

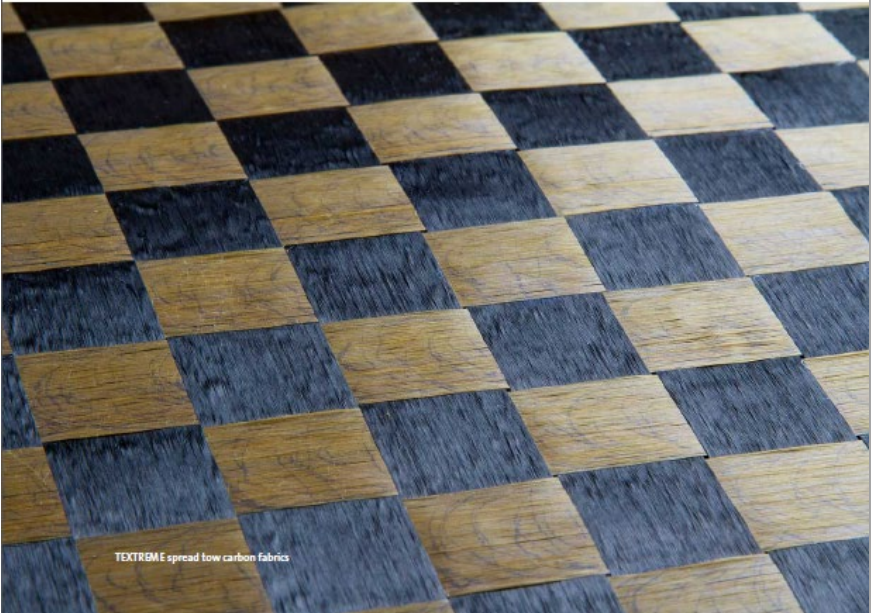
# Transfer of Technology Case Study: Oxeon – Textiles for the extreme

Europäisches Patentamt  
European Patent Office  
Office européen des brevets

EPO TECHNOLOGY TRANSFER CASE STUDIES | OXEON

## Textiles for the extreme

Based on his academic research at Sweden's Chalmers University of Technology, Nandan Khokar developed a new weaving technology. This technology and its woven materials became the basis for the foundation of the start-up company Oxeon in 2003. IP protection for the technology helped to attract private investment and funding from Chalmersinvest, and Dr Khokar also benefitted from business support from Chalmers School of Entrepreneurship. This combination of private ownership and public innovation support led to the commercialisation of innovative tape-woven textiles for use in the sports, industrial and aerospace sectors and the licensing of the weaving technology for non-competing applications.



TEXTREME spread low carbon fabrics

# The Product: Textiles for Extreme Applications

## TeXtreme®

*Spread Tow Fabrics for ultra light composites*

- 20% lighter composite products
- Superior Surface Smoothness
- Optimized Reinforcement Solutions

**TeXtreme® carbon fabrics**  
(Spread Tow)



**1** The Spread Tow structure makes it possible to achieve thinner laminates.

**2** Straighter fibers with reduced crimp optimize and strengthen the composite.

**Conventional carbon fabrics**  
(Regular tow)




**3** Lower crimp reduce the amount of excess plastic, thereby minimizing weight.

# Origin

- Inventor: Dr Nandan Khokar, originally from India, doing research at Chalmers University of Technology (Gothenburg, Sweden)

# Ownership of Patentable Inventions - Sweden

- Main rule: The inventor owns his or her patentable invention ...
- ... but there is an exception for when the inventor is employed – then the employer has the right to acquire the right to the employee’s patentable invention on certain terms (reasonable compensation must always be paid to the inventor).
- However: there is an exemption from the exemption in case the employee is a university researcher – in that case, the employer does not have such a right 
- Back to main rule!

