Europe’s ICT Innovation Partnership with Australia, Singapore and New Zealand

It was EPIC!

The EPIC initiative improved cooperation in information and communication technologies (ICT) between Europe and Australia, New Zealand and Singapore – all traditionally strong EU economic partners. It was funded by Horizon 2020 and ran from February 2017 to July 2019.

The European-Pacific Partnership for ICT collaboration in research, development and innovation (“EPIC”) strengthened the ties between these regions through academic, industrial and political partnerships. Initiated by the European Commission, the programme promoted research and development in important areas for our common future including:

- Europe’s Digital Single Market
- Artificial intelligence
- Cybersecurity
- Internet of Things and wearable computing
- ICT in transport
- Digital economy and e-Research
- Spatial intelligence

EPIC benefitted researchers and research policy makers through:

- Supporting the dialogue of the EU with its international partners on current and upcoming challenges of ICT research and ICT policy.
- Giving advice on ICT research collaboration and providing information on funding sources.
- Putting interested parties in touch with experts from strong ICT-based economies and developing ideas for research collaboration through short visits.
- Identification of cooperation priorities and building of network links.
- Discussing options for future research cooperation and developing a roadmap for cooperation in the future.
History & Situation

THE SITUATION:

The technology landscape of today is like nothing we have seen before; the rate of change in ICT is unprecedented and developments are unpredictable. This results in common concerns about security, privacy, and fairness. The sheer size of some of the largest tech companies has altered both the geopolitical context, with profits sometimes dwarfing the economies of many countries, as well as the setting of international ICT infrastructure and the networks it enables. It seems that several different Internets are emerging: In China there is tight control while in America we find unregulated near-universal access to information and services. Europe aims at a Digital Single Market with strong privacy and data protection aiming to occupy middle ground.

Countries, especially smaller ones, are looking to Europe with renewed interest, curious to learn more about the Digital Single Market and its associated implications for business, as well as looking to the region for leadership during transformative times. Uncertainty has triggered renewed interest in values, particularly as we face new challenges, new opportunities and new ways of doing business. Questions of ethics, regulation, privacy and security lie at the forefront of this renewed interest and will be driving research and technology development as well.

BACKGROUND:

From 2017-2019, Horizon 2020-funded EPIC was the European-Pacific Partnership for ICT collaboration in research, development and innovation. It followed the SECAS project on ‘Strategies for European ICT RTD Collaboration with Singapore and Australia’. It was the only European Commission-funded ICT programme focusing on EU collaboration with Australia, New Zealand, and Singapore.

EPIC shifted its focal topics to fit with the key interests emerging from various policy and stakeholder meetings and supported events. As topics such as artificial intelligence, data ethics, Internet of Things and others grew in importance EPIC facilitated an international dialogue and informed about the opportunities and challenges presented. It brought together international experts from a variety of backgrounds and nationalities to help generate a multidisciplinary debate about desirable progress in future technologies at the interface between engineering, law, humanities and technology.

Among other things EPIC resulted in books on AI, robotics and ethics, a large network of stakeholders, new insights into international research policy, and a final recommendation roadmap.
Why was EPIC epic?:
Partner Region: The EU

EPIC was funded by the European Commission’s Horizon 2020 Framework Programme for Research (H2020), the biggest EU Research and Innovation programme ever. Focused on breakthroughs, discoveries and world-firsts, it takes great ideas from the lab to the market. H2020 was the financial instrument implementing the Europe 2020 flagship initiative the ‘Innovation Union’ – aimed at securing Europe’s global competitiveness.

H2020 envisaged not only the big challenges facing mankind but also international cooperation activities with third countries. As important strategic partners for the EU with traditionally strong trade and economic relations, Australia, New Zealand and Singapore were ideal partners for EPIC. They are industrialised countries with a solid research base, excellently positioned for Europe to engage in ICT collaborations with Asia Pacific markets.

