed road will allow for further development in the Discovery Park District."

## ROLLS-ROYCE

Rolls-Royce continued to expand its space in the District's Purdue Technology Center Aerospace where it conducts research and development on new engine controls capability to support its U.S. defense business, including the F130 engine competing for the U.S. Air Force B-52 program.



Rolls-Royce assembles and tests electronic engine controllers, which help manage in-flight engine operations. This equipment is being installed on a Rolls-Royce AE 3007H engine, manufactured at the company's facilities in Indianapolis.

"Whether for the Rolls-Royce AE family of engines or for our competitive F130 engine for the B-52, these new controllers will support U.S. military pilots as they fly around the world, offering the highest-quality technical product," said Tom Bell, President of Rolls-Royce Defense.



### **BAYER OPENS SPACE IN PURDUE UNIVERSITY'S DISCOVERY PARK DISTRICT TO APPLY INTERDISCIPLINARY APPROACH TO BUILD SOLUTIONS, SOURCE INNOVATION**

Bayer, a global life sciences company, announced plans to open Bayer at the Convergence Center for Innovation and Collaboration in Purdue's Discovery Park District.

When fully staffed, the Bayer space in the Convergence will employ Purdue students across various disciplines who will enhance and augment a robust agricultural innovation portfolio with additional enabling capabilities like information technology, data science and engineering.

"As a life sciences company, we strive to live up to our vision 'Health for all, Hunger for none.' Through agricultural innovations, we can help provide farmers improved tools and solutions to sustain our growing world," said Mike Graham, Head of Bayer's Breeding, Crop Science Division.



### **PURDUE ALUMNUS NAMED GENERAL MANAGER FOR SAAB'S AEROSPACE SITE IN DISCOVERY PARK DISTRICT**

Indiana native Robert Ulibarrí was named Saab's General Manager for its aerospace facility in Discovery Park District, where he leads the advanced manufacturing and production for Saab's aerospace systems through a research partnership with Purdue's aerospace engineering program.

Ulibarrí is a two-time Purdue University graduate, having earned both a B.S. degree in mechanical engineering and technology from the Purdue Polytechnic Institute and an Executive MBA from the Krannert School of Management.



"I am thrilled to work on this groundbreaking project for Saab in support of Indiana, the U.S. Air Force and future customers," Ulibarrí said.



## **BECK'S HYBRIDS OPENS SPACE IN PURDUE'S DISCOVERY PARK DISTRICT**

Beck's Hybrids, a family-owned and -operated seed company, opened a satellite location in Purdue's Discovery Park District. Officials from Beck's worked with Carr Workplaces – a pioneer and leader in the co-working industry – to establish a location in the Convergence Center for Innovation and Collaboration.

"This location will provide opportunities to increase our collaborations with the University, the Purdue Foundry and innovators in agricultural research," said Scott Beck, President of Beck's. "A location in Purdue's Discovery Park District gives Beck's access and exposure to high-quality talent."

The Beck family also has donated a 100-year-old barn, which will be relocated and renovated as a social space in Discovery Park District.

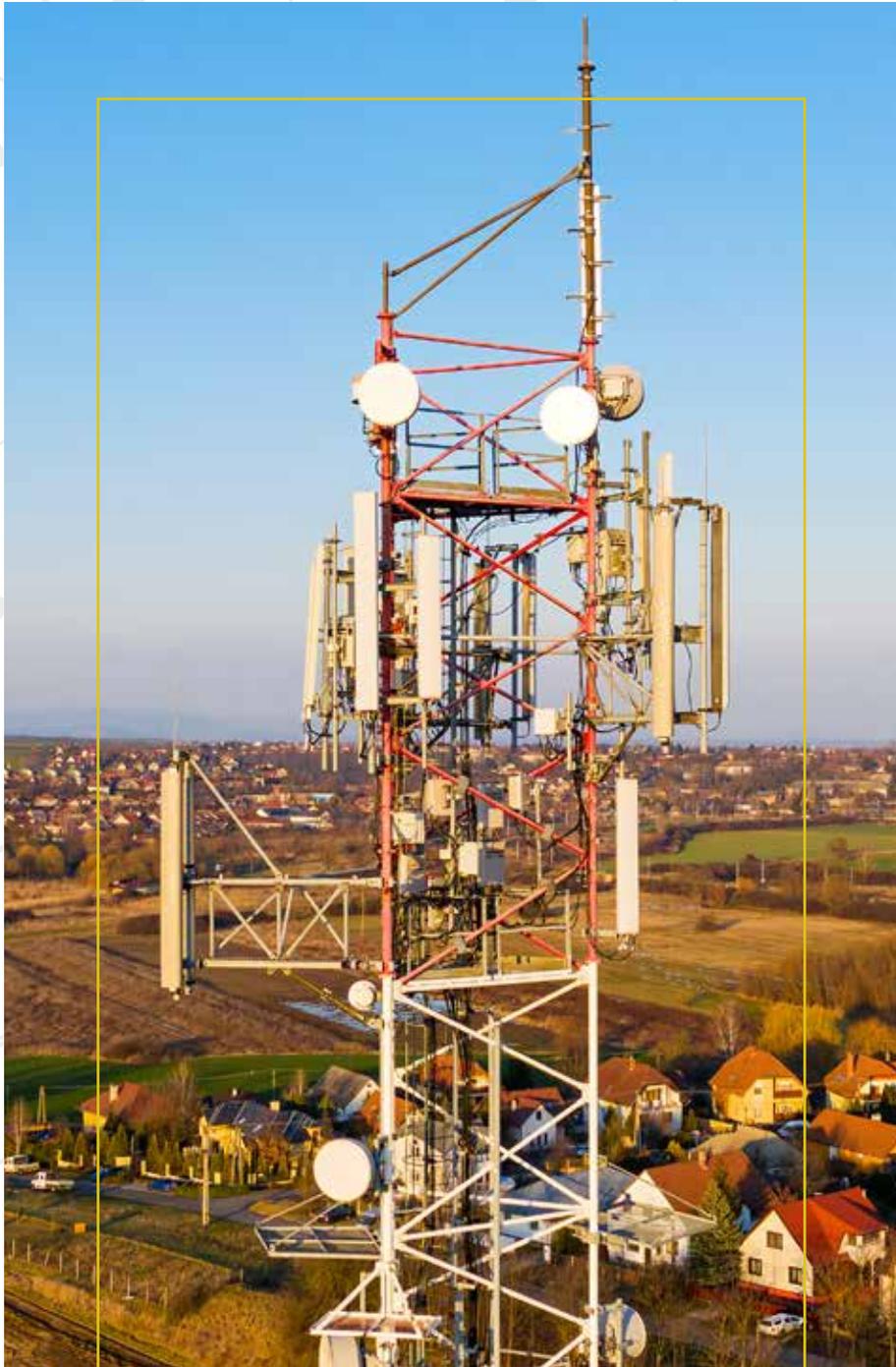


## **INDUSTRY-LEADING CO-WORKING COMPANY OPENS IN PURDUE'S DISCOVERY PARK DISTRICT**

Carr Workplaces, a pioneer and leader in the co-working industry, opened its newest location, Carr Workplaces Convergence, this year in Discovery Park District.

Purdue's newest co-working hub occupies roughly 20,000 square feet of space within the five-story Convergence Center for Innovation and Collaboration building. Businesses have the opportunity to plant their flag within walking distance of Purdue's research centers – allowing companies to be in direct contact with over 2,000 accomplished faculty members and about 45,000 undergraduate and graduate students.

"We are thrilled to bring Carr Workplaces to West Lafayette, to the Discovery Park District, and to the Purdue University campus," said Ashley Buckner, Chief Operations Officer of Carr Workplaces.



## *SERVING OUR MISSION*

### **STRATEGIC INITIATIVE: BRINGING 5G TO PURDUE**

*NineTwelve Convergence, a 5G “living lab” that provides state-of-the-art 5G networking and wireless connectivity where companies can partner with Purdue University, SBA Communications, Tilson and others, launched in Purdue’s Discovery Park District.*

“Purdue University’s world-class researchers and others are collaborating to realize the full potential promised by 5G and transforming the digital economy around the world. We all realize that 5G will completely revamp the ecosystem of innovation, and we embrace these opportunities,” said Mung Chiang, Purdue’s John A. Edwardson Dean of the College of Engineering. “What’s uniquely powerful about this 5G center is that it is a 5G ‘living lab’ where we can define the use case and innovate the deployment. We have the spectrum and the building access, along with several very innovative technologies. This will be an impactful partnership.”

This 5G center will be the first facility in the U.S. providing full-suite development and testing capabilities, revolutionizing the speed at which products get to market while at the same time controlling risk and lowering development costs. Discovery Park District will support an advanced connected community through partnerships with Tilson, a national network deployment services firm, and SBA Communications, an independent owner and operator of wireless communications infrastructure.



The 5G center will focus on emerging technologies in essential fields such as advanced manufacturing, hypersonics and microelectronics.

"Corporate CEOs need a place where their current business processes can be appropriately challenged and rapidly advanced through 5G technology," said Dan Hasler, CMO for NineTwelve. "This 'living lab' will be housed in Convergence in Discovery Park District, next door to some of the finest minds in the country."

Software development and IT operations are critical in moving new technologies to the market rapidly and at the quality levels required for technology infrastructure.

"Discovery Park District's connected community is the perfect location for the 5G living lab at Convergence," said David Broecker, Chief Innovation and Collaboration Officer for the Foundation. "The 5G lab is another component to creating the nation's first, fully integrated test bed at scale for innovators, companies and key stakeholders."

"Convergence is about converging! A place that brings technologies, industry and academic partners in a creative environment and enables prototyping and experimentation resulting in fast-to-market, high-value products and services," said Sean Hendrix, Chief Technology Officer of NineTwelve.



# *DISCOVERY PARK DISTRICT*

## **A CONNECTED COMMUNITY**

*Discovery Park District is developing a first-of-its-kind Connected Community that will deliver a purpose-built next generation technology platform for residents, companies and visitors adjacent to the Purdue University campus. With the exponential growth in streaming entertainment, on-line retail, remote work, and evolution of IOT products and services, the need for higher capacity, super-fast, secure networks is critical for continued community development.*

"A community like the one we are building at Discovery Park District provides businesses with a connected ecosystem and a suite of technology tools they can't find anywhere else," said Troy Hege, Vice President of Innovation and Technology for the Foundation. "COVID-19 has only accelerated the need to be highly connected, and it shows no sign of slowing even post-pandemic."

The District's Connected Community is possible through multiple collaborations and partnerships including:

- Tilson, a national network deployment services firm providing a neutral host platform.
- SBA Communications, a company that specializes in wireless communications infrastructure.
- NineTwelve Convergence, an innovation lab in the District that features tools and resources for students, faculty, and companies for advancing the next generation of 5G and IoT technology, applications and innovation.

Through the strategic partnership with Tilson, the Foundation is implementing a technology infrastructure platform that will facilitate ubiquitous connectivity across the District, enabling the next generation of products and services driven by the rapid evolution of IoT, 5G, WiFi6 and private network deployments.

SBA Communications will use Citizens Broadband Radio Service (CBRS) to provide high-speed bandwidth using a new wireless spectrum the FCC authorized for commercial use in 2020. As demand for bandwidth continues to grow, these frequencies allow non-government entities to deliver high-speed, ultra-reliable connectivity using the same technologies - LTE and soon 5G - that consumers use on their smartphones today. Instead of a private mobile network run by a large commercial wireless provider, SBA will use the technology to create a private mobile network owned and operated by the District.

NineTwelve Convergence is an innovative 5G "living lab" center that features state-of-the-art 5G networking and wireless connectivity where companies can collaborate with the University and other technology companies to have access to a full-suite of development and testing capabilities.



“ When complete, the District's Connected Community will bring the benefits of a connected, safe, smart and affordable community providing a unique combination of infrastructure, scale, and proximity to a leading research university and make the District's Connected Community one of the most advanced technological communities in the world.”

**DAVID BROECKER**

CHIEF INNOVATION AND COLLABORATION OFFICER

# *DISCOVERY PARK DISTRICT: INNOVATION PARTNERS INSTITUTE*

## **A CONNECTED COMMUNITY**

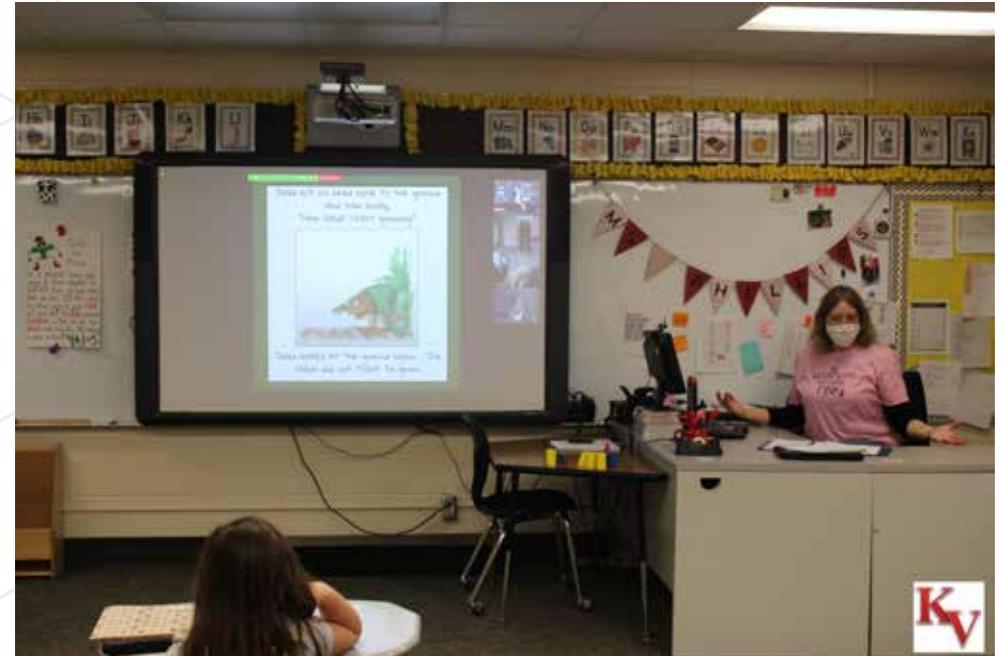
*Launched in 2020 and based in the District, Innovation Partners Institute turns concepts into early-stage solutions to solve big problems. The Institute brings together ideas, talent, experts, financial and corporate resources to create solutions.*

### **PARTNERSHIP BRINGS WIRELESS BROADBAND TO 500 HOUSEHOLDS, SUPPORTS REMOTE LEARNING**

Students in the Kankakee Valley School Corporation in Indiana's Northern Jasper County are now able to participate in remote learning through a partnership among the Innovation Partners Institute, Wabash College, SBA Communications, Watch Communications and the State of Indiana.

