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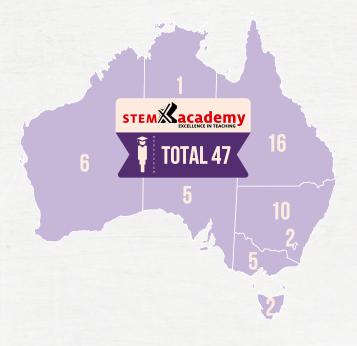




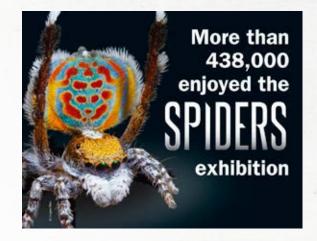
TRAVELLED FOR THE YEAR =10,758 KMS TOTAL VISITORS 264,876 **EXHIBITIONS 7 VENUES 5**



















Minister's Introduction

Many of the places we love in childhood lose something of their magic as the years move on. Questacon is the rare exception. We embrace it in childhood and hurry back as parents, the wonder and excitement only heightened by the passage of time.

As children, we catch the thrill that humans have found for millennia, in turning the world upside down to find out how it works.

As adults, we compare the new exhibits to the old, and marvel at all the progress a mere two decades can hold. The frontiers of science never cease to advance. Questacon, in turn, never ceases to change, with endless new stories and possibilities to share.

By the time we return as grandparents, who knows how far Australia might have come? And who could plan for all the incredible exhibits that Questacon might contain?

It is important to ask the questions, because it is our actions today that will decide.

In our best possible future, our children embrace science as a field of study and path to a great career. Our society faces the difficult questions that new technologies might raise, with neither unwarranted fear nor unthinking haste. Australians are known across the globe as great investigators, inventors and innovators.

And we will bring our grandchildren to Questacon to celebrate that story – proud of our past, confident of our place in the present and ambitious for even greater things in the future.

The Australian Government is committed to that best possible future, for both Australia and the global community in whose destiny we share. We recognise that national leadership and vision are required to bring it about. Through the National Science and Innovation Agenda, we are playing our part in opening the path from today to tomorrow, positioning Australian science and industry to lead.

Science, technology, engineering and mathematics will power our economy, ensuring our industries can compete and securing the delivery of new sources of growth, high-wage jobs and the next wave of economic prosperity. As Minister for Industry, Innovation and Science, I saw Questacon as a symbol of that commitment, as well as a barometer of our national progress. Like many Australians, I have been a frequent visitor over the years. I could think of no more fitting place to make my first public statement as Minister.

Education is the cornerstone of the mission I am proud to carry. It is education that will equip our children with the skills required for the jobs and opportunities we can foresee in the decades ahead. Just as importantly, it is education that will bring the confidence to thrive through change; and the insight to balance its benefits and costs.

Education has always worked best through inspiration. Questacon excels at both. It stands as a testament to just how remarkable our future could be.

I welcome, in particular, the emphasis that successive leaders have placed on partnerships as the foundation of Questacon's success.

Every part of the National Science and Innovation Agenda relies on collaboration, just as science itself relies on teams. Partnerships have enabled Questacon to expand its reach and resources, making it a truly national asset as well as a global exemplar. I also welcome Questacon's focus on the Sustainable Development Goals of the United Nations. Science will be critical to the realisation of all seventeen of humanity's pledges for 2030; and science centres will help to inspire all of us to play our best part. Through this initiative, and its growing global network, we can be confident that Questacon will remain an outstanding ambassador for Australia.

Congratulations on another inspiring year, and may the excitement only build in the year ahead.

The Hon. Greg Hunt MP
Minister for Industry, Innovation and Science *

* On 24 January 2017, Minister Greg Hunt was appointed as Minister for Health and Senator the Hon. Arthur Sinodinos was sworn in as the Minister for Portfolio of Industry, Innovation and Science.







Introduction by the Assistant Minister for Industry, Innovation and Science



Like many Australians, I grew up in a family of tinkerers. To me, it is the underlying tradition and practice at the heart of Australian life. The world is our backyard shed, and this great country is our work in progress. We make it better with thousands of tweaks and retouches, every day, in our businesses as well as our homes.

Questacon is where we teach our kids to embrace that part of our story, so they write the next chapter with Australian grit and pride. We set them on the path to good jobs, and our economy on the path to long-term growth.

Making your future, after all, is hands-on fun.

As Assistant Minister for Industry, Innovation and Science, I am proud to work with Questacon to bring science and innovation to the fore of our national life. I have known for some time that Questacon is amazing — on that point, I can trust to my children's advice. The priority for the Australian Government is to spread the learning and inspiration that Questacon can offer, as we work through the National Innovation and Science Agenda to put science at the service of all Australians. The Australian spirit of ingenuity is the ideology we bring to government as well: in everything we do, we ought to strive to do a better job tomorrow than we do today. Government, like business, needs to innovate to improve its services and extend their reach.

Children might be some of the most demanding clients we serve through my portfolio — and rightly so. It takes a special kind of ingenuity today to keep up with all the gadgets and distractions in their lives. It is a science, and an art, at which Questacon has always excelled.

I particularly welcome Questacon's efforts to bring science to children in regional communities, through flagship programmes such as the *Shell Questacon Science Circus*, and more recent initiatives like the Smart Skills tours and *Invention Conventions*. This year alone, Questacon's presenters have taken science across rural, remote and regional Australia from places like Whyalla, to Mullumbimby, to Toowomba. I am sure they have come back from those communities with new appreciation for this country's breadth of potential.

As a nation we need to remember that science and innovation have never belonged to the big cities alone. So many of our finest inventions have come from the factory, the mine and the farm. So much of our economic potential relies on the regions today. All Australian children ought to know that history, and look forward to being part of that future.

I am also greatly encouraged by Questacon's renewed emphasis on that great national fondness for tinkering.

Questacon itself is a testament to the power of thinking big and knocking the parts together. As its founder Dr Mike Gore would say, it sprang to life on a shoestring budget. Legend has it that the idea for the centre dawned when a group of school students visited his workshop at the Australian National University, and took up his invitation to test out what the equipment could do.

The QShed, opened in September this year, it is an immersive haven for the makers and fixer-uppers of all generations. It may not be the Aussie shed as I recall it, of the corrugated iron and rusty toolbox kind, but it is undoubtedly an invitation to have a go. Whatever creativity emerges, new exciting possibilities will be made.

Let me second Questacon's leadership team in paying tribute to its supporters, staff and partners. The outlook from our workshop is inspiring indeed.

The Hon. Craig Laundy MP Assistant Minister for Industry, Innovation and Science



Chairman's Message

Questacon is powered by partnerships between government, academia, philanthropic organisations and industry. In an increasingly interconnected world, these partnerships are critical to the success of Australia's innovation and science agenda. Working with government and various partner organisations, Questacon helps Australia's youth, families and teachers envisage a better future through engagement with science and technology. I am grateful for the backing of the many organisations and individuals who support the work of Questacon and I am particularly grateful for the strong support of the Minister for Industry, Innovation and Science the Hon. Greg Hunt. Underlining the importance of this national institution to the Australian people, Questacon is delighted to have the support of former Prime Ministers from across the political divide — The Hon. John Howard and the Hon. Julia Gillard — amongst our patrons. It is these partnerships, whether at the national leadership level, through our sponsor partners, donors and delivery partners, that help Questacon sustainably build on each successful year, one after another. 2016 has been another of those years, and even after many years as Chair. I remain as invigorated and energized by the staff and objectives of Questacon, as I did the very first day.

Questacon is inspiring and building the creativity, knowledge and skills needed to build an innovative nation into the next century. Its programmes and activities engage, excite and motivate children and young Australians, as well as teaching teachers how to excite students about STEM.

As this year's Annual Review confirms, Questacon continues to expand its national and global network. I acknowledge in particular the generosity of the Ian Potter Foundation, through which the Ian Potter Foundation Technology Learning Centre was established. The ethos of tinkering and hands-on innovation has become a cornerstone of Questacon's vision. Samsung, Raytheon, Shell, IP Australia, the Australian National University, CSIRO and many others can also take pride in their contribution to the wonderful experience our visitors and audiences receive.

The calibre of our partners is perhaps the best measure of Questacon's national importance, as well as its growing reputation. Each partnership brings us new knowledge, audiences and ideas. We will continue to invest in these relationships to ensure that we remain a partner of choice.

Questacon is an influential member of a growing global science centre community that has the potential to be a force for good in the modern world. People of all ages and from all nations are being encouraged to imagine a better future through engagement with science and technology in an imperfect world, struggling to provide for the needs of humankind.

Like all science centres, Questacon is challenged to keep pace with rapidly evolving technologies. Continued investment in new facilities and spaces, such as the *QShed* will ensure we can cater to all generations, with our special brand of hands-on fun. Even the best facilities, of course, need the complement of outstanding staff.

Every visitor to Questacon will testify to the calibre of our team. The energy and expertise on the floor is just as obvious in the complex operations behind the scenes. I extend my sincere appreciation to all our staff for their contribution to another remarkable year.

The leadership team at Questacon deserves special congratulations for their continued strength of vision for Questacon throughout 2016. I pay tribute to the Questacon Executive: Professor Graham Durant, Ms Kate Driver and Dr Stuart Kohlhagen. In November 2016, it was also with sadness that we farewelled Dr Stuart Kohlhagen who after 37 years is retiring from Questacon. Dr Kohlhagen leaves behind a strong legacy as he has developed and delivered many of the programmes, shows and exhibits that form a key part of Questacon.

The support of the Department of Industry, Innovation and Science through Departmental Secretary Glenys Beauchamp and her senior colleagues is greatly acknowledged and critical to Questacon's success.

Finally my personal thanks go to members of the Questacon Advisory Council for their passion and dedication.

Leon Kempler, OAM

Questacon Advisory Council Chairman

Opposite: Prime Minister of Australia, the Hon Malcolm Turnbull MP with the Questacon Advisory Council Chairman, Mr Leon Kempler OAM and former Prime Minister, the Hon. John Howard MP at the launch of the John Howard Walk of Wonder.

Questacon Advisory Council

Operating as a Division of the Department of Industry, Innovation and Science, Questacon is also supported by an Advisory Council appointed by the Minister and Prime Minister. The role of the Advisory Council is to advocate for, and advise Questacon. Membership is drawn from eminent scientists, academic and business leaders and philanthropists, who all share a passion for Questacon's vision and mission.

