



CASE STUDY – SABCA @ SPACE 4.0

WALLONIE ESPACE

SABCA

SPACE 4.0

SPACE IN WALLONIA

BUCKLING UP FOR SPACE 4.0



- 20 years of growth for the space sector in Wallonia
 - Over 3x growth in terms of revenue and number of players
 - Over 70% of growth in terms of employment
 - Today: 43 actors active in the space sector in Wallonia, 360 MEUR revenue, 1800 FTE
- Wallonia's definition of Space 4.0
 - "Classic Space" is put under significant pressure in terms of cost and deadlines
 - "Space 4.0" is the transition to a new world in terms of manufacturing and services
 - "Space 4.0" is not the same as "New Space", who address specifically the commercial market
 - Nonetheless, "Space 4.0" can be seen as a necessary step towards "New Space"
- Wallonie Espace's strategy for the horizon 2025 will be published shortly
 - Developed in topical working groups representing all members
 - Includes transition to "Space 4.0" tools and appropriate private and public response to the emergence of "New Space"



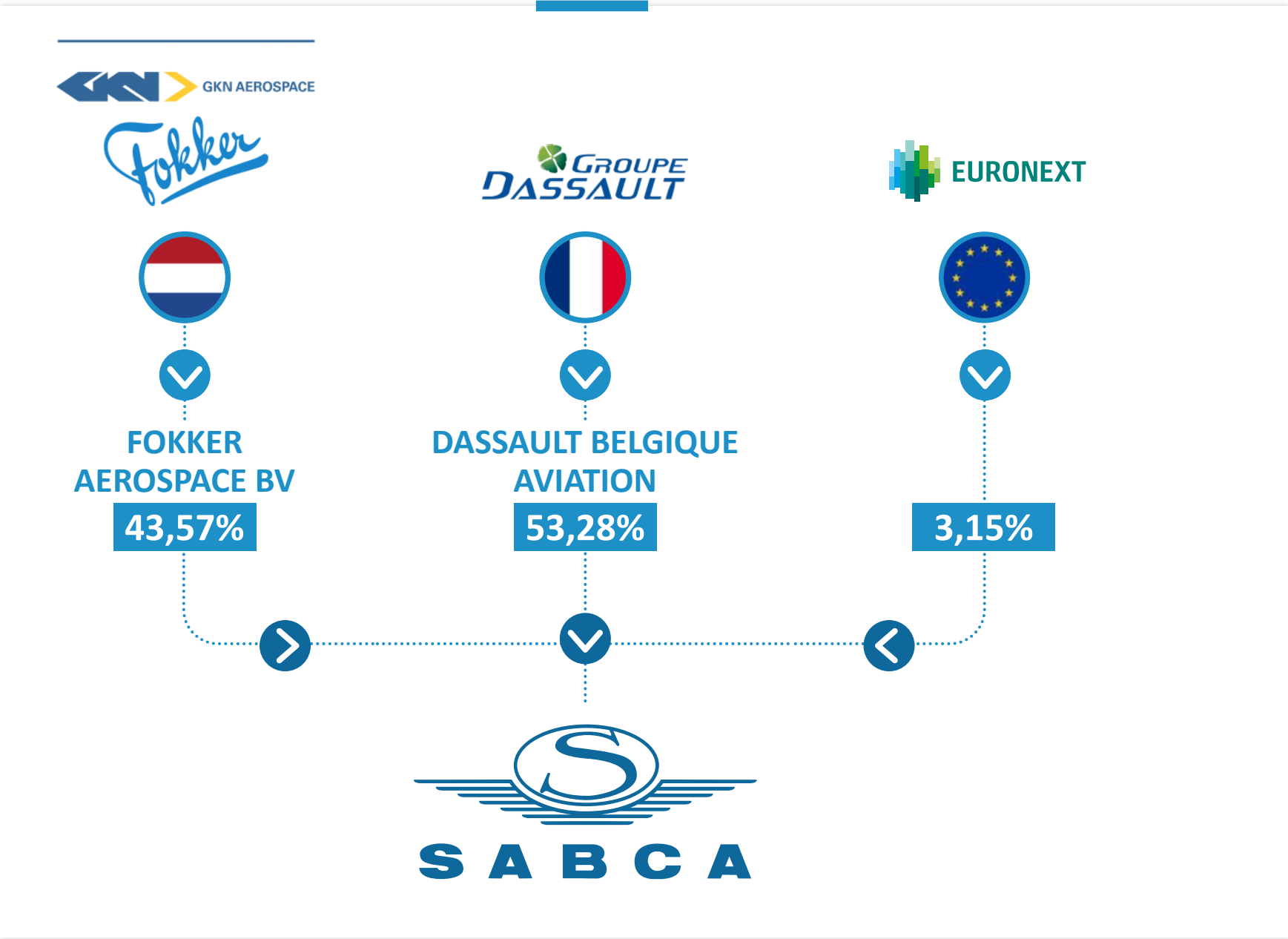
WALLONIE ESPACE

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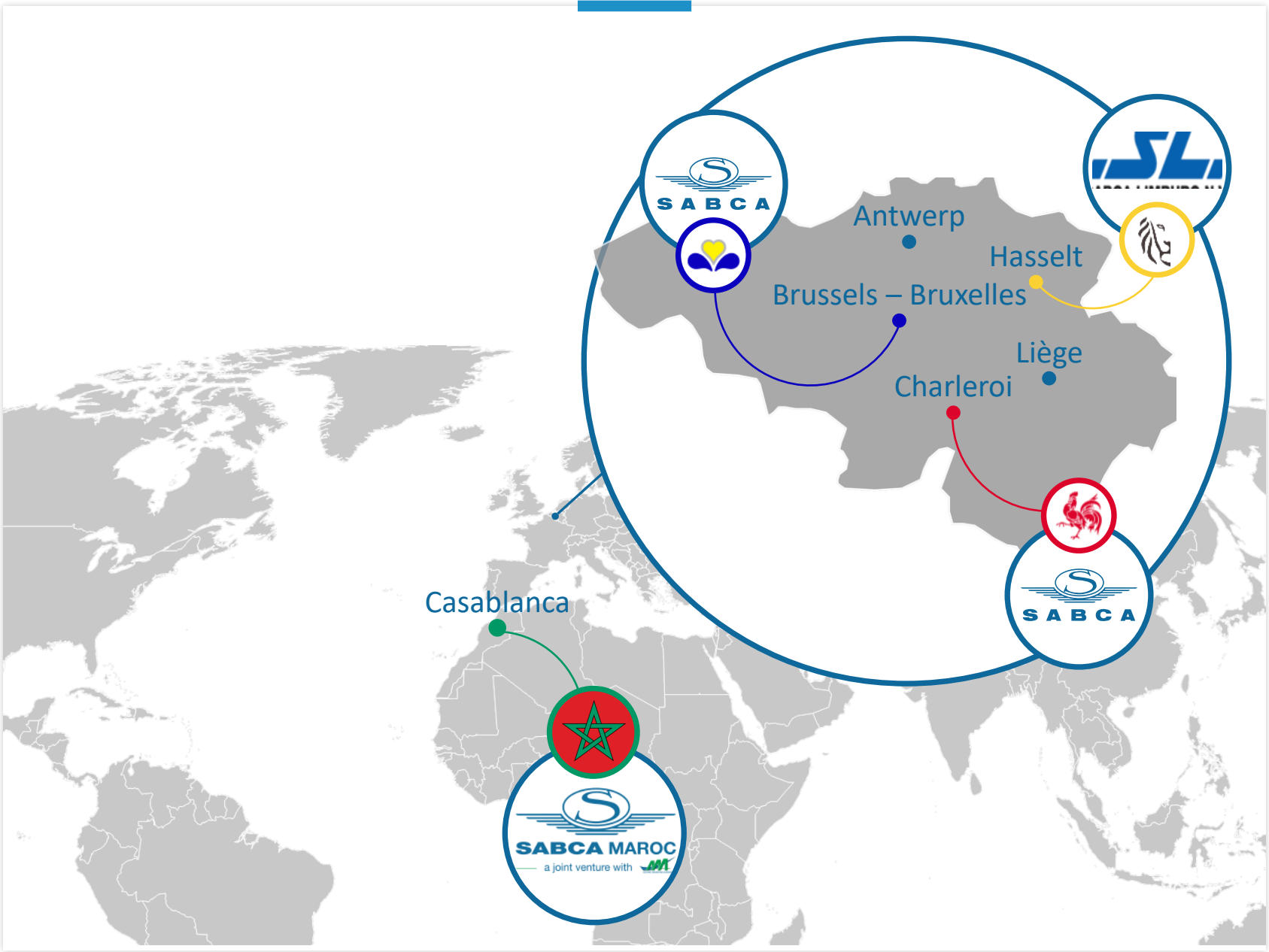
FACTS & FIGURES SHAREHOLDER & PLANS



