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Supporting companies today for the economy of tomorrow

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Located in the logistics heart of Europe and as Belgium’s coastal region, West Flanders is an optimal breeding ground for business.

An extensive, congestion-free and versatile network of motorways, railways and waterways provides the local industries and distribution direct and flexible access to the most important European consumption and production centres.
LOCATION
Northwest Belgium

CAPITAL
Bruges

SURFACE AREA
3,144 km² (Belgium = 30,528 km²)

GEOGRAPHY
Coastal province, 67 km of coastline
Supporting companies today for the economy of tomorrow.

In order to give businesses in West Flanders every possibility to grow regionally and internationally via innovation, the Province of West Flanders established cluster partnerships to proactively prepare its industries for the future. From practical services to promotion, research, training and infrastructure; the cluster partnerships aim to create an optimal breeding ground for a future-oriented economy.

The partnerships help companies in West Flanders to successfully do business in a continuously changing world. This is possible thanks to a combination of knowledge, experience and know-how from different domains working in close collaboration with education, science, industry and local government.

The policy of cluster support means smart specialisation for the economic future of West Flanders. The focus lies on five clusters in which West Flanders excels and with excellent growth potential: food, new materials, mechatronics & machine building, health care and blue energy.

West Flanders supports its new materials cluster by focusing on innovation, SME support and internationalisation.

“The New Materials Cluster offers West Flemish companies unique opportunities to fulfil their needs and expectations in collaboration with a management team of experts.”

Frans Deryck, strategic coach, Cluster New Materials.

“From within our province, we nourish the historically developed innovative power of companies and provide them with maximum support.”

Jean de Bethune, Provincial Executive for Economic Affairs and International Cooperation, Province of West Flanders.

Supporting companies today for the economy of tomorrow.
NEW MATERIALS: GROUNDBREAKING TRANSITION

For many years, West Flanders was synonymous with textile and flax; in earlier times, these were the mainsprings underlying the prosperity of the province. It is not a coincidence that the Lys is called the ‘golden river’, since it provided a secret ingredient and was also the transport artery for the flax processing industry. An old, rich industrial history has now made way for a future-oriented sector of new materials. An economic branch in which affinity with the Lys district has continued uninterrupted. In which highly complex requirements (lightweight, anti-bacterial, anti-scratch, etc.) and ecological aspects (availability of raw materials, recycling, safety, hygiene, etc.) are key impulses. A sector in which West Flemish companies are at the top of the world because they launch smart, compact and efficient plastics, textiles and composite materials on the international market.

“The best flax in the world is still grown in our region and enables us to manufacture linen fabrics of the highest quality.”

Raymond Libeert, CEO Libeco

The roots of new materials

The flax and textile industry brought West Flanders centuries of prosperity until both industries came under severe pressure after 1950. The emergence of new technologies forced a shift away from these once flourishing industries. Synthetic fibre was introduced and the emerging plastics industry propelled the rise of a renewed sector with unprecedented opportunities in the form of combinations of the various types of materials.

Union de Lin

In 1960, around forty West Flanders flax farmers united to produce flax chipboard via Union de Lin. This collaboration would later become Unilin, a world leader in the field of laminate flooring, insulation and roof elements. A striking example of the successful transition of the West Flemish industry.
Advanced and unlimited

Polymers play an important role in the development of new material characteristics. The high technological opportunities of adding extra functional layers (= coatings), signify an enormous breakthrough in the field of existing material characteristics: fire resistant, water repellent, sterile, scratch-resistant, UV-protective, etc. West Flemish companies are also trendsetters in the use of biodegradable, bio-based and/or recyclable materials. Adaptations tailor-made to the needs of society are made in response to societal challenges (safety, hygiene, light weight, insulation, ease of use, etc.) and a heightened awareness concerning the welfare of our planet. Companies also resolutely choose new business models in which the circular economy is generally the common thread. The choice of closed loops in the life cycle of products makes possible a more efficient working environment, and contributes to the environment and to society.

