

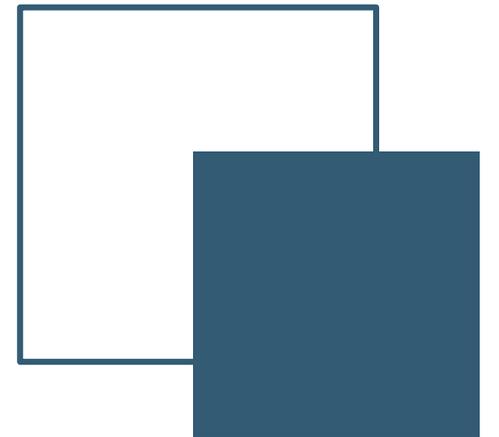


EARTH OBSERVATION: STATE OF PLAY AND FUTURE PROSPECTS

Presented by
Sima Fishman, Managing Director
Euroconsult USA

**Advisory Committee On Commercial
Remote Sensing (ACCRES) Meeting**

18th October 2018

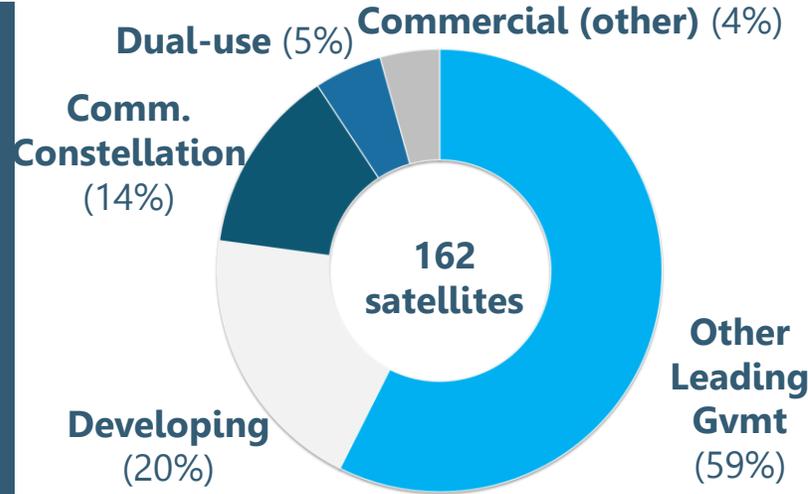


- 162 satellites (>50kg) launched for civil/commercial Earth observation and 31 for GEO/LEO meteorology over 2008-2017, from 36 countries
- To expand to approximately 650 satellites for civil/commercial Earth observation from 2018-2027 as further governments and commercial enterprises launch capacity
- Nearly 1,500 smallsats (less than 500 kg) are anticipated to be launched to serve EO applications, the vast majority being less than 50 kg
- Majority of satellites launched from government space agencies; civil government investment topped \$10 billion in 2017
- Commercial data market totaled \$1.4 billion in 2017:
- 5%, 5-year CAGR - defense remains the main growth driver
- Value-added services market reached \$3.2 billion in 2017
 - 7%, 5-year CAGR environment monitoring and infrastructure projects lead.