The E-Learning project became the first initiative for the Foundation's Innovation Partners Institute. Prior to this effort, as many as a third of Kankakee's student households reported e-learning challenges related to poor connectivity.

"This project has helped us overcome the lack of connectivity in our area that suddenly became a huge hurdle for many of our students when we moved to e-learning last year," said Don Street, Superintendent of the Kankakee Valley School Corporation.



The project came at an estimated price tag of \$1 million with philanthropic funding from Jay and Robyn Stead of Auckland, New Zealand. The donation from Jay Stead, a Purdue University graduate, was pooled with money from the Indiana Governor's Emergency Education Relief (GEER) Fund and commercial co-investment.

"The mission of the Institute is to help people through the collaborative application of science and technology," said Troy Hege, Vice President Innovation and Technology, PRF Program Manager of the Institute. "This project is a perfect example of that mission in action. It leverages SBA's telecommunications infrastructure and Watch Communications' expertise in rural broadband connectivity for a novel application."



### **INNOVATION PARTNERS INSTITUTE, MAVENSHERE LAUNCH NEW TECHNOLOGY TOOL IN FIGHT AGAINST COVID-19**

Amid continuing challenges from COVID-19 in Indiana, the Innovation Partners Institute and MavenSphere launched a personal engagement app designed to help people monitor their COVID symptoms, track test results and connect to support tools and resources. Employees of the Purdue Research Foundation are currently using the fully-HIPAA compliant app.

“It is critically important that all individuals monitor symptoms daily, engage with healthcare providers to get tested, and isolate or quarantine depending on test results or close contact with others who have tested positive,” said David Broecker, Chief Innovation and Collaboration Officer.

The technology, developed by Bharath Bynagari, Founder and CEO of MavenSphere, is available for iPhone, Android devices and via a web platform.

“Through our development platform, we were able to quickly create a customizable tool to support individuals based on a set of interactive questions and follow current COVID-19 guidelines,” Bynagari said. “The entire process for the person using the tool takes less than a minute.”

Christian and Kate Kanady of Oklahoma City and the COVID Start Coalition, which fosters innovation and shared learning across leading public/private institutions, provided funding for the app.

“My wife and I are pleased to support this innovative tool that can be used by students, employees and visitors at Purdue, and ultimately the public at large,” said Christian Kanady, Founder and CEO of Echo Energy and advisory board member of the COVID Start Coalition.

# ECONOMIC DEVELOPMENT OFFICE

## COLLABORATING

*In 2020, the Purdue Research Foundation combined several of its divisions that previously served our economic development enterprises into one newly created department called the Economic Development Office.*

The long-term strategic goals of the Economic Development Office include driving placemaking activities for industry partners and develop Purdue's 400-acre Discovery Park District. These goals lead to increased collaborations with established companies, support for startups and major companies that have licensed a Purdue University innovation, and expansion of research partnerships leading to new technologies to advance our global society.

"The companies we want to recruit and collaborate with are those based in the type of research and development that tie to Purdue strengths," said Emily Najem, Vice President, Economic Development Office. "Even though 2020 would not have been considered an ideal time to launch a new unit, we have done very well and that is because what we have to offer are needed assets for companies to grow and advance."

Purdue University's strengths in the sciences and life sciences, engineering, agriculture, technology, veterinary medicine, pharmacology, defense, cybersecurity, business and other fields, coupled with the Foundation's Purdue Research Park Network, Purdue Railyard, Purdue@Westgate and its growing Discovery Park District. In addition, the facilities offer a wide range of physical space assets such as wet lab space, flexible office arrangements and adjacency to Purdue, providing a springboard of research, development and commercialization for startups to publicly traded international companies.



Jan-Anders Mansson, Distinguished Professor of Materials Engineering and Chemical Engineering, presents to Saab at the Indiana Manufacturing Institute in Purdue Research Park.

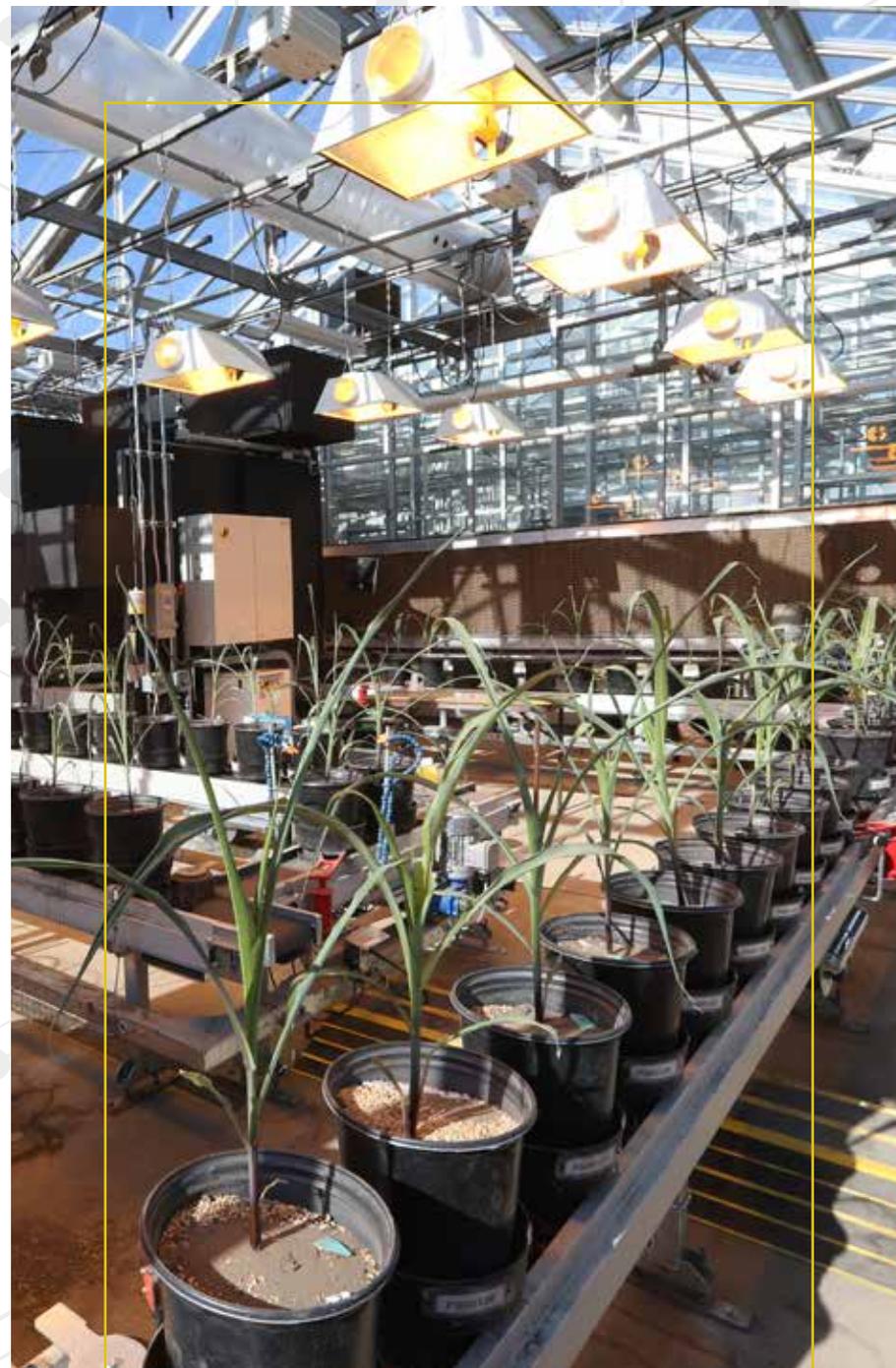
“ *What the Park and the District have to offer is paramount in our continuing success. We have 90% occupancy in our Park facilities and the majority of the companies in our Park network are either a startup that licensed a Purdue innovation or a major company that has a long-term research and development partnership with the University.*”

**EMILY NAJEM**

VICE PRESIDENT, ECONOMIC DEVELOPMENT OFFICE

The Purdue Research Park and its Purdue Technology Centers continue to support commercialization and startup creation with locations in West Lafayette, Indianapolis, Merrillville, Oden and New Albany. Discovery Park District is designed for companies, families, and individuals to live, work, learn, play and create in a dynamic, interactive community focused on innovation. A uniquely designed, purpose-driven community across 400 acres, Discovery Park District inspires creativity and innovation while offering a thriving, walkable, urban setting to create, congregate, collaborate, and commercialize.

The Purdue Research Park of West Lafayette, established in 1960 and located just north of Purdue University's campus, is the largest university-affiliated business incubation complex in the country. The 725-acre park is home to nearly 250 companies and has 300+ acres available for multiple site options allowing for custom layout and expansion opportunities.



Purdue College of Agriculture's phenotyping research helped launch a new partnership with Bayer.

# *ECONOMIC DEVELOPMENT OFFICE*

## **BUILDING A TEAM**

*The Economic Development Office was created just prior to the COVID-19 pandemic with employees comprised of new and experienced team members.*

"It was a challenge for all of us because right after we put the team together the offices shut down. Most of my team did not know me very well and I didn't know them either, but it didn't seem to take too long to become acquainted," Najam said. "We did a lot of team building activities that were socially distanced, and even had a few outside lunches where we got to meet in person."

The team checked in daily through Microsoft Teams.

"Early on there were a lot of unknowns and that created a lot of anxiety, but communicating every day helped," she said. "Our goals didn't change, but the mechanism to achieve our goals did. It was important that we all moved in the same direction, and we did."

Kim Allen joined the team as the the Senior Director Business Development after the pandemic shutdown.

"I was in an office environment for 14 years in my previous job, so when I came to the Foundation I really had to embrace the new technology and software and that required a learning curve on my part," she said. "Virtual meetings were something new to me, but our whole team felt empowered to do their jobs."



**“** *As a new employee of the Foundation, I am so impressed by the outpouring of support from the Foundation and how generous they are in providing the tools we need to be successful. I'm proud to be part of the Purdue Research Foundation team.”*

**KIM ALLEN**

SENIOR DIRECTOR BUSINESS DEVELOPMENT  
ECONOMIC DEVELOPMENT OFFICE

Distant team-building opportunities like a monthly "Happy Hour," yoga, online team games, and weekly morale-lifting videos from the Foundation's leadership team all helped.



Economic Development preparing to welcome a potential partner for tours of Discovery Park District and the Purdue ecosystem.



Beck's, a longtime partner of Purdue University, joined the Convergence Center for Innovation in 2020.



From top left: Emily Najem, Kim Allen, Tarrah Egelhoff, Jon Ferency, Alex Hancock.

# ALLIANCES AND PLACEMAKING

*Alliance Management and Placemaking supports the Foundation's strategic goals by optimizing "Communication, Collaboration and Coordination" among partner companies, Purdue and Greater Lafayette.*

It does this by connecting businesses and people to the area's assets to enhance company growth and support engagement with the University and the surrounding area.

"In the past few years we have had some major, international companies move into this area specifically to partner with Purdue. Those include Rolls-Royce, Schweitzer, Saab, Inari and we anticipate even more," said Greg Deason, Senior Vice President of Alliances and Placemaking. "We want to make sure that the companies and people who move here get what they need to be happy and successful."

## STRATEGIC ALLIANCE MANAGEMENT

The Alliances and Placemaking team works to help companies:

- Acquire and retain world-class talent.
- Pursue collaborative research solutions.
- Utilize dynamic and collaborative space.
- License technology solutions.
- Provide networking and community integration opportunities for leadership and employees.
- Utilize specialized equipment and core labs.
- Upskill employees through training, certifications and advanced degrees.
- Manage employee transition, relocation and dual-career needs.
- Increase regional economic impact.
- Explore impacts through philanthropy.
- Expand relationships with industry innovators.



Marcus Wallenberg, Chairman of the Board of Saab, tours Purdue's Birck Nanotechnology Center.

## PERSONAL SERVICE

Finding out what a partner company and its team members need and connecting them with those assets is a primary goal of Alliances and Placemaking.

“The question we ask ourselves ‘Is everyone involved getting what they need from this partnership?’ ” Deason said. “It’s a deliberate process to provide a natural outcome that benefits everyone.”

Alliances and Placemaking works to connect “Business to Business” and “Business to Community” so new companies and their relocating team members can find what they need from securing and retaining talent, creating research partnerships with Purdue, to suggestions for places to go for a great dinner or picnic.

“In 2020, more than 30 families relocated from the Pullman, Washington to this area as part of the opening of Schweitzer Engineering Laboratories,” Deason said. “Before they arrived, we wanted to make sure they would feel welcome in the community, knew where they could go for their own enjoyment and where they could get guidance if they needed it. For example, we found many of the folks who came with Schweitzer enjoyed doing outdoor activities like hiking or swimming, so we went on a kayaking trip and it was something we all enjoyed.”

The Department hosted other social distancing events such as golfing, and even a brewery tour, while keeping everyone safe during the pandemic.



