



The Danish Defence Industrial Base

Morten Andersen

The story of Denmark’s defence industry relates to the aftermath of World War II when the United States strongly supported its Western allies with all kinds of military equipment. Never before has Denmark possessed Armed Forces of such scale.

Unfortunately, for the domestic defence industry those were not fruitful decades. After all, competing with something ‘free’ is never easy. However, in 1967, the US Government shipped the last free military equipment to Denmark; soon after, the first major Danish defence acquisition followed with the DRAKEN fighter jet from Sweden. Subsequently, the defence industrial base in Denmark took off.

Photos: Morten Andersen



The Royal Danish Navy is based on the indigenous “Stanflex” concept including the IVAR HUITFELDT frigate class; here on an export promotion tour to Stettin, Poland.

A Decisive Moment

In order for SAAB to deliver the 46 fighters, the Danish Government required that the Swedish company engaged Danish companies as partners or sub suppliers, and that heralded a decisive moment for Denmark’s defence industry. In 1969, the first contract based on this requirement was secured by Per Udsen Co. Aircraft Industry in Grenaa, for the production of both drop tanks and vertical stabilisers for the DRAKEN fighter. Soon after, Per Udsen secured additional orders for the VIGGEN fighter and the T-17 trainer, also manufactured by SAAB.

Only seven years after acquiring the DRAKEN jets, the Danish Parliament was engaged in what was called “The Weapons Deal of The Century” when Denmark decided to become a part of the international F-16 programme, buying initially 52 fighter jets. Once again, Per Udsen Co. Aircraft Industry paved the way for Danish companies’ involvement by securing orders for the F-16 pylons and stabilisers. This was not only for the Danish fighters but also for other user nations in what was later to become the most successful combat aircraft in aviation history, still in production with Danish parts and systems.

Per Udsen Co. Aircraft Industry was not the only Danish company involved in the F-16 programme though. Many more followed, and there is no doubt that for the next four decades this fighter acquisition was the single most important driver of international partnerships, innovation and growth in the Danish defence industry.

The Naval Industry

Notwithstanding the importance of Danish defence companies working with and supplying foreign Original Equipment Manufacturers (OEMs), there is one exception that must be stressed: the naval industry. Since King Hans founded the Royal Danish Navy in 1510, the vast majority of vessels for the Navy have been designed and built by Danish shipyards supplying not only the Navy, but also what has become one of the worlds’ largest merchant fleets.

In the 1980s, the Danish naval industry, in close cooperation with the armed forces, developed the “Stanflex” concept, based on the idea that equipment

needed for special tasks is placed in exchangeable on-board containers making it possible for the same vessel to be used for different tasks. This concept is especially useful for smaller navies like Denmark’s. Since 1989, the Stanflex concept has been incorporated in six different ship classes of the Royal Danish Navy. The flexible ship design is now seeing the first export success with the British Frigate 31 programme headed by a British company, but based on the Danish IVER HUITFELDT class.

Organising the Industry

As the Danish defence industry has progressed and the stakes have increased, the need for cooperation between the very small (internationally speaking) Danish companies grew. The first part of the industry to become organised was the naval/maritime companies which in 1992, and with government support, formed Naval Team Denmark. The organisation works closely with the Armed Forces to globally promote not only the Stanflex concept, but also the many other prod-

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ucts and technologies of the almost 30 companies in its member base.

A few years later, FAD – Danish Defence and Security Industries Association – was founded as an integral part of the Confederation of Danish Industries. Eleven defence companies established the association in 1996, and during the past quarter of a century they have been joined by many others, now constituting a national body of around 90 companies. FAD is the voice of the Danish defence, security and aerospace industry and the focal point concerning all matters related to defence and aerospace industry, both nationally and internationally. FAD is the Danish member of ASD – Aerospace and Defence Industries Association of Europe – and is cooperating with national defence industrial associations from several countries.

Finally, CenSec was founded in 2004, originally as a business network for Danish SMEs in the western region of Denmark specialising in high tech industries like defence, homeland security and aerospace. CenSec has since undergone a significant development and three years ago, the organisation was approved by the Danish Government to become the National Innovation Network for Security. Starting on 1 January 2021, CenSec is the official and government supported national defence industrial cluster of Denmark, consisting of almost 150 member companies, though not all of them are defence companies. CenSec works with OEMs, system integrators, Ministry of Defence procurement, logistic and repair agencies etc., to identify, develop and recommend appropriate supplier and sub-contractor capability.



The F-16 acquisition has – more than any other military capability – impacted the Danish defence industry since the mid-seventies.

