

TAKING ON A NEW DIMENSION



2018

ACTIVITY REPORT

skywin.be



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CHAIRMAN'S MESSAGE

In the ecosystem of the Skywin Cluster, the year 2018 will remain remarkable by the important military contracts that Belgium granted. Keeping in mind the long-term industrial impacts of the purchase of the F-16 Fighters 40 years ago, the sector mobilized once again to legitimately try to position itself when they were replaced. At the same time, the consolidation by the European Union of its ambitious sovereign Defence project opens up new scientific and industrial opportunities.

A recent topic has also caught our attention, the Drone sector. The diversity of its applications is already very impressive. Its development perspective is almost unlimited and offers an important technological but also regulatory scheme to imagine and consolidate.

Unsurprisingly, the programs focussed around research and development have shown us the ever-increasing importance of engineering, calculation and simulation tools, confirming the prominent place of the producers and users of these systems.

This is why, beyond our historical coverage of the aeronautics and space domains, we have chosen to add Defence, Drones, and Engineering as part of our cluster's activity.

Civil aeronautics, for its part, will still offer a magnificent growth potential. The recent scientific and civil society's mobilisation for the protection of our environment reminds us every day of the urgent need for technological progress and appropriate responses.

The Space sector is also facing huge competition with a business model that is undergoing profound changes. Here too, the solutions will need creativity and innovation.

Luckily, we are growing, with a dozen new members (mainly SMEs). Would this not be the preferred place for creativity to take-off?

Finally, I would like to thank Pierre Sonveaux, who has been in charge of Skywin's presidency for the last 8 years and has put all his know-how and energy at the service of the sector, with a strong personal involvement at the regional, federal and international level.

Jacques Smal
Chairman



01

SECTORS

*Aeronautical
Spatial
Defence
Drones
Engineering*



AERO

The Walloon sector dedicated to Civil Aviation is a historical sector stemming from the metallurgical and mechanical skills acquired in the 20th century, which is still growing in Wallonia.

It brings together more than 70% of the Belgian activity and alone supplies 5% of the Airbus range's equipment, while also being present in Bombardier and Embraer.

The Walloon aeronautics industry employs over 6,000 people (direct employment) with a turnover of 1,5 billion euros.

Skywin's activity is focused in the following areas:

- Structures (metal and composite)
- Aircraft engines
- Engine test benches
- Embedded systems
- Maintenance, repair and overhaul (MRO)
- Numerical simulation, computer-assisted test and design
- Airport services
- R&D
- Training

This sector brings together large and globally recognised companies such as:

- **Sonaca**, world leader for fixed and moveable wing leading edges;
- **Safran Aero Boosters**, world leader in low pressure compressors;
- **Sabca**, for structures and maintenance.

It also includes an extremely dynamic network of SMEs integrated into the global supply chain, sometimes under Tier1.





SPACE

Over the last 20 years, the Walloon space sector has more than tripled its turnover (350 million euros) and its number of stakeholders: 44 companies, research centres and academies from the sector are now members of Skywin. It is an important part of the Belgian sector, which occupies fifth place in terms of investments in space research in Europe.

Members' activities cover the 7 main segments of the space sector: the ground segment, launchers and spacecraft, satellites, Earth observation instruments, space equipment testing, ground satellite applications and space science .

In 2018, Skywin's space players have defined a new strategy for 2025 based on 3 major projects:

- Support industrial, scientific and innovation research;
- Ensure the transition to Space4.0;
- Promote the creation of a « New Space » sector in Wallonia.



DEFENCE

The Walloon sector dedicated to Defence and Security is a historical sector stemming from the metallurgical and mechanical skills acquired in the 20th century. The Walloon defense industry is still a growing sector bringing more than 60% of the Belgian activity and employing over 4,000 people with a turnover of over 1 billion euros. It brings together several large companies (Belgian and International) as well as a dynamic network of SMEs that are constantly developing new skills.

Main areas of activity:

- Structures (metal and composite, armour) for military aviation and ground armour;
- Military aircraft engines (production and MRO);
- Maintenance for military aviation (airplanes and helicopters);
- Light and heavy armament;
- Air carrier (POD) or ground (turret) weapon boarding system;
- Secure communication system for mission aircraft (Awacs, maritime patrol...);
- Electronic embedded system following military and civilian qualification;
- Military drone system (sensors, secured operating system, remote control...).