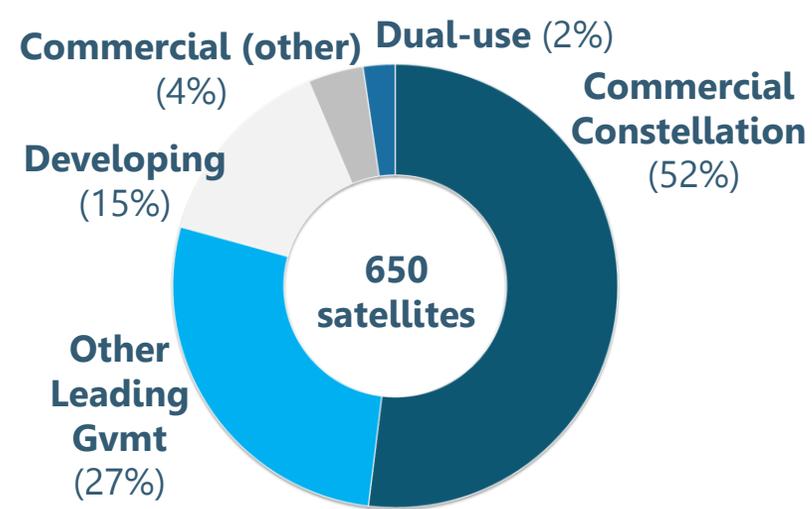
SATELLITES LAUNCHED BY CLIENT TYPOLOGY*

SAT. LAUNCHES

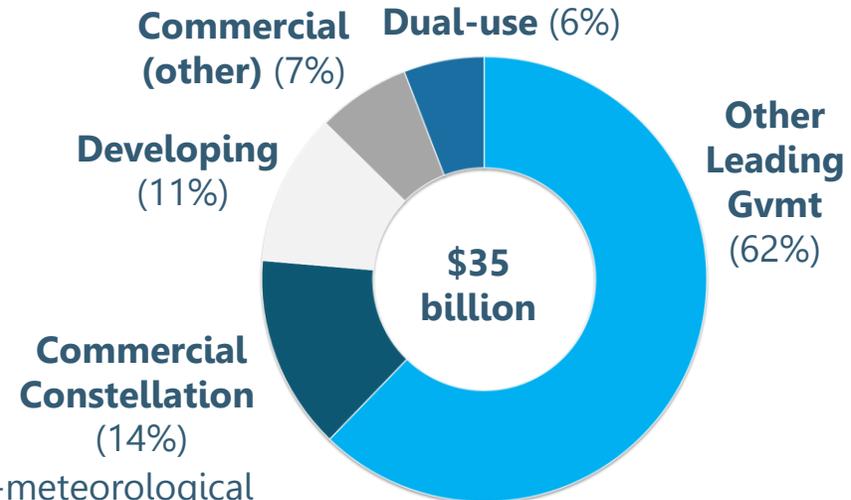
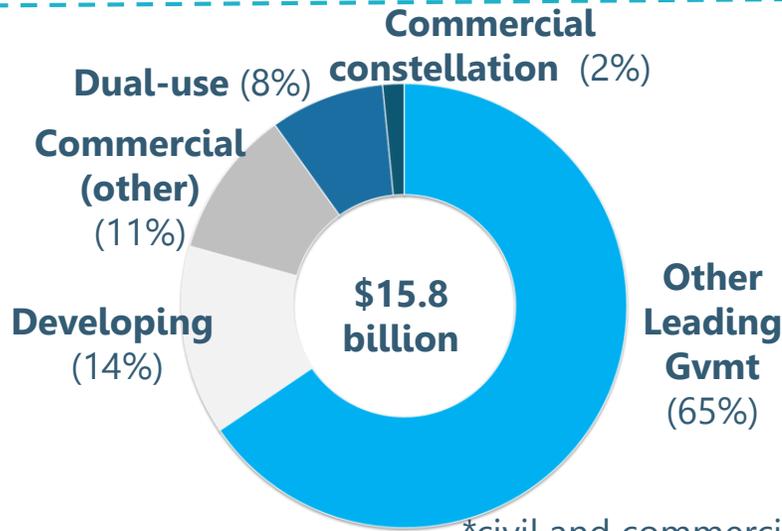
2008-2017



2018-2027



MARKET VALUE



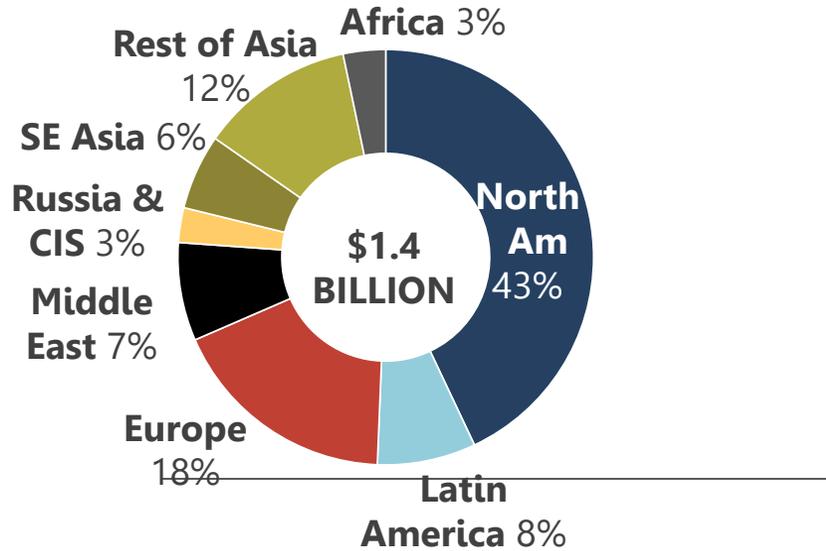
*civil and commercial only, non-meteorological