Alliance Management, from left: Greg Deason, Deanna Bush, Jasmine Moisesides.

“ *The pandemic did not cause us to change our goals; it just challenged us to find new ways to move those goals across the finish line. Much of what we do is about relationships. Without those chance encounters from just walking across the campus or from traveling to a conference, we knew we needed to increase our ‘deliberate communication’ and it worked.*”

**GREG DEASON**  
SENIOR VICE PRESIDENT  
ALLIANCES AND PLACEMAKING



## *PURDUE FOUNDRY*

### IDEA TO IMPACT

*The Purdue Foundry supports Purdue students, faculty, staff and alumni ambition to create startups and move ideas and products to the marketplace. Since 2013, the program has helped create more than 325 startups, many based on Purdue innovations and ingenuity. Although having an operating mode oriented heavily toward in-person training and coaching when the pandemic hit, the Foundry rapidly switched gears to a nearly 100% digital platform in 2020.*

"We've always been focused on deep personal relationships based on face-to-face interactions. This includes regular one-on-one meetings between Foundry professionals and startup companies and routine networking opportunities such as Foundry Grounds and Spirited Entrepreneur," said Wade Lange, Vice President and Chief Entrepreneurial Officer. "Once the pandemic hit, we quickly shifted to using online platforms to continue to provide the established programming and created some new ones too. Frankly, we really didn't know how it would all work out when the pandemic changed everything."

What the Foundry team discovered was that they could reach many more people and relationship outcomes were effectively achieved using digital platforms.



Foundry staff, from top left: Wade Lange, Bill Arnold, Ashley Bryan, Larissa Clinton, Kelsey Fitzgerald, Riley Gibb, Angela Goldenstein, John Hanak, Samantha Nelson, Hanae Sakata, Jason Salstrom, Morgan Thewes.

A significant jump occurred in the participation in the weekly Foundry Grounds event, traditionally an in-person coffee and donuts event held in the Convergence Center for Innovation and Collaboration where a guest speaker typically would provide guidance on entrepreneurial best practices and where entrepreneurs could talk and share stories. After COVID-19, the Foundry changed from creating a place for chance meetings to building a community of entrepreneurially minded people. Once the programs moved to Facebook Live, participation reached 55,000 minutes viewed for 2020, with an average of 1,100 minutes per week, 2,500 people liked, commented or shared the program and 237 new people followed the content.

“ After going all digital with our weekly Foundry Grounds event, we went from an in-person attendance of about 40 people total and now we average about 950 digital participants. We are reaching many more people including many who don’t live near West Lafayette and we have been able to bring really interesting people from around the country to be on the program.”

**BILL ARNOLD**  
MANAGING DIRECTOR, PURDUE FOUNDRY

# PURDUE FOUNDRY

## OUTREACH AND CONNECTIONS

*As the Purdue Foundry shifted its programs and services to digital platforms, it continued to offer training, coaching, and access to talent and capital programs to advance entrepreneurs' startup goals including:*

### STARTUP LAUNCH PAD: FIRESTARTER

Workshop that enables entrepreneurs to launch their startup. Designed to help founders develop an evidence-based strategy to find product-market fit through customer discovery and product experimentation.

### FUNDING FOR STARTUPS: DEMO DAYS AND PITCH CONTESTS

- At the conclusion of the Double Down Experiment (DDX), a pre-accelerator program's cohort, the participating companies pitched their companies to over 60 individuals who are individual investors or represent investment firms.
- Non-dilutive financing such as that offered by Small Business Innovation Research (SBIR) grants are an integral source of early-stage funding for startups to continue development of their technology. The Foundry provides access to and pays experienced grant writers to support our company's capital-raising programs.
- Investors like to find "target-rich environments" where there are multiple good investment opportunities available. Knowing that coastal investors are less likely to come to Indiana to look for investments, Purdue led a collaborative effort with the University of Notre Dame and Indiana University and held three demo days for companies from all three universities.



### FUNDING FOR STARTUPS: PURDUE VENTURES

Purdue Ventures, a startup-funding arm of the Purdue Foundry, helps find and provide financial support for startups.

- **Ag-Celerator** — This \$2 million fund is designed to provide critical startup support for Purdue innovators advancing technologies in plant sciences, including areas of research in crop optimization, hybrid and seed development and precision agriculture. The fund was launched by the College of Agriculture and the Purdue Research Foundation in 2015 as part of the Purdue Moves program. The Ag-Celerator Fund made two investments in 2020 of \$100,000 each in the precision agriculture company LeafTech Ag and animal disease diagnostic company Krishi.
- **Foundry Investment Fund** — The \$12 million Foundry Investment Fund, a not-for-profit fund, invests in Purdue-based or Purdue-connected companies commercializing select life science technologies. The fund provides a match to outside investors' funds, adding critical capital for the transition from the discovery of a promising technology to founding a viable life sciences company.
- **Purdue Startup Fund** — The Purdue Startup Fund is a partnership between the Foundation and the University to maximize Purdue's commitment to serving others through the commercialization of Purdue innovations. This fund can match up to 25% of institutional investment in Purdue-affiliated companies and has made five investments totaling \$749,997.

# PURDUE FOUNDRY UPDATES

## MEASURING SUCCESS BY ACHIEVING GOALS

### PROGRAMS AND STARTUP SUCCESS STORIES:

**Double Down Experiment (DDX)**, a pre-accelerator program designed to help entrepreneurs launch a startup, provided a Virtual Fall Showcase for Foundry clients. DDX focuses on experimentation, iteration and constant learning so founding teams who are ready for next stage growth. Fourteen Foundry companies have completed the DDX program and, because of their participation, have experienced successful product launches, improved investor attraction and successful FDA interactions.



Mohit Verma, founder of Krishi, LLC, received a \$100,000 investment from the Purdue Foundry's Ag-Celerator program.

**Purdue Ag-Celerator Investment**, a startup investment fund managed by Purdue Ventures, Purdue Foundry and Purdue's College of Agriculture invested \$100,000 in Krishi, LLC, a startup commercializing an exciting technology to identify the antibiotic that is most likely to succeed in the treatment of bovine respiratory disease. Mohit Verma, an Assistant Professor of Agricultural and Biological Engineering, founded the startup.

**Innovation and Entrepreneurship Fellow**, new campus-wide faculty innovation and entrepreneurship program launched in 2021 that will help connect Purdue University innovators with novel paths for entrepreneurship and commercialization. The program is coordinated through the Burton D. Morgan Center for Entrepreneurship.

*“ It is easy to say that the COVID-19 pandemic presented many serious new challenges and exacerbated existing business model challenges for startups. In response, the Foundry rapidly shifted to a virtual service delivery to provide valuable training, access to talent and capital resources. One of the gratifying outcomes is that we learned that by use of video communication tools such as Microsoft Teams, our portfolio companies were able to build successful relationships with investors, mentors and industry experts.”*

**WADE LANGE**  
VICE PRESIDENT  
AND CHIEF ENTREPRENEURIAL OFFICER

# PURDUE ENTREPRENEURIAL ECOSYSTEM

## SUCCESSFUL STARTUPS



**Heliponix LLC**, a startup that designs, distributes, and supports direct-to-consumer, in-home greenhouses where consumers can grow their own produce year-round in their homes, is seeing increased interest for its innovation during the COVID-19 pandemic. Heliponix presented at the Consumer Electronics Show last year.

*“ We have experienced an explosion of inquiries in light of the pandemic from consumers who want control of their own produce supply. Consumers want food that tastes better while being healthier for them. The Purdue Foundry has been a tremendous help for us.”*

**SCOTT MASSEY**  
CO-FOUNDER OF HELIPONIX



### IMPROVED APP DESIGNED TO INCREASE THE DIAGNOSTIC POWER OF THE PUPIL FOR NEUROLOGISTS, OPTOMETRISTS

New advances for a neurological diagnostic tool for traumatic brain injury and various cognitive issues are helping more health care professionals access the technology to treat patients.

The Reflex product suite from Brightlamp, a Purdue Foundry-affiliated company, allows a broad spectrum of medical professionals to capture critical diagnostic pupillary light reflex data. The company recently released its third version of Reflex, Reflex Pro, and a powerful iPad solution for clinicians.

“This new advanced form-factor for Reflex makes it accessible to clinics across the country and significantly outpaces hardware pupilometers in performance and usability,” said Kurtis Sluss, CEO and founder of Brightlamp.

Reflex's proprietary SaaS platform leverages the user-friendly HD Apple iPhone and iPad video camera, which serves as a secure mobile data collection and transmission platform for Reflex's pupillary evaluation software.



### **\$1.4 MILLION SBIR GRANT FAST-TRACKS ANTIBODY TECHNOLOGY FOR PHARMACEUTICAL**

An innovation award will help a Purdue-affiliated bio-analytics startup commercialize instrument technology for pharmaceutical antibody manufacturers.

Novilytic LLC, a company that secures lifesaving drugs and medical devices, has been awarded a Phase II SBIR contract by the National Institute of General Medical Sciences, one of the National Institutes of Health.

The \$1.4 million Phase II contract will allow Novilytic to continue the research, development and commercialization of its new Proteometer. The new instrument technology is being created for process chemists and engineers who need to develop better process quality and control. The instrument is designed to test antibody purity in process.

“The Proteometer represents a truly disruptive technology that will allow process research and manufacturing chemists and engineers to monitor and control antibody growth in process,” said Fred Regnier, CTO and co-founder of Novilytic, and the former J.H. Law Distinguished Professor of Chemistry at Purdue.



*“ The technology approach of Novosteo has broad applications in the treatment of bone diseases, and we are rapidly developing a bone-targeted anabolic peptide for multiple uses...to expand NOV004 indications for areas with high unmet medical needs and accelerate development of our pipeline.”*

**WILLIAM “BILL” BOYLE**  
NOVOSTEO PRESIDENT AND CEO

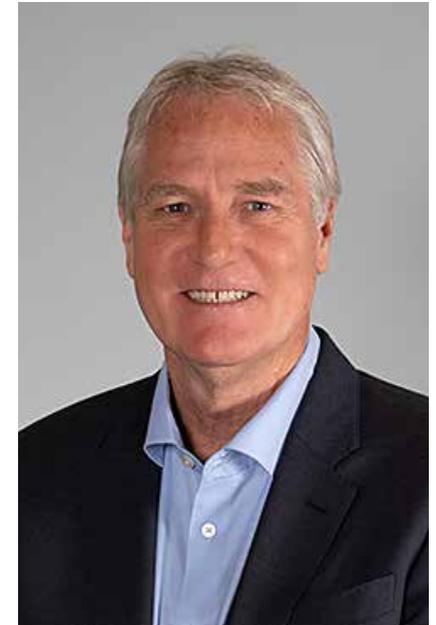
### **BONE TREATMENT STARTUP RAISES \$5.5 M IN SERIES A FINANCING, ADVANCES FIRST-EVER TARGETED BONE ANABOLIC AGENT**

Bone injuries and disease are one of the most challenging health issues facing all ages, especially for the elderly. Despite the advent of preventive measures, one in three hip fracture patients who are 65 and older will die within a year; many deaths occur because of the complications due to slow fracture healing and long-term immobilization.

Novosteo Inc., a preclinical-stage biotechnology startup focused on the development of bone-targeted therapeutics, announced the closing of a \$5.5 million in Series A financing to advance its development of the first-ever targeted bone anabolic agent NOV004.

Novosteo was co-founded by father-son team Philip S. Low, the Presidential Scholar for Drug Discovery and the Ralph C. Corley Distinguished Professor of Chemistry, and Stewart A. Low, the company's CSO and a Visiting Scholar in Purdue's Department of Chemistry.

The company also announced that William (Bill) Boyle, Ph.D. has joined the team as President and CEO. Boyle is a senior executive with 30 years of pharmaceutical and biotechnology industry experience.



## PURDUE ENTREPRENEURIAL ECOSYSTEM HELPS ADIPO THERAPEUTICS FOUNDER LAUNCH SUCCESSFUL STARTUP

Meng Deng, Assistant Professor in Purdue's Department of Agricultural and Biological Engineering, Weldon School of Biomedical Engineering and School of Materials Engineering, licensed a technology he developed at Purdue and founded Adipo Therapeutics LLC in 2017.

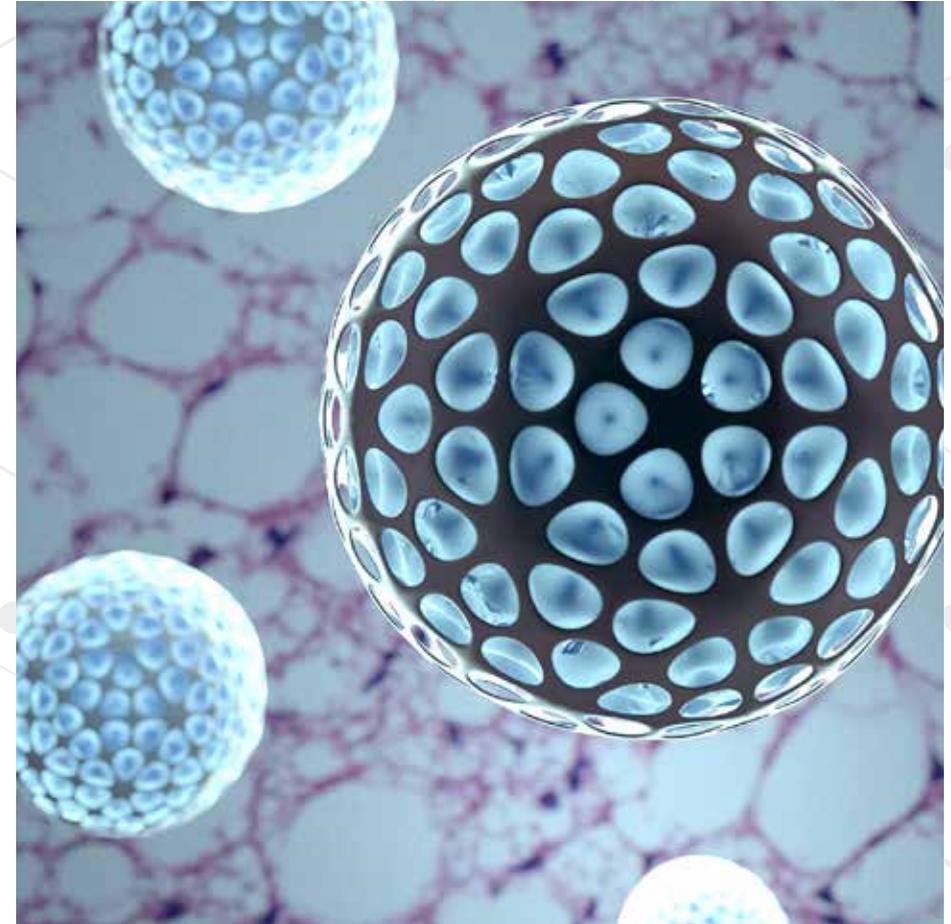
Adipo is developing a unique treatment approach for people struggling with obesity and diabetes. More than 2 billion people worldwide are overweight, and 463 million suffer from diabetes.

