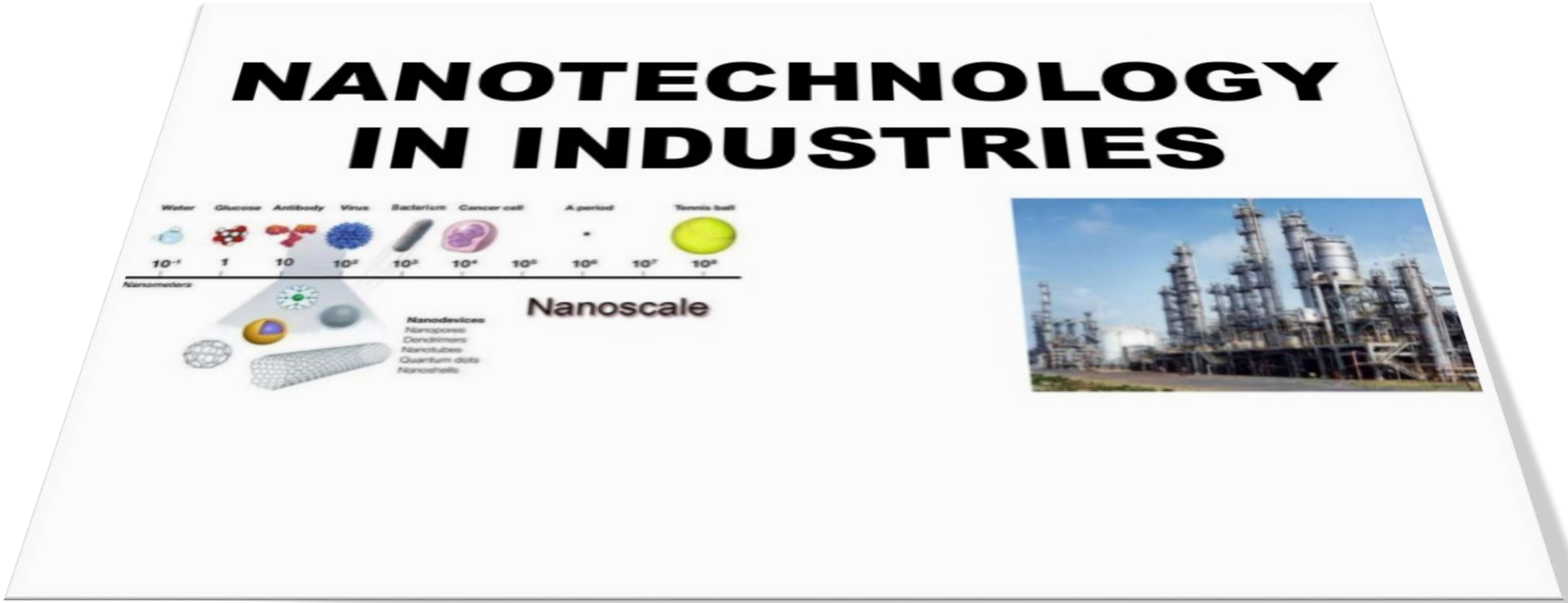
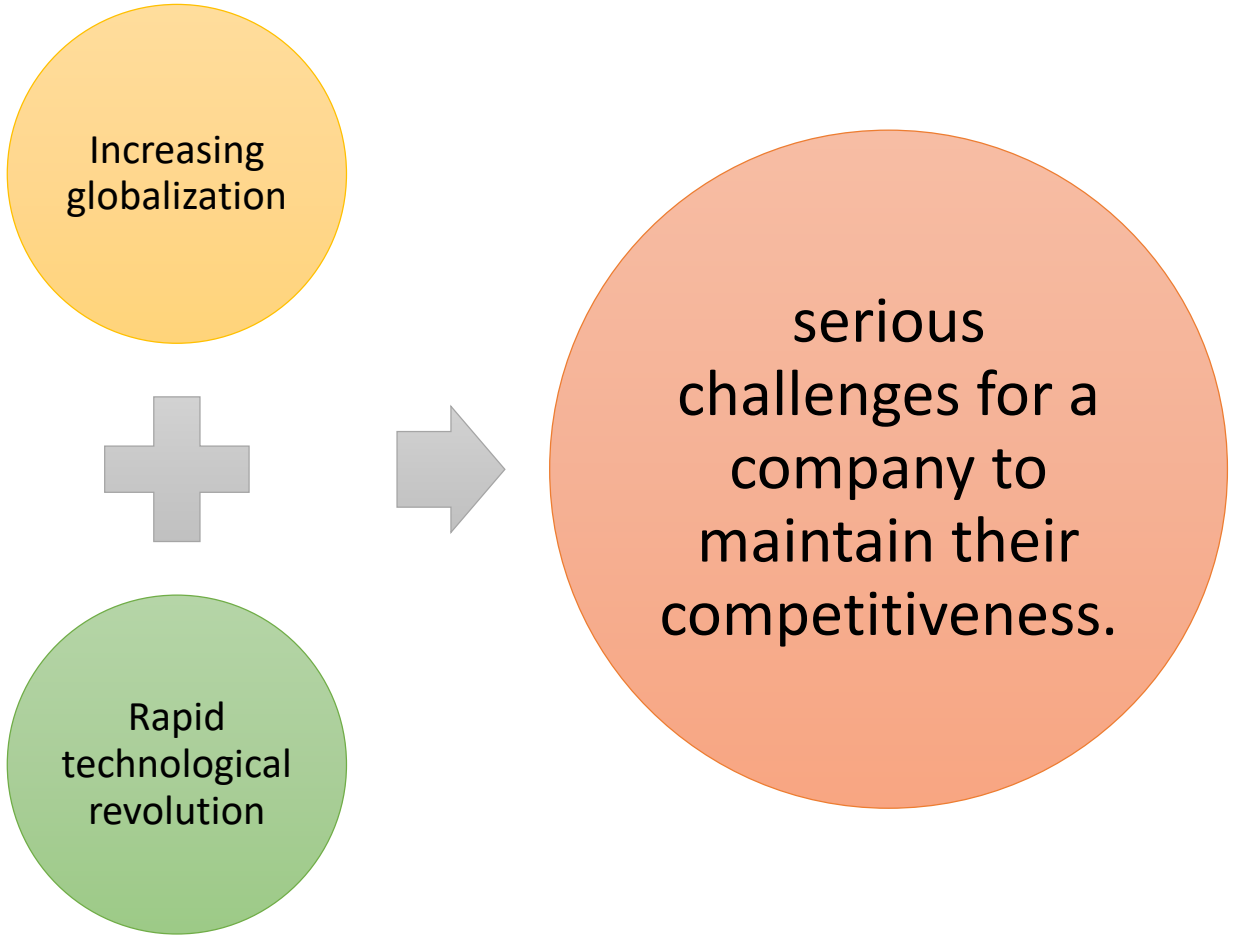