# Ownership of Patentable Inventions – Sweden Cont.

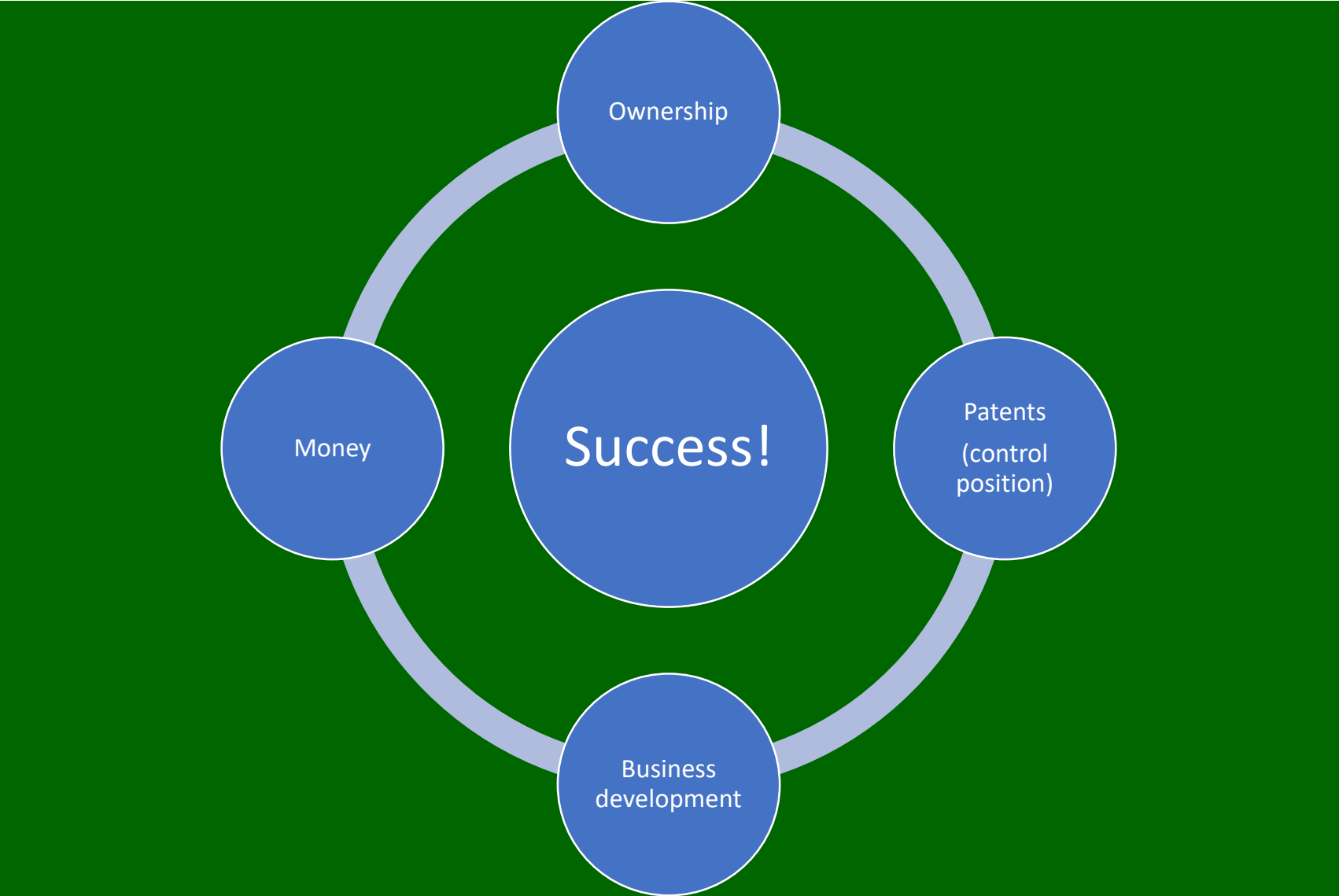
- This means that researchers at Swedish universities own the patentable inventions they create as a main rule – this is called the “teacher’s exemption” or “professor’s privilege”.
- It is important to keep in mind though that this is a dispositive right, i.e. it is possible to agree otherwise. This frequently occurs in research collaboration agreements including industry partners, for example.
- But in Oxeon’s case, Dr Khokar owned the inventions that formed the basis for Oxeon’s material and techniques.
- Ownership is just the first step though ...