LONG-TERM, STABLE AEROSPACE SHAREHOLDERS



LOCATIONS IN THE 3 BELGIAN REGIONS + IN MOROCCO

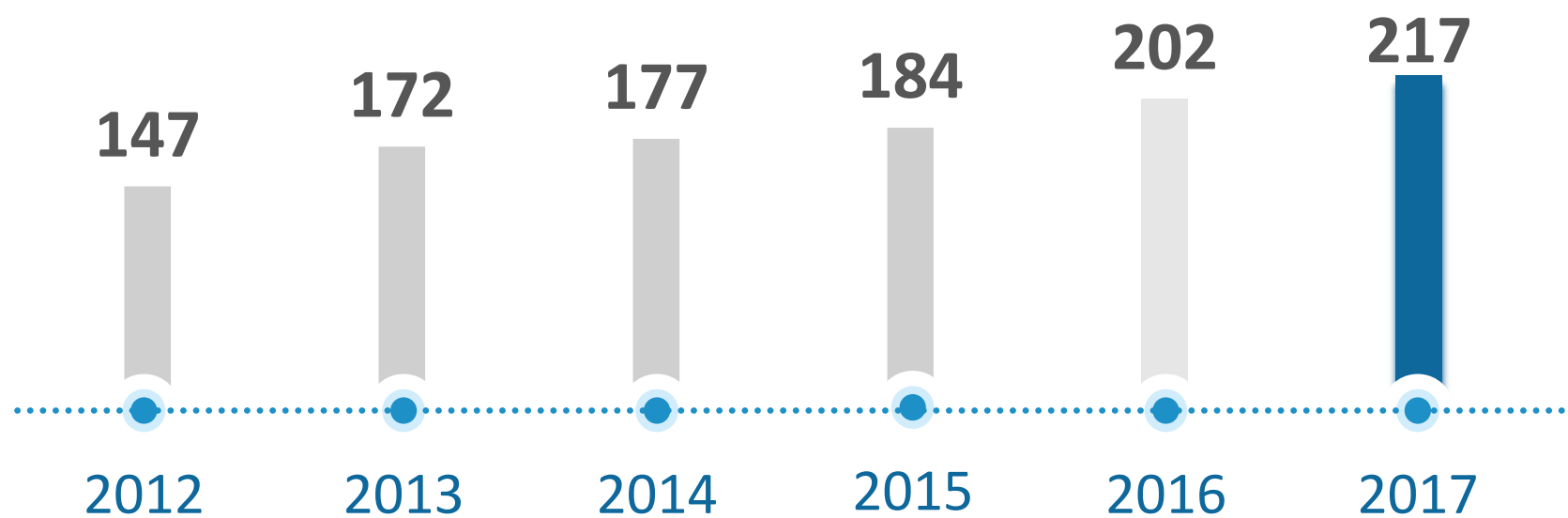


FACTS & FIGURES

