



THE POWER OF ENGINEERING

CREATE YOUR FUTURE

2021 ANNUAL REPORT



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PRESIDENT'S REPORT

Ashley McCarthy-Griffiths

I am delighted to report that in this year of COVID-19 restrictions Power of Engineering reached a new milestone of growth, and through our classroom and signature events we were able to challenge more student perceptions about Engineering in Australia.

It was a great pleasure to be back working with industry and schools to deliver face to face events. We delivered our first ever event in Bundaberg, Queensland, and continued to strengthen our relationships with schools in New South Wales. The appreciation from teachers, students and parents for the delivery of Power of Engineering events in person has been overwhelming.

To provide support during the peak pandemics seen across Australia, we rolled out our 2021 Engineering-In-A-Box program to 16 schools across Australia. The program gives teachers the resources to inspire students about Engineering in their local communities.

2021 saw new collaborations with like-minded organisations such as the Harding Miller Education Foundation and Girls Day Out in STEM. It also saw us contributing thought leadership to the teacher professional development program at the Science Teachers' Association of Victoria.

It is with sadness that we see the chair of our Advisory Committee, Else Shepherd AM, stepping down from the role she has had from the inception of the Advisory Committee in 2013. Else has shared a wealth of knowledge and wisdom throughout her time, leading the committee

and supporting Power of Engineering to make the impact that it has to date and we offer our sincere thanks. She has made an enormous contribution to get us here and we are very encouraged that she is willing to continue to stay on the Advisory Committee to assist us on our journey promoting engineering to young people. We are excited to welcome Belinda Gibson as the new Chair to guide Power of Engineering in the next era.

Power of Engineering functions entirely with volunteers, on the Advisory Committee, on the Executive Team, our project managers and our event teams, most of whom are themselves professional engineers in the workforce. Without this amazing level of voluntary support we could not deliver our extensive program, reaching many thousands of students across Australia, including in regional and disadvantaged areas. I wish to personally thank all of our volunteers for so willingly coming on the journey with us.

I also want to warmly thank our funding partners who provide so much in advice, cash, in kind support and presence on the ground at events.

**Ashley McCarthy-Griffiths,
Power of Engineering President**





Our Vision

EVERY HIGH SCHOOL STUDENT, FOCUSING ON FEMALE AND REGIONAL IN AUSTRALIA IS EMPOWERED WITH KNOWLEDGE AND OPPORTUNITIES TO CONSCIOUSLY CONSIDER A CAREER IN ENGINEERING.

VISION STATEMENT

Our Mission

Awakening an interest in young people about Engineering through strong role models by bringing together the engineering industry and schools to provide practical and creative experiences for young people to better understand engineering and how it impacts our world.

United Nations Sustainable Development Goals



We promote inclusive and equitable access to quality education and life-long learning.

We do this by encouraging female and regional students to continue their STEM education, as we believe STEM skills provide a strong foundation for any career.



We aim to achieve gender equality and empower women and girls by increasing their representation in the engineering industry.

We also empower women in engineering to take on leadership roles, develop communication skills, and boost their confidence.



We promote inclusive and sustainable growth and full, productive work for all.

We do this by inspiring the next generation of diverse engineers to provide a steady pipeline from schools to Australia's growing industry.

OUR OBJECTIVES

1

Challenge students' perceptions about Engineering with industry role models and practical experiences

Deliver our signature events in metro and regional areas across Australia – Our free one day program combines local industry role models and practical experiences for students to learn about the social impact and creative opportunities a career in Engineering can offer.

Roll-out our Engineering in a Box Program to regional and rural areas – We have packaged our signature event into a four lesson class plan grades 8-10 across regional and rural schools in Australia. The intention of Engineering in a Box is to make learning about engineering accessible

Collaborate with like-minded organisations to deliver meaningful experiences to educate female students about the career opportunities in Engineering.

2

Grow our volunteer community through development opportunities and through creating a supportive network

Continue to foster a supportive network of young Engineers through event participation and social events - Provide opportunities for our volunteers to participate in our student programs as role models and network with one another, industry professionals and supporters through social events.

Provide skill development opportunities to our volunteers - Provide ongoing and fixed term roles encompassing a range of skill development opportunities and project delivery to foster a strong and connected engineering community.

Empower our volunteers in driving the diversity agenda across Engineering.

3

Be a driver of change and promote diversity of thought across the Australian Engineering industry

Grow our annual kids Draw an Engineer competition – Continue to promote and grow awareness of our drawing competition targeting primary school students to monitor and communicate how students perceive Engineers at a primary education level.

