FOREWORD

Today, globalisation is a driver for change everywhere in our societies and economies. The rise of new, fast-growing economies and their powerful industries is evident. At the same time, Europe’s leading role in knowledge generation is being challenged. Innovation, enterprises and markets are now increasingly embedded in global value chains that are extremely relevant for the companies EUREKA supports.

International collaboration has been at the heart of EUREKA since its start – and at the heart of Europe. Globalisation means more and deeper links with countries outside Europe. In 2017, Chile became a new associate country to EUREKA. Together with Canada, South Africa and Korea, EUREKA now has strategic partners in every continent. As the number of collaborative projects with partners from these countries is constantly on the rise, the products and services created become more and more global. With 44 member-associate or partner countries, EUREKA is the widest global entity for technological cooperation among companies, research centres and universities, while anchoring its centre of gravity in the European continent.

Collaboration also takes place in the heart of Europe, in Brussels. This year was a turning point for EUREKA in rebuilding a strong collaboration with the European Commission: a joint communiqué was issued during the Ministerial Conference in Madrid, giving rise to the European innovation landscape high-level group, that was launched under the new Finnish Chair as a forum of exchange between EUREKA high-level representatives and the European Commission. Close discussions were held on EUREKA’s role within the European Innovation Council and the shape of EUREKA’s flagship instruments in future EU framework programmes.

EUREKA has always acted as a platform for the introduction of different policy instruments that support cross-border cooperation within the European research and innovation landscape. In 2017, EUREKA (via its Network Projects, Eurostars and Clusters) has supported a total of 344 international collaboration projects raising almost €700 million of public-private investment.

Next to the remarkable rise of participation of associate and partner countries, EUREKA is also very proud to count a new Cluster – SMART on smart manufacturing – among its portfolio of support instruments. SMART was approved with the EUREKA Cluster Applicant Label in June 2017 and is carrying out its first call for projects in early 2018.
EUREKA’s support instruments provide a logical framework for innovation to thrive. Apart from the many project success stories, this was also proven in two important impact assessments carried out in 2017 that have investigated the impact of Network Projects, Eurostars and Clusters on participating SMEs and Research Organisations. Together with other, strongly interlinked, European and national innovation support programmes, the EUREKA instruments are important drivers in Europe’s integrative efforts to support its game-changing companies of tomorrow.

EUREKA has also always acted as a learning platform by sharing good practices amongst national agencies and ministries, for example when executing joint calls. EUREKA’s know-how is a unique asset that furthers the development of services while creating the conditions for innovation on all levels. The development of EUREKA’s innovative output can only be improved within a collaborative landscape.

The EUREKA network and its programmes are also powered by a professional and committed Secretariat, playing a key role in serving the network and managing the EUREKA community. Under the leadership of a new Head, the organisation has initiated a transformation of its structure and management, in search of improved performance, efficiency and quality, with the perspective to be ready for new and future challenges.

Over 1 100 participants gathered in an open forum and marketplace to exchange ideas at the Open EUREKA Innovation Week in May 2017 in Barcelona. Countries outside Europe were among the most represented during the event. In 2018, the EUREKA Innovation Days - main event of the Finnish Chairmanship, will take place on May 22-24 in Helsinki and focus on smart mobility, smart health, smart energy and smart industry. We hope to see all of you there!

As a broad, community-based platform, EUREKA brings SMEs and large multinationals, academic research and businesses, start-ups and investors, national ministries and agencies, and the European Commission, together on one table with a shared goal: driving innovation by collaboration. Let’s keep on working together in 2018!
04 FOREWORD

10 DATA OVERVIEW 2017

12 MINISTERIAL CONFERENCE MAIN OUTCOMES

16 EUREKA NETWORK PROJECTS

20 EUROSTARS-2

26 EUREKA CLUSTERS

34 EUREKA UMBRELLAS

35 EINNOVEST

40 INVESTIGATING EUREKA'S IMPACT

42 INNOVATION WEEK AND AWARD
01
PROJECTS & POLICY OVERVIEW
DATA OVERVIEW

A full data analysis is available on our website www.eurekanetwork.org/data-interactive

Number of projects funded in 2017

344

Public-private investment in 2017

691.4 M€

Number of projects funded in the last 5 years

<table>
<thead>
<tr>
<th>Year</th>
<th>Projects</th>
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<tr>
<td>2017</td>
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<tr>
<td>2016</td>
<td>150</td>
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<tr>
<td>2015</td>
<td>200</td>
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<td>2014</td>
<td>250</td>
</tr>
<tr>
<td>2013</td>
<td>300</td>
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Public-private investment in the last 5 years (€M)

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>300</td>
</tr>
<tr>
<td>2016</td>
<td>450</td>
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<tr>
<td>2015</td>
<td>600</td>
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<tr>
<td>2014</td>
<td>750</td>
</tr>
<tr>
<td>2013</td>
<td>900</td>
</tr>
</tbody>
</table>
Production at this scale is needed in order to compete.

Top 3 technological areas

- **30%** ICT
- **28%** Industrial
- **26%** Life Sciences / Health

Organisation type

- **63%** SME
- **22%** Research Organisation
- **13%** Large company
- **1%** Other

Top 5 country collaborations

- **Spain-Germany**: 15
- **Germany-Spain**: 24
- **Spain-France**: 17
- **Switzerland-Germany**: 19
- **Austria-Germany**: 13
- **Netherlands-Germany**: 24

EUREKA ANNUAL REPORT 2017
Ministers, Secretaries of State and other high-level representatives of EUREKA member and associate countries met on Friday 30th June 2017 in Madrid to discuss new steps forward for EUREKA and reinforce its key position in the European innovation space.

Ministers have decided that, in view of EUREKA’s long experience in promoting innovation within Europe and the success of its more recent outreach to the rest of the world, the initiative should refocus its activity in the coming years along two main axes:

• Reinforcing the global element of its work by adopting the “Strategy for EUREKA Internationalization 2025”, with the objective of making EUREKA the preferred tool for European industry to cooperate globally in R&D.

• Strengthening synergies with other actors, and especially with the European Union, in order to reinforce its contribution more generally to the European innovation space, and in particular to the European Research and Innovation Area (ERIA), the 9th Framework Programme (FP9) and the future European Innovation Council (EIC).

As part of the event, ministers endorsed Chile’s association to EUREKA. Being the first Latin American country to be associated to EUREKA, Chile will become a benchmark for the cooperation with EUREKA in this part of the world.

Moreover, EUREKA’s association with South Africa was renewed until June 2021. Together with the other associated countries Canada and South Korea, they make significant contributions to EUREKA’s positioning as a global player in research and innovation.

Held in the Spanish Congress in Madrid, the conference also marked the end of the Spanish EUREKA Chairmanship 2016-2017. Currently held by Finland, the UK will take over the EUREKA Chairmanship from July 2018 to June 2019.

“Government support to innovation is a great investment to the economy. EUREKA is a clear example of such contribution”

Luis de Guindos
Spanish Minister of Economy and Competitiveness
To be part of one of the most important platforms of international cooperation for the promotion of entrepreneurship and innovation is, without doubt, a tremendous opportunity for our country.

Luis Felipe Céspedes
Chile’s Minister for Economic Affairs

One of EUREKA’s assets is its international dimension, stretching out almost everywhere in Europe, and also to some key countries outside. There’s a clear potential to develop this global dimension of EUREKA even further.