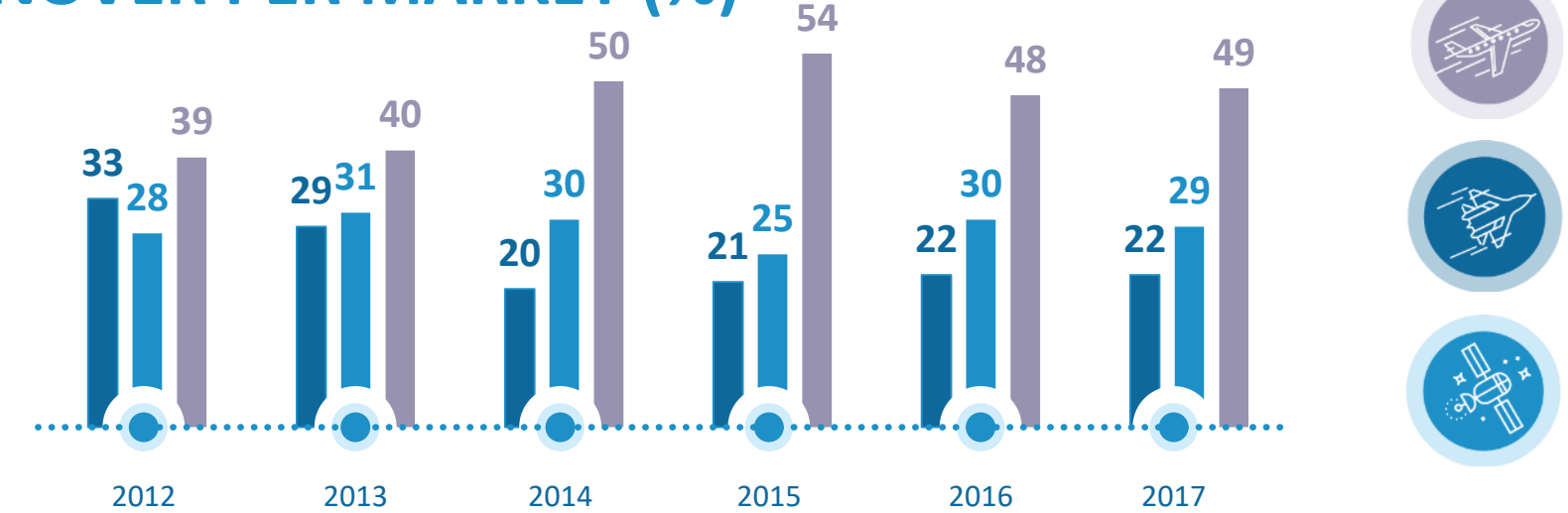
TURNOVER & HEADCOUNT



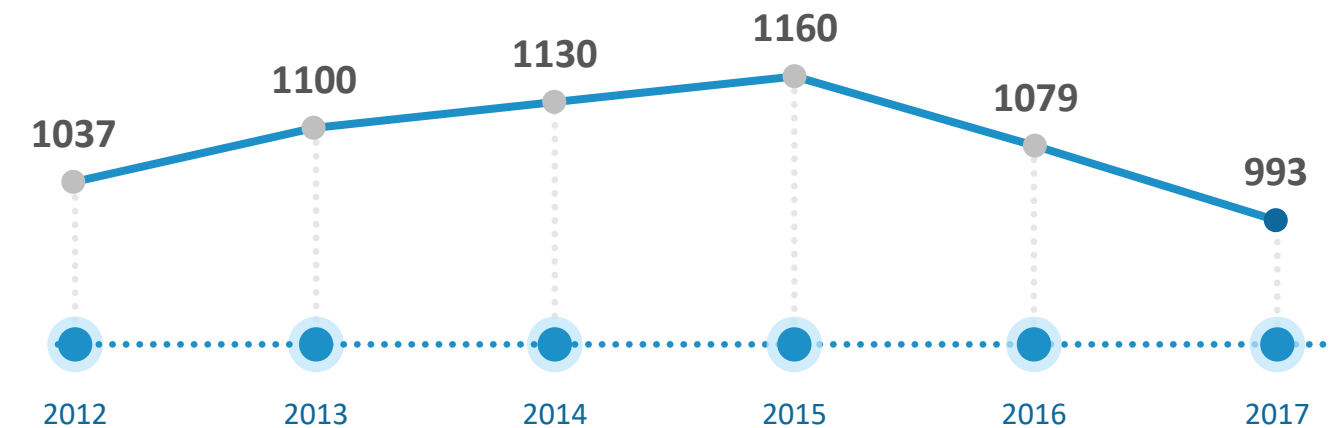
TURNOVER (M€)



TURNOVER PER MARKET (%)