As a first-time entrepreneur, Meng participated in the Entrepreneurial Leadership Academy through the Burton D. Morgan Center for Entrepreneurship. As a Foundry member, he worked with an Entrepreneur in Residence and participated with one of his graduate students in the NSF Innovation Corps (I-Corps).

When Purdue alumnus David Campbell and his wife, Michelle, learned of Adipo through the Foundation's marketing of Purdue discoveries, they committed a significant investment in Deng's company.

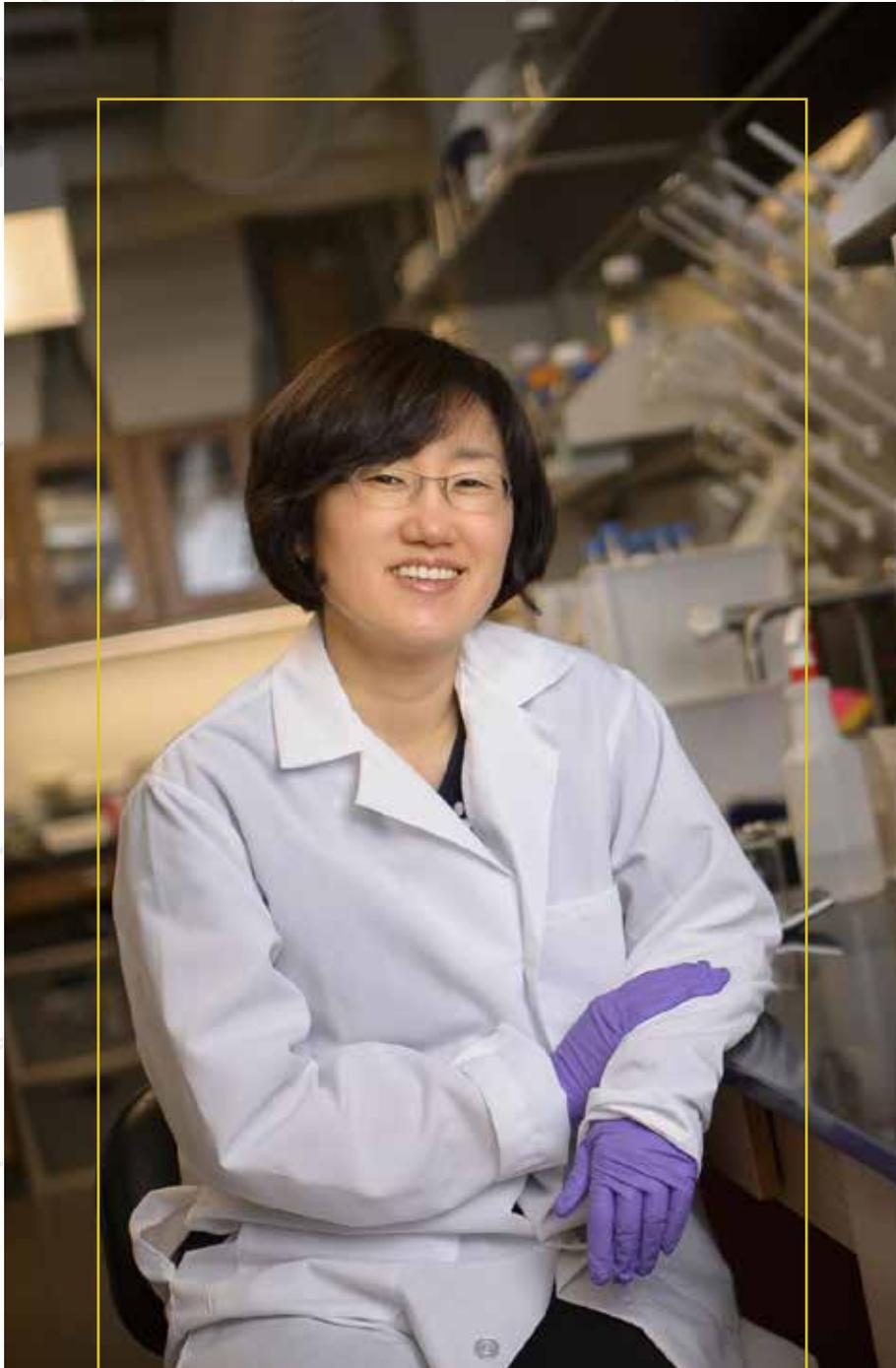
"Adipo Therapeutics and Meng Deng's work represent the tangible promise of hope," Campbell said. "Deng, Karen Wurster, Wade Lange and the support of the Foundation provide the ideal combination of intellect, commercial experience and institutional reputation to convert the promise to reality."

The Foundry Investment Fund, a fund supported through the Purdue Foundry to help advance Purdue-affiliated startups, also invested \$250,000 in the company.



“ *The support from Purdue Foundry and entrepreneurial ecosystem has been so incredible to help us get this far.*”

**MENG DENG**  
ASSISTANT PROFESSOR, DEPARTMENT OF  
AGRICULTURAL AND BIOLOGICAL ENGINEERING



Yoon Yeo received support from the Trask Innovation Fund to help commercialize her cancer immunotherapy technology.

# PURDUE

## OFFICE OF TECHNOLOGY COMMERCIALIZATION

*Purdue Research Foundation's Office of Technology Commercialization continued its success in moving Purdue University's patented inventions from the laboratory to the public.*

Continuing its mission to provide technologies that can help our global society, the Office focused on promoting technologies to help people affected by COVID-19 and the after-effects for those who had the coronavirus.

"Our office pivoted to promoting technologies that could help fight the pandemic," said Brooke Beier, Vice President, Office of Technology Commercialization. "Many faculty redirected their research programs to this cause and companies contacted us to license technologies to combat the coronavirus."

# #3

NATIONALLY IN STARTUP CREATION  
AND IN THE TOP 20 FOR ISSUED PATENTS  
COMPARED TO LEGAL EXPENDITURES  
IPWATCHDOG INSTITUTE (2020)

“ COVID-19 has made the whole world smaller. What we have found is that there is still a lot of value for in-person meetings, but we really do not need to travel to make connections with potential licensees or investors. For example, we did our entire 2021 Purdue Technology Showcase via video conferencing, and it was a huge success.”

**BROOKE BEIER**

VICE PRESIDENT

OFFICE OF TECHNOLOGY COMMERCIALIZATION

#### **PURDUE TECHNOLOGY SHOWCASE HIGHLIGHTED INNOVATIONS FROM AROUND INDIANA**

Novel innovations from inventors were on display at the 2021 Purdue Technology Showcase called the “State of INnovation.”

The Office of Technology Commercialization hosted the event that featured novel innovations from inventors from Purdue University, Crane Naval Base, Indiana University and the University of Notre Dame.

Startup companies working with the Purdue Foundry also were featured at the showcase.

“This year we decided to include technologies from our peer in-state institutions alongside Purdue to shine a light on the exciting innovation occurring across the State of Indiana,” said Brooke Beier, Vice President of the Office of Technology Commercialization. “The virtual showcase reached audiences around the world and connected commercialization partners with incredible innovators and technologies.”

**408** INVENTION  
DISCLOSURES

**721** PATENT  
APPLICATIONS

**252** ISSUED  
PATENTS

**148** LICENSE AND  
OPTION AGREEMENTS

**225** TECHNOLOGIES  
LICENSED

**22** STARTUP  
COMPANIES  
(BASED ON PURDUE IP)



OTC staff (from top left): Brooke Beier, Will Buchanan, Gwen Bulington, Kim Daly, Patrick Finnerty, Annie Ghosh, Matt Halladay, Gina Jones, Abhijit Karve, Joe Kasper, Bindu Komalavally, Carol Larcher, Scott Levans, Jeni Martin, Dipak Narula, Charlie Pruitt, Steven Rao, Kim Richardson, Sally Ross, Lacretria Rothenberger, DHR Sarma, Dhananjay Sewak, Aman Talwar, Tina Torres, Andrew Umlauf, Parag Vasekar, Liang Yan.

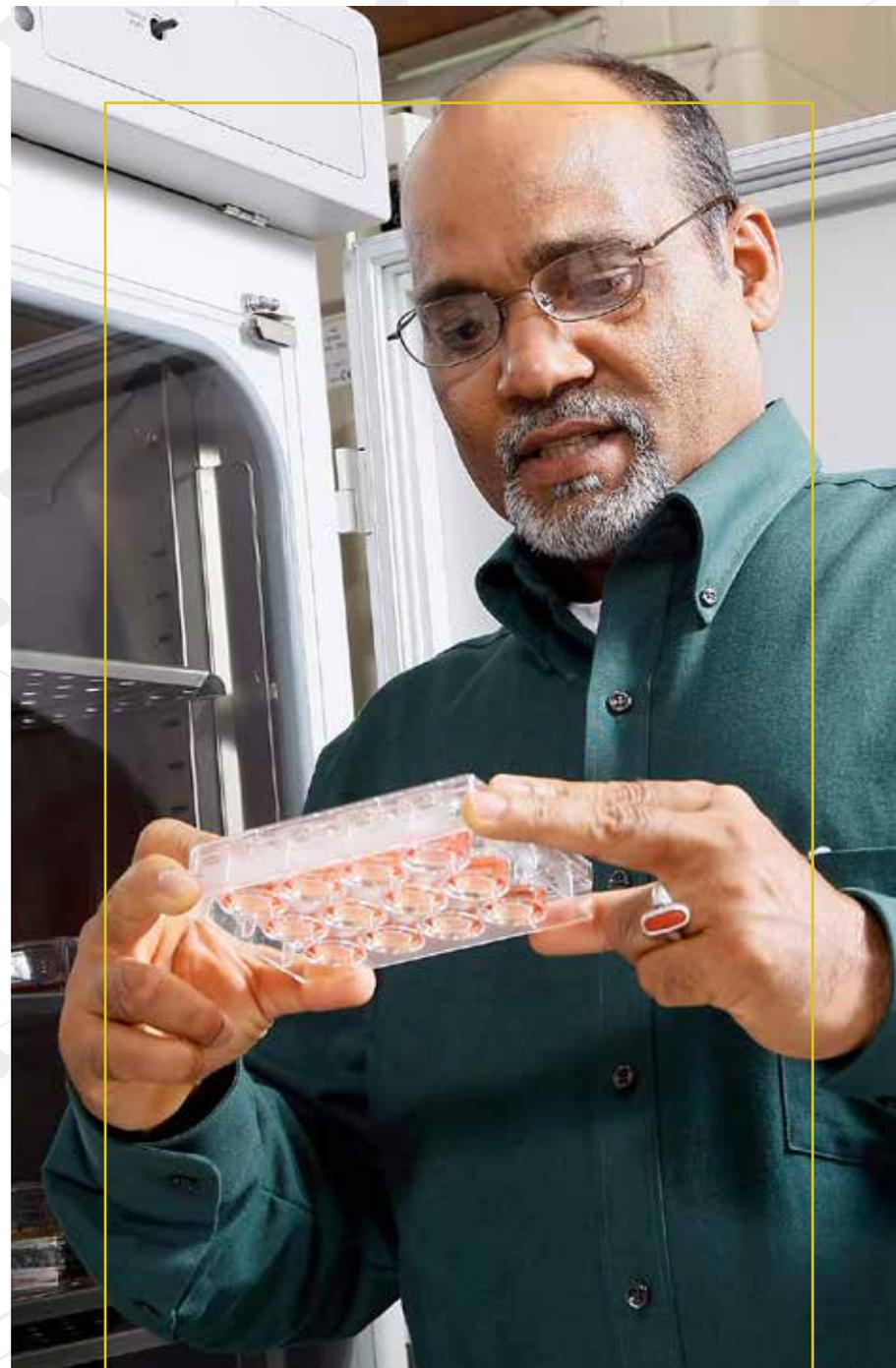
# TRASK INNOVATION FUND

The Trask Innovation Fund provides financial support for Purdue researchers who are working to move their innovations to the public. Innovators can compete in one of three tracks: Innovation Sparks - Life Science, Innovation Sparks - Physical Sciences and Commercialization Partner Sparks. The Office of Technology Commercialization has awarded more than \$3 million to 81 technologies over the last 10 years.

The fund makes awards twice a year to aid faculty and staff in moving their innovations towards commercialization through the Office.

