

Startups Take Center Stage

By driving innovation through collaboration, MN Cup extends its mission year-long.



Winners of this year's MN Cup competition, from left: Venn Foundation, Grand Prize Winner MicroOptx, Starting 11, Green Garden Bakery, Autonomous Tractor Corp.,
UnderRecruited Preps, Z Flow Pro and Sironix Renewables



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Semifinals Reception | June

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Driving Innovation Through Collaboration

The MN Cup continues to grow and thrive, thanks to bedrock support from volunteer mentors, judges and sponsors.

By Suzy Frisch

n the 13 years since the MN Cup emerged, the startup competition has supported more than 13,000 entrepreneurs, finalists have raised \$230 million, and \$2.5 million in seed money has been awarded. While the numbers illustrate the competition's impact on the state's environment for early-stage companies, another important asset hums below the surface, contributing enormously to making the competition a success. More than 400 people annually serve as volunteer mentors and judges for the MN Cup, the largest statewide startup competition in the country.

Volunteers share their time, networks and insights year in and year out, working closely with competitors to help them refine their business plans and presentaship management tools for state and local governments. Through MN Cup's competition process and advice from mentor Mary Pat Blake, a veteran corporate executive, the team honed its business plan and go-to-market strategy, creating a sustainable business model, Ogundipe says.

Blake continues to provide advice to Ogundipe and Civic Eagle as a board member

Damola Ogundipe. Minneapolis-based

Civic Eagle develops constituent relation-

Blake continues to provide advice to Ogundipe and Civic Eagle as a board member. "Mary Pat was a big part of us winning," he says. "It's a very Minnesotan thing to have people who are community-oriented and want to be helpful, and they are brilliant and can point you in the right direction."

Stories like Civic Eagle's are replicated annually, with mentors and judges' feedback helping competitors polish their pitches and sharpen their strategies. Many find it enormously gratifying to help Minnesota entrepreneurs improve their companies, connect them with advisors and see them succeed.

Steven Snyder, a strategic innovation coach at Snyder Strategic, enjoys giving back to the community that supported him when he was a tech entrepreneur, because he's seen how effective the mentor/entrepreneur relationship can be.

"We're working with really promising entrepreneurs, people who are really motivated and have good ideas," he says. "It's a great reward to see them take their ideas to the next level and do well."

Pam Bishop, vice president of economic development for the Southern Minnesota Initiative Foundation, has been a MN Cup judge for five years and has no plans to stop. "There's something inspiring about this work that keeps drawing me back," says Bishop. "It reminds me that there are so many people in this state with the knowledge and ability to start a company. And when it happens, there is nothing more rewarding than seeing an entrepreneur get everything they need to start up and grow."

When serial entrepreneurs Scott Litman and Dan Mallin launched the MN Cup in 2005, they aimed to cultivate a fertile ecosystem for entrepreneurs to garner



John Stavig, director of the Gary S. Holmes Center for Entrepreneurship; Melissa Kjolsing Lynch, former MN Cup director; Dan Mallin, co-founder of MN Cup and managing partner of Equals 3; and Scott Litman, co-founder of MN Cup and managing partner of Equals 3.

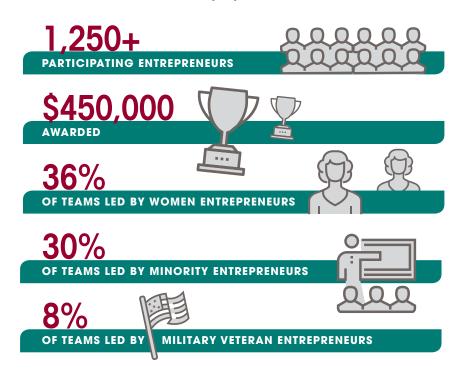
tions. Judges evaluate hundreds of entries, provide critiques and decide which companies move forward and win.

Without their contributions, the MN Cup wouldn't be where it is today, says former director Melissa Kjolsing Lynch. "We wouldn't have been able to create this impact without the people who mentor and judge every year," she says. "It's a community effort."

The MN Cup has grown from a singledivision competition to eight divisions, with 142 mentors participating this year. These mentors' insights and direction have made a huge difference for teams.

In 2015, Civic Eagle received mentoring that played a significant role in its victory in the Impact Venture Division, says CEO

2017 MN Cup By the Numbers:





Shanna Apitz
Roy Wetterstrom Rick Brimacomb

2017 MN CUP COMMUNITY ENGAGEMENT:

Judges: 239
(165% increase since 2013)
Mentors: 142
(118% increase since 2013)
Sponsors: 75
(67% increase since 2013)

advice, grow their networks and obtain financing to develop flourishing businesses. Over the years, the competition has finessed the help it gives to startups, which has improved the tenor of applications, Litman says. In addition to a 10-page business plan, entries now include an investor presentation and a one-minute video pitch.

"One thing that's always exciting is that people use the MN Cup credential as a mark of credibility," Litman says. "Every investor in town knows that when they see a division winner or finalist, it is a well-vetted company."

MN Cup continues to extend its value by adding resources and events year-round. For

2018, its annual Women in Entrepreneurship conference will take place in February to encourage female entrepreneurs to participate. In March, there is a kick-off event to build excitement for the competition, and a youth mentoring day in the summer. Such events aim to educate, motivate and connect the startup community early and often.

