

Industry is strongly committed to M2i because the future success of many market domains depends on breakthroughs in materials technology. Basically, new and innovative materials are a crucial factor in achieving sustainable competitiveness and outstanding business results in almost all industrial sectors. Working in close consultation with industry and academia, eight market domains have been chosen in which materials play a key role in business opportunities. These domains are aerospace, automotive, maritime, materials production, medical devices, professional & consumer products, energy & power systems and civil industry. Although the value drivers for economic growth and cost reduction vary widely due to the considerable differences in the fields of application, they have much in common in terms of research and development needs.

Aerospace

The business of aircraft structures in the Netherlands has a size of €1.3 billion with a limited number of companies employing 5000 people. The sector is well known for its reputation as materials innovator and wants to double its turnover in the next ten years. This demands the development of improved composite and laminate materials with strongly improved weight / strength performance and a predictable behaviour.

Automotive

This sector shows a turnover of €12 billion produced by over 200 companies with 38.000 employees. To further enhance the strong supplier position of the Netherlands in this sector and to increase the turnover level to €20 billion in less than ten years, new functional materials and new combinations of materials are needed, driven by cost reduction, need for increased safety and environmental demands.

Maritime

In this sector the Netherlands holds the third position in Europe. The turnover in the offshore industry and the maritime production sector is €8 billion by 1100 companies and 55.000 jobs. In these segments, aiming at a growth of 100% in the next ten years, new hybrid and sandwich materials as well as new joining technologies are needed in shipbuilding (marine vessels, mega-yachts and dredger equipment) and in exploring oil and gas at sea depths of more than 3 km.

Energy & power systems

In this important sector with a turnover of €5 billion, 20 companies and 29.000 jobs the primary challenge is to develop alternative energy sources in order to reduce the current fossil energy consumption and emission levels. This requires high-level material breakthroughs to boost the development of alternative energy sources successfully.

Materials production

The business of materials production focusses on advanced materials, coatings and production technologies. Steel based materials and composite materials are the two main categories in this sector with a turnover level of €10 billion and 1200 companies employing 50.000 people. The yearly growth target of this sector is 5% during the period 2006-2010. The high standing

world-wide position of material producers can be enhanced by breakthroughs in strength / ductility performance, adhesion and joining of coated materials, nanotechnology and polymer / metal matrix systems.

Medical devices

In the Netherlands the business of medical devices for hospitals, physicians, dentists and personal health care realizes a turnover of €5 billion with 2400 companies employing 32.000 people. Due to an aging population, this sector is expected to double its turnover in ten years time. To make progressive steps new developments are needed. Therefore, designing, shaping, patterning, joining and integrating functional materials in MEMS and SiP like devices are key topics in the research program.

Civil industry

The current turnover level of the sector is €11 billion with 5000 companies employing 84.000 people. The expected growth is 5% per year during 2006-2010. More important than the expected growth is the introduction of new ways of constructing buildings and infrastructure to enhance the sustainability of our society. Construction companies can benefit a lot from new materials in terms of multi-functional and maintenance-free buildings which are energy neutral.

Professional and consumer products

The core business of this sector is the high tech systems and nano-electronics industry. Including the whole supply chain the size of the business in the Netherlands amounts to €20 billion with 2300 companies and 72.00 jobs. The growth target is €6 billion in five years time. New materials have to be developed for function integration in intelligent devices at several length scales to further enhance the position of this market domain.