

# Business Mission



to the UAE



April 14-16, 2019



UNITED ARAB EMIRATES  
MINISTRY OF ECONOMY



الإمارات العربية المتحدة  
وزارة الاقتصاد



## ICT Focus Sector Roundtable: UAE future agenda for digital transformation and smart cities

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# Mr. Matteo Zoppas

President  
Confindustria Veneto



# Digital economy: a great opportunity

## The Italian Strategy

Matteo Zoppas – President Confindustria Veneto

**Italy** is working to promote digital transformation and to play a leading role in European actions to :

- Build an inclusive society that promotes participation and builds trust
- Support enterprises' competitiveness to win technology and social challenges
- Build a framework for a sustainable development that leverages the potential of digital technologies
- Enhance digital development to drive social inclusion Create the jobs and skills of the future

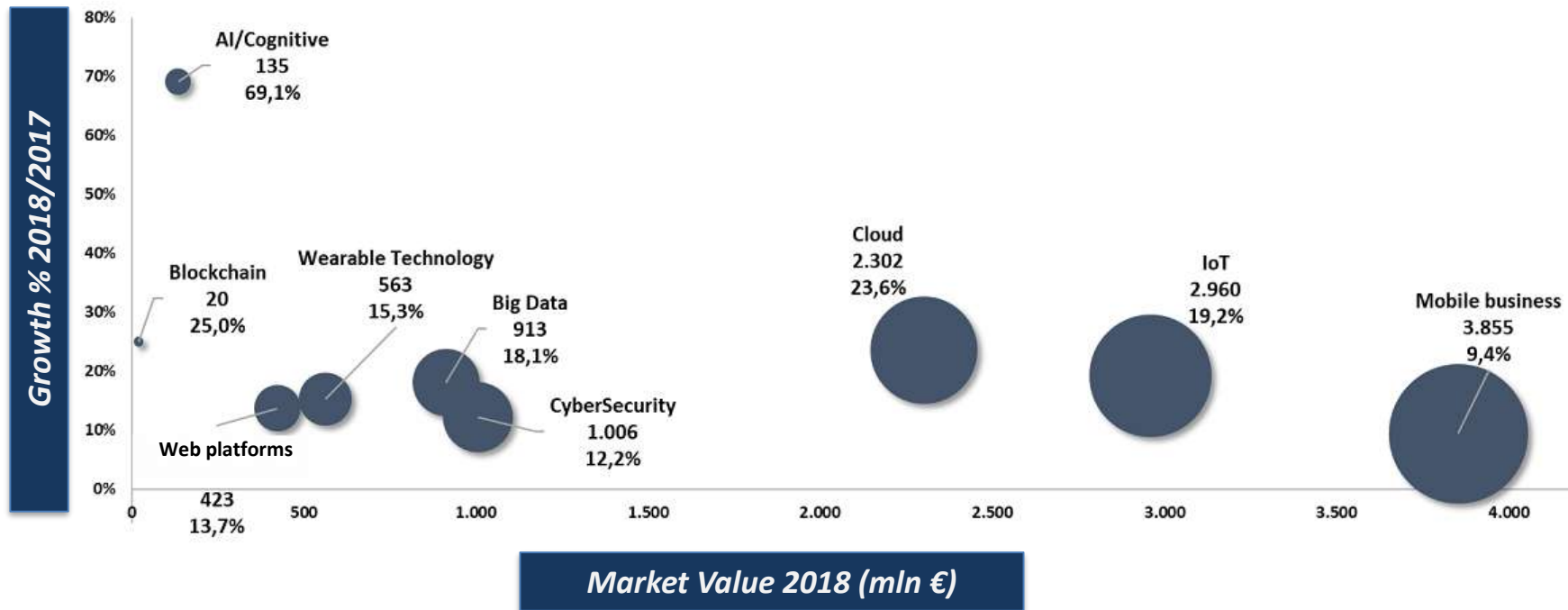
- Provide a digital environment that enhances trust, privacy and security
- Boost digital infrastructure to enhance connectivity
- Enhance innovation and the adoption of emerging technologies (AI, IoT, etc.)
- Accelerate the digital transformation for the manufacturing sector
- Promote digital leadership in public sector services
- Push for fair global competition and boost Italian and European competitiveness