# Chain of nanotechnology application cycle in industry

# Problem:

- **Competitiveness:**

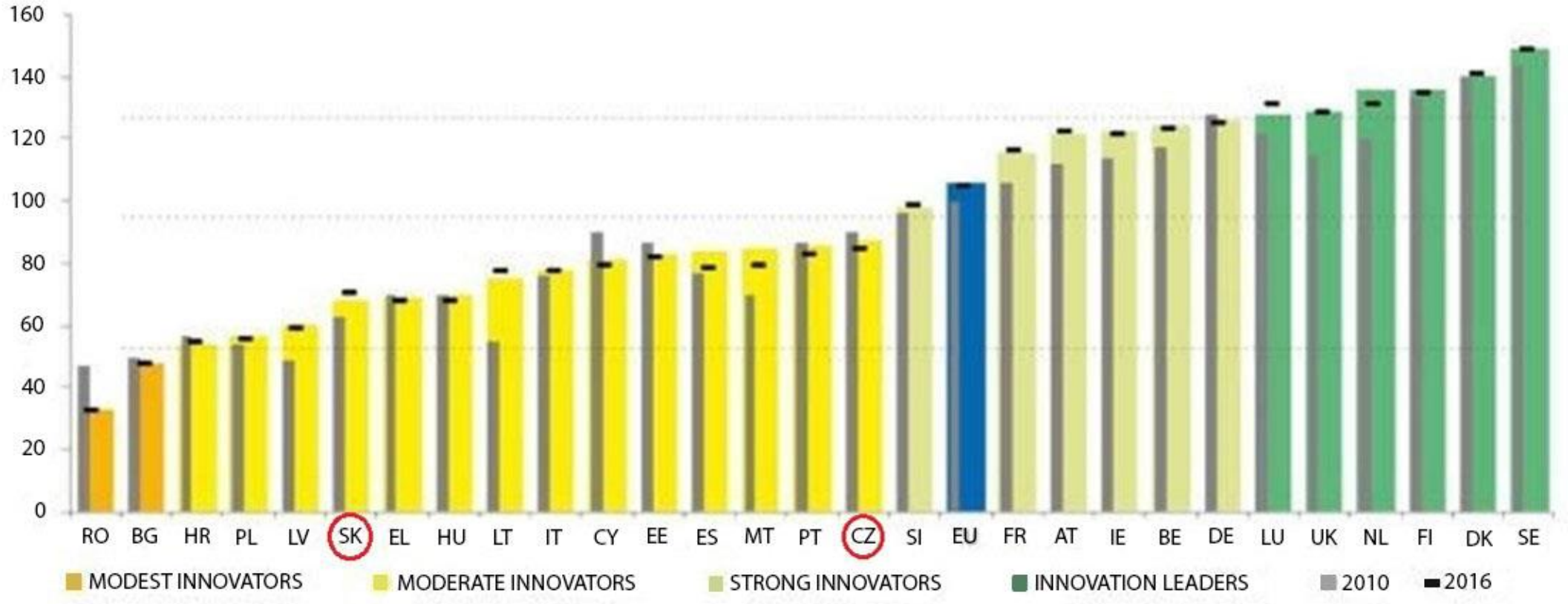



SMEs need to be more competitive
Improving productivity
Introducing new and innovative products
Reducing environmental impact

# Solution:

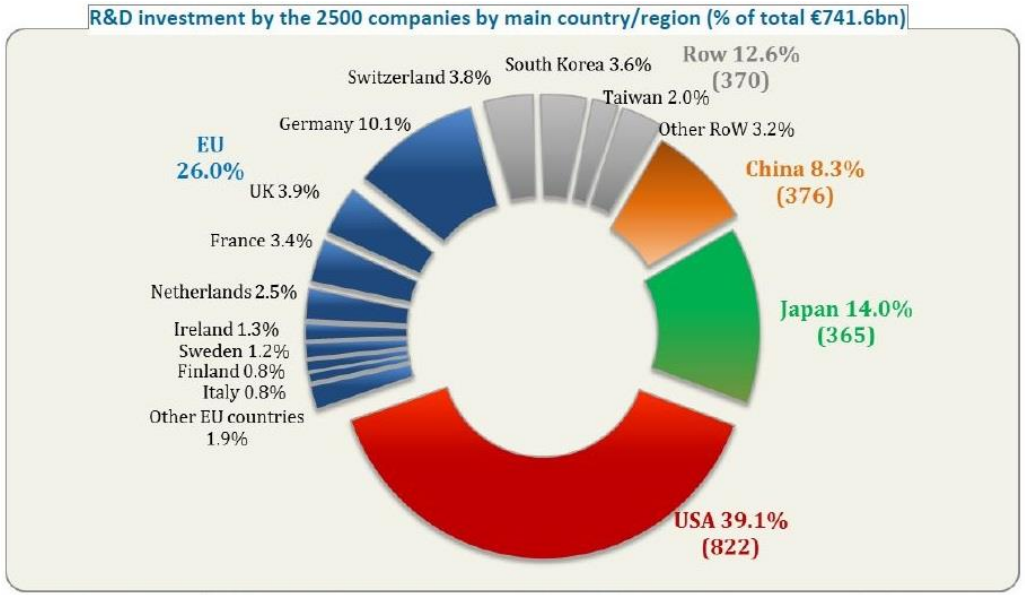

Develops solutions to major social issues.
Innovation is considered as the new competitive weapon
Boosts economic growth and creates jobs.

# Innovation performance of the EU Member States



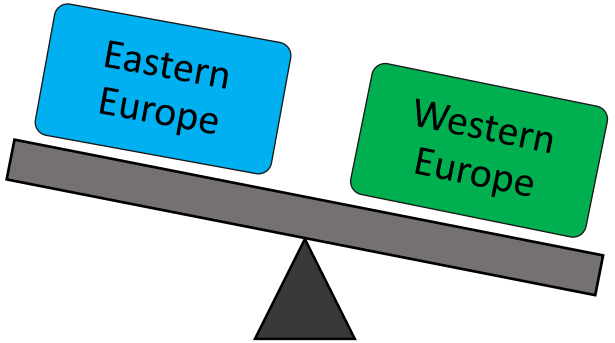
About two-thirds of Europe's economic growth over the last decades has been driven by innovation.


Europe accounts for 26% of global R&D investment.