The Advisory Council collectively work together to:

- serve as a source of independent advice to the Director and Executive of Questacon;
- · raise the profile and build the brand of Questacon; and
- engage with stakeholders and advocate for the work of Questacon.

Questacon Advisory Council membership is:

- · Leon Kempler OAM Chair
- Eddie Kutner, Businessman and Philanthropist Deputy Chair
- Greg Clarke Visiting Fellow of the Australian University
- Dr Sarah Pearson Pro Vice-Chancellor Industry
 Engagement & Innovation at University of Newcastle
- The Hon. Annabelle Bennett AO, former Federal Court judge
- Professor Ian Young AO Former Australian University Vice Chancellor
- · Karon Barovich Dean of Adelaide University







Director's Report

When Questacon was founded in 1980, the global population stood at 4.5 billion. By the time we mark the 50th anniversary in 2030, the global population will be around 8.5 billion and predicted to rise to 10 billion by 2050.

Young children visiting Questacon today have every chance of living long enough to welcome in the 22nd Century. What future will they have? They could be entering the world of work in 2030, have their own families by 2050 and grandchildren by 2070. They will be living through a time of disruptive technological change and increased globalisation. They will see very clearly the impacts of a changing climate and possible loss of biodiversity. They will live through challenges of food, water and resource scarcity. As they grow up they will need to be part of a solutions generation, finding solutions to very complex and inter-connected problems. They will be the first generation to be globally connected and will have to work cooperatively to ensure sustainability and equality of opportunity.

Questacon has embarked on a programme of activities to prepare our young visitors and schools for this future challenge. Part of this work has been creating awareness of the United Nations 17 Sustainable Development Goals. Our new mural at the centre reminds us of the words from Ban Ki Moon: "There is no plan B because there is no planet B". This mural will be seen by half a million visitors to Questacon in 2017 and it is already being seen worldwide via social and other media. Questacon staff will be multipliers and interpreters of the sustainable messages and the science behind some of the goals. Our exhibitions have been refreshed to reference the SDG themes. For example, our water exhibition supports awareness of SDG 6 – clean water and sanitation. Our travelling programmes, including the Shell Ouestacon Science Circus and the Smart Skills Initiative. will continue to deliver SDG 4 – quality education to remote and regional Australia as well as overseas. SDG5, gender equality, is part of our core business as we 'walk the talk'

in Questacon with senior female leaders now outnumbering male senior leaders in our own organisation, and our Women and Girls in STEM programmes moving far beyond the stereotype of giving girls pink tools. We also continue our international science centre capacity building work with the ANU with *Science Circus* Africa continuing to make a difference on the ground in several countries in southern Africa.

I am particularly excited about the Young Persons' Plan for the Planet project developed and launched this year in partnership with the ANU, UNIC, the Foundation for Young Australians and Future Earth Australia. This schools project will empower and connect young people across the country, harnessing their energy and passion to use business principles to develop a plan for the planet. This project will give young people a voice. In 2017 we will develop an international pilot for the project to connect schools within the Indo-Pacific region.

This year has seen a focus on science centres globally working to excite, inspire and motivate young people connecting them across many geographical, economic, political, racial or religious borders and boundaries. I was delighted that the UN decided that the 2016 UN Day for Science for Sustainability and Peace was the first International Science Centre and Science Museum Day. This was in recognition of the potential for science centres and science museums throughout the world to be a force for good across our planet.

In 2016, Questacon has had another high-energy year due to the passion and loyalty of a creative and hard-working team. As Director, I look back with pride on the many programme and initiatives presented in these pages, including the *Spiders* exhibition – a joint exhibition between Questacon and the Australian Museum. The very popular exhibition helped drive visitation to a record level, just short of half a million visits during the year. Our newly opened *QShed* is at the heart of the making and tinkering culture and has been designed

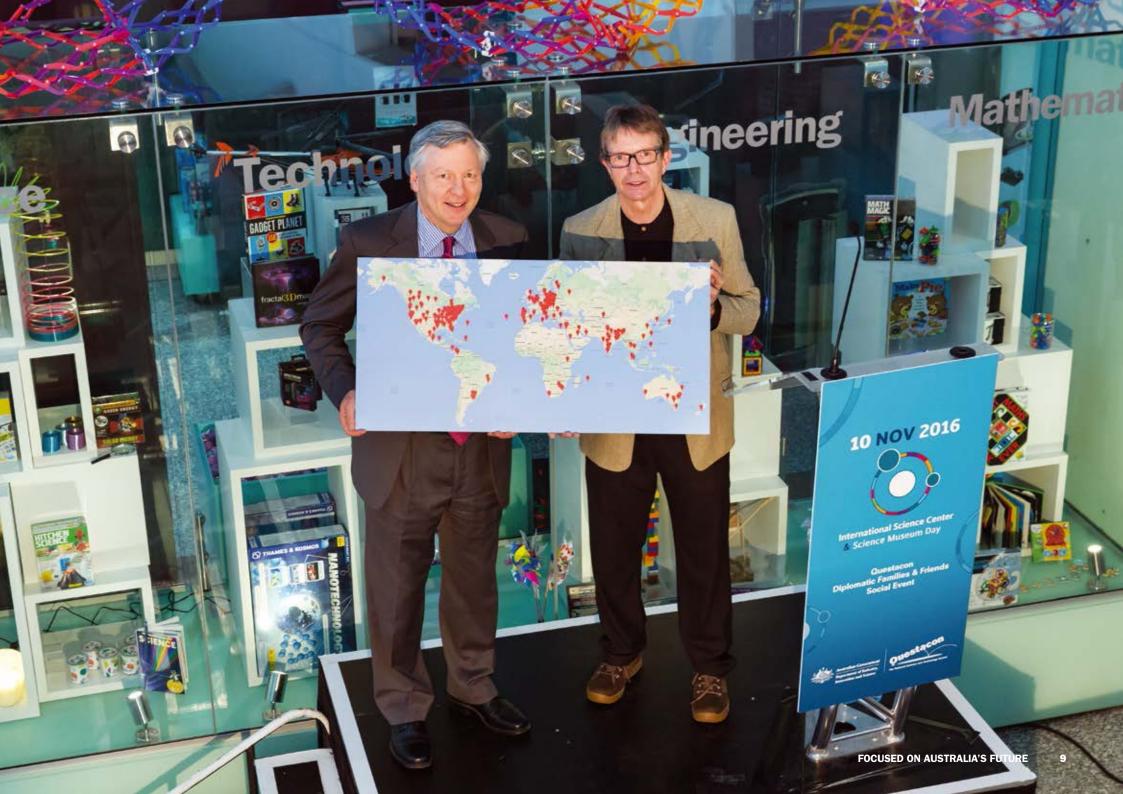
to blend science, technology, engineering, design, art and math to allow visitors of any gender, age or ability to tinker and create something new collaboratively or individually.

None of this work would be possible without our ongoing investment in expanding our network of partners. Questacon has always drawn on the talents and resources of many educators, scientists, industry leaders, philanthropic organisations and the Australian Government, and will continue to do so in 2017 and beyond.

I would like to acknowledge all of our partners and supporters in particular the lan Potter Foundation, Samsung, Raytheon, Shell, IP Australia, the Australian National University, and the University of Canberra. The support of our Ministers; the Hon. Greg Hunt, Minister for Industry, Innovation and Science and the Hon. Craig Laundy, Assistant Minister for Science is greatly appreciated. The collective wisdom and enthusiasm of the Questacon Advisory Council members, along with the unwavering support of my deputies Ms Kate Driver and Dr Stuart Kohlhagen and our senior management team has been outstanding. None of Questacon's achievements would be possible without the hard-work, passion and dedication of the Questacon staff and volunteers who collectively contribute to the quality of our engagement with over 2.5 million people each year.

Professor Graham Durant, AM **Director, Questacon**

Opposite: Director of the United Nations Information Centre, Chris Woodthorpe and Questacon Director, Professor Graham Durant at the celebration of the 2016 International Day of Science Centres and Science Museums.



Questacon Overview

Questacon – the National Science and Technology Centre is Australia's national science engagement organisation. Working towards our Vision of "A better future for all Australians through engagement with Science, Technology and Innovation", we operate from our headquarters in Canberra to deliver inspirational learning experiences across Australia.

We are empowered by the Australian Government to engage, connect and inspire all Australians in science, technology, engineering and maths (STEM) through a journey of lifelong learning. As Australia's economy looks to continually transform and evolve over the coming generations, our mandate is to help inspire and equip tomorrow's leaders with the foundation skills necessary to navigate and flourish in an uncertain world.

An informed, evidence guided and tolerant community can move forward towards a better future in our own country, and across the planet. As has been the case for every generation before them, today's young Australians will be charged with changing the world in their lifetime. Our role is to help prepare them for this challenge, and inspire them about wonders of the world they will inherit.

From our second campus, The Ian Potter Foundation Technology Learning Centre in the refurbished old Mint building in Canberra, we design, develop and build many of our exhibitions, often working with partner institutions across Australia and internationally.

From this facility, we also operate our national outreach activities, with teams on the road travelling across Australia every month of the year. Our national outreach programmes work in partnership with local institutions, teachers, researchers and businesses, to fan the spark of inspiration from a visiting programme, into something enduring well beyond our visit.

Questacon also runs the Inspiring Australia network, which operates in collaboration with officers in all state and territories in Australia. The central ethos of the Inspiring Australia initiative - delivering against a National Framework for Local Action - ensures that the outstanding work of passionate individuals and organisations across Australia is connected to a broader ecosystem, but remains relevant to their own community's needs.

Questacon's operations also include small business units operating on a social enterprise basis, to support our core mission. The income generated by Questacon's retail, tourism and exhibition businesses contributes to our annual operational budget, and modest amounts are also reinvested to support our activities across regional communities, and provide support to those who need it most in Australia and around the world, through programme, charity and philanthropy partners, and equity of access programmes.

As an influential voice in the world science centre community, Questacon operates as a vehicle for delivery of activities in support of the Australian Government science and foreign relations agendas, as well as contributing to the work of the United Nations in Science Centre capacity building and implementation of the Sustainable Development Goals.

