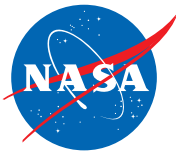


THE INNOVATION CATALYST



MARCH 2022

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TECH TRANSFER TIP

with Tech Manager Hossin Abdeldayem

HELP SPO HELP YOU!

DID YOU KNOW YOU CAN POINT US IN THE DIRECTION OF COMPANIES YOU THINK ARE A GOOD FIT TO COMMERCIALIZE YOUR TECHNOLOGY? YOU'RE THE EXPERT!



»» UPCOMING EVENTS:



INNOVATOR HOUR: TUESDAY, MARCH 8, 1:00—2:00 P.M.

THE COFFEE BREAK: TUESDAY, MARCH 15, 1:00—2:00 P.M.

INNOVATION

SPACE ACT AGREEMENTS 101



Under the Space Act, NASA has the authority to enter into partnership agreements to meet agency mission and program requirements. Partnerships can support the needs of an external partner or serve to achieve a mutual goal. Partners can be U.S. or foreign entities, government institutions, or other organizations.

Space Act Agreements (SAAs) are NASA's most common partnership mechanism and can be used to allocate NASA resources such as personnel, funding, services, equipment, information, or facilities. Depending on the purpose and goals of the partnership, an SAA may be **reimbursable** or **non-reimbursable**.

REIMBURSABLE	NON-REIMBURSABLE
<ul style="list-style-type: none">⇒ NASA is partially or fully reimbursed by the partner organization⇒ May be used when NASA resources are not fully utilized and can be made available to a partner⇒ Activity must be consistent with NASA's mission⇒ Resources must not be reasonably available from commercial sources	<ul style="list-style-type: none">⇒ NASA and partner engage in a mutually beneficial activity⇒ Each partner bears the cost of its own participation⇒ No exchange of funds between the parties⇒ NASA must determine whether each party's contribution is fair and reasonable

Still have questions? We'll be happy to help! Get in touch at:

techtransfer@gsfc.nasa.gov

FEATURED SPINOFFS

THE FOAM THAT KEEPS ON GIVING



NASA's most well-known spinoff, Temper Foam, was initially developed in 1966 to absorb shock and offer better protection and comfort in airplane seats. Since then, it has been used in mattresses, orthopedic seats, and prosthetics. Its shock-absorbing properties are being put to even further use in the world of sports. The foam is now found in Formula 1 racecar head and neck supports, football padding, baseball chest protectors, soccer shin guards, helmets, and even horse saddles.

THESE SHOES ARE MADE FOR RUNNING



The techniques NASA developed to test material impact for the Space Shuttle have found unexpected applications on Earth. High-speed stereo photogrammetry uses two synchronized cameras to film an impact and software to analyze how the materials deform. Adidas later used the technique to analyze how Olympic marathoners' feet hit the ground at full speed to design a new sneaker. The result was a more comfortable, high-performance running shoe that allowed for more freedom of movement to the runners' Achilles tendons.

BATTING A THOUSAND WITH LIQUIDMETAL®

Ultra-strong alloys known as "metallic glass" behave a lot like plastic but have twice the strength-to-weight ratio of titanium. A collaboration between CalTech, NASA, and the Department of Energy, the resilient, wear-and-corrosion resistant Liquidmetal® was arguably the first major breakthrough in materials technology since the development of thermoplastics. This material is now used in several industries, from military and industrial applications to sports equipment, such as tennis racquets and lightweight baseball bats.





★ NASA'S ★ COMMERCIALIZATION

TRAINING CAMP

TECH TRANSFER IN THE BIG LEAGUES

NASA's Goddard Space Flight Center hosted the first NASA Commercialization Training Camp of 2022 this month, concluding a three-day virtual workshop centered on the agency's Technology Transfer Program on March 2.

The initiative, spearheaded by Goddard's Strategic Partnerships Office (SPO) in 2019, targets current and retired professional athletes with a crash course on the commercialization of NASA technologies. The program features discussion panels, and presentations led by technology transfer experts, industry professionals, entrepreneurs, and previous training camp attendees.