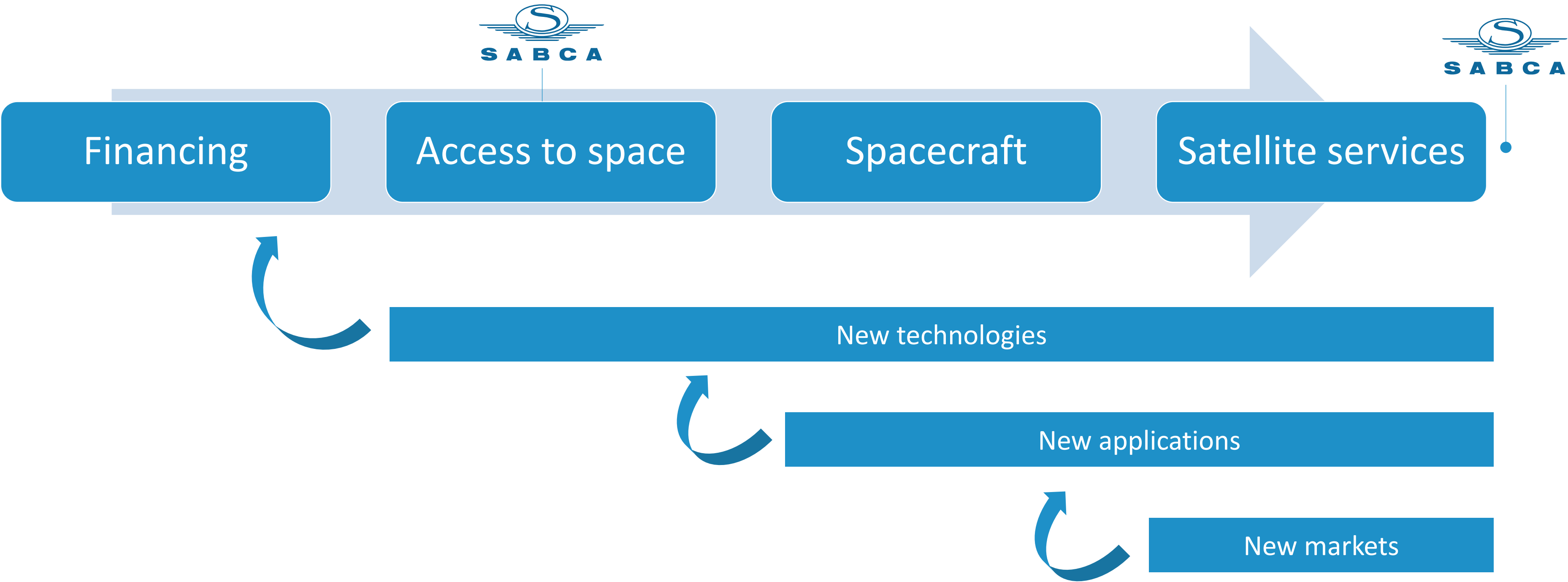


HEADCOUNT

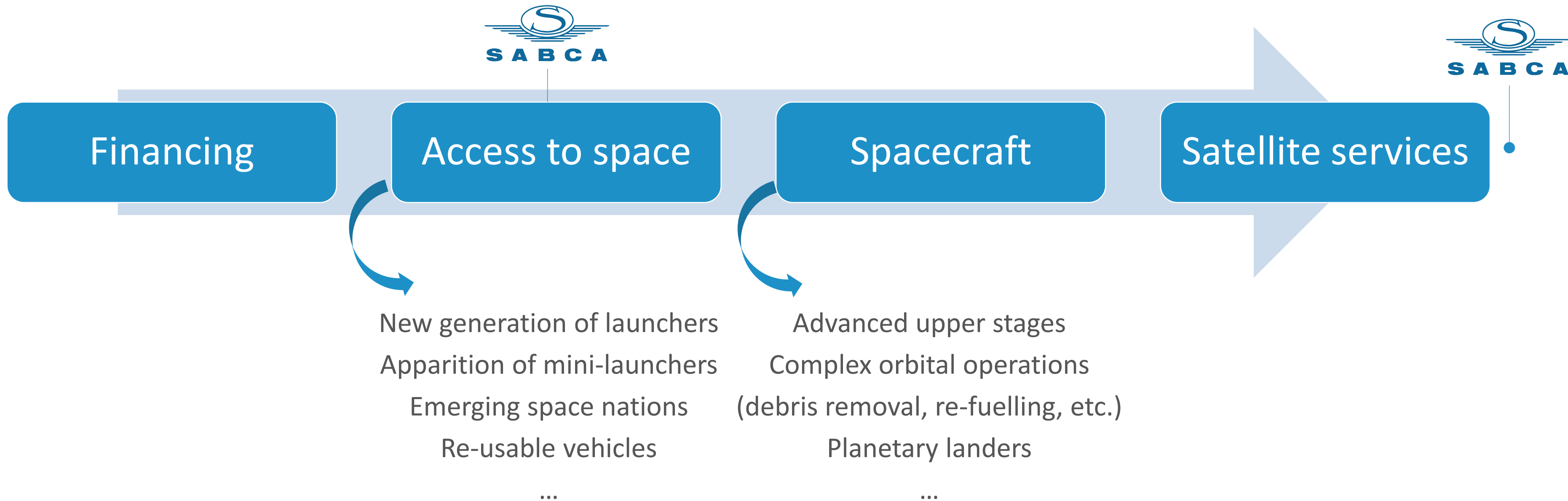


WALLONIE ESPACE
SABCA
SPACE 4.0

SPACE 4.0 IMPACT ON SABCA CHANGES ALONG THE VALUE-CHAIN