The Danish Defence Industry by Numbers

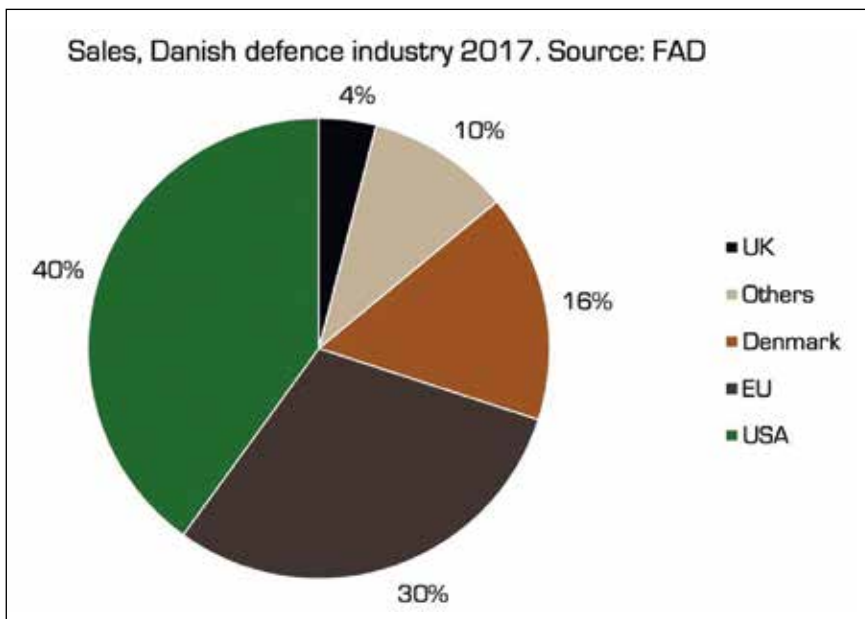
The Danish defence industry in 2021 paints a picture of a relatively diversified business, dominated by a handful of companies. The total number of firms is around 150, including Tier 3 suppliers and most of them have a civilian business larger than the military. Yearly sales are approximately €535M and no less than 84 percent of all goods and services are exported, with the US being by far the most important market. Sales are dominated by the air segment, which covers 42 percent of all sales.

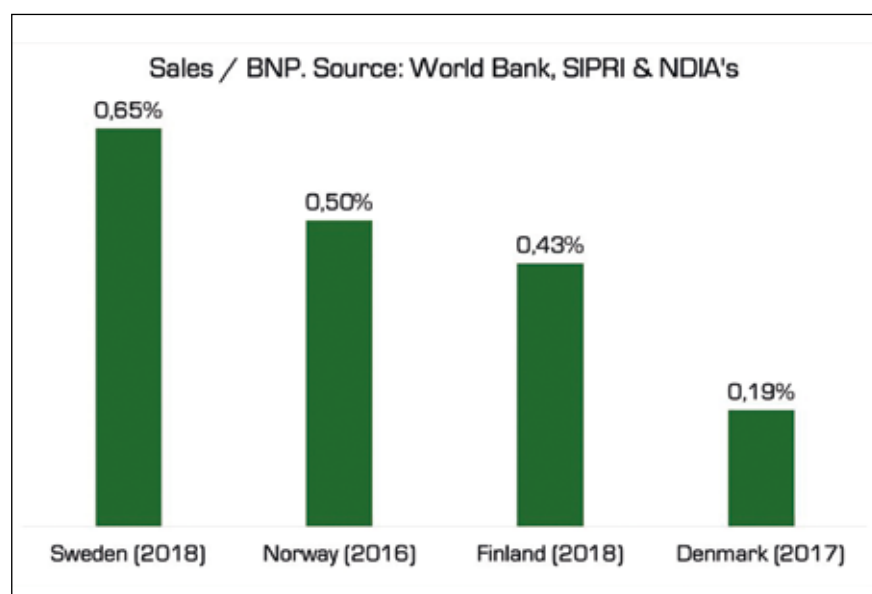
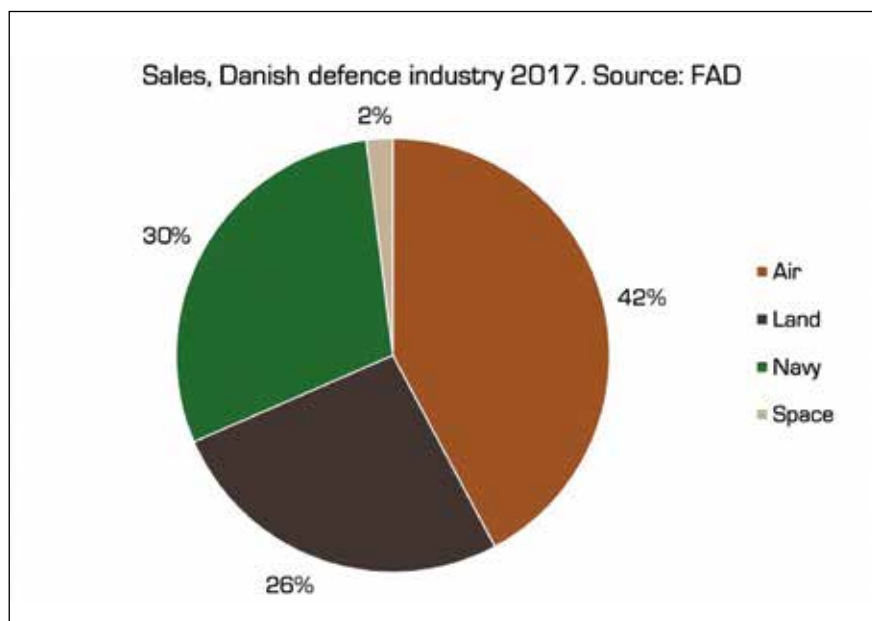
The vast majority of sales from Danish defence companies are based on sales as sub suppliers to other defence companies, although national Armed Forces, largely in the NATO hemisphere, are also