# Ownership Does Not Mean Automatic Control Position

- Ownership is an important and necessary precondition for commercialization. It is not sufficient in and of itself, however.
- The next logical step would be to apply for patent protection, in case the invention fulfils the patentability criteria.
- A patent provides a right to exclude others from e.g. manufacturing, selling, and using products based on the invention ...
- Why is this important? To create a control position so that others cannot commercialize the invention.
- Who would fund this?
  - Angel investors
  - Venture capitalists

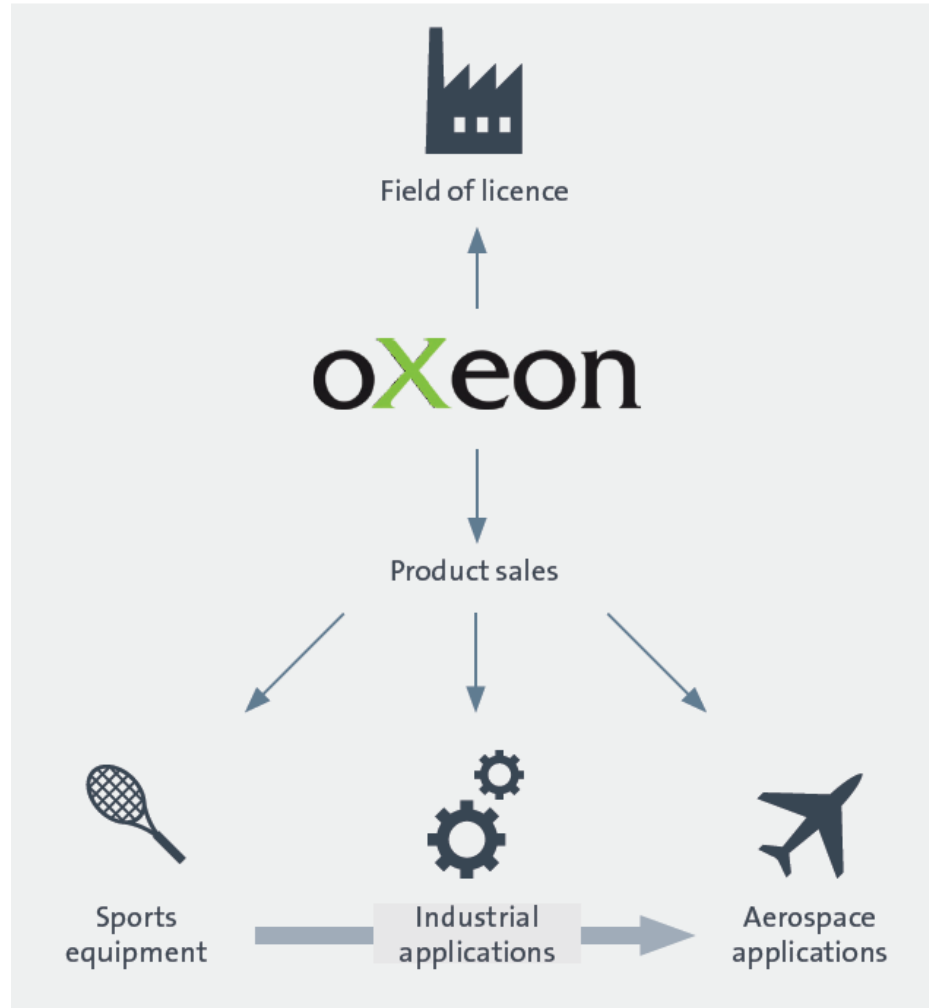
# Patents Are Not Enough, Either ...

- Even though patent protection had been sought, this in itself would not ensure commercialization.
- Business development efforts are necessary, too.
- In this case, business development was initially provided by Andreas Martsman and Henrik Blycker, then students at Chalmers School of Entrepreneurship.
- Without business development, the research may never have been used.
- Without a patent, the invention may never have been used.
- Even with both business development and a control position, there are no guarantees for success.





# Applications



Two aspects:

1. The material as such  
Oxeon's unique "spread tow" technologies provide better mechanical performance combined with very low areal weight (i.e. weight per unit area) and ease of fabric handling. Thus, different types of fibres and tapes may be used in the production process, which in turn results in a variety of products for different industries.

2. The process for manufacturing the material, weaving technology

# Obtaining Patents – A number of Choices

- **What & Where to Patent?**

- Only the material?
- Only the process?
- Both?
- Broad/narrow patent?
- Where?
- Administrative route

- **Factors to Consider**

- Own needs
- Customers' needs
- Collaboration partners' needs
- Potential licensees' needs
- Markets
- Competitors
- Business model
- Limitations: money

# Using Licenses

- **The License as Such**

- What to license?
  - Patents?
  - Know-how?
  - Trademarks?

