



## Founder's and Co-Chairs' Letter

rom our start nearly 30 years ago, FIRST® was designed for achieving breakthroughs. It began with an ambitious vision: Transforming the culture to one where science and technology are celebrated and young people proudly dream of becoming true leaders, innovators, and changemakers.

To get there, we needed to build that culture into FIRST—and we have. Today and every day, our global community of business leaders, STEM professionals, educators, parents, and many others work together to mentor, support, and celebrate young people through FIRST.

Each time we encourage a team of students to persevere until they achieve the thrill of making a robot move, or we pack an event space with cheering crowds to celebrate young participants in a robotics competition, we are giving these students invaluable opportunities. They're building self-confidence, unlocking new skills, and discovering passions that will change the course of their

lives, preparing them to make breakthroughs of their own.

That inspiration goes both ways. Adults may aim to inspire young people, but it's the youth who truly inspire the adults. Parent volunteers frequently stay involved long after their own children graduate. Employees of our sponsors often become more engaged at work after they begin mentoring FIRST teams. Many FIRST alumni become coaches, volunteers, and donors, dedicated to ensuring FIRST is available for generations behind them.

Look no further than President Barack Obama, 44th President of the United States, who spoke about being inspired by the young people in our program when we honored him at our FIRST, Inspire Gala this year: "You can't help but want to support this program, and you can't help but feel good about where we can go," he said.

## YOU CAN'T HELP BUT WANT TO SUPPORT THIS PROGRAM, AND YOU CAN'T HELP BUT FEEL GOOD ABOUT WHERE WE CAN GO."

-President Barack Obama, 44th President of the United States

We give our heartfelt thanks to those who have helped us build this culture: our Founding Sponsors and Strategic Partners, and all our sponsors, mentors, and volunteers who give freely of their experience, knowledge, time, and resources. We're also grateful for the parents, educators, and community members who support our young people. You inspire us.

There's more work to do. While we welcome greater numbers of young people into the FIRST community each year, there are still so many kids - especially those from disenfranchised communities and underrepresented populations - who don't have access to the kind of STEM inspiration FIRST provides. We must continue to work toward greater access to our programs, and to keep breaking through until every kid, everywhere, has these game-changing opportunities.



Dean Kamen Founder, FIRST



Robert K. Ortberg Co-Chair, Board of Directors



**Bob Tuttle** Co-Chair, Board of Directors

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To inspire an entire generation of leaders, innovators, and changemakers, we need your help. Will you join us?

Learn more at www.firstinspires.org.



## Impact That Creates Breakthroughs

ore than a decade of verifiable data shows that exposing kids to fun, exciting *FIRST* programs builds 21<sup>st</sup> century work skills and prepares young people for the future. Five years of data\* from a rigorous longitudinal study of *FIRST* indicates that *FIRST* greatly increases students' motivation to seek education and careers in STEM fields, and that girls in *FIRST* are significantly more likely to have even greater gains in STEM than their peers or boys in *FIRST*. No matter what path students choose after high school, *FIRST* is equipping them for success.

78%
of FIRST ALUMNIARE IN A STEM FIELD

(student or professional)

## STEM EXPOSURE

#### FIRST STUDENTS

84% build the robot
88% work on robot
design strategy

60% program/code 77% learn about STEM jobs

97% have FUN!

#### GIRLS IN FIRST

75% build the robot 89% work on robot design strategy

61% program/code

**78%** learn about STEM jobs

**97%** have FUN!

### STEM INTEREST & SKILLS

#### **FIRST STUDENTS**

**88%** more interested in learning about STEM

88% better understand how STEM is used to solve real-world problems

98% increase teamwork skills

93% increase problemsolving skills

#### **GIRLS IN FIRST**

**85%** more interested in learning about STEM

92% better understand how STEM is used to solve real-world problems

99% increase teamwork skills

98% increase problemsolving skills

INSPIRED TO LEARN MORE? WWW.FIRSTINSPIRES.ORG/ABOUT/IMPACT





## **EDUCATION, STEM CAREERS**

#### **FIRST STUDENTS**

**86%** more interested in doing well in school

**84%** motivated to take challenging math or science classes (FIRST® Robotics Competition, FIRST® Tech Challenge)

94% embrace the importance of Coopertition® Gracious Professionalism®

**80%** more interested in jobs that use STEM

#### **GIRLS IN FIRST**

83% motivated to take challenging math or science classes (FIRST Robotics Competition, FIRST Tech Challenge)

98% embrace the importance of Coopertition, Gracious Professionalism

**82%** more interested in jobs that use STEM (FIRST Robotics Competition, FIRST Tech Challenge)

#### **FIRST ALUMNI\***

2.3x more likely to be very interested in computer science majors

3.1x more likely to be very interested in engineering majors

4.2x more likely to be very interested in robotics majors

2.7x more likely to take an engineering course their freshman year

#### **FEMALE FIRST ALUMNAE\***

more likely to be very 3.1x interested in majoring in computer science

3.6x more likely to be very interested in majoring in engineering

**3.1x** more likely to be very interested in majoring in robotics

**3.6x** more likely to take an engineering course freshmen year



## President's Letter

This has been a breakthrough year in our *FIRST* movement. **Our power to make an impact is growing.** This past season, we:

- Reached half a million active participants in over 95 countries across the four FIRST programs.
- Welcomed a record 70,000 people to FIRST Championship, capping a season of over 2,900 official FIRST events.
- Provided over \$80 million in scholarship opportunities from universities, colleges, and technical programs through the *FIRST* Scholarship program, enabling more *FIRST* alumni than ever to continue building their knowledge and skill set.

