



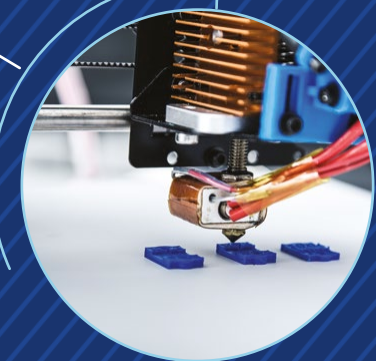
European
Commission



DUAL USE

Technology in the EU

HELPING SMEs BRING
INNOVATION TO MARKET





Luxembourg: Publications Office of the European Union, 2017

© European Union, 2017

Reuse is authorised provided the source is acknowledged. The reuse policy of European Commission documents is regulated by Decision 2011/833/EU (OJ L 330, 14.12.2011, p. 39).

Cover (two left pictures): © AP/Isopix

Print

ISBN 978-92-79-71756-7

doi:10.2873/519662

ET-02-17-913-EN-D

PDF

ISBN 978-92-79-71758-1

doi:10.2873/14116

ET-02-17-913-EN-N

CONTENTS

Identifying opportunities and addressing challenges	2
European Funding: Support for SMEs at every step	3
1. Horizon 2020: Making innovative ideas commercially viable	4
Case study: Sky-Watch, Denmark	5
2. ESIF – European Structural and Investment Funds: Tailored support for SMEs	8
Case study: A. Silva Matos Metalomecânica, Portugal	9
3. COSME: Facilitating market access for SMEs	12
Enterprise Europe Network: introducing dual use businesses to the global marketplace	13
Case study: Signo Motus, Italy	15



IDENTIFYING OPPORTUNITIES AND ADDRESSING CHALLENGES

Many products and technologies that we take for granted everyday – airbags, microwaves, GPS and the internet to name but a few – were initially conceived as defence sector research projects. These days this trend is reversing, with untapped defence-related opportunities emerging for businesses involved in civilian-specific technologies such as sensors and mapping tools.

At the front line of these dual use developments are Europe's small and medium enterprises (SMEs), providing high value-added jobs in sectors ranging from energy and aerospace to telecommunications and navigation. Turning ideas into business opportunities can be a challenge though; time and resources are often in short supply and entering foreign markets can be complicated.

Fortunately help is at hand. The European Commission has made support for Europe's defence sector a top priority. Ensuring the highest possible level of security for Europe's citizens is a responsibility it shares with all Member States. As part of this the European Commission fully recognises that defence-related SMEs are key enablers of growth, and provides a range of support and funding mechanisms. A key focus is on nurturing innovation. SMEs can receive funding to develop brand new technology and plug themselves into international networks. Other types of funding aim to bolster regional competitiveness and help businesses to migrate innovative technology from one sector to another. SMEs can become valuable players in strategic high tech clusters.

This brochure outlines the key EU funding opportunities available to dual use SMEs, explains how this funding works and provides some eye-catching examples of how the EU has helped dual use SMEs fully capitalise on their potential.

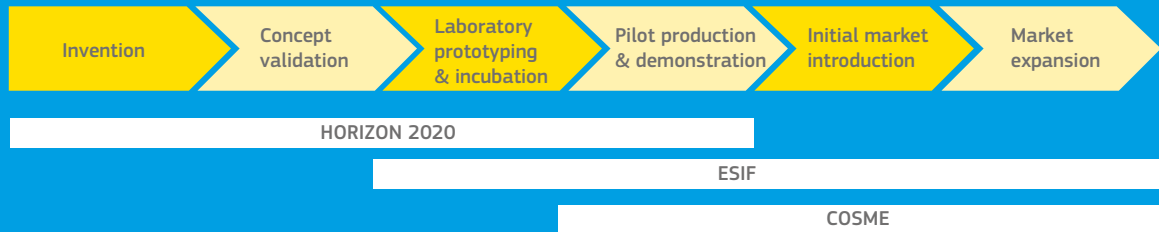


'Working on defence contracts gives us steady customers, references and a track record that we can then use on the commercial market. The commercial market gives us volume, and moves faster than defence. Dual use is about achieving a good balance over the long term.'