important customers. To illustrate this, the latest sales data from Danish defence companies on the dominating US market show that from a total sale of US\$789M in 2014 – 2017, only 16 percent originate from direct sales to the Armed Forces. Denmark’s defence industry is, and has been for decades, privately owned and operated, which is quite unusual in the global context. Business support from the government has, except for offset requirements, been very limited and infrequent. In addition to the effects of the Marshall Plan, these are the primary reasons why the defence industrial base in Denmark is relatively small within the global setting.

Major Companies

The biggest defence company in Denmark is Terma, which is developing and manufacturing a variety of products, among them surveillance radars, self-protection systems for aircraft and helicopters, 3D audio systems and not least, advanced aerostructures. The aero-structure business is based on the acquisition of Per Udsen Co. Aircraft Industry in the late 1990s, which paved the way for Terma to become a principal supplier of composite parts, radar electronics and the gun pod for the F-35 fifth generation fighter. Among other major Danish defence companies are Systematic, Weibel Scientific, Brüel & Kjær and Dantherm. Systematic is developing the SitaWare® command and control software suite for both the land and sea domain sold to a growing number of user nations globally, including the United States. Weibel delivers advanced Doppler radars for ground-based weapon systems, allowing to measure





and track ammunition fired with a high degree of reliability and accuracy. Brüel & Kjær has developed into the world's leading supplier of advanced technology for measuring and managing the quality of sound and vibration used in the majority of the world's aircraft and helicopter engines, gearboxes, submarines, etc. Finally, Dantherm is a leading supplier globally of energy efficient and mobile heating and cooling systems to military bases from the Arctic to Africa. These five companies constitute approximately half of the entire Danish defence industry based on sales. Their products and technologies therefore show which products and technologies are the most dominant in the industrial base. For a complete list of Danish defence companies please go to the websites of Naval Team Denmark, FAD & CenSec.

The Importance of Offsets

There is no doubt that offset requirements have been a crucial part of the growth and innovation in the Danish defence industry, since it was implemented by the Danish Government more than fifty years ago. Originally, the requirements were based on a wish to create local jobs, but over the years, the focus has shifted. Offsets are now called "Industrial Cooperation" and the aim is to support the national security of Denmark by strengthening Danish defence companies through cooperation with foreign suppliers. The suppliers (obligors) are expected to transfer technology, knowledge, and training to the Danish partners and a multiplier system rewards the foreign supplier. The greater the transfer, the higher the multiplier. On average, the foreign obligor has 10 years to fulfil the requirements.

Due to pressure from the European Commission wanting to eliminate offset requirements, the legal framework for industrial cooperation in Denmark was changed in 2014. From an obligation routinely added to all large defence acquisitions, the requirements are now added after an individual assessment of each acquisition. The extent of industrial cooperation obviously reflects the acquisitions of the Armed Forces. Every year around €135M worth of new requirements are imposed, but spikes are seen following larger acquisitions like helicopters and armoured personnel carriers. All industrial cooperation must be within eight technology areas pre-approved by the government; the leading area is "advanced materials technology and processing", i.e., metal work. Several government bodies are involved in the rather complicated legal process of industrial cooperation which is described in detail, also in English, on the website of the Danish Business Authority.

