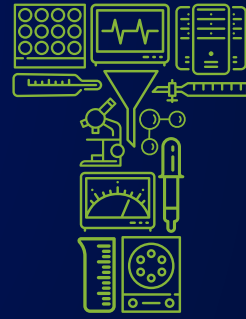
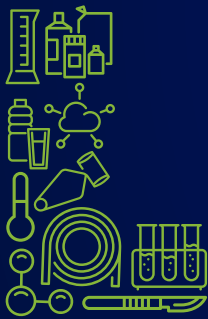
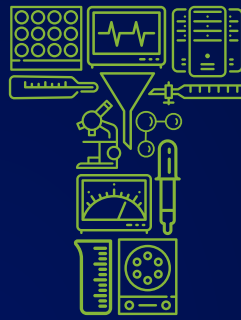


FIVE YEAR REPORT: 2011 — 2015



FOR INNOVATION

connecting
enterprises to
innovation





// ABOUT US

Your ally for business innovation

IPI was established in April 2011 by the Singapore Ministry of Trade and Industry, to catalyse and enable enterprises to grow their businesses through the use of technology and innovation.

We promote open innovation, and work with enterprises to source for technologies available both locally and from abroad. In addition, we facilitate partnerships to bring new and innovative products and services to the market. As a recent member of the Enterprise Europe Network (EEN), IPI is well-positioned and committed to assist Singapore enterprises in discovering new business and innovation opportunities as well as expand their reach through our EEN partners.

For more information about IPI, please visit www.ipi-singapore.org



// MESSAGE FROM OUR EXECUTIVE DIRECTOR

This year marks IPI's fifth year of incorporation, the conclusion of Research, Innovation and Enterprise (RIE) 2015 and the beginning of RIE 2020. It is therefore timely that we reflect on our journey and the milestones that have brought us to where we are today.

IPI was established by the Ministry of Trade and Industry with the mission of enabling enterprises to grow their businesses through technology and innovation. Focusing on industry needs, IPI has played the role of a national technology matchmaker to bridge the gaps between businesses seeking innovation and technology providers. This is achieved by IPI sourcing for technologies locally and overseas from both public and private sectors; and facilitating partnerships that bring new products and services to the market.

The very core of IPI's mission is to support companies in Singapore – in particular, the local small and medium enterprises (SMEs). 80% of the 1,000 companies that IPI has reached out to were SMEs, and IPI has successfully matched these companies to over 300 technologies from its global network. In all, IPI has facilitated a total of 83 signed agreements in the last five years on technology transfer and joint R&D collaboration, exceeding the target and deliverables set by the Ministry of Trade and Industry.

IPI is privileged to have the opportunity to support companies in their innovation journeys, closing the gaps through connecting them to various technology partners. These include research institutes, institutes of higher learning, the Centres of Innovation, other government agencies, as well as local and overseas partners with innovative technologies.

In April 2016, IPI, IE Singapore and the Singapore Manufacturing Federation (SMF) formed a consortium and inaugurated the Enterprise Europe Network (EEN) Singapore. The EEN is one of the world's largest innovation and business networks covering 28 European Union (EU) countries and over 30 countries outside the EU. Through the EEN, Singapore SMEs would be well-connected to seek partnership opportunities with European SMEs in technology transfer, research collaboration and business partnership.

I would also like to take the opportunity to thank the Agency for Science, Technology and Research (A*STAR) for its tremendous support over the last five years. Since 1 April 2016, IPI has been part of the SPRING Singapore family. I would also like to express my appreciation to our IPI colleagues for their dedication and contribution. As we start to implement RIE 2020, IPI remains committed to continue supporting the SMEs in their innovation drive, grow our networks to extend greater partnership opportunities, and inspire a vibrant and innovative local SME landscape.

Professor Lam Khin Yong
Executive Director

// MESSAGE FROM OUR DIRECTOR

It is hard to imagine life without technology today. It has transformed our daily lives, the way we conduct businesses and our economy, enabling growth, improvement and innovation.