DRONE

The drone sector is growing rapidly in Wallonia. This is based on the following activities:

- Development of sensors and embedded applications which may be closely linked to embedded applications used in space;
- Development of all types of services for industry and the public sector;
- Design and test of machines;
- Design of embedded electronics;
- Training of pilots;
- Officially recognized test zones for professional drones development.



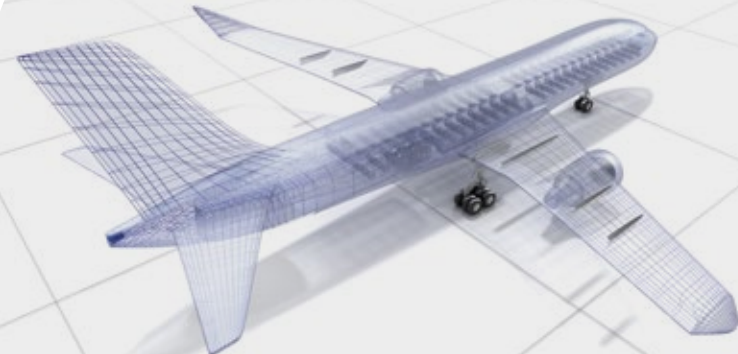
ENGINEERING

Engineering in Wallonia includes 4 types of entities:

- Digital simulation software editors. They usually have an engineering team available to support companies;
- Companies specialising in design, calculation, structure testing or development and manufacture of tools;
- Manufacturing companies that value their external skills to meet local needs;
- Research Centres which offer engineering services.

The main areas:

- Design, calculation, verification, optimisation of structural components;
- Updating of production processes;
- Fluid mechanics advice and calculations;
- Data processing.



02

STRATEGY

6 technological axes

4 action levers

Technological axes



Composite Materials
& Industrial Processes



Metallic Materials
& Industrial Processes



Space / Drones
Applications & Systems



Embedded
Systems



Modelling &
Numerical Simulation



Airport
Services

Action levers



Research & Development:

Encourage collaborative innovation to serve the industrial competitiveness of members. The approach builds on the skills of universities and research centres, and downstreams on industrial fabric applications to strengthen and increase market access in the targeted sectors.



Investments:

To help companies (mainly SMEs) in their growth or industrial redeployment by proposing the various investment aid solutions available in Wallonia, possibly in synergy with R&D or training projects.



Training:

To offer innovative training to industrialists and job seekers: new technical skills necessary for the competitiveness of companies and soft skills needed to consolidate or confront new markets.



Internationalisation:

In collaboration with AWEX, to promote the development and recognition of the cluster's companies in a sector naturally oriented internationally. Propose synergies with other international aerospace clusters. To improve the visibility of the sector and organise regional communities at international trade shows.

03

FIGURES

*Since 2006, the cluster has promoted the networking of aerospace sector stakeholders via **80 certified industrial projects**.*

*Skywin represents **7,500 direct jobs** and **€1.75 billion** of turnover.*

The number of members increased from 86 in 2006 to 148 entities at the end of 2018

70% of Belgian aeronautical companies are based in Wallonia. These Walloon companies provide an average of 5% of the components for each Airbus product.