- **Other Matters**

- Machine
- Samples

# Scope

- **A right to**

- a) Develop
- b) Manufacture
- c) Sell
- d) Distribute
- e) Use
- f) Any combination of a, b, c, d and e
- g) All otherwise infringing acts

- **Exclusivity**

- Non-exclusive
- Exclusive
- Sole

- **Geography**

- **Application/field of use**

# Licensing Effects

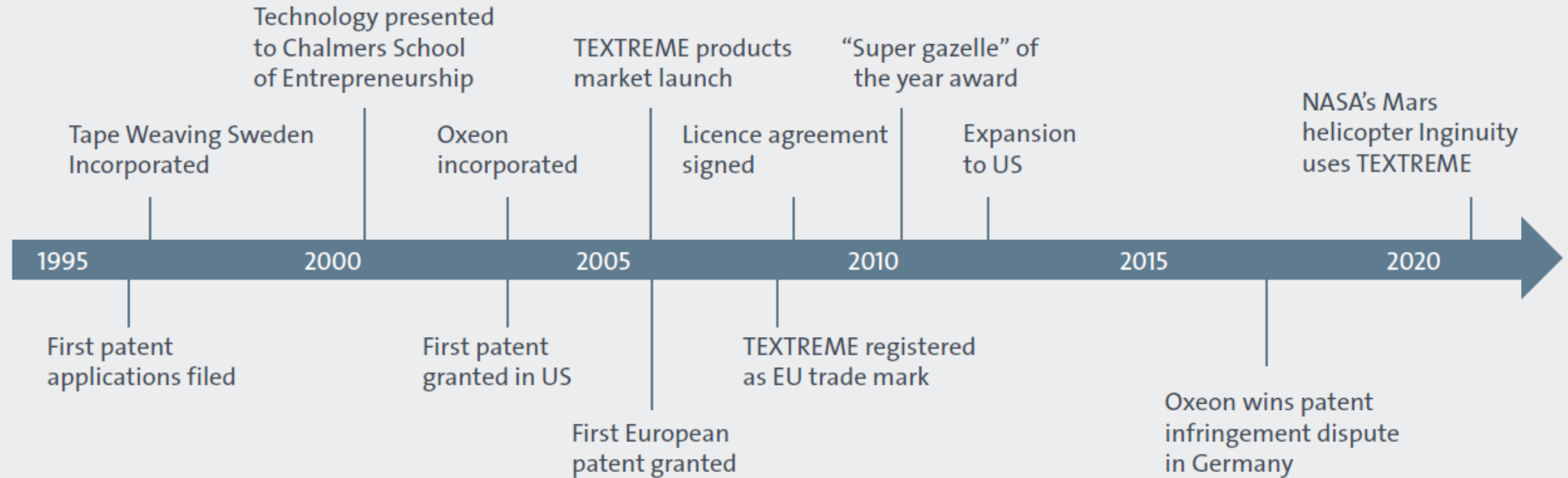
## TAKEAWAY

### IP LICENSING

Licensing can complement the implementation of the main business strategy and be a means of co-funding the company at an early stage.

# Time Line

## BUSINESS-RELATED MILESTONES



## IP-RELATED MILESTONES

First patent applications filed

First patent granted in US

First European patent granted

TEXTREME registered as EU trade mark

# Key Takeaways

## TAKEAWAY

### STRATEGIC PATENT PROTECTION

Consider patenting further along the value chain, and protecting applications of a technology close to the consumer market, to increase the scope of protection and build a comprehensive control position.

## TAKEAWAY

### IP MANAGEMENT

Involving top managers in the patent portfolio building process is vital to the strategic relevance of patent protection.

## TAKEAWAY

### IP PORTFOLIO

A portfolio approach that combines patents, trade marks and trade secrets provides complementary protection, facilitating both exclusivity and licensing of technology and IP assets.

## TAKEAWAY

### MARKETING STRATEGY

Capturing receptive niche markets to build sales and brand awareness is a useful entry into larger markets with higher entry barriers.