"We're a firm believer that in-person connections and meaningful collisions that take place at events are hard to replicate in a digital setting," Kjolsing Lynch says. "We want to bring the community together regularly so people can connect, get plugged in and get networked to the right groups."

Special Award Prizes

- Carlson Family
 Foundation awarded
 \$25,000 to **KinoSol** for the top woman-led startup.
- → MEDA/JP Morgan
 Chase awarded \$20,000 to
 UnderRecruited Preps
 for the minority entrepreneur
 with the most innovative
 business concept.
- DEED awarded \$10,000 each to **Recovree** for the top veteran-led startup, **Extempore** for the top minority-led startup and **TeamGenius** for the top startup from Greater Minnesota.
- → Securian Financial Group awarded \$10,000 to Dose Health for an innovation that shapes the future of insurance through technology.
- → Capella awarded \$10,000 to **UR TURN** for the most innovative education technology that promotes learning solutions.
- Southern Minnesota Initiative Foundation awarded a \$5,000 grant to **UnderRecruited Preps** for the top startup from its 20-county region.
- → AARP awarded a \$5,000 prize to **GogyUp** for an innovation that improves the lives of low-income seniors.



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LIFE SCIENCE/HEALTH IT



issatisfied with treatments for glaucoma, ophthalmic surgeon Dr. J. David Brown set out to create a treatment to stop the disease. He worked for years developing an implant to prevent glaucoma from causing blindness, but a busy medical practice slowed his progress in developing the device. When Chris Pulling and Roy Martin began consulting with Brown at their company, Integra Group, a preclinical medical device research business, they believed he had a winner that would make a huge impact on medicine.

Glaucoma affects more than 78 million people globally, and that number is expected to double in 16 years as the population ages. Current treatments slow the disease's progression to blindness but don't stop it.

The trio and investor Keith Bares started MicroOptx in 2014 to treat glaucoma with a 40-second, in-office procedure. Called the Brown Glaucoma Implant, the device combines biomaterials, microflu-

Prizes for the Winner

- \$50,00 grand prize
- \$30,000 in seed capital for winning their division
- Accounting assistance from Lurie
- Professionally produced and edited video of final pitch at Grand Prize judging round courtesy of TECHdotMN
- Scholarship to the Minnesota High Tech Association's annual Minnesota Venture Conference
- Business services from Maslon LLP
- Business services from Incubology LLC, valued at \$30,000
- An invitation to present to Gopher Angels
- An invitation to present to AngelPolleNation
- Media package from Media Minefield

Glaucoma
affects more than
78 million
people globally.

idics and micro-engineering to prevent build-up of fluid in the eye. The fluid eventually causes irreversible blindness by putting high pressure on the optic nerve.

With no existing treatments that permanently keep ocular pressure low, "a lot of people are going blind," says Pulling, CEO of the Maple Grove company. "No existing technology can get their pressure low enough to halt further damage."

Patients typically use eye drops to control glaucoma, but they cause significant side effects that often require their own treatments. Surgical options are based on 50-year-old technology and methods that are only temporarily effective, invasive and involve long recoveries. Once the repair stops working, there aren't many options left, Pulling says.

Sized about the thickness of a human hair, the T-shaped Brown implant is inserted through the eye's surface. It shunts fluid from inside the eye to the surface of the eye while constantly bathing it with a lubricating substance. This method keeps ocular pressure at an acceptable level, which prevents blindness, while biomaterials ward off bacteria.

"The procedure could not be simpler, and there are minimal follow-up requirements," Pulling adds. "There is a huge unmet need worldwide for such a devastating condition. We all want to get this to patients."

Pulling is a biostatistician and Martin is a veterinarian who worked regularly with



medical device inventors and startups at Integra Group. When that company was acquired in 2012 after a 10-year run, they approached Brown about licensing and commercializing his device.

Then working as chief ophthalmologist at the Minneapolis VA Medical Center, Brown was eager to have Pulling and Martin take the reins. The four partners raised \$2.2 million and entered the Food and Drug Administration's early feasibility studies program to secure approval for a human clinical trial. To date, the company has raised \$7.5 million.

The first trial started this fall with 10 blind patients. Two more phases will follow in Europe and the United States with people who have glaucoma, but aren't completely blind. If all goes well, Pulling says, MicroOptx will start selling its implant in late 2020, with strong opportunities in the existing \$5.8 billion U.S. market.

As a bonus, the implant also stops the common side effect of dry eye associated with other glaucoma treatments, Pulling says. That means that the Brown device eventually could be used to treat dry eye, an additional \$2.4 billion market in the United States.



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FOOD/AG/BEVERAGE

Autonomous Tractor Corp.

rofit margins are wafer-thin on traditional American farms, with farmers spending about 30 percent of their operation costs on equipment. To help farmers manage those costs, Autonomous Tractor Corp. (ATC) is electrifying the agriculture sector with technology that can cut the cost of some equipment in half.

Co-founders Kraig Schulz and Terry Anderson are deploying aftermarket kits that allow farmers to convert diesel-operated equipment to electric hybrid. The two have been perfecting their technology since 2012 and are coming to market in 2018 with retrofit kits for self-propelled sprayers.