FOCAL TOPICS:

- The Digital Single Market (DSM): The strategy of the EU to ensure access to online activities for individuals and businesses under conditions of fair competition, consumer and data protection, while removing geoblocking, and other limits to a single European market for digital services.
- Values, ethics and regulation relating to ICT, including AI and data protection
- Spatial intelligence, e.g. through Copernicus open data

MAIN EVENTS:

- **ICT Vienna 2018:** EPIC booth and EPIC networking session ‘A new European Digital Space: Research Challenges & International Impact’, and EPIC partner talks on geospatial intelligence.

FINDINGS:

- In an increasingly unpredictable system, within which several Internets are emerging, smaller countries are turning to Europe as a potential ally.
- There is huge international interest in the EU and its DSM, both from a business perspective and from academic researchers.
- EU values relating to ethics and privacy are of increasing interest as the rate of technological advancement increases.

SUCCESSES & IMPACTS:

- The EPIC ‘Expert Visits’ research exchanges fostered a variety of potential future research collaborations between EU and AU/NZ/SG organisations.
- EPIC strengthened Europe’s international networks both in personal contacts and digitally.
- Key topics of the DSM – from AI strategies to General Data Protection Regulation (GDPR) – were discussed and clarified for stakeholder audiences in the partner countries.
- EPIC advertised funding opportunities for researchers and others wanting to carry out work in both regions.

EPIC Project Partners:

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Partner Country: **Australia**

11 events - 1,200 attendees

With more than 4,000 ICT researchers in publicly funded organisations, Australia offers identifiable strengths in key areas and significant ICT research capability. Australian universities rank well internationally with approximately 30 universities supporting ICT research. Business funded ICT R&D is undertaken by corporate labs, small to medium enterprises (SMEs) and companies in the telecommunications, finance and mining sectors. The Australian ICT R&D sector has researchers and research groups with world-class expertise in a range of ICT fields in established and emerging areas. Some of Australia’s key ICT capabilities are in the areas of wireless and future Internet, artificial intelligence and software systems including embedded enterprise systems.

**FOCAL TOPICS:**
- Digital Single Market & data protection
- Artificial intelligence
- e-Research

**EVENT HIGHLIGHTS:**
- *International Dimensions of Artificial Intelligence Conference, Canberra, February 2019:* Experts from Australia and Europe engaged in dynamic discussions around current public policy and research trends in different aspects of artificial intelligence, in particular as they relate to the Australian Government’s newly released ‘Australia’s Tech Future’ strategy.
- *Melbourne Digital Single Market Meetup, February 2019:* The event included both a presentation and panel discussion to clarify potential impacts of the new DSM for Australia, including debate on whether the DSM is just a new set of rules or a possible hub for business and innovation.

**FINDINGS:**
- In addition to acting as a source of ideas and anchors for collaboration, EU expats and their networks play an important role in generating projects and links with their home region.
- As the topic of AI and values gains increasing importance, it is no longer just a subject for engineers, but instead brings together experts from multidisciplinary backgrounds in the humanities, law, tech and many more.
- There is great interest in the DSM and GDPR and their potential impacts upon Australian organisations conducting business in the EU.

**SUCCESSES & IMPACTS:**
- EPIC’s network-building led to participation in new joint EU/AU research proposals.
- As a result of its work in Australia, EPIC produced three policy briefs on the topics of EU-AU e-Research collaboration, the interface of art and digital technologies, and AI.
- International networks of ICT experts were established.
- The EPIC ‘Expert Visits’ research exchanges fostered potential future research collaborations between EU and AU-based organisations on topics ranging from AI, cryptography, or medical imaging to Internet of Things.
Partner Country: New Zealand

14 events - 2,100 attendees

New Zealand’s geographical location emphasises the need for international collaboration. Technology has the potential to become New Zealand’s largest source of export revenue. The growth of the Internet has helped the IT sector to participate in the global marketplace. NZ ICT companies have a reputation in 3D graphics, health IT, services, bio informatics, and security. The government’s future vision includes a technology-driven economy in which researchers are fully integrated and actively contributing to strategy, government policies and daily activities.

