The Sydney Knowledge Hub has become a hive of activity this year. Our open doors have brought through nearly two dozen companies, 149 members, 75 events produced or hosted, and a new mentoring program. We strive to create a welcoming ‘front door’ that serves as both an entrance for innovative small businesses and as an egress for research to leave campus and impact our lives.

The relationships that start in the space often develop into new partnerships for the University of Sydney, leading to collaborations with our researchers, technical work within Core Research Facilities, and work experiences for our students.

In its third year of operations, we have brought more visibility to the different stages of research translation and commercialisation and have worked on initiatives to help improve outcomes. Through the highly collaborative Research Entrepreneur Experience project led by the Sydney Knowledge Hub, the University gained a deeper understanding of the obstacles faced in the research entrepreneurship journey. This has led to vibrant new initiatives from teams like the Charles Perkins Centre, the Business School, and the Commercialisation Office to help our researchers better understand and navigate research commercialisation.

Sydney Knowledge Hub has served as a beacon to our researchers and support staff that the University of Sydney is a champion of research commercialisation.

Rupal Ismin
Director
Sydney Knowledge Hub
Thank you to our broader team:
Andrew Duong, Jed Austin,
Kate Mintah–Owusu, and Sarka Bousova
What We Do

1. Operate a values-led coworking space and community

2. Improve the research entrepreneur experience

3. Facilitate interactions between researchers and innovative small businesses
“Having startups and innovative small businesses on our campus, working closely with our researchers and students, is inspiring. External facing events and meetings held at the Sydney Knowledge Hub show a side of the University of Sydney that our partners often don’t expect”
**Top Level Highlights**

**By the numbers**

- **149** Members
- **24** Member organisations
- **5** Ave size of team in space
- **2.6** Ave startup FTE growth since becoming a member
- **$16 million** Govt grant funding received
- **$11.4 million** Investment received by the “early stage venture” members*
- **31** Internships provided for USYD students
- **$5.2 million** University research income from member collaborations

**A few of the successes our members have achieved this year:**

- **ResusRight** released their first training product, the Juno Training Monitor, to help train clinical staff on best practice for resuscitating premature babies.
- **VirtuPharma**, the world’s first cloud-based science laboratory, successfully expanded their International Patent into USA, Europe and Singapore.
- **FootprintLab** Co-Founder and PhD student Janet Salem won the UNSW Faculty of Engineering Ada Lovelace Medal for her distinguished research in carbon data and Climate Tech.
- **BCAL Diagnostics** is developing a new Sydney-based clinical services laboratory as a testing site for their ongoing clinical program to advance breast cancer diagnosis through blood tests.
- **OrthoDx** raised $3.7 million in funding and won Best Emerging Technology in Orthopaedics awarded by the International Society of Anthroplasty.
- **GreenCoat** received a Tech for Social Good Impact Fellowship empowering the next generation of responsible tech leaders.
- **Resonait** accelerates through Founders Health 10x, Cicada Innovations Health Tech Connect, and Startmate with its medical device finding new pathways to treat depression.
- **Sydney Quantum Academy** hosted the first Australian quantum conference, with over 800 registrants and Google, CSIRO, IBM, PsiQuantum, and Quintessence Labs as sponsors.

* Members self-categorize their organisation into “early-stage venture”, “non-profit” or “established organisation”.

88% of member organisations have collaborated with researchers at the University of Sydney during their time here

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*This investment figure includes self-declared equity investment into early-stage ventures member organisations.*
Supporting Net Zero

The Sydney Knowledge Hub was a proud partner of the 2022 Net Zero Initiative and Circular Economy Conference, supporting startups contributing to reaching net zero including:

Co-founded by Janet Salem, PhD Candidate, and Assoc Prof Tim Baynes, FootprintLab is making the best data on carbon footprints accessible, transparent, and easy-to-use.