Mika Lintilä
Finnish Minister for Economic Affairs
EUREKA'S INSTRUMENTS
EUREKA network projects represent the most flexible option in EUREKA’s set of instruments: applications are open all year long, to any type of technologies and organisations. For public authorities involved in funding and supporting innovators, they make international cooperation easy: any national innovation support programme can potentially fund a EUREKA project, with each national body funding its own local partners in a transnational project.

2017 saw a remarkable increase in the number of endorsed network projects (+51% compared to 2016), reflecting the commitment of EUREKA countries as well as the effects of the possibility for EUREKA member and associate countries to set up joint calls for R&I projects (bilateral and multilateral), developed under the concept of ‘EUREKA 2.0’. The 104 network projects endorsed in 2017 are raising a total of €110.5 million in public-private investment. Furthermore, the number of SMEs participating in such projects increased to 201 (+76% compared to 2016).

Project participants from Chile, EUREKA’s most recent associate country, are represented in eight different network projects endorsed during 2017. With the results of a multilateral call jointly organized end 2017/beginning 2018 with six other EUREKA countries (Spain, France, Israel, Czech Republic, Sweden and Turkey), this number is set to become even higher in 2018.

EUREKA NETWORK PROJECTS SUCCESS STORIES PUBLISHED IN 2017

EI 10357 MEDIATRANSLATOR

Instantaneous and accurate machine translation could help journalists report on breaking stories, transform the business models of call centres and telecom carriers and even ease world diplomacy. This EUREKA-funded collaboration has brought this ambitious concept one step closer to reality.

Israel, Germany

BUDGET €710 000
For over 20 years the clay pipes of the world’s sewage systems have been repaired with resins and composites containing synthetic ingredients made of crude oil. Growing pressure to use environmentally benign materials, alongside a pressing need to improve adhesive strength, prompted Hungarian and German partners to develop a new generation of high-performance pipe repair products made with vegetable oils.

Germany, Hungary
BUDGET € 620 000

Wild garlic leaves are delicious and all the rage in contemporary cuisine but the plant is becoming a victim of its own success. German biotechnology specialists Bock Bio Science GmbH and Czech research institute Vyzkumny Ustav Bramborášský cloned it to make its use sustainable.

Czech Republic, Germany
BUDGET € 900 000
We are all used to the concept of search engines. If you live your life online, you probably use a search engine dozens, if not hundreds, of times a day to search using a word or phrase or perhaps an image. But what if you wanted to search for a shape?

Searching for a 3D shape is a complex problem. But for designers and manufacturers it is a significant issue. Now thanks to a successful EUREKA project the world’s first shape based search engine for the web has been developed and brought to market.

“3DPartFinder is a shape-based search engine: like ‘Google’ but using a real 3D model as input,” says Alain Coulombe, President and CEO of Canadian company 3DSemantix, one of two partners in the 3D SEARCH BIG DATA project.

The innovation responded to a need from manufacturers and designers to be able to search for standard parts when developing new products. “Computer aided design (CAD) systems are ubiquitous,” explains Alain. “They are very efficient in designing new products, but can also lead to a proliferation of ‘new’ designed parts when similar parts or components are already available either in house or on the market.”

Reinventing the wheel?
The inability to search widely for standard parts means that designers are literally reinventing the wheel on a regular basis, which has significant cost implications.

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**PROJECT EXAMPLE**

**9611 3D SEARCH BIG DATA**

Shape search engine boosts design productivity

An innovative search engine that works on shapes rather than textual input has resulted from a EUREKA enabled transatlantic collaboration between Canadian and French companies. Launched on the market this year, this big data application is already helping designers and manufacturers reduce costs and get to market quicker.

**MAIN PARTNER**

3DSemantix, Canada

www.3dpartfinder.com

alain.coulombe@3dsemantix.com

**OTHER PARTNERS**

France Traceparts SA

**TOTAL R&D INVESTMENT**

€ 800 000

**DURATION**

September 2014 to September 2016

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**E! 6796 HERIFUND**

The EUREKA network project HERIFUND brought Slovenian Construction Engineering Company ING.KLAN and German company Ipa Bauchemische Produkte GmbH together with the aim of tackling bad practice in the restoration industry and to revolutionise the approach to how we treat old buildings.

Slovenia, Germany

**BUDGET** € 650 000

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**E! 6772 POWDER ROAD**

Spanish refinery Cepsa headed up the team that devised a cutting-edge recycling method to use old tyres to repair the country’s roads.

Spain, Germany

**BUDGET** € 3.1 M
Before the 3D SEARCH development, the time taken to find alternative parts in a CAD portal was very long. Most of the time users select the first part found when in fact an alternate part from a different manufacturer could be available in the CAD portal.

“Companies often use 10-15% of duplicates and close duplicates,” says Alain. “Clearly an ability to search for standard parts is much cheaper than creating new parts.”

The new 3DPartFinder search engine was created by 3DSemantix in collaboration with their partner Traceparts SA from France. The innovative engine is capable of searching more than 100 million unique 3D models in less than seven seconds including the 3D display of the results. This capability has been implemented successfully in the TraceParts CAD portal where users around the world can launch a search from a 3D model of any part displayed in the portal.

The two parties brought complementary skills, products and services to the project. TraceParts is a supplier of digital engineering 3D content and delivers progressive business software solutions through the TracePartsOnline.net portal available to CAD users around the world.

and is developing the interface for the search engine to work with any component manufacturer, CAD portal or database. The company plans to launch this extended version of the 3D SEARCH engine next year.

It is also looking to extend the search engine’s capabilities into other application areas and developing some ambitious and exciting collaborative research projects.

“The EUREKA project was really important for us. It gave us a true competitive advantage and enabled us to act really quickly,” concludes Alain. “It brought mutual benefits for both companies involved.”

The engine is also bringing big benefits to users of the system. “The capability to index and search on every single part in a company’s inventory can bring multi-million benefits for companies,” concludes Alain. “It enables new products to be created quicker incorporating standard parts meaning you can get to market quicker and at lower cost.”

E! 6257 EFIGHTING
A computerised “active punch bag” that gives users instant and accurate feedback on their performance has been developed by the EUREKA network project eFighting. The product has attracted the interest of sports clubs and fitness centres interested in offering tailored training programmes in a cost-effective manner.

Slovenia, Germany
BUDGET  € 560 000

E! 4533 TYPHIVAC
A low-cost process for producing the active ingredients in typhoid and paratyphoid vaccines could put a life-saving joint vaccine within the reach of developing countries.

Portugal, Italy
BUDGET  € 950 000
Eurostars-2 is a joint programme between EUREKA and the European Commission. Specifically dedicated to support R&D-performing SMEs in their innovative R&D projects, it stimulates international collaborative research and innovation projects that will be rapidly commercialised.

2017 is the fourth year of implementation of the Eurostars-2 programme. Two application-submission deadlines for Eurostars-2 (known as ‘Cut-offs’) took place in 2017: Cut-off 7 on 2 March 2017 and Cut-off 8 on 14 September 2017. 816 applications were submitted – the highest number of applications in Eurostars-2 so far, out of which 345 were ranked above the quality threshold and 221 applications were funded (representing a 27% success rate).

Eurostars-2 reached its target group - R&D-performing SMEs and other SMEs, with 4355 being part of consortia applying for Eurostars-2 funding in 8 Cut-offs. The typical project profile is with small consortia (three participants on average), average budgets of €1.3 million and close-to-market projects with a short duration (28 months on average).