SATELLITES MARKET BY REGION

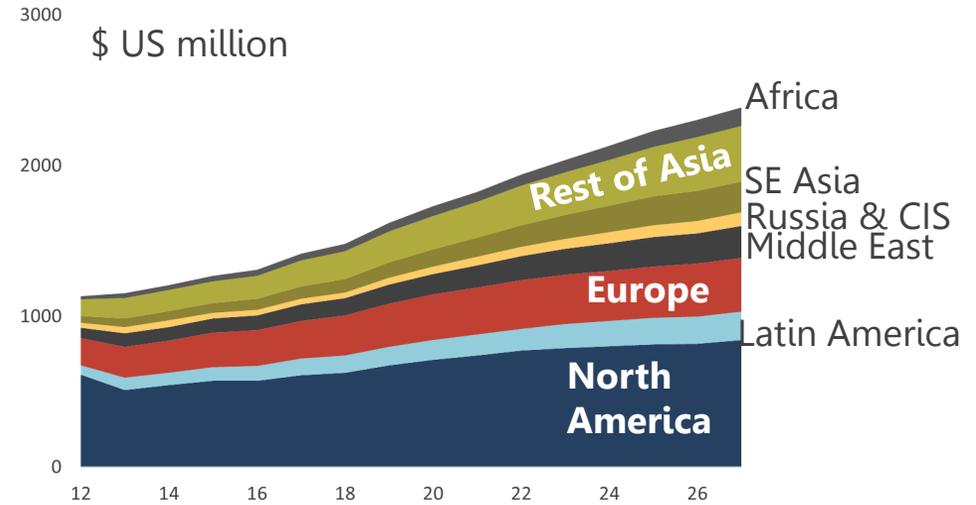


COMM. DATA

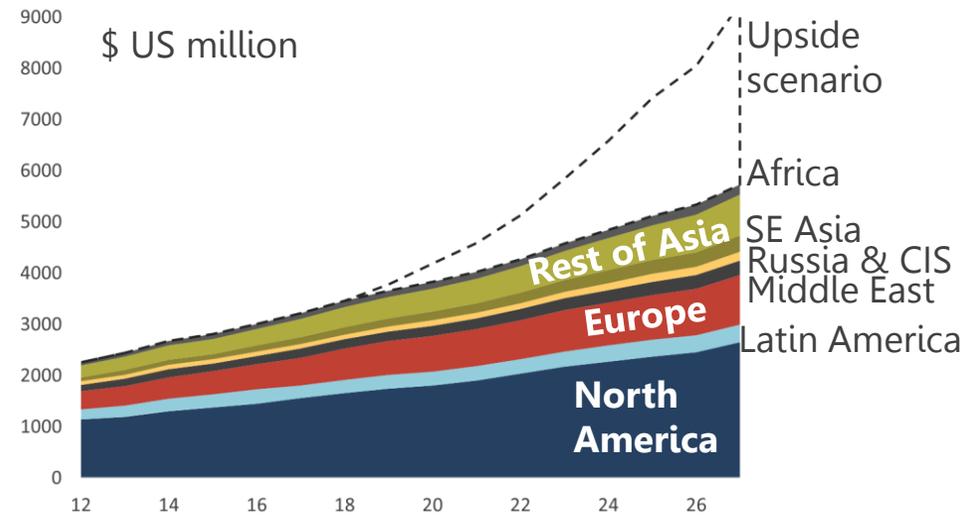
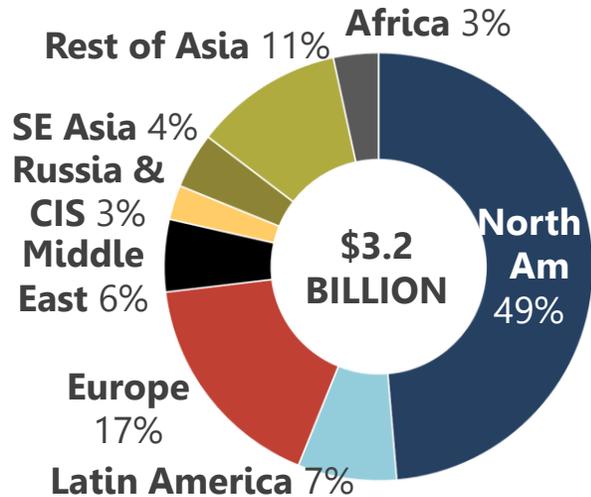
2017