IPI has assisted SMEs to adopt technology through open innovation to unlock new opportunities. During our five-year journey with SMEs we engage, they have been able to seek new ideas and services, gain access to talents, pursue productivity improvements, form collaborative partnerships and bring new products and services to market.

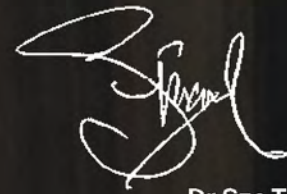
In our first five years under the national initiative Research, Innovation and Enterprise (RIE) 2015, IPI has achieved the following:

- Fostered a global network of over 200 technology providers and partners comprising technology transfer offices, research institutes, commercial intermediaries and private firms.
- Developed an online marketplace at www.ipi-singapore.org for technology providers to make their technologies accessible to our industries; and a physical marketplace – TechInnovation, that provides opportunities for technology seekers and providers to meet and match technology needs and solutions.

- Supported the marketplaces with a suite of integrated services provided by a team with deep technology domain, intellectual property knowledge and industry experience.

In the next five years under the RIE 2020, the Singapore government has committed \$19 billion from 2016 to 2020 for research, innovation and enterprise. This is to lift companies to a higher level of innovation and facilitate adoption of technologies and new business models to transform our future economy.

We are excited to embrace the opportunities and challenges that will present themselves over the next years as we make strides to engage our stakeholders to build innovative enterprises.



Dr Sze Tiam Lin
Director

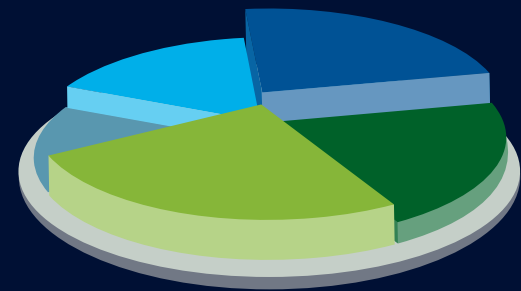




Looking back at IPI's first five years

IPI facilitates the innovation process by providing strong linkages to bridge the gap between enterprises and technology providers. Here's a snapshot of what we have achieved:

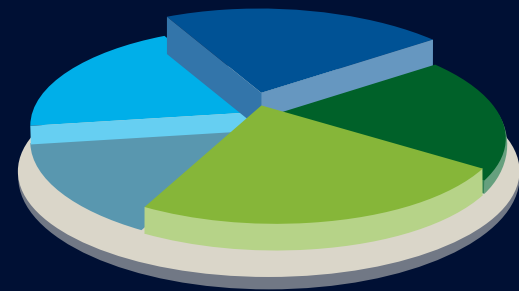
01 — Forging Strong Connections for Innovative Enterprises