We've come a long way from our humble beginnings, when 28 *FIRST* Robotics Competition teams competed in a high school gymnasium for the inaugural *FIRST* event. None of our progress would have been possible without the ongoing dedication of our community of mentors, volunteers, alumni, sponsors, donors, educators, and other supporters.

We know that *FIRST* is most impactful to those who may be least likely to seek us out. And we believe all young people deserve our programs and the inspirational, inclusive community we provide. Through intentional *FIRST* Equity, Diversity, and Inclusion efforts, we continue to be actively engaged in exploring, developing, and implementing strategies to make our programs more accessible and to reach more underserved, underrepresented, and vulnerable young people.

Assuredly, we are breaking through with one of those groups traditionally underserved in STEM: girls and young women. Over the past five years, female *FIRST* participation in the United States has risen steadily from 25 percent to 32 percent—a record. This is especially significant because of continued findings from our longitudinal impact study: While all *FIRST* participants are significantly more likely to show gains in STEM than their classmates, girls in *FIRST* indicate even greater gains in STEM than boys in *FIRST* or their peers.

# OVER THE PAST FIVE YEARS, FEMALE *FIRST* PARTICIPATION IN THE UNITED STATES HAS RISEN STEADILY FROM 25 PERCENT TO 32 PERCENT—A RECORD.

As anyone who is part of our community already knows, the impact of *FIRST* is more than STEM. What we're really creating is a generation of lifelong learners and strong global citizens. Whether they pursue higher education or enter the workforce directly after high school graduation, *FIRST* alumni are well equipped with the skills and confidence they need to tackle any challenge. And thanks to the values at the heart of *FIRST*, our alumni network is brimming with people using those hard-earned skills to truly make the world a better place — people like Chelsey Roebuck.

Chelsey is using the skills and passion he gained as a member of a *FIRST* team to profoundly impact the lives of black and Latinx students through *FIRST* programs and his Harlem-based youth development organization. This season, I had the honor of presenting Chelsey with the Evelyn Kamen Rising Star Award at the *FIRST*, Inspire Gala for his accomplishments in leveling the STEM playing field.

Every kid around the world deserves this opportunity to reach their full, fantastic potential. Will you help us reach for our next breakthrough?



Donald E. Bossi President, FIRST

## Will you help us reach for our next breakthrough?

Join the *FIRST* movement. Learn more at **www.firstinspires.org**.

# Progression of Programs

A progression of four programs gets young people involved early, developing skills and building confidence, and keeps them engaged from kindergarten through high school.



## FIRST. LEGO LEAGUE JR.

Ages 6-10 (Grades K-4)



- LEGO® Education WeDo 2.0
- Engineering Notebook
- Playful Learning
- Problem Solving



## FIRST. TECH CHALLENGE

Ages 12-18 (Grades 7-12)

## FIRST. LEGO LEAGUE

Ages 9-16\* (Grades 4-8)

Guided by FIRST Core
Values, teams build and
program autonomous robots
using LEGO® MINDSTORMS®
technology to solve a series
of missions on a themed
playing field. They also
develop research projects
based on a real-world theme
that changes annually.

- Robotics
- LEGO® MINDSTORMS®
- Game Play
- Research

\*Ages vary by country

#### Students learn to think like engineers. Teams build robots from a reusable kit of parts, develop strategies, document their progress in an engineering notebook, and compete head to head.

- Robotics
- Engineering Notebook
- Game Play
- Scholarships



# FIRST. ROBOTICS COMPETITION

Ages 14-18 (Grades 9-12)

#### Mentored by STEM

professionals, teams compete with 120-pound robots of their own design, combining the excitement of sport with the rigors of science and technology. It's a sport where every student can go pro.

- Robotics
- Learn from the Pros
- Game Play
- Scholarships

## **Fantastic Facts**



FIRST is founded to excite young people about science and technology

## Gracious Professionalism®

"Respect for others, being a good sport, sharing what you've learned"



**\$\rightarrow\$** 530,000+

participants (ages 6-18)





**(L)** 18,000,0

hours donated by volunteers

## Coopertition<sup>®</sup>

"Competing teams help and cooperate with each other"



U.S. States









Fortune 500 companies sponsor FIRST





growth in number of FIRST teams (over 2017)

## imitless

opportunities for a meaningful experience



## Season Highlights

FIRST is honored to welcome new Strategic Partners Caterpillar Inc. and Lockheed Martin Corporation. Thank you!

#### **CATERPILLAR®**

LOCKHEED MARTIN

The Boeing Company awarded a \$1.5 million grant to support young innovators through FIRST programming, specifically among underserved and geographically diverse populations.



The third annual FIRST, Inspire Gala honored President Barack Obama and FIRST alum Chelsey Roebuck for their efforts to promote awareness of, and expand access to, STEM education.

After receiving FIRST STEM
Equity Community Innovation
Grants, 18 communities reached
more than 2,300 underserved
and underrepresented students
with hands-on learning
and problem-solving
opportunities. The 2017
grants were sponsored
by Arconic Foundation,
Qualcomm® Incorporated,
Caterpillar, GM, GitHub,
John Deere, and New
York City individuals,
among others.

NI announced the extension of its supply agreement to accelerate STEM education and support the next generation of engineers and scientists through FIRST programs.



The *FIRST* Scholarship program exceeded \$80 million milestone.



New Hampshire schools embraced groundbreaking state grants to start FIRST teams.

Dual FIRST Championship events, presented by Qualcomm Incorporated, took place in Houston, Texas, and, for the first time, Detroit, Michigan.