100 SME



15 Large companies



7 Universities and High schools



11 Research centres

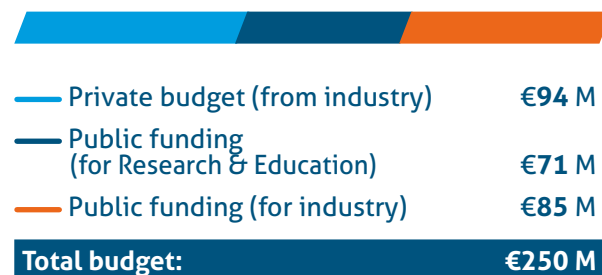


2 Centres of expertise

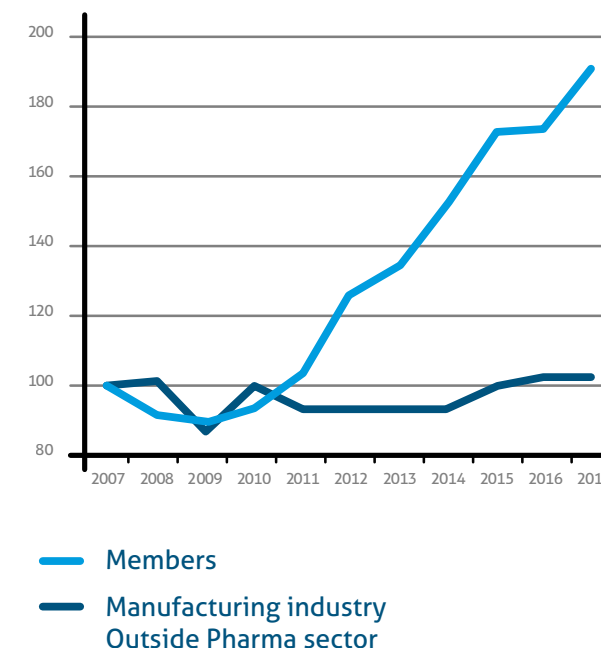


13 Other members

80 labelled projects over 24 Calls (2007-2018)



Evolution of the Added Value of the member companies and the manufacturing industry - base 100



148
ENTITIES



JOBS

7500

90%
EXPORTS

04

SERVICES

*Developing technological excellence
Improving competitiveness
Increasing impact
Sustaining employment*



Innovation projects:

- Skywin advises and accompanies companies in the development of collaborative projects (R&D, training and investment) until their labelling and financing.
- The projects bring together the skills of industrialists, universities and research centres.
- The ultimate goal is to create economic activity and sustainable employment.



Networking:

- The members of the cluster have access to a wide network of Walloon and international industrial, scientific and training partners.
- The cluster regularly organises thematic events to promote exchanges and partnerships (conferences, seminars, technology roundtables).
- The cluster frequently participates in its partners' events.



Competitiveness:

Various means are made available to members, for example:

- Availability of market studies from the Frost & Sullivan catalogue.
- Active participation in the "Made Different" program, which aims to promote the deployment of the Industry of the Future (4.0) in Wallonia.
- Partner of Space2IDGo project which aims to export European space innovation to third countries via the use of satellite data for earth observation, geopositioning and telecommunications



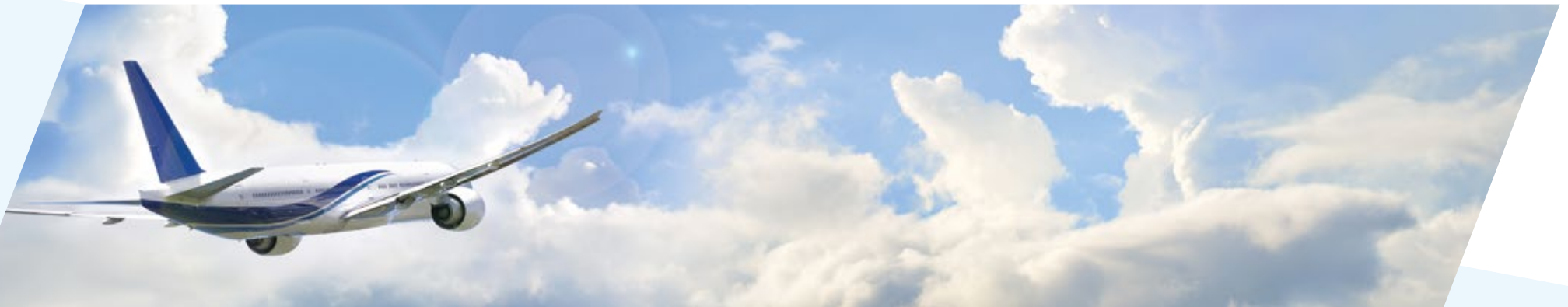
International:

- The cluster offers international visibility to its members and their projects through organisation or participation in various events or exhibitions (in collaboration with AWEX).
- Skywin collaborates with NCP Wallonia to promote the involvement of companies in European projects.
- The cluster has a network of international partners (France, Canada, Germany, etc.), and is an active participant in the European Aerospace Cluster (EACP).