Michael Messerschmidt,
Chief Business Development Officer,
Sky-Watch

EUROPEAN FUNDING: SUPPORT FOR SMEs AT EVERY STEP

EU funding programmes have been designed to provide business support to help bring dual use innovations to market, from an idea's conception right through to commercialisation. Each instrument has specific aims and objectives. Identifying which one best fits your needs is therefore critical.



To help get innovations and ideas off the ground, SMEs can apply for project funding through [Horizon 2020](#) as part of a pan-European consortium, or individually through its [SME Instrument](#). Dual use projects seeking funding must demonstrate their value to civil society. [European Structural and Investment Funds \(ESIF\)](#) can then be used to help SMEs prepare the ground for commercialisation by supporting technology transfer, market intelligence, proof of concept, prototyping and training. A key focus here is on regional competitiveness. To help SMEs penetrate markets, the [COSME programme](#) provides them with access to finance and the opportunity to form high tech clusters and cross-border partnerships. To this end, COSME also funds [Enterprise Europe Network](#).

Each of these funding programmes is designed to complement the other in order to increase resource efficiency and avoid duplication. This brochure will explore these instruments and show how they can be used to fund dual use projects.

‘A competitive and efficient European defence and technological industrial base requires a shift from the existing short-term focus on national industrial capacities and markets to a longer-term vision. This includes more investment in research and innovation.’

[Elżbieta Bieńkowska](#),
Commissioner for Internal Market, Industry,
Entrepreneurship and SMEs



HORIZON 2020

MAKING INNOVATIVE IDEAS COMMERCIALY VIABLE

Horizon 2020, the EU's EUR 80 billion flagship research programme, is about driving economic growth and creating jobs by nurturing innovations with market potential. Funding opportunities are set out in multiannual work programmes, which are divided into thematic sections. SMEs can participate by joining a consortium that responds to a specific call for proposals, or individually through the SME Instrument.

While Horizon 2020 projects focus exclusively on civil applications, there are opportunities for dual use innovations. Promising funding topics include Industrial Technologies, Secure Societies and ICT for civil applications that can be adapted to defence applications.

The dedicated EUR 3 billion [SME Instrument](#) offers tailored business support for activities such as demonstration, testing, prototyping and scaling-up. This means that SMEs can submit a proposal without having to be part of a consortium. By the end of Horizon 2020, the SME Instrument will have supported some 7500 SMEs to get their innovations delivered onto the market.

'The SME Instrument enabled us to explore new market opportunities and led to an expansion of company know how.'

Dr Sandro Scattareggia Marchese,
Managing Director,
Signo Motus



How to apply

Check the [Participant Portal](#) for Calls for Proposals and analyse the multiannual work programme to assess your eligibility. [National contact points](#) are there to provide personalised support. Participation in Horizon 2020 calls can also be boosted through support schemes put in place by regional authorities.

Questions about what dual use means in Horizon 2020?

Read the Commission's [Guidance Note](#) on research involving dual use items.

CASE STUDY

SKY-WATCH

DENMARK



DUAL USE – A VIABLE BUSINESS PATH

Dual use is a critical component of Danish firm Sky-Watch's business strategy. A pioneer in unmanned vehicles and drones, the firm began seven years ago by providing technology for non-governmental organisation minesweeping operations. 'A key challenge we encountered was that there was not enough demand in this sector for our high-end technology,' explains Michael Messerschmidt, Sky-Watch's Chief Business Development Officer. 'Looking into the defence market for drones was therefore a natural step. Often, the exact same technology is needed for military and disaster relief applications, where there is no infrastructure or logistical support.'

The company has since continued to pursue opportunities in both sectors, providing disaster relief technology and working with the United Nations. 'There are obvious dual use applications when it comes to peacekeeping, refugee management and defence.' In this way, dual use creates continuous cross-fertilisation between civilian and defence objectives.

'Dual use is a critical component of our business strategy.'