Co-founded by Oliver Pang with advisor Dr Behnam Akhavan, GreenCoat uses plasma coatings for windows to improves energy efficiency of buildings.

Co-founded by Prof Francois Aguey-Zinsou, H2Potential consults and incubates new technologies to enable growth in the hydrogen market.

Founded by Prof PJ Cullen, PlasmaLeap uses atmospheric plasma to replace our use of chemicals on food, water, and in agriculture, as well as for energy and CO2 conversion.

“It has been a great partnership with the SKH to develop the research translation and commercialisation ecosystem for researchers here. We look forward to supporting SKH to deliver its program next year – together we have planned a number of events and programs for education and capacity building research entrepreneurs.”

Dr Stephen Lam
Acting Head of the Commercialisation Team
Member Snapshot

24 organisations have located their businesses at the Sydney Knowledge Hub this year. From solo research entrepreneurs to ASX listed companies, we host a hive of entrepreneurial talent.

This year we also celebrated three organisations outgrowing the space, including Bioscout and PlasmaLeap Technologies, which moved into their own bespoke facilities, and Sydney Quantum Academy, which moved into Tech Central's Quantum Terminal.

100% of member organisations say the Sydney Knowledge Hub has significantly improved their connection to other parts of the University.

Andi Health's program bundles health devices, analytics, and personal coaching into a subscription service. The team worked with the Charles Perkins Centre for research on wearables.
“The excellent, multi-functional spaces and the ongoing intellectual and commercial savviness available through its networks and visiting speakers provide first-class opportunities for startups.”

Prof Patrick Brennan
CEO / Co-Founder, DetectedX

* Snapshot as of October 2021.
** “Recent” refers to within five years.
## Sydney Knowledge Hub Member Organisations in 2022