SPACE 4.0 IMPACT ON SABCA OPPORTUNITIES FOR GROWTH



UPSTREAM POST-ISS ROADMAP WITH THE SPACE RIDER



Z09 TVC ON VEGA



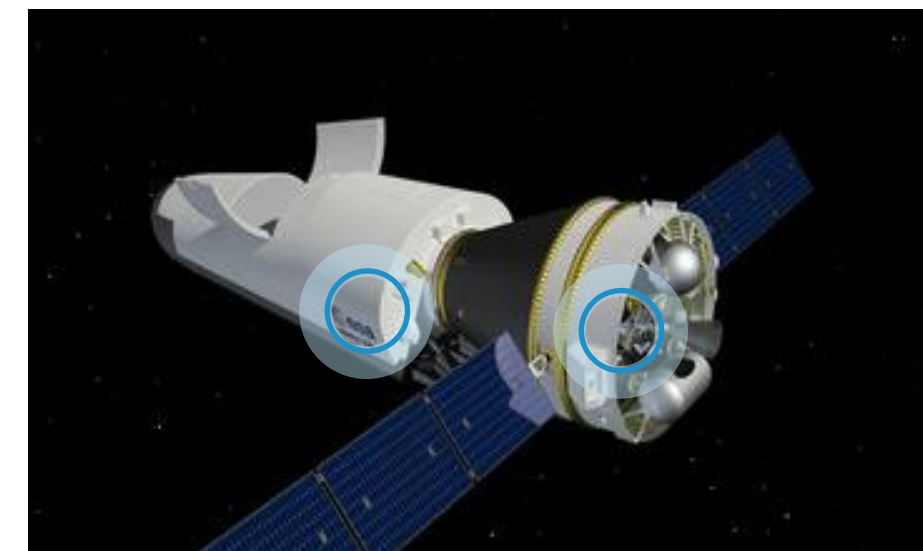
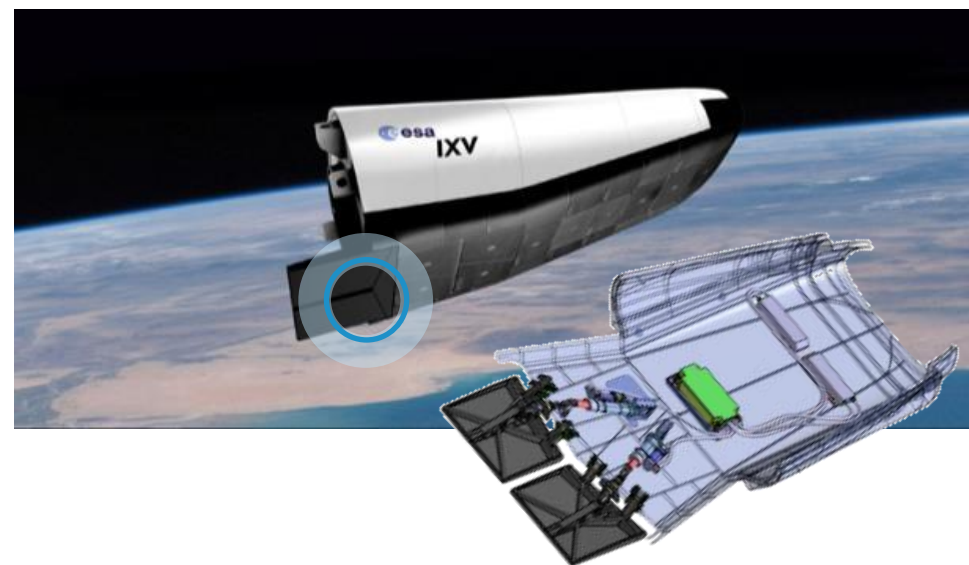
IXV DEMONSTRATOR