Training:

- With its partners, Skywin participates in the circulation and acquisition of the skills necessary for the technological development of companies.
- Skywin supports innovative training projects in order to support a specific advanced field or to ensure the development of skills related to a R&D project.



05

PROJECTS

For 2018:

- *12 accompanied project ideas*
- *6 project deposits*
- *5 certified projects*



Composite Materials
& Industrial Processes



Modelling &
Numerical Simulation

SW_LAWITECS

Development of laminar wing technologies for reducing fuel consumption of commercial aircraft

In a context of significant growth of air traffic, aircraft manufacturers face new economic and environmental challenges of commercial aircraft. LAWITECS project, bringing together manufacturers such as SONACA, IONICS, MICROMEGA DYNAMICS and LASEA, proposes to develop Natural Laminar Flow technology applied to the wing leading edges in order to reduce fuel consumption of a medium-haul type A320 aircraft between 5 and 12% by 2025. This NLF technology requires reviewing the current wing profile and developing new geometric and structural concepts of structural parts to ensure a precise shape in flight. To achieve the very high surface quality required by this technology, new coatings will also be developed. In the same time, numerical and experimental tools will be developed by research and academic partners of the project to understand the sensitivity of airflow to surface defects and to quantify the degradation of properties generated by the environment.

Project leader: SONACA

Partners: Ionics, Lasea, Micromega Dynamics (SME's), CENAERO, Materia Nova, Von Karman Institute (Research Centre), ULB (University).



AERO



Metallic Materials
& Industrial Processes



Modelling &
Numerical Simulation

SW_MARIETTA

Technico-economical control of manufacturing tolerances

The aerodynamic market is a highly competitive market where the environmental constraints take an increasing place. Mastering the part tolerancing will contribute to strengthening the Walloon industry by proposing more environmentally friendly products (with a lower consumption) without jeopardizing the currently high level of reliability and economic performance.

The project SW_MARIETTA aims at demonstrating this mastery of the tolerancing of aerodynamics parts of low speed compressors for turbofan engines. To achieve this goal, it will implement new methodologies and tools in order to demonstrate the feasibility of including in the design process an evaluation of the impact of part tolerancing on the technical and economical performances of the low speed compressor.

It will also enrich the metrology analysis by integrating a direct identification of the principal modes of deviation from the nominal shape and their impact on the performance, leading to a reduced time and cost of waiver treatment.

Project leader: Safran Aero Boosters

Partners: European Metrology Systems (SME), CENAERO (Research Centre), ULiège (University).



AERO



Embedded
Systems



Metallic Materials
& Industrial Processes

SW_SIGURD

Smart Integrated Guided Rocket Development

The aim of the project is to bring together FN Herstal (FNH), Thales Belgium (TBE), GDTech, JD'C Innovation and Sobelcomp, as well as the Sirris and CRM Research Centers to conduct research that will develop and integrate the Thales laser-guided rocket fire capability into the FNH's Aero-digital product range.

This project will focus on the integration of a rocket launcher module with the S-Pod range, mechanical and digital interfaces, a lens protection solution for the seeker device and the integration of the "Lock-On Before Launch" capability of the Thales guided rocket in the DAMS of FNH.

At the end of the project, the developments will be industrialized by the partners before its series production. The marketing will be done by the FNH and TBE through their respective commercial network. The project will have shared benefits for partners and help maintain and create jobs.

Project leader: FN Herstal

Partners: Thales Belgium (large company), GD Tech, JD'C Innovation, Sobelcomp (SME's), CRM Group, Sirris (Research Centre)



DEFENCE

06



MEMBERS

148 members

10 new members in 2018

Membership of the Skywin Cluster is open to private or public legal entities with a registered office or operation headquarter in Wallonia and who are active in the research, development and/or application of technological products and processes in the aeronautic or spatial sector.

Members of the professional associations EWA (Walloon Aeronautics companies) and Wallonia Espace are de facto members of the Skywin cluster. Any other company or association may become an adherent member of the Skywin cluster, upon written request to the board of directors and following the agreement of the latter based on the following criteria:

- Active in the research, development and/or application of technological products and processes within one of the 5 sectors covered by Skywin.
- Have a link with at least one of the strategic focuses defined by the cluster.
- Pay an annual fee.