The interim evaluation of the Eurostars-2 programme concluded in 2017. As confirmed in the report, Eurostars-2 is well aligned with EU R&I policy objectives. As an Article 185 programme, it provides a long-term financial perspective as incentive for stable programming, contributing to more effective and efficient R&I programme coordination and cooperation across Europe. It benefits all types of participants, and plays an especially important role in fostering the access to public R&D funding by R&D performing SMEs. The central evaluation system, considered well structured, fast, transparent and professional, is a major achievement and has significant structural effects on the quality for R&D programming at national level beyond the currently active Article 185 initiatives.

EUREKA is currently in close dialogue with the European Commission to explore the different opportunities that both partners would best benefit from the follow-up programme ‘Eurostars-3’ and create added value within the next Multiannual Financial Framework post 2020.

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8159 EPILETH

Thanks to the work of British and Spanish partners, a new drug to treat leukemia patients will soon be on the market.

Spain, UK

BUDGET €1.5 M
The 31-month project studied the requirements and specifications for an integrated software toolkit and dashboard for simulating adaptive manufacturing systems – the nerve centre of modern factories today.

Finland, Austria
BUDGET  € 740 000

The Eurostars project Transcoders Of the Future Television (TOFu TV) helped keep its consortium partners at the leading edge of technologies underpinning the next generation of Digital Terrestrial Television (DTT). And for one partner it also opened up a surprising new market on the high seas.

France, Switzerland, Belgium
BUDGET  € 2.3 M
Headquartered in Venlo, the Netherlands, with a Research & Development centre in Gävle, Sweden, Solarus has developed a unique concentrating photovoltaic thermal (C-PVT) collector with a wide range of practical applications. The company’s two-in-one technology has been patented and tested, and potential markets are identified.

“Our technology efficiently produces both heat and electricity from the same area,” explains João Gomes, Research Director at Solarus Sunpower Sweden AB, where the company’s research department is based. “Sunlight is concentrated onto the back of an aluminium receiver. This receiver has solar cells on both sides. Water flows inside the receiver and cools the solar cells. Since, solar cells gain about 5% of efficiency for every 10°C of temperature reduction, this leads to an increase in efficiency.” Additionally, Solarus solar cells are protected by a unique transparent silicone that is part of their patented design.

Scaling Up Solar Energy Innovation

The company now needs to develop automated production systems if it is to reduce the cost of the technology and become truly competitive. This is one of the main objectives of the €2.7 M Solar CPC PVT Production Eurostars project, which runs until September 2019. “We want to put in place standardised, certified processes that cut costs,” says Gomes. “We know that automating this process is essential.”

### PROJECT EXAMPLE

#### 10625 SOLAR CPC PVT PRODUCTION

“Just doing this project has attracted investors”

A Eurostars project is helping Solarus to reduce production costs of their novel solar collector combining solar photovoltaic (PV) electricity generation with solar thermal heat generation. With venture capital rolling in, the company is ready to transform the energy market.

**MAIN PARTNER**
Solarus Sunpower Sweden AB  
www.solarus.com  
E-mail: joao@solarus.com

**OTHER PARTNERS**
Sweden: University Of Gävle  
Portugal: Instituto Superior Técnico  
Netherlands: Blue Engineering B.V  
Cyprus: FOSS, Johnsun Heaters Ltd, TUV Cyprus Ltd

**TOTAL R&D INVESTMENT**
€2.7 M

**DURATION**
October 2016 to October 2019

Lasers have been adopted in a wide variety of manufacturing techniques, but require precision control and consistency. With the help of its German partners, Sweden’s Nyfors Teknologi AB has developed a highly sensitive laser heating, tapering and splicing system which is both robust and versatile.

**Sweden, Germany**

**BUDGET** €1.2 M
Solarus is working with partners from Cyprus, Sweden, Portugal and the Netherlands to achieve this and set the standard for photovoltaic thermal collector production. New machinery has been bought or developed, including for example a silicon dispenser to encapsulate the solar cells, a novel solar tower for accurate measurements and a specially made electroluminescence tester for quality control.

“Quality control is a key component for us,” says Gomes. “New quality control techniques – such as sending an electric current through the cells to detect minuscule cracks – have also been put in place. We also need to ensure that our production facilities are fully compliant with the most stringent regulations. Without this we will not be able to achieve mass sales.”

**Private money coming in**

Involvement in the Eureka Eurostars programme has already had a meaningful impact on the business. “Just the fact that we are doing this project has attracted investors,” says Gomes. “They see that we have gone through a rigorous review process and are willing to put their money in. They have more trust in what we are doing.” Solarus recently finished an investment round of € 6.7 million.

The number of employees has nearly doubled since the start of the project in April 2016 (to around 30) and the company has set ambitious production targets for its recently established factory in the Netherlands. “We hope to produce 15 000 units annually next year and have set a higher target after that,” says Gomes. “Production at this scale is needed in order to compete.”

Getting production costs down is the final piece of the jigsaw for Solarus to become a significant player in cutting edge solar energy technology. In addition to energy-consuming industries that require heat such as food production and metal processing, Solarus is also actively examining possible applications in hospitality. “We were recently approached by a major international hotel chain,” says Gomes. Solar energy and heating for isolated rural communities – especially important for developing countries – is another area that the company is exploring.

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**8510 FRO-ST**

Opioid substitutes are an important tool in helping people overcome a heroin addiction but can be dangerous if misused and are often sold on to the illegal drugs market. The partners developed a device that could provide safer, more secure treatment while freeing up healthcare worker’s time – all from the patient’s fingerprint.

**UK, Finland**

**BUDGET € 910 000**

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**7054 MODAPEP**

A new test developed by the project uses biology and mathematics to diagnose bowel disease and predict whether patients are at risk of serious problems.

**Netherlands, Belgium**

**BUDGET € 1.3 M**
**7360 MILOS**

Eurostars support for a series of ground-breaking projects, led by Piql AS, has helped deliver a future-proof, open optical technology and services for ultra-secure data storage and long-term preservation. Their efforts are catching the world’s attention.

Norway, Switzerland, United Kingdom, Sweden, Germany

**BUDGET € 4.0 M**

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**6 037 HI-MoCo**

This project has tapped into the growing demand for model-driven development solutions in industries where security and reliability are crucial. Now sectors as diverse as car makers and avionics suppliers can take advantage of tools that automatically generate code from models in safety critical environments.

Estonia, France

**BUDGET € 1.2 M**

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**5939 RDT REAG**

The project partners have developed the world’s first rapid test for tick-borne encephalitis (TBE), a life-threatening neurological disease caused by a virus found throughout the Northern Hemisphere. Suitable for small laboratories and doctors’ offices, the test provides a low-cost diagnosis from almost as soon as a patient has been bitten, allowing faster treatment.

Finland, Sweden

**BUDGET € 930 000**

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**Submission and evaluation**

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<th>Cut-off 8</th>
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<td>402</td>
<td>414</td>
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<tr>
<td>Number of applicants</td>
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<tr>
<td>Number of R&amp;D Performing SMEs and SMEs</td>
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<td>914</td>
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<tr>
<td>Percentage of R&amp;D Performing SMEs and SMEs</td>
<td>71%</td>
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<tr>
<td>Total budget (M€)</td>
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**Approval - funded**

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<tbody>
<tr>
<td>Number of applications approved</td>
<td>119</td>
<td>102</td>
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<tr>
<td>Percentage Application approved vs above the threshold</td>
<td>66%</td>
<td>61%</td>
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<tr>
<td>Number of participants</td>
<td>364</td>
<td>311</td>
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<tr>
<td>Percentage of R&amp;D Performing SMEs and SMEs</td>
<td>71%</td>
<td>74%</td>
</tr>
<tr>
<td>Total budget (M€)</td>
<td>178.1</td>
<td>157.3</td>
</tr>
<tr>
<td>Success rate of applicants</td>
<td>30%</td>
<td>25%</td>
</tr>
</tbody>
</table>
An expandable wind tower that could make wind farms more competitive has been successfully demonstrated by a Spanish-Dutch consortium. The innovative technology saves on materials and cuts installation costs.

