Your career in the defence industry
An important role to play in the EU’s future

The EU’s defence industry employs more than 500,000 people and also supports 1,200,000 jobs indirectly within local economies across Europe. It attracts talented and skilled people to a wide range of careers, from business, engineering, manufacturing and maintenance to cyber, data analytics and more.

A career in the defence industrial sector can take a variety of different paths and offers many opportunities from training to management. Europe is home to some of the most advanced industrial capabilities, both in terms of skilled labour and high-tech infrastructure, and hosts firms that are competitive throughout the world. Companies that are part of the European defence, technological and industrial base help secure the EU’s ability to face emerging and ever-changing global challenges. They also bring further benefits to the EU economy through profits, job creation, skills and innovation.

The sector includes several large industrial groups and a considerable number of smaller and mid-sized companies, which are often at the forefront of cutting-edge innovation. Research and development are fundamental to drive the development of products that will secure the EU’s military strength for the future and keep Europe competitive on the global market. Some of these technologies spill into other sectors such as civil aviation, space and electronics, also boosting the competitiveness of those sectors.

As well as being strategically and economically important, the defence industry also provides exciting work opportunities because of its diversity. Over the years, many larger companies have developed a strong global presence, providing opportunities for their staff to work in different countries, languages and cultures. Similar opportunities are available thanks to European multinational programmes that jointly invest, develop and operate defence equipment, such as remotely piloted aircraft systems.

What are capabilities?

The term ‘capability’ covers not only defence equipment but also the supporting people, infrastructure, communication systems and other aspects that help the military to achieve its aims.
EU defence companies present a wide range of opportunities for early careers. From aircraft to submarines, from cyber to robotics, the sector tackles complex technological and engineering challenges for all defence requirements. The defence industry designs, manufactures and supports a diverse range of equipment, from nanoscale products to warships, the underlying systems critical for military operations. Even within one company, the work can span many different projects as technology and innovation are constantly pushed to the limits to achieve better, more reliable product performance. Many companies have portfolios crossing between defence and civil products, so-called ‘dual use’ goods, software and technology.

Work in the EU defence industry spans all stages of the defence equipment life cycle (see Figure 1) and beyond. There is a need for people with skills ranging from strategic planning and project management to the development of new technologies. The defence sector draws talent from a range of academic and vocational backgrounds including science, technology, engineering and mathematics (STEM), the arts, humanities, social sciences, manufacturing, computer science, law and accounting.

As armed forces have bases all across Europe, so too do defence companies. From north to south and from east to west, EU defence firms are situated all over Europe,
offering exciting careers in different areas and boosting regional economies. Defence companies also maintain fruitful links with local schools, universities and research institutions, collaborating on joint projects, industry placement schemes and the exchange of knowledge.

The defence industry offers opportunities for all and continues to attract a growing number of women into defence roles. Women provide ambitious strategic leadership, filling management roles, engineering posts, careers in manufacturing and operational support as well as wider commercial and business services (including legal, accounting, IT, human resources and communications). Skilled professionals at all levels also provide important mentoring to younger staff, promoting career growth and wellbeing in the workplace.

Figure 1. Defence industry employees work across all the stages of the defence equipment life cycle
A starring role in Europe

According to the EU Global Strategy from June 2016, EU citizens and the world need a Europe that takes greater responsibility for its own security: to deter, respond to and protect itself against external threats. To do so, the EU needs credible defence capabilities and the ability to use them when required without depending on others. The ability to develop and use such capabilities with at least some degree of strategic autonomy relies on having certain key skills within Europe. This is only possible thanks to a strong, first-class defence industry and the people who work within it.

The defence industry plays a vital role in delivering defence equipment to European armed forces. This enables the armed forces to respond to external crises and to guarantee Europe’s safety and security. Across the EU, defence industries produce a wide range of equipment that the armed forces need to fulfil their missions. The industry also maintains and services the equipment to ensure it is ready when required. What this means is that the armed forces rely on the defence industry to develop, produce, maintain and support the equipment they need, when they need it. The industry is therefore critical for Europe’s ability to act independently and decisively in its security and defence.

The EU defence industry serves not only the armed forces of each individual EU member state but also Europe as a whole. It directly contributes to the EU’s ability to provide security and safety to its citizens and to keep a strategically important role globally.