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Industry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andi Health</td>
<td>HealthTech, Digital Health</td>
<td>Andi Health’s proactive health program bundles connected health devices, health analytics and online health coaching into one holistic and affordable monthly service. <a href="http://www.andi.health">www.andi.health</a></td>
</tr>
<tr>
<td>Archer Materials</td>
<td>Advanced Manufacturing, BioTech, Semiconductors, Quantum</td>
<td>Archer is a technology company developing advanced semiconductor devices, including processor chips that are relevant to quantum computing. <a href="http://www.archerx.com.au">www.archerx.com.au</a></td>
</tr>
<tr>
<td>BCAL Diagnostics</td>
<td>Diagnostics, BioTech</td>
<td>BCAL Diagnostics is developing and commercialising a universal screening test for early detection of breast cancer by analysing lipids in the blood. <a href="http://www.bcaldiagnostics.com">www.bcaldiagnostics.com</a></td>
</tr>
<tr>
<td>BrainConnect</td>
<td>Advanced Manufacturing, AI/ML, Digital Health, Smart Sensing</td>
<td>BrainConnect is a stealth startup developing novel solutions in long-term interfacing with the brain and body. <a href="http://www.brainconnect.com.au">www.brainconnect.com.au</a></td>
</tr>
<tr>
<td>Bush Heritage</td>
<td>Conservation, Environment</td>
<td>Bush Heritage Australia’s aim is to return the bush to good health working closely with researchers at the University. They buy and manage land, partnering with Aboriginal people and other groups. <a href="http://www.bushheritage.org.au">www.bushheritage.org.au</a></td>
</tr>
<tr>
<td>Conveyor Manufacturing Australia</td>
<td>ClimateTech, CleanTech, Energy, Industrials, Civil/Construction Engineering</td>
<td>Innovative belt conveyor technologies to materially improve safety, dramatically lower haulage emissions, and reduce reliance on personnel in bulk materials handling. <a href="http://www.cmacv.com">www.cmacv.com</a></td>
</tr>
<tr>
<td>DetectedX</td>
<td>EdTech, MedTech</td>
<td>DetectedX is a start-up medical education technology company created at the University of Sydney that transforms disease detection through intelligent, interactive, web-based educational programs for any clinician or student interested in medical imaging. <a href="http://www.detectedx.com">www.detectedx.com</a></td>
</tr>
<tr>
<td>Enigma2</td>
<td>AI / ML, NLP, Media</td>
<td>Enigma2: Opening a World of Entertainment. Enigma2 allows for foreign films to be transformed to English with AI: Neural Rendering. <a href="http://www.enigma2.ai">www.enigma2.ai</a></td>
</tr>
<tr>
<td>Equinox Medical</td>
<td>MedTech, BioTech</td>
<td>Equinox designs, manufactures, and distributes high-quality medical devices throughout Australia and New Zealand. Products include orthopaedic implants, pathology diagnostic systems, operating theatre consumables and PPE. <a href="http://www.equinoxmedicalgroup.com">www.equinoxmedicalgroup.com</a></td>
</tr>
<tr>
<td>FootprintLab</td>
<td>ClimateTech, Big Data, FinTech, Sustainability</td>
<td>FootprintLab is the expert source of credible carbon footprint data. They are empowering climate solutions by making Scope 3 emissions intensities accessible, transparent, and easy-to-use. <a href="http://www.footprintlab.com.au">www.footprintlab.com.au</a></td>
</tr>
</tbody>
</table>
| **Gradient Institute**  
AI, Social | Gradient Institute research which design choices for AI-driven decision-making systems will lead to more ethical decisions to assist organisations to deploy Ethical AI Systems. |
|---|---|
| **GreenCoat**  
Advanced Manufacturing, CleanTech, ClimateTech, Smart Sensing, PropTech. | GreenCoat is a next-generation plasma coating smart window solution that changes the opacity of windows in response to real-time environmental conditions to improve the thermal insulation and energy efficiency of buildings by reducing unwanted heat transfer through windows. |
| **H2Potential**  
CleanTech, Energy, Sustainability | H2Potential is a consulting company focused on Hydrogen. Our goal is to enable growth in Hydrogen market and incubate new technologies to do so. |
| **Neurorgeon**  
MedTech, AI/ML, Semi-Conductors | Neurorgeon is developing closed-loop solutions, including software and hardware, to accelerate post-stroke rehabilitation based on decoding the brain’s unique ‘thought’ associated with a movement. |
| **OrthoDx**  
Diagnostics, BioTech | OrthoDx is a diagnostics company focused on the differentiation of joint pain using molecular techniques. |
| **Our Futures**  
EdTech, Social | Innovative and engaging evidence-based health education courses to empower students to improve their health and wellbeing |
| **PlasmaLeap**  
Technologies  
CleanTech, Advanced Manufacturing | PlasmaLeap uses atmospheric plasma to replace our use of chemicals, for water, food & agricultural applications. They are also using plasma for energy & CO2 conversion. |
| **Pharos Therapeutics**  
| **Resonait**  
MedTech, AI/ML, Big Data | Resonait is developing a new medical device for depression treatment to accelerate the pathway to recovery for depression patients. |
| **ResusRight**  
MedTech, AI/ML | ResusRight was founded by a group of clinicians and engineers with a shared mission to improve outcomes for infants that need resuscitation at birth by creating technology that empowers clinicians to deliver high quality care. |
| **Sydney Quantum Academy**  
Quantum | Collaborating with academia, industry and government, SQA harnesses Sydney’s collective quantum expertise to develop diverse talent and a globally recognised quantum ecosystem. |
| **VirtuPharma**  
Big Data, Robotics, AI/ML, Life Sciences | VirtuPharma is a cloud-based remote lab platform with data automation for borderless experiments, training, and regulatory compliance. |
Researchers Collaboration

Member organisations collaborate with university researchers, Core Research Facilities, and students. The Sydney Knowledge Hub has strong ties to faculties, schools, and portfolios to make these introductions.

88% of member organisations have collaborated with researchers during their time at the Sydney Knowledge Hub.