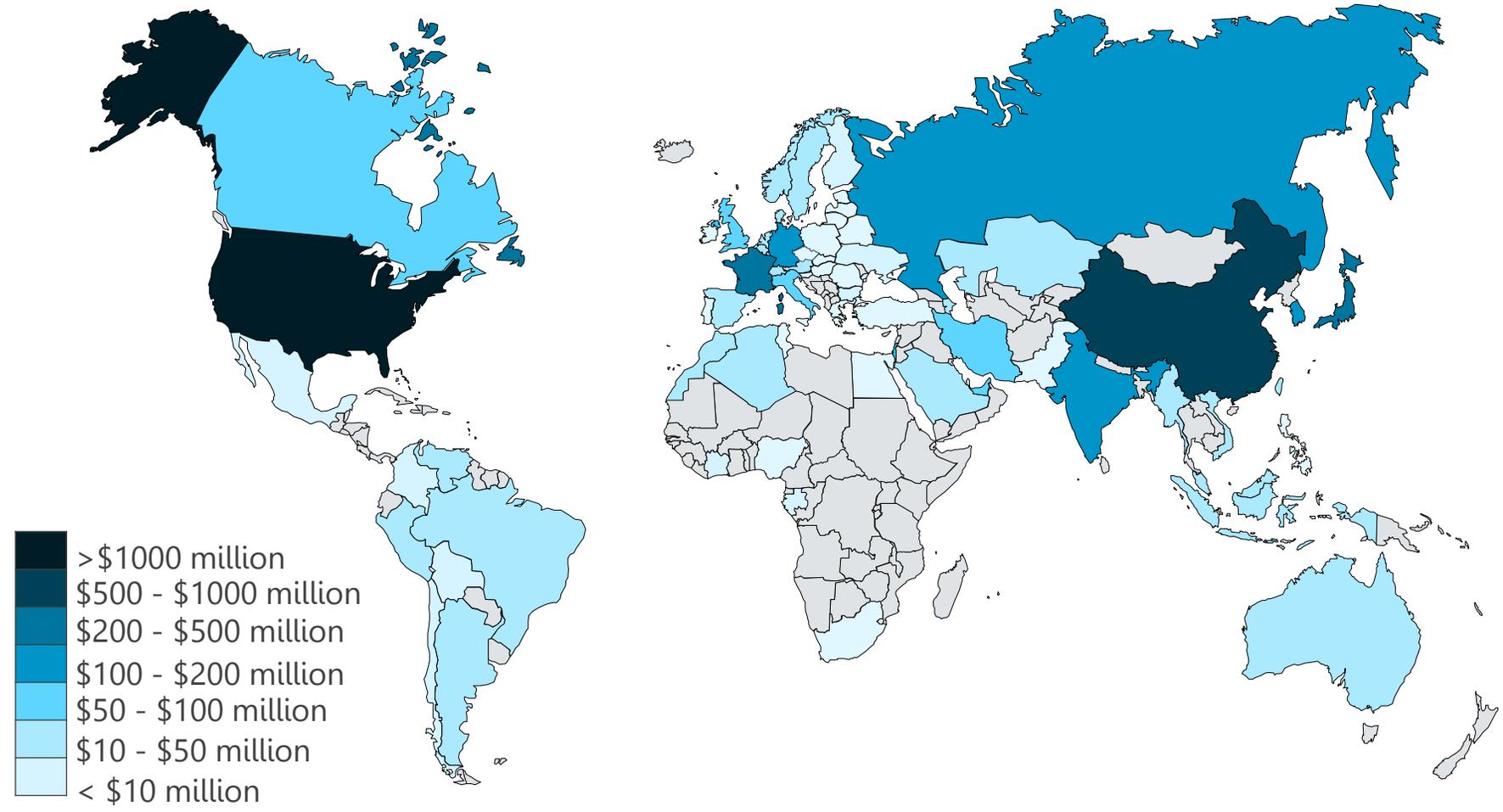
2012-2027



VAS



GOVERNMENT EO PROGRAMS

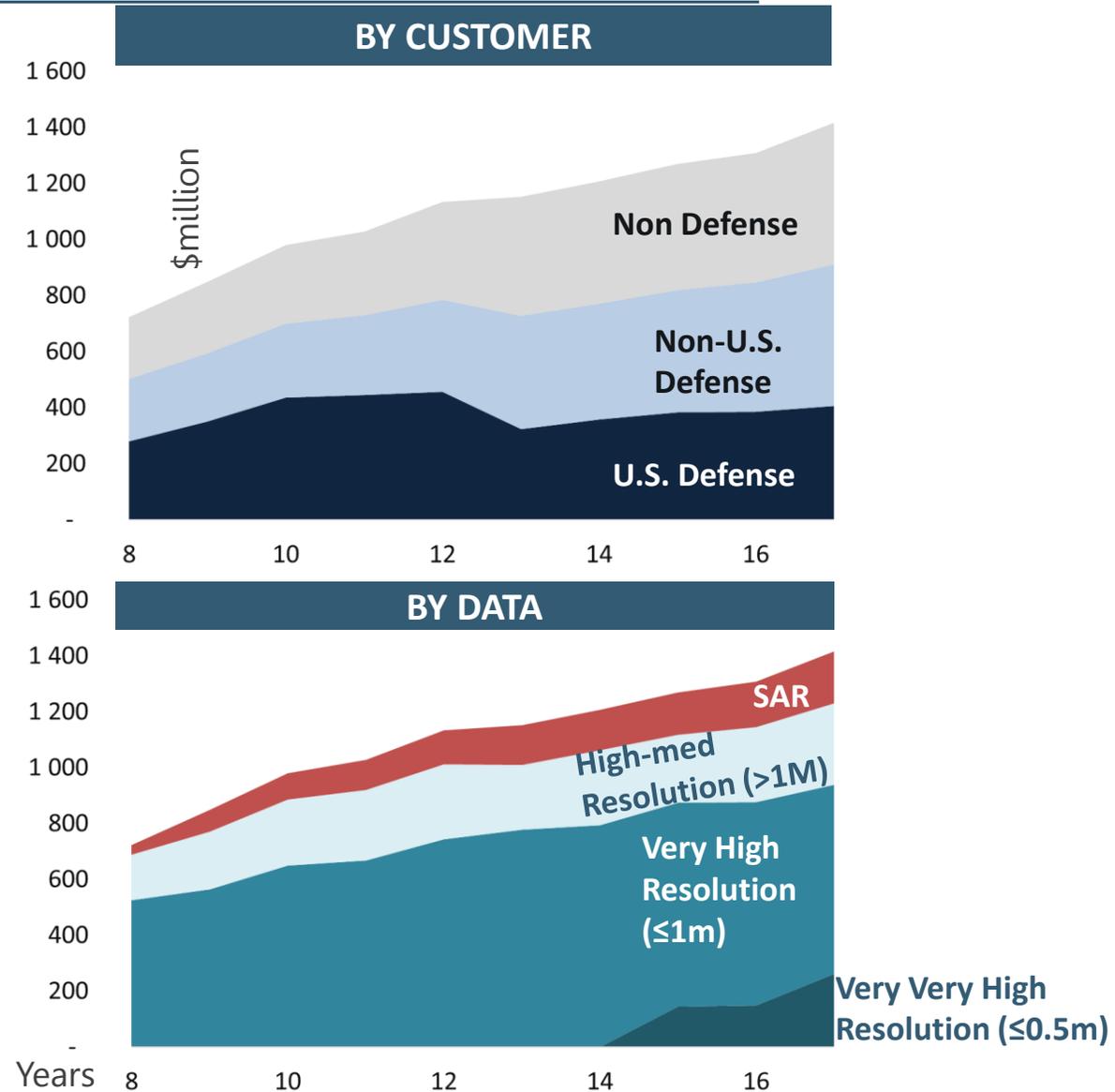


**Inclusive of both satellite manufacture and programs supporting application development.
European budgets include contributions to ESA where relevant.*