Sprayers generally work for 4,500 hours before they need to be replaced or rebuilt, costing farmers about \$80,000. With ATC's eDrive, \$80,000 could replace the sprayer's hydraulic drive train and

wheel motors with a generator and electric motors, lengthening its life to 60,000 hours while reducing fuel and maintenance costs, says Schulz, co-founder and CEO of the St. Michael-based company.

Over four years, the refurbished sprayer is expected to use 40 percent less fuel and cost 80 percent less in maintenance. "Our ambition when designing and pricing our products is that farmers should have instantaneous payback," Schulz says.

ATC is starting with self-propelled sprayers because there are 60,000 being used in North America today, resulting in a \$3 billion market. And with about 20 percent of sprayers breaking down annually, that's \$600 million worth of opportunity every year, Schulz says. Currently, the company



Kraig Schulz and Terry Anderson

contrat-manufactures its patented eDrive technology and is initially working with three dealers to sell and install them.

As ATC continues to evolve its technology, it will branch into other farming equipment, such as tractors and balers, and other applications in the construction industry. After that, ATC will focus on developing equipment that automates

both navigation and function, Schulz says.

Though other manufacturers are developing electric equipment, Schulz says, ATC's products take an entirely different approach. Competitors rely on battery-powered engines, but the batteries are heavier and more expensive than the sprayer itself.

Anderson, the company's CTO, is a serial industrial entrepreneur and a self-taught engineer. His fiber technology company, Ancor Communications, was acquired in

> 2000. Schulz, Anderson's stepson, brings an agricultural economics background and experience as a bioscience technology consultant. They came together on ATC to bring Anderson's invention to market and help farmers rake in more income.

"This technology can make things a lot better than they are today," Schulz says. "It's fundamentally cheaper to buy, cheaper to operate, and has more durability because it's electric."

- \$30,000 in seed capital
- \$20,000 for being selected as the Grand Prize runner-up
- Environmental marketing audit and \$5,000 toward display element from
- Professionally produced and edited video of final pitch at Grand Prize judging round courtesy of **TECHdotMN**
- Scholarship to the Minnesota High Tech Association's annual Minnesota Venture Conference
- Full day of professional photography from InsideOut Studio

ENERGY/CLEAN TECH/WATER



Sironix Renewables

hristoph Krumm didn't intend to develop bio-renewable cleaning products that shine in hard water, a challenge for many manufacturers. But while researching at the University of Minnesota, Krumm helped create a new class of active cleaning molecules that do just that.

Called Eosix Surfactants, these molecules perform 100 times better in hard water than other substances. The molecules' effectiveness proves that manufacturers don't need to add extra ingredients or volume to make their cleaning products perform well in hard water—a common challenge for both green and traditional manufacturers. Hard water causes detergents, shampoos and cleaners to feel like they'll never rinse out.

In 2016, as Krumm finished his Ph.D. in chemical engineering, he started

Sironix Renewables with Paul Dauenhauer, an associate professor of chemical engineering. Their St. Paul-based company helps manufacturers make plant-based sustainable cleaners and other products with its Eosix Surfactant.

Its effectiveness in hard water "means you can make cleaning products that are more concentrated, have less environmental impact and reduce the cost of manufacturing," says Krumm. He and Dauenhauer licensed the technology and spun Sironix out of the U after Krumm secured two Small Business Innovation Research grants from the federal Department of Energy.

Sironix operates a business-to-business model, selling Eosix to manufacturers instead of making products itself. That way, its tech-

nology can be used in a wide array of applications, including oil spill clean-ups, other cleaners, detergents and personal care items.

"To get our product into large volume production, it makes sense for us to have something that can work with a lot of companies



Christoph Krumm and Paul Dauenhauer

formulations. The company expects it will take time for potential customers to complete application testing and evaluations, and receive feedback before they're ready to buy.

and formula-

tions," Krumm

says. "There are

so many differ-

ent cleaning

products, and

many of them

have unique traits

that companies

developed for

This saves us a lot of effort."

sale is the big

challenge for

Sironix. Manufac-

turers want to try

Eosix in liquid and

powder form and

experiment with

it in their different

Getting its first

a long time.

"It's hard to get a sale, but once you get a sale, it's a big sale," says Krumm, noting that the United States has a \$12 billion cleaning industry, with green products making up just 3 percent.

Both conventional and eco-friendly manufacturers will be interested in the company's products, Krumm says, because they will help producers make more concentrated cleaners and reduce their environmental impact through smaller packaging and shipping. One of Sironix's goals is to help manufacturers become green producers with its less

expensive bio-based ingredients.

"We want to target companies trying to get into that market but aren't able to based on cost," he says. "There is a perception that eco-friendly products don't work as well as others. That's one area where we can offer an advantage and help them introduce new products and grow green."

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- Accounting assistance from Eide Bailly LLP
- Professionally produced and edited video of final pitch at Grand Prize judging round courtesy of TECHdotMN
- Scholarship to the Minnesota High Tech Association's annual Minnesota Venture Conference

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GENERAL:



ommercial painter Steve Perusse spent 25 years breathing in fumes and getting paint splattered on his face. So he decided to create safety equipment that eases workers' frustration with aear that reduces their visibility, slows them down and doesn't keep paint and drywall dust away from their faces.