Questacon delivers activities across Australia with support of our partners. Questacon partners are committed to investing in Australia's young people. The organisations with whom Questacon works share common visions for a better future for all Australians through engagement with science, technology and innovation. Those organisations also see the value of a long term and sustained investment in that future, with partnerships typically spanning years and a variety of activities. Without those partners, Questacon could not achieve the reach and legacy, which is amplified by those supporters, and in 2016 we continued to work closely with our partners to inspire the nation in STEM.



Questacon is proud of what we have achieved, but the job is not yet done. We look forward to the year ahead as we continue to chase our dream of a better future for all Australians through engagement with science, technology and innovation.



Questacon Outreach

From our second facility, The Ian Potter Foundation Technology Learning Centre in the refurbished old Mint building in Canberra, Questacon delivers our national outreach programmes to work with teachers, primary school students and tomorrow's entrepreneurs or high school innovators.

From this facility, we also operate teams on the road travelling across Australia every month of the year in partnership with local institutions, teachers, researchers, the Inspiring Australia network and businesses, to ignite the spark of inspiration from a visiting programme, into something enduring well beyond our visit.

In 2016, in cooperation with our partners, Questacon delivered the 31st year of the Shell Questacon Science Circus, the Smart Skills Initiative including the regional and national Invention Conventions, STEM X Academy Teacher programmes and digital activities which reached across physical boundaries, closing thousands of kilometres between likeminded young Australians and their teachers, using technology as a tool to connect, engage and inspire without the barriers of distance becoming a real factor to STEM success.





Questacon Smart Skills Initiative

Now in its second year, the Questacon Smart Skills
Initiative is a STEM-focused outreach programme
made possible through support from The Ian
Potter Foundation, funding from the Australian Government
and support from Samsung and IP Australia.

The Smart Skills Initiative delivers hands-on, inquiry-based workshops to high schools across Australia, particularly in regional and remote communities. The programme also offers accredited teacher workshops and youth-focused enterprise education activities through regional Invention Conventions, creating networks within communities leaving behind a legacy of STEM engagement.



A key driver in the design and delivery of the *Smart Skills Initiative* is ongoing support provided by partners in education, business, government and philanthropy. The power of those delivery partners in supporting the ongoing activity and legacy of the programme will contribute to an Australia wide community inspired by STEM and connected through local business, educators, practitioners, the Inspiring Australia community and across social networks.

In 2016 the Smart Skills Initiative delivered activities in the ACT, New South Wales, South Australia, Western Australia and Queensland, building supportive environments that invite students to learn from their failures and develop the skills necessary to succeed in the emerging job market.

Ongoing collaboration with technology partner Samsung ensures the *Smart Skills Initiative* continues to deliver workshops combining high-tech equipment with hands-on design activities. Smartphones and tablets are used in student workshops as tools to innovate and design, allowing a tech-savvy generation of students to gain confidence in creativity and problem-solving. By pairing technology with open-ended building challenges using simple materials, students have the opportunity to explore making and building in a safe environment, inspiring them to use the tools of technology and hands on learning to truly innovate, not just consume products at their disposal.

Regional engagement is a cornerstone of the *Smart Skills Initiative*. Questacon aims to foster STEM activity in remote areas, inspiring students and the wider community to

see how STEM fits into their everyday lives, and inspiring children to pursue STEM careers, no matter their location. This year Smart Skills facilitators presented in-school Smart Skills Workshops and regional *Invention Conventions* to Western NSW, South Australia and the Gold Coast. Additionally the team visited Bega delivering workshops to locals from all walks of life during 'Innovation Week' and trialed an innovation-focused 'agile tour' to Kalgoorlie.

The Questacon National *Invention Convention* was held in Canberra in January 2016 and hosted 24 delegates aged 14-18 from seven states and territories. The delegates participated in a range of activities aimed at increasing their understanding of STEM and developing their entrepreneurial skills. The National *Invention Convention* connected the participants with local industry and partnership bodies including Enable Development, MakeHackVoid, The Creative Element, IP Australia and CBR Innovation Network (CBRIN). The event was attended by the Hon. Wyatt Roy, former Assistant Minister for Innovation and the National *Invention Convention* champion for 2016.

In 2016, Questacon continued to increase our work with teachers, whose inspiration will go on to engage generations of students. Inspired and empowered teachers amplify the outcome of the Smart Skills Teacher Workshops for years to come. The workshops aim to motivate teachers to combine digital technology with hands-on learning, showing teachers how to facilitate Smart Skills-style workshops equipping them with the tools and knowledge to bring more STEM-based resources into the classroom.

Opposite: 2016 Questacon National Invention Convention Participants.



Teacher Programmes

The Australian Maths and Science Partnership Program (AMSPP) is part of a broad package of programmes to improve the outcomes in the learning and teaching of maths and science.

The purpose of the AMSPP is to improve student engagement in maths and science courses at schools and university, through innovative partnerships between schools and universities, and other relevant organisations.

This will be achieved through projects that:

- build the confidence, capacity, knowledge base and pedagogical skill of classroom teachers to deliver maths and science subjects to primary and junior secondary school students
- increase the number of school students undertaking maths and science subjects to Year 12
- improve school students' outcomes in maths and science and/or
- encourage more students to study science, technology, engineering and maths courses at university.

Across 2015 and 2016 the Questacon Teacher Programmes team delivered in-person and online workshops to 45 teachers as part of the programme. The workshops aim to up-skill teachers in science and maths content and delivery methods while also providing mentor teachers for the participants.



An energetic group of teachers and scientists came together in January 2016 as part of a new programme developed in partnership by Questacon and the Australian Science Teachers Association (ASTA) to address the growing national focus to help boost the teaching of STEM subjects across Australia — the STEM X Academy.

The STEM X Academy is a five day residential professional learning programme for teachers of science. The programme focuses on connecting teachers with researchers and local scientists, helping to bring research into the classroom and keep science relevant for school students. Teachers worked with researchers in areas such as photosynthesis, quantum mechanics and electromaterials, to create and share new science lessons for use in their classrooms.

Questacon's Teacher Professional Learning team worked closely with the teachers throughout the five days, guiding teachers through inquiry-based learning, design challenges and encouraging them to think creatively and bring inquiry-based STEM to their classrooms. One of the participants, a teacher from Queensland, said STEM X Academy was "a place where childlike fascination collided with intellectual stimulation!".

In November 2016 STEM XR — a regional programme — was launched as CSIRO joined the partnership with Questacon and ASTA to deliver two days of teacher workshops at James Cook University in Townsville. Wind tunnels, paper plane launchers and local scientists were part of this two-day intensive STEM workshop, which hopes to increase STEM-based teaching resources throughout the region.

A total of 47 teachers from all states and territories participated in this first-year pilot, with the potential for their inspiration to be amplified across an average teaching career of 20 years reaching more than 28,000 students inspired by new ways of exploring STEM in context and translating that passion into further study or STEM based careers!







Shell Questacon Science Circus

Shell Australia is Questacon's longest standing corporate partner, working together with our delivery partner the Australian National University for over three decades to inspire generations of young Australians and their communities in science. The partnership is amongst some of the longest standing corporate sponsorships in Australian history and underlines the vision of long term, inter-generational investment in the critical skills for Australian industry.

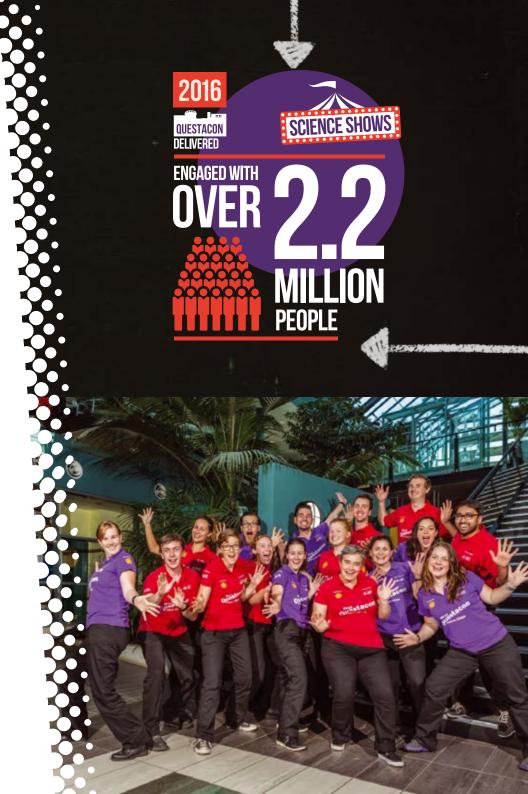
In 2016, Questacon and the Australian National University, in partnership with Shell, delivered the 31st year of the *Shell Questacon Science Circus*. This combined travel of over 85,000 kilometers, visiting over 130 postcode areas, holding 19 public exhibitions of our travelling science centre, visiting 19 remote Indigenous community schools and visiting 75 schools in some of the most disadvantaged areas of Australia. It also produced another 16 outstanding graduate students trained and qualified to continue developing Australia's science engagement.

Each year 16 young scientists undertake a Masters in Science Communication (Outreach) degree at the Australian National Centre for the Public Awareness of Science at the ANU, with the practical part of their course comprising touring with the Science Circus.

This year tours visited the Australian Capital Territory, New South Wales, the Northern Territory, Victoria and South Australia. One of the highlights was the tour to 19 remote Indigenous communities in the Northern Territory, where the team delivered workshops and activities targeted to suit the needs of the community schools they visited. The *Science Circus* has now been in continuous operation for 31 years, showcasing the value of science and STEM careers and is set to continue into its 32nd year in 2017. The adventure continues!

The Shell Questacon Science Circus provided an opportunity to do a thing I'd always dreamed of, but never realised was achievable. It is an amazing opportunity to share science with the public and has given us a way to build networks across government, industry and the science communication community. As an established scientist, the Science Circus is an extraordinary means to learn how to communicate science to the public in a fun and engaging way. More than anything else, it's an unforgettable year of friendships and challenges that will leave you with an incredibly broad range of science communication skills and experience.