EO COMMERCIAL DATA SALES



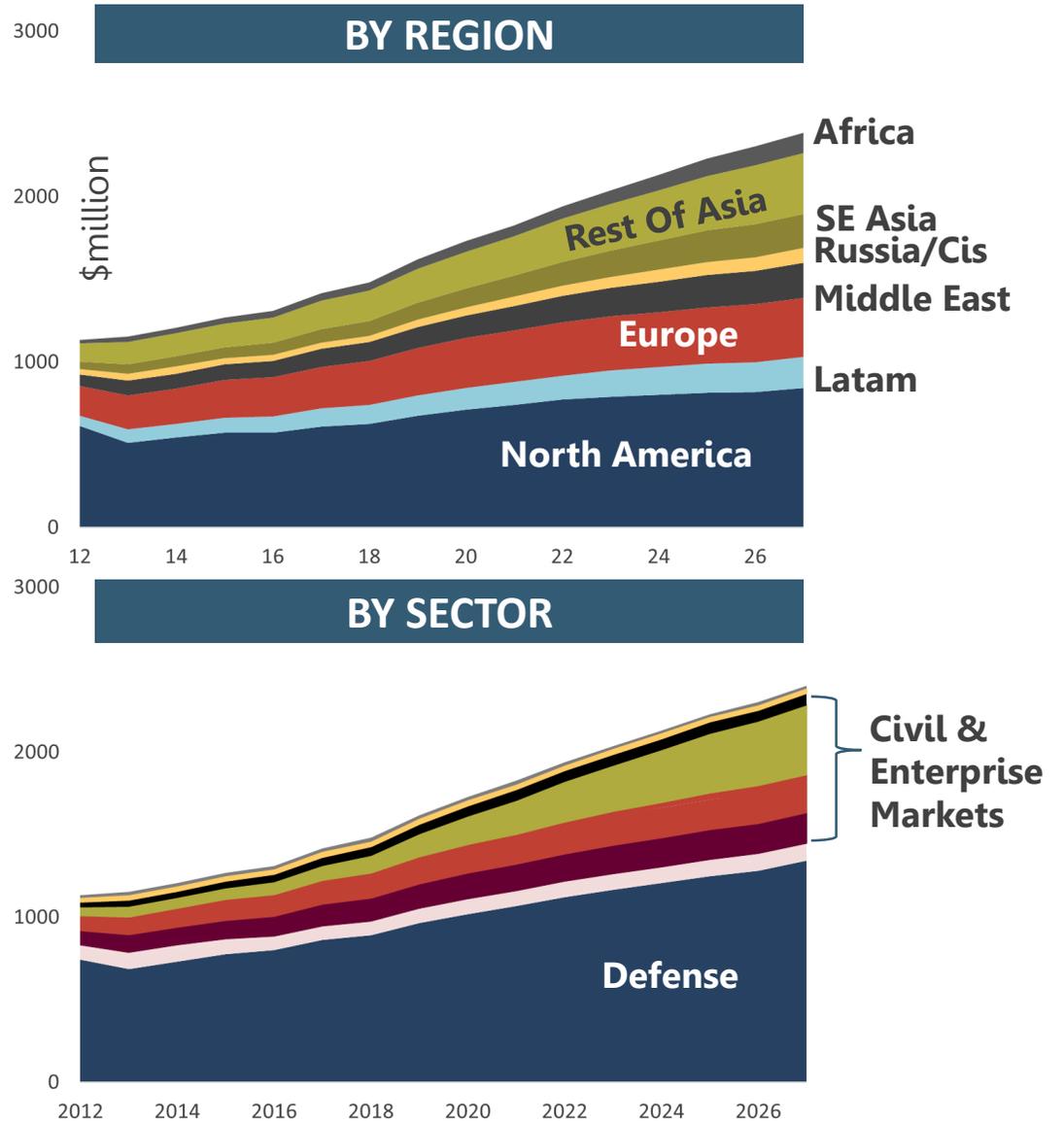
- Commercial data market reached \$1.4 billion in 2017
- Defense markets dominate, topping \$860 million. Reflected in the procurement of VHR data
- Defense/maritime remains first destination for SAR
- Non-US defense remains most significant growth driver (9% 5-year CAGR)
- Business-to-business markets are developing, with a focus on change detection analytics
- The <0.5m is considered to be taking away revenues from the <1m market as customers, particularly in defense, shift to even higher ground resolutions



FORECAST COMMERCIAL DATA SALES

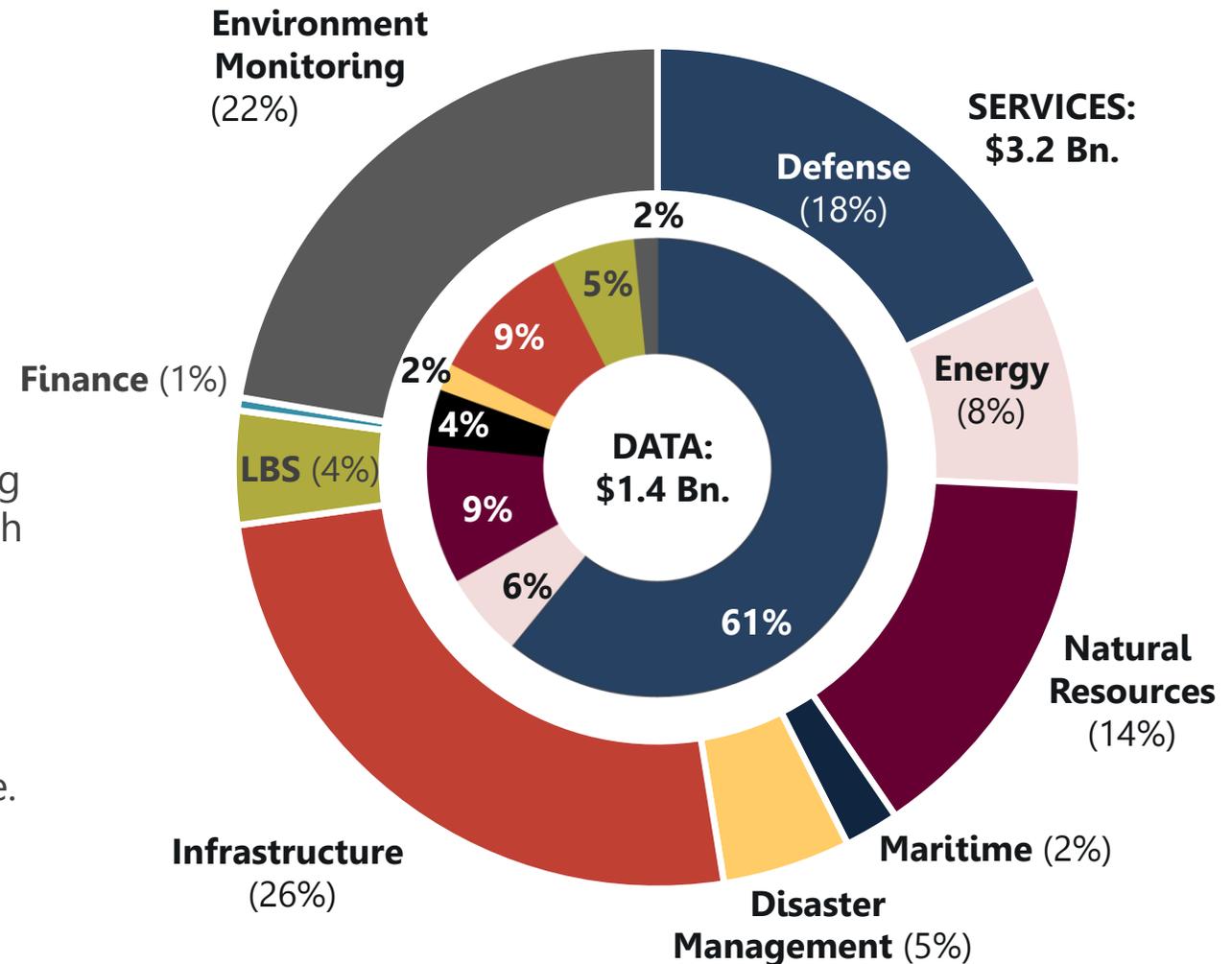


- Commercial data market to reach \$2.4 billion in 2027 (5% CAGR)
- Defense remains the main regional driver, with the NGA remaining the single largest procurer of commercial imagery globally
- Regionally, Asian markets in double-digit growth, expected to become second largest market for data sales
- LBS and infrastructure markets fast developing – LBS is expected to remain the fastest growing market through the decade to support activities such as Smart Cities