The March session was the fifth such workshop since the program's inception. Led by SPO with the support of technology transfer representatives from Johnson and Kennedy, the effort is the product of a partnership with the National Football League (NFL) Players Association. It also marked the program's first ever collaboration with another federal agency, namely the Food and Drug Administration (FDA). Other notable partners include the NFL, the National Basketball Association (NBA), and the Women's National Basketball Association (WNBA) Players Associations.

The latest cohort of athletes to complete commercialization training included current players from major sports leagues such as the NFL and Major League Soccer. Participants also included former NBA players introduced to the program via

a Space Act Agreement (SAA) with the National Basketball Retired Players Association. This SAA is one of many Goddard has pursued in the program's development over the last few years.

Participants were introduced to NASA's technology portfolio and the commercialization process with tailored case studies. Activities led by technology transfer representatives showcased a variety of technologies in NASA's portfolio and illustrated different licensing agreements available to each. Players also received special insight from panelists and guest speakers on a range of topics, including startup-specific license agreements, technology mining, and other relevant business resources.

Professional athletes are particularly well-suited for entrepreneurship. Their comparatively young retirement age and unique access to connections and networks—as well as the determination naturally cultivated by years in competitive sports leagues—position them well for launching secondary careers, particularly startups in technology-related industries.

"Many athletes have pursued successful careers as entrepreneurs after retirement," said Dennis Small, the training camp's program manager.

"The goals of our partnerships with professional players associations are to provide their members knowledge of NASA programs and technologies available for business creation. This, in turn, creates more advocates for NASA."

Among the guest speakers were former Superbowl champion Obafemi Ayanbadejo, as well as former SPO Technology Manager Eric McGill, who returned to support the program in his new capacity as an intellectual property manager at the FDA. Athletes-turned-entrepreneurs were among the featured panelists in the session, giving attendees real-life success stories and examples of the technology transfer process at work. Ayanbadejo, for instance, licensed a Goddard technology to create a health and fitness smartphone app. His new business venture, HealthReel, is now working to commercialize the technology.

Other entrepreneurial footballers who shared their experiences included D. J. Coker, who currently

plays for the Calgary Stampeders, and Aaron Wallace, former player for the Tennessee Titans, Cincinnati Bengals, and Denver Broncos. Coker and Wallace both licensed NASA technologies to create their respective companies, Enfluxx Tech and Onedrus, after participating in the FedTech NASA Startup Studio, another commercialization pathway featured in the Goddard program.

Retired NBA player Jim Grandholm noted the benefits of targeted programs like the NASA Commercialization Training Camp for athletes just starting new careers in business. "I wish this kind of resource was available 20, maybe 25 years ago," the former Dallas Mavericks player told attendees of the March session. "The opportunities out there are unbelievable."

NASA TECH TRANSFER MVPs:



Name: Obafemi Ayanbadejo
League: NFL
Team(s): Baltimore Ravens
Company: HealthReel, Inc.
Technology: Corrected BMI algorithm



Name: Aaron Wallace
League: NFL
Team(s): Tennessee Titans, Denver Broncos
Company: Onedrus LLC
Technology: Multi-stage Air Filtration System



Name: D. J. Coker
League(s): NFL, CFL
Team(s): Houston Texans, Calgary Stampeders
Company: Enfluxx Tech LLC
Technology: Passive EMS Jamming System

INNOVATOR SPOTLIGHT

ELIZABETH TIMMONS

Elizabeth Timmons found her way to NASA in college, when she started as a summer intern at NASA's Wallops Flight Facility. She has since played multiple roles at Goddard, both developing and managing the software running on the center's spacecraft.



As one of Goddard's most prolific innovators, Timmons has 50 New Technology Reports (NTRs) to her name as of December 2021, making her the center's fourth top contributor of all time.

Timmons' contributions are primarily software-centered. She started out at Goddard's Science Data Processing Branch, where her first project involved working on an International Space Station (ISS) payload. At the Science Data Processing Branch, she went on to work on three separate ISS payloads early on in her career, including Space Test Program Houston 5 and the Robotic Refueling Mission 3.