Michael Messerschmidt,
Chief Business Development Officer,
Sky-Watch



EXPLORING NEW FUNDING OPPORTUNITIES

A couple of years ago Sky-Watch acquired a fixed wing company, which enabled the firm to develop new mapping applications that again have dual use applications. 'Our mapping drone is intended for surveying, but what happened was that defence customers were looking to buy exactly the same technology.' This indirectly led to an opportunity to participate in the Horizon 2020-funded AGILE project. A key focus of AGILE has been integrating 'internet of things' technology with unmanned aerial vehicles. 'This is about moving beyond the internet, with sensors in environments like jungles that can connect and linkup with other devices,' explains Messerschmidt. 'You send over a drone, which picks up the data. Again, this is a dual use technology.'

AGILE provided Sky-Watch with the opportunity – and funding – to trial this new technology, without the need to search for commercial investors who tend to be risk-averse. Being part of a consortium also put Sky-Watch in contact with major companies, providing credibility, knowledge and opportunities for further collaborative efforts.

'Participation in Horizon 2020 gave us access to new technology and meant that we could provide consortium partners with something they did not have. This means we can sit down with major dual use companies like Lockheed Martin, Airbus and Boeing and feel proud of what we do.'

'Participation in Horizon 2020 gave us access to new technology and meant that we could provide consortium partners with something they did not have.'

Michael Messerschmidt,
Chief Business Development Officer,
Sky-Watch



Focus on research

Sky-Watch is able to focus on promising research, and take full advantage of funding opportunities, through Sky-Watch Labs, a business unit dedicated to R&D. 'It's all about focus. Sky-Watch Labs participates in a number of events which are not about sales, but rather networking with knowledge institutions and other technology companies. Sky-Watch Labs has enabled Sky-Watch to build up extensive contacts, which helped us to secure the current AGILE project and be part of consortia on other upcoming projects.'

A KICK-START FOR INNOVATIVE TECHNOLOGIES

One of the strengths of Horizon 2020 is that it enables SMEs to develop technology that might be six years away from commercialisation. 'Some concepts that we come up with are extremely futuristic. What an SME like us needs to do is find good end use cases in both civil and defence sectors at an early stage to show the potential of our technology. We can then build on this and take part in EU funding calls that might involve transportation, agriculture, the environment, because we have shown that our drone technology can be applied in a range of contexts.'

In AGILE, potential new end uses have emerged. 'These case studies are not about convincing end users to buy your product, but rather demonstrating the applicability of the technology. Once the technology is ready, then you develop the market and find customers.'

'What an SME like us needs to do is find good end use cases in both civil and defence sectors at an early stage to show the potential of our technology.'

Michael Messerschmidt,
Chief Business Development Officer,
Sky-Watch



2 ESIF

EUROPEAN STRUCTURAL AND INVESTMENT FUNDS: TAILORED SUPPORT FOR SMEs

Effectively targeted funding and investment is the key ingredient in transforming roadmaps and strategies into meaningful results. This is where European Structural and Investment Funds (ESIF) play a crucial role, most specifically the European Regional Development Fund (ERDF). Some EUR 57 billion – or around 20% – of ERDF funding is dedicated to small businesses.

Unlike Horizon 2020, these funds are managed and implemented at the national and regional level, in partnership with the European Commission. Regions develop smart specialisation strategies prior to receiving ESIF funding, which is then channelled through tailored investment programmes. This ensures that local and regional needs are fully taken into account.

ESIF can help dual use SMEs diversify into new sectors and migrate innovations from one sector to another. Dual use applications, such as smart materials for use in aircraft wings, robotics for search and rescue missions, and sensors for intruder detection have clear dual use potential, but often need support to identify and reach new technology markets. EU funding can provide that final push for close-to-market innovations.

ESIF can help dual use SMEs diversify into new sectors and migrate innovations from one sector to another.