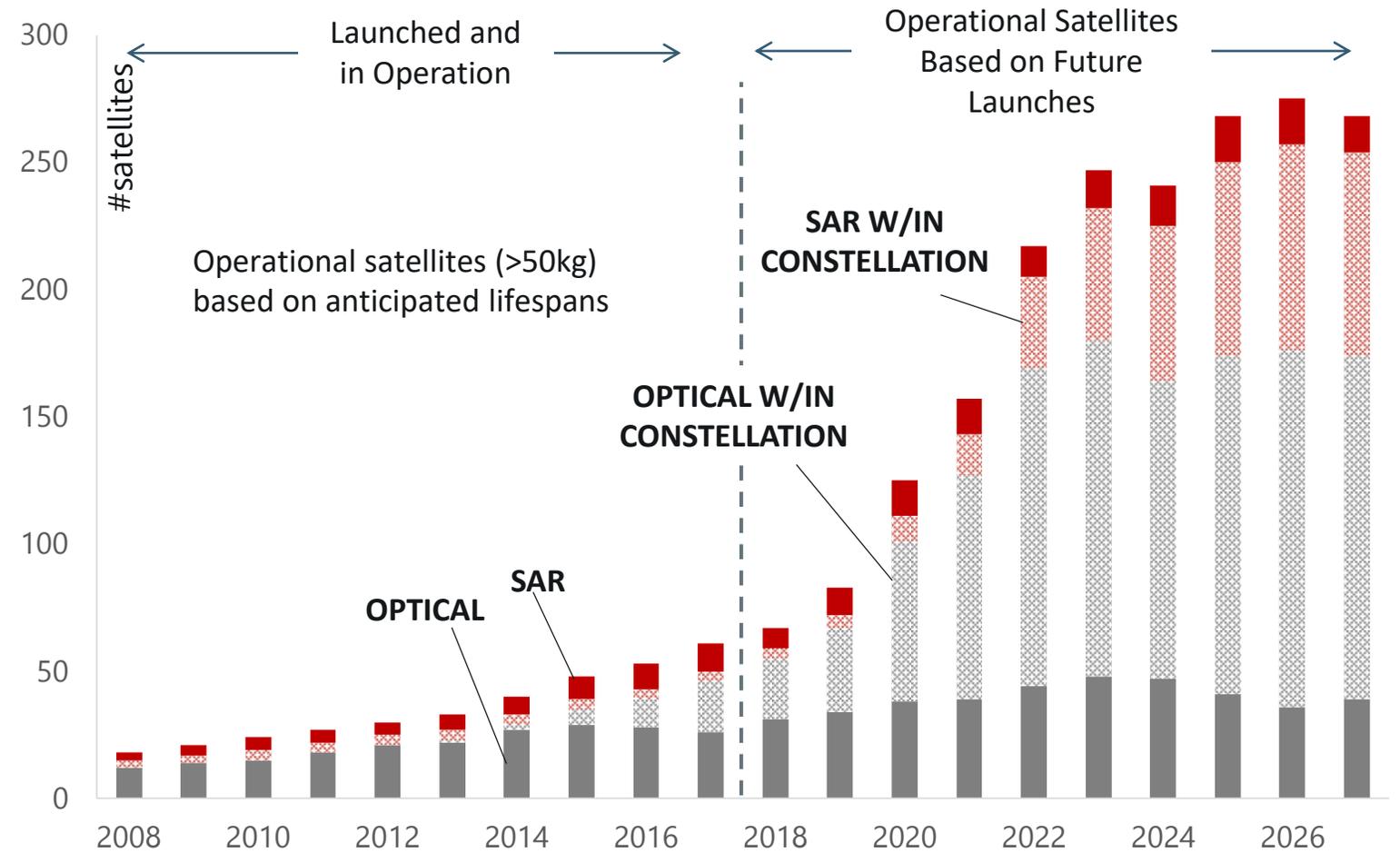


VALUE ADDED SERVICES MARKET

- Total VAS + Data market = \$4.6Bn (of which \$3.2 VAS)
- Key markets those which leverage lower-cost/free data sets
- Defense sector data sales do not translate in VAS > much work done in-house
- Current market forecast to reach \$5.7 by 2027 (6% CAGR)
- The key market is infrastructure—encompassing cartography and land-cover classification, which are well established in the industry.
- The LBS and Finance markets are the strongest growing, albeit in the take-up phase. Both sector have much potential, but rely on uptake of new services to a developing B2B client base.