“In order to survive in these hyper-competitive world markets, our companies have to constantly reinvent themselves. There are countless opportunities for that within the new materials sector.”

Fa Quix, Managing Director, Fedustria

“There are substantial synergies between the textile and plastics sector. Both industries often use the same raw materials and production processes and explore the same innovative avenues. The collaboration between these sectors is obvious.”

Jan Laperre – General Manager Centexbel

“(Inter)nationally-oriented cluster.

684 companies in West Flanders are engaged in the textile and plastics industry and account for an added value of €1.2 billion. This provides direct employment to 14,000 employees, with around 17% of the number of persons employed by the industry being residents in the province. With a few global players in a number of niches (windows, laminate flooring, technical textiles, etc.), the cluster is also firmly established internationally. Almost 59% of the Flemish textile-related exports and 25% of the total Flemish exports in plastics are generated in West Flanders. In order to tap all these markets, the province has two deep sea ports (Zeebrugge and Ostend), two international airports (Ostend and Wevelgem) and three inland terminals (Avelgem Container Terminal, Rail Terminal LAR and River Terminal Wielsbeke). This multi-modal transport infrastructure puts West Flanders on the map as a well-developed logistics hub at the global level. In addition, with Kortrijk Xpo, the province hosts a top international location that familiarises national and international public with groundbreaking materials and breakthroughs within the West Flemish textile and plastics sector.

The West Flanders factor

- 60% of the trucks in Europe transport products under West Flemish tarpaulins
- In the European amusement parks, more than 70% of all the roller coasters run on West Flemish wheels.
- West Flemish linen is supplied to renowned top chefs like Sergio Herman, next to football teams like Club Brugge and various international customers.

A permanent bond with the Lys

In Kortrijk, there is no dilution in the link between the Lys and the old industries. With Texture, an award-winning museum on the banks of the Lys river is fully dedicated to these ancient glories. Initiatives on the same shores focus on the future. For example BudaLab serves as a public community of creative designers and provides insights into innovations in the field of design and product development.

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INVEST IN WEST FLANDERS

THE NEW MATERIALS CLUSTER – A NETWORK IN OPEN INNOVATION

West Flanders is resolutely dedicated to working on technology-powered materials and material properties. From the Flemish Plastics Centre (VKC) in Kortrijk, the anchor point of the new materials cluster, the provincial development agency POM is fulfilling its role as a catalyst within a network of pioneering companies.

Flemish Plastics Centre – anchorage for open innovation

As a physical hub, the Flemish Plastics Centre (VKC) plays a decisive role in the extension of the cluster new materials. Through a strong partnership, the centre offers a range of training, support, advice and innovation. For the latter, VKC practises a philosophy of open innovation. Businesses, start-ups, employees, students, etc. from all sectors have free access to high-tech facilities and extensive expertise.

Encouraging creativity

The employers’ organisations Voka and Unizo are committed to involve companies as much as possible in the new cluster through specific coaching programs. Both organisations have been able to work out several notable collaborations under the umbrella of the cluster new materials:

• The business club New Materials (Voka) acts as an innovation network for the industry. Discovering, inspiring and linking businesses with reinforcing contacts are central to the program. In addition, the business club links businesses with companies that are European leaders in the development and processing of new materials.

• The business club Expert Makers (Voka) brings together ten companies each month. Their shared passion for design and their love for artisanal products soon developed into a pop-up hotel concept for the Parisian fair Maison D’Objet: Hotel Bel’chique. The group thereby emphasises its maturity for the international market with expressive products.

• Open Workshops – ‘De Makers’ (Unizo) brings together new and old creators as well as aspiring creators, DIY’ers, young creators, and manufacturers of artisanal products. This initiative provides advice and support on innovation, sustainability and co-creation. During the open workshops, trends and product innovations are explored from the point of view of creative process.