NO. OF NEW COMPANIES VISITED

FY 2011	124
FY 2012	167
FY 2013	212
FY 2014	186
FY 2015	231

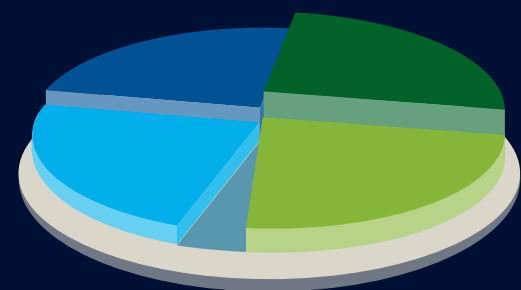
Cumulative total: **944**



NO. OF NEW COMPANIES ENGAGING IPI FOR PROJECTS

FY 2011	49
FY 2012	57
FY 2013	63
FY 2014	55
FY 2015	59

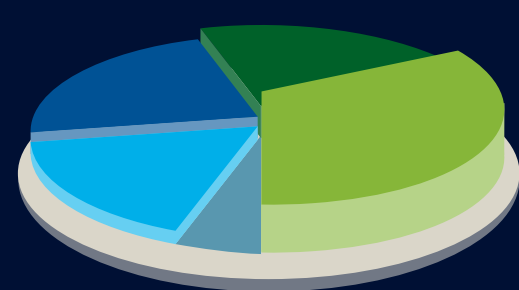
Cumulative total: **315**



NO. OF PROJECTS COMPLETED

FY 2011	13
FY 2012	96
FY 2013	84
FY 2014	93
FY 2015	75

Cumulative total: **449**



NO. OF SUCCESSFUL DEALS

FY 2011	3
FY 2012	12
FY 2013	15
FY 2014	23
FY 2015	30

Cumulative total: **83**



02 — Nurturing a Vibrant Technology Marketplace

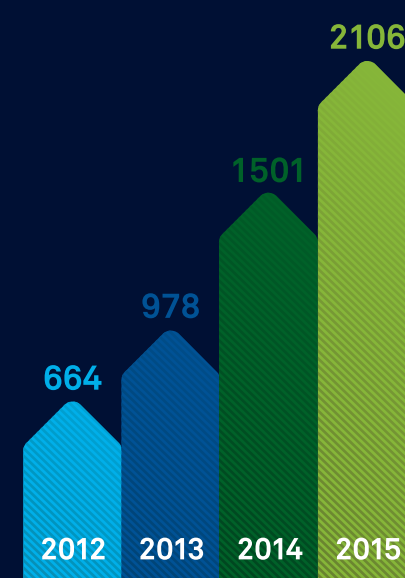
IPI's self-service online portal allows access to IPI's global network to:

- Search for technologies of interest.
- Search for technology needs of other companies and government agencies.
- Post technology needs to crowdsource for solutions.

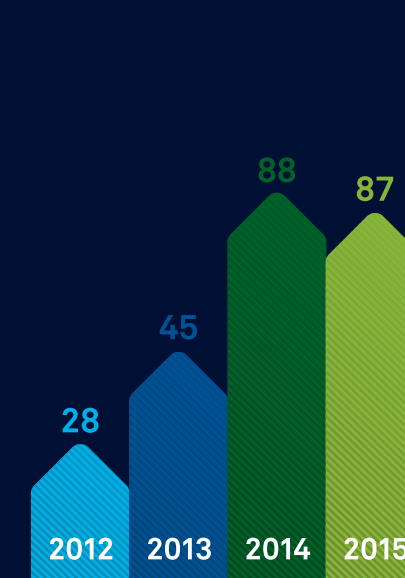
To date, it has:



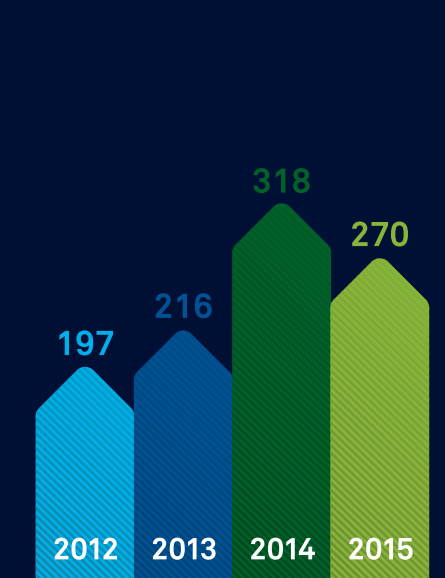
TechInnovation, IPI's flagship event for industry-technology matching, brings together international technology seekers and providers to network, explore commercialisation and initiate business collaboration.



NO. OF PARTICIPANTS



NO. OF EXHIBITORS



NO. OF TECHNOLOGIES FEATURED



03 — Enabling Access to a Global Network of Technology Partners

Over the years, IPI has developed an international network of technology partners. We have:

- Over 200 active partners
- Connected to over 600 Enterprise Europe Network (EEN) partners and millions of innovative SMEs from across 28 EU countries and over 30 non-EU countries.