— Presenter Nate Byrne



Enterprising Australians

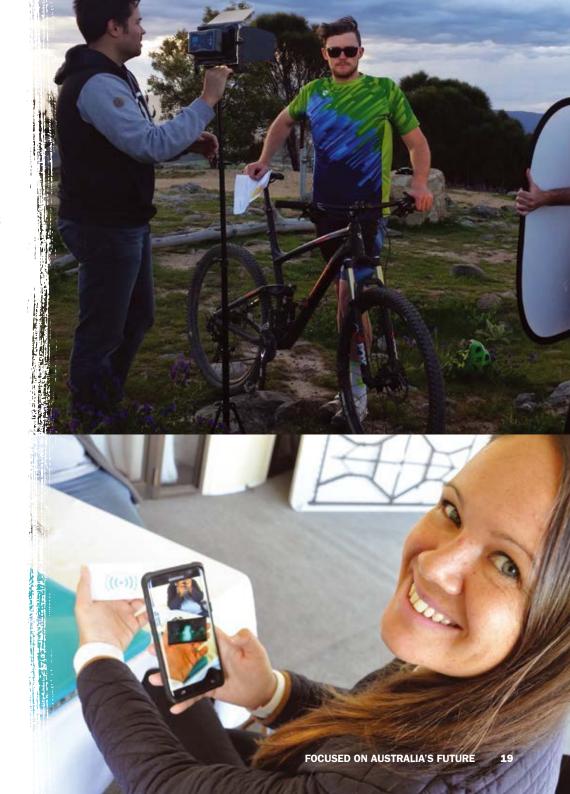
Innovation and creativity is an inherent part of the Australian culture. Across the country in metro, regional and rural communities, Australians instinctively use their ingenuity and problem solving skills to overcome challenges and solve problems in an unforgiving environment. Yet while innovation and enterprise are part of our culture, they are neither well known nor celebrated. Young Australians need to see contemporary and relevant examples of innovation in their own country beyond the very small sample of broadly known inventions, breakthroughs and successes that seem distant and difficult to relate to for young adults eager to make a difference in the world. The *Enterprising Australians* exhibition aims to connect young (and not so young) Australians to relatable, tangible and contemporary examples of STEM based innovation and invention from their local community. STEM in context and for a purpose inspires creative thinking well beyond what we might have imagined!

Australia continues to produce inventors and innovators in fields ranging from biotechnology to manufacturing and information technology. Each innovator has their own process and no two processes are the same. The *Enterprising Australians* travelling exhibition highlights their stories of commercial success across the Australian business and entrepreneurial sector.

Enterprising Australians engages visitors in a selection of 'hands-on' and audio-visual experiences delving into each innovator's story. The exhibition aims to inspire and equip visitors with the confidence to innovate and develop ideas of their own by issuing the challenge to just start innovating about things you care about

During 2016 Enterprising Australians reached visitors nationally and internationally. The exhibition travelled with regional Smart Skills tours, and was also hosted by the University of South Australia, Whyalla and Mawson Lakes Campuses. The exhibition also showcased contemporary Australian innovation on the international stage, while on display at the National Science Museum of Thailand.

2016 also saw the launch of the *Enterprising Australians* web portal on the Questacon website. During 2016 Questacon shared these stories through social media.





Inspiring Australia

In its capacity as a national institution, Questacon coordinates the Inspiring Australia strategy, a National Framework for Local Action. The strategy aims to connect the Australian STEM ecosystem, building the groundswell of strong local STEM activities towards a coherent and joined up national objective to drive economic transformation led by STEM.

In 2016, Questacon facilitated and delivered the strategic investment agenda of the Inspiring Australia initiative, with key national activities such as National Science Week and the Prime Minister's Prizes for Science supporting local action through a variety of sub programmes.

The success of the Inspiring Australia strategy has been reinforced with ongoing funding from the Australian Government's National Innovation and Science Agenda announced in December 2015, supporting the earlier funding provided under the \$28.1 million Science for Australia's Future budget package. This reinforcement of the strategy allows Questacon to continue to work with state and territory partners to leverage resources and increase coordination nationally, strengthening year-round STEM engagement through close collaboration and partnerships with national and state/territory entities.







National Science Week 2016

Questacon coordinates the largest science festival across the nation. For a week in August, an estimated 1.3 million people participated in registered National Science Week activities. This nation-wide festival brings everyday science into public consciousness and is a key activity of the Inspiring Australia initiative to help in creating a science literate nation.

2016 was another successful year, with events held in all 150 federal electorates across August 2016. Events stretched from our Antarctic research stations in the south to Cocos Island High School in the north (and everywhere in between)!

Across the country Australians came together to learn, discuss, engage and participate in what science has on offer to improve and enrich our lives. National Science Week 2016 included:

- 1,810 registered National Science Week events.
- 10,000 TV and radio community service announcements.

An impressive array of ambassadors helped promote National Science Week including:

- Professor Fiona Wood AM;
- Apple co-founder Steve Wozniak;
- Founder of the Alan Alda Centre for Communicating Science, Stony Brook University (and MASH star) Alan Alda;
- · Olympic swimmer Cameron McEvoy; and
- Engineer and entrepreneur Marita Cheng.

Schools nationwide joined in National Science Week celebrations, with 200 schools receiving grants and using the Australian Science Teachers' Association – produced learning resource *Drones, Droids and Robots*.

Hundreds of organisations got involved, including long-standing national partners CSIRO, the ABC, Cosmos Magazine, New Scientist, Popular Science and Discovery Networks and the Australian Science Teachers Association (ASTA).

The ABC delivered an all-embracing science theme during their August television programming, including a Q&A panel featuring the Hon. Greg Hunt, Minister for Industry, Innovation and Science, the astrophysicist and broadcaster Professor Brian Cox and mathematician Lily Serna.

Additionally the online citizen science project Wildlife Spotter undertaken by ABC Science was also very successful. The project attracted over 48,000 people who assisted with processing 2.1 million wildlife images (www.wildlifespotter.net.au).





The Prime Minister's Prizes for Science 2016

The *Prime Minister's Prizes for Science* are Australia's most prestigious annual awards celebrating scientific research, research-based innovation and excellence in science teaching.

The prizes for 2016 were awarded by the Prime Minister of Australia the Hon. Malcolm Turnbull and the Minister for Industry, Innovation and Science the Hon. Greg Hunt at an awards dinner held in the Great Hall of Parliament House, Canberra. This event was attended by 500 guests, including parliamentarians and eminent representatives from Australian science, research and business communities.

This year the introduction of the Prize for New Innovators recognised the achievements of early career innovators in the commercialisation of scientific research that has delivered substantial beneficial economic, social and/or environmental impacts.

The winner of the 2016 Prime Minister's Prize for Science, Professor Richard Shine AM a world-leading expert in evolutionary biology, was recognized for his work with cane toads. Northern Australia's peak predators — snakes and lizards — are more likely to survive the cane-toad invasion thanks to the work of Professor Shine. To protect our predators, he has created traps for cane toads, and now plans to release small cane toads ahead of the invasion front, a counter intuitive 'genetic back-burn' based on 'old school' ideas that his hero Charles Darwin would have recognised.

The 2016 Prize Recipients were recognized for excellence in their respective fields with their stories shared widely across media platforms with a cumulative reach of 3,378,000 people.





Prime Minister's Prize for Science presented to

Professor Richard Shine AM

Prime Minister's Prize for Innovation presented to

Professor Michael Aitken AM

Frank Fenner Prize for Life Scientist of the Year presented to

Associate Professor Kerrie Wilson

Malcolm McIntosh Prize for Physical Scientist of the Year presented to

Professor Richard Payne

Prize for New Innovators presented to

Dr Colin Hall

Prime Minister's Prize for Excellence in Science Teaching in Primary Schools presented to

Mr Gary Tilley

Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools presented to

Ms Suzy Urbaniak







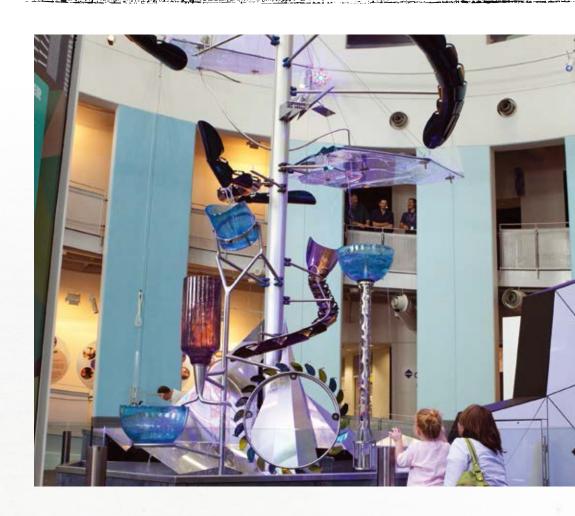
The National Science and Technology Centre

The most instantly recognizable activity of Questacon is the iconic National Science and Technology Centre in Canberra, located in the Parliamentary Triangle. Welcoming well over 10 million visitors since opening its doors in 1988, over three generations of Australians have come to be inspired and engaged with hands on learning, enquiry and wonder. Showcasing and bringing to life the fundamental phenomena that make up our world through exhibitions, presentations and workshops, live theatre and special events, the Centre is a leading Australian tourism destination, as well as a much-loved school excursion highlight to hundreds of thousands of the Australian students who travel to Canberra each year. The Centre is open 364 days per year, and with a visitor satisfaction rating of 93%, the dedicated staff and volunteers who work in the Centre every day look forward to welcoming generations to come.

In 2016, the Questacon Centre hosted the highly successful *Spiders* Exhibition. For the arachnophobes (including one Deputy Director) who were not converted by a visit to the *Spiders* Exhibition, the opening of Questacon's Tinker Studio, the *QShed* introduced new crowds to the maker movement, opening up a new world of activities for visitors through a revolving programme of activities and challenges of designing, inventing and making their own creations from everyday materials.

As Questacon reached near double the capacity in 2016 of the original visitor numbers projected for the Questacon building, many teams were busy behind the scenes upgrading plant, equipment and infrastructure within the building for the comfort and safety of visitors. This after hours work is delivered around 3,952 public opening hours at Questacon throughout the year to minimise impact on visitor experience.

In 2016, Questacon was delighted to be recognised and honoured at the 2016 Canberra Region Tourism Awards, winning four categories including Best Tourist Attraction and Best Destination Marketing. This year was particularly special for the individuals working behind the scenes, with Questacon Director Prof Graham Durant receiving the Award for Outstanding Contribution by an Individual to ACT Tourism, and Questacon Tourism Officer Kate Langford awarded the Markus Gibson-Huck Young Achiever Award.



Spiders Exhibition

Spiders is a travelling exhibition project undertaken in partnership between Questacon and the Australian Museum. This is the second exhibition project between Questacon and the Australian Museum, the first being the successful Deep Oceans travelling exhibition in 2011-12. Spiders was exhibited at Questacon from November 2015 to October 2016, and will be on display at the Australian Museum before beginning a national tour in 2017.