## The Purdue researchers receiving funding in the two 2020 cycles are:

- **Young Kim**, Scalable production and deposition of luminescent silk microparticles for 'on-dose' medicine authentication.
- **Pavlos Vlachos**, Automated analysis for improved heart health.
- **Philip Low**, Development of targeted therapies for idiopathic pulmonary fibrosis.
- **Yoon Yeo**, Abxtral for cancer immunotherapy.
- **James Caruthers**, Composite board binder systems from rice lignin.
- **Arman Sabbaghi**, Enhancing the commercial value of AMapi: An API for additive manufacturing systems.
- **Jean Chmielewski**, Cell penetrating antibacterial peptides for treatment of serious lung infections.
- **Arun Bhunia**, Authentication of listeria adhesion protein (LAP)-mediated drug delivery across the epithelial barrier.
- **Na Lu**, Prototyping piezoelectric sensing device for real-time concrete strength monitoring.
- **Pedro Irazoqui**, A wearable alerting device for monitoring impending SUDEP risk through multiple biomarkers.
- **Paul Robinson**, Handheld device for real-time detection of pathogens, toxins and contaminating chemicals for biodefense and food analysis.
- **Jeffrey Youngblood**, Processing of near-minimum viable product prototype for biodegradable packaging from cellulose nanofibrils.



Arun Bhunia received Trask funding through the Office of Technology Commercialization in 2020.

# TECHNOLOGY COMMERCIALIZATION NEWS

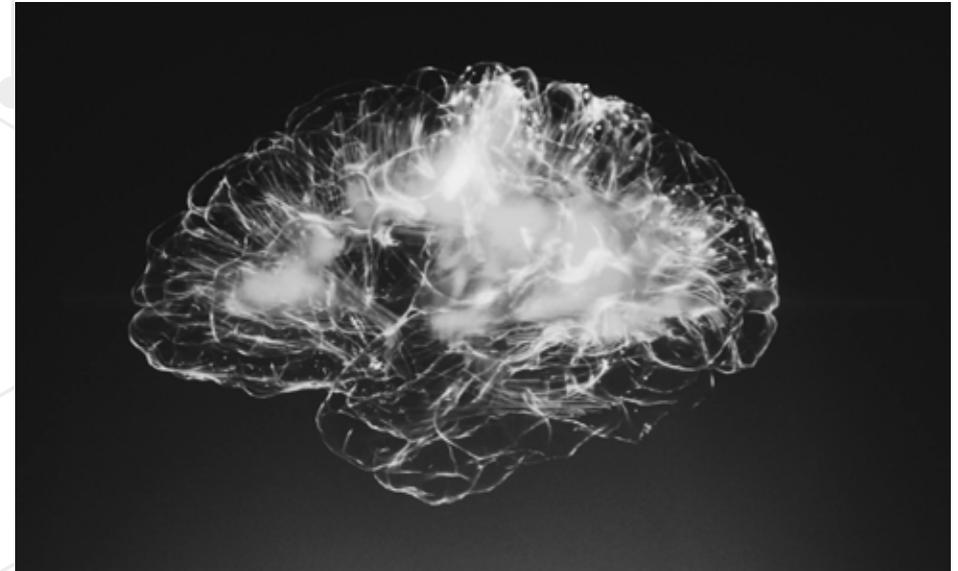
*In serving its mission and helping our global society during the pandemic, the Office of Technology Commercialization sought and successfully made available a number of innovations to help patients and families impacted by COVID-19. Here are a few of those technologies.*

## **PURDUE, RAYTHEON BBN TECHNOLOGIES, PORTASCIENCE, CORTEX DESIGN, AND LADUCA PARTNER ON COVID-19 POINT-OF-CARE TEST KIT**

Developed by Mohit Verma, an Assistant Professor in Purdue's Department of Agricultural and Biological Engineering, the COVID-19 test technology builds from Verma's previously developed more affordable and efficient method to diagnose Bovine Respiratory Disease (BRD), a common disease among beef cattle.

Verma's assays contain biosensors to detect the nucleic acids specific to the disease. Due to the simplicity of the design, the tests are affordable and do not require a medical professional.

"This collaboration marks an important milestone, as we work to provide an affordable, reliable and scalable COVID-19 test," Verma said.

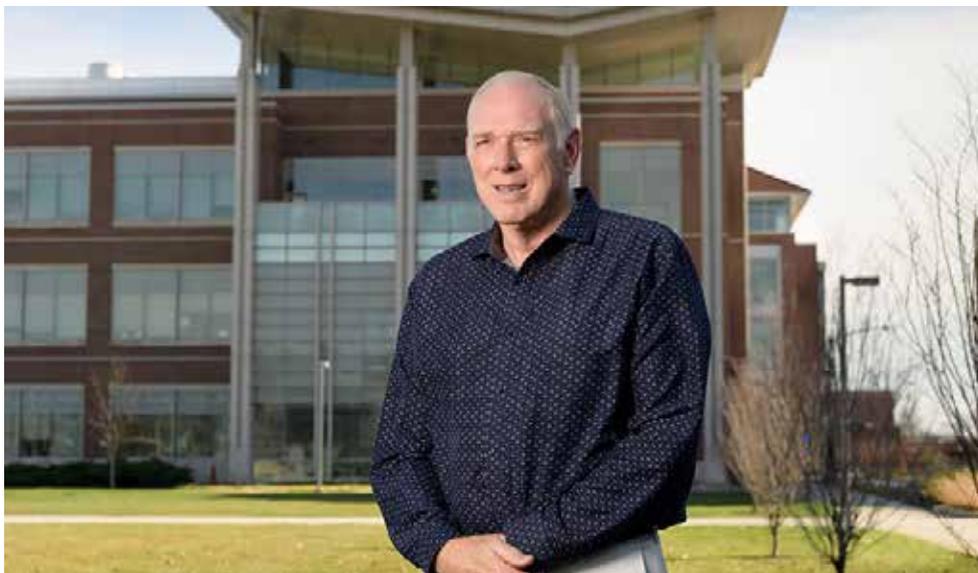


## **BEYOND COVID-19: NEW TECHNOLOGIES, TREATMENTS COULD HELP RECOVERED SURVIVORS NOW FACING NEUROLOGICAL AFTER-EFFECTS**

Individuals recovered from the most severe cases of the coronavirus may face new long-term health challenges. The Mayo Clinic reports that the aftereffects of COVID-19 often caused by sepsis can result in an extreme physical response to an infection and a life-threatening medical emergency that can damage organs and could cause organ failure.

These include brain tissue damage that can cause strokes, bring on seizures and increase the risk of developing Parkinson's or Alzheimer's diseases. Other organs at risk include the lungs and heart.

"The long-term health challenges arising from sepsis and other potential complications experienced by patients recovering from the severe cases of COVID-19 are devastating, but medical professionals and researchers are diligently working to reduce aftereffects," said Hyowon (Hugh) Lee, Associate Professor in the Weldon School of Biomedical Engineering.



### **NEW THERAPY FOR FLU MAY HELP IN FIGHT AGAINST COVID-19**

A new therapy for influenza virus infections that may also prove effective against other pathogenic virus infections, including HIV and COVID-19, has been developed by Purdue scientists.

In an average year, more than 2 million people in the United States are hospitalized with the flu, and 30,000 to 80,000 of them die from the flu or related complications.

The Purdue team's work is detailed in Nature Communications. The innovation uses a targeted therapy approach against the virus infections.

"We target all of the antiviral drugs we develop specifically to virus-infected cells," said Philip S. Low, the Purdue Ralph C. Corley Distinguished Professor of Chemistry. "That way, we treat the diseased cells without harming healthy cells. We use this capability to deliver immune-activating drugs selectively into flu-infected cells. There is also the potential that this therapy will prove efficacious in people infected with COVID-19."

### **CHIP FOR BIOMOLECULE DETECTION MAY HELP IN COVID-19 TESTING**

A patented method for single biomolecule detection that overcomes limitations of current technologies may help in the fight against COVID-19.

Purdue University innovators created a method that uses a special sensor similar to a computer chip that is designed for the early detection of pathogens and viruses.

"We want to find partners to move this technology to the public as soon as we can," said Saeed Mohammadi, a Purdue Professor of Electrical and Computer Engineering. "We know it can be an effective, easy and inexpensive method for detecting viruses, potentially the one linked to the current pandemic."

The Purdue technique involves machine learning to train the system to detect certain features associated with particular diseases and viruses. Simulations have shown this technique may be effective in detecting COVID-19.

### **NSF GRANT AIDING PURDUE-AFFILIATED STARTUP'S WORK TO TREAT COVID-19, STOP FUTURE VIRAL PANDEMICS**

A Purdue-affiliated startup is receiving national support to pursue a strategy to treat severe COVID-19 cases and possible future outbreaks involving other viruses.

Akanocure Pharmaceuticals Inc. has received a \$256,000 Phase I research grant from the National Science Foundation (NSF).

"NSF is proud to support the technology of the future by thinking beyond incremental developments and funding the most creative, impactful ideas across all markets and areas of science and engineering," said Andrea Belz, Division Director of the Division of Industrial Innovation and Partnerships at NSF.

The startup has been studying groups of molecules that show promise in fighting COVID-19 and other viruses.

# INFORMATION SYSTEMS

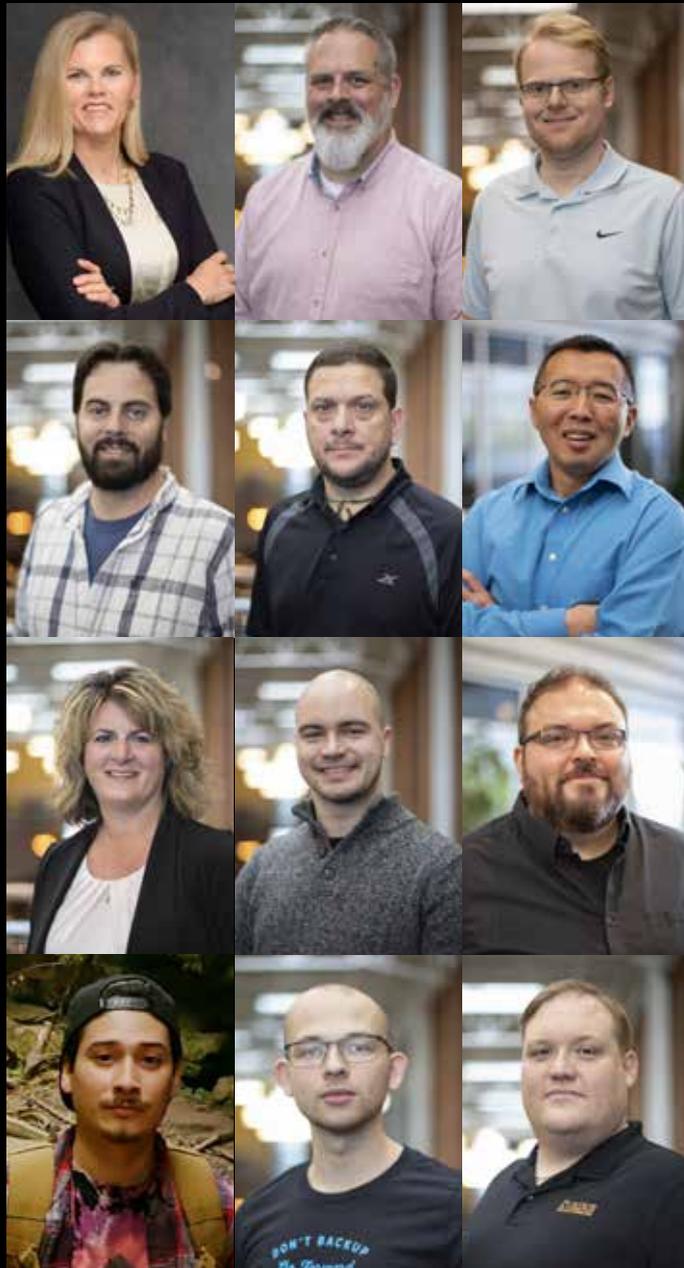
## REMOTE WORKING TAKES CENTER STAGE

*The Foundation's Department of Information Systems took center stage as COVID-19 precipitated the move of 125-plus PRF employees from on-site to working remotely with technology guidance and assistance.*

"We always had the ability to work from anywhere in the world but we could not have predicted that we would need to create the means for a nearly 100% remote working environment and ensuring those remote workspaces uphold our high standard of security that we keep front and center in all we do," said Mary-Claire Cartwright, Chief Information Officer. "One of the first steps in making this happen was taking an inventory and determining what equipment we already had and what we would need to acquire to make this transition work for everyone."

Information Systems began purchasing computer hardware such as laptops with docking stations and expanding the use of software such as Microsoft Teams and other communication technology to create a Foundation-wide communication system. All the while keeping cyber security at the vanguard of those changes.

"As people in large numbers began working remotely, we worked to establish ways for people to share information in a secure way," she said. "Security protocols were already in place such as multi-factor authentication for email and other software programs. We expanded those



From top left: Mary-Claire Cartwright, Ed Johnson, Baylor Aldridge, Brian Clark, Scott Coburn, Steve Edwards, Carla Jackson, Tyler Johnson, Tom Long, Erick Orellana, Andrew Spiker, Matt Wright.

same measures to other resources for additional security. Continuous monitoring of all systems is another safeguard in protecting the Foundation's assets and systems."

As the Department set up the hardware and software, it congruently created online training sessions to help team members learn how to use new communication and security systems.

"There was a lot of training involved but people adapted quickly and one thing we learned was to streamline some of the systems to make it easier for people to use," Cartwright said. "We originally had too many ways to communicate and we moved to using Microsoft Teams almost exclusively so it would not over-complicate the process."

Tom Long, Enterprise Security Administrator for Information Systems, was responsible for launching Microsoft Teams as well as new computer deployment and inventory management systems and other cloud services.

"It's been a busy year for all of us and it hasn't slowed down, yet it's been a successful year too in all the ways that our jobs have evolved. Overall productivity has not only continued but increased," Long said. "Our Department had been piloting Microsoft Teams for several months before the pandemic, but it was not used across all areas of the Foundation. Each area had its own way of communicating, but today Microsoft Teams is the Foundation's preferred collaboration platform and has made interdepartmental communication much easier. After everything we've learned during our shift to working from home, my advice is to remain flexible, stay in touch with people and take nothing for granted."