TechInnovation over the years



2013



2012



2014



2015



// SUCCESS STORIES

COUREX PTE LTD

// INFOCOMM & ELECTRONICS

Overcoming “last mile” logistics challenges with predictive technologies

// Challenge The “last mile” problem in logistics refers to the last leg in the delivery of a product from supplier to customer. It is often the least efficient link in the supply chain. For local third-party logistics company, Courex Pte Ltd, which supports retailers in their logistics operations, it identified opportunities to utilise technology to improve operations in this final stage, and overcome challenges in delivering goods in dense urban cities.

// Solution At TechInnovation 2014, Courex came across a technology offering “Real-time Traffic Prediction & Route Guidance” by Nanyang Technological University (NTU). Through IPI’s facilitation, Courex commissioned NTU to build a smart algorithm to optimise its route planning. The mathematically computed programme efficiently clusters articles for delivery and proposes the best route to deliver each article in the cluster.

// Outcome Courex has increased its ability to handle increased deliveries as the smart algorithm can be scaled up to handle large numbers of traffic routes. The system is also self-learning and capable of providing alternative routes to drivers to avoid traffic congestion, enabling companies to achieve the most efficient delivery routes. This has saved both time and fuel costs, as well as reduced Courex’s carbon footprint.

In addition, Courex also benefited from improvements in productivity. For example, scheduling work that used to require 2 man-hours can now be autonomously completed in minutes with the new system.

“ ”

We are convinced by the returns of investment in technology and TechInnovation offered an excellent platform for us to discover and explore potential technologies to achieve greater operational excellence. This innovation provides an added service enhancement to many reputed retailers who place their trust in Courex as the direct touch point with their customers.

— Joe Choa
Managing Director, Courex Pte Ltd

// SUCCESS STORIES

WANGI INDUSTRIAL

// MANUFACTURING

Collaborate-and-develop approach keeps industries at the forefront

// Challenge

Wangi Industrial is one of the pioneers and value providers of high-quality surface finishing, technical glass, precision optics and optical thin-film coating solutions.

A firm believer of the need to constantly innovate, Wangi always seeks to collaborate with customers and machine suppliers to develop new products. However, working with these groups sometimes do not yield the desired outcomes.

A few years ago, Wangi identified a need to develop the next generation of protective nanotechnology-based diamond-like-coating but was turned down by a leading technology provider who was not keen to transfer the technology to it.

// Solution

With the help of IPI, Wangi searched for critical technology and the right expertise. The 24-months project facilitated by IPI led to the establishment of an in-house R&D team for new technology developments.

// Outcome

Today, Wangi has acquired the know-how to develop and apply the specialised coating for glass and is filing patents for the process and formulation as part of its IP strategy. It is one of only two companies in the world that has this capability in a specialised application. Wangi's coating performance is better than its competitors as it boasts a higher diamond content.

“ ”

Investing in R&D to innovate and develop new products has always been a big challenge for SMEs due to our limited resources and budget. Therefore, it is important for companies, especially SMEs to seek external partnerships using open innovation to speed up the innovation process and improve efficiency.

— Chew Ker Yee
Vice-President, Wangi Industrial

// SUCCESS STORIES

MATEX INTERNATIONAL LIMITED

// MATERIALS & CHEMICALS

Collaborations help acquire new capabilities for businesses to grow globally

// Challenge Matex International Limited is a homegrown SGX listed Specialty Chemicals Company that makes, formulates and distributes its products and services across various industries globally.

As a forward-looking SME that believes in commercially viable research and development (R&D), it aims to translate these efforts to become a world leader in clean colour science technologies and solutions.

Since its inception in 1989, Matex has recognised the need to develop sustainable, low-carbon impact and effective dye and chemical solutions, and water treatment innovations to limit the negative impact on the environment.

// Solution Besides having a strong in-house R&D capability, the other reason for Matex's success today is the willingness to co-invest and collaborate with partners to find solutions.

With IPI facilitating and crowdsourcing solutions, Matex had successfully connected with other external collaborators to test-bed and develop eco-friendly products and processes. For example, through the technology sourcing and assessment assistance of IPI, Matex was matched with a start-up to develop and trial wastewater treatment technologies.