The EU’s defence industry also enhances the EU’s credibility as a global player. It helps the EU to deliver its Common Security and Defence Policy as it provides the EU and its member states with technologically advanced, globally competitive products superior to those held by potential adversaries. These innovative products stem from large defence companies as well as small and medium-sized enterprises. Their ability to compete with other products on the market is proven by the €42bn value of defence exports achieved by the EU defence industry in 2016.1

What used to be known as stable, single-track, often ‘siload’ employment is transforming into a dynamic professional development opportunity, attractive at different stages of one’s career.

Christina Balis, Director of Services and Product Strategy, QinetiQ

1 ASD Facts and Figures 2017
Staying ahead of the game

Advances in technology hold great potential for the EU but they also can present it with new and greater risks if used maliciously. Ensuring that Europe remains able to deter and respond to technologically advanced threats is one of the main tasks for the defence industry and its employees. *Innovation is key to maintaining Europe's operational advantage into the future.*

Cutting-edge innovation is a vital pursuit of the EU’s defence sector. This means *pushing the boundaries of physics and engineering* in a way that applies technology to real-world problems. From basic research to full-scale manufacturing, the EU defence industry offers opportunities for talented people to work on innovative solutions at all stages of the defence equipment life cycle.

Creative solutions drive the development of advanced military capability using advanced tools and processes such as *augmented reality* and *big data analytics*. The defence industry uses the automation, digitalisation and integration of different systems and
networks to harness the benefits of the new industrial revolution. From autonomous systems to wireless energy transfer, the industry is actively pushing technology limits for better performance, greater reliability and thus better service to the armed forces and EU citizens.

The EU defence industry is constantly developing new technologies, with thousands of patents granted to companies for innovative ideas and products. Advanced solutions and technological applications make EU defence products attractive within Europe but also competitive on the global market. As many companies are active in both civil and defence sectors, innovation can spill over from one part of the business to another, as well as outside of the defence industry, benefiting the wider economy.

Strong links are also maintained with academic researchers and national governments, tapping into early research and development (R&D) as well as broader initiatives. In 2016, EU Member States invested about €10bn in defence R&D to develop cutting-edge products that seek innovative answers to current and future challenges. Between 2017 and 2019 the European Commission made available a further €90m for defence research, anticipating the launch of a fully fledged European defence research programme to which it is expected to contribute more than €4 billion between 2021 and 2027.

Figure 2. Examples of technologies the EU defence industry works on

<table>
<thead>
<tr>
<th>Artificial intelligence</th>
<th>Robotics and autonomous systems</th>
<th>Digital/advanced manufacturing</th>
<th>Big data, advanced analytics and simulation</th>
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<tr>
<td>Horizontal and vertical systems integration</td>
<td>Biotechnologies and synthetic biology</td>
<td>Cybersecurity and cloud technology</td>
<td>Additive manufacturing</td>
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<td>Augmented and virtual reality</td>
<td>Advanced propulsion and energy storage</td>
<td>Novel sensors</td>
<td>Nanotechnologies</td>
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Joining together for a stronger Europe

To be a world leader, as outlined in the EU’s Global Strategy, EU countries need to cooperate on defence issues. This involves not only governments and the armed forces but also the defence industry, which plays a crucial part in creating, making and supporting defence equipment that is used across the EU.

Joint equipment programmes, involving workers from around Europe, have existed for decades. Some of the most well known include the Eurofighter aircraft built by Germany, Italy, Spain and the UK, and the A400M which was launched to respond to the combined needs of seven countries (Belgium, France, Germany, Luxembourg, Spain, Turkey and the UK).
Some defence industries are ‘European’ by design; for example MBDA, the missiles manufacturer, merged the guided missile divisions of Airbus, Leonardo and BAE Systems in 2001 and has sites in Germany, Italy, France and the UK. Airbus, Thales and Leonardo and others also have bases in many EU member states.

An extensive chain of suppliers of various sizes supports the larger defence companies, providing parts for the assembly of their final products. The presence of these suppliers within Europe means that both the larger companies and the armed forces can rely on a secure supply of parts and components as and when needed. In this way, the European defence industry as a whole supports the EU’s ability to act decisively in the realm of defence and security.