The focus for *Spiders* was Australian spider groups, their related environments, scientific research and researchers and their contemporary knowledge of this group of animals. Three main spider groups were discussed in the exhibition: web-weavers, hunters and burrowers.

Two key features of the *Spiders* exhibition were the interactive exhibits and the live specimens including:

- 3D scanning of spider specimens exploring their internal structures.
- The chance to 'hold your own spider' using augmented reality.
- A multi-user touch screen to search and learn about spiders in their urban habitats (your home and garden).
- · Games of skill to dance like a peacock spider.
- · A photo opportunity of visitors caught in a spider's web.
- A comparison of how strong spider silk is against other industrial materials.

- A demonstration of how spider blood moves through a limb.
- Masks to peer through to see how a spider may see through eight eyes.
- Web vibrations indicating whether the resident spider will be eating, greeting or defeating whatever is causing the vibration.
- Arachno-phonics identify the sounds of different spiders.
- Fangs and pincers demonstrating how different spiders have different jaws to capture prey
- 11 live spider enclosures featuring Australia's two deadliest spiders the NSW Funnel Web and the Red back spider, as well as a giant water spider, orb weavers and three Australian Tarantulas; and
- Communal Huntsman colony with several clutches of baby spiders arriving during their time at Questacon.

Supplementing the exhibition was Questacon's digital product - Spiders AR. This mobile and tablet app available from the Questacon website was developed by Questacon's Digital Team and used augmented reality (AR) technology to bring six Australian spiders to life, featuring unique 3D content available to visitors by finding and discovering the activation markers located in magazine advertisements, areas around the Canberra's city centre, product merchandising and outside the Questacon building.





Meet Stuart Harris, Team Leader of the Questacon Live Exhibit Officers (LEOs), who on a leisurely bush walk along the Booroomba Rock trail at Namadgi National Park in 2008, accidentally discovered a new species of the Peacock Spider. The Peacock Spider is known for its beautiful colours and unique mating dance, and also features as the 'poster spider' for Questacon's blockbuster exhibition *Spiders*.

"As a keen amateur photographer, I was experimenting with a new macro lens and liked the contrast between the foliage and the spider's markings. The photographs turned out really well so, as millions of photographers do in these digital days, I posted the photograph on my Flickr site".

"I thought it was an interesting photograph of an unusual spider, and hoped a spider expert might be able to identify it," he says. "I knew very little about spiders then, other than the basic stuff".

Fortunately, through a stream of online comments appeared David Hill, a retired businessman with a keen interest in jumping spiders who, coincidentally, was writing a scientific paper on Australian peacock spiders (Maratus) with Sydney biologist Dr Jürgen Otto.

Jürgen Otto, a German entomologist who specialises in mites (also arachnids) thought the spider may be a new species, so he helped Mr Harris get a permit to find the spider again. It would take 150 hours over two and a half years to find another peacock spider. Finally in 2011, Harris had his eureka moment at Booroomba Rocks.

Once confirmed, the new species was peered reviewed, then published in the journal 'Peckhamia' and named Maratus Harrisi to acknowledge Mr Harris's efforts in searching for a live specimen to describe.

"If I hadn't put the photo up there, none of this might have happened. I think it's incredible someone on the other side of the world saw it," Stuart says. "My collaboration with Dr Otto continues and he and David Hill have described another two species I have discovered; Maratus Calcitrans (on Black Mountain) and Maratus elephans (from near Tamworth). A fourth, discovered in a local vineyard, is still awaiting description".

Stuart supervised a team of LEOs to ensure all of the live spiders in Questacon's *Spiders* exhibition were cared for, and is fondly known amongst staff as 'Spiderman'.



The Shed

In 2016, Questacon's newest activity space *The Shed* was opened, bringing tinkering and the world wide maker movement to the Centre's audience, following the success of our work in this space with older audiences at The lan Potter Foundation Technology Learning Centre.

The Shed is designed to get visitors designing, inventing and making their own creations from everyday materials. The Shed is built on the philosophy of tinkering — providing a place where visitors can explore an idea — taking ten minutes or spending two hours. Making greenhouses, exploring electric circuits, designing the world's longest marble run, inventing a contraption that draws abstract shapes, or making a paper cup suspend in mid-air can be explored in The Shed.

In developing the activity space, Questacon tinkered with the concept, research and its own track record in tinkering for nearly six months. After tinkering with tinkering, the team developed concepts and the gallery was refitted with recycled materials for the walls and cabinetry and everyday products in the activities, allowing visitors to continue to explore tinkering at home, in the classroom and even in the office! The wooden surfaces and desks will show the wear and tear of thousands of visitors creating an environment of use, where anyone is welcome to come and have a go. The creations of visitors will be used to decorate *The Shed* giving it a sense of vibrancy and community, but constantly evolving with reuse and re-purposing for a sustainable activity.

Science Tourism

The tourism industry in Australia is a significant contributor to the national economy each year, with domestic tourism contributing \$58.3 billion and international tourism adding \$115.5 billion.¹ The visitor economy in Australia is dominated by attractions taking advantage of the natural wonders of Australia, with a significant proportion of domestic and international visitors participating in science related content while travelling. Questacon works as both an operator and supporter of local and national tourism through our centre in Canberra, our travelling programmes, and science tourism programmes under the Inspiring Australia Initiative.

In 2016 Questacon welcomed more than 487,000 visitors into the Centre, with many visitors travelling from interstate or internationally to experience the galleries and activities. As a major tourism draw-card to the local area, Questacon is a significant contributor to the ACT visitor economy with research showing that international, interstate and educational tourists who visit Questacon have had a direct annual contribution to the ACT economy of approximately \$98 million².

Questacon was honoured at the 2016 Canberra Region Tourism Awards in November as the winner of a record four categories. Questacon will go on to represent the National Capital at the Australian Tourism Awards in 2017. after winning:

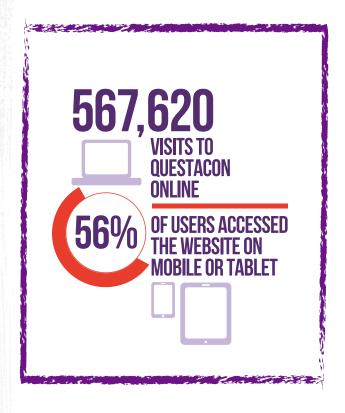
- Best Tourist Attraction in the ACT.
- Best Destination Marketing for our 3inFun value ticket with partners the Australian Institute of Sport and Cockington Green;
- Questacon Director Prof Graham Durant received the Award for Outstanding Contribution by an Individual having been nominated by industry leaders outside Ouestacon.

 Questacon Tourism Officer, Ms Kate Landford was awarded the Markus Gibson-Huck Young Achiever Award, an industry nominated and judged award.

As an active participant and leader in the ACT and national visitor economy, Questacon was involved in a number of significant activities enhancing the ACT and capital region tourism industry in 2016 including light festival *Enlighten*, a new 'Stay and Play' package created in partnership with the National Zoo and Aquarium and the Vibe Hotel Canberra Airport; collaboration with VisitCanberra on milestones such as the opening of the new Canberra and Region Visitors' Centre at Regatta Point in August 2016 and the first international flights into Canberra International Airport as part of Singapore Airline's Capital Express route in September 2016; flower festival *Floriade*; online school group bookings across Canberra attractions, and winning the local radio station (Mix106.3 on the Auststereo network) '2016 Best of Canberra Tourist Attraction' as voted by local residents.

These successes were supported strongly by Questacon's achievement of Australian Tourism Accreditation Program certification in June, followed by 32 Questacon staff and volunteers who graduated from the industry wide 'CBR Service Champions' course supporting the delivery of great customer service to Canberra visitors later in the year. Questacon's Deputy Director Ms Kate Driver and Senior Manager Mr Craig Whelan provided leadership across the industry with positions on the National Capital Educational Tourism Project Board and as the National Capital Attractions Association President respectively. These bodies work at a local and national level with tourism bodies such as Tourism Australia, the Australian Tourism Industry Council and the Australian Tourism Export Council to enhance the industry regionally, nationally and internationally.





^{1.2} This finding is based on impartial research conducted by a third party independent of Questacon

Electric Science QUESTACON | Year in

Questacon Retail

In 2016, the Questacon Shop started a transformation process, moving from boutique gift shop into a retail programme aligned with all of Questacon's national programms, as well as activities in the Centre. During the year, the retail business invested in training and experimentation with the format of their products online, on the road with the *Shell Questacon Science Circus* and in pop-up shops. Staff in the newly renovated Q Shop were empowered to consider their role in science communication, with the careful product selection in the shop representing a long dwell time science communication product, reinforcing the visit, programme, workshop or experience after the visitor returns home.

As a result, the Q Shop saw record growth in 2016 with revenue up 1.8% for the year. New retail platforms such as pop-up shops were trialed with great success and were offered throughout the year complimenting the *Spiders* exhibition, the *Enlighten* Festival and Questacon's adult-only *SciNight* events.

Like other business units, Questacon retail revenue covers the operational costs of Questacon throughout the year, with modest amounts of surplus invested in product development, and regional programmes including equity of access programmes for disadvantaged groups.

The online shop continues to grow exponentially. Stocking a great range of STEM based products, the online shop connects and engages customers in STEM away from Questacon. It attracts a broad range of customers from all walks of life, including schools, medical centres, parents and students. This platform continues to outperform other retail platforms at Questacon.





Questacon International

As Australia's National Science and Technology Centre, Questacon has a responsibility to be a contributor on the international stage, sharing good practice and showcasing the capabilities of the Australian science centre sector to the world.

Questacon uses its position in the world science centre sector to provide a leadership role in science engagement and informal learning in Australia and around the world.



Above: The Hon. Julie Bishop, Foreign Minister, receiving a SDG t-shirt from Questacon at the celebrations of UN Day 2016, the shirt highlights the Global Goals.

Questacon and the Global Goals

As part of the world science centre sector and as a leader in the Australian science and cultural sector, Questacon is committed to supporting awareness of the United Nations 17 Sustainable Development Goals (SDGs).