SIGNIFICANT COMMERCIAL SUPPLY EXPANSION

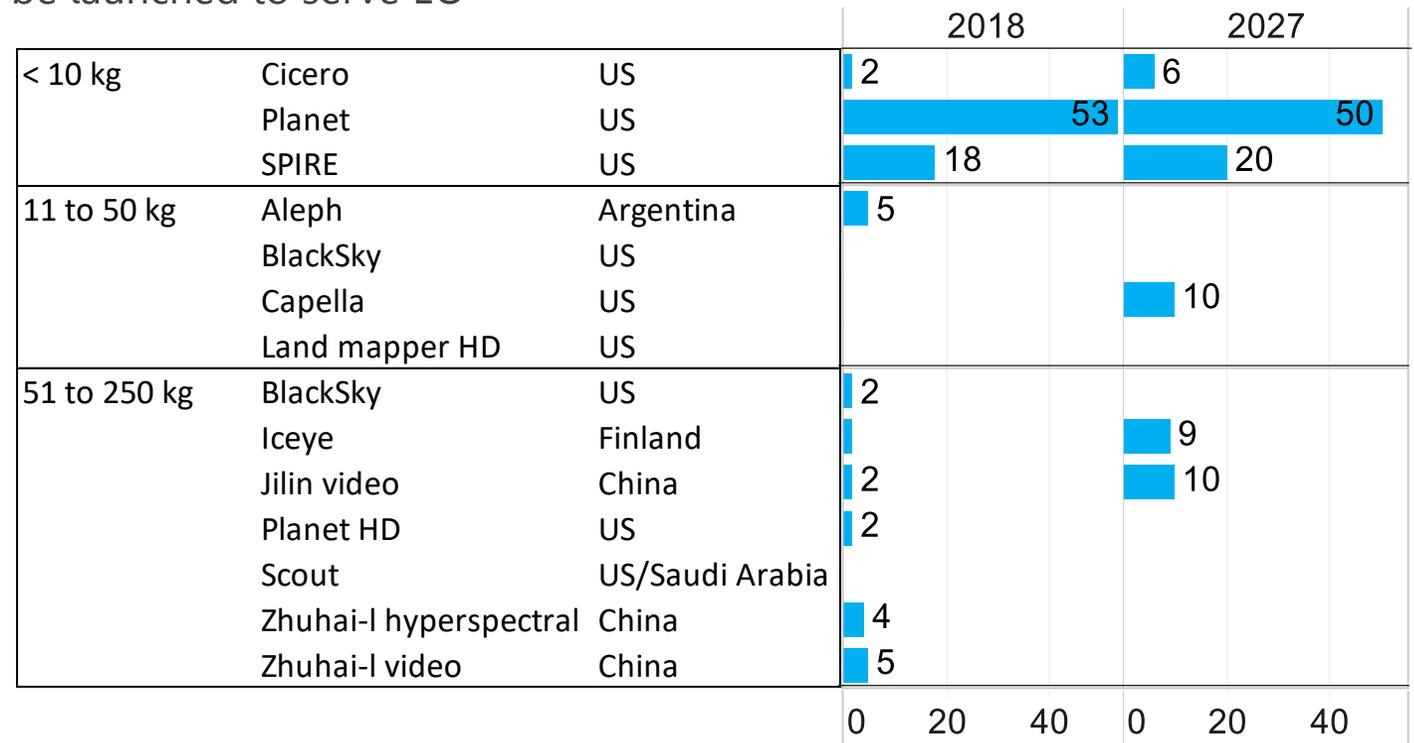


* Commercial refers to commercially operated and commercial data availability from government satellites with data <2.5m optical or <5m SAR

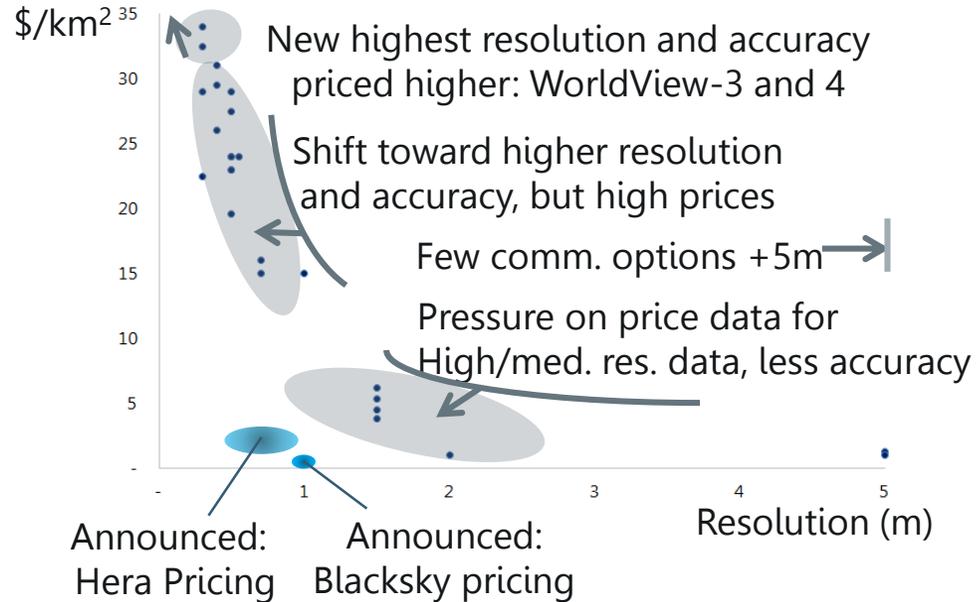


ADDING EVEN MORE INTO THE MIX

- Numerous companies putting forward constellation solutions
- Sector attracted \$1 billion in investment over the last five years
- Many new constellations plan to provide data to build change detection analytics
- Nearly 1,500 smallsats are expected to be launched to serve EO



OPTICAL COMMERCIAL DATA PRICING



- Current prices for EO data range from free to \$500/km²: Ranges due to GSD, spectral res., geolocation accuracy, and whether data is archived, newly acquired or tasked
- ... 1m optical data can be acquired for \$5/km² if there's compromise on accuracy
- With competition prices are expected to fall faster than the current 3-5%/year rate
- New lower-cost solutions expected to challenge on price, albeit with expected compromises on geolocation accuracy.
- SAR data remains more highly priced, and is viewed as an issues in moving away from defense orientated markets