There were other lessons learned from the success of remote working.

"At first we thought working remotely would be short-term but as the pandemic continued and we are now in its second year, we have all adapted," Cartwright said. "What we know now is that not only can people

*"Information Systems has always been agile and technologically current. Pivoting from maintaining on-site equipment to providing secure workstations in more than 125 different locations was an unknown exercise. Because companies around the world were doing the same thing, there was a very high demand and very short supply, our biggest challenge was locating and acquiring the technological equipment to establish new workstations for various locations. Nevertheless, within a few weeks this goal ultimately proved to be highly successful."*

**MARY-CLAIRE CARTWRIGHT**  
CHIEF INFORMATION OFFICER

already employed at the Foundation work anywhere, but we can hire from anywhere. The world has gotten a lot smaller."

The Department's technology support 'Help Desk' received more than 4,000 total requests this year. It also conducted a customer service survey as another way to communicate to team members that the Foundation is there to help and find out how things could be improved. Highlights of the survey include that 98% of respondents know what is expected of them professionally and 95% agree that the information technology tools available to them strongly supports their work.

# HUMAN RESOURCES

## COVID-19: FOCUS ON PEOPLE

*When faced with a global pandemic, the leadership in the Department of Human Resources moved quickly to ensure the safety and well-being of the Foundation's nearly 400 employees including those working in the Purdue Foundry, Discovery Park District, Purdue Research Park, Physical Facilities, Information Systems, Office of Technology Commercialization, Office of Investments and the University Development Office.*

Nearly every change or procedure related to the pandemic flowed through Human Resources.

"We knew right away that we needed to prepare our employees to work remotely, something we had never attempted on a wide scale across the organization. It was the first and most important thing to do for the safety of our team," said Judith Hall, Chief Human Resources Officer. "We also needed to identify essential staff who would continue to work on-site. It was a constantly evolving process. The attitudes of our staff began with 'We can't do it' and shifted to 'We can do it' and finally to 'We are doing it.' It was amazing how quickly our employees adapted and moved from not believing something was possible to making it our new normal!"



From top left: Judy Hall, Josh Curry, Judy Shorter, Barb Tyner, Ryan Weiderhaft, Kayla Young.

While the Foundation is self-supporting and separate from Purdue University, the Foundation's primary mission is to serve the University and that was a top focus of the Department as well.

"The Foundation's individual departments have always worked closely with Purdue units doing similar work. Those previously established relationships were key to moving quickly and with agility as we faced a virus of unknown strength and quantity," said Hall. "Early in the crisis, Foundation and University leadership teams met remotely three times a week to ensure we coordinated our actions as we worked together to protect all those affiliated with Purdue. It has definitely been a team effort."

Early in the pandemic, the Department established three primary areas of focus:

- **Communication to Employees:** Providing frequent, transparent and consistent communication to all employees, while continuing to provide individualized counseling regarding topics such as FMLA and COVID-related leaves.
- **Safety for Everyone:** Assisting the facilities team to establish protocols and procedures to protect employees, visitors and tenants in Foundation-owned buildings.
- **Work-related Resources:** Collaborating with leaders from other departments to ensure staff had the physical, mental, and emotional resources to do their jobs, which included an individualized review of what each employee needed to work successfully while remote.

"Many of these employees hadn't previously used platforms like Microsoft Teams, but people learned quickly," Hall said. "I was pleased to see how rapidly people adapted to the new normal."

In addition to the pandemic, the Department has continued to function and perform as it always has to support employment for the more than 370 employees situated across the Purdue University campus and around the State of Indiana.

“ *When COVID-19 hit we immediately enacted our crisis procedures including safety for all staff, frequent and transparent communication, policy strategic oversight and working directly with staff affected by the virus. It has been quite a year.*”

**JUDITH HALL**

PHR, SHRM-CP, CHIEF HUMAN RESOURCES OFFICER

Human Resources continued to recruit and hire for essential positions for the Foundation throughout the pandemic. The Department also managed current employees' ongoing needs including overseeing employee benefits, the performance evaluation process for current staff, while ensuring continued legal compliance with federal and state requirements regarding FMLA and ADA, conducting investigations, maintaining records and complying with Federal filing requirements.

More than one year into the COVID-19 pandemic, there are still daily challenges.

"Not a day goes by that I don't hear from an employee who needs something related to COVID-19," Hall said. "But we are getting through this and overall productivity has not missed a beat."

# MARKETING & COMMUNICATIONS

*Less than one month after the global pandemic fully hit in March 2020, Kelly Nicholl joined Purdue Research Foundation as Vice President of its Marketing and Communications Department.*

"I accepted the position in early 2020 and, at that time, COVID-19 was still on the peripheral of events. Very few of us expected it to become a world-wide pandemic that would affect nearly every part of our personal and professional lives," Nicholl said. "By the time I joined the Foundation in mid-April we had begun to realize the true impact that the coronavirus could have on our global society."

The Department had moved to remote work before Nicholl started and it would be several months before she would meet her team members in person, but she made sure she developed strong relationships with her

team within the first few weeks through the available communication platforms.

"In the beginning, daily communication among us was imperative as we got to know each other and I could discover what I call the 'Sweet Spot' for each team member so they could not only do what they enjoyed doing but do it in such a way that our Department could advance even further," she said. "The Microsoft Teams platform helped a lot as it created a visual so we could connect and get to know each other on both a professional and personal level. But still, it is a challenge to do creative work over a Teams call."

Prior to beginning her employment at the Foundation, Nicholl already developed a number of strategic marketing initiatives ready to meet established goals for the Department.

From left: Kelly Nicholl,  
Chris Adam, Oren Darling,  
Seth Lucas-Falk,  
Alicia South-Hurt.



"I was prepared to hit the ground running to advance the various projects and meet our objectives and the entire group is great at working collaboratively and doing whatever needs to be done to achieve those goals – so it worked," she said. "I am still amazed at the multiple projects we undertook together and how cognizant we were and are to each other's personal needs and challenges. I was not a fan of remote working in the past, but one important thing I have learned is that people can effectively work remote."

Among the Marketing and Communications Department's 2020 accomplishments are:

- Launching a marketing initiative to promote and license Purdue's available technologies with a focus on technologies that show promise in fighting viruses like COVID-19 and health innovations that could help coronavirus patients heal from the after-effects of the virus.
- Refreshing the Discovery Park District website that supports a \$1 billion-plus, 400-acre district that is transforming the west side of the Purdue campus where people can learn, work, play and live.
- Developing and publishing an ambassador video book to market the Foundation's strategic initiatives by providing visuals of completed and planned expansions of its physical and economic growth.
- Initiating the first paid campaign for Back a Boiler – ISA Fund, an innovative program that offers an alternative to help students pay for their education without accruing debt.
- Creating a tool kit for the Foundation's Economic Development team that can facilitate a more consistent message and faster response time to Requests for Proposals (RFPs) from external audiences.

The Department of Marketing and Communications also started a bi-monthly blog to highlight Purdue influencers, expanded the Department's social media platform and streamlined the eNewsletter to reach a more targeted audience.

*“ In the beginning of the pandemic, we really didn't know how long we would work remote but what we did know was that we wanted to focus on providing the resources and support so all areas could move forward while keeping people safe and being respectful of how the pandemic may be affecting our team members. It is gratifying to witness how the Foundation as a whole pulled together and achieved so much during such challenging times.”*

**KELLY NICHOLL**

VICE PRESIDENT

MARKETING AND COMMUNICATIONS

# *PURDUE FOR LIFE FOUNDATION*

**One voice. One Purdue. Purdue for Life.**

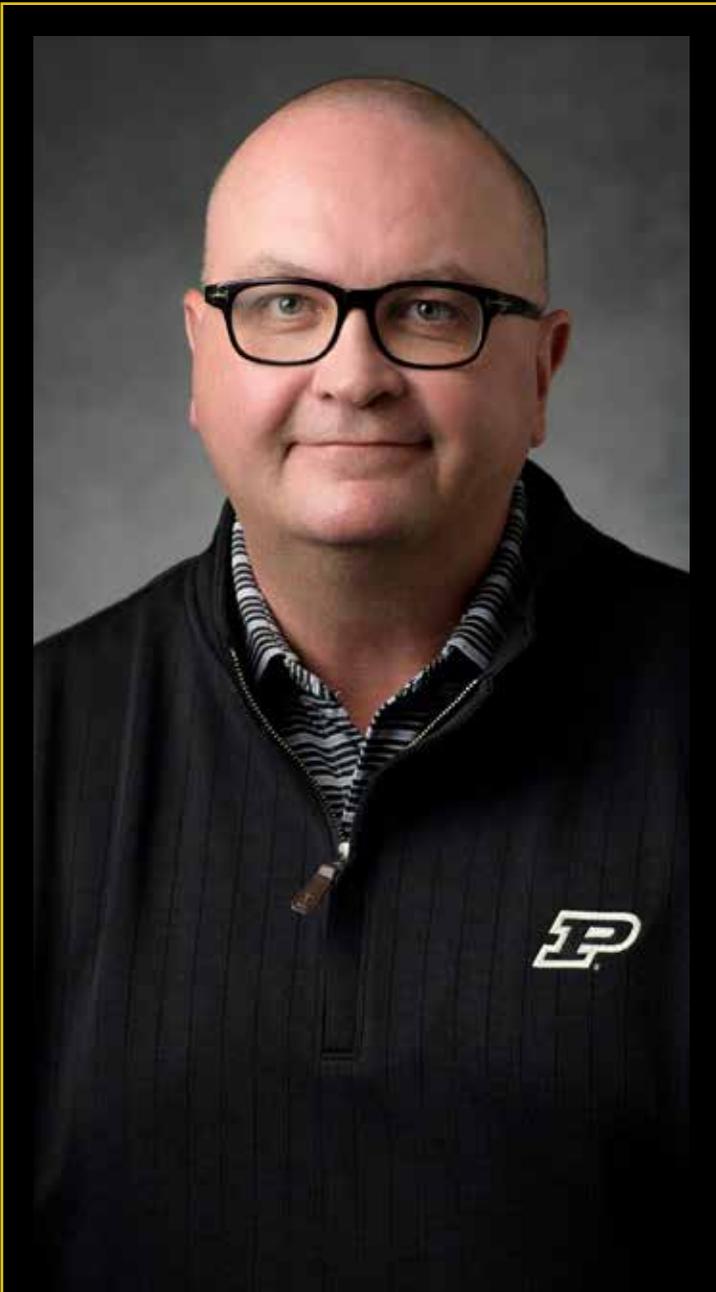
On March 11, 2020, Purdue President Mitch Daniels announced the formation of the Purdue for Life Foundation, a new organization uniting the Purdue Alumni Association and the University Development Office.

Just five days later, the University sent students, faculty, and staff home because of the intensifying COVID-19 pandemic. The Purdue Research Foundation, the administrative home of Purdue for Life, sent staff home for remote work as well.

That turn of events left Matt Folk—brand-new in his role as President and CEO of Purdue for Life and Purdue's Vice President for University Advancement and Alumni Engagement—leading a 247-member staff, most of whom he'd never met, through an extensive but socially distanced organizational restructuring, as well as a round of pandemic-influenced goal setting for fundraisers. Purdue University's own reduced budget (because of COVID) affected the year's operations as well.

"What we've been able to achieve in these circumstances is remarkable," says Folk. "It's taken the hard work, goodwill, and persistence of everyone on our staff, and I couldn't be more proud of our efforts."

Fundraisers accustomed to hopping in a car or catching a flight to meet with donors pivoted to phone calls and videoconferences from their living rooms. Event organizers led the move from organizing in-person gatherings to planning virtual, online occasions. Colleagues scouting interior locations for donor recognition signage, or producing an outdoor groundbreaking for a new building, donned masks and stationed themselves six feet apart to stay safe. And staff members across every unit in the new organization got up to speed—fast—on Webex, Zoom and MS Teams.



Among the new organization's 2020 accomplishments:

- **The Protect Purdue Initiative**, a crowdfunding project, was launched to support the University's move to safe on-campus learning for the Fall 2020 semester and beyond. More than 4,000 donors made contributions. In a related effort, donors contributed \$1.2 million in matching funds to inspire gifts to the project. **Combined, donors have contributed \$3.7 million in Protect Purdue funds.**
- **Free learning opportunities and activities** promoted on the new Purdue for Life website provided Purdue alumni a gateway to personal development during the pandemic. Content was provided by the University, Purdue Global, Purdue Online, and the Purdue Alumni Association. Additionally, Purdue for Life helped its alumni clubs maintain contact (remotely) with members and create content for them.
- **2019-20 fiscal year giving:** Giving levels were strong during the first eight months of the fiscal/academic year, especially considering that 2019-20 was the first year after the successful completion of the \$2.5 billion Ever True campaign. The last four months of the fiscal year, March through June, saw a 50% decrease in giving levels from the first eight months, yet by June 30 (fiscal year-end), a total of **\$342 million in new commitments** was realized—the fifth-highest private giving amount in Purdue's history and the largest single-year total in a non-campaign year. This total included nearly \$100 million in commitments for student support. In the new fiscal year starting on July 1, 2020, the Purdue family has responded as true champions, achieving giving levels that are slightly ahead of last year's pre-pandemic pace.
- **Purdue Day of Giving**, postponed from April to September, **raised a record \$42.2 million**, including \$1 million to Purdue Athletics' "More Than a Game" campaign and \$1 million to establish the David Robert Lewis Engineering Scholarship to increase opportunity for Black students studying engineering at Purdue.
- **Homecoming** was produced as a multifaceted, robust virtual event—the largest online university homecoming event in the country.