Perusse started Poma 22 in 2013 with his business partner Michelle

Culligan to commercialize a new safety helmet, Called the Z Flow Pro, it's based on the helmet Perusse created 15 years ago by duct-taping an oscillating fan to his hard hat to blow paint away from his face.

Building on years of Perusse's development work, Z Flow Pro helmets incorporate a filtered air duct system into a hard hat, which creates an ear-to-ear air curtain that deflects paint overspray, drywall dust, debris and other contaminants away from the user's face. It boosts productivity, Perusse says, because workers don't need to stop repeatedly to wipe paint off their safety goggles or unclog their respirators.

Culligan owns Luminous 3 Finishes, a commercial painting company where Perusse is director of operations. She sees first-hand how her employees struggle to keep their eye protection and respirators functional.

"On commercial construction sites, workers have to wear hard hats, eye wear and respirators, but they get clouded with overspray

or drywall dust," says Culligan. "Z Flow Pro creates air armor—an extra layer of protection. The paint or dust coming down gets deflected by the air curtain, so they don't have to stop and clean off their face."



Steve Perusse, Michelle Culligan, Jeanne Dolan, Jon Geehan and Kathy Hamel

Poma 22 CEO Perusse and COO Culliaan are confident that Z Flow Pro will save companies time and money. With the ability to see better, employees' work will be more accurate and they won't need to spend time doing as many touch-ups. Respirator filters also will last longer because users are breathing in less dust and paint spray.

After doing the math for a 50,000-squarefoot job, the partners found that costs for labor and material dropped about \$2,000 when the painters wore the \$425 helmet.

Working with a California engineering firm to perfect the helmet, Z Flow Pro earned a patent in 2016 after five prototypes. Culligan and Perusse expect to bring the battery-powered helmet to market early this year, and to manufacture it in Minnesota. They believe the product will sell itself for commercial painting, drywall and construction because of its safety features and built-in fan that keeps workers cool.

"As painters we're always up on ladders

and boom lifts high up in the air. It's super-hot up there, and you're wearing all of this equipment. You're hot and bothered and you can't see, so you keep going up and down to wipe off your glasses," Perusse says. "Once the helmet is on, you have better visibility, you can paint faster and better, and it cools you down. It's all about production and safety."

- \$30,000 in seed capital
- Accounting assistance from Lurie
- Professionally produced and edited video of final pitch at Grand Prize judging round courtesy of **TECHdotMN**
- Scholarship to the Minnesota High Tech Association's annual Minnesota Venture Conference

HIGH TECH



eague Orgeman admits that he has spent thousands of hours playing fantasy football. As a major soccer fan, he wanted to combine his passions for fantasy sports and soccer, but he couldn't find many options on the market.

In classic entrepreneurial style, he decided to create the gaming platform he sought. Orgeman and his wife, Amanda Heyman, a veteran soccer player, tech guru Mike Arney and two others came up with a mobile fantasy soccer app called Starting 11. It invites soccer fans around the world to build their perfect team.

Through the app, players can create new squads every game day. They pick whether to compete against one person or try their luck in a variety of group games. This past fall, Starting 11 added pay-to-play games for cash prizes.

The app offers different perks than traditional fantasy football, in which players draft a roster for the entire season and create line-ups each week that can't be changed during the game. Starting 11 allows users to pick entirely new teams for each match and substitute three players mid-game. Right now, it's the only live fantasy system.

"We're trying to make this an experience where it's casual, fun and easy to understand, and also get users to interact with what they're watching on the screen," says Orgeman.

He came up with the idea in 2015 while working as a litigator. Orgaman left his firm last May to captain the Starting 11 team; they completed app development and launched last summer. In its first two months,

Prizes for the Winner

Gray Plant Mooty

Venture Conference

TECHdotMN

\$30,000 in seed capital

Business organization services from

Accounting assistance from Lurie

edited video of final pitch at Grand

Scholarship to the Minnesota High

Tech Association's annual Minnesota

Professionally produced and

Prize judging round courtesy of

Starting 11 had 5,000 active users in 20 countries, doubling its initial goal for 2017.

Similar to other fantasy leagues, Starting 11 will bring in revenue through a 10 percent cut of cashgame entry fees. The company



Mike Arney, Amanda Heyman and Teague Orgeman

projects it will ultimately grow to 500,000 users, and bring in more than \$1.6 million a month by 2020. Fantasy sports is a \$7.2 billion industry with 59 million players in North America alone.

Starting 11 began with the United Kingdom's Premier League to finesse its offerings as users start playing. The company wants everything to be perfect in time for the 2018 World Cup, when billions of people globally will be glued to soccer matches. In 2014, 3.2 billion people around the world watched the World Cup, giving Starting 11 plenty of opportunity, says Heyman, a lawyer who advises food entrepreneurs at Jambor Heyman.

Eventually Starting 11 will add other

leagues from Europe, Mexico, the women's World Cup, and more. "We want to make sure our technology is flawless and that it works perfectly before we scale," Heyman says. Orgeman adds, "We will scale big and scale fast. We tell people we want global domination."

By combining the world's love affair with soccer and mobile fantasy gaming, Starting 11 is well on its way.