# Breaking Through Barriers to STEM Access

FIRST launched its **STEM Equity Community Innovation Grants** program in the 2016-2017 season to provide grants to underrepresented and underserved communities. Supported by generous sponsors and donors, the grants empower educators and community leaders to develop new, innovative approaches to address inequities in STEM education using proven *FIRST* programs. An evaluation was conducted to assess the implementation, impact, and practices around access, equity, and inclusion.

#### 2017 STEM EQUITY COMMUNITY INNOVATION GRANTS IMPACT SNAPSHOT

18 Sites

2,336 Youth Reached

308 Teams Started



## Tools to Create Equity in FIRST

In collaboration with the National Alliance for Partnerships in Equity (NAPE), FIRST created the "Strategies for Inspiring Success for All" online training modules for coaches, mentors, volunteers, and other key stakeholders who work directly with students. Through engaging and reflective activities on the power of culture on interactions with students, the three-part training modules equip the FIRST community with specific strategies to support community outreach, student participation, persistence, engagement, and success to create diverse, inclusive, and equitable teams.

firstinspires.org/inspiring-success



#### **Grant Reaches Vulnerable Young People BOYS & GIRLS HAVEN-LOUISVILLE, KENTUCKY**

As a residential school and community center in Louisville, Kentucky, the Boys & Girls Haven's mission is to shelter, heal, and teach struggling young people to become productive and healthy members of their community. It serves vulnerable young people who have been removed from their families and often faced disruptive, chaotic living environments. A FIRST **STEM Equity Community Innovation** Grant funded two FIRST Tech Challenge teams, one for young people attending the campus' school and the other for residents of Boys & Girls Haven who attend local public schools.

The grant created a stimulating, enriching environment for learning academic and life skills. The teams participated in career exploration outings to GE and Toyota, visited the Kentucky Science Center, and attended a local FIRST event to network with peers from other teams. This led FIRST Tech Challenge Team 8417 "The 'Lectric Legends" to visit the school's campus to share their experiences and hold a friendly scrimmage. By participating in hands-on,

project-based learning, the students have experienced gains in teamwork, leadership skills, and confidence, all while becoming exposed to possible careers.



#### **FACTORS THAT RESULTED** IN SUCCESS

- **Removing barriers for students** who lack resources: Funding for snacks, after-school travel, and other expenses.
- **Connecting experienced and** rookie teams for peer-to-peer or **near-peer mentoring:** Linking new teams with established ones can build skills and generate enthusiasm for new programs, while reinforcing experienced peers' skills.
- **Linking students to the larger** community: Building strong bonds with FIRST teammates, coaches, mentors, corporate sponsors, and partners can be rewarding – and open doors to jobs, internships, and higher education.
- **Providing training and resources** to coaches: In-person and digital learning experiences and resources build confidence for coaches and help new teams encounter fewer barriers.
- **Building coalitions in the local** community: Allying with other organizations within the community brings in additional resources, leadership, and expertise to build FIRST programs.

"By working through real-world, hands-on challenges, our kids have been given a second chance at authentic learning."

Melissa Jackson, Grants Manager, Boys & Girls Haven



#### THIRD ANNUAL FIRST, INSPIRE GALA

\$1.8 million raised to expand diversity efforts and student access to STEM opportunities

o help expand diversity efforts and STEM opportunities for students in disenfranchised communities, hundreds of *FIRST* supporters gathered at Cipriani 55 Wall Street in New York City for the third annual *FIRST*, Inspire Gala.

The event celebrated work advancing the mission of *FIRST* and inspired further action to ensure that all children have access to creative, hands-on problem-solving opportunities that instill a lifelong love of learning and adaptability in the workforce.

The charity event also included a live auction and prominent speakers including Dean Kamen, founder of *FIRST*; Donald E. Bossi, president of *FIRST*; and many *FIRST* students, recognizing the impact that the organization has made in STEM education over the past three decades.

Proceeds from the gala further expand opportunities for more underrepresented, underserved, and vulnerable students to participate in *FIRST* programs.

Two honorees were presented with individual awards for their efforts to advance STEM education in under-resourced communities:

**President Barack Obama**, 44<sup>th</sup> President of the United States, received the **"Make It Loud" Award** for his significant contributions to raising awareness about *FIRST* among the general public and helping spread the mission and impact of the organization.

FIRST Alumnus Chelsey Roebuck, Executive Director and Co-Founder of ELiTE (Emerging Leaders in Technology and Engineering, Inc.), received the Evelyn Kamen Rising Star Award for his accomplishments in leveling the playing field in STEM for underrepresented populations. (Pictured, lower left on facing page.)

Thank you to our *FIRST*, Inspire Gala sponsors who appear on page 46 of this Report.

"As a global community, we have a responsibility to help kids become well-rounded citizens and critical thinkers who can collaborate with people from diverse backgrounds and respect each other. As we look at where the world is headed, that work is just as essential as providing our kids with the hard skills they'll need to secure jobs in the future economy."

— Donald E. Bossi, President, *FIRST* 







- "What's more optimistic than believing that we can science our way out of any problem?"
  - President Barack Obama,
     44th President of the United States













**PRESENTED BY** 

## Qualcom

## FIRST Championship Celebrates Young Innovators and Changemakers

or two back-to-back weeks in April 2018, a record 70,000 people traveled to
Houston and Detroit to celebrate young innovators, leaders, and changemakers
at the thrilling 2018 FIRST Championship presented by Qualcomm® Incorporated.

Thanks to the support of *FIRST* sponsors, host cities Houston and Detroit, and thousands of pumped-up volunteers, coaches, and mentors, more than 30,000 students from 74 countries competed with team-built robots and showcased their innovation skills at the world's largest celebration of STEM for students.