SPACE RIDER

- Reuse of the Vega Z9 TVC, with minor modifications
- Demo flight in Feb 2015, complete success for SABCA

- Further modifications to reach true space qualification (vacuum, radiation, etc.) and reusability
- Includes modified AVUM TVC



DOWNSTREAM UAS USING SATELLITE SERVICES



OUR OFFERING

- Proven expertise in **aircraft system integration, testing, qualification and certification to Unmanned Systems**
- **A complete range of services** from integration to certification & sustaining support
- **Integrating ecosystem services:** an all-in-one industrial link between OEM, payload providers, end-users, certification authorities...



OUR PROJECTS



OFFSHORE



PLATFORMS



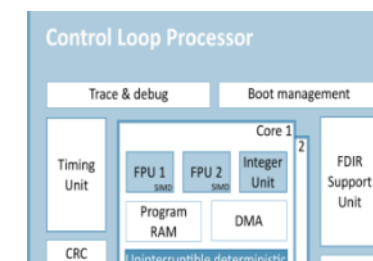
MEDICAL



DEVELOPMENT



INTEGRATION



AUTOPILOT



TRAINING



MAINTENANCE

UP- TO DOWNSTREAM FERTILISATION SPACE TO EARTH TRANSFER



INTEGRATED POWER & DRIVE UNIT FOR TVC

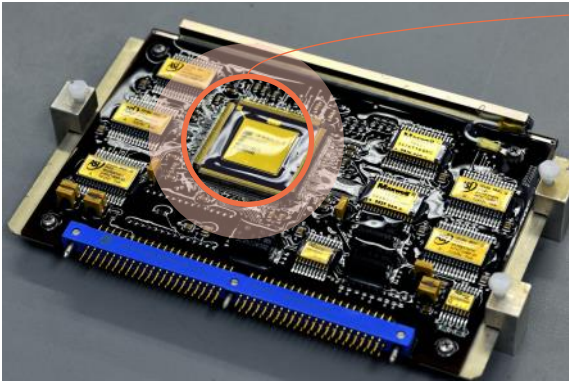
- CLP is the 4th generation of SABCA's own control processor
- 100% success on Vega, IXV, civil aviation and military applications

QUADCOPTER DEMONSTRATOR

- Using the CLP as the processing element of a drone platform
- Successfully demonstrated on a quadcopter in June 2018

DRONE AUTOPILOT

- Enabling a secure and reliable control architecture
- Targeting safety-critical applications



for illustration only

ACROSS THE VALUE-CHAIN DESIGN, MANUFACTURING & OPERATION



- New design, manufacturing and operation techniques are gradually being implemented
 - Driven by the need to increase cost-effectiveness
 - Enabled by larger volumes contracted
- Some examples on which SABCA is working include
 - Integrated assemblies: metallic additive manufacturing, out-of-autoclave composite process, etc.
 - Actuation systems: health monitoring, smart sensors, COTS components, etc.
 - UAS: autopilot (space spin-off), leverage on satellite services, etc.
 - Across business units: factory 4.0, standardization, etc.



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