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IMPACT VENTURES



🖰 Venn Foundation

hile Minnesotans are a generous bunch, many are leaving a powerful philanthropic tool on the table. Jeff Ochs wants to change that with the Venn Foundation, a nonprofit that helps charitable people take advantage of program-related investments (PRIs) to support their favorite causes.

While private foundations and public charities can use PRIs to advance their philanthropic missions with favorable loans, the option wasn't available to individuals and businesses. Ochs created the St. Paul-based Venn Foundation in 2016 to open the door for people and companies to use the giving tool.

"Our mission is to unleash the power of program-related investments to impact charitable causes," says Ochs. "We want to mainstream this special tool so more people can take advantage of it."

PRIs have been around since 1969, but their complexity has hindered many people from using them, Ochs says. The Venn account paves the way. It's similar to a donoradvised fund where people give money to a foundation or charity, and the entity uses the donor's advice to make charitable contributions over time. With PRIs, people or companies give funds to their Venn account, and based on the donor's guidance, the foundation finds opportunities to loan those funds to nonprofits, government or businesses to back a charitable purpose.

There are some rules for PRIs: The primary purpose of an investment must advance a charitable purpose, and the financial terms of the investment must be below-market in

some way. For example, a loan's interest rate is 0 percent, collateral isn't required or the payback period stretches over 15 years.

One selling point of PRIs is that once donors make contribu-



Rob Scarlett, Jeff Ochs and Jeanne Voigt

tions to their Venn accounts, those funds can be used repeatedly, Ochs says. Say a donor's Venn account loans money to an affordable housing developer at a belowmarket rate, once the nonprofit pays off that loan, the donor then can lend that money to another cause or make traditional grants. Donors also can pool their money with other donors on the same PRI to more significantly advance a cause.

"It's an opportunity crying to be heard," Ochs says. "With a PRI, you can recycle that donation and use it forever."

The foundation supports its operations with a 1 percent annual account fee for donors, as well as closing fees on loans paid by the recipient of the funds. Venn is initially focusing on Minnesota, but as the foundation proves its model, Ochs hopes to scale nationwide.

A veteran entrepreneur in nonprofit and

for-profit sectors, Ochs brings a background in business, investing and public policy to his startup. "Venn is trying to create a new type of capital and challenge the conventions of how capital behaves," he says. "We can challenge people to do things with money that we never thought were possible."

- \$30,000 in seed capital
- Accounting assistance from Lurie
- Professionally produced and edited video of final pitch at Grand Prize judging round courtesy of **TECHdotMN**
- Scholarship to the Minnesota High Tech Association's annual Minnesota Venture Conference

STUDENT



UnderRecruited Preps

etting recruited for college sports is a tough game, and many athletes miss out on opportunities and scholarships because they aren't familiar with the process. Although Francis Kanneh achieved his dream of becoming a Division I college football player, he knows he wasted plenty of effort and money along the way. When his football career at Southern University in Louisiana ended, Kanneh decided to use his experience to help athletes get recruited.

Kanneh launched UnderRecruited Preps in 2015 from his dorm room at Minnesota State University Mankato to guide aspiring athletes through the recruiting process.

"Coming from Minnesota, I realized how hard it was for me and many of my teammates who didn't know how to get recruited," says Kanneh, who majored in marketing and is now pursuing an MBA. "Many didn't end up going to school because they didn't know how the process went. They missed out on a lot of opportunities."

Kanneh started UnderRecruited Preps with information for football players, then quickly added basketball and baseball. The company now offers resources for 17 sports, plus junior colleges, NCAA Division I, II and III schools and other leagues including the National Association of Intercollege Athletes and the Northwest Athletic Conference.

UnderRecruited Preps explains scholarships, the recruiting process and how to prepare for recruitment. It details steps from ninth through 12th grade that students can take through-

Prizes for the Winner

TECHdotMN

\$30,000 in seed capital

Venture Conference

Professionally produced and

Prize judging round courtesy of

edited video of final pitch at Grand

Scholarship to the Minnesota High

Tech Association's annual Minnesota

out the school year to prepare for recruiting and put their best foot forward, "It's all about knowing the requirements and getting the exposure they need," Kanneh says.

Users select from



Francis Kanneh

ing football at junior colleges. After he gave them free Under-Recruited Preps accounts, one received scholarship offers to Division II schools and the other secured a Division I scholarship. "That was very cool, having my ex-teammates go off to college," he says. "And I thought, 'Wow, I've got something here.'"

three levels of service:

free, monthly (\$19.99)

All users can create a

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or platinum (\$199 total).

profile, share it on social

cess to resources, data

and information about

eliaibility requirements

and scholarships. Pay-

ing customers also can

make connections with

50,000 college coaches

through the site. Kanneh's initial

success was with a

former teammate

both were play-

from high school and

another from college;

Though other companies offer recruiting services, they are more piecemeal and don't have the social media savvy that UnderRecruited Preps offers, Kanneh says. The company has 30,000 active users and more than 96,000 followers combined on Twitter, Facebook and Instagram.

Going forward, Kanneh plans to further differentiate his company with video capabilities under the banner UnderRecruited 360. Users will be able to create and post highlight tapes, and athletes and

coaches can share game film.