Spain, Netherlands
BUDGET € 2.0 M

The software platform developed in this project could make tunnels safer and save millions of euros in infrastructure development, making it possible to carry out automated fire-risk assessments in development and optimise designs before costly real-world testing.

Austria, Greece, Spain, Germany
BUDGET € 2.0 M

A simple blood test is being developed that could predict graft-versus-host disease (GvHD) or detect it early, reducing serious transplant complications.

UK, Belgium
BUDGET € 800 000

Ground-breaking research has led to the introduction of Medotominine, a new, sustainable and safe active substance that can be used in paints and coatings to counter the damaging build-up of barnacles, algae and other sea creatures on marine equipment.

Sweden, France, Norway
BUDGET € 1.6 M

The project’s core activity was to model, characterise and ultimately improve the spectral purity of Eblana’s proprietary laser technology. The solution needed to be simple, compact, robust and cheap to produce – a key factor in the competitive network communications sector.

Switzerland, Ireland
BUDGET € 600 000
Initiated and driven by European industry, EUREKA Clusters are strategic initiatives that develop technologies of key importance for European competitiveness. Addressing the needs of large companies and SMEs, they are an engine for industrial innovation and economic growth.

PARTICIPANTS

- Large company: 27%
- Research Organisation: 28%
- SME: 44%
- Other: 2%

IN 2017

- 19 ENDORSED PROJECTS
- €240.8 MILLION PUBLIC-PRIVATE INVESTMENT

COLLABORATION IN FUNDED PROJECTS

- Collaborations Between SMEs: 894
- Collaborations Between Research Organisations: 1120
- Collaborations Between Large companies: 1039
- Collaborations Between SMEs and Research Organisations: 684
- Collaborations Between SMEs and Large companies: 309
- Collaborations Between Research Organisations and Large companies: 332
2017 saw the approval of the EUREKA Cluster Applicant Label to SMART and the approval of its first Call for Projects.

1. **International Industrial Support to the creation of the new Cluster on Advanced Manufacturing**

The industrial initiative to promote SMART reached the support and interest in participating in future projects from 129 organisations in 19 countries: Austria, Belgium, Czech R., Denmark, Finland, France, Germany, Greece, Ireland, Italy, Korea, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Turkey and UK.

2. **Thematic Call for EUREKA Network Projects on Advanced Manufacturing.**

To confirm the interest of industry on collaborative research and innovation on manufacturing technologies 8 countries launched a Thematic Network Call for Projects getting the submission of 7 projects out of which 4 obtained the EUREKA Label and were finally financed. In total 28 organisations from 8 EUREKA countries participated in the call and 18 organisations from 5 different countries were funded, with a total budget of 6 million Euros.

3. **SMART “Eureka Cluster Applicant Label” granted by EUREKA HLG**

On 20 June 2017 the EUREKA High Level Group (HLG) approved the new strategic initiative by granting the “Applicant Label” to SMART project E!11722, with the support of 8 EUREKA Member countries and one Associated.

Consequently in the second semester the “SMART EUREKA Cluster International Association” was registered in Spain with a Board formed by: Airbus Operations, GKN Aerospace, Grupo Antolín Ingeniería, Mondragon Corporation, Royo Group, Turk Otomobil Fabricasi, Svúm, Association IK4 Research Association, Irish Manufacturing Research and Swerea.

The SMART office team is incorporated and the Technical Committee and Evaluation Team approved by the Board.

4. **First SMART Call for Projects approved by the HLG launched on 11 December 2017.**

After obtaining the approval of the EUREKA HLG in its meeting in October 2017, the first SMART Call for projects was opened on 11 December and a Proposers Day was held at the ESE premises on 12 December.
Impact is one of the main ambitions in ITEA; impact on business, on the market, on society. Many ITEA projects have achieved incredible results and most of these successes could not have been achieved without the (financial) support of the national Public Authorities. In return, ITEA is now gathering project impact stories in the ITEA Impact stream; a living publication consisting of 7 main societal challenges and a set of impact stories showcasing the impact highlights of successful ITEA projects. At the end of 2017, 9 impact stories were collected and published online: https://itea3.org/impact-stream.html

The first edition of the Digital Innovation Forum (DIF) was co-organised by ITEA and ARTEMIS Industry Association in Amsterdam on 10-11 May 2017. The event welcomed 434 participants from the global software innovation community and was dedicated to the ‘Digital Transformation’. Programme highlights included inspiring keynotes on Digital Transformation, including Henk van Houten, CTO of Royal Philips and interactive workshops on 4 emerging challenges for industry: Smart Energy, Smart Health, Smart Manufacturing and Smart Mobility. The 2017 ITEA Project Outline Preparation Days were held on 12-13 September in Berlin. This year’s figures reaffirmed the importance of this event: 307 participants from 18 different countries, 74 project ideas uploaded upfront, 65 project idea posters presented, and 65 project idea pitches held. Remarkable features this year were the high participation from Canada and the comeback of the UK.

On 2 November 2017, 31 POs were submitted with a total of 3,711 person-years. From the 21 different countries, Germany had the highest participation, followed by Turkey, Spain and France. On 11 December 2017, 26 projects with a total of 3,333 PY from 19 countries, were invited to submit a Full Project Proposal (FPP).

In 2017, one of the main ITEA improvement priorities was to explore the possibilities to extend the ITEA Programme in new countries. Apart from the collaboration with South Korea, Canada, South Africa and Chile, ITEA is involved in exploring EUREKA’s opportunities for collaboration with global partners such as Japan, Singapore and other South and Central American countries.

**EURIPIDES MM WIN**

A Franco-Finnish consortium developed a new generation of satellite technologies to deliver fast Internet to remote communities. Six publications and two patents* demonstrate the scientific quality of the research performed.

**France, Finland**

**BUDGET** € 4.3 M
End 2017 a total of 19 Celtic-Plus projects are currently running. 4 new projects started, while 5 projects finished successfully. Partners from 20 European countries are active in these projects; in addition there are partners from Canada and South-Korea. There are 17 labelled projects that are ready to start and currently negotiating with the national public authorities to finalise their funding decisions. In 2017 Celtic organized 3 Calls for projects and labelled 11 new projects.

Four Celtic-Plus Proposers Days were held in 2017: in Berlin (hosted at Deutsche Telekom), in Barcelona (it was co-located with the EUREKA Innovation Week), in Helsinki (hosted by Nokia) and in Luxemburg (hosted at the local Chamber of Commerce and supported by Luxinnovation). Together in all 4 Events, a total of 59 project ideas were presented. All of them are available on the Celtic-Plus web site: https://www.celticplus.eu/project-ideas-from-proposers-days/.