A company may also become a temporary member if it is part of a consortium for a certified project.

Since 2007, the total number of members has increased from 86 to 148 including a remarkable rise in the number of SME's.

In 2018, 8 SME's, 1 large company and 1 drone association joined the cluster.

Aerodrome of Namur (SME)

The aerodrome of Namur is located in the heart of Belgium. With its new asphalt track of 690 by 25 meters it can now operate all year round. The site continues to develop by building office spaces to create an aeronautical hub. The plane, drones, gliders and helicopters coexist for 70 years at the « Aéroport de Namur ».



Aerospacelab (SME)

Blending satellite imagery with non-geospatial data to help you find the needle in the haystack. We develop cutting edge tools to automate a broad range of tasks ranging from surveying to monitoring. We process heterogeneous datasets composed from various sources. The services can be run on-site or in the Cloud, according to your cybersecurity requirements. We are building versatile small satellites in the range of 25 to 50 kg.



Big Bad Wolf (SME)

Big Bad Wolf's mission is to support organizations in achieving their digital transformation by identifying creative technological opportunities and challenging business processes to positively impact the value chain. We see Virtual Reality, Augmented Reality, Computer Vision, Machine Learning and Natural Interfaces as new opportunities to redesign and improve business-to-consumers interactions.



07

INTERNATIONAL

To accompany members in their international development.

To increase the visibility of the Walloon aerospace sector.

Skywin develops and implements its internationalization strategy in close collaboration with AWEX and regularly consults its members.

Globally, it is based on the following actions:

- Participation in the two essential events of the aerospace sector (Bourget, Farnborough).
- Actions in more difficult to access or newer markets (e.g. participation and prospection to trade fairs in Singapore, Russia, Brazil or China).
- Targeted actions in geographically close markets (France, Germany, Luxembourg, Poland), or more traditional ones (Quebec, USA).
- Continuation of the MACH initiative (in partnership with Aéro Montréal).
- Participation to economic missions abroad, in collaboration with AWEX.
- Welcoming foreign delegations in Wallonia.
- Active participation in European networks, in particular the EACP network – European Aerospace Cluster Partnership.
- Participation in one COSME project (Space2ID GO): Collaboration between European clusters to support the internationalization of SMEs.

Participation in major events in 2018:

- Singapore Airshow
- Drone Days Brussels Expo
- JEC 2018 in Paris
- ADSS Seattle
- Innovation Forum Aéro Montréal & Rendez-vous Forum CRIAQ Montréal
- Toulouse Space Show
- Farnborough Airshow, with 7 Walloon participant companies (FN Herstal, Safran Aero Boosters, Sonaca, Sabca, Precimetal, V2i, BEC)
- Several B2B meetings: Washington State, Aéro Montréal, EACP, Invest in Ireland, Mobile Chamber of Commerce, South Korean Aerospace Cluster etc.
- Aerospace Summit Brussels
- IAC Bremen
- Mission to Hamburg Germany: ZAL + Airbus
- Seminar on R&D Programs for the Defence sector



08

COMMUNICATION & EVENTS

Strategic evolution in 2018:

- *New website online*
- *Increase web visibility (40%)*
- *New promotional supports*

Main local events organised in 2018:

Metallic powders for Additive Manufacturing:

Three international experts were invited to answer questions asked by SKYWIN members about some identified recurring problems. A testimony based on FN Herstal experience was also presented.

High Altitude Pseudo Drones:

Seminar organized in collaboration with the R&D team of a "High Altitude Pseudo Satellite" drone project (joint venture Sonaca, Sabena Aerospace, Stemme Belgium) : potential applications and technological roadmap.

Seminar on European Defense:

Seminar organized in collaboration with Mecatech cluster dedicated to the new Federal and European R&D programs for Defense.

Skywin meets Wagralim:

Presentation to the members of the Wagralim cluster (agrofood industry) of the technological potentialities already developed in the space sector either in Wallonia or within ESA.

Earth Observation working group:

The Skywin-driven working group met 9 times since 2015. A position paper promoting the conclusions of the works has been published end 2018.