Kanneh is well on his way to achieving his goal of helping talented student athletes play sports while pursuing their college educations. UnderRecruited already has helped 903 clients become collegiate athletes, and has helped those athletes secure a total of \$20 million in scholarships.

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YOUTH



Green Garden Bakery

reen Garden Bakery cares as much about giving back as it does about making dough. Run by high school students from Minneapolis, the company has multiple missions, including teaching other kids how to grow vegetables and turn them into delectable baked goods, running a business and sharing their proceeds with the community.

Many of the teens involved with Green Garden Bakery met during a cooking and healthy eating class at Urban Strategies in Heritage Park in 2014. Using produce from a community garden, they experimented with making green tomato cakes. Though the kids were skeptical, they were delighted to learn that the cakes were delicious.

After a mutual friend was seriously injured in an accident, they put it all together to raise money for her by selling their green tomato cakes at a South Minneapolis festival. The teens sold three times more cake then they expected and realized their venture had potential, says CFO Leensa Ahmed.

The team donated one-third of their earnings to their friend's medical bills, put one-third back into their business and paid the youth workers with the rest. Excited about their success, the team, including CEO Alfonzo Williams and entrepreneurship chair Maya Gray, decided to continue growing the company as the Green Garden Bakery. They found different partners to help them establish and expand their business.

Green Garden Bakery focuses on vegetable-based desserts to continue incorporating gardening into their operations. The team expanded its menu to include lemon zucchini muffins, jalapeño chocolate chip cookies, carrot pumpkin bread and beet brownie bites. Some of the baked goods

are vegan, glutenfree or sugar-free.

"It's a way to get kids to eat their vegetables without having to taste it, and they still get good nutrition," Ahmed says.

Green Garden Bakery hosts its booths at vari-

Prizes for the Winner

- \$10,000 in seed capital
- Professionally produced and edited video of final pitch at Grand Prize judging round courtesy of **TECHdotMN**
- Scholarship to the Minnesota High Tech Association's annual Minnesota Venture Conference



ous businesses, farmers' markets and fairs. The company takes orders online, does special orders and offers catering, too. It has a "pay what you want" model and still divides its proceeds into the original three buckets. Community donations have paid for adult exercise classes, food for hungry families and other causes.

"We're always amazed about how excited people get about our business and realize how much we've done at our ages to affect our community," says Ahmed. "It's been amazing how much people support us."

More than 150 children have worked with Green Garden Bakery in the garden, baking and/or selling the treats. The team would like to continue its hybrid model of a nonprofit that teaches kids about nutrition, baking and gardening with a for-profit store that helps fund those operations.

Seeing everything the business has accomplished fuels team members to continue their work. "I'm most proud of the impact

we make in the community, giving youth something to do after school," Ahmed says. "If you're from North Minneapolis, people think you're not going to graduate or be successful, but when you're in the Green Garden Bakery there is a chance for you to be part of something bigger and get skills you otherwise wouldn't get."



ENERGY/CLEAN TECH/WATER

Future Force (Runner-up)

ike Tkadlec believed he could develop a more efficient, safer gearbox that replaces metal-on-metal gears with magnetic pairings. While it took 14 years to develop, he is commercializing his invention with the Zero Contact Transmission (ZCT), a magnetic propulsion gearbox that is 35 percent more efficient than conventional variable speed drives.

ZCT is easy to maintain and frictionless, meaning that it creates no heat and requires no lubrication. It also functions well in harsh environments and can be scaled from micro- to megaapplications. The transmission is a good fit for medical devices, transportation, appliances, heavy industry, HVAC and hydroelectric energy applications.

Future Force will focus first on making wind turbines more cost-effective by increasing energy output and reducing maintenance costs. About 30 percent of operation costs stem from gearbox maintenance, says vice president Doug Harvey.

A-Sharp Energy

ommunity solar power is a relatively new clean energy development, where people buy electricity from a shared solar installation without having to put panels on their homes. But navigating companies' offerings can be difficult, a discovery Daniel Enderton and Peter Kirwin made while shopping for community solar services for their house.

The two formed A-Sharp Energy and its free Solar Match program in Minneapolis to assist people as they compare providers' services, costs, specs and reviews. It's a consumer-focused site, but solar companies also use the site to find customers. Providers pay A-Sharp a finder's fee for every customer they land, Enderton says.

A-Sharp launched in 2016, when more community solar installations were going up around Minnesota. "Community solar is really powerful because it's a way that anyone can go solar," Enderton says. "There is clearly a business opportunity to help people save money by doing that."



FOOD/AG/BEVERAGE

Squarrel Cooperage (Runner-up)

he Black Swan Cooperage in Park Rapids experienced sky-high demand in 2015, but like barrel makers nationwide, owner Russ Karasch faced a significant shortage of oak. He began experimenting with a different kind of barrel that uses one-third the amount of wood.

Karasch created a reusable, stainlesssteel square frame with wood staves, leading to the company name Squarrel, or square barrel. In addition to mitigating wood waste, the Squarrel improves the barrel's performance by vastly expanding the wood surface, imparting flavor to the wine, beer or spirits aging inside. The barrel also serves as a keg and can hook up directly to tap lines.