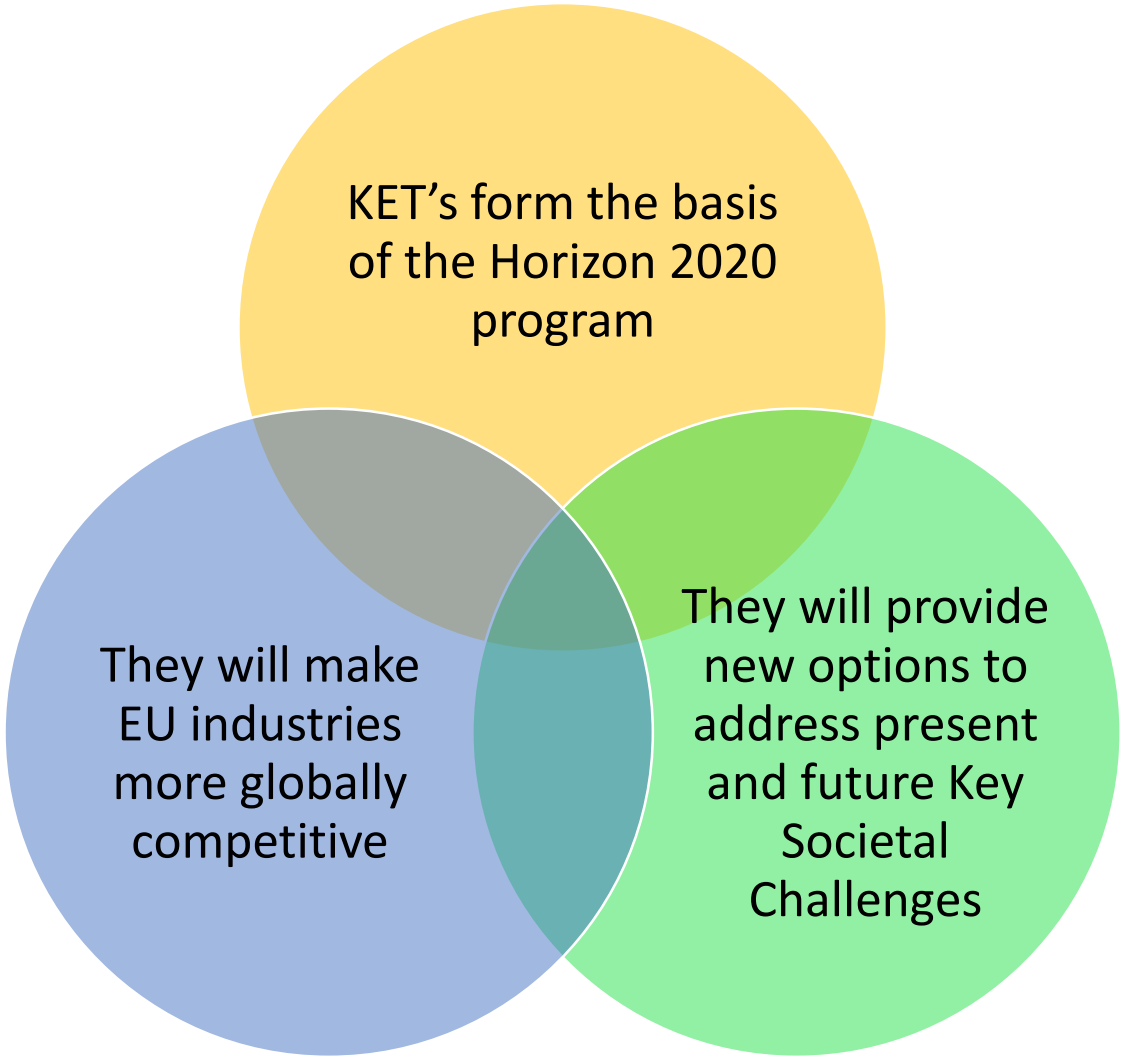


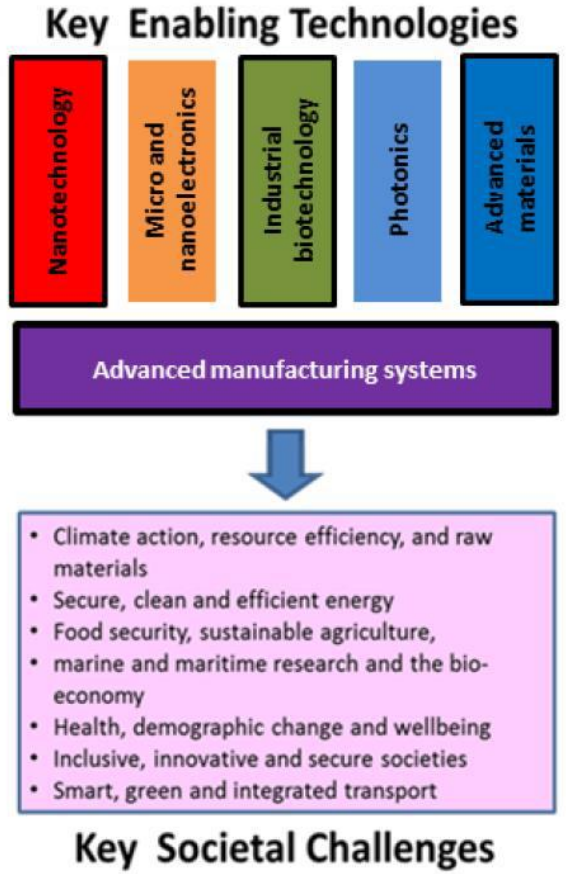

Source: *The 2017EU Industrial R&D Investment Scoreboard*, European Commission, JRC/DG RTD.

R&D intensity is uneven among EU regions.