FOCAL TOPICS:

- Internet of Things (Industry 4.0 and wearable technology)
- Ethics and artificial intelligence
- Geospatial intelligence

EVENT HIGHLIGHTS:

- The EPIC AI Events Series – Christchurch, Wellington, Queenstown, Auckland), February – March 2019: This event series addressed Europe’s DSM and how it impacts New Zealand’s ICT innovation in cooperation with the EU. Experts discussed how to adhere to, and benefit from, new European data rules. Sessions focused on learnings from realising Europe’s new DSM and its implications for businesses, in particular for innovation and future service delivery.

- EPIC Round Table: Europe’s AI Strategy and the Cooperation Potential for New Zealand, Wellington, December 2018: The round table, which brought together researchers, industry and policy makers from Europe and New Zealand, discussed current trends and possible new avenues and strategies for research and innovative applications, and upcoming initiatives in the field of AI technologies.

FINDINGS:

- With its strong tradition in and focus on agriculture, New Zealand’s SMEs face challenges relating to ICT and Industry 4.0: It can be difficult to suitably adapt what’s on offer from big companies for the average New Zealand SME. Europe shares this challenge which brings opportunities to collaborate.

- There is great interest in the DSM and GDPR and their potential impacts upon New Zealand organisations conducting business in the EU.

- There is also great interest, at the researcher level, on ethics relating to, and regulation of, AI, future Internet, and robotics technology.

SUCCESSES & IMPACTS:

- The EPIC Book Sprint resulted in a book by EU and NZ authors on robotics and AI.

- As a result of engaged discussions in New Zealand, EPIC produced two policy briefs on the topics of AI and Internet of Things/Industry 4.0

- New collaborations with NZ ICT organisations include those with the NZ AI Forum. It will address joint strategies for AI in the EU and New Zealand beyond the project duration.

- The EPIC ‘Expert Visits’ research exchanges fostered potential future research collaborations between the EU and NZ in fields like AI, machine learning, Internet of Things, sensors, and image processing.
Partner Country: Singapore

Singapore is an information and technology hub in the Asia Pacific region, and home to many of the world’s top ICT multinational corporations. The ICT sector has heightened Singapore’s international competitiveness, raising productivity and transforming business processes in several industries. It also offers an open, dynamic and competitive business environment into which foreign ICT companies and talent are welcomed and collaboration is encouraged.

FOCAL TOPICS:
- Privacy and cybersecurity
- Artificial intelligence and robotics
- ICT in transport
- Spatial intelligence

EVENT HIGHLIGHTS:
- Security and Privacy: The Role of Artificial Intelligence, April 2019 and the EPIC Workshop on Privacy Preserving Information Technology, December 2018: These two linked events presented academic and industrial perspectives on the challenges and solutions that lie ahead at the intersection of AI, privacy and security. EU and Singapore researchers from industry and universities, policy makers and professionals from new technology providers discussed the state-of-play and new trends, joint challenges and opportunities for cooperation. The event sparked new collaborations in privacy research and application developments.

FINDINGS:
- In addition to acting as a source of ideas and anchors for collaboration, EU expats and their networks play an important role in generating projects and links between their host country and home region.
- The coastal setting of Singapore, and its rapid responses to transport challenges make it an ideal collaboration partner for the joint development of solutions in urban transport and local air pollution mitigation advancements.
- There are huge opportunities for collaboration with Singapore-based industry – both large and small – in areas such as industrial Internet or data privacy. This includes European actors already present in Singapore who could become anchors for future EU projects.