This global event inspired students and adults alike, with intense competitions, opportunities to create connections and share ideas, and hands-on fun and technology demonstrations at the *FIRST* Innovation Faire.



2 Championship Events

Houston & Detroit



36,000+

team participants (students, mentors, coaches, and adult supporters)







70,000 attendees

2,300+

volunteers



"To all the participants, I want to thank you for what you're going to do in the future. If you look at the world, a couple of things are happening. One, the world is only going to become more global. Two, the rate of change is only going to go faster and faster. To be ready to go faster and faster, we need the best people in the world excited about STEM, and that's who you are."

- Rick Snyder, Governor of Michigan and FIRST Championship Detroit Host Committee Co-Chair

### 2018 FIRST Championship Sponsors

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#### **ACCOMPLISHMENTS**

Approximately 99,000 6-10 year-olds participated on 16,425 teams in 55 countries, celebrating curiosity, imagination, discovery, and teamwork.

#### COMPETITIONS

Over 450 regional Expos; FIRST® LEGO® League Jr. World Festival Expo in Houston and Detroit.

#### **NOTEWORTHY**

- Registered teams each received an exclusive LEGO Inspire Model to help start their journey.
- New Getting Started video supplements were developed for teams in English and Spanish.
- A grant from the LEGO Foundation allowed an additional 15,000 underserved children across six countries to join in the season.



## Students and Teachers **Learn Together**

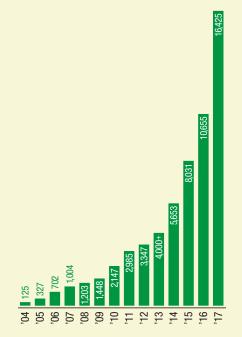
#### **COMPTON UNIFIED SCHOOL DISTRICT COMPTON. CALIFORNIA**

To bring FIRST programs to underserved and underrepresented students, a FIRST STEM Equity Community Innovation Grant funded 12 FIRST LEGO League Jr. teams in Compton, California. Teams of young people, many of whom had never worked with robotics or LEGO bricks, learned the basics of programming, working together, and solving challenges. Administrator Michael Kurinsky noticed the response in the children: "If the first graders saw me, they would light up and get so excited because they knew it meant they were going to work on FIRST LEGO League Jr. projects."

In addition to the benefits to the students, the program made a noticeable impact on the teachers. With the help of FIRST Certified Professional Development, teachers gained confidence and learning tools to strengthen their facilitation skills for a project-based learning curriculum. "It has made STEM more accessible to those teachers who maybe shied away from it previously," said Kurinsky. "I think it has increased capacity for leadership. Teachers are developing new skills, and they are finding niches and roles - opportunities for leadership - at their sites."



#### FIRST LEGO LEAGUE JR. **TEAM GROWTH**



- "The teachers in our district coaching *FIRST* programs want what's best for students, and they see these programs as improving the educational outcomes of our students."
- Michael Kurinsky, Administrator of Educational Services, Compton Unified School District



#### **ACCOMPLISHMENTS**

Approximately 280,000 9-16 year-olds\* on 35,033 teams from 98 countries participated in this season's Challenge.

\*Ages vary by country

#### COMPETITIONS

1,248 Qualifying Tournaments, 169 Championship Tournaments, 4 Open Invitational/International; FIRST® LEGO® League World Festival in Houston and Detroit.

#### **NOTEWORTHY**

- Season Pass was introduced, bundling options to provide flexibility in bringing the program to schools while maintaining core components. New Robot Game scoring software was developed and tested at FIRST Championship.
- Off-season team engagement increased with release of a secondary "Secret Mission" Challenge in February, providing additional building and coding opportunities and the chance to share work online.



# Persevering After Hurricane Maria

#### FIRST LEGO LEAGUE TEAM 21109 "CSI CYBERNETIC LIONS" **SAN JUAN, PUERTO RICO**

HYDRO DYNAMICS<sup>SM</sup> hit home for students in Puerto Rico after Hurricane Maria devastated the island in September of 2017. FIRST LEGO League encouraged the students on team "CSI Cybernetic Lions" to help others and was a way to return some sense of normalcy to their lives.

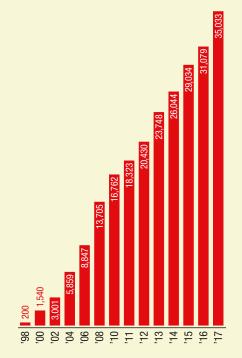
The drinking water crisis inspired community-driven innovation for the team. For their Project, students researched



ways to increase accessibility of purified water to communities more affected than their own. The team met with a nonprofit organization that distributed water filters to disadvantaged communities on the island and met with the U.S. military service to see how they purified water from rivers and lakes. They also took action, traveling to communities in need to deliver essential supplies and LEGO bricks, so the local children could play.

"FIRST LEGO League motivates kids to create a project that helps communities and people to have a better quality of life," said team coach Alma Bertoni. "The program provides students with the opportunity to develop different skills that will help them in their daily and future lives."

#### FIRST LEGO LEAGUE **TEAM GROWTH**



"I am a coach because I want the students to live and learn from experiences beyond the classroom."

- Alma Bertoni, Coach, CSI Cybernetic Lions



#### **ACCOMPLISHMENTS**

Approximately 60,000 participants (ages 12-18, grades 7-12) on 6,021 teams from 18 countries; eligible for over \$80 million in college scholarships.