Lockheed Martin and MOWAG

In the decades to come, three major Danish defence acquisitions and the related obligors, will surely impact the industry as a whole. These are the F-35 fighter jet manufactured by Lockheed Martin, the PIRANHA V APC and the EAGLE V patrol vehicle manufactured by MOWAG General Dynamics European Land Systems. Although legal offset requirements are omitted from the F-35 programme by default, the world's largest arms programme indeed does come with political offset requirements from the partner nations. Lockheed Martin also sold the MH-60R SEAHAWK Maritime helicopter to Denmark in 2012 and the American defence contractor will be deeply involved with Danish defence companies for many years to come. Among those, without any doubt, Terma will be the leading Danish partner and sub supplier. But Terma has also been joined by others, including Multicut (fittings), Weibel (ballistic radars), BridgeIT (mobile solutions for servicing Sikorsky helicopters) and Gomspace (microwave sensing nanosatellites). The Swiss company MOWAG is also engaged with Danish defence companies for the long haul, not least due to the PIRANHA V, which is expected to be a part of the Danish Army for 40+ years. Other leading Danish companies for industrial cooperation include Hydrema (final assembly), Nissens (cooling systems) and Mikkelsen Electronics (cables and dashboards). Also, the Dutch company,

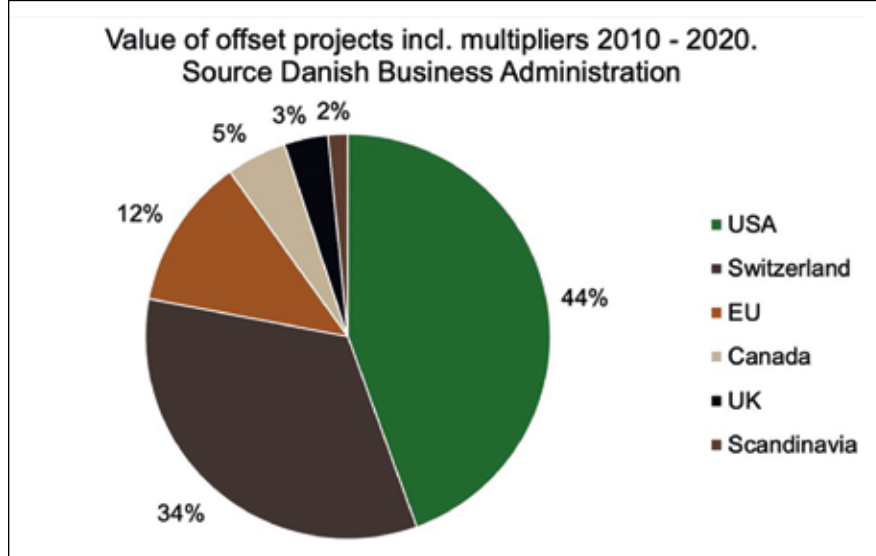


TenCate, is engaged in industrial cooperation with MOWAG supplying ballistic protection systems developed and manufactured by its Danish subsidiary.

European Defence Projects

Although a Danish element in European ballistic missile defence is still on the drawing board, and no political decision has been taken, this crucial military capability could very well become the third acquisition for the Danish defence industry's future innovation and growth. Denmark's contribution will perhaps be based on cooperation with the Netherlands and Germany, adding sensors and interceptor missiles to frigates in the North Sea. Which nations (if not all) will acquire sensors and/or missiles is unclear, but no matter what, it will be a major defence acquisition for Denmark, adding substantial offset requirements to the suppliers expected to be found among Raytheon Technologies, Lockheed Martin or Thales.

A dark horse in developing the Danish defence industry in the future is the European Defence Fund (EDF). The Danish Government has developed a national action plan to promote Danish inter-



ests in the fund and ensure increased dialogue between the armed forces, defence companies and research institutions, and to explore co-financing opportunities. However, Denmark has opted out of defence cooperation in the EU and as a consequence is not a member of the European Defence Agency, which manages the EDF. That is a huge disadvantage for Danish companies aiming to become

a part of the EDF project and so far, the Danish industrial involvement has been very scarce.

The Danish defence industry has been shaped historically by international cooperation and for the foreseeable future industrial cooperation on a legal or purely commercial foundation will continue to play a vital part in the innovation and growth of the industrial base. ■



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