How to apply

***Interested in applying for structural funding?** Contact the relevant Managing Authority in your country to find out about calls for proposals, eligibility and funding conditions. Managing Authorities – usually a national, regional or local public authority or public/private body – are appointed by Member States for each operational programme. These are the reference points for region-specific up-to-date information on how exactly to apply for funding in your region.*

CASE STUDY

A. SILVA MATOS METALOMECÂNICA

PORTUGAL

POOLING REGIONAL EXPERTISE

Portuguese technology firm A. Silva Matos Metalomecânica coordinated the recent TURTLE project, an example of how structural funding can push close-to-market technology forward, strengthen regional competitiveness and open up potential new opportunities. This brought the company together with the Portuguese Centre for Naval research, the Institute for Systems and Computer Engineering, Technology and Science (INESC TEC) and the School of Engineering in Porto (ISEP) in order to develop and test underwater robotic technology.

‘A key challenge during the project was bringing the two sectors – civil and defence – together,’ explains Claudia Matos Pinheiro, Silva Matos President. ‘We achieved this by involving partners from both communities who had experience of carrying out tests in both civil and military environments.’



Innovative underwater technology

The TURTLE project involved the development of a robotic underwater lander capable of staying at the bottom of deep oceans for long periods of time, autonomously relocating itself and surfacing for maintenance operations. The system can dive and ascend with a high degree of efficiency, helping to reduce operational costs and increase flexibility. The vehicle has a range of civil and defence end uses ranging from monitoring the environmental state of the seabed, mineral exploration, harbour protection and de-mining activities.



‘We involved partners from both communities who had experience of carrying out tests in both civil and military environments.’

Claudia Matos Pinheiro,
President,
A. Silva Matos Metalomecânica



ACCESSING STRUCTURAL FUNDS

The TURTLE project was supported with EUR 770 000 of funding under the ERDF's Thematic Factors of Competitiveness Operational Programme. The programme specifically promotes innovation and technological development while stimulating entrepreneurship.

'The key piece of advice I would give would be to pay attention and ensure that you are informed about possible funding opportunities,' says Maria José Carvalho da Silva, the company's Financial

Key contacts

*Application procedures can vary according to countries and even from one region to another within the same country. Contact your **Managing Authority**, not only to know the priorities set in the operational programmes but also to be aware of open calls and application procedures.*

Manager. 'If an SME has a strong idea or regional activity that could improve the future of the company going forward then EU structural funding can help. We have not found EU funding difficult to access.'

To identify funding opportunities like TURTLE, the SME works with an external consultant who helps them prepare investment projects, identify funding possibilities and submit applications.

STRENGTHENING SME COMPETITIVENESS

The project has helped the company, a specialist in metal-mechanics, to identify further dual use possibilities in the marine-based economy. 'The funding we received was crucial,' says Pinheiro. 'The success of the TURTLE project has since led to several other developments, and we are currently working on a number of different projects.'

For example, the SME is currently undertaking efforts to further develop the TURTLE technology, to make the robot operational under more demanding conditions. At the same time the company is seeking potential buyers and investors.

Structural funding has helped to bolster Silva Matos' reputation as an internationally recognised research-focused company, leading to further collaborations. The company is participating in another EU project called HYLANTIC, which involves 12 partners from 5 countries and is being supporting through the ERDF-funded

INTERREG Atlantic Area Programme (a mechanism that supports cross-border clusters).

'Financial support for projects like TURTLE enables us to focus on research and intensify our competitiveness,' says Carvalho. 'This facilitates our internationalisation by opening up new markets. This is crucial for us as we export about 90% of our production. Identifying promising new technology areas is vital.'





COSME

FACILITATING MARKET ACCESS FOR SMEs

While dual use SMEs have the flexibility and energy required to create industry-changing innovations, growing and expanding into new markets can be a major challenge. This is because it is often harder for smaller businesses to access necessary financing, while a lack of in-house expertise can limit knowledge of other markets.

To address these obstacles, some 60% of the EU's EUR 2.3 billion COSME programme (2014-2020) is targeted at providing innovative businesses with access to access finance. The Loan Guarantee Facility provides counter-guarantees to financial institutions so that they can provide more loan and lease-finance to SMEs. Similarly, the Equity Facility for Growth provides risk capital to equity funds investing mainly in start-ups.