Spin West – incubator for innovation

Spin West assists new as well as experienced entrepreneurs to establish, roll out and accelerate their dream business. Experts joined forces with candidates on issues of feasibility, strategy, and the legal and taxation tangles of a new project. In close collaboration with the General Belgian Flax Association, Spin West also helps guide flax businesses in the right direction. This is achieved through the professionalisation of management and processes, stabilisation and strengthening of production and internal structure, in addition to research on the international market position of West Flemish flax and linen.

“No single industry functions without the presence of plastics. It is therefore logical that Centexbel works across sectors”

Wim Grymonprez, New Business Development Manager, Centexbel
West Flanders is full of knowledge and experience on the development of new materials, and fully utilizes applied research. Colleges, university campuses and multidisciplinary knowledge institutions carry out tailor-made research and development for businesses.

**TUA West, Knowledge as a foundation**

TUA West is an alliance that promotes and fosters excellence in higher education and research in West Flanders. Why? Because knowledge is the basis for a future-oriented economy tailor-made to society. TUA West stands for Technical University Alliance for economic transformation in West Flanders. It is a unique partnership between the Province of West Flanders, the Howest and VIVES colleges, the universities of Ghent and KU Leuven, with their West Flemish campuses and the employers’ organisations Voka and Unizo.

**Research focus on new materials:**
- Thermoplastic polymers and composites;
- Process optimisation and new production processes;
- Recycling of textiles and plastics.
Market-oriented investment

- The spin master of Centexbel in Kortrijk and Devan Plastics is a classic example of a future-oriented investment in collaborative, open innovation in new materials. It has proved to be a very interesting and successful formula. In the last two years, 16 companies from 9 different countries, from Belgium to Saudi Arabia, have used this semi-industrial extrusion and spinning line.

- The research project Accelerate³ of Centexbel, Kulak and Brightlands Chemelot Campus (NL) and TUA West, is a concrete example of academic research on renewable materials. The project aims to respond to the need to develop bio-based polymers for 3D printing. Through this project, investments are being made in advanced equipment for characterisation and 3D printing. The initiative enjoys support from the Interreg V program Flanders-Netherlands and from the Province of West Flanders.

- Supported by POM West Flanders and TUA West, the KU Leuven in Campus Kulak Kortrijk established a Chair for New Materials. The Chair conducts academic research in the field of renewable materials such as polymers made with natural or recycled materials in particular.

“The New Materials Chair supports fundamental scientific research in various domains by providing financial resources and advanced equipment. This is great news for the research community and for the economy of West Flanders.”

Prof. Wim Thielemans, University Lecturer KULAK, New Materials Chair
THE NEW MATERIALS CLUSTER · WF

INVENTIVE WEST FLANDERS

INVENTIVE WEST FLANDERS

The province is home to many wonderful accomplishments, each of which demonstrates what the sector stands for, and the progress made by it. On several occasions, thanks to the versatility of textile and plastic and a combination of technical sophistication and dedicated cooperation, a large number of applications have been successfully launched on the market in the widest variety of sectors. The degree of inventiveness and the unique method of creation reflect the strong international reputation of the West Flemish new materials cluster.

TECHNOLOGICAL TEXTILE

Electronic volleyball net

The Ostend XL Video and Sioen from Ardooie have designed the volleyball net of the future. An integrated system of electronic components informs the audience through a large screen of the force with which a smash moves toward an opponent, among other things. An extension of this technology is now being applied in various sports.

High-tech work fashion

Companies in West Flanders design, develop and manufacture a wide range of high-tech, waterproof protective clothing. This ‘work fashion’ offers both quality and functionality under the most extreme working conditions, and also contributes to wearing comfort and safety.

Floor covering sector

Companies such as BIG, Balta, IVC, Unilin continue to innovate and invest. The top products are: luxury vinyl tiles, carpet tiles, exhibition carpets, artificial turf, etc.
INVEST IN WEST FLANDERS

A CLOSER LOOK AT PLASTIC

Unbreakable and qualitative
Covestro produces unbreakable plastic sheets for innovative applications such as the roof of the World Cup Stadium Brasilia 14, the cockpit windows of the Solar Impulse, and transparent hoods for Lamborghini.