# Innovation through Key Enabling Technologies (KET)

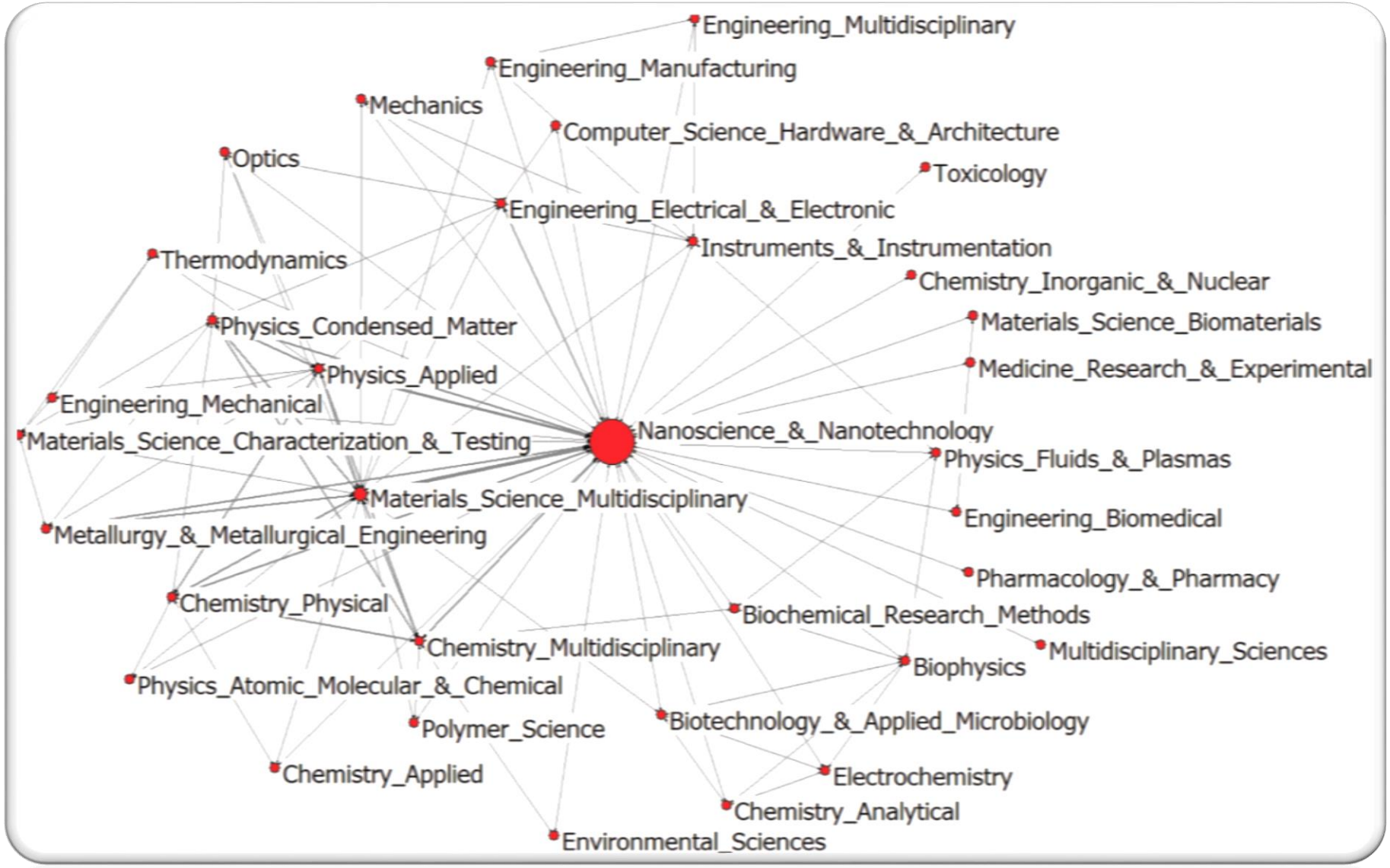


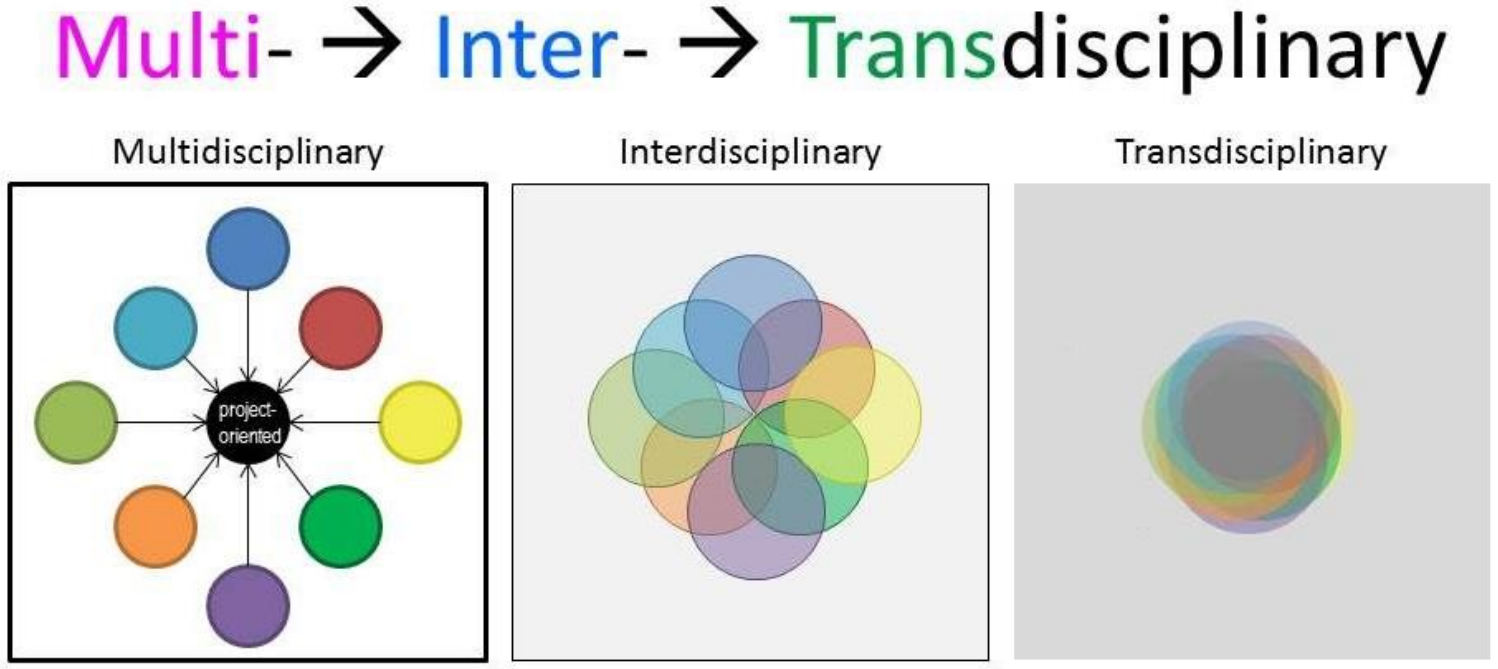
The European Commission has selected Nanotechnology and closely related Micro and nano-electronics as two of its six “Key Enabling Technologies”.

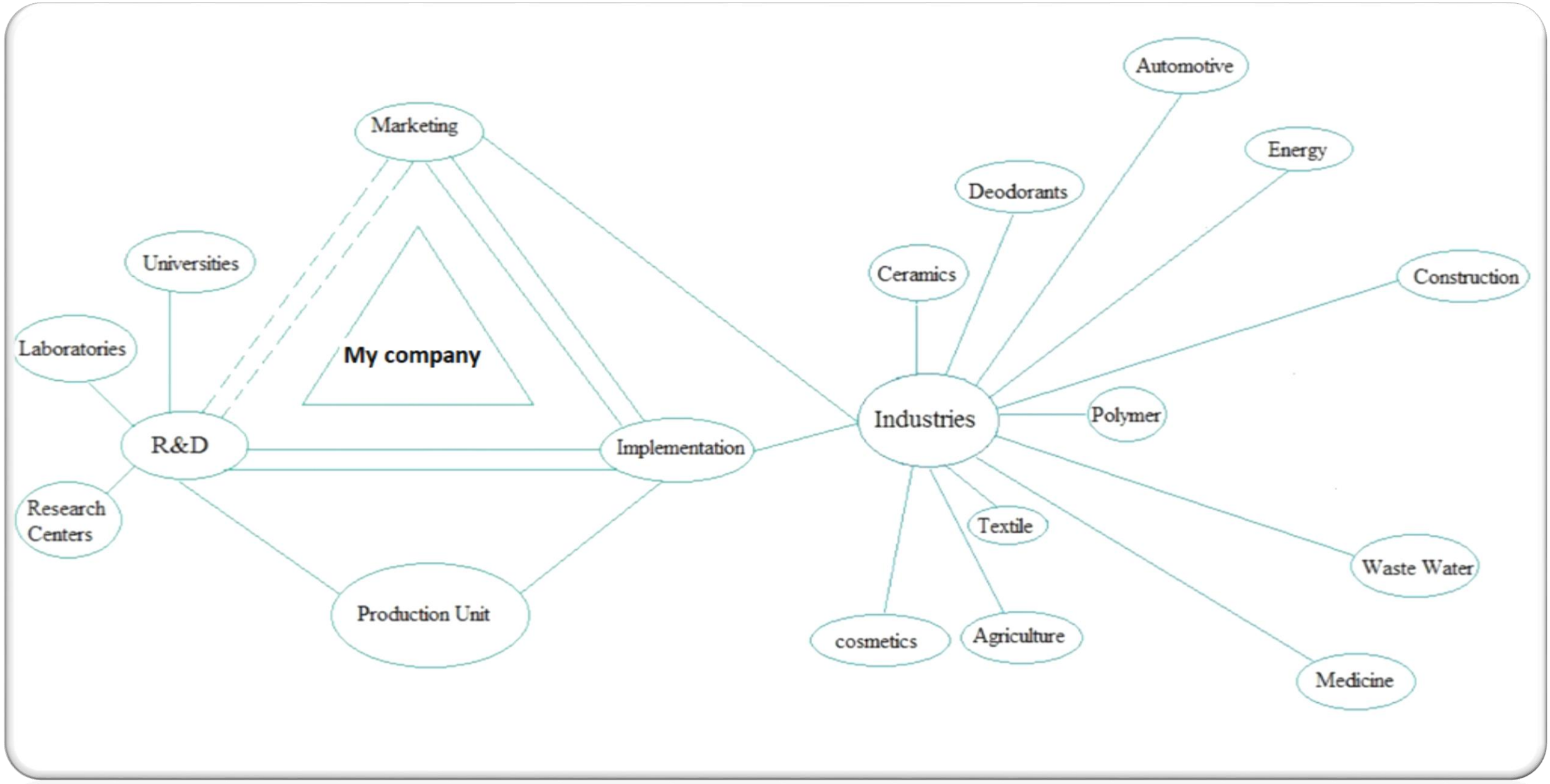
It is generally considered to drive innovations in the 21st century