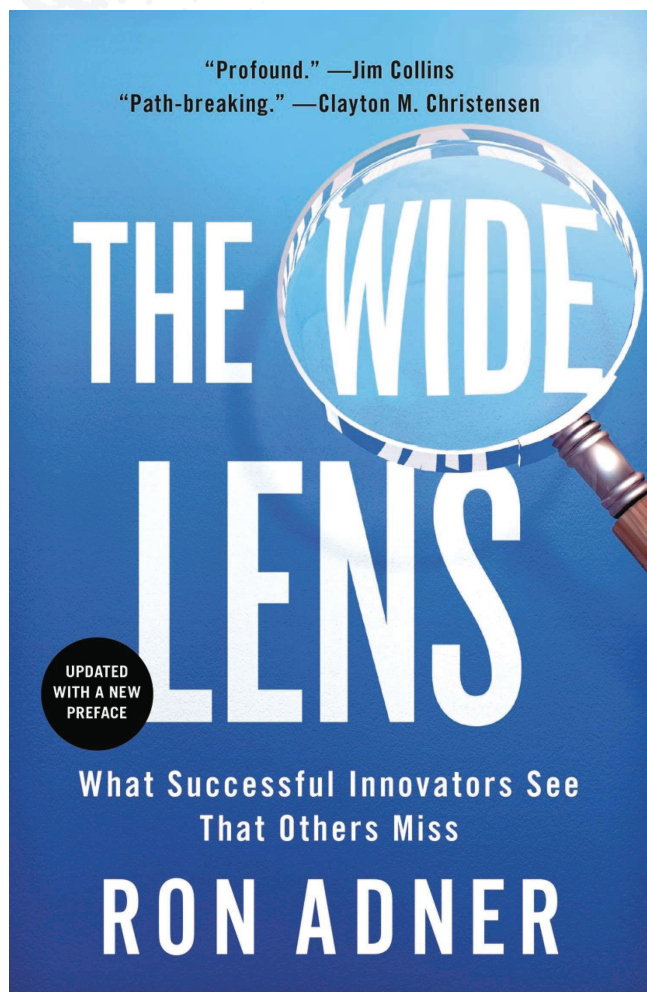
Timmons got hands-on experience with different types of software, finding her next focus area in flight software. In 2018, she made the switch to the Flight Software Systems Branch as an associate branch head, becoming one of Goddard's youngest managers.

In that role, Timmons led the development of applications related to the award-winning **core Flight System (cFS)**, graduating from using the system in individual projects to working on the software itself. Initially developed in 2004, the open-source application was named NASA's Software of the Year in 2020 for its layered, highly customizable approach that allowed developers to cater to mission-specific needs while building on existing, validated code.

Its widespread use beyond the agency is difficult to quantify, but Timmons estimates that the cFS software has been used in 40 NASA projects over the past 20 years. In 2021, for instance, Timmons worked with NASA's Johnson Space Center to certify cFS for Artemis Gateway, a lunar orbiting platform intended to serve as an outpost and support system upon NASA's return to the Moon.

Timmons currently serves as the software lead for the Mars Sample Return Mission's Capture/Containment and Return System.

THE LITERARY X-CHANGE BOOK OF THE MONTH



How can great companies do everything right—identify real customer needs, deliver excellent innovations, beat their competitors to market—and still fail?

The truth is that many companies fail because they focus too intensely on their own innovations, while neglecting the ecosystems on which their success depends. In our increasingly interdependent world, winning requires more than just delivering on your own promises. It means ensuring that a host of partners—some visible, some hidden—deliver on their promises, too.

Ron Adner draws on over a decade of research and field testing to reveal the hidden structure of success, from Michelin's failed run-flat tires to Apple's path to market dominance. The Wide Lens offers a powerful new set of frameworks and tools that will multiply your odds of innovation success.

(blurb by Penguin Random House)

WHAT IS THE LITERARY X-CHANGE?

In 2021, the Strategic Partnerships Office (SPO) launched a community library—with a little help from Tor Books. Goddard has partnered for years with Tor, a leading publisher of science fiction, by connecting them with subject matter experts to promote the science in "science fiction." Located in the lobby of Building 22, The Literary X-Change is available to the entire Goddard community. Here's how it works:

TAKE ONE

If a book strikes your fancy, take it. Read it, enjoy it, and—when you are done—share it with a friend or bring it back to the X-Change.

GIVE ONE

Everyone can pitch in to keep the library stocked. Bring books you want to share with the Goddard community when you can and continue being a friend of The Literary X-Change!