In August 2016 Questacon engaged local graffiti artists Ian Dudley and Anna Trundle to create an inspiring SDG themed mural at the Centre in Parkes. The mural has generated substantial interest and is an excellent conversation starter featuring a quote from United Nations Secretary-General, Ban Ki-moon. In addition to the mural which in this year alone will be seen by more than 500,000 people, Questacon supports the 17 SDG goals through a number of its activities and programmes:

- Supporting goal 4 Quality Education the Shell Questacon Science Circus has been delivering quality outreach education for 30 years across Australia and on the international stage.
- Also supporting goal 4 is the Smart Skills Initiative.
 Using interactive and challenging workshops, Questacon travels to regional Australia delivering free workshops immersing students and teachers in ideas, technology and creativity by encouraging students to play with technology and make inventive creations.
- Supporting goal 17 Partnerships for the Goals Questacon has partnered with the Crawford School of Public Policy at the ANU and the Future Earth organisation to develop and implement the 'Young Australians Plan for the Planet' programme. This programme seeks to empower, connect and harness the enthusiasm of senior school students through the development of a strategic plan addressing global issues. The 2016-17 Australian pilot programme will operate as an extracurricular activity involving 20 schools across Australia. Each school will develop a sustainable development plan for their regional EcoZone, combining individual plans into a national sustainable development plan the Young Australians Plan for the Planet. This will be presented to the Australian Prime Minister during National Science Week 2017.



 Supporting goal 3 – Good Health – Questacon and ONTHEGO Sports have partnered to design and develop t-shirts which raise awareness of the 17 SDGs.

During 2016 Questacon undertook an audit of its activities and exhibitions, ensuring they align with the 17 SDGs, this included refining its *H2O-Soak up Science* exhibition and installing the new SDG ramp display which highlights the 17 SDGs to Questacon visitors. Questacon also supported a number of organisations in raising awareness of the SDGs, these included supporting the UN Information Centre (UNIC) in celebrating the UN Youth Day on 12 August, the UN Day on 24 October and a panel discussion hosted by Global Goals Australia on 15 November.



International Science Center& Science Museum Day

In March 2016 UNESCO announced 10 November 2016 as the first International Science Center & Science Museum Day. Questacon collaborated with United Nations Information Centre and joined countries around the world showcasing the efforts of science centres globally in supporting the UN 17 SDGs. Questacon and UNIC also partnered on November 10, to host the annual 2016 Diplomatic Families and Friends social event. The evening raised awareness of the SDGs, with 450 diplomats and friends enjoying a fun-filled evening from a diverse 48 countries.

Miraikan Happiness Project

In September 2016, Questacon employee Hannah Feldman travelled to Japan to work with Miraikan on their 'Happiness Project'. Hannah will be working with staff at Miraikan to develop workshops producing scenarios about 'happiness' which will be delivered in person as well as being communicated via Skype meetings with Japanese students. The output will feature at the Science Centre World Summit 2017 hosted by Miraikan. Hannah will also use the time in Japan to discuss a possible Shell Science Circus tour of Tokyo in 2018 when there will be a special focus on Australia-Japan relationships through public diplomacy.

In December 2016 Professor Graham Durant attended the International Planning Committee meeting for the Science Centre World Summit 2017. The attendees of the meeting included CEOs from around the world who met for 3 days of planning workshops and activities for the Summit.



Professor Graham Durant attended the Association of Science Technology Centers (ASTC) annual conference held from 24-27 September 2016, hosted at MOSI – Museum of Science and Industry in Tampa, Florida. ASTC represents over 600 members in nearly 50 countries including science centre, museums, non-profit organisations, and companies that share an interest in informal science education around the world.

Following the ASTC conference Professor Durant attended the International Network on Public Communication of Science and Technology (PCST) symposium from 27-29 September held in San Jose, Costa Rica. PCST is a global network of professional science communicators and science educators. Professor Durant was an invited keynote speaker and presented two plenary talks: one on developing Australian science communicators through the Shell Questacon Science Circus and the second on University science centre partnerships developing science communicators and science educators in Australia. The visit to Costa Rica also provided the opportunity for Professor Durant to meet with Minister Dr Marcelo Jenkins Coronas, Costa Rican Minister of Science, Technology and Telecommunications.

Ecsite Conference 2016

Deputy Director Kate Driver attended the annual Ecsite conference of the European network of science centres and museums in Europe, where she had the opportunity to connect with science centres and stakeholders in Glasgow, Edinburgh and Newcastle before attending the Escite conference in Graz, Austria. This trip will form the start of a new project that Kate will undertake after being awarded a SES Scholarship to review operations and funding models of science centres, with the research forming part of her PhD work.



International Exhibitions

Aside from the development and production of exhibitions for display in the Centre and travelling across Australian locations, Questacon exhibitions also travel across the world. In 2016, Questacon exhibitions travelled internationally reaching an estimated 1,265,058 people and domestically reaching an estimate 289,635 people.

The Fascinating Science travelling exhibition was on display at the Busan National Science Museum from July to November 2016. The exhibition will then be hosted in the Gwacheon National Science Museum in Korea from January to April 2017.

The Enterprising Australians and Byte Wise exhibitions were on display at the National Science Museum (NSM) Thailand from August until November 2016.

The *Earthquest* exhibition will be on tour at the Oil and Gas Discovery Centre (ODCG) in Brunei from November 2016 to May 2017.

The Byte Wise and Mathamazing exhibitions returned to Questacon in November 2016, having travelled to Thailand and Brunei, with the two exhibitions experiencing 1.1 million visitors in a single month. The exhibits stood up well to the challenge, and returned to Australia with barely a scratch, a testament to the design and production teams' hard work in producing long life exhibitions that can withstand the rigours of enthusiastic learning from across the planet!

International Delegations and visit highlights



Above: Director of Questacon, Graham Durant and Dr Stuart Kohlhagen, Questacon Senior Fellow, signing a Cooperation agreement with the Busan National Science Museum.

- In January 2016, five delegates from the Thailand National Science Museum visited and signed an intention to collaborate with Questacon. Two delegates then also participated in the week-long STEM X Academy held at the IPTLC.
- From 10-18 February 2016 Mr Jared Wilkins, Senior Manager National Programmes & Learning Experience, was invited by the Korean Foundation for the Advancement of Science and Creativity (KOFAC) as guest speaker to deliver a lecture on 'The Making of Australia' at the American Association for the Advancement of Science (AAAS) 2016 annual meeting held in Washington DC.
- In June 2016, Questacon welcomed the Japanese
 Ambassador, His Excellency Mr Sumio Kusaka and VIPs at
 a Questacon Advisory Council dinner held in his honour.

- In August 2016, a delegation from the Beijing Association of Science and Technology (BAST) visited Questacon and toured the Parkes facility.
- From 1-6 October 2016, Dr Stuart Kohlhagen hosted Quiyin Wu, Manager of Youth Engagement and the Maker Institution from the Beijing Science and Technology Cultural Centre.
- On 3 November 2016 Professor Graham Durant attended a reception at the US Embassy in Honour of Mr Robert Lightfoot Jr., Associate Administrator of NASA.
- On 10 November 2016 in partnership with the UNIC, Questacon hosted the annual Diplomatic Families and Friends social evening.
- On 21 November 2016 delegates from the Busan National Science Museum visited to sign a cooperation agreement with Questacon and tour the facilities at Parkes and Deakin.

We've reached 1,430,098 people

(January - September 2016)





Townsville QLD

•





Innovation



Albury NSW







Brisbane QLD



science

move



Adelaide SA

FASCINATING

















Travelling Exhibitions





Our Partners

From its inception, Questacon was the product of a partnership between a university, the Australian Government, educators and practicing scientists to bring informal learning onto the national stage. Today, Questacon continues to work through our partners across many sectors of the Australian economy, to place STEM and its role in economic transformation into a real and relatable context for all Australians.

Working together with organisations in partnerships for knowledge, research, impact evaluation, policy, industry investment, education, design and delivery, Questacon's broad partnership base across Australian and international businesses, community groups, education and cultural institutions and philanthropic organisations provides a unique opportunity to draw links with the world's best and most innovative organisations.

In 2016, Questacon strengthened partnerships with The Ian Potter Foundation, Samsung, IP Australia, Shell Australia and Raytheon across a range of activities and programmes, working with our delivery partners across Australia to deliver on our mission.

As demand grows, Questacon will continue to seek partnerships with organisations who are also committed to seeing positive and lasting impacts investing for the long term in the future leaders of Australia.



The Ian Potter Foundation

The Ian Potter Foundation is Questacon's Principal Partner working together to deliver the Foundation's flagship programme in STEM across Australia.

In October 2014, The Ian Potter Foundation — one of Australia's major philanthropic foundations — generously provided a grant of \$7.8 million over five years to Questacon. The grant, made in the 50th anniversary year of the Foundation, is the largest the Foundation has awarded in the areas of science and education and the largest ever awarded outside Victoria. The grant supports Questacon's efforts to inspire and empower young people by engaging them with technology, innovation, design and entrepreneurial learning experiences through delivery of the Questacon Smart Skills Initiative.

The Ian Potter Foundation makes philanthropic grants to projects that contribute to a vibrant, healthy and fair Australia. The Foundation is committed to encouraging and supporting excellence and innovation in the community. The Ian Potter Foundation Technology Learning Centre and the Smart Skills outreach programme exemplify these principles and we are proud to have played a part in bringing these projects to fruition. These initiatives are engaging young Australians with science and technology, and encouraging enquiring minds to explore, experience, and dream the ideas that might be tomorrow's reality.

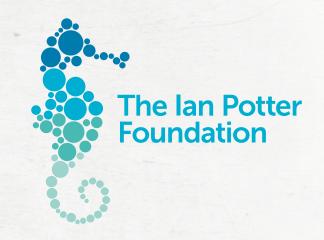
—The Ian Potter Foundation

In recognition of the grant, Questacon's second facility in Canberra is named The Ian Potter Foundation Technology Learning Centre. It is the headquarters for all of Questacon's national outreach programmes including the Shell Questacon Science Circus and the Questacon Smart Skills Initiative.

From that facility, Questacon teams travel across regional, rural and remote Australia, with our various programmes delivering inspiration across the country every month of the year. In line with the philanthropic objectives of The Ian Potter Foundation, and Questacon's outreach strategy, the *Smart Skills Initiative* focuses on the value of context for Australian youth as they prepare for a career in which STEM skills provide the foundation for much of their professional life ahead. The *Smart Skills Initiative* focuses on the value to students and their teachers of hands-on design thinking and creative use of STEM skills to solve real world problems. The *Smart Skills Initiative* programme elements also include work with local business mentors, institutions, researchers and community to reinforce the local context and longevity of the programme.