Carbon fibre shin guards
Mat2Composites is launching superlight shin guards of unprecedented strength on the market through the combination of product design and flax and carbon fibres. The start-up company also distinguishes itself with its high level of social media activity.

New applications
Paneltim introduced PP Copo sandwich panels as a new solution for installing pen partitions in piggeries, instead of PVC plates and concrete elements. The panels are 100% recyclable and free of toxic substances. From waste to raw material

FROM WASTE TO RAW MATERIAL

Circular economy
At its Diksmuid establishment, Deceuninck makes new window profiles from sometimes decade old PVC window frames. 50 years ago, Deceuninck started designing 100% recyclable products and today the lifecycle loop is closed.

Old jeans, new towels
Textile manufacturers European Spinning Group (Spiere-Helkijn) and Jules Clarysse (Pittem), along with a few Dutch partners, jointly developed a method to use old jeans in the production of durable towels. The Dutch Defence Department has already ordered hundred thousand pieces.

Biodegradable ground cover fabrics
Beaulieu Technical Textiles (Comines-Warneton) has introduced biodegradable and compostable woven ground cover fabric on the market. This is the response of the company to the ban on pesticides in cities and towns. The ground cover fabric is also maintenance free, which saves costs and time.

INTERVENING ON A MICROSCOPIC SCALE

Reusable surgical textiles
Vetex from Ingelmunster developed a superior membrane that makes surgical textiles reusable and also capable of sterilisation. With a highly unique teflon membrane, the anti-bacterial, anti-viral and waterproof textile has now been placed on the international market. The material also ‘breathes’, due to which users find it comfortable to use.

Textile based seaweed cultivation
The spin-off At Sea Technologies developed an advanced coated rope on which seaweed can be cultivated in a controlled, efficient and productive manner. The advanced textile substrate for seaweed cultivation focuses on simple harvesting with much higher yields than was possible so far; a breakthrough for European industrial seaweed cultivation.

Revolutionary sleep technology
The Smartsleeve product range of Bekaert Textiles (Waregem) has a three-dimensional structure. This creates a unique ventilating layer that counters temperature fluctuations. Sheets therefore feel fresh in the summer and remain warm during the winter. The Smartsleeve version not only ventilates, but also repels mosquitoes, thanks to microcapsule technology. The capsules burst open due to body friction and the released eucalyptus extracts evaporate and create a mosquito-repellent zone that keeps mosquitoes at a safe distance.

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The textile and plastic processing sectors are evolving rapidly. Increasingly more complex products and technologies are raising competency requirements for existing and future employees. The cluster new materials offers an answer to these challenges with its training pillar Academy for the Future and with TUA West. Thus, among other things, maximum efforts are being made to offer demand-driven training opportunities to serve industry. Ultimately, competent and motivated employees are the key to sustainable and future-oriented sectors.

Tielt Area in focus
The Tielt region, home to many companies of the new materials cluster, has several striking initiatives that represent classic examples of the activities of the Academy for the Future. The two-day training and job fair Technotielt for example showcases niches within the business community, knowledge institutions, (schools and) colleges. The event immerses new generations into exciting and continuously evolving technological sectors. It has been found to be a highly valued concept; in 2016, the organisation welcomed more than a thousand enthusiastic youths. The Tielt region is also a pioneer in dual learning. The Plastics@Tielt cluster, a collaboration of plastic processing companies, PlastIQ and VTI Tielt, offers students of the mechanical design techniques department, the option of pursuing training in the dual learning format. The emphasis is on learning within an enterprise, where the students are required to immediately apply the theory they have learned, in practice.

Higher education - focus on new materials
Training courses with a specific focus on niches offer companies unprecedented added value. Fresh graduates of new materials are highly sought after in the job market, and trainees deliver fully worked out projects that can make a difference. The universities and colleges in West Flanders offer students a wide variety of training packages with which they can immerse themselves in a booming sector.