European defence companies – small and large – aim to bring together the technology, skills and infrastructure needed to develop defence capabilities for the future. They actively work together across national boundaries to create joint solutions to the challenges of tomorrow. Learning from each other and sharing innovation allows them to capitalise on the ‘best athletes’ in technological solutions. This means that all of Europe benefits from the combined excellence of the individual parts of the EU’s defence industrial base.

“A career in defence offers skilled young people the opportunity to work in an exciting, high-tech environment with like-minded colleagues.”

Bertrand Carette, Strategic Workforce Planning, Safran
Building on a legacy of innovation

The defence industry of today offers a unique opportunity to build on the history of innovation while looking into the future in an interconnected world. Many well-established defence companies can pride themselves on their heritage and also the many technologies and industries that have flourished as a result of their research and development. Joining an EU defence company may mean working for the firm that developed the first tank or the first ever air defence system.

Industries such as aviation, electronics, mechanical systems, transport and space have benefited significantly from the technological solutions first developed in the defence sector. Today, this relationship goes both ways, with innovative high-tech products also flowing back into the defence sector from civil industry.

In recent decades, EU defence companies have also spread their business interests beyond Europe, establishing exciting working partnerships.

Figure 3. Innovations in the European defence sector

- Spanish engineer Juan de la Cierva’s ‘autogiro’ sets the foundations for the development of the rotor head principle that would become a model for future helicopters.
- The first computer, Colossus, is created by Second World War British codebreakers and paves the way for unprecedented digital interconnectedness.
- The first rubber inflatable boats are developed by the airship industry and employed for life-saving rescue missions in the Second World War.

1923  
1934  
1943
opportunities around the world. European at heart but global in their outlook, these companies have **strategic ambitions for a worldwide presence to ensure their resilience and competitiveness**. For many employees international travel and intercultural exchanges can thus become a part of their working life.

The use of cutting-edge communication technologies is essential to allow the global sites and their employees to stay connected. EU defence companies continually adopt **modern ways of working to offer their employees a productive and stimulating work environment**. This is where challenge, innovation and excellence combine for the higher purpose of serving Europe and its people.

**Modern working environments**

The EU defence industry uses innovative technology to optimise working environments to design, develop, manufacture and maintain products in an efficient and effective way. This is done by:

- increasing automation within the workplace (especially in manufacturing);
- embedding virtual tools (such as virtual design tools);
- using advanced tech to speed up processes (including the use of robots to inspect vehicles for maintenance purposes and bionic arms for lifting heavy items);
- digitalisation of processes and tools (including, for example, data-driven design, manufacture and maintenance)

The first satellites are launched; today they can be used for advancing environmental research (for example, plastic pollution) and to gather transport and infrastructure data

Video games are developed; initially for recreation, they are now used in a range of sectors, contributing to activities such as physical rehabilitation and education

Graphene is discovered; the defence industry is primarily developing this material for superstrong and super-light vehicle structures, but it also has applications in areas such as medicine and energy storage

1966 1986 2004
Case study

Frank Schindler
Head of IFF/COMMS
Hensoldt

Description of my work
As Head of IFF/COMMS I manage all customer contracts and product development in the domain of Communication systems and IFF (Identification Friend Foe) for military and civil clients operating aircraft, helicopters, ships, submarines and ground stations.

Why I choose to work in defence
I have always liked to develop solutions that are driving technology to the edge. On the other hand I appreciate very much that with our IFF systems we protect our end customers from being attacked. Contributing to protecting lives gives meaning and a also good feeling at the end of the day.

My top tip for a career in defence
Defence is by nature an international business in Europe. Studying (partly) abroad, practising foreign languages and developing a cross-cultural awareness will help to ease relationships with diverse international partners. Being a real team player, working hard and staying customer-focused, with a real attention to their needs, will prepare you for a career in defence.
The next step in your career journey

The EU’s defence industry is an exciting and diverse sector to be a part of and it is continually on the hunt for skilled and talented employees to ensure it stays at the top of its game. A strong defence sector allows EU countries to defend the EU and its interests against current and future challenges and gives it the ability to respond to threats in an agile and robust way.

A range of factors will affect the future operating environment, which will need not only different types of military operations but also the development of new technologies and the innovative application of existing ones. The world-class industrial, technical and scientific knowledge within the EU defence industry enables the development of military capabilities to secure and defend the people, interests and territory of the EU as well as to contribute to global security.
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