

Value added by Satellite Navigation

October 2019, Wien, Austria
„GalileoNOW – nützen wir die Chancen!“

Paolo Ariaudo



Space is experiencing revenue and mindshare growth, as well as increasing implications in multiple downstream industries

Upstream

€ 92bn | \$ 102 bn (2016)
CAGR +1% (2012 - 2018)



Commercial satellite market

€12 bn / \$14 bn (CAGR -8 %)

Launch market

€5 bn / \$5.5 bn (CAGR -7%)

Institutional budgets

€74 bn / \$82 bn (CAGR +3%)

Midstream

€ 28bn | \$ 31 bn (2016)
CAGR +2% (2012 - 2018)



Operators revenues

€19 bn / \$21 bn (CAGR +2%)

Ground infra. and op.

€9 bn / \$10 bn (CAGR +1%)

Downstream

€ 187bn | \$ 207 bn (2016)
CAGR +2% (2012 - 2018)



Space services

€95 bn / \$105 bn (CAGR +3%)

Consumer equipment

€92 bn / \$102 bn (CAGR +2%)

End industry users

- Oil and gas
- Insurance
- Agriculture
- Marine economy
- Telecom
- Smart cities
- LBS
- Defence and security
- Etc.

Space is...

- A halo sector, with spillovers and implications in many others
- A sector with a growing mindshare (Musk, Bezos, etc) and impact worldwide (multiple new actors in the last decade)
- A diverse sector with multiple specificities, driven by complex geopolitics and market dynamics

The societal and economic impacts of investing in space are vast and far reaching for all space domains

Transactional impacts of spending into assets

PwC observed a trend of 1.4-2.0 GDP multipliers over many recent European Space Programme studies

PwC observed a trend of 1.2-2.4 employment multipliers over many recent studies on European Space Programmes .

Government (Tax) Revenues a sizeable percent of the original investment for all programmes (generally well >35%)

Enabled and catalytic impacts

Sales multipliers of 4-8

Spillover factors of 1.8 to 3.2

Sizeable societal impacts

Environmental impacts for many programmes assessed

Domains assessed by PwC



Copernicus, EO Programmes



GovSatcom



Galileo and EGNOS



Ariane, Vega, Microlaunchers



Space Situational Awareness



ISS, Science, Exploration, In Orbit Economy

Assessed space programmes have instrumentally contributed to European soft power, strategic independence and competitive advantage

Stimulation of European space industry

Establishment of Europe as a space leader

European data independence

Increased innovation

Improved relations with non MS nations & entities

Increased European influence & soft power

Source: PwC analysis

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Navigation satellites provide positioning and timing data to an ever-expanding user base

A vital asset for safety, performance and leisure

Today global navigation systems are used by an extremely wide range of users in every economic sector.



82

Global and regional navigation satellites in operation in 2018

Pushing for greater accuracy

Multi-constellation receivers (compatible with multiple GNSS signals) expected to result in greater uptake by end users and enhanced accuracy and integrity performance



4

GNSS constellations providing global signals: GPS, Glonass, Galileo and Beidou-2 satellites are being progressively deployed



€94.8B

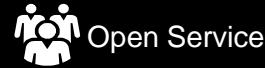
Estimated global navigation market revenues in 2015

End-user demand is expected to grow in the years to come, especially for high precision and indoor positioning. Augmented signals enable cross-market applications such as precision farming, oil and gas exploration or fleet management.

Source: PwC analysis

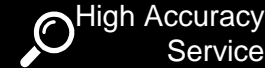
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The Galileo system provides a set of four high-performance services worldwide



Open Service

Free of charge to user, providing positioning and synchronisation information for high-volume navigation applications



High Accuracy Service

More secured and precise service delivered through encrypted signal for applications such as safety-of-life



Public Regulated Service

Restricted to government-authorized users, for sensitive applications requiring a high level of service continuity, free of charge for European institutions and Member States



Search and Rescue Service

Contributing to COSPAS-SARSAT, Galileo will offer a unique link alert informing the senders that their distress message has been received

The Galileo programme was created to answer Europe's strategic need of a reliable European satellite navigation signal, and to foster the development of economic and societal benefits



€7.071B

Financial envelope covering the development, deployment and management of the Galileo programme between 2014 and 2020



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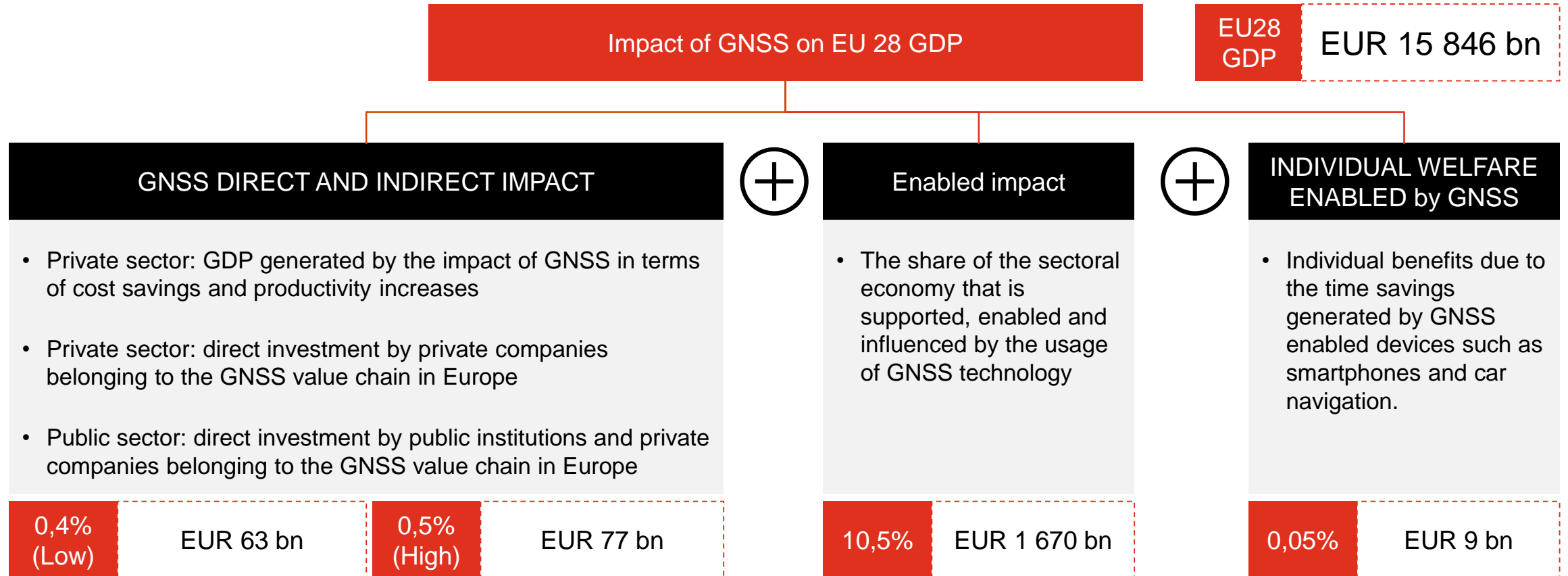
Number of satellites composing the final Galileo constellation. As of Oct 2019, 26 Galileo satellites were deployed



728M

Estimated number of Galileo-enabled smartphones

The added value of the GNSS on the EU GDP is estimated around 11,5% of the 28 Member States GDP



Source: PwC analysis

If you have any follow-up questions do not hesitate to contact us!



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