// Outcome After signing a memorandum of understanding, the partners successfully embarked on test-bedding in Singapore and subsequently at Matex's plant in Taixing, China. Following which, Matex licensed the technology manufacturing process, and has since stepped-up efforts to adopt, integrate and commercialise the technology.

“ ”

Nowadays, the world is so connected and innovation happens at a much faster pace. It is not enough to rely solely on a company's own R&D activities; co-innovation reduces the time-to-market and business risks.

— Dro Tan
Executive Director, Matex International Limited

// SUCCESS STORIES

ERS INDUSTRIES

// ENERGY & ENVIRONMENT

Getting ahead by going green with an innovative product roadmap

// Challenge

ERS Industries is an established SME that manufactures electronic equipment racks for use in data centres. Over the last 15 years, it has grown by building on its strength in product design, manufacturing and good customer relationships. Despite its success, it did not rest on its laurels. Increasingly, data centres around the world are looking at ways to improve the efficient use of energy. To meet this emerging need for green data centres, ERS embarked on a journey to re-organise its product design and development process. It also developed a product roadmap for the next generation of energy efficient racks. The next generation of products would help ERS to fend off competition and place the company as a leader in the market.

// Solution

IPI helped ERS in analysing and identifying the technology areas critical to realising its new product roadmap. With an understanding of the engineering capability of ERS, IPI matched an expert in thermal management from the Nanyang Technological University (NTU) to improve its product roadmap and optimise the thermal performance of its next generation racks. Processes were also created to guide ERS in managing and protecting its intellectual property.

IPI recognised that the company required more than technical assistance to grow its business. As such it introduced ERS to SPRING Singapore, which in turn brought in A*STAR's team in charge of the 'Growing Enterprises through Technology Upgrade' (GET-Up) initiative and the Institute of High Performance Computing (IHPC) to assist the company build up its capabilities. Together the entities provided wide-ranging support such as funding assistance in the form of Innovation & Capability Voucher (ICV) to kick start various engineering feasibility studies, attachment of scientists under the GET-UP scheme for developing better solutions, and supported the company in developing its business strategy roadmap.

// Outcome

Within six months of IPI's assistance, ERS rolled out the next generation racks. The airflow into ERS' next generation racks has achieved 350% reduction in pressure drop, which translates into 20% more cooling air entering the racks to reduce the heat of the electronics within. The in-house engineering capabilities have also been fine-tuned. For example, ERS has built a wind-tunnel to conduct airflow testing.

The company has transformed itself to become an innovation-oriented company, where the products they develop and engineered are backed by strong scientific and engineering principles. This has helped the company gain access to business opportunities which would otherwise might not have been possible.

“ ”

IPI's technology sourcing services not only complemented our internal effort and enhanced our awareness to new technology, it also played a key role in accelerating our acquisition of new capabilities. We are now in a stronger position to compete globally as an innovation-centric company.

— CK Cheong
Managing Director, ERS Industries

// SUCCESS STORIES

MASE INTERNATIONAL MARKETING SERVICES

// PERSONAL & HEALTHCARE

Collaboration accelerates in-house R&D and provides multiple product solutions

“ ”

IPI has been instrumental in finding the right research partner to complement our in-house research activities. Through IPI's facilitation, we are glad to have saved substantial time and effort to look for the right research partner. The research collaboration with NYP will also accelerate our product innovation cycle.

— Ng Ling Ching
Director, Mase International Marketing Services

// Challenge

Established in 1976, Mase International Marketing Services started off as a distributor of hair colour products. Over the years, the company has grown to become a leading distributor of cosmetics and toiletries in Asia. Mase places great emphasis on innovation in Research & Development (R&D) of its hair products. It is the only Singapore SME in this field with an R&D facility focusing primarily on hair dyes and hair growth formulations.

Hair colour products have evolved to meet the changing needs of the market. Increasingly, consumers are looking for products with gentler formulations to reduce hair damage. Mase was also seeking for a partner that could help improve the stability of its hair lightening product and prevent quality degradation during transportation and storage.