In May 2017, the Celtic-Plus Event was organised in Barcelona together with the EUREKA Innovation Week organized by the Spanish EUREKA Chairmanship. The event provided the stage for networking and for demonstrations where prototypes from 14 Celtic-Plus projects were shown. At this event, the Celtic-Plus Excellence awards were given to the projects: H2B2VS, NOTTS and SIGMONA. In addition, two Celtic-Plus projects received the Celtic-Plus Innovation Award: CoMoSeF and SASER. (Read more: https://www.celticplus.eu/event/celtic-plus-event-in-barcelona/)

The Mid Term Event of the important European flagship project SENDATE took place at Orange Labs in Paris, on 21 November 2017. The SENDATE flagship project has a total budget of 72 M€, is composed of 5 sub-projects and involves four countries (Germany, France, Finland and Sweden). There were 170 participants, including high level representatives from industry and public authorities. The participants discussed how SENDATE will contribute to achieve better control of data flows, new security concepts on the internet and more secure data centres in Europe. (Read more: https://www.celticplus.eu/event/sendate-mid-term-event-paris/)

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**CATRENE ULTRAHD4U**

Ultra high-definition broadcasting was made possible through this project, gathering an impressive consortium covering the full supply chain.

Belgium, France, Spain, Turkey

**BUDGET** € 23.0 M

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**EUROGIA+ RENERSTA**

A pioneering concept to provide remote outlying areas with access to reliable renewable energy has led to the creation of a new business and opened up a new market for sustainable energy technology.

France, Germany

**BUDGET** € 6.0 M
The 2017 motto was continuing – and expanding – the EURIPIDES²-EUREKA success story, together with all Board members: exploring new opportunities, pushing integration of electronic and digital systems with the support of the relevant ecosystems in Europe and beyond.

Dr.-Ing. Jochen Langheim was elected as EURIPIDES Chairman. Langheim will continue to serve STMicroelectronics in his current role as Vice President of Advanced Systems R&D Programs, while leading EURIPIDES.

EURIPIDES² has strengthened its relation with Sweden while consolidating the automotive value chain with VOLVO joining the EURIPIDES² community. VOLVO is one of the world’s leading manufacturers of trucks and buses.

EURIPIDES² has reinforced its links with EPoSS, the European product driven platform on Smart Systems Integration: participation to the EPoSS proposer’s days in Brussels and the EPoSS annual forum in Graz. Besides, EPoSS and EURIPIDES² Board members joined forces to successfully highlight Smart Systems Integration into the Strategic Research Agenda on Electronic Components & Systems (ECS) officially presented during the EFECTS conference in December 2017.

In May, the EURIPIDES²-PENTA consortium building event took place in Barcelona during the Innovation week organized by the Spanish EUREKA Chairmanship. 12 companies and research institutes from Canada, Finland, Germany, Portugal, Spain, Sweden, Turkey and South Korea, presented their proposals looking for partners and raised a high number of interests from participants.

In November, a EURIPIDES² info day was organised in Daejeon (South Korea). Dr Hoyoung Hwang (ETRI), member of the EURIPIDES² Board informed participants on how to build up a successful EURIPIDES² proposal. Dr Jiyeon Choi (KIMM) shared her experience with LIFE and UPMOST projects.

UPMOST-EURIPIDES² partners won the prestigious EUREKA award 2017 for their outstanding results in international cooperation, technological novelty, economic success and societal/environmental benefits: Amplitudes Systemes and Alphanov (France) and HPK and KIMM (South Korea).

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EURIPIDES²
the EUREKA Cluster for Smart Electronic Systems

CATRENE NEWPASS
French digital security giant Gemalto led an ambitious European project that developed the most sophisticated electronic passports yet.

Austria, France, Germany, Hungary, Portugal

BUDGET € 22.0 M
PENTA
the EUREKA Cluster on Micro and Nano electronic technologies and applications

The Digital Market is the single most important driver of European economic and societal development and PENTA is specifically designed to enable innovation in this vital area. 2017 saw the launch of PENTA Call 2, along with the start of the first 6 PENTA projects from Call 1.

Guided by the Electronics Components and Systems Strategic Research Agenda, PENTA supports innovation along the Electronics value chain, encouraging developments in micro and nanoelectronics enabled systems and applications. In Calls 1 and 2, there was a special focus on projects in the areas of transportation and mobility, digital manufacturing and digital health, along with the development of essential capabilities such as security, design capability and semiconductor processing equipment.

Call 2 was launched at the European Forum for Electronic Components & Systems (EF ECS), attending by over 500 members of the ECS community. PENTA was also present at the EUREKA Innovation Week in Barcelona.

The first two calls have attracted submissions from organisations in 11 European countries. 40% of the over 400 participants involved in the programme were new to this type of funding programme and over 40% were SME’s, both key targets of the programmes. This activity represents over €360m of project cost, and we were able to provide funding to 40% of the project submissions.

Looking forward, the intent is to expand the number and scope of PENTA projects, ensuring that the programme meets its mission to support trans-national collaboration and innovation in the Digital Economy, where it meets shared industrial and national priorities.

CATRENE OPENES
European competitiveness in the constantly evolving global electronics market has been boosted thanks to new methods and tools that enable greater supply coordination and faster delivery of quality products.

France, Austria, Netherlands

EURIPIDES IDEATA
French electronics group Thales headed a European consortium that worked out how to upgrade airplane satellite communications by developing a more sophisticated set of antennas.

France, Hungary, Spain
BUDGET € 4.4 M
The industry that is linked to Metallurgy respectively the creation of products made of Metal is one of the important pillars of the European economy. The diversity of products and markets that are linked to Metallurgy is nearly endless. In order to be able to compete on a global market, specifically high-end applications in this domain are important for the industry to secure high profile jobs and employment for the benefit of the European society.

Metallurgy Europe is part of the European ecosystem to promote innovative applications in this domain. Currently Metallurgy Europe has opened a call for proposals for new metallic materials and processes with a backup of funding of € 85 million from the different EU member states and associated countries including Switzerland, Canada, Korea and South Africa.

While the scope of the call is open for a wide range of applications, a specific focus is set to support manufacturing approaches linked to Industry 4.0 and ecological challenges including light weight design, green energy application, recycling and zero waste production.

An important highlight of the activity of Metallurgy Europe was the co-organisation of the IV World Material Summit in Strasbourg in the Council of Europe the 18-21 November. The summit was addressing the topic “Materials Innovation for the global circular economy and a sustainable society” including the essential role of new metallic materials and processes in this context.

2017 was a year of success for EUROGIA2020. EUROGIA2020 had two major events and strong involvement of EUREKA Associated Countries in its activities.

EUROGIA2020 together with NRC (National Research Council of Canada) organised Project Outline (PO) Days on March 13 – 14, 2017 in Dusseldorf, Germany. This event took place in junction with Energy Storage Europe 2017 and brought together Canadian and European Energy Storage Industry. NRC carefully selected 10 key energy storage technology companies from Canada to help generate successful energy technology projects.

13 project ideas in the field of energy storage technologies are presented and 35 project development sessions are organised with participation from EUROGIA2020 Board Member Companies Acciona Energy, Air Liquide, Cardtek and ENERJISA.

EUROGIA2020 has organised Project Outline (PO) Day on October 5, 2017 in Istanbul, Turkey. More than ten high level speakers addressed this event, including the Turkish vice minister of Science, Industry and Technology, Mr Hasan Ali Celik; the Chairman of EUREKA, Mr Uusi-Honko; the rector of Istanbul Technical University (ITU), Prof. Dr. Mehmet Karaca. The event had over 200 participants and more than 70 consortium building - B2B sessions were held following the conference.

EUROGIA2020 Board grows stronger with the accession of new members. Green Power Labs, a leading global predictive analytics company specializing in green and renewable energy, joined the board on October 6, 2017. Green Power Labs is a project partner of EUROGIA2020 project “EnergyShared” developing a predictive ICT platform to address intermittency issue, improve customer engagement and to increase the installed PV capacity globally.