#### **COMPETITIONS**

458 Meets and League Championships; 290 Qualifying Tournaments and Championship Tournaments; 4 Super-Regional Championship Tournaments; FIRST® Tech Challenge World Championship in Houston and Detroit.

#### **NOTEWORTHY**

- Expansion Hub electronics interface was introduced, reducing cost, increasing reliability, and decreasing complexity.
- Strong growth in participation continued, increasing 15 percent over the previous year.



# Gaining a Career Head Start

#### FIRST TECH CHALLENGE TEAM 8808 "THE PONYTAIL POSSE" ST. PAUL, MINNESOTA

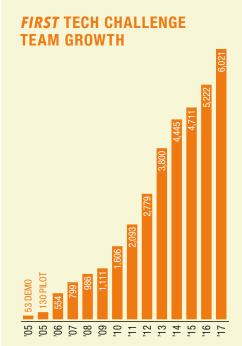
When she was in fourth grade, Rose Lam and some friends started the all-girls FIRST LEGO League Team "The Ponytail Posse." Over nine years, The Ponytail Posse progressed into a FIRST Tech Challenge team, becoming a close-knit group of hardworking and committed students.

Through participation in FIRST, Lam and her teammates developed problem-solving and critical-thinking skills, but they also gained confidence and learned how to collaborate. Over time, the team "began to realize how our robotics experiences were influencing how we thought about the future," said Lam. "We could see ourselves going to college and starting a career in engineering, entrepreneurship, and other fields we had never considered before." Lam feels that her experience in FIRST has given her and her teammates a "massive head start" in their careers.





Lam is now studying graphic design at the University of Minnesota and a member of the school's FIRST alumni group. Her teammates are studying fields ranging from computer science to mechanical engineering to marketing - and plan to become lifelong FIRST volunteers. "Now we get to be the mentors who make a difference in students' lives," said Lam.



"It's not just a path toward a successful STEM career, but a gateway to selfexpression, confidence, critical thinking, and empathy."

- Rose Lam, Team Member/Alumna, The Ponytail Posse



#### **ACCOMPLISHMENTS**

91,500 high-school students on 3,660 teams from 28 countries; eligible for over \$80 million in college scholarships.

#### COMPETITIONS

85 District Events; 10 State/District Championships; 63 Regional Events; FIRST® Robotics Competition Championship for over 800 participating teams in Houston and Detroit.

#### **NOTEWORTHY**

- Animation for the 2018 game, FIRST POWER UP, SM was viewed over 285,000 times.
- Program grew 21.8 percent outside the United States.
- Team retention rate reached a record high 94 percent.





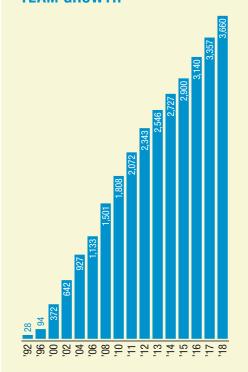
# Breaking Stereotypes and Creating Hope

#### FIRST ROBOTICS COMPETITION TEAM 7329, "THE AFGHAN DREAMERS" **HERAT, AFGHANISTAN**

In 2018, "The Afghan Dreamers," an all-girls robotics team formed to represent Afghanistan at the FIRST Global Challenge, traveled to Canada to participate in the FIRST Robotics Competition. Arriving in mid-January, the girls were able to complete their robot in just four weeks with the mentorship of Ontario-based all-girls FIRST Robotics Competition Team 771 "SWAT." The team had a successful initial season, traveling all the way to FIRST Championship Detroit, where they received the Rookie Inspiration Award.

The team has traveled around the world for meetings with tech, media, education, and government leaders. In a country where only 40 percent of girls attend school, they have challenged perceptions about girls in STEM. Tech entrepreneur Roya Mahboob, a mentor to the team, says they are "bringing hope and happiness to the Afghan community, and it's a means for our leaders to rethink the ability of the youth that was ignored for many years." The students hope to take what they've learned to become role models in their country and empower more Afghan girls and women with technology and education.

#### FIRST ROBOTICS COMPETITION **TEAM GROWTH**



"I will never stop believing in a brighter future for the next generation of girls in Afghanistan."

- Fatemah, Team Member, The Afghan Dreamers (as told to CNN)

## **Sponsors**

In addition to our sponsors, suppliers, and contributors acknowledged on these pages, FIRST extends its sincere appreciation to the hundreds of thousands of volunteers who generously devote their time and expertise to FIRST Robotics Competition, FIRST Tech Challenge, FIRST LEGO League, and FIRST LEGO League Jr. teams and events. FIRST could not achieve the impact it does without this tremendous support.

## 2017-2018 FIRST Strategic Partners





















### FIRST Founding Sponsors









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Each year, FIRST Founder Dean Kamen presents the Founder's Award to an organization or individual for exceptional service in advancing the ideals and mission of FIRST. The U.S. Air Force received the award in 2018 for its dedication to making FIRST programs a success.

Since 2010, the U.S. Air Force has been a passionate supporter of FIRST. It has interacted with thousands of FIRST students, provided hundreds of event volunteers, and has sponsored over 30 FIRST Robotics Competition regional events.

One of its most significant contributions to FIRST is the annual Leadership Experience for FIRST mentors. The three-day experience provides mentors with hands-on leadership training provided by U.S. Air Force personnel. In the past seven years, more than 150 FIRST mentors have taken part in this unique experience.

Major General Garrett Harencak proudly accepted the Founder's Award on behalf of the U.S. Air Force, emphasizing how the U.S. Air Force and FIRST share the same values: a commitment to excellence, integrity, determination, grit, teamwork, and service above self.