# Italian Digital Market Value: 2017 – 2019E



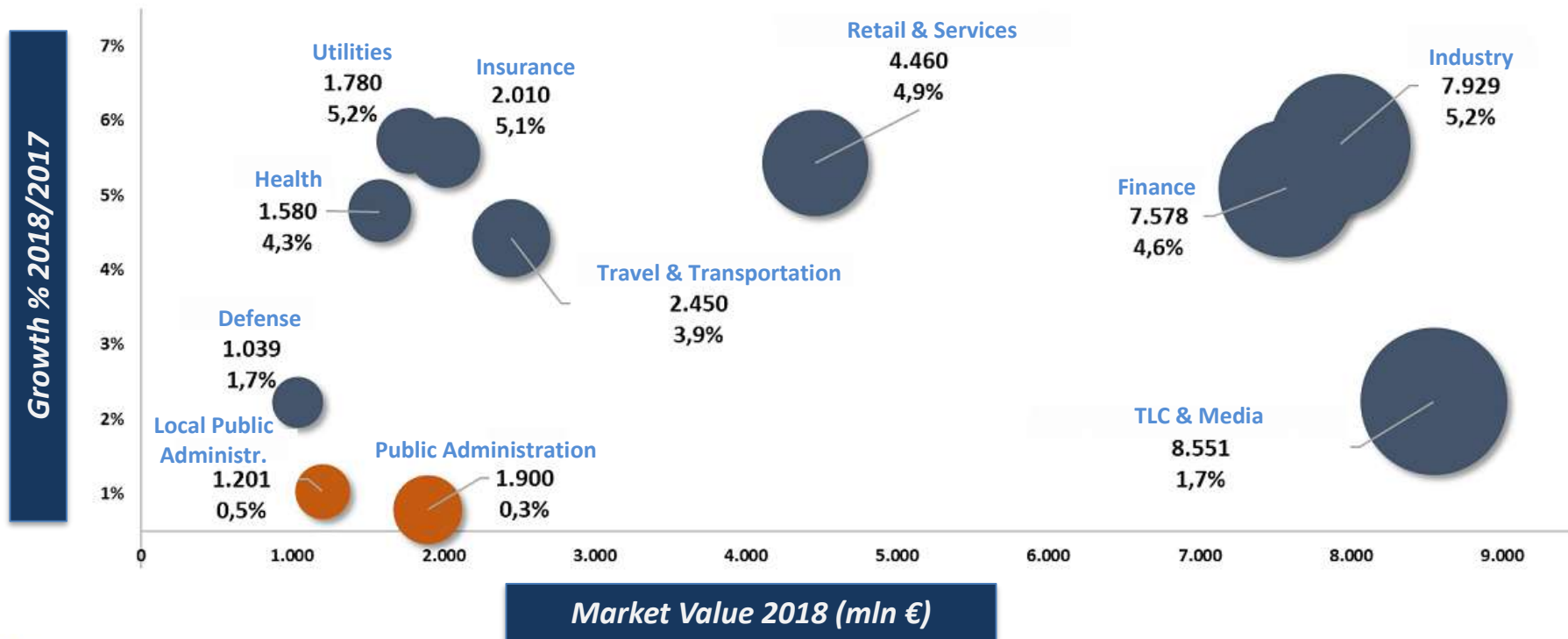
Fonte: Anitec-Assinform / NetConsulting cube, Marzo 2019