COSME also helps to open up new markets beyond Europe through [European Strategic Cluster Partnerships – Going International](#). These partnerships provide opportunities for defence clusters to link up with other economic clusters to exploit dual use potential and support SME access to global value chains. The programme also funds initiatives such as the [European Network of Defence-related Regions \(ENDR\)](#), a network of regional authorities and clusters that enable SMEs to share experiences and best practices in the area of dual use strategies. Similarly, the Enterprise Europe Network (see page 13) enables SMEs to find business and technology partners to complement the work they do.

COSME also funds the Enterprise Europe Network that helps SMEs expand outside the EU



Information at your fingertips

Visit the [Access to Finance portal](#) to find easily accessible tools that can help dual use businesses, such as the [Your Europe Business Portal](#) and the [SME Internationalisation Portal](#). The [European Intellectual Property Rights \(IPR\) Helpdesk](#) also provides know-how on expanding within the Single Market and beyond.

ENTERPRISE EUROPE NETWORK

INTRODUCING DUAL USE BUSINESSES TO THE GLOBAL MARKETPLACE

The right technology partner – or an understanding of the local business environment – is often the missing ingredient for small innovative dual use firms looking to tap new markets. This is where the Enterprise Europe Network comes in. Active in more than 60 countries worldwide, it brings together more than 600 partner organisations that include technology poles, innovation support organisations, universities and chambers of commerce. All the Network services are available to SMEs active in the area of dual use, who can plug into the Network through a partner organisation.

SMEs interested in achieving cross-border partnerships, international growth or in need of business innovation support simply need get in touch with their local network contact point, where an expert will assess their needs and identify the best way forward. The Network also organises targeted match-making opportunities for SMEs. ENDR events, for example, have always included dual use B2B opportunities facilitated by the EEN, highlighting how effective network cooperation benefits business.



Business Support on Your Doorstep



Get in touch

Contact your local Network partner – you can find the closest one through the [Enterprise Europe Network website](#). They offer, or direct SMEs to, expert advice for growth and expansion into international markets. They also provide solution-driven services to help turn innovative ideas into international commercial successes.

CASE STUDY

SIGNO MOTUS

ITALY

THE PATH TO COMMERCIALISATION

Italian SME Signo Motus is a pioneer in electro-rheological fluid (ERF), a smart nanomaterial that can rapidly change from a liquid to solid state within milliseconds when an electric field is applied. The technology has a range of potential dual use applications, from adaptive mechanical devices such as shock absorbers and brakes to fitness and rehabilitation devices and robotics. The technology was originally supported by the Italian Ministry of Defence under the national military research plan R&D Project ADHERE, underlining that companies can combine different sources of funding to achieve their goals.

In order to take the next step towards commercialisation, Signo Motus submitted a proposal under the Horizon 2020's SME Instrument Programme for a Phase 1 project. This resulted in the ERXOS project, which ran from April to September 2016. The specific aim was to assess the market and technical feasibility of a light weight, low cost exoskeleton device for rehabilitation. A detailed business plan and in-depth analysis of the innovation's commercial

potential were produced, with the aim of reaching market in three years' time.

'This Phase 1 project was extremely important as it helped us to acquire necessary knowledge,' explains Managing Director Dr Sandro Scattareggia Marchese. 'We were able to focus on business issues such as marketing and intellectual property rights.'

Phased development

The SME Instrument provides support in three phases:

- > **Phase 1:** makes funding available for exploring and assessing the technical feasibility and commercial potential of an innovation.
- > **Phase 2:** funding is available for prototyping and scaling-up.
- > **Phase 3:** funding facilitates the commercial exploitation of innovation activities resulting from Phase 1 or Phase 2. This can include a range of innovation support activities and services offered via the Enterprise Europe Network.

'This Phase 1 project enabled us to focus on business issues such as marketing and intellectual property rights.'