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#### 2018 WOODIE FLOWERS AWARD Gail Drake



FIRST Robotics Competition mentor Gail Drake is the recipient of the 2018 Woodie Flowers Award. The award celebrates an outstanding mentor who demonstrates excellence in teaching science, math, and creative design.

Drake left a corporate career in IT to share her knowledge and enthusiasm with students. She transitioned from a university professor to a high school teacher after implementing dual enrollment curriculum at Battlefield High School in Haymarket, Virginia. Soon after, she co-founded FIRST Robotics Competition Team 1885, "ILITE Robotics." As the head mentor to the team, she's helped to create an environment that fosters communication and curiosity and allows students to

Since 2005, there have been over 1,500 members on Team 1885, and they have impacted nearly 75,000 individuals through their outreach. Their community outreach includes advocating for FIRST with national legislators, mentoring local and international FIRST teams, holding STEM expos and summer camps, and hosting a leadership conference at FIRST Championship.

With Drake's help, robotics programs are now available in all elementary, middle, and high schools within her county. Her goal is to "inspire kids to be the best that they can be, and to give them that feeling internally."

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FIRST Robotics Competition mentor Monique Dituri is a DonorsChoose.org

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2018 Annual Impact Report 39

# FIRST<sup>®</sup> prepares students for life beyond high school

Create community
 Grow your network
 Find internships
 Inspire others

LU MIN

Highest degree expected:

34% Bachelors

41% Masters

19% Doctorate



of alumni still involved in FIRST:

26% are mentor/coaches

18% volunteer at events

15% volunteer (other)

FIRST alumni gained skills and attitudes needed in today's workforce:

90% Problem Solving Skills

90% Teamwork

**87%** Innovative Thinking

85% Creative Thinking

**85%** Perseverance

79% Leadership



FIRST strengthened post-high school success:

83% more confident in leadership roles

78% more confident in time management

74% more prepared for college courses

72% gained access to mentors and peers in STEM



College majors:\*

54% Engineering

32% Computers/Programming

22% Science

11% Math



of all alumni:



are in STEM fields





# FIRST Scholarship Program

In 2018, as part of the FIRST Scholarship Program, nearly 200 FIRST Scholarship Providers made available over \$80 million in scholarship opportunities to high school FIRST participants and alumni.

The majority of FIRST scholarships are made available by specific colleges or universities for enrollment at their campuses; others are made available by corporations, associations, or foundations for use at a selection

To learn more about the FIRST Scholarship Program, or to make FIRST Scholarships available from your institution, please visit: www.firstinspires.org/scholarships



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Across the FIRST Progression of Programs, team members are encouraged to ask questions, push their limits, and work collaboratively to solve problems and improve the world around them. By challenging students to think like innovators, FIRST is helping to create the next generation of changemakers, critical thinkers, and leaders.

The FIRST LEGO League Global Innovation Award is a forum that lets young visionaries take center stage. The competition is designed to showcase the solutions FIRST LEGO League teams create to real-world problems as a result of their Project. The award allows teams to further develop their solutions by considering possible barriers to implementation, documenting the evaluations of their invention, and validating their design with professionals.

In its eighth year, the 2018 FIRST LEGO League Global Innovation Award celebrated the inventions FIRST LEGO League teams created to improve the ways people find, transport, use, or dispose of water during the HYDRO DYNAMICS<sup>SM</sup> season.

Team "FSINGENIUM" from Pamplona, Spain took the top prize - a \$20,000 cash award - for the HYDROBALL, a tennis-ball sized water conservation tool that gets buried in the soil and precisely measures how much water is available for crops. It provides the user with real-time data via smartphone technology. With a dual sensor and battery life of five years, the HYDROBALL measures both the moisture in the soil and the tension with which the land retains water - that is, the amount of water available for the plant.

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**SOUTH CAROLINA** William Pedersen South Carolina Robotics Education Foundation

TEXAS - ARLINGTON/DALLAS Patrick Michaud

University of Texas at Dallas Erik Jonsson School of Engineering and Computer Science

TEXAS - LUBBOCK Richard Gale Texas Tech University

TEXAS - PASADENA/HOUSTON Sharon Sledge San Jacinto College

**TEXAS - SAN ANTONIO** Andrew Schuetze SASTEMIC

Patrick Felty FIRST in Texas

David Ferro

UTAH

Weber State University VERMONT **Douglas Dickey** Kristin Winer

University of Vermont

**VIRGINIA** Scott McKay VirginiaFIRST WASHINGTON

Adrienne Rime FIRST Washington **WEST VIRGINIA Donald Trisel** 

Fairmont State University Michael Krauski

University of Wisconsin Milwaukee

**WYOMING** Bryan Honken

Natrona County School District

**PROGRAM MANAGERS** Canada

**BRITISH COLUMBIA** Christine Nicholls

**CEESA School District** 

Ionel Doboaca

Andrew Bannish Flora Li

Chunwei HouRuna Huang

Semia Limited

Chinese Taipei Rene Cheng ESUN Robot Association

**DoDEA Europe** 

Galen Tate

Israel Or Daniel FIRST Israel

Republic of Korea

Wonsup Lee

FEST (Feeling and Enjoying Science & Technology Organization)