SUCCESSES & IMPACTS:
- EPIC’s second Book Sprint produced a text book on AI and ethics; representing collaboration with EU experts and showcasing European approaches as well as challenges
- There are now two EPIC policy briefs on the topics of spatial intelligence and privacy and AI.
- Two sell-out events on security and privacy brought together experts from industry and research and created strong international links and new collaborations.
- EPIC advertised funding opportunities in cooperation with other EU initiatives (EURAXESS).
- The EPIC ‘Expert Visits’ research exchanges fostered new research collaborations between EU and SG organisations addressing topics from secure protocols to augmented reality.
Outputs & Results: At a glance

During the two-year project period, EPIC made its mark in all three of the partner countries. EPIC-supported events in Australia, New Zealand and Singapore attracted a large number of participants and acted as the catalyst bringing together representatives from multidisciplinary academic backgrounds, industry and policy to discuss topics such as the impacts of Europe’s new DSM on third countries, ethics relating to, and regulation of, artificial intelligence, privacy and cybersecurity, and emerging versions of the Internet. The EPIC Expert Visits also supported researchers traveling between the partner countries to explore the potential of joint RTD in current ICT areas. The momentum built by the project over the short term will continue to grow as these networks expand, and as longer-term relationships, partnerships and collaborations are established.

In summary: ‘EPIC generated many new and timely discussions, leading to new insights and feeding into new networks. EPIC created new joint projects with academic and industry collaborations and triggered a new way of looking at the EU-Asia Pacific ICT partnership.’

**OUTPUTS AND IMPACT:**

- EPIC Expert Visits enabled 27 researchers, scientists & innovators to explore potential joint RTD cooperation between the EU & AU, NZ & SG in current ICT areas.
- EPIC’s video series summarised events for those unable to attend and featured topical interviews with experts from a variety of backgrounds.
- EPIC produced seven policy briefs on a range of ICT topics for the European Commission and partner country policy makers. It also designed a roadmap with recommendations for future collaboration.
- EPIC supported or hosted more than 40 ICT themed events and policy roundtables which drew several thousand participants.
- EPIC produced a handbook to inform EU-based researchers about the research landscape and funding opportunities in the partner countries.
- EPIC’s support led to joint proposals between EU and partner country institutions including H2020 proposals.
- EPIC supported two Book Sprints resulting in published textbooks on ethics in AI and robotics.
- EPIC created new contacts between companies and researchers events, talks, personal communication and online exchange. It built networks featuring members from a variety of backgrounds and nationalities that open new possibilities for future, sustained exchange.
Where do we go from here?

As EPIC concludes following 2.5 successful years of strengthening ties between the EU and Australia, New Zealand and Singapore by fostering academic, industrial and political partnerships in the area of ICT, we can look at this as a beginning rather than an end point. Through its events and initiatives, EPIC generated a momentum that not only increased steadily throughout the project but continues to propel itself forward. Appetite and interest in EPIC’s future-oriented ICT topics such as DSM impacts, regulation and ethics relating to AI, and adoption of values online are only increasing in accordance with their relevance in today’s changing geopolitical landscape. It is expected that EPIC-supported events of the past will lead to new events, and network memberships will continue to grow. Networks started to collaborate between the regions, and joint ideas for novel research materialised in new research proposals and business collaborations.

Still, further work will be needed to build on these successes:

**FUTURE RECOMMENDATIONS FROM EPIC:**

- An integrated approach to international ICT policy is needed. Such an approach should consider research and innovation in the context of other policy areas such as global collaboration, trade and business, social politics and even in the context of the arts.
- Artificial intelligence, privacy and security and questions of values have brought together new groups with multidisciplinary backgrounds, not just the traditional engineers. Future debates and discussions should incorporate perspectives from the humanities, arts, law and many more backgrounds.
- Europe should offer support on the Digital Single Market and what its impacts for international businesses and research trends might be. Information about the EU can be confusing for many in 3rd countries, for example around the roles of member states versus the European Commission.
- It can be hard to identify complementary expertise in the EU or partner states - expat networks can play a role in bringing together the right partners. Thus, building strong and engaged expat networks from national ones in topical domains including ICT should be encouraged.
- Funding should be made available in order to sustain networks built through EPIC – for instance, to distribute information, organise future events, and continue the exchange.