Since commencing in March 2015 the Smart Skills Initiative has delivered activities to more than 18,000 students and teachers across Australia. Questacon presenters provided interactive workshops encouraging students to refine and test their ideas and develop creative problem-solving skills, these in-school workshops culminated with regional Invention Conventions, where students were given the opportunity to connect with local industry and entrepreneurs.

The lan Potter Foundation Technology Learning Centre also offers a range of on-site interactive experiences for students and the public to engage with technology and innovation. Activities are designed around a central theme of the innovation process, fostering an interest and awareness of how things are made and how societal need drives the process of cutting-edge innovation.











Samsung Electronics Australia

Samsung and Questacon have been working together since 2014 with the goal to inspire and motivate the next generation of Australian technology creators and entrepreneurs.

As Questacon's technology partner, Samsung (in addition to The Ian Potter Foundation) supports the delivery of Questacon *Smart Skills Initiative* in-school workshops and Questacon *Smart Skills Initiative* Teacher Workshop programmes to regional communities across Australia. The integration of Samsung's technology into student and teacher workshops has enabled Samsung and Questacon to be at the forefront of inspiring students and teachers in interactive and challenging STEM-themed workshops.

In September 2016, Samsung deepened their investment in STEM by signing as supporting partner for the delivery of the STEM X Academy, a residential learning programme, and provided support for the *Mathamazing* and *Byte Wise* exhibitions at Questacon from November 2016 to March 2017.

Building on the foundation of our technology partnership, in 2016 Samsung also invited Questacon to partner on the Samsung *Creators Wanted* campaign. Designed by award winning agency Leo Burnett, the campaign was designed to show students how skills in STEM are becoming increasingly relevant across all industries and future career paths. *Creators Wanted* was launched through the release of captivating video content with challenges to imagine the application of STEM in diverse fields through imaginary and captivating innovations in fashion, food and sport, challenging viewers to make those dreams a reality.

The campaign aimed to trigger a discussion about how STEM should be translated in an engaging way to open a world of new possibilities limited only by imagination. The three viral videos created for the campaign featured well-known Australian personalities: Jane Lu (the founder of fashion website Showpo); Reynold Poernomo (2015 MasterChef contestant); and Charlotte Caslick (Olympic gold medalist and Australian Rugby Sevens player) with an overwhelming response for customers flooding the website wanting to know where to order a colour changing dress, a food 3D printer or self-returning rugby ball. The campaign achieved more than 14 million views and was targeted towards Australian students who were selecting subjects for their senior years at high school or tertiary education options, to consider STEM subjects. At the launch of the campaign at Questacon in Canberra, our own *QLab* Manager Michael Bennett successfully displayed a prototype returning rugby ball, proving to the gathered media, that imaginary creations can become reality for an 'imagineer' with a bit of STEM know-how, and a bit of protostorming!

Opposite: General Manager of Operations, Kate Driver with Tess Ariotti from Samsung and Charlotte Caslick, launching the *Mathamazing* and *ByteWise* exhibition at Questacon, sponsored by Samsung.

Shell Australia

Shell Australia is Questacon's longest standing corporate partner, working together for over three decades to inspire generations of young Australians and their communities in science. The partnership is amongst the most long standing corporate sponsorships in Australian history and underlines the vision of long term, inter-generational investment in the critical skills for Australia industry.

In 2016, Questacon, Shell and the ANU delivered the 31st year of the Shell Questacon Science Circus, continuing one of the world's longest running science outreach programmes. The unique combination of in-school science performances together with a travelling hands-on science centre have seen increased visitor numbers in regional communities, particularly at the public exhibitions. Staffed by young scientists, the Science Circus continues to showcase STEM careers to students in regional Australia.

Since beginning in 1985, the Shell Questacon Science Circus has become the most travelled and furthest-reaching programme of its kind in the world. At the core of the programme is the drive to inspire young people, primarily in regional areas of Australia, to value and engage in STEM, promoting the possibilities and varied career options these fields present.

Hundreds of communities have benefited from interactive science shows, public exhibitions and teacher workshops. In a world where more and more careers are based on an understanding of science, technology, engineering and mathematics, the *Science Circus* is opening up a world of opportunities for generations of children.

Over thirty years, the *Shell Questacon Science Circus* has provided 5 million hours of inspiration, performed over 15,000 science shows in Australian towns and communities, and encouraged and inspired over 5,000 teachers with ideas for interactive science activities for the classroom.

This programme has evolved and changed over time, adjusting to meet the needs of a changing economy. One thing that has not changed is the passion and commitment of the staff at Questacon, Shell and the ANU in delivering this programme across rural and regional Australia.

Top: The Shell Questacon Science Circus Truck and scholars of the programme outside Questacon.

Bottom: Shell Questacon Science Circus Scholars













Raytheon



Raytheon

Raytheon is a Questacon Major Partner and in 2016 worked across Questacon on a number of initiatives for the ninth year in a row.

The Raytheon-Questacon partnership is an Australian Defence Industry exemplar of STEM partnerships between government and industry, representing the commitment of Raytheon to a long-term investment in the future skills of Australia's Defence and civilian workforce. As the partnership approaches the impressive milestone of a continuous decade in 2017, Raytheon's support across Questacon facilities, programmes and exhibitions during that time remains unique amongst Questacon partnerships. The Raytheon support across these activities over time has allowed this partnership to evolve and change to respond to different needs across the Australian community, supporting Questacon's drive to remain relevant and contemporary to modern Australian audiences.

During 2016, Raytheon continued its support of the Questacon Digital Schmidt Studio (named for Australia's Nobel Prize Laureate and former Questacon Advisory Council member, Professor Brian Schmidt). This ongoing support delivered interactive and innovative STEM programmes including the innovative Virtual Excursion model, via video conference directly into school classrooms across Australia. The Schmidt Studio enables Questacon to deliver specialist project based video conferences and virtual excursions to students, teachers and their communities across Australia, overcoming the challenges for remote and regional Australians to engage in STEM and informal learning.

In addition to the *Schmidt Studio*, Raytheon also supported the Questacon *Innovation Factory—Invent and Play* exhibition, which travelled to the University of South Australia from December 2015 until February 2016. The *Innovation Factory* exhibition highlights simple, everyday machines at home, school, work or play, challenging the idea that high-tech electronics are the most important technologies in our lives.

During 2016 Raytheon also donated high profile baggage claim and concourse advertising space at the Canberra Airport for Questacon and its partners. The large format billboard, situated within the baggage claim area was also complemented by digital advertising throughout the airport. The donation embraced all Questacon partners, with their logos also included in the display. This donation from Raytheon reinforced the nature of Questacon's enduring and collaborative partnerships.





Australian National University

Almost four decades ago Questacon was conceived and nurtured from within the Australian National University (ANU) and from there grew to become the national institution it is today. As the founding partner of Questacon, the ANU remains one of our strongest academic and delivery partners across a range of activities each year.

As the founding delivery partner of the Shell Questacon Science Circus, the ANU, through the Centre for Public Awareness of Science (CPAS) continued to deliver the 31st year of the programme in partnership with Questacon in 2016. The Shell Questacon Science Circus team is comprised of 16 Masters of Science Communication (Outreach) students who undertake their studies at CPAS and deliver the Circus across Australia as part of practical fieldwork course components. Having together graduated over 400 students from the programme during the partnership, Questacon and ANU continued in 2016 to contribute to the national and international capacity of science communication professionals, with graduates going on to careers in science communication across the nation, and around the globe.

In 2016 the ANU and Questacon also partnered to deliver a variety of science communication projects, including international capability development initiatives in Africa.

IP Australia

In 2016 IP Australia and Questacon continued to work together in partnership to help foster an innovative nation with commercialisation opportunities and intellectual property awareness and assistance for the youngest Australian innovators and inventors.

IP Australia, Questacon's supporting partnership, aims to inspire young Australians and develop their confidence, creative thinking and problem solving skills, with an emphasis on active participation in the innovation process. IP Australia's investment in Questacon supports the delivery of regional *Invention Conventions* and an annual National *Invention Convention* for Australian secondary school students.

Coinciding with the regional *Invention Conventions*, travelling modules from the hands-on exhibition *Enterprising Australians*, are also displayed at prominent locations within the region. The exhibition highlights Australian innovation and inventiveness and the importance of innovation and ideas development to Australia's prosperity.

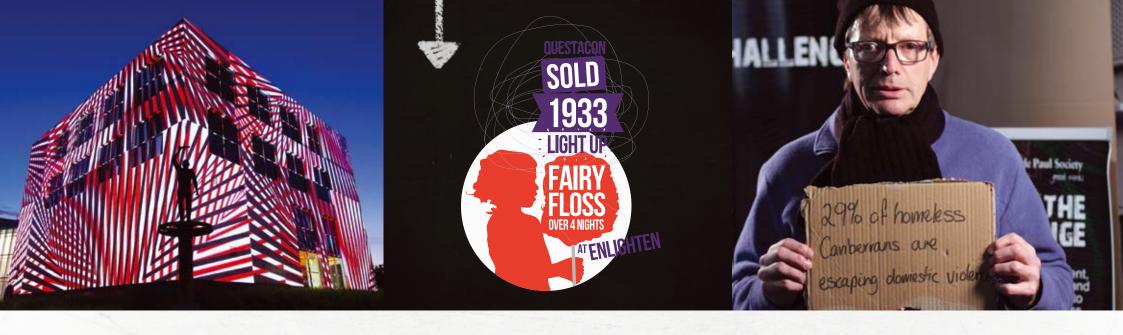
"NQIC 2016 was an amazing week nothing could ever compare to it and the memories will certainly stay with me for a lifetime.

I also hope to inspire students that they can achieve great things, especially those they thought were not possible, just like how each of you inspired me."

— an NOIC participant

Top: Patrica Kelly, Director General IP Australia, attends the 2016 Questacon National Invention Convention.

Middle: The Hon. Wyatt Roy attends the 2016 Questacon National Invention Convention.