Romania Andrei Toniuc Ana Popescu

Russia Maxim Petrov

Oleg Deripaska Foundation Volnoe Delo

**United States** 

ALASKA Rebecca Soza **David Patterson** 

**CALIFORNIA - LOS ANGELES** Theresa Klemme

**GEORGIA** Robert May Blake Uramoto Jenny Uramoto

ΙΠΔΗΟ

Robin Baumgartner

ILLINOIS

Sue Kunzeman Jonathan Weiland

INDIANA Lori Hall LOUISIANA Clark Rowley

MICHIGAN MIDDLE SCHOOL Tammy Damrath

**MINNESOTA** Vicki Coaty **MISSISSIPPI** Mannie Lowe **MISSOURI** Tom McGovern **NEW JERSEY** Vince Frascella

Patricia Frascella **NEW HAMPSHIRE** Frank Grossman NEW YORK - LONG ISLAND Janet Anderson **NEW YORK CITY** 

Mary-Ann Oluwanifise **NORTH CAROLINA** 

Dr. Kory Bennett OREGON

Cathy Swider Oregon Robotics Tournament and Outreach Program (ORTOP)

Dave Hackett TEXAS - LUBBOCK Alan Barhorst Dina Barhorst Texas Tech University

PENNSYI VANIA

**TEXAS - SAN ANTONIO** Megan Clark SASTEMIC & FIRST in Texas

UTAH Dana Dellinger Weber State University

VIRGINIA Kristin Clemons WASHINGTON Adrienne Rime

Erin McCallum

Julianne Pickering University of Wisconsin Milwaukee

**WEST VIRGINIA** Todd Ensign

West Virginia Robotics Alliance

WYOMING

Cyndee Guthmiller Natrona County School District

**2017-2018 FIRST ROBOTICS COMPETITION** 

The following organizations partner with FIRST to implement the FIRST Robotics Competition program in a specified region.

**Australia** Macquarie University

Canada ONTARIO

FIRST Robotics Canada

**ALBERTA** 

FIRST Robotics Society (FRS)

China

China Urban Youth Robot Alliance (CUYRA)

Israel

FIRST Israel

México

Instituto Tecnológico y de Estudios Superiores de Monterrey

Turkey

Fikret Yüksel Foundation

**United States** 

ARIZONA **AZFirst** ALABAMA

FIRST in Alabama

**ARKANSAS** Arkansas FIRST **COLORADO** 

FIRST Colorado

**FLORIDA** 

Florida FIRST Robotics Education Foundation, Inc. (FFREF)

**GEORGIA** 

GeorgiaFIRST Robotics Inc.

IDAHO

Rocky Mountain Robotics

**ILLINOIS** FIRST Illinois Robotics

INDIANA IndianaFIRST

LOUISIANA

FIRST Louisiana-Mississippi

MICHIGAN

FIRST in Michigan (FiM)

MID-ATLANTIC REGION FIRST Mid-Atlantic

MISSOURI - KANSAS CITY KC STEM Alliance MISSOURI - ST. LOUIS

Saint Louis Science Center NEVADA

FIRST Nevada **NEW ENGLAND** ingenuityNE

**NEW YORK CITY** NYC FIRST

**NEW YORK - LONG ISLAND** FIRST Long Island

**NORTH CAROLINA** FIRST North Carolina

OREGON

Oregon Robotics Tournament & Outreach Program (ORTOP)

SOUTH CAROLINA

Palmetto Partners for Science and Technology

TFXAS

FIRST in Texas

UTAH FIRST Utah

VIRGINIA, MARYLAND, WASHINGTON DC FIRST Chesapeake

WASHINGTON

FIRST Washington



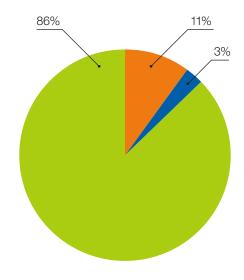
# **Financials**

Our programs' participation growth and mission successes continued once again in fiscal year 2018. We continue to have relatively balanced growth in both operating revenues and expenses, including additional investments in our Youth Protection Program, Information Technology, Program Evaluations, Equity, Diversity & Inclusion, and our Education Initiative. Contributions remained strong, as many individuals, small businesses, corporations—including over 200 of the *Fortune* 500 companies—and foundations maintained or increased their support, while many new sponsors joined *FIRST*. This contributed support provided very meaningful experiences to approximately a half-million youth engaged worldwide in the *FIRST* Progression of Programs.

As noted in the pie chart, and in keeping with long-time practices, *FIRST* continues to apply the maximum percentage of funds possible to directly benefit *FIRST* participants. Included within the modest general & administrative expenses are several significant investments in infrastructure enhancements and program monitoring, including those noted above.



FIRST achieved its thirteenth consecutive four-star rating from Charity Navigator, certifying our continued commitment to accountability, transparency, and sound fiscal management. This consecutive rating places FIRST in the top 1 percent of the U.S. charities annually evaluated by Charity Navigator.



- Team services & growth of programs
- General & administrative expenses
- Fundraising costs

STATEMENTS OF ACTIVITIES	JUNE 30, 2018	JUNE 30, 2017
Revenues and other support:		
Program registration fees	\$ 31,029,505	\$ 28,433,710
Contributions and grants	15,680,501	14,720,452
Other income, net of expenses of \$3,516 in 2018 and \$102,065 in 2017	1,779,661	1,313,487
Special event income, net of expenses of \$404,980 in 2018 and \$395,911 in 2017	559,006	529,054
Net assets released from restrictions	27,968,209	27,339,944
Total revenues (losses) and other support	77,016,882	72,336,647
Expenses:		
FIRST Robotics Competition	44,996,269	43,886,704
FIRST LEGO League and FIRST LEGO League Jr.	9,959,805	9,056,033
FIRST Tech Challenge	8,130,812	8,339,600
Net cost of building space occupied by unrelated not-for-profit organizations	320,596	268,304
General, administrative and supporting services, and fundraising	9,654,724	8,849,470
Operation of FIRST facilities	563,819	417,706
Depreciation	991,834	718,742
Total expenses	74,617,859	71,536,559
Operating surplus	<u>2,399,023</u>	800,088