10 Project Outlines were received in the course of 2017 and 2 FPPs were labelled. Canada is actively involved in EUROGIA2020 calls and follows the good example of South Africa in terms of project generation.
The use of the Internet of Things (IoT) and Smart City concepts have grown across Europe and globally recently. From a technical standpoint Smart Cities rely on the evolution of wireless sensor networks, but the scale of the deployment required means that new ways of managing and protecting these networks are required. In particular differences in system performance have been noted between experimental deployments and large-scale real world situations.

The Technology Improvements for Large Scale Smart Cities Deployments (TILAS) project used real city environments (Santander in Spain and Seoul in South Korea) as IoT test-beds in combination with laboratory trials in Paris and Grenoble, France.

"Initial IoT experimental deployments revealed significant missing components which are critical when facing massive IoT deployments," says Aránzazu Sanz, Chief Operating Officer of project co-ordinator TST. "The TILAS consortium designed innovative solutions to address these challenges."

Smart applications

All the solutions designed in TILAS have been deployed on top of large scale testbeds already running in several cities and laboratories. A vehicle traffic pattern monitoring platform based on nitrogen dioxide (NO2) and ozone (O3) sensors was deployed in Santander. This platform was tested on top of several devices integrated with the large scale IoT platform running in the city.

In Seoul real-time data monitoring for a water management system was implemented, which included TILAS components on cloud-based services. The laboratory trials ranged from image/video surveillance systems with advanced security features demonstrated in Paris to a security framework assessed in the city of Grenoble linked to an environmental monitoring application.

"The cities that participated in TILAS, and several others, have already shown additional interest in exploiting further urban services that will optimise current performance," says Aránzazu. "Some of the results from the project can be directly implemented in the market, while others will require further adjustments to be ready for commercialisation."

Optimum network deployment and operation

Pursuing an optimum, energy and cost-efficient network operation for large scale IoT deployments, TILAS partners developed robust multi-hop over the air programming (MOTAP) techniques that solved previous power consumption issues.

Customised housing embedding antennas were developed to overcome visual impact problems making network deployment more acceptable to citizens.

A security framework was defined and the project also proposed novel hardware and software architecture for IoT devices able to cope with interoperability and modularity issues.

TILAS also proposed the design of a middleware solution able to feed collected information to applications running in the cloud, providing access from devices based on different technologies. These cloud-based services (IaaS and SaaS) enabled the project to efficiently exploit large amount of data.

"The Internet of Things is becoming a mature technology that is playing a key role in the urban context," Aránzazu concludes. "By 2050 more than 70% of the world population will be concentrated in urban areas, so city authorities are analysing how to address the new demands this will bring, while guaranteeing a high quality of life. The IoT must play a core role in enabling this and TILAS has provided a range of practical tools that will enable sustainable and efficient Smart Cities IoT deployments."
Umbrellas bring together national players in order to generate transnational EUREKA projects. Umbrellas promote thematic networking adding to EUREKA’s visibility in these particular technological areas.

EUREKATOURISM+ has participated in several EUREKA meetings as the NPC in Seville in March and the EUREKA Innovation week on May. In both meetings, the umbrella enlarged its influence and contact with different Tourism stakeholders.

The EUREKATOURISM+ VP Carlos Juiz also presented the results of the umbrella in Barcelona at NPC3 meeting in June. The Umbrella has also participated in the ‘Grow your region’ event from Watify (Valence). EUREKATOURISM+ also organized two ‘Knowing for Growing’ events in Palma: the first one in September was about the economics behind the clusterisation of enterprises and the one in November about the opportunities for Tourism and Information Technology through Blockchain development.

The EUROAGRI FoodChain_2 continued its activity during 2017 bringing a new EUREKA project - E111231 - and promoting its activity in international events related with the agrifood sector. In those events a special participation was achieved in Barcelona, with a stand in the EUREKA Innovation Week and the participation with 2 posters (projects) in the Agri Innovation Summit 2017, having in the audience 2 commissioners (Agriculture and Rural Development and Research, Science and Innovation) as well as the Portuguese Minister for Agriculture affairs.

The Portuguese Chair of the EUROAGRI promoted one umbrella meeting in Lisbon (October), where a new approach to Turfgrass and related Environmental Research was discussed. New members were considered as important future participants in the umbrella activities. Following the meeting conclusions, EUROAGRI participated in an event promoted by YARA related with environmental management of new technologies in crops fertilization.
The E!nnoVest programme boosts the investment awareness and investment and business readiness amongst innovative SMEs and promotes the most promising of them towards the investment community facilitating investment matching with international investors.

In 2017 the EUREKA Network continued to support these concrete actions to facilitate the successful transition of EUREKA projects to the ‘go-to-market’ phase. The third edition of the programme was set up by the EUREKA Secretariat and the Spanish Chair in collaboration with EBAN, EBN and Europe Unlimited.

In 2017, more than 250 companies benefited from the programme’s online and onsite activities (webinars, coaching academies, one-2-one mentoring, venture forums). The best 30 companies were invited to participate in the E!nnoVest Venture Forum in Barcelona and pitch in front of 46 investors. As a result, a total of 11 companies are in discussions with prospective investors.

In the past years, a lot of efforts were put by EUREKA, the European Commission (EC), Member State governments and others, in trying to increase the investment readiness of SMEs. In 2018, EUREKA will continue the strategic dialogue with the EC in order to support the further development of the E!nnoVest programme, identify synergies with similar initiatives (e.g. the EC’s InvestHorizon programme) and avoid duplications for better efficiency and visibility of publicly funded investment readiness programmes. By pooling resources and expertise and creating critical-mass, it is hoped that the exploitation of best practice through this potential collaboration will result in greater success than either party could achieve alone.

E!nnoVest Academies show how we can accelerate the growth and added value of start-ups.

Niko SLAVNIC
MBA Professor, Serial Entrepreneur, Angel Investor

E!nnoVest is probably the most successful program ever designed in Europe to match innovative entrepreneurs with investors. It is time to scale it up!

Paulo ANDREZ
DNA Cascais – Poland, Angel Investor
During the E!nnoVest Academy in Lisbon we completely revisited our presentation. With our coach, we introduced a way more lively dimension and finally achieved the desired WOW effect.

Jean-Luc AFFATICATI
DigitArena – Switzerland

I received great feedback to my pitch presentation, and the 1-2-1 coaching not only helped improve my presentation, but also helped shape my company vision and the storytelling around it.

Michael HOHMUTH
Kernkonzept – Germany

“When we founded our company in 2008 Iceland’s economy was on the brink of collapse and it was very tough to survive the first four crisis years”, says Videntifier CEO Herwig Lejsek. “However with the help of family and friends, Reykjavík University and our first customer, the Reykjavík Metropolitan Police, we brought the company to the next stage.”

In 2011 Videntifier started its first Eurostars project (E16697 FIIA) together with UK company Forensic Pathways and the French research institute IRISA. At roughly the same time they managed to raise $300 000 of seed investment and a year later - via an E!nnovest investment forum - another investment by Dutch angel investor Jan Dunnink. “The real breakthrough was though when Videntifier was selected as the technology provider for Interpol’s Child Sexual Exploitation (ICSE) database at Interpol in June 2012,” says Lejsek.

Since then Videntifier’s business has been constantly growing and finally reached profitability in early 2016. As of today Videntifier has been deployed to many major law enforcement organisations throughout the world, e.g the US National Center of Missing and Exploited Children, the US Department of Homeland Security, the Swedish National Police, EUROPOL, the UK Home Office, the Korean National Police and the Indian Home Office.