Future and innovative materials for aeronautics:

Two AIRBUS experts and two french Research Centers experts were invited to defend and promote composites and new alloys respectively as materials of the future in aerospace structures.

Cercle Skywin: Forum dedicated to Skywin's corporate members aiming to meet in an informal setting, to share experiences, to discover opportunities for collaboration and to express expectations about Skywin action.

Beyond its own organisations, Skywin regularly participates in events proposed by its Walloon partners (Digital Wallonia, InnovaTech, other clusters, etc.).

As in 2017, Skywin participated also in 2018 in several events dedicated to the replacement of the Belgian F16 fighter.

2018 figures

45 publications press and audiovisual appearances

130 news published by electronic means, via 22 newsletters

1.004 newsletter subscribers

23.000 website visits

320 people present at seminars organised by the cluster



09

A photograph of two business people shaking hands, overlaid with a blue geometric network pattern consisting of white dots and lines. The handshake is the central focus, with the arms and hands clearly visible. In the background, two other people are blurred, suggesting a professional meeting environment. The overall color palette is dominated by various shades of blue.

PARTNERS

Main Walloon partners



Main international partners



10

GOVERNANCE & OPERATIONAL CELL

Operational unit



Etienne POURBAIX
Director
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Executive Board

SMAL Jacques	<i>Chairman</i>	Safran Aéro Boosters	Industrial
PONTHOT Jean-Philippe	<i>Vice President</i>	ULiège	University
BURY Patrick	<i>Board member</i>	TAS Belgium	Industrial
JONGEN Thibault	<i>Board member</i>	Sabca	Industrial
LANGER Hugues	<i>Board member</i>	Sonaca	Industrial
RENAULD Philippe	<i>Board member</i>	Thales Belgium	Industrial
TILMANT Michel	<i>Board member</i>	GDTech	Industrial
du PRE WERSON Thierry	<i>Board member</i>	Spacebel	Industrial (SME)
DEFISE Jean-Marc	<i>Board member</i>	AMOS	Industrial (SME)
BERTIN André	<i>Board member</i>	Coexpair	Industrial (SME)
JACOBS Geoffroy	<i>Board member</i>	EWA	Association
GRUSLIN Michel	<i>Board member</i>	Wallonie Espace	Association
VERLINDEN Olivier	<i>Board member</i>	UMons	University
LIBERT Anne-Sophie	<i>Board member</i>	UNamur	University
WINCKELMANS Grégoire	<i>Board member</i>	UCLouvain	University
HENDRICK Patrick	<i>Board member</i>	ULB	University
MILECAN Michel	<i>Board member</i>	Cenaero	Research Center
WESTHOF Jean-Jacques	<i>General secretary</i>	Skywin	Cluster
DOBDELSTEIN Frédéric	<i>Observer</i>	Gouvernement Représentative	Walloon Region
MONTFORT Raymond	<i>Observer</i>	SPW - DG06	Walloon Region
LERMUSIAUX Aline	<i>Observer</i>	AWEX	Walloon Region
CECCONELLO Anna	<i>Observer</i>	WAN	Training center

Steering committee

SMAL Jacques	<i>Chairman</i>	Skywin	Cluster
PONTHOT Jean-Philippe	<i>Vice-président</i>	Walloon Universities	University
LANGER Hugues	<i>Member</i>	Sonaca	GE
D'AGRUMA Jérôme	<i>Member</i>	Sabca	GE
DUPREZ Vincent	<i>Member</i>	Safran Aéro Boosters	GE
du PRE WERSON Thierry	<i>Member</i>	Spacebel	SME
MILECAN Michel	<i>Member</i>	Cenaero	Research Center
WESTHOF Jean-Jacques	<i>Member</i>	Skywin	Cluster
POURBAIX Etienne	<i>Member</i>	Skywin	Cluster
BON Claudine	<i>Participant</i>	Skywin	Cluster
FONDU Pierre-Jean	<i>Participant</i>	Skywin	Cluster
STASSART Michel	<i>Participant</i>	Skywin	Cluster
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Skywin is the Walloon Aerospace cluster (Belgium) consisting of an association of companies, research organisations and training centres engaged in public-private partnerships and in the implementation of innovative collaborative projects.

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