



NASA

2020 IM AWARD WINNER:
BEST INNOVATION

IDEASCALE



NASA

Sometimes the Best Idea is Less Than 300 Yards Away

NASA stands for National Aeronautics and Space Administration. **NASA is a United States government agency that is responsible for science and technology related to air and space.**

The Space Age started in 1957 with the launch of the Soviet satellite Sputnik. NASA was created in 1958. The agency was created to oversee U.S. space exploration and aeronautics research and in that time they've launched multiple missions into space and generated discoveries that serve us every day even here at home (dust busters, digital cameras, and GPS just to name a few).

They are also home to a workforce of more than 20,000 employees - some of the most talented and curious minds of our time. And those brains can solve lots of problems - not just the ones that are part of their everyday jobs. That's why NASA created the NASA@Work community.

In their NASA@Work community, anyone with NASA credentials can run challenges, share problems, and post solutions. The Center for Collaborative Excellence and Innovation (CoECI) team makes all that possible. They coach challenge owners, right-size rewards and incentives, and encourage participation from the entire employee universe on challenges that range across a number of different topics.

In one particular challenge, for example, a challenge owner was looking for a new way to gather urine samples from astronauts in space. In spaceflight, urine samples are commonly used to assess an astronaut's health as well as conduct research in physiological disciplines by measuring key biomarkers. Individual urine voids are collected into urine collection devices (UCD) in spaceflight containing a known concentration of lithium chloride. The UCD is mixed and a sample taken and returned to Earth and the remainder of the urine is disposed of as trash. The problem with **this method for collecting samples using the existing device is that it increases crew time, does not allow for real-time analysis, and creates a trash volume issue on board the International Space Station (ISS).** This NASA team wanted to identify an alternate method for real-time, in-flight urine volume measurements and maintain the capability to take samples for return to Earth for additional analysis.

The challenge received 58 ideas over a two month period and the NASA@Work community exceeded the challenge owner's expectations for the ideas that would come in for this challenge. The challenge owner was expecting to gain contacts, insights, or simply to further the discussion for lead generation, but not to find a working prototype that met all the criteria they had laid out. **The winning solution was a microgravity capillary graduated cylinder.**

The original idea as described was pretty much ready to go after initial submission. It was approved for use by the many approval boards as part of the ISS program. It was then discussed and developed with NASA contractors for delivery to the ISS.

The estimated budget to identify a solution for this problem was approximately \$1.3 Million over a four year period of research and development. With the NASA@Work challenge, the NASA team had a working model that they could start utilizing nearly right away. **Sourcing a solution this way saved NASA over \$1M and four years of time.**

But perhaps even more inspiring was the fact that the microgravity capillary graduated cylinder came from someone who worked only 300 yards away from the challenge owner, but in a different group within NASA. The solver had a prototype developed for another purpose which was directly applicable to this challenge. They just didn't know that it had other uses until the challenge was posted on NASA@WORK.

This story proved to be a valuable case study for the CoECI team. Not only was there a demonstrable cost savings and a meaningful connection made between team members, but it has helped to generate more faith in the NASA@Work mission as they solve more problems together.