The technology

Videntifier’s technology combines high-end computer vision techniques with blazingly fast database search. It allows digital investigators in law enforcement to automatically compare large amount of visual content in a fraction of a time it would take a human, and thus

PROJECT EXAMPLE
VIDENTIFIER TECHNOLOGIES

Revolution in forensic video investigation

Videntifier Technologies is an Icelandic company whose technology helps international police forces investigating child abuse and terrorist cases. Here’s the story of the company’s growth – and how participating in Eurostars and E!nnoVest helped.

COUNTRIES
France, United Kingdom, Iceland

TOTAL R&D INVESTMENT
€ 1.2 M

DURATION
31 months

“...”
quickly identifies visual evidence relevant for the investigation. Videntifier focuses on two use cases in particular: (i) the identification of victims, perpetrators and the location of a crime and (ii) supporting the triage process when scanning seized storage devices for illegal content.

At the core of the Videntifier video and image identification system is a very large database of visual fingerprints extracted from the content of interest. What content is of interest depends on the individual use case and the application domain, but typically the numbers range somewhere between 10 and 100 million images, plus a few million video files. For law enforcement purposes the content of interest usually contains collections of known and verified illegal material, the so-called black-list dataset, but also collections for criminal investigation or irrelevant material - the so-called white-list dataset - typically consisting of commercially produced movies and TV show content.

A visual fingerprint is a representation of a single point within an image or video frame capturing mathematical characteristics related to contrast and shape. A set of these fingerprints capture the coarse shapes of the structures inside an image. The fingerprints are organized in a database index which can provide very fast visual comparison, even if the scanned video has been distorted or compressed or if the colours and contrasts have been changed. The system is also very good in identifying similar backgrounds and identical locations and can also find malicious content which a suspect has tried to hide within another video.

**New applications, new markets**

Following a $2 M Series A investment in 2013/14 Videntifier has been expanding its business focus even beyond the law enforcement domain. The new spin-off idea is focusing on copyright protection and content monetisation in particular. Yet again, Videntifier found SME partners and got funding through the Eurostars programme. It currently leads a new project (E!10317 EVALA) together with two Bulgarian companies, Semantic Interactive and Ontotext, with the goal of developing a platform for automatic monitoring valuable content assets (videos, images, but also textual works) on the internet.

The platform will provide intelligence on the distribution, the access, the public opinion and the market success of such assets. Just recently the consortium on-boarded SkyUnion Media Technology Co Ltd., a Chinese SME, focusing on copyright protection and monetisation of digital assets within the People's Republic of China. With inviting SkyUnion into the Eurostars consortium the project not only benefits from a committed testing and evaluation partner, but also provides access to additional funding for the European parties and an entry to the huge but inherently complex Chinese market.

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**ElnnoVest has been very effective for enabling contacts with different VCs we met during the Academies.**

Oscar CHABRERA
Vilynx – Spain

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The feedback I got [at the ElnnoVest Academy in Copenhagen] not only improved my presentations, but also made us think about the way we look at our business; the focus we have on our product and the way we should look at our competitors.

Christian VIEIDER
Ascatron – Sweden
INVESTIGATING
EUREKA’S IMPACT

EUREKA has been very active in impact assessment in the last year, two major reports using different methodologies have investigated the impact of EUREKA Network Projects, Eurostars and Clusters on participating SMEs and Research Organisations in particular.¹

Key findings are that EUREKA participation helps firms to grow, with significant impacts on employment and turnover, accelerate the launch of innovative products and services, develop valuable IPR portfolios, become more competitive by developing human capital, launch new and strengthen existing international collaborations in R&D and achieve international recognition, in particular towards investors.

EUREKA also helps Research Organisations to launch new networks with SMEs and large companies and strengthen existing ones by cooperating on close-to-market projects with SMEs and large companies.

Participating SMEs particularly appreciate the low bureaucracy and flexibility of EUREKA administration.

Reports also looked into ways EUREKA services can be improved, and found a number of areas where EUREKA can help participants get more out of their participation, such as further synchronising and accelerating funding decisions, improved monitoring during project, post-project support services in particular access to follow-on funding and mentoring, and improve synergies with complementary funding mechanisms like the SME Instrument or ESIF.

The reports will feed into the reflection within the EUREKA network on future programme development and cooperation with the Commission, particularly for the post 2020 period.

Upon initiative of the Spanish Chairmanship, the EUREKA Secretariat has also started to work on a set of performance indicators which will enable EUREKA governing bodies to set up support measures as well as the use of best practices for the benefit of low-performance countries.

¹ Impact Assessment of EUREKA Network Projects and Cluster projects and Eurostars ex-post Impact Assessment
of Eurostars SMEs reported an increase in turnover

60%

of Eurostars SMEs leading a project reported that Eurostars helped them commercialise a product or service

87.5%

increase in turnover for participants in EUREKA Network Projects after one year, compared to a control group

15%

of Eurostars SMEs claim to have had an increase in employment since the project’s end

65%

of participants expect to enter new markets as an effect of participation in EUREKA Network Projects

69%
The main annual EUREKA promotion event, the Open EUREKA Innovation Week, was hosted by the Spanish chair in the International Convention Center in Barcelona from 15 to 19 May 2017.

More than 1100 participants from 41 different countries attended the plenary sessions, workshops, B2B matching activities carried out by EEN, key note speeches, pitches and exhibition area. After Spain, the most represented countries were South Korea (129), Turkey (76), Chile (51) and France (49). Around 50% of participants came from industry (25% from SMEs) and 17% from research organisations.

The Innovation Award 2017 was organised by the Spanish Chair in collaboration with the EUREKA Secretariat and the support of national project coordinators from Sweden, Spain and Finland (the EUREKA “Troika”). The projects were invited to the Innovation Week and took part in a contest for the best project pitch.

The projects were chosen due to outstanding results in international cooperation, technological novelty, economic success and societal/environmental benefits. A winning project was selected for each of the three categories ‘Competitiveness’, ‘Added Value’ and ‘Innovators of tomorrow’.

**Competitiveness**
For projects where more than one partner has substantially improved their position vis-à-vis their direct competitors with the help of a EUREKA project.

**Winner**
ITEA 10030 ADAX

**Added value**
For projects, where more than one partner has yielded substantial growth in productivity, turnover and increase in the number of employees from the exploitation of the results of a EUREKA project.

**Winner**
EURIPIDES² 12-1310 upmost

**Innovators of tomorrow**
For projects which have successfully implemented a promising new and disruptive technology or concept with a clear economic, societal and environmental impact compared to existing solutions.

**Winner**
E!5999 AR-TEX

E!5999 AR-TEX also won the contest for the best project pitch during the event.
The key to handling cyberattacks is to detect, analyse and react quickly,” emphasises Adrien Bécue of Airbus DS Cybersecurity. “But this is a fast-moving field: the systems you put in place last year may not even detect the attacks you’ll get tomorrow. Cyberdefences need to constantly evolve.”

Constant evolution was therefore the defining characteristic of the EUREKA ITEA 2 Cluster project Attack Detection And Countermeasures Simulation (ADAX), which won the 2017 EUREKA innovation award. Involving 8 companies and research institutes from France and Turkey, it began in early 2013 with a focus on defending organisations against Distributed Denial of Service (DDoS) attacks.

At that time, the banking sector was still reeling from a large DDoS on global payment systems by the “Anonymous” hacktivist group. By mid-project, however, the focus had changed to an emerging class of Advanced Persistent Threats (APTs). “We discovered an APT called “Pitty Tiger” on the IT network of one of our customers,” Bécue recalls. “It got there via a phishing e-mail containing a corrupted Word document, which placed software on their server capable of sending confidential information to the hackers.”