• Bachelor of Industrial Product Design
  Howest
• Bachelor in Design and Production Technology:
  VIVES
• Master of Industrial Design
  UGent-Kortrijk
• Academic Bachelor and Master of Plastics Processing
  KU Leuven Campus Bruges
• ManaMa Industrial Plastic Processing
  KU Leuven Campus Bruges
• Postgraduate in Integrated Product Development
  Kulak-Ugent
• Postgraduate in Additive Manufacturing
  Kulak-Ugent

Niche training courses make the difference
• Design with Flexible Materials focuses on product design through the creative integration of textiles and other flexible materials into the design process. The joint project of the Industrial Design Centre, the Bachelor Industrial Product Design (Howest) and the Master of Industrial Sciences: Industrial Design (Ghent University, Campus Kortrijk), enjoys the support of the social partners of the textile industry (Fedustria and textile unions).
• In the ManaMa Industrial Plastic Processing of KU Leuven Campus Bruges, which is unique in Flanders, students learn which plastics are suitable for which high-tech applications, and how design techniques can then be applied to provide them with their final design.
• As an inspiring workshop, the VIVES MakeLab is dedicated to co-creation in the development of technical skills and innovative concepts. A challenging learning environment in which training, cross-over initiatives, advanced services, project management, prototyping, advice and applied research are available.
The drive and activities for the cluster of new materials are largely determined by the short term developments and challenges within the sector. From the perspective of regional development however, it is also necessary to keep the long term vision in mind and to set higher targets, which will often have to be addressed in an international context.

**Objective 2025:** Revolution in material use

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**2025: A year full of ambition**

A vision for the year 2025 has been drawn up within the cluster new materials. The industry and the research organisations today already possess the know-how and expertise to achieve these ambitious, yet realistic goals, by 2025. West Flanders is therefore building up, developing and further intensifying an infrastructure for open innovation; complementary to the existing applied research capacity.

**Pioneering role within the circular economy**

West Flanders is regarded as a reference in Belgium and Europe for raw material diversification due to its optimal situation in relation to relevant chemical, biotechnology, agro-production and renewable energy clusters. This, coupled with high-level expertise in recycling and recyclates assures West Flemish businesses of competitive raw materials and delivers high levels of target-oriented value-addition.

**Exploiting intersecting value chains**

The West Flemish ecosystem very efficiently identifies opportunities in, for example, materials used in agri-food, the maritime sector, health care and mechatronics, in intersecting value chains. The priority in this connection is still market orientation, innovation, complementarity, border crossing and upscaling; from research and development, through to production and delivery.

**Outstanding digital production.**

West Flemish companies are renowned for automated and digital production using processes that economise the use of material, energy and water. Production processes that reuse recycled materials with the help of advanced production technologies. The mentality change in the sector in the use of raw materials, is due, among other things, to the intensive collaboration with technological companies in additive manufacturing, mechatronics and digital production.

**The future is wearable.**

The integration of sensors, LEDs and electronics improves life by increasing the ease of use of clothing, shoes, backpacks, bicycles, glasses, patches, etc. West Flemish companies are in the forefront of this trend, thanks to technical sophistication and extensive cooperation in smart textiles sector. West Flemish companies are working intensively on clothes sensors - these are electronic components linked to clothing, capable of measuring temperature and load, determining the location, and automatically adjusting the protective properties of smart textiles. There is an almost infinite range of opportunities for such applications, from top sport, health care, to professional sports.

**Circularity with/in new materials**

The capacity of the Flemish Plastics Centre in Kortrijk has recently doubled. By making new investments, extra space and equipment for the support of the circular economy are made available.

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**Intelligent clothing with sensors that enable monitoring users as well as care providers (Project Careware)**

**Conductive yarns for sensors woven into clothing (Bekaert, Bekintex)**

**Heated insoles and optimal ergonomic support (30Seven)**
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