- **Planning for a new Salesforce CRM** (customer relationship management) system set the stage for a successful January 2021 implementation, which is providing the organization smoother access to data and the resources to communicate with our constituents in a more customized, streamlined fashion.
- **Organizational structure:** The development office was restructured to bridge organizational silos, facilitate collaboration, and prioritize donor intent. The Purdue Alumni Association is close to legal integration with the Purdue for Life Foundation, with the merger expected to be completed in the spring of 2021.

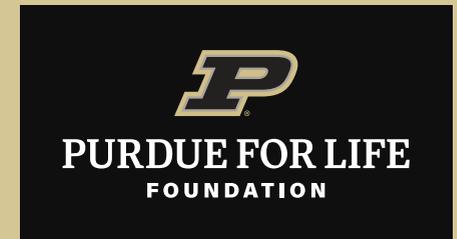
Now halfway through the 2020-21 fiscal year, the Purdue for Life Foundation is on the path to one of the best fundraising years in its history.

## THE MISSION

The Purdue for Life Foundation was established to deepen alumni ties to the University and to drive and coordinate all alumni-related activities across the Purdue family's post-graduation lives.

This integrated model — an increasingly common approach across American universities — combines the Purdue Alumni Association and the University Development Office, which includes the President's Council, the John Purdue Club, and the newly reorganized Office of Industry Partnerships.

The organization's scope also includes alumni lifetime learning programs and on-campus residential opportunities.



## OFFICE OF INVESTMENTS

*As the world faced a global pandemic in 2020, many investment leaders were faced with additional challenges - primarily an economic downturn due to a massive shutting down of the world's economies.*

The Purdue Research Foundation's Office of Investments, which manages the combined Purdue University and Purdue Research Foundation cash, endowment, and retirement assets, was prepared.

"I've been through the 2008 financial crisis so I had some experience of an economic downturn," said David Cooper, the Foundation's Chief Investment Officer. "When I came to the Foundation several years ago, we created a 'Break the Glass' preparedness plan should we face such a downturn of any type. In combination with the University and the Foundation's sound fiscal management, our purposeful planning put us in a strong financial position and helped us to weather the pandemic."

Due to the preparedness planning, the Foundation did not have to sell assets or realize losses in the portfolio. Few educational endowments were in a similar fortunate situation.

The combined funds under management of the Office of Investments includes cash, endowed funds, trusts, annuities and retirement funds that totaled about \$6.3 billion in FY19. FY20 assets totaled approximately \$6.5 billion.

"At the time we created the 'Break the Glass' preparedness plan, we did not fully appreciate the utility it would have during a crisis. It proved to be an excellent communication and decision process tool that yielded numerous benefits," Cooper said.



Office of Investments staff (from top left): David Cooper, DeAndra Ballard, Sanjay Patel, Lisa Roark, Blair Webb.

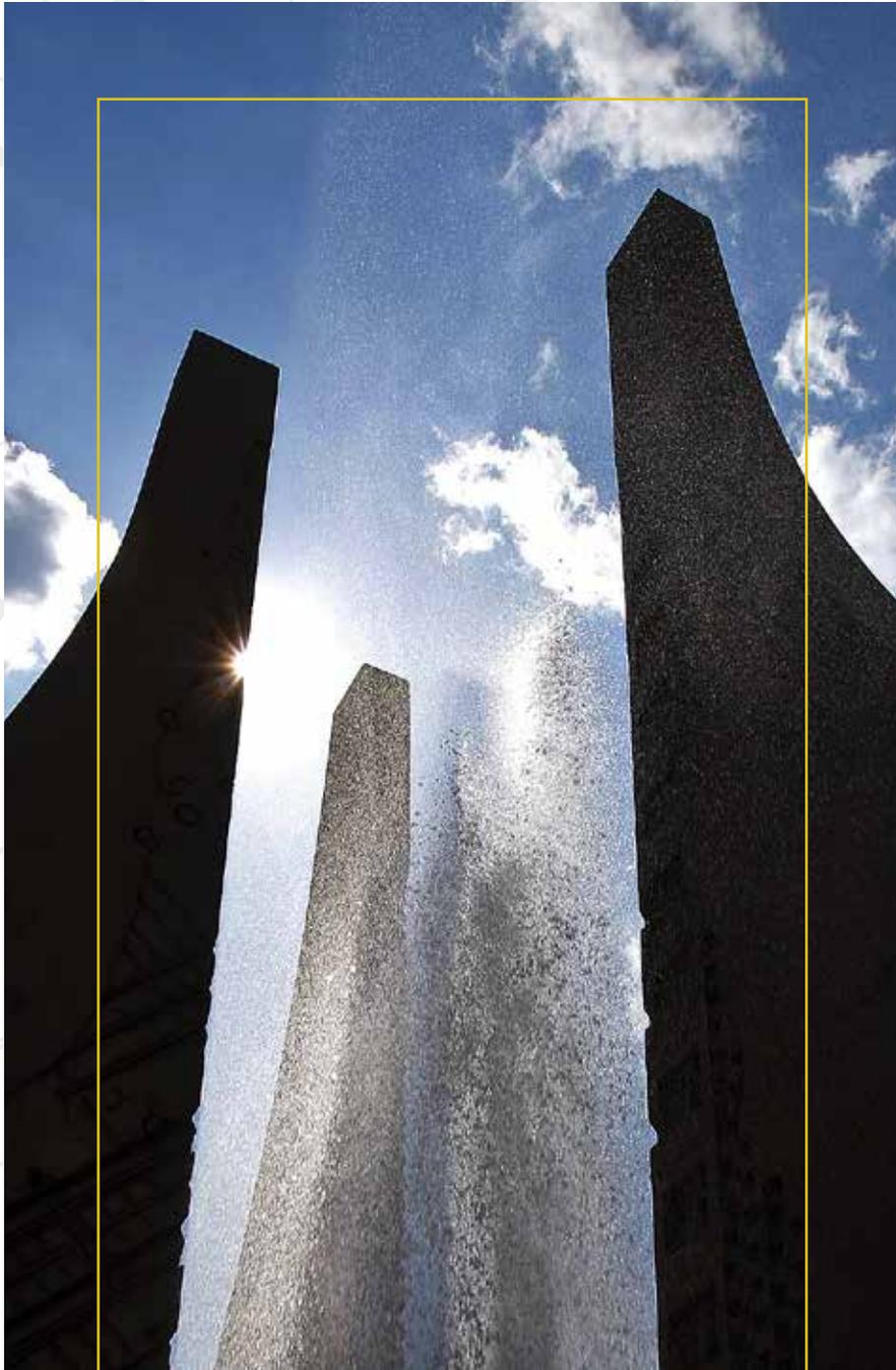
**“** *What I'd say is that you should stay calm, adjust your tactics and tools but not your goals.*”

**DAVID COOPER**  
CHIEF INVESTMENT OFFICER

**The Accounting and Financial Reporting Department manages all financial activities for the Purdue Research Foundation and some activities for the benefit of Purdue University. Here are the team members:**



Finance staff (from top left): Scott Seidle, Brad Anthony, Stacy Brown, Kelsey Deford, Tammy Gick, Rachelle He, Lu Huang, Judy Hubbell, Linda Kingma, Taylor Lockhart, Emily McDaniel, Tammy Metzinger, Cathy Morrison, Diane Ross, Mary Anne Schmidt, Melanie Stout, Mary Stultz, Danita Such, Michelle Wiese.



## *ACCOUNTING & FINANCIAL REPORTING*

*Finance and Investments support all the activities of the Purdue Research Foundation and is involved in all the operations activities, compliance and governance that allow the Purdue Research Foundation to function as a nonprofit corporation.*

### **OFFICE OF INVESTMENTS**

The Purdue Research Foundation's Office of Investments manages the combined Purdue University and the Purdue Research Foundation endowments as well as retirement assets.

All funds are managed according to the policies established by the Foundation's Board of Directors Finance Audit Committee. As of June 30, 2020, funds under management including endowed funds, trusts, annuities and retirement funds totaled approximately \$6.5 billion.

### **ACCOUNTING AND FINANCIAL REPORTING**

The consolidated statements of financial position and activities for the fiscal year ending June 30, 2020 are presented.

# CONSOLIDATED STATEMENT OF FINANCIAL POSITION

June 30, 2020 (In Thousands)

	Total
<b>Assets</b>	
Cash and cash equivalents	\$ 16,493
Accounts and other receivables	25,986
Investments	2,731,838
Notes receivable	31,918
Investments in affiliates	8,402
Net real estate	273,391
Net other assets and equipment	18,748
Interest in charitable perpetual trusts	<u>15,799</u>
<b>Total assets</b>	<b><u>\$ 3,122,575</u></b>
<b>Liabilities and net assets</b>	
<b>Liabilities:</b>	
Accounts payable and other accrued expenses	30,168
Due on split interest agreements	42,406
Net funds held as custodian	64,518
Net funds held for Purdue University	1,765,381
Bonds payable	58,481
Mortgages, notes payable, and line of credit	133,445
Gift annuity payable	5,731
Other liabilities	<u>3,659</u>
<b>Total liabilities</b>	<b>2,103,789</b>
<b>Net assets:</b>	
Without donor restrictions	282,067
With donor restrictions	736,719
<b>Total net assets</b>	<b><u>1,018,786</u></b>
<b>Total liabilities and net assets</b>	<b><u>\$ 3,122,575</u></b>

# CONSOLIDATED STATEMENT OF ACTIVITIES

June 30, 2020 (In Thousands)

	Without Donor Restrictions	With Donor Restrictions	Total
<b>Revenue and support</b>			
Amounts received for Purdue University research projects	\$ 706	\$ -	\$ 706
Payments to Purdue University	<u>(706)</u>	<u>-</u>	<u>(706)</u>
	-	-	-
Contributions	14,909	44,675	59,584
Income on investments	2,920	15,325	18,245
Net unrealized and realized gains on investments	154	(15,427)	(15,273)
Loss on sale/exchange of real estate	834	-	834
Change in value of split interest agreements	-	3,781	3,781
Decrease in interest in perpetual trust	-	(325)	(325)
Administrative fees	33,375	-	33,375
Rents	24,236	-	24,236
Royalties	11,380	-	11,380
Other	2,679	-	2,679
Net assets released from restrictions	<u>72,703</u>	<u>(72,703)</u>	<u>-</u>
<b>Total revenue and support</b>	<b>163,190</b>	<b>(24,674)</b>	<b>138,516</b>
<b>Expenses and losses</b>			
Expenses for the benefit of Purdue University:			
Contributions to Purdue University	44,989	-	44,989
Patent and royalty	8,755	-	8,755
Grants	581	-	581
Services for Purdue University	2,493	-	2,493
Other	<u>2,716</u>	<u>-</u>	<u>2,716</u>
<b>Total expenses for the benefit of Purdue University</b>	<b>59,534</b>	<b>-</b>	<b>59,534</b>
<b>Administrative and other expenses:</b>			
Salaries and benefits	39,307	-	39,307
Property management	23,155	-	23,155
Professional fees	12,632	-	12,632
Supplies	3,384	-	3,384
Interest	8,091	-	8,091
Annuity and trust expense	4,888	-	4,888
Research Park	554	-	554
Other	<u>6,555</u>	<u>-</u>	<u>6,555</u>
<b>Total administrative and other expenses</b>	<b>98,566</b>	<b>-</b>	<b>98,566</b>
<b>Total expenses and losses</b>	<b>158,100</b>	<b>-</b>	<b>158,100</b>
<b>Change in net assets</b>	<b>5,090</b>	<b>(24,674)</b>	<b>(19,584)</b>
<b>Net assets, beginning of period</b>	<b>276,977</b>	<b>761,393</b>	<b>1,038,370</b>
<b>Net assets, end of period</b>	<b><u>\$ 282,067</u></b>	<b><u>\$ 736,719</u></b>	<b><u>\$ 1,018,786</u></b>

## VOICES FROM THE PANDEMIC

*"Never have I relied more on my family, friends and co-workers than I have in the last 12 months. We are much stronger together."*

**Mary-Claire Cartwright, Chief Information Officer, Information Systems**

*"During the pandemic, our accounting processes evolved with remote working. These processes are more efficient today than before the pandemic."*

**Tammy Metzinger, Controller and Assistant Treasurer, Accounting and Financial Reporting**

*"Although 2020 was filled with anxiety, there were positive elements as well. My life actually became less stressful. The remote working environment forced me to slow down and appreciate the world around me."*

**Kimberly Daly, Marketing Specialist, Office of Technology Commercialization**

*"The ability of innovators and developers to deliver at scale a vaccine in about a year from the start of the pandemic in the U.S. gives me confidence that we can solve any future challenge to human and environmental health. Well done science!"*

**Brian Edelman, President**

*"I never thought I would love and disdain my two dogs. The most important thing is learning to appreciate being next to people more and the simple act of eating together."*

**J. Baylor Aldridge, IT Analyst, Information Systems**



Tom Long was responsible for launching the Microsoft Teams program as well as email programs and other cloud services.