Shape the future of Australia's Engineering industry by working with companies, industry bodies and partners across Australia to grow and retain diverse Engineers. We do this through company “lunch n learns” and participation in local, state and national conferences.

Advocate for, and be an example of a diverse Engineering organisation to promote gender equality and an inclusive workplace within Engineering.



PROGRAMS

ONE OF LORETO KIRRIBILLI'S TOP SCIENCE STUDENTS WAS NEVER CONSIDERING A CAREER IN ENGINEERING. A SITE VISIT TO OUR PARTNER ARUP'S OFFICE AND MEETING THEIR ENGINEERS CHANGED ALL OF THAT.



Our signature events

We have delivered over 133 events across Australia to challenge student perceptions about Engineering with over 80% considering a career in Engineering after attending one of our events.

Our one day free high school events aim to showcase to students the opportunities that a career in Engineering can offer so that they can consciously consider a career in Engineering. To break down the stereotypes associated with Engineering, such as it is all about maths and science, or you have to be the smartest in the class, all our events are designed for participation of high school students.

Our events consist of:

- Engineering role models leading the day and providing opportunities for students to ask questions and understand what a day in the life of an Engineer can look like
- Practical workshops where students apply their knowledge and skills to solve Engineering problems highlighting the collaboration, diversity and social impact of Engineering
- Connecting with industry through site visits for students to understand the roles that Engineers play in their own community



**“I LEARNED THAT I
CAN BE AN ENGINEER”**

– Year 9 Bundaberg student

High school event program

This year we visited Bundaberg to showcase the range of diverse career opportunities and community impact engineering can have during an event in February. The event saw 89 year 9 and 10 students come together from four local schools for the event which was held at Kepnock State High School.

Students loved participating in an array of workshops including water filtration, build a bionic hand, computers of the future, and mines of the future. 11 volunteers came together from the Bundaberg community, with some volunteers traveling from Brisbane. The event was made possible with support from local engineers and companies including the Bundaberg Regional Council and Greensill Farming, where the students experienced first hand what engineering can look like through site tours.

One student said, “it was very helpful learning more about the different types of engineering, I found it was very very cool.”

Nicole Amey, Year 10 Coordinator at Kepnock State High School, thought two key takeaways from students were that they were collaborating with people from other schools and that the event made them think outside the box i.e. thinking creatively and critically, developing those divergent skills to consider that there are not always right and wrong choices. There are alternatives.

87%
**OF STUDENTS WHO
ATTENDED OUR BUNDABERG
EVENT THIS YEAR ARE NOW
CONSIDERING A CAREER IN
ENGINEERING**





WE DELIVERED 16 BOXES TO SCHOOLS ACROSS THE COUNTRY.

Engineering In A Box

Engineering-in-a-box has had a busy 2021, in keeping up the momentum generated from the inaugural year of the program in 2020. Following the success of the program's launch and the reach achieved, the focus this year has been on refining the future direction of the product to continually maximise its contribution to the PoE mission.

Some of the key considerations we had to address as a team included zeroing in further on what our target age groups and communities should be, as well as understanding the impact of the first generation of boxes with the schools it was rolled out to. Tackling these questions is what will enable us to meet our goal of rolling

out the second generation box from 2022. We envisage that by developing the product to encompass a wider representation of the industry we can continue to bolster PoE's strategic objective to challenge students' perception of engineering as well as continually improve the experience to maximise our engagement and impact.

The challenges thrust upon us by COVID-19 have endured through 2021, which has meant that the sustainability of the program has never been more important. As a result, the executive team worked closely to develop a new funding model that will ideally secure EiaB for at least the medium term. We're excited to be launching a new and unique partnership opportunity to be exclusive sponsor of the Engineering-In A Box program for a three year term. 2022 promises to be another exciting year for the program as we onboard our new sponsor and look forward to unveiling the second generation boxes!

Schools mix:

6 RURAL,
5 REGIONAL,
5 METRO

9 GOVERNMENT,
5 INDEPENDENT,
2 DENOMINATIONAL

94%
CO-EDUCATIONAL
SCHOOLS



ABOUT ENGINEERING IN A BOX

Engineering In A Box is a four-lesson reusable classroom resource designed to show in grades 8-10 students how engineers make an impact on society.

The lessons present the widespread problem of rapid population growth and how it affects infrastructure.