“Our quadrangle at the Sydney Knowledge Hub is an excellent environment to collaborate with other faculties to assist with our key innovation projects such as orthopaedic prostheses and instrument design and 3D laser printing prototypes.

The Sydney Knowledge Hub provides Equinox Medical a collaboration space and an innovation ecosystem to improve our commercialisation outcomes. Much of the work at the Knowledge Hub is done in collaboration with the highly experienced staff from other parts of the University such as at the Sydney Manufacturing Hub.”

Annabel Sweeney
Medical Consumables Manager, Equinox Medical
Grant Funding

Members have taken advantage of commercialisation and development funding by NSW State and Federal Governments. Most of our startups receiving the NSW MVP grant. Other grant funding included:

- DetectED-X and ResusRight joined Bioscout this year as recipient of the Accelerating Commercialisation (AC) grant
- ResusRight also received $800k from the BioMedTech Horizons grant, part of the Medical Research Future Fund
- To help fund overseas expansion, Virtupharma and CruxML received the Export Market Development Grant
- To support their clinical trials, BCAL Dx received $100k through the NSW Health Biospecimen Collection Grant
- Archer was awarded an Innovation Connections grant
- Two ARC Linkage grants were granted to members, including Gradient and Bush Heritage

Spotlight

Since becoming a member in 2020, Virtupharma has been working with the School of Pharmacy. Virtupharma is now creating “digital twins” of the school’s high-end equipment connected with industry for remote access and training on industrial settings. This virtual access enables unlimited users to have personalised training with more throughput on the machines and creates new revenue opportunities for its users.
Members of the Sydney Knowledge Hub conduct their advanced development in the Core Research Facilities at the University of Sydney. These facilities provide access to high-end research infrastructure and support a range of research services.

- **Research and Prototype Foundry**
  Archer Materials is developing a room temperature quantum computing chip in the Research and Prototype Foundry, located at the Sydney Nano Institute.

- **Sydney Mass Spectrometry**
  BCAL Diagnostics has been expanding their research and development in Sydney Mass Spectrometry, located in the Charles Perkins Centre. BCAL has been preparing and developing work for their clinical trial.
• **Sydney Analytical**  
  ResusRight took advantage of the dedicated to materials, chemical, and biological analysis of Sydney Analytical. The facility provides state-of-the-art instruments and technical expertise for sample characterisation within capabilities including vibrational spectroscopy, x-ray techniques, magnetic resonance, and drug discovery.

• **Sydney Manufacturing Hub**  
  Archer Materials and Equinox Medical worked in the Sydney Manufacturing Hub, which enables concept-to-production demonstration capabilities including advanced pre- and post-processing materials.
The Sydney Knowledge Hub has been working with the full gamut of staff that support our research entrepreneurs to ensure that we provide the right support for our startups. Its Researcher Entrepreneur Experience project highlighted some of the pain points, and has led to a number of new initiatives, including a mentoring project that connects experienced campaigners with budding entrepreneurs from our research.

The Sydney Knowledge Hub served as a home for 13 early-stage ventures led by current academic and student researchers at the University of Sydney including:

- **BrainConnect**
  Dr Omid Kavehei, Biomedical Engineering

- **H2Potential**
  Prof Kondo-Francois, Aguey-Zinsou, Chemistry

- **DetectedX**
  Prof Patrick Brennan, Diagnostic Imaging, Faculty of Medicine and Health

- **OrthoDx**
  Antony Rapisarda, PhD Student, Faculty of Medicine and Health

- **FootprintLab**
  Janet Salem, PhD Student, Science

- **Neurgeon**
  Brown Xu, PhD Student, Engineering

- **ResusRight**
  Matt Crott and Matt Boustred, PhD Students, Engineering

- **OurFutures**
  Prof Maree Teeson and Prof Nicola Newton, Matilda Centre

- **PlasmaLeap**
  Prof PJ Cullen, Chemical and Biomolecular Engineering

- **CruxML**
  JProf Philip Leong and Dr Barry Flower, School of Electrical and Informational Engineering