Dr Sandro Scattareggia Marchese,
Managing Director,
Signo Motus



TARGETED SUPPORT

'We had an extremely positive overall experience of the SME Instrument Programme,' says Scattareggia. 'I like that the Instrument is split into phases, with a feasibility study providing the company with the necessary knowledge to structure investments and assess the business potential. I would advise any SME thinking of applying to pay particular attention to preparing their proposal since it is an extremely competitive environment.'

The Enterprise Europe Network, whose services are available to all dual use SMEs, has also been a source of support. 'During Phase I the Network strongly supported us with the selection of a European coach. The coach spent three full days with us, guiding us in the preparation of our business plan. We are still in touch with our coach in order to find technical partnerships and investors.' The Enterprise Europe Network can also offer SMEs advice about regulations, commercialisation, marketing strategies and IPR protection.

'I would advise any SME thinking of applying to pay particular attention to preparing their proposal since it is an extremely competitive environment.'

Dr Sandro Scattareggia Marchese,
Managing Director,
Signo Motus



New Enterprise Europe Network developments

Since 2014 the Enterprise Europe Network offers services to enhance the innovation management capacities of SMEs, in order to translate innovation into economic impact. 'Lack of innovation management capacity is recognised as one of the leading barriers to creating impact,' says Dr Francesco Cappello, Enterprise Europe Network Manager for Consorzio Arca in Italy.

The Enterprise Europe Network also now provides Key Account Management (KAM) services to SME Instrument beneficiaries. 'In each region, a KAM can help identify specific challenges through a needs assessment. Based on this diagnosis, an SME can identify their coaching needs and select the most relevant coach.'



BOOSTING REGIONAL COMPETITIVENESS

EU support for high tech business growth helps create valuable jobs and brings economic benefits to regions. Signo Motus is based in Sicily, which suffers from high youth unemployment and a drain of young talent. Plugging Signo Motus into a global network of research institutions, technology firms and potential end users in both the civilian and defence sectors will help the company to realise its full potential and attract investment into the region.

The company is now working to secure the resources needed to bring the technology to market. 'We expect to achieve a gross income 20 times larger than at present, reaching 4% of market share of the rehabilitation sector within a 5 year period,' says Scattareggia. 'We are currently 12 people, but with this successful research we hope to scale up the company over the next 3 or 4 years to have around 30 employees.'

The company expects to increase cross-border collaborations in the future. 'We need to build up a network; after all, the fluid that we have developed is one component of more complex systems. Scale-up is only possible through European partnership.'

**'We are currently
12 people, but with
this successful research
we hope to scale up the
company over the next
3 or 4 years to have
around 30 employees.'**

Dr Sandro Scattareggia Marchese,
Managing Director,
Signo Motus

USEFUL LINKS

Horizon 2020

<https://ec.europa.eu/programmes/horizon2020/>

Horizon 2020 Participant Portal

<https://ec.europa.eu/research/participants/portal/desktop/en/home.html>

Horizon 2020 National Contact Points

http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html

SME Instrument

<https://ec.europa.eu/programmes/horizon2020/en/h2020-section/sme-instrument>

European Structural and Investment Funds (ESIF)

www.ec.europa.eu/info/funding-tenders/european-structural-and-investment-funds_en

ESIF Managing Authorities

http://ec.europa.eu/regional_policy/en/atlas/managing-authorities

European Regional Development Fund (ERDF)

http://ec.europa.eu/regional_policy/en/funding/erdf/

Key Enabling Technologies (KETs)

http://ec.europa.eu/growth/industry/key-enabling-technologies_en

European Defence Agency (EDA)

<https://www.eda.europa.eu/eufunding>

COSME

www.ec.europa.eu/easme/en/cosme

COSME Access to Finance portal

http://europa.eu/youreurope/business/funding-grants/access-to-finance/index_en.htm

European Strategic Cluster Partnerships

<https://www.clustercollaboration.eu/eu-cluster-partnerships>

European Network of Defence-related Regions (ENDR)

www.endr.eu

Your Europe Business Portal

http://europa.eu/youreurope/business/index_en.htm

Enterprise Europe Network

<http://een.ec.europa.eu>



Find out how the EU's programmes could benefit you at
access2finance.eu