# Nanotechnology: a general-purpose technology to reach mass use by 2020



- Not only is **nanotechnology** a **multidisciplinary technology**, but also we can refer to it as an **interdisciplinary technology**.
- For sure, it will become a **transdisciplinary technology** in near future.
- It will become **an indispensable part of any industries**.




Marketing
Universities
Laboratories
My company
R&D
Implementation
Research Centers
Production Unit
Industries
Automotive
Energy
Deodorants
Ceramics
Construction
Polymer
Textile
Waste Water
cosmetics
Agriculture
Medicine

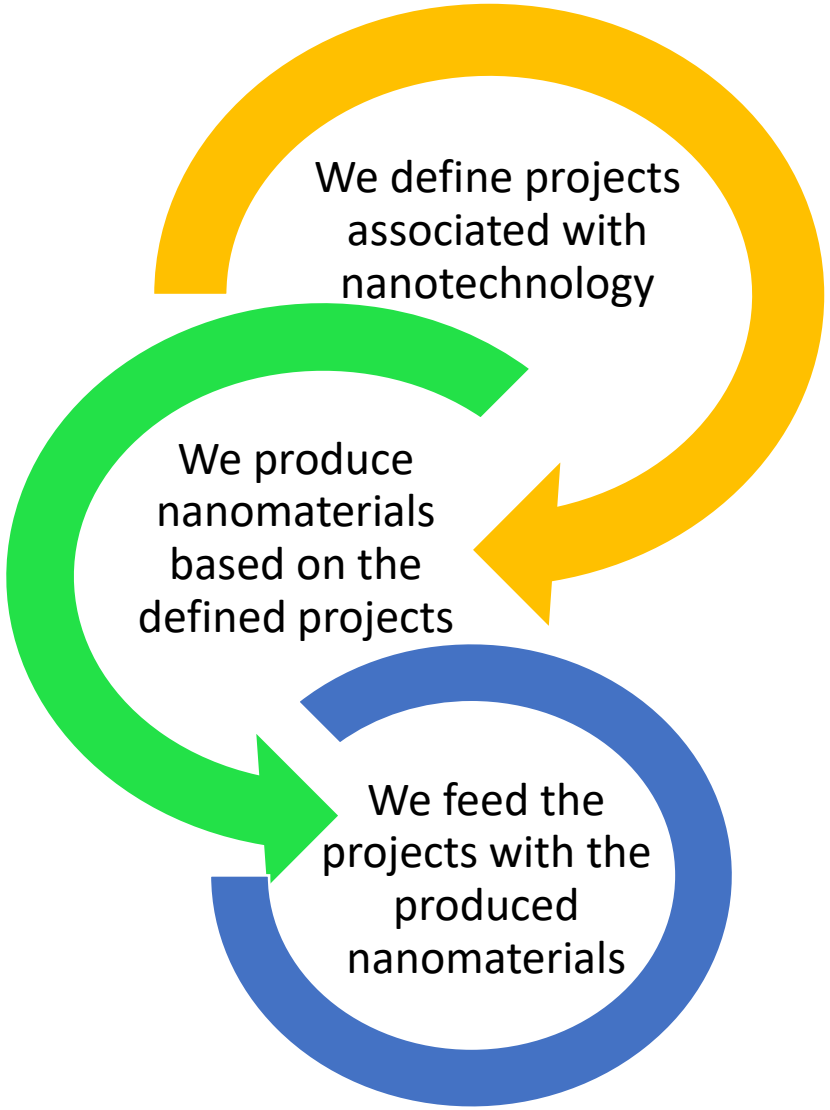
- We benefit from nanotechnology to:

1. create final products with unique characteristics.
2. solve societal and environmental challenges such as health, waste water, etc.
3. provide industries with superior plant competitive advantage.

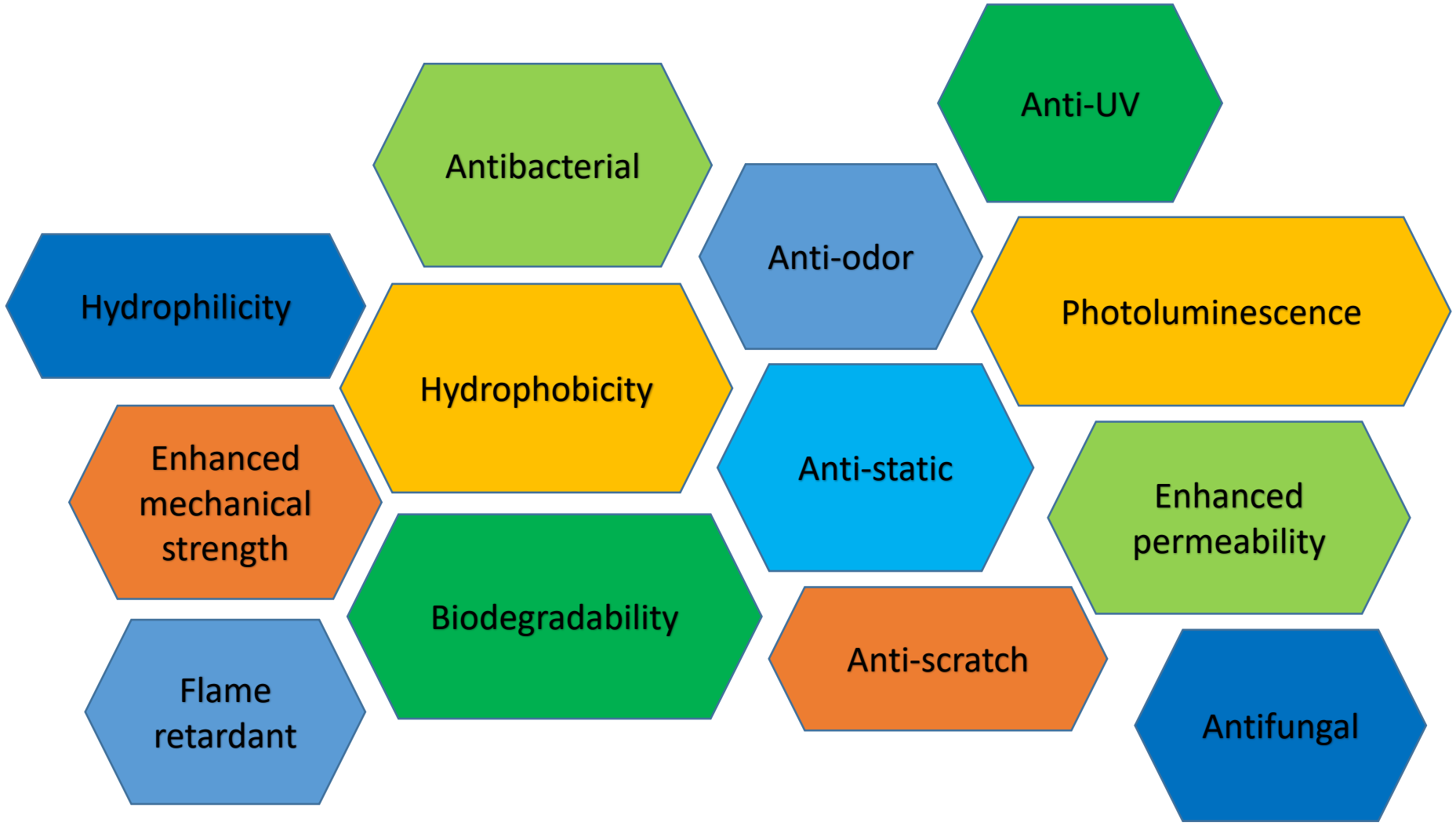
# Our products and services:

For any industrial unit, we define projects with the help of nanotechnology to:

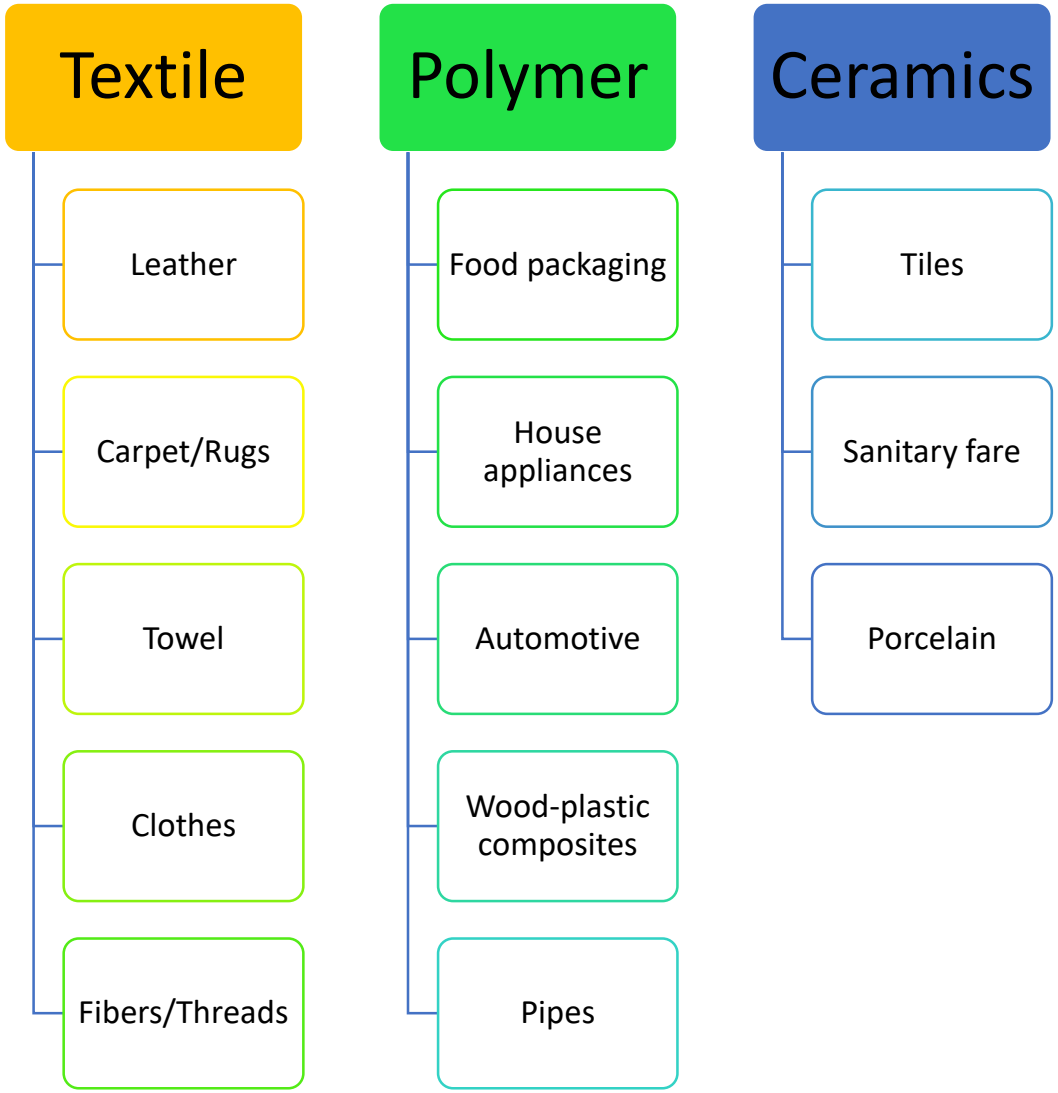
- gain final products with novel or enhanced characteristics.
- solve existing challenges and issues.



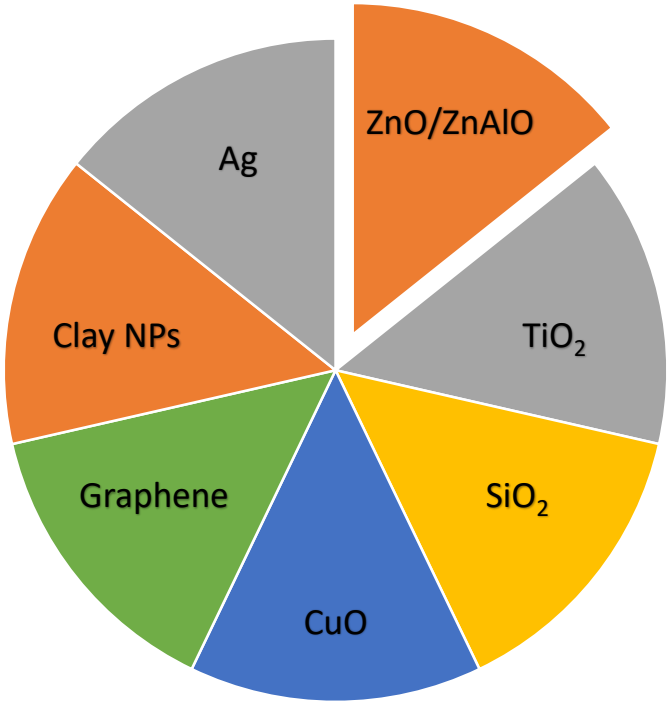
# So far we have worked on the following features:



# In the following industries:



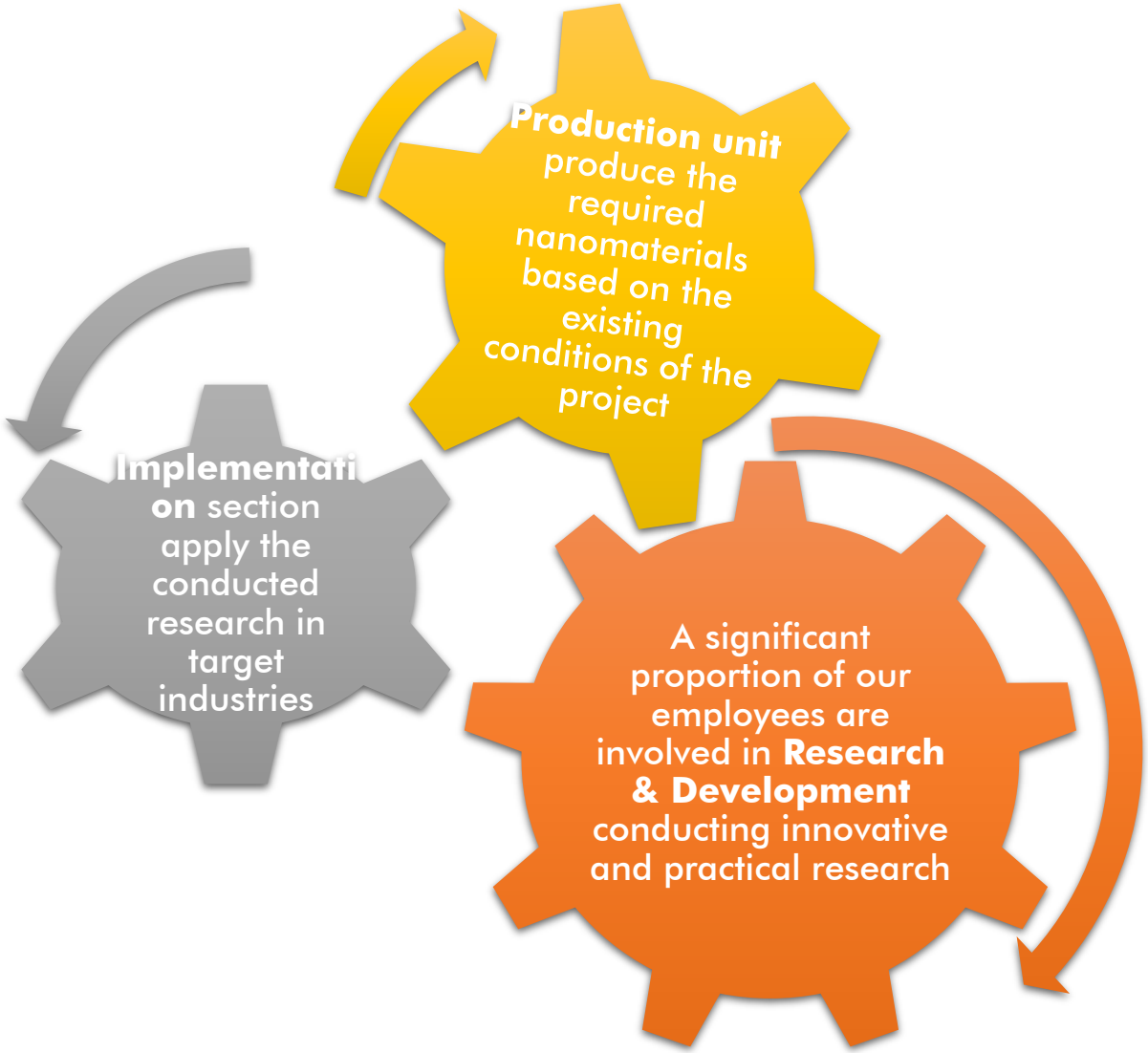
To fulfill our projects' goals, we have produced the following nanomaterials:




The produced nanomaterials may have different codes which refer to the difference in their characteristics due to an intentional change in the synthesis routes or synthesis conditions.

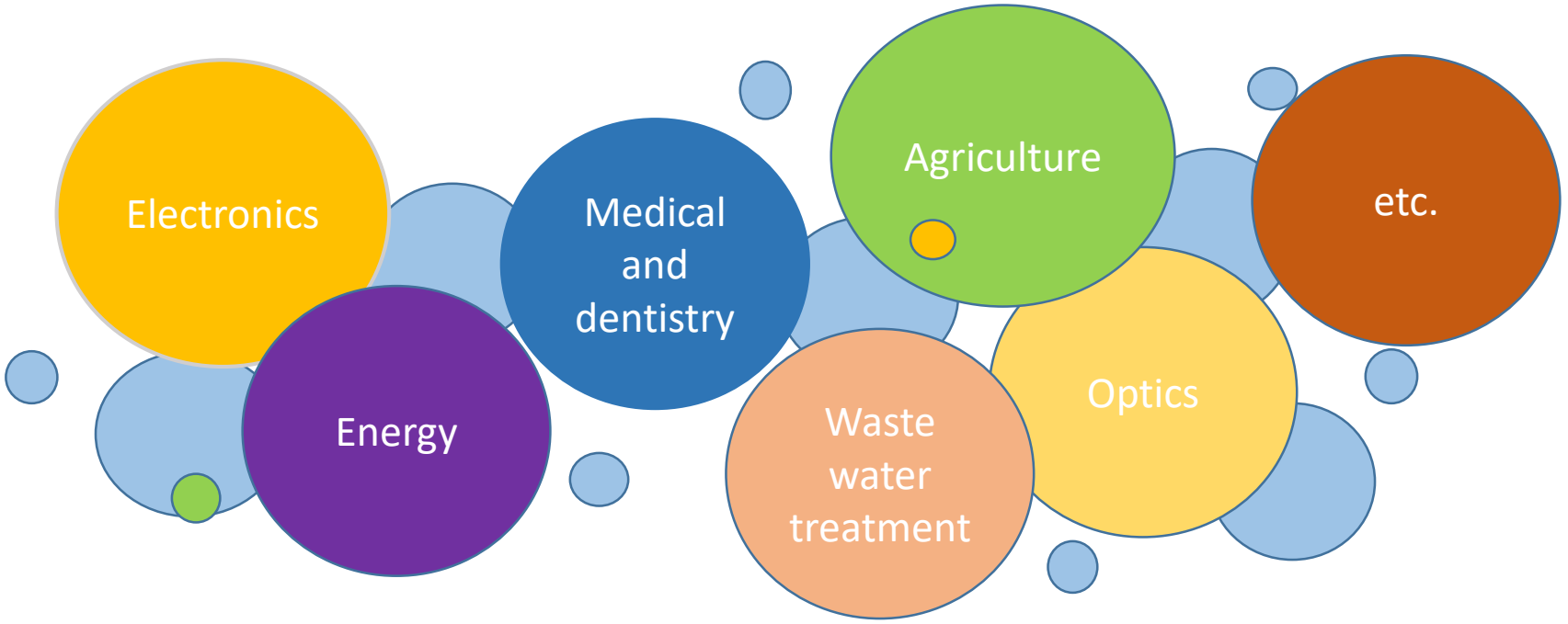
# What makes us stand out?