STATEMENTS OF FINANCIAL POSITION	JUNE 30, 2018	JUNE 30, 2017
Assets:		
Cash and cash equivalents*	24,324,389	16,612,801
Short-term investments*	9,740,000	10,750,000
Pledges, receivables, program supply inventory, and other assets	14,215,014	15,572,532
Net property, plant, and equipment	5,179,524	5,294,793
Total assets, end of year	53,458,927	48,230,126

Liabilities and net assets:		
Total liabilities, end of year	5,764,527	4,391,581
Net assets:		
Unrestricted	27,833,922	25,434,899
Temporarily restricted	19,860,478	18,403,646
Total net assets, end of year	47,694,400	43,838,545
Total liabilities and net assets, end of year	\$ 53,458,927	\$ 48,230,126

For each of the two fiscal years summarized above, FIRST received unmodified (unqualified) opinions from its independent auditor, BerryDunn.

\*Note: The cash and short-term investments are comprised of both unrestricted funds and donor temporarily restricted funds. The total liquid assets balance available to FIRST, for operating purposes, at June 30, 2018, is equivalent to approximately five months of FIRST operating expenses.

The financial information presented here is condensed and does not include the value of all donated services and materials. Audited Financial Statements (AFS) are readily available on the website at <a href="www.firstinspires.org">www.firstinspires.org</a> under "About/Annual Report." Certain amounts reported for 2017 have been restated. For details, please refer to the accompanying notes which are an integral part of the AFS, at the above web address.

# Leadership

#### **BOARD OF DIRECTORS**

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President and Founder Johnson Research and **Development Corporation** 

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Blake Moret

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Dennis A. Muilenburg

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Co-Chairman Two Sigma Investments

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Chairman Starbucks

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Delphi Corporation

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Executive Vice President, Retired **Chrysler Corporation** 

L. John Doerr III

Chairman

Kleiner Perkins Caufield & Byers

Gary L. Tooker

Chairman of the Board, Retired Motorola, Inc.

James R. Utaski

FIRST Chairman: 2000-2002 Corporate Mergers & Acquisitions Officer, Retired Johnson & Johnson

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President

Rensselaer Polytechnic Institute

Kjeld Kirk Kristiansen

Deputy Chairman of the Board LEGO Foundation & KIRKBI A/S

Dr. William P. Murphy, Jr.

Founder

Cordis Corporation

Steve Sanghi

Chairman of the Board, President, and Chief Executive Officer Microchip Technology, Inc.

The Honorable Jeanne Shaheen

United States Senator New Hampshire

Josh S. Weston

Honorary Chairman Automatic Data Processing, Inc.

#### **EXECUTIVE ADVISORY BOARD**

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Pappalardo Professor Emeritus of Mechanical Engineering Massachusetts Institute of Technology

Kevin Ross - Co-Chair

Founder

FIRST Washington

Ray Almgren

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FIRST in Texas

Gail Alpert

President

FIRST in Michigan

Mark Breadner

President

FIRST Robotics Canada

Sujeet Chand

Chief Technology Officer & Senior Vice President Rockwell Automation. Inc.

Cosema (Connie) Crawford, P.E.

Senior Vice President The Louis Berger Group, Inc.

Michael Dubno

Head of Global Markets & Research Technology, Retired Bank of America Merrill Lynch

**Greg Hale** 

Vice President & Chief Safety Officer Walt Disney Parks & Resorts

Erik Halleus

President & Chief Executive Officer EuroScandia Enterprises

Luan Heimlich

Manager, Technology-based Outreach, Dept. of Engineering Macquarie University

James E. Heppelmann

President & Chief Executive Officer

PTC

Marc Hodosh

Co-Creator

**TEDMED** 

Kent H. Hughes

Public Policy Scholar Woodrow Wilson International Center for Scholars

Esben Stærk Jørgensen

President LEGO® Education **David Lavery** 

Program Executive for Solar System Exploration NASA

Paul Lazarus

President

White Dwarf Productions

Susie Mathieu

Partner

Spirit Hockey, LLC

Ceci Neumann

Independent Law Practice Professional

Nancy Quan

Chief Technical Officer, North America The Coca-Cola Company

Heidi Sipe

Superintendent Umatilla Public Schools

Robert Sobolewski

President & Chairman ingenuityNE

**Dave Wilson** 

Vice President of Product Marketing National Instruments

#### **LEADERSHIP TEAM**

Donald E. Bossi

President FIRST

Terry Durkin Vice President, Finance FIRST

Erica Fessia

Vice President, Field Operations FIRST

Mark Giordono

Vice President, Development **FIRST** 

Mark Greenlaw

Vice President, Strategy and Impact FIRST

Chris Rake

Vice President, Programs FIRST

Listing current as of April 1, 2019

### VISION

"To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders."

- Dean Kamen, Founder FIRST

## MISSION

To inspire young people to be science and technology leaders and innovators, by engaging them in exciting mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

## **IMPACT**

FIRST participation is proven
to help students develop both
self-confidence and valuable, realworld skills that can open pathways to all
types of career choices and outcomes. FIRST
programs encourage students to pursue
education and careers in STEMrelated fields, but they also inspire
kids to become leaders and
innovators in any industry.

200 Bedford Street Manchester, NH 03101 800.871.8326

www.firstinspires.org

FOR INSPIRATION & RECOGNITION OF SCIENCE & TECHNOLOGY