- **BioScout**
  Lewis Collins, PhD Student, Engineering

- **Enigma2**
  Dr Mike Seymour, Business School

“The Sydney Knowledge Hub has been working with the full gamut of staff that support our research entrepreneurs to ensure that we provide the right support for our startups. Its Researcher Entrepreneur Experience project highlighted some of the pain points, and has led to a number of new initiatives, including a mentoring project that connects experienced campaigners with budding entrepreneurs from our research.”
The Inventors: How I Met My Co-Conspirator

145 people from startups, venture capital, and four universities registered for The Inventors: How I Met My Co-Conspirator.

The event highlighted the person that led to the inflection point of eight researcher’s careers including Sam Banister (pictured here) of Psylo, Cibby Pulokkaseril of Baraja, Amani Batarseh of BCAL Diagnostics, and Mark Luo of Quantum Brilliance.

Program Of Events

Researchers often have little exposure to the commercialisation process. With more of an understanding of what it takes to pursue market-driven research activities and funding, the Sydney Knowledge Hub aims to increase the number of researchers considering entrepreneurial industry initiatives. Through events, information sessions, and round tables, nearly 500 people attended over a dozen events on research commercialisation and entrepreneurship this year.

Event topics included:

- Physical Sciences Fund Information Session
- But Who’s Going to Pay for It? with Jim Rabeau
- What is a TRL Really?
- What is a Company, and How Do I Set One Up?
- What is a Scientific Advisor for a Startup? with Stephen Bartlett
- What is a MedTech Proof of Concept and how do I design one? with Tiller Design and ResusRight
- Navigating Commercialisation with the Faculty of Medicine and Health and the commercialisation team.

“Thank you for everything you do for University of Sydney and our young researchers to bring their ambitious to reality.”

Prof Fariba Dehghani
School of Chemical and Biomolecular Engineering
Marcello Solomon, School of Chemistry, meets alumni John Keith, Chair of Atomo Diagnostics and MD, BNP Paribas during the first round robin mentor matching session.
Inventor Mentor Program

Researchers often have limited external networks and limited time to learn about bringing their invention to market. In August, we started a seven-month competitive pilot mentoring program to help 12 promising researchers work on their commercialisation strategy and overcome these common limitations.

Our 12 well-connected, generous mentors include:

- **Claire Birch**
  Blackbird Ventures

- **David Cardoso**
  NuroFlux

- **Duncan Mcinnis**
  MTP Connect

- **Harikesh Pushpapathan**
  Stoic VC

- **Joanna Ng**
  Investible

- **John Keith**
  Chair at Atomo Diagnostics

- **John Wood**
  NOAB Ventures, Gelion

- **Melissa Mail**
  Uniseed

- **Mike Nicholls**
  Main Sequence Ventures

- **Mobin Nomvar**
  Scimita Ventures

- **Qiao Qiao**
  Knowledge Commercialisation Australasia

- **Vanouhi Nazarian**
  Accelerating Commercialisation
The Sydney Knowledge Hub, located in the Merewether Building on the Darlington Campus, is the space where both planned and serendipitous interactions take place. Our members value peer-to-peer learning opportunities from other commercially-oriented scientists and entrepreneurs. The space is a vibrant environment for partners inside and outside the University to host industry engagement workshops, innovation events and collaborative meetings.