- What makes us unique is our experience and ability to make the idea into reality.
- With the help of Marketing section, the projects are provided and planned. The other sections try their best to reach the desired outcomes



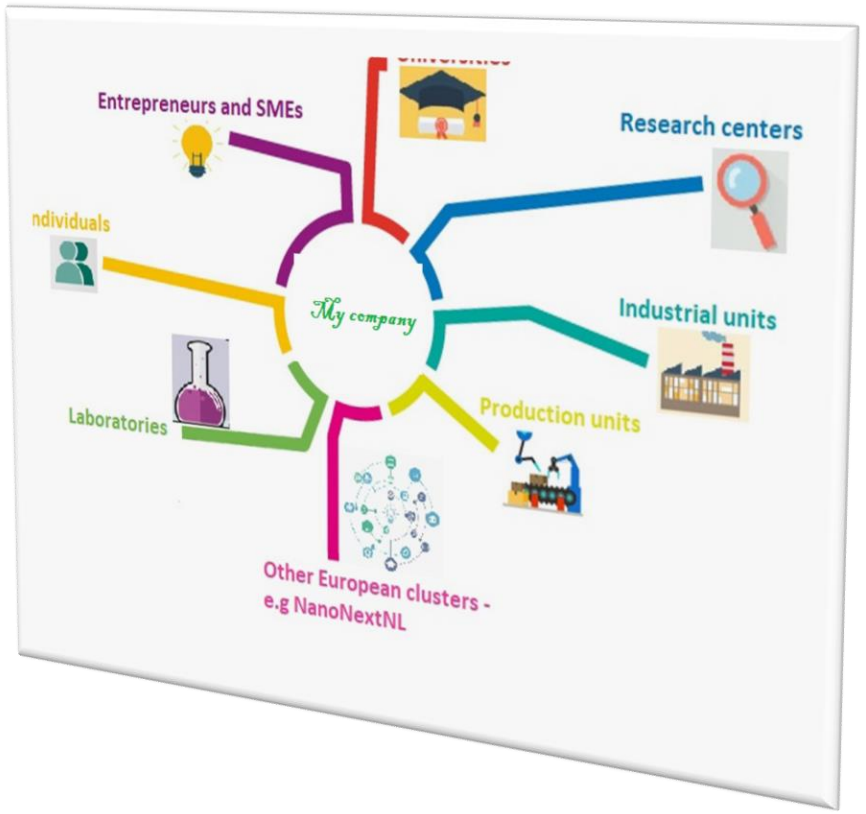
# Our Perspective:

We are determined to penetrate into other industries with priorities of societal and environmental challenges and those in demand.



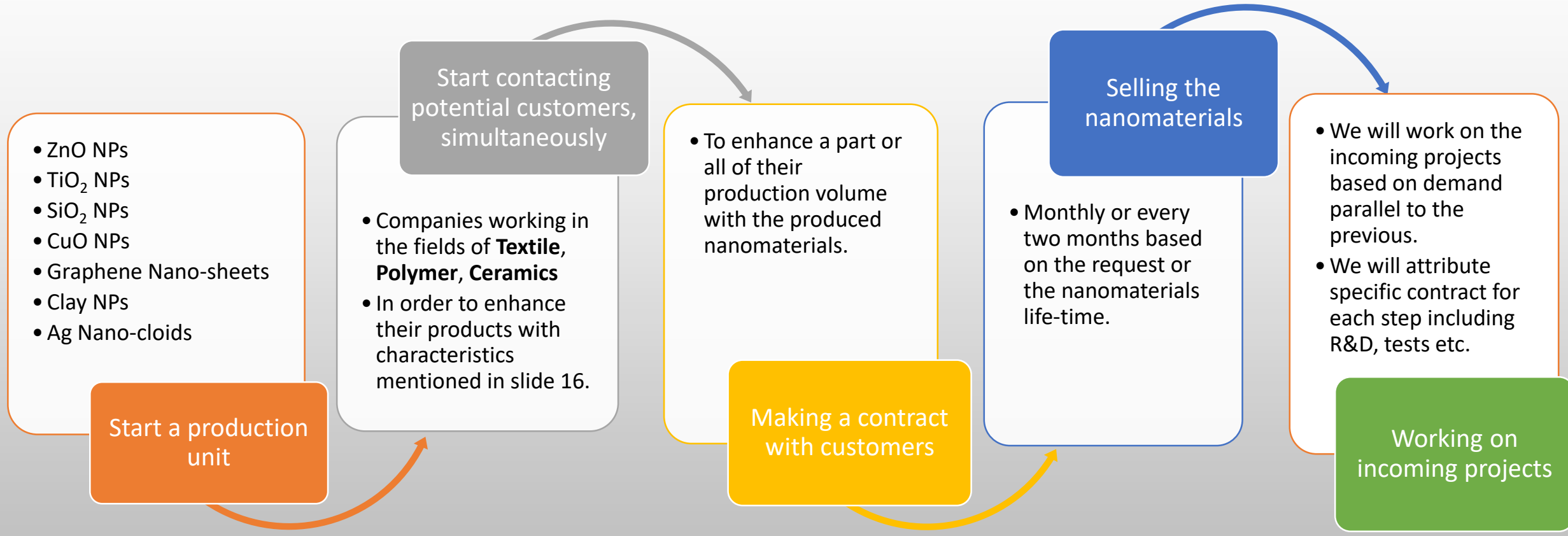

We are completely aware that this cannot happen as an individual firm.

# Therefore, we aim at becoming a cluster:



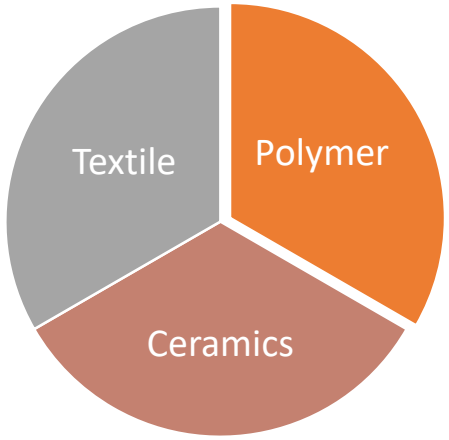
# How to start?

# Business trajectory:



# Market:

- In the beginning any company working in the fields of:




- It would be good to note that only for antibacterial, antifungal and anti-odor properties, the majority of the selected nanomaterials consists of ZnO nanoparticles, also known as zinc white.
- The global export rate of this product, with HS code 381210, is highly interesting.

The global export rate of product coded as 381210 (1000$)

| Global export | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| Global | 576,814 | 691,531 | 836,032 | 762,835 | 728,036 | 842,050 |

Based on the statistics provided by the Chamber of Commerce, Industries, Mines and Agriculture of Iran, the pioneering countries in exporting this material are given below. It is needless to mention that the value of export is noticeable.

The export rate of product 381210 from pioneering exporting companies (1000$)

| Country | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|
| China | 185,691 | 280,961 | 421,052 | 379,474 | 348,773 | 418,245 |
| Germany | 53,151 | 56,989 | 64,135 | 55,686 | 58,277 | 64,608 |
| The US | 44,877 | 53,852 | 59,997 | 60,080 | 61,068 | 64,233 |
| Italy | 26,693 | 30,500 | 32,591 | 25,708 | 28,538 | 50,454 |
| Malaysia | 22,071 | 22,849 | 28,089 | 32,104 | 36,285 | 34,241 |

# Investing:

Obviously, every start-up needs investment to grow.