Each Squarrel's staves can be customized with different woods with varied toasts or chars, and they can be easily swapped out once the flavor has been extracted, explains Alex Mackewich, director of sales and marketing. The Squarrel made its debut at industry conferences last year, with sales kicking off fully this year.

Dumpling & Strand

ormer neighbors and business partners Jeff Casper and Kelly McManus unite a love of fresh noodles and nontraditional grains at their St. Paul company, which is making inroads at farmers' markets, grocery stores and co-ops in five states.

Casper, a food scientist and cereal chemist at major food manufacturers, and marketing guru McManus started their company in 2016 to liven up the fresh pasta category with innovative and sustainable grains. Dumpling & Strand offers 20 varieties of Asian noodles and Italian pasta, such as toasted farro fettuccine, wild rice Minnesoba and newer grains like kernza fettuccine, a perennial wheatgrass developed by the Land Institute.

From their short time in business, the partners see that people are hungry for restaurant-quality fresh noodles they can eat at home. They aim to grow Dumpling & Strand into a regional brand, then go national in about five years.



GENERAL

Chromatic 3D Materials (Runner-up)

rowing more than 25 percent a year, 3-D printing has become a \$5 billion market used most often for prototyping. But there are limited materials available, and the printed items are quite fragile. Cora Leibig, a chemical engineer and former research director for Dow Chemical, started Chromatic 3D Materials to adapt a new class of materials for 3-D printing.

Called thermosets, the materials include polyurethanes, silicones and epoxies, which are notoriously difficult to use for 3-D printing. Leibig and her team are applying their expertise to make thermosets work in 3-D printing because they are much more durable and resilient than traditional materials. Thermosets can be used to print actual components for manufacturing products instead of prototypes.

Chromatic's initial application is for printing flexible goods and will launch its first product next year. The Maple Grove company also is developing thermosets for printing foams, large parts and implantable items.

Cedar Labs

School districts are projected to spend \$250 billion on educational technology by 2020, but the platforms they adopt don't always integrate well. To help solve that issue, Cedar Labs of Minneapolis developed a universal data platform, allowing vendors and districts to direct their diverse data to a single open-source platform that translates everything into the same language.

"When selling products to school districts, everyone wants someone else to do data integration," says president Mike Reynolds. "We want to focus on one pain point and make it disappear."

After adding their first customer in 2013, Reynolds and co-founder David Boardman continued to develop the company's technology. After several more years of research and development, Reynolds brought on software developer Tim Heckel and chief strategy officer Ben Silberglitt. Today, Cedar Labs has clients from Iowa to Australia.





HIGH TECH

Extempore (Runner-up)

oreign language teachers are universally frustrated that they don't get enough time to practice speaking one-on-one with students. So the husband-and-wife team of Carlos Seoane and Susana Perez-Castillejo, a linguist and Spanish professor, started Extempore in 2015 to take the headaches out of teaching oral language skills.

Extempore is an app that helps language instructors create oral activities for students to complete on their phone, tablet or computer. Instructors can grade students' responses and provide audio feedback.

CEO Seoane was an executive at Thomson Reuters before leaving to work full time on the St. Paul company, which now has more than 50 schools and universities using its app.

"With Extempore we can ensure that all students talk," he says. "We want to be the standard tool that every foreign language class uses."

TeamGenius

fter tryouts for athletic teams, coaches and managers often spend days poring over paper player evaluations to form teams. Todd Larson experienced this as a soccer parent and knew he could make life easier for sports leagues.

Applying his technical skills, Larson built an athlete assessment platform for youth sports. It streamlines player evaluations and tryouts to help leagues quickly and effectively create teams. In 2016, Larson launched web and mobile versions.

'In youth sports one of the pain points is the sheer volume of kids to manage," Larson says, adding that there are 40 million youths playing sports in the United States alone. "Customers love that they go right to decision-making as soon as the kids walk off the field.

Wyoming, Minn.-based TeamGenius is growing steadily, already processing more than 900,000 evaluation scores on more than 56,000 athletes.



IMPACT VENTURES

UR TURN (Runner-up)

alling UR TURN "the Google Maps of education," Angle Eilers started her company to help students and families chart a course to reach their educational goals.

While school districts give parents reams of information about their children, there isn't much context to explain whether students are on track to graduate and pursue higher education. Eilers started UR TURN in St. Louis Park to help with shortand long-term planning. Its personalized dashboard aggregates students' data and provides them with an outlook for success by creating benchmarks and milestones for them to reach. Then UR TURN issues alerts and notifications to make sure students stay on track, giving them action plans if they don't.

Eilers, who has a Ph.D. in education, is applying her 25 years of research to UR TURN. In 2016, she secured a grant from the National Science Foundation to develop the UR TURN platform, and school districts are piloting it now.

Iron Range Makerspace

orried about mining-reliant northern Minnesota, a group of five engineers started the Iron Range Makerspace to help people help themselves. They aim to give fellow Rangers tools to learn new skills and incubate companies that will diversify the regional economy.

While earning a degree from Iron Range Engineering in Virginia, Minn., Andrew Hanegmon enjoyed working on team projects with cutting-edge equipment. With a vision to continue that collaboration, Hanegmon and his team secured help from area economic development organizations and opened the Iron Range Makerspace in June. The co-working site features a wood shop, recording studio, commercial kitchen, metalworking bay and more.