Pivot to meet the threat

With threats getting more and more sophisticated, the consortium pivoted. Bécue credits this emphasis on end-user needs to the inclusion of Yapi Kredi Bank as end user and pilot owner within the consortium. This helped resist “the dreadful temptation to do engineering for engineers. We started out focused on shortening reaction times, but our banking partners’ direct involvement in the project made us realise that we needed to help optimise their response, not just shorten it.”

The partners therefore developed and integrated advanced decision support tools, enabled by attack and countermeasure simulation capabilities, to optimise “Return-On-Response-Investment” (RORI), a new metric for cost/benefit analyses of the many countermeasures that could be implemented in response to any attack.

By proposing optimised response plans, backed up by quantified metrics, they showed business owners could cut resolution times from 3 hours to 90 minutes based on a defined attack scenario.

New products, clients and patents

An array of technological and commercial results followed. The academic partners produced no less than 30 articles, 7 theses, 2 patents and 2 conference events, for example, with Institut Mines-Télécom (France) patenting their RORI assessment mechanism.

By early 2017, the commercial partners have already launched new products and registered at least 12 new customer contracts. In France, for example, Airbus DS Cybersecurity added dedicated modules to their Cymerius® security supervision software and registered new sales in the financial, military, retail, space and oil/gas sectors, while SME 6Cure delivered its remote countermeasure enforcement tool to protect a European champion in telecom services.

The picture is similar for the Turkish SMEs in the project: PlusOneMinusOne won major new contracts with telecom and transaction companies for their hybrid attack detection system, while Provus sold its dynamic knowledge and model acquisition tool to Mastercard. Yapi Kredi Bank, finally, implemented the full ADAX system on its IT network in Turkey, supporting 5000 users.
AMOLED (active matrix organic light emitting diode) is a display technology increasingly used in smartphones, televisions and other electronic devices because it offers sharper image quality, brightness and contrast. Until recently however, industrial manufacturing processes have not been able to keep up with demand and deliver high-margin yields.

In order to address this, the UPMOST project, supported by the EUREKA cluster EURIPIDES², set about refining and testing ultrafast laser technology with the intention of delivering cost-effective higher yields in AMOLED manufacturing.

Laser breakthrough

The key benefit of ultrafast lasers is that they are capable of cutting multi-layered organic-metal thin films on panels without damaging them. “Within the AMOLED display are lots of polymer layers,” explains UPMOST project coordinator Eric Mottay from Amplitude Systemes, France. “From a technical point of view, it is very difficult to process these layers, as they are very sensitive to heat.”

What the UPMOST laser does is to use extremely short pulse durations – a millionth of a billionth of a second – so that processing and repair work can be completed long before any heat is generated and transferred to the polymer. Up until the early 2000s, this laser technology was mostly dedicated to research and was not on the radar of any manufacturing companies.

“We have been able to tap into a general trend here,” says Mottay. “Demand for high precision processing that produces no heat can be seen everywhere, from semi-conductors to automotive and medical device manufacturing. But there are not that many technologies that can fulfil this requirement, so this project has come along at the right time for us. The technology is there; the challenge has always been scaling up.”

A world of opportunity

Mottay notes that this laser technology is increasingly accepted by many major industries and is now mature enough to achieve significant market penetration. The technology is also young enough to still offer significant potential in burgeoning high tech sectors such as personal electronics. Full-HD AMOLED displays are now used in most high-end mobile displays, and this trend will most likely continue given that Apple decided to use AMOLED for its iPhone 8 series. This could not be achieved without ultrafast laser pixel processing, which offers higher yields.

“Our lasers are now being used on the factory floor in Asia,” says Mottay. “We have just signed a strategic partnership with Samsung, and have opened up a subsidiary in Korea to help us develop this market.” Project partners Amplitude and Korean machine manufacturer HPK have since expanded their operations and doubled their workforces compared to 2012.

“For us, projects like UPMOST allow us to work with companies and institutes that are complementary across value chain,” says Mottay. “It’s a bit like a car; we might be the engine, but without the other parts, we can’t go anywhere.” Amplitude and HPK were also joined by research institutes and companies in France and Belgium.

Indeed, the strength of the EUREKA cluster EURIPIDES² is that it gathers together SMEs and research institutes to drive forward innovative, industry-driven, pre-competitive R&D projects for Smart Electronic Systems.

UPMOST is the winner of the 2017 EUREKA Innovation Award for projects making significant headway developing an innovative product, service or process.

The project received funding from the Korea Institute for Advancement of Technology (KIAT) and The French Ministry of Industry (DGE).
Every year, over a million patients undergo surgery to repair herniated discs in the lower lumbar. This is a painful, costly and sometimes risky process which is made worse for the 10% of patients who need a second operation when the first fails, costing European health systems an additional €450 million a year.

The search for a better way to prevent re-herniation drew the attention of AR-TEX partners NEOS Surgery and CALVO Izquierdo in Spain and the German Institutes of Textile and Fiber Research Denkendorf.

Herniation is usually the result of a rupture between the vertebrae causing soft material inside the disc to leak out and press on surrounding nerves (i.e. a ‘pinched nerve’) in the spine. This irritation is typically felt as severe ‘nerve-root’ pain, and can radiate down the leg (sciatica) and through the neck and arms.

Surgeons face a tough decision with every herniation repair. Do they remove more of the damaged disc to reduce re-herniation risk but increase the potential for long-term complications and back pain, or proceed less aggressively first-time round and hope for success. Something in between is needed to remove herniation but maintain the spine’s structural integrity.

**Disruptive technology, literally**

The AR-TEX project created a disruptive implant, called Annulus Repair (AR), which acts as a soft buffer between the injured area and the sensitive nerves nearby.

“AR taps into an unmet clinical need in hernia management,” says Ana Rodriguez of NEOS Surgery, lead partner in AR-TEX. The device they developed with Eurostars support not only helps with the painful symptoms but gradually works to repair inter-vertebral disc after surgery. And it has a 100% success rate in pre-clinical testing.

The challenge was to design a barrier strong enough to stop disc re-herniation but also flexible enough to stretch and compress with the natural movements of the spine. The collaboration between the three partners was critical here.

“Together, we were able to combine shape-memory materials and novel textile designs to create a device that can be inserted in the same opening required for current surgical intervention, so it’s minimally invasive,” explains Rodriguez.

The new polymer fabric being used was developed by AR-TEX’s German partner with technical and commercial support from the Spanish partners.

AR-TEX’s primary goal is to stop re-herniation, reduce surgeries and restore patients’ quality-of-life, but the team is also conscious of the cost-savings and relieving the burden on surgeons and health-care systems.

Experts predict annual growth of 4.6% in the global medical devices market over the coming five years, reaching around $343 billion (€325 billion) by 2021. There is only one comparable product on the market currently being sold by a US start-up. The patent-protected AR is a first in Europe and is scheduled for launch in 2019.

“A big project like AR-TEX would have been too risky for an SME like NEOS Surgery to develop alone. Eurostars funding offered some security and helped us find the best partners to deliver it,” concludes Rodriguez.

AR-TEX is the winner of the 2017 EUREKA Innovation Award for projects making significant headway developing an innovative product, service or process.

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Germany - German Institutes of Textile and Fiber Research Denkendorf

**TOTAL R&D INVESTMENT**
€ 1.0 M

**DURATION**
January 2011 to August 2014