The Hub includes:
- Open workspace for community and peer-to-peer learning
- Collaboration spaces for ideation and strategy
- Event spaces for showcasing, networking, and capacity building events
- Hardware Lab for building, testing, and prototyping
This year has been a special one for Archer’s biochip project. Our team of researchers worked together to create an automated biosensor testing setup in the newly opened Hardware Lab, while the Sydney Manufacturing Hub provided us with facilities to iterate custom 3D-printed devices. This combination of resources allows us to rapidly test and debug our design. We also use the Sydney University Research Prototype Foundry (RPF) to fabricate a wettable gFET, the technology at the heart of our biochip device. This collaborative effort enables us to take advantage of state-of-the-art facilities and develop innovative solutions quickly.”
**Student Innovation Experiences**

Entrepreneurial students are exposed to the member organisations, researchers, and network of the Sydney Knowledge Hub. This year we:

- Supported Prof Guy Ford, Director of the MBA Program, to run workshops with MBA students to help three researchers considering commercialisation.
- Sponsored Medivate, the four-day innovation challenge led by the Sydney University Society of Medical Innovation with real-life challenges provided by member organisation, Equinox Medical.
- Produced panel sessions for the Executive MBA cohort, led by Prof Clinton Free, on research commercialisation.
- Hosted the Industry and Community Project Units final pitches.
- Hosted Assoc Prof Maryanne Large’s Inventing the Futures final pitch day.

**Supporting Student Startups across the Innovation Network**

Students who have accessed other University entrepreneurial programs across disciplines are supported by the Sydney Knowledge Hub. This we did this through:

- Seed funding for INCUBATE research-led participants
- Pro bono memberships for relevant graduates of INCUBATE and Genesis
- Hosting Genesis mentor meetings, run by Genesis lead James Crowther
- Mentoring through Enactus, an entrepreneurship club supporting students to make social change through startups
- Hosted the annual Sydney Innovation Festival with The Innovation Hub

Members have provided **31** internship opportunities for students at the University

“We’ve seen a growing number of researchers engaging with entrepreneurial support. Together, INCUBATE and the Sydney Knowledge Hub support the full journey for researchers creating a new venture - from understanding your customer right through to scaling your business globally.”

David Smith
Program Manager, INCUBATE
Student-led Innovation in Healthcare

In September, member organisation Equinox Medical partnered with the Sydney University Society of Medical Innovation (SUSMI) on their 3-day Medivate Hackathon to give students the opportunity to contribute to the innovation of medical technology and healthcare.

Equinox provided relevant background information to four problem statements that required students solve a contemporary healthcare problem. As mentors, the Equinox team provided guidance to students across 12 mentoring sessions and a workshop presentation.

At the end of the three days, the teams pitched their solutions to Equinox Executives and industry experts at the Sydney Innovation Festival, where their problem statement, solution details, financial feasibility and ethics were considered in selecting a winner. Congratulations to the winning teams, Liquid Bio and ProbAlota, on their innovative solutions involving genomic sequencing.

Together, Equinox and SUSMI enabled students to go from ideation to presenting innovative solutions with the potential to change the world. Moreover, participants made new friends and networked with industry leaders, while gaining a greater experience and appreciation for medical innovation.

Learn more at susmiusyd.org/medivate and equinoxmedicalgroup.com
Proteaceous revegetation with Bush Heritage volunteers at Monjebup, Noongar Country, WA. Photo by Krysta Guille.
Doing Good

Many of our members are striving to build a better functioning world across various sectors. Here are a couple of ways they are doing good.

**Bush Heritage** launched their 2030 strategy to **protect 30 million hectares** of land in the next decade by doubling their impact to deliver a ‘healthy Country, protected forever’ for the benefit of people, culture and biodiversity.

In response to the earthquakes that devastated communities in Tonga in January this year, **Equinox Medical** donated 5,000 Level 3 Surgical Gowns and 3,000 Protective Suits to support the emergency response effort.

Following the unprecedented level of rain that flooded Queensland and Northern NSW, Equinox partnered with Lismore City Council and Resilient Lismore by donating PPE to support the disaster recovery and clean-up effort.
Reach out
Rupal.Ismin@sydney.edu.au
you are a researcher exploring commercialisation, interested in becoming a member, or would like to partner with us.

sydney.edu.au/sydney-knowledge-hub
linkedin: sydneyknowledgehub