"There are people with massive talent here making awesome stuff, and they want to take it to the next level," he says. "If we don't do something to grow our own people, we don't have the potential to start new companies to sustain us when the economy is down."



LIFE SCIENCE/HEALTH IT

Impleo Medical Inc. (Runner-up)

ne in four Americans, or about 65 million people, have weekly symptoms of gastroesophageal reflux (GERD) including heartburn. They either get temporary relief from existing medications, which can be harmful if taken long-term, or undergo highly invasive surgery. Veteran entrepreneur Juliana Elstad thought she could help by developing an injection to treat GERD.

Impleo Medical's injection was developed based on a similar treatment for incontinence, which has been used successfully since 1999. Aluvra is a long-lasting bulking material that creates a barrier to prevent stomach acid from traveling into the lower esophagus—the cause of GERD.

Elstad worked at Carbon Medical Technologies, which developed the original injection for incontinence, and she convinced its leaders to spin off Impleo, with her at the helm. Impleo completed a pilot study and is now embarking on a trial with 100 patients to collect longerterm data. If successful, the trial could be the final step before FDA approval.

Dose Health

eople skipping or taking their medications incorrectly results in 125,000 deaths and costs around \$300 billion annually. During medical training Dr. Paul Hines witnessed this problem of nonadherence and couldn't find any effective solutions. Partnering with aerospace engineer Steve Wesner, Hines developed a smart pillbox to help people take their medications correctly.

The pillbox can easily be programmed with a user's medication regimen. When it's time for medication, an alarm sounds and the internal tray rotates to reveal the correct pills. The user flips over the device to get the medication, and a text or email notifies relatives or caregivers. Results shows that 96 percent of Dose Health's users take their medicine on time.

Hines left his residency to launch Dose Health in 2015, energized to make an impact on a major medical problem. Healthy sales to Medicaid's home and community-based services waiver program have helped the company achieve early success.



OutdoorsAdvisor (Runner-up)

nline travel sites make comparing and booking flights and hotels easy, but when it comes to arranging guides for hunting, canoeing or hiking, they aren't much help. Joncarlo Westerlund, founder and CEO of OutdoorsAdvisor in Minneapolis, discovered this while planning a group fishing trip. After 14 hours of frustration, a light bulb lit up.

Westerlund is creating a marketplace for people to shop for outdoor adventures while helping outdoor services providers boost their businesses. A recent Gustavus Adolphus College graduate, Westerlund is from Lake of the Woods, where walleye fishing is a big draw. He knew his company could assist communities like his.

Westerlund expects to launch his website this year, but it hasn't been easy. The market for outdoor experiences is vast and fragmented. Still, he's committed to helping others enjoy the outdoors through a social consumerism model, where the company will donate a portion of booking revenue to wild-life and environmental sustainability.

KinoSol

ne-third of all food produced globally gets wasted, inspiring the KinoSol team to take a different approach to addressing world hunger. They developed a solar-powered food dehydrator and storage system to help subsistence farmers preserve nutritious food that would otherwise go to waste.

Led by CEO Mikayla Sullivan, the team met as Global Resource Systems students at lowa State University. They started Kino-Sol in 2015 to bring their Orenda dehydrator to people worldwide. After creating eight prototypes and testing the dehydrator in all sorts of environments, KinoSol of Roseville launched sales last January.

Customers in 42 countries are using the Orenda dehydrator to preserve fruits, vegetables, grains and insects. "Our goal was to allow families and farmers to have access to technology that helps them preserve food that they can eat yearround," says Sullivan. "They can sell extra food for income and break the cycle of poverty in developing countries."



Peacebunny Island (Runner-up)

† 13, Caleb Smith already is running his second rabbit startup. He created the nonprofit STEM Bunnies three years ago to prevent rabbit abandonment. Through its events and foster programs, students and families get hands-on experience with rabbits before deciding whether to adopt.

After adopting homeless Angora rabbits, Smith learned that he might have an international market for their fast-growing fur, which must be cut quarterly. Smith started Peacebunny Island to cultivate an Angora wool business. The company has already inked a 15-year contract with a yarn company that will supply Angora wool from high-end fashion designers.

Peacebunny Island also has a network of farmers in seven states. The farmers raise and host Angoras for the company's HEARTfelt brand of luxury yarn and tend to Smith's nonprofit. "We want to expand what we're doing and make sure it stays humane," Smith says.

VIA

s teen drivers, the five young women behind VIA know that distracted driving is a life-threatening issue. They developed an app to help young drivers stay focused on the road instead of their phones.

The team developed the idea in 2016 for a Technovation app-building competition for girls. After placing second in the health category, the Rochester-based VIA team knew they were on the right track.

The app, still in prototype, has several features to keep teens off their phones while driving. When the driver hits a designated speed, it automatically mutes texts and notifications from other apps, sending a text saying that the user is driving and can't respond. Parents also can download VIA and receive reports about their kids' driving.

"We wanted to create something simple and easy for parents to help teens to not be on their phones," says CEO Sophia Fulton.







This year's MN Cup Final Awards Event took place on October 9, 2017, at McNamara Alumni Center, and included special guests Marilyn Carlson Nelson (top), and Sen. Al Franken and Lt. Gov. Tina Smith (middle).

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