Key Events

Enlighten 2016

4-5 March and 11-12 March 2016

Enlighten 2016 continued to be a significant event on Canberra's cultural calendar bringing live entertainment, architectural light projections and a night noodle market to the Parliamentary Zone. Questacon hosted a series of ticketed events and free activities over four evenings including:

- Hannah Gadsby's Dogmatic, presented by Canberra Comedy Festival
- Whisky Business shows in Q Lab
- Night photography workshops
- Light up fairy floss and an external pop-up Q Shop
- Questacon Excited Particles busking
- Questacon Maker Project hologram illusions
- Late night gallery openings

CEO Sleepout

23 June 2016

On 23 June, Professor Durant hosted 103 local CEOs to spend a cold, wet night sleeping out at Questacon as part of the annual St Vincent de Paul (Vinnies) CEO Sleepout.

The CEOs were joined by Governor General of the Commonwealth of Australia, His Excellency General the Honourable Sir Peter Cosgrove AK MC (Retd), as they slept on the cold granite tiles outside Questacon. Collectively the CEOs raised over \$380,000 for the 2016 Vinnies CEO Sleepout.





Euroscience at Questacon

11 to 15 July 2016

Questacon, in collaboration with the Delegation of the European Union to Australia and the ANU Centre for European Studies, delivered a week-long programme of activities telling stories of the past, present and future of European science and technology. The week was launched on Monday 11 July 2016 and featured speeches from Australia's chief scientist Dr Alan Finkel AO, Acting Head of the Delegation of the European Union to Australia Dr Bruno Scholl and ANU Vice-Chancellor Professor Brian Schmidt AC.

National Aboriginal and Torres Strait Islander Children's Day

4 August 2016

Questacon provided a venue for the 2016 National Aboriginal and Torres Strait Islander Children's Day (Children's Day) hosted by the Australian Square Kilometre Array (SKA) Office within the Department of Industry, Innovation and Science. The SKA Office brought students from the Pia Wadjarri remote community to Canberra for Children's Day, the theme was 'My Country, Our Country – We All Belong' and aimed to provide a space for everyone to come together celebrating the achievements of the families and children they support.

United Nations International Youth Day, Plan for the Planet

12 August 2016

To mark the United Nations International Youth Day on Friday 12 August 2016, the Crawford School of Public Policy at the ANU and Future Earth launched the Young Australians Plan for the Planet project at Questacon. The programme seeks to create opportunities for senior school students to develop core business planning and management, teamwork and leadership skills focused around the challenges of global sustainability. The event featured a panel of passionate young advocates who discussed the challenges and opportunities facing our planet.

Jeremy Leggett

30 November 2016

Dr Jeremy Leggett is a social entrepreneur and author. He is founder and chairman of Solarcentury, an international solar solutions company, and founder and Chairman of SolarAid, an African solar lighting charity set up with five per cent of Solarcentury's annual profits. Dr Leggett made a presentation and participated in a Q&A on his most recent book: *The Winning of The Carbon War* and discussed with the audience winning the battle for clean energy.

Questacon People



Our people are at the heart of our business and work together as a proud and passionate team.

The Staff Alumni from Questacon have gone on to careers across every imaginable field across Australia and the globe. There is something special about being a 'Questie' where colleagues share the joy of discovery and curiosity every day.

Questacon's workforce is both culturally and professionally diverse, employing 128 staff in full-time or part-time positions with another 152 on a casual basis. That team has 65 Volunteers who assist in the galleries and staff our puzzle-based 'Curiosity Corner'. In 2016, Questacon's Volunteers have remarkably contributed a total of 7884 hours of their time!

Our staff have wide-ranging experience in science, customer service, design, construction, acting, education, facilities management, marketing, communication, finance, planning, IT, public administration, occupational health and safety, retail and electronics.

Our high level of staff engagement builds a strong team culture and this team spirit translates to our visitors in our facilities in Canberra, our programmes on the road, through the Inspiring Australia network and internationally. We recruit talented, enthusiastic individuals and empower them to be passionate, creative, to learn and grow and value innovation and diversity.

In 2016 we welcomed Professor Hans Bachor AM (ANU Research School of Physics and Engineering) to the Questacon team as a 'Mind in Residence', a meritoriousw position to provide mentoring, advice and expertise to the teams across our organisation. With over 30 years' experience teaching and communicating science Professor Bachor has shared his scientific knowledge, experience in teaching and enthusiasm for science communication with staff throughout 2016. In 2017 Questacon will invite other Minds in Residence to join our team as we continue to build our learning organisation.





Staff Years of Service

Questacon has a very low employee turnover rate, with many staff enjoying long and varied careers across the various parts of our business. In 2016, Questacon recognised the following staff and thanked them for their years of service:

Lyndell Lyons — 10 Years

Alison McGregor — 10 Years

Matthew Riches — 10 Years

Craig Whelan — 10 Years

Rodney Pfeiffer — 15 Years

Volunteers' years of service

Questacon began as band of volunteers and today our galleries and programmes are made just that little bit more wonderful by the support of dedicated and passionate volunteers. Quite aside from their enthusiasm for the organisation, it is astonishing to realise that our volunteers fit thousands of hours of volunteering around the rest of their lives – jobs, families, hobbies and health challenges. Questacon is grateful for the support of our volunteers, without whom we would not inspire generations of Australians. In 2016, Questacon recognised the following staff and thanked them for their years of service

Peter Kokker — 25 Years
James Lewis — 15 years
Ian McLeod — 15 Years
Robin Stanier — 15 years
Kathryn Wingett — 30 years



A wonderful legacy — The retirement of Dr Stuart Kohlhagen

In November 2016, Questacon farewelled our Deputy Director Science and Learning, Dr Stuart Kohlhagen. Working at Questacon for over 37 years, Stuart has been a pillar of Questacon for all of its existence, starting work with Questacon Founder Professor Mike Gore as a passionate school student volunteering on the community science centre project at the ANU. In true Stuart style, and in testament to the power of teachers, we were delighted to see Stuart's high school science teacher (the one who had first fueled that science passion) at the farewell as well as many colleagues and friends from across a wonderful career adventure.

Throughout almost four decades, Stuart's contribution to Questacon's quality of science, design, creativity and culture is almost impossible to measure. As we prepared ourselves to consider life without Stuart every day, Questacon was pleased to send Stuart off in good form with an emotional, funny but always interesting series of stories from colleagues across the years. Stuart was described by the Questacon Executive as one of those 'one in a generation' minds — a person whose creative and scientific brilliance, coupled with an affable communication style and wry wit, has left a lasting legacy on our institution.

For those who know and have worked with Stuart across the globe, they will inevitably talk about his t-shirts — pithy, witty and in only three shades — black, grey and neutral. So in honour of his retirement, the Questacon team designed 37 original t-shirt, one for every year of his Questacon life, unveiling them in a flash mob style dressing in the middle of his farewell. Stuart will retain an ongoing relationship with Questacon from 2017, while fitting in a variety of science communication activities across the world. We look forward to following the adventures of the @thesciencenomad as the next adventure begins!

2016 Staff Awards

It is the tradition in Questacon to take our last staff meeting of the year to celebrate the achievements of our staff. From the smallest wins to the largest efforts, it is almost impossible to pick a shortlist of achievements to recognise for the year.

Michael Wright (Exhibition Workshop Team)

For the development of the exhibition maintenance programme, providing high level maintenance coverage for the Centre.

Aiden Lynch (Digital Studio)

For the provision of digital services above and beyond, specifically provision of service to the 2016 Prime Minister's Prize for Science awards video.

Jason Hill (Front of House Team)

Delivering outstanding and consistent business administration and customer service to clients and customers through the Schools Experience Programme and as a Questacon Assistant (QA).

Anthony Beer (Exhibition Team)

For the delivery of Questacon travelling exhibitions domestically and internationally, always meeting operational needs and ensuring the high level appearance and management of the exhibitions.

A team award for the Visitor Services Front of House Management Team

Carolyn Bigg, Jessica Ward, Scott Murtagh, Nathan Cook, Emma Cocks, Kathryn Dickson, Jessica Trezise and Shannon Cook.

For delivering outstanding results this year, managing record breaking visitor numbers and ensuring visitors enjoyed a meaningful and memorable experience 7 days, 364 days a year.

Jenna McCulloch (Front of House Team)

Delivering outstanding and consistent business administration and customer service to clients and customers through the Q Club and schools experience programmes.

A team award for the Smart Skills: Enterprising Australians and Digital Services Teams

Anna Paull, Dylan Barker, Joe Duggan, Isla Nakano, Edith Aloise-King, Joshua Ezackial, Alex Chapman, Ricardo Banos.

For collaborative work on the Enterprising Australian stories achieving engaging new videos.

A team award for the Megabites Café Staff

Front of House: Ashley Morrisey, Roland Cheung,
Corey Passlow, Kelsie English, Joe Gillespie.
Kitchen: Kamal Kandel, Jericho Bautista
and Jamie Dreghorn (apprentice)
For the successful delivery of the temporary café in August
2016 and the continued provision of high quality food
service delivered to Questacon customers and staff.

Amelia Coman (Visitor Programs Team)

For excellence in the development and delivery of SciNight: Happy Endings, a successful event with a new approach that engaged an important and often forgotten audience in science and technology.

A team award for the Inspiring Australia Team

Milli Styles, Annette Williams, Elena Grigorieva, Jenny Dettrick, Kaitlyn Bowden, Kelly Fong, Geoff Crane, Matt Bieniek, Angie Good and Tom Carruthers

In recognition for their responsiveness to the NISA, implementation of new measures in partnership with Science Policy and AusIndustry and IA grants transitioning into the business grants hub.





Science centres are wonderful places for communicating science. They are places that people want to go for a mix of education and entertainment and they go in large numbers.

Science centres are filled with passionate dedicated professionals who devote their lives to helping people improve their understanding of the world around them and their opportunities to make a difference within that world.

At a time when economic, political, religious and racial differences are highlighted daily and when the challenges facing life on planet Earth are becoming much clearer, science centres can play an important role in binding humanity together. With a focus on young people, families and the future, science centres are uniquely placed to work across geographic, political and economic boundaries.

Professor Graham Durant, AM Director, Questacon

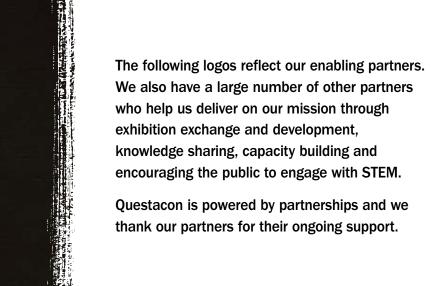












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