*Newly acquired level 1 data, data prices from the last 12 months

ON SUPPLY

- EO supply expected to expand rapidly in the coming years; this will add competition and challenge on price, but growing commercial capabilities (in hyperspectral, GPS-RO, meteo...)
- Possible for supply to start outstripping demand... unless new markets are opened up?
- Noticeable shift from investment into new satellite operators to new services companies aiming to exploit data based on change detection and predictive analytics

ON DEMAND

- VAS more commonly using lower-cost datasets, argument for allowing certain data types to go for free (as supported by Copernicus, Landsat)
- Two differing markets? Or two tiers of data? One for high-end data to support defense, lower-cost, high revisit data building services?
- Defense expected to remain first market for commercial data; infrastructure, environment and emerging LBS for value-added services

WHO WE ARE



CONSULTING



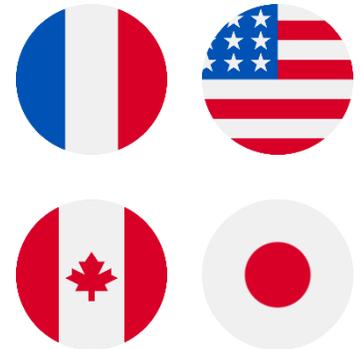
RESEARCH



SUMMITS & TRAINING



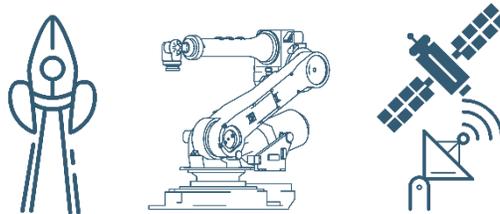
TEAM



Supported decisions on **\$30b+** investment



Expertise at each level of the **Value Chain/Ecosystem**



Promoting forward thinking, facilitating projects & deals for over **1,000** executives



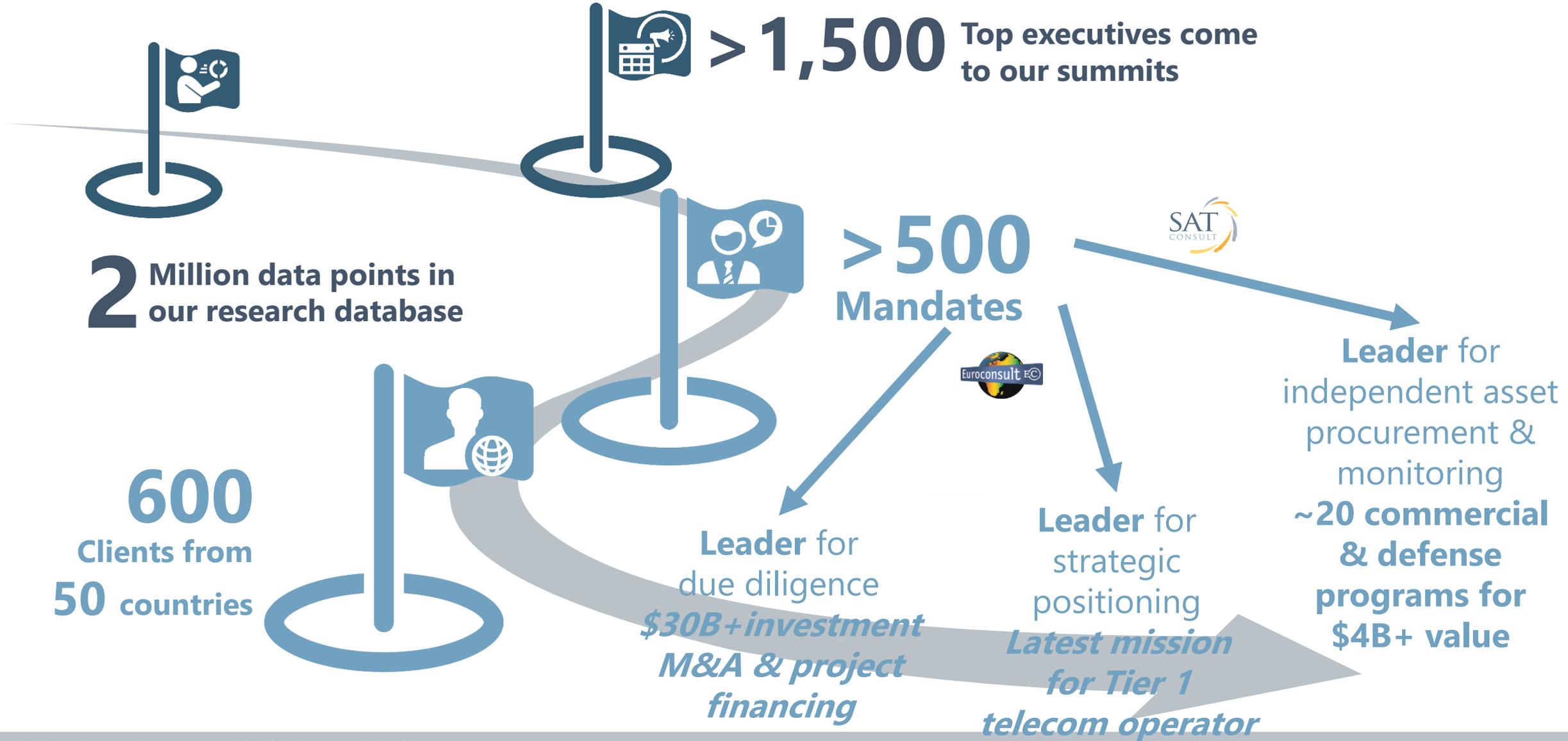
+ Senior affiliate consultants in **>40** countries



UNIQUE COMBINATION OFFERED BY EUROCONSULT AND SATCONSULT



EUROCONSULT SUPPORT TO DECISION MAKERS



Muchas Gracias

Danke

Thank you

谢谢

MERCI POUR VOTRE

спасибо

ATTENTION

Shukran

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Дякую



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revillon@euroconsult-ec.com