// Solution

After understanding Mase's requirements, IPI assisted Mase in identifying and assessing relevant technology partners to accelerate its in-house R&D efforts. Through IPI's technology matching service, Mase successfully partnered the School of Chemical & Life Sciences at Nanyang Polytechnic (NYP) to embark on a research collaboration to develop a novel dye ingredient. The collaboration is expected to create a new range of hair dye products that are gentle on the hair and retain colour for a longer period.

Through TechInnovation 2014, Mase was introduced to the Consumer Care Technology Programme team from the Institute of Materials Research and Engineering (IMRE). IMRE's Consumer Care Technology Programme aims to provide solutions for the consumer care industry, especially in the areas related to sustainable and green materials; as well as materials with high efficacy and intelligent encapsulation for active ingredients.

// Outcome

Mase saved 18 months of time spent on developing this novel dye ingredient because of its decision to collaborate with IPI instead of taking it on alone.

Both IMRE and Mase entered into a research collaboration in February 2016 with the second project expected to complete in September. IPI has also assisted Mase with its application for the Capability Development Grant (CDG) in the area of Technology Innovation from SPRING Singapore.



// TESTIMONIALS

What our industry partners say

“ ”

IPI has developed excellent platforms to support manufacturing enterprises to gain access and leverage on new technologies to develop new products and services. The team has the technical and IP expertise to facilitate technology transfer and R&D cooperation to benefit businesses in the manufacturing industry.

— Lam Joon Khoi
Secretary-General, Singapore Manufacturing Federation (SMF)

“ ”

It is great to have organisations like IPI in Singapore to support business to grow with technology adoption and innovation. The team at IPI has both technical and IP expertise to facilitate technology matching, transfer or R&D cooperation between partners. CEI is pleased to be matched to a Japanese start-up to enter into a project collaboration to develop advanced robotics for vertical mobility.

— Tan Ka Huat
Managing Director, CEI Contract Manufacturing Ltd

“ ”

The journey of developing innovative products can be an extremely tough and lonely one for an entrepreneur. I am glad to know an organisation like IPI which can assist and facilitate relevant matches with innovation and industry partners to accelerate Cell ID's product to market. IPI has an extensive network of innovation and industry partners that companies can collaborate to accelerate their product development in the spirit of open innovation.

— Xander Sim
Co-Founder & Chief Technology Officer, Cell ID Pte Ltd



What our technology partners say

“ ”

Organisations such as IPI contribute significantly to Singapore's growing innovation & entrepreneurship landscape. By helping Singapore enterprises access cutting-edge technologies, IPI has direct contribution to the many innovative products and services emanating from Singaporean ventures. As a university, IPI's support has been vital in enabling us to reach industry partners who can help transform our research and intellectual property into usable and commercial solutions.

— Dr Lily Chan
CEO, NUS Enterprise

“ ”

IPI applies dedication and sophistication to meeting the IP needs of a wide variety of organisations. In so doing, they provide close, responsive, and high-quality support to participants of an increasingly knowledge-intensive economy. NTUitive is pleased to work with IPI.

— Dr Lim Jui
CEO, NTUitive

“ ”

I am very impressed with what IPI has achieved in a very short period to catalyse and create a vibrant innovation and enterprise development landscape in Singapore. It has foresight to embrace and promote open innovation, which is the way to go for enterprises to stay competitive in a global market. The team at IPI is very dedicated to fulfil its mission to catalyse and enable enterprises to grow their businesses with technology adoption and innovation. NTNU is honoured to participate and benefit from this exchange and cross border collaboration.

— Morten Øien
Senior Legal Advisor, The Rector's Office, Norwegian University of Science and Technology

IPI is committed to enabling and empowering the future of SMEs in Singapore through technology and innovation adoption.

We will continue to hone our efforts and focus on the Research, Innovation and Enterprise (RIE) 2020 plan by enhancing innovation connections to transform more businesses in Singapore.

10 Biopolis Road
#02-01 Chromos
Singapore 138670
E: techscout@ipi-singapore.org
www.ipi-singapore.org