The Box contains all the materials required to run the four lessons:

- Teachers' guide – including how the lessons link back to the school curriculum and lesson plans
- Reusable worksheets and cards
- USB with videos and soft copies of printable materials



VOLUNTEERS

OUR VOLUNTEERS ARE INSTRUMENTAL IN ENSURING THE SEAMLESS OPERATION OF THE POWER OF ENGINEERING. FROM OUR ADVISORY COMMITTEE TO OUR EVENT VOLUNTEERS, EVERYONE HAS AN IMPORTANT ROLE IN SUPPORTING OUR MISSION OF AWAKENING AN INTEREST IN YOUNG PEOPLE ABOUT ENGINEERING.



Volunteers

Advisory Committee

Advisory Committee Members

Else Shepherd (Chair)
 Felicity Furey
 Jillian Kenny
 Bruce Tanner
 Mushfiq Rahman
 Maria Koutsimpiris
 Simone Long
 Les Dawes
 Brendan Williams
 Belinda Gibson

Founders

Felicity Furey & Jillian Kenny

Executive Committee

President

Ashley McCarthy-Griffiths

Secretary

Melanie De Gioia (to end 2021)

Treasurer

Gregg Hector

Assistant Treasurer

Kristina Norman

Engagement & Education Officer

Under Review

National Partnership Manager

Amy Cassidy

Brands & Comms Manager

Vacant

In a Box - Development

Chris Humphries

Operations Manager

Chloe Turrell

Volunteer Manager

Mark Bennett (to end 2021)

Operations Committee

Impact Analyst

David Lopez

Social Media Coordinator

Sofia Madsen

Newsletter Editor

Matt Humphrey

Assistant Secretary

Vacant

VIC Partnership Manager

Alina Pham

NSW Partnership Manager

Vacant

QLD Partnership Manager

Rosie Harris

Regional Operations Manager

Belinda Ziesig

QLD Operations Manager

Amber Kamran

NSW Operations Manager

Hannah Mourney

VIC Operations Manager

Emilija Trajkovska

In a Box Operations Manager

Makayla DGLISH

In a Box Project Coordinator

Van Nguyen

FROM STUDENT AT A POWER OF ENGINEERING EVENT IN REGIONAL QUEENSLAND TO OUR NATIONAL OPERATIONS MANAGER - MEET CHLOE

Chloe Turrell

Volunteer Spotlight

Our new National Operations Manager, Chloe Turrell joins us with first hand experience, not only as a volunteer but as an inspired attendee at a PoE event!

Chloe's journey with us began way back in 2012 attending an event at USQ in Toowoomba. Whilst always curious about engineering she felt that the heavy Civil industry focus of the 'typical' engineer wasn't for her. Looking for a way to combine her love of science and maths, with her interest in health and medicine, thankfully she found her way into Medical Engineering at QUT. During her study, in addition to other volunteer activities, she helped PoE in Dalby, 2015 and QUT in 2016, -18 and -19. She has also now commenced her career in her chosen field and is currently a biomedical engineer for WearOptimo based in Brisbane.

This year she joined our team as our National Operations Manager. In addition to leading the operations team, she has also volunteered at the Harding Miller event day in Brisbane and due to COVID has project managed an event in NSW remotely.

We can't think of a person with better understanding of all aspects of PoE's operations to lead the operational team as we launch back into 2022. Welcome Chloe!



OUR IMPACT

TOGETHER WE HAVE CHALLENGED 12,865 STUDENTS' PERCEPTIONS ABOUT ENGINEERING.



REACHED 850 STUDENTS ACROSS THE EAST COAST OF AUSTRALIA

Our Impact

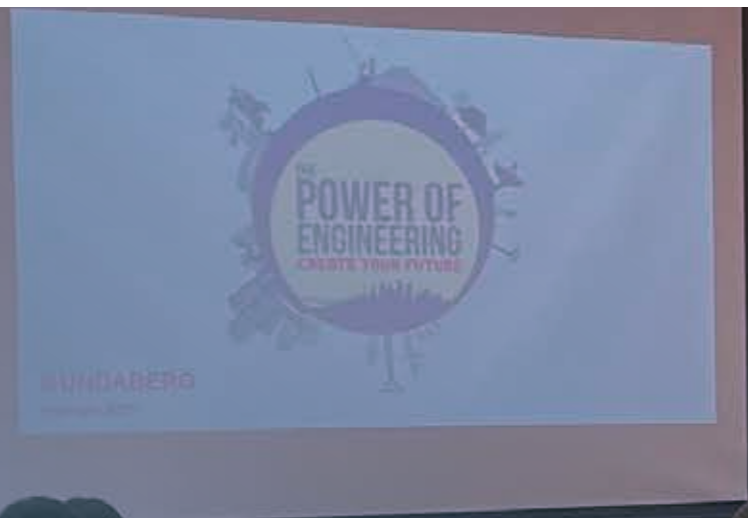
In 2021 we have:

- Reached 850 students across the east coast of Australia
- Engaged 39 schools across Australia
- Delivered 3 signature events across QLD and NSW
- Partnered to deliver 3 like minded organisation partnered events
- Delivered 16 Engineering in a Box Programs
- Supported over 48 teachers to have conversations about Engineering in the classroom



To date we have:

	2017	2018	2019	2020	2021	Total
Total number of students reached (our programs + like minded organisations)	1785	2065	2319	1690	924	13,365
Number of students reached through our programs	1785	2065	2319	1,680	434	12,865
Number of Signature Events	25	29	21	1	3	134
Number of delivered Engineering in a box	N/A	N/A	N/A	67	16	83
Number of schools	138	106	104	4	39	685
% who would consider a career in Engineering	86%	78%	77%	-	83%	81%
% students who changed their mind from a no to a yes about a career in Engineering	75%	68%	62%	-	71%	69%
% of students who were satisfied or very satisfied with the event	89%	94%	96%	-	100%	95%
% of students who would recommend the event to a friend	95%	91%	92%	-	98%	94%



PARTNERSHIPS

Partnerships

For every \$1 we receive in corporate funding, we receive \$3 of in-kind support from partners and \$6 of volunteer time to run the organisation. In-kind partnerships are critical for us to run PoE and provide value for our partners in employee engagement, retention and professional development.

Thank you to our continuing partners for your ongoing support towards Power of Engineering in 2021. We value our long-term and ongoing partners Boeing and Arup who drive the sustainability of our organisation for us to continue to challenge student perceptions about Engineering.



Welcome to our new partner – SMEC

SMEC is a global engineering, management and development consultancy with a 70-year history of delivering advanced solutions for our clients and partners.

We provide technical expertise and advanced engineering services to resolve complex challenges within roads, highways, rail, metro, airports, hydropower and renewable energy markets.

From major cities to regional centres we operate across 18 offices in Australia & NZ. At our core is the 'SMEC Spirit' which is evident in our people, values and culture. Recognised Employer of Choice for Gender Equality by the Workplace Gender Equality Agency (Australia), we actively promote an inclusive workplace and value people with different backgrounds, skills and expertise to drive innovation and shared learning across our growing global network.

We are passionate about connecting with the next generation to inspire them about engineering. Great ideas powered by people in STEM are enhancing the way we live, study, work and play.



Spotlight on long standing partner and supporter – Boeing

Power of Engineering's focus on diversity by encouraging a greater number of non-traditional entrants into engineering careers, and breaking down the cultural perception that it is male dominated field continues to strongly align with Boeing's intentions to foster inclusion and increase diversity, including gender diversity in our company and across the industry. Power of Engineering have proven to be a very effective STEM partner in Australia with a particular focus on enhancing the female engineering talent pipeline at the secondary school level where critical career decisions are made by students.



Queensland University of Technology (QUT) is our foundational partner who have been involved since our first event in 2012.

QUT helps us challenge Queensland student perceptions about Engineering and provide insight to students about what it is like to study Engineering at university. In partnership with QUT this year we reached 300 students across 18 schools and 11 industry partners to showcase the role Engineers play in the Queensland community.



Arup is an independent firm of designers, planners, engineers, architects, consultants and technical specialists, working across every aspect of today's built environment. Through our Global Community Engagement programme, we aim to deliver lasting positive outcomes for the most vulnerable and marginalised people and communities.

We direct our efforts to areas where in partnership we can add value to addressing community needs. By enabling our members to apply their professional and technical expertise in collaboration with others, we hope our legacy will be a safer, more resilient, and inclusive world. One of the priorities in Australia is to increase opportunities that enable social mobility such a strengthening pathways into Science, Technology, Engineering, Arts and Maths (STEAM) for youth from diverse backgrounds.

Arup's work with Power of Engineering is an opportunity for our staff to inspire female students in early high school to consider the possibilities of a career in STEAM before they choose their senior subjects and tertiary education pathways. Since entering a partnership with Power of Engineering in 2018, Arup has provided keynote speakers at events, offered 'speed mentoring', facilitated workshops and site tours of completed Arup projects. We are proud to connect students with passionate and successful female role models in our firm, where students can hear more about the varied and exciting careers opportunities in the built environment. During the COVID pandemic, Arup staff contributed to designing 'in a box' lesson plan materials which allow teachers to take Power of Engineering workshops into classrooms around the country. We are looking forward to returning to in-person events from Term 4 of 2021.