*"The pandemic has forever changed how we define the workplace and work productivity. We have moved from "work-life balance" to "work-life integration" and I am thankful for the opportunity to see family throughout the day while working to advance the PRF mission."*

**Brooke Beier, Vice President, Office of Technology Commercialization**

*"Although in our connected world I certainly longed for moments of tranquil silence, the pandemic showed that physical connection is something to be cherished."*

**Greg Deason, Senior Vice President, Alliances and Placemaking**

*"The scope and damage caused by the pandemic in the past year is enormous. And yet, as with other great disasters, this one has a silver lining. This pandemic made us realize how resilient and adaptable we as humans are and things we are capable of doing when we go in the survival mode."*

**Abhijit 'Abhi' Karve, Director of Business Development, Office of Technology Commercialization**

*"I think the most dramatic learning experience for me was remote working. I have never embraced it and felt it was not conducive to a creative team. I learned not only is it productive, but people are happiest and most creative when they are comfortable and feel secure. For some that means working uninterrupted by others and from their homes."*

**Kelly Nicholl, Vice President, Marketing and Communications**

*"The greatest lesson that the COVID-19 pandemic has taught me is that change is inevitable. You must choose to focus your energy on building the new versus fighting the old."*

**Breanna 'Bre' Benn, Client Communication and Engagement Manager, Physical Facilities**

*"2020 felt like a rollercoaster of emotions - fear, exhaustion, frustration and gratitude. Looking forward to a hopefully steadier 2021."*

**Emily Najem, Vice President, Economic Development and Corporate Counsel**

*"Never Quit. It serves as a reminder that no matter what life throws at you, including a pandemic, you should Never Quit. Stand up and keep going."*

**Kayla Young, Human Resources Specialist and Executive Assistant, Human Resources**

*"Ambiguity, uncertainty, fear, worry, and many other mixed feelings and emotions flooded at once when the pandemic hit. What kept us going is hope, the fact that we are in this together, and the ability to adapt."*

**Larissa Clinton, Operations Manager, Purdue Foundry**

*"A time of fear, sickness, death, isolation, loss of jobs and businesses... but with FAITH, LOVE, COURAGE, CREATIVITY and DETERMINATION we became closer with each other finding the support and hope to endure."*

**Lynette Cieslak, Interim Operations Manager, Purdue Research Park of Northwest Indiana**

*"The pandemic truly showed the strength of the PRF family. Everyone adjusted to continue thriving as an organization."*

**Chris Adam, Writer/Publicist, Marketing and Communications**

*"Working from home taught me to lean on my coworkers and communicate more to ensure we are exceeding our expectations."*

**Kelsey Fitzgerald, Associate Operations and Events Manager, Purdue@WestGate**

*"Through much sadness, uncertainty, loneliness and unforgettable change we were offered time to reflect on what's truly important and challenged to adopt acceptance, adapt and Rise Up."*

**Tammy Gick, Operations Associate I, Accounting and Financial Reporting**

*"2020 was a year of embracing challenges and overcoming obstacles, nearly all unthinkable in January. The pleasure of getting to do that with 2 children by my side each day is immeasurable."*

**Tom Long, Enterprise Security Administrator, Information Systems**

*"I was one of the last few to pack up at our office to start working from home, it was a change I was not looking forward to. A year on, I cherish the flexibility and the work-life balance working from home allows. To paraphrase a famous quote "To make a change is a beginning, start with making a change."*

**Dipak Narula, Assistant Director of Business Development, Office of Technology Commercialization**

*"It has been devastating. The number of deaths around the globe, escalated unemployment and families losing the place they called home. Every day I have an abundance of gratitude that has led me to simplicity!"*

**Judy M. Shorter, Senior HR Generalist, Human Resources**

*"It's been amazing how quickly organizations can adapt when required - what was once impossible in terms of remote work is now an everyday reality. I don't believe we will ever go back to pre-pandemic work styles."*

**William Arnold, Managing Director, Purdue Foundry**

*"A quote from Marie Curie says it best for me: 'Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.'"*

**Emily McDaniel, Executive Assistant, Accounting and Financial Reporting**

*"This year delayed a lot of plans but it also has helped me realize how small the world actually is and, taken individually or holistically, people will rise to the occasion and do their best to take care of their families and each other."*

**Cynthia Sequin, Vice President (Ret.), Marketing and Communications**



Will Craft refills hand sanitizer stations in the lobby of the Kurz Purdue Technology Center in the Purdue Research Park.

*"I took on a lot more responsibilities leading up to and during 2020. I needed to find the determination to navigate these uncharted waters within my own home office, away from my peers. It was a struggle initially, but 2020 taught me that I am capable and can apply myself to new things, even in difficult circumstances."*

**Ryan Weiderhaft, Benefits and FMLA Administrator, Human Resources**

*"Approaching communication methods in different ways has made a good team great and forced me to think outside the box and schedule my time smarter. The flexibility of having the extra 30 minutes or more drive to and from work has given me the opportunity to say good morning and have a great day to family members - gratitude of extra time with family."*

**Samantha Nelson, Program Manager, Purdue@WestGate**

*"We have made history by living, surviving, and even thriving in the pandemic. It has given a whole new perspective to 'How do you eat an elephant? One bite at a time!' "*

**Kelsey Deford, Account Manager, Accounting and Financial Reporting**

*"The fear and isolation I felt as a result of COVID has encouraged me to realign my priorities shifting my focus back to prayer and my faith in Jesus Christ."*

**Lisa Roark, Executive Assistant, Office of Investments**

*"Every day brought a 'new normal' into some aspect of our lives. One 'old normal' I crave is personal engagement with family, friends and co-workers."*

**David A. Broecker, Chief Innovation and Collaboration Officer, President's Office**

*"If there's anything good to come out of this pandemic, it's that I've learned to be flexible. VERY flexible. My new motto (something I read a few years ago but didn't pay much attention to until now) is....if Plan A doesn't work, there are 25 more letters in the alphabet."*

**Judy Hubbell, Senior Accountant, Accounting and Financial Reporting**

*"Be you, Do you, For you. Never give up on yourself because YOU are important."*

**Deanna Bush Operations and Data Manager, Alliances and Placemaking**

*"It's stunning how loud an empty building can be when you are used to the halls being filled with people and conversation. I'm reminded of the album cover of The Roaring Silence by Manfred Mann."*

**Michael R. Chappell, Operations Manager, Purdue Research Park of Southeast Indiana**

*"2020 taught me to never take anything for granted, not even a roll of toilet paper, but especially family, health, and the creature comforts of our bygone lifestyle. It was a humbling year."*

**Hanae Sakata, Administrative Assistant, Purdue Foundry**

*"The pandemic provided insight into relationships: friends, spouse (singular), employer, coworkers; true ones survived; fake ones diminished. While not unscathed, I was enlightened on my follies and the occasional strengths!"*

**D.H.R. Sarma, Director of IP Protection Processes, Office of Technology Commercialization**

*"Flexibility is key to moving forward. Always have Plan B."*

**Mary Stultz, Accounting Associate, Trust and Gift Processing, Accounting and Financial Reporting**

*"What will always stand out about 2020 is how the Foundation consistently put our team in a position to succeed without feeling unsafe. I am forever grateful to our leadership and all my coworkers who made this possible."*

**Oren Darling, Marketing Operations Manager, Marketing and Communications**

*"The dedication of the Foundry team to essentially recreate ourselves into a digital first organization has been truly outstanding. PRF is blessed by a team so dedicated to positive outcomes for our ecosystem."*

**Wade Lange, Vice President and Chief Entrepreneurial Officer**

*"Through the pandemic we have kept our heads down and kept working... granted in a totally different way, but it's taught us things about ourselves and our processes that will make us better alum and employees for years to come."*

**Matt Folk, President and CEO, Purdue for Life Foundation**

# A SPECIAL THANKS

to our Facilities and Real Estate team, who have been working on the front lines of the pandemic, keeping Purdue Research Foundation facilities operating safely for our staff and tenants.



Facilities and Real Estate staff, from top left: Rich Michal, Jeremy Slater, Breanna Benn, Paul Bercot, Mike Chappell, Lynette Cieslak, Will Craft, Elaine Klemme, Richard Lingenfelter, Paul Macy, Nate Parker, Jared Remley, Steve Tolley, Brice Turpin, Jason Yoder.



# ADMINISTRATION

*Purdue Research Foundation (PRF) is a nonprofit corporation administered by the professionals below who manage the day-to-day operations of the Foundation.*

The areas of administrative concentration and the responsible individuals are:

<b>President</b>	Brian E. Edelman
<b>Vice President Office of Technology Commercialization</b>	Brooke L. Beier
<b>Chief Innovation and Collaboration Officer</b>	David A. Broecker
<b>Chief Information Officer and Back a Boiler Program Manager</b>	Mary-Claire Cartwright
<b>Chief Investment Officer</b>	David C. Cooper
<b>Senior Vice President Alliances and Placemaking</b>	Gregory W. Deason
<b>President and CEO, Purdue for Life Foundation</b>	Matthew D. Folk
<b>Chief Human Resources Officer</b>	Judith A. Hall
<b>Vice President and Chief Entrepreneurial Officer</b>	Wade A. Lange
<b>Vice President and Chief Facilities Officer</b>	Richard J. Michal
<b>Vice President Economic Development and Corporate Counsel</b>	Emily G. Najem
<b>Vice President Marketing and Communications</b>	Kelly H. Nicholl
<b>Chief Financial Officer and Treasurer</b>	Scott W. Seidle



<b>Purdue Research Foundation</b>	<a href="http://prf.org">prf.org</a>
<b>Technology Commercialization</b>	<a href="http://prf.org/otc">prf.org/otc</a>
<b>Purdue Foundry</b>	<a href="http://purduefoundry.com">purduefoundry.com</a>
<b>Discovery Park District</b>	<a href="http://discoveryparkdistrict.com">discoveryparkdistrict.com</a>
<b>University Development Office</b>	<a href="http://giving.purdue.edu">giving.purdue.edu</a>
<b>Purdue for Life Foundation</b>	<a href="http://purdueforlife.org">purdueforlife.org</a>
<b>Back a Boiler - ISA Fund</b>	<a href="http://purdue.edu/backaboiler">purdue.edu/backaboiler</a>



## *EDITOR'S NOTE*

### **CHALLENGES AND SUCCESSES: 2020 IS A YEAR TO REMEMBER**

The focus of this year's annual report is unlike any we have had in the past.

These reports typically celebrate the many successes of the previous year, and even with a global pandemic, we have much to celebrate. This story, while recognizing the tangible accomplishments of the year, is really about the people who pulled together, stayed flexible and versatile to the daily, sometimes hourly, changes and who adapted to new processes and procedures.

We hope you enjoy reading these stories as much as the Foundation's entire team enjoyed sharing their thoughts, actions, challenges, and successes and recognize the transformative power of hope they carried throughout 2020.

A handwritten signature in black ink that reads "Cynthia Sequin".

**Cynthia Sequin**  
*Vice President (Ret.), Purdue Research Foundation*

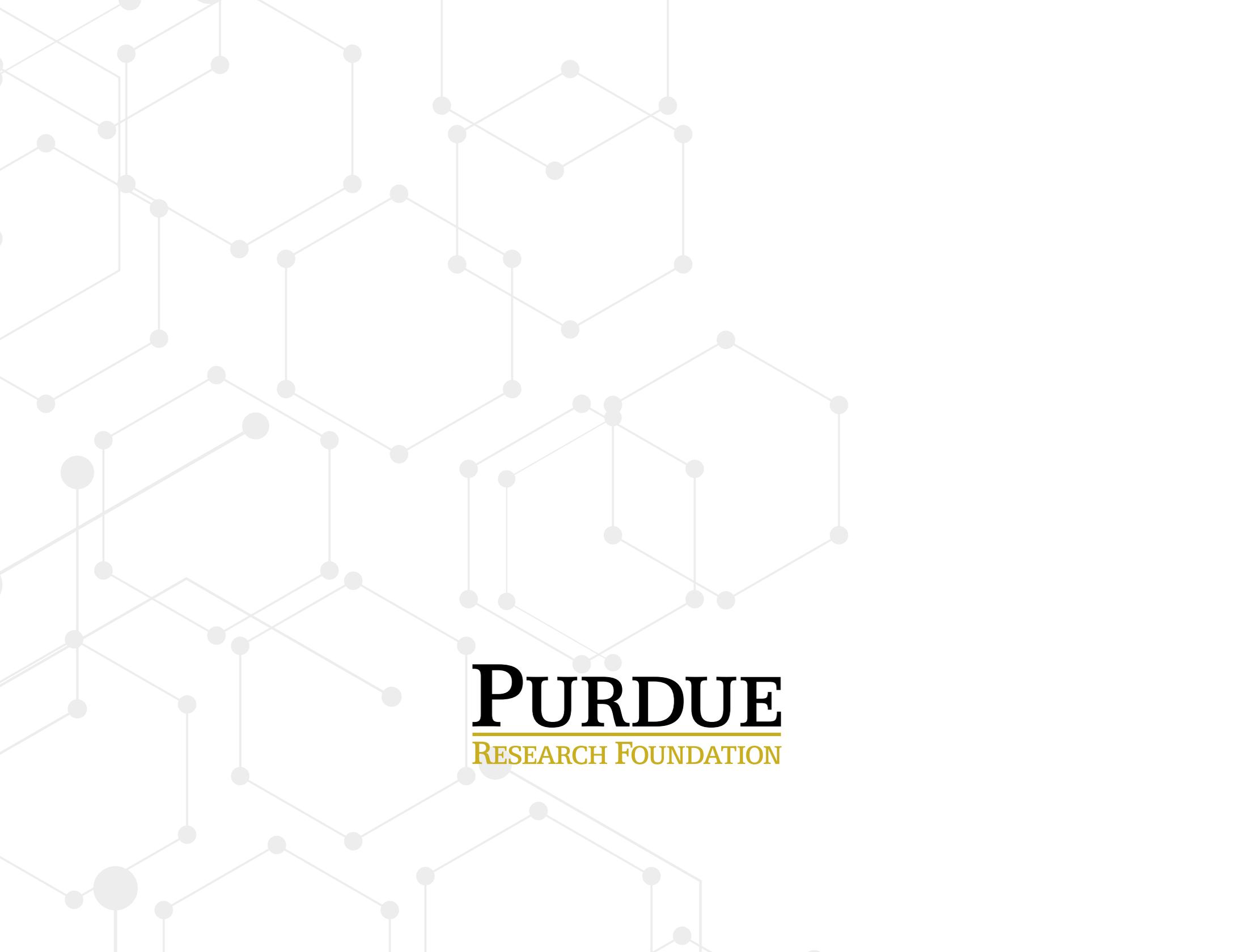
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**Contributing Editor and Writer** | Chris Adam, Writer/Publicist

**Designer** | Oren Darling, Marketing Operations Manager





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