# Italian Digital Market Value by Digital Enabler





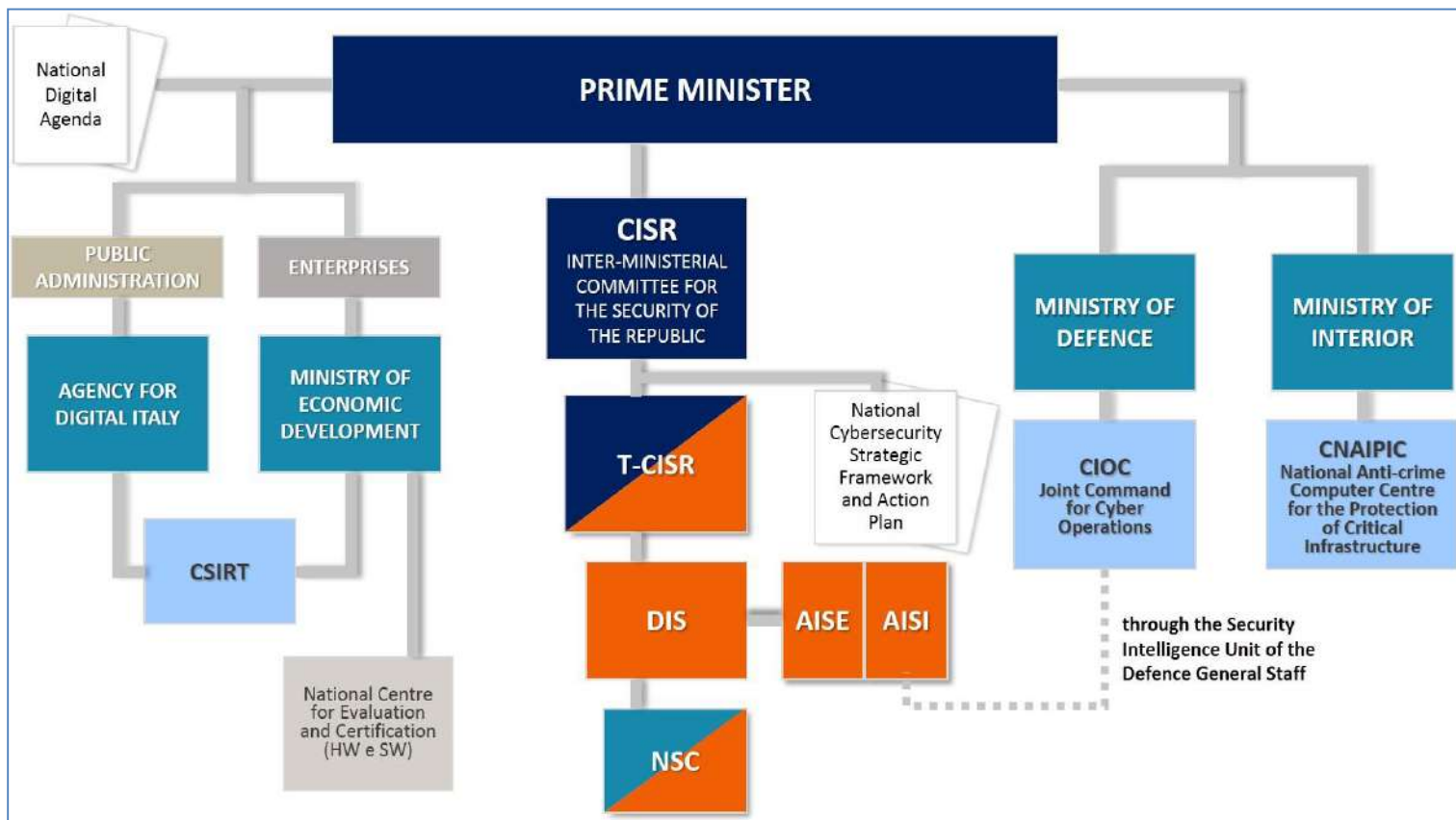
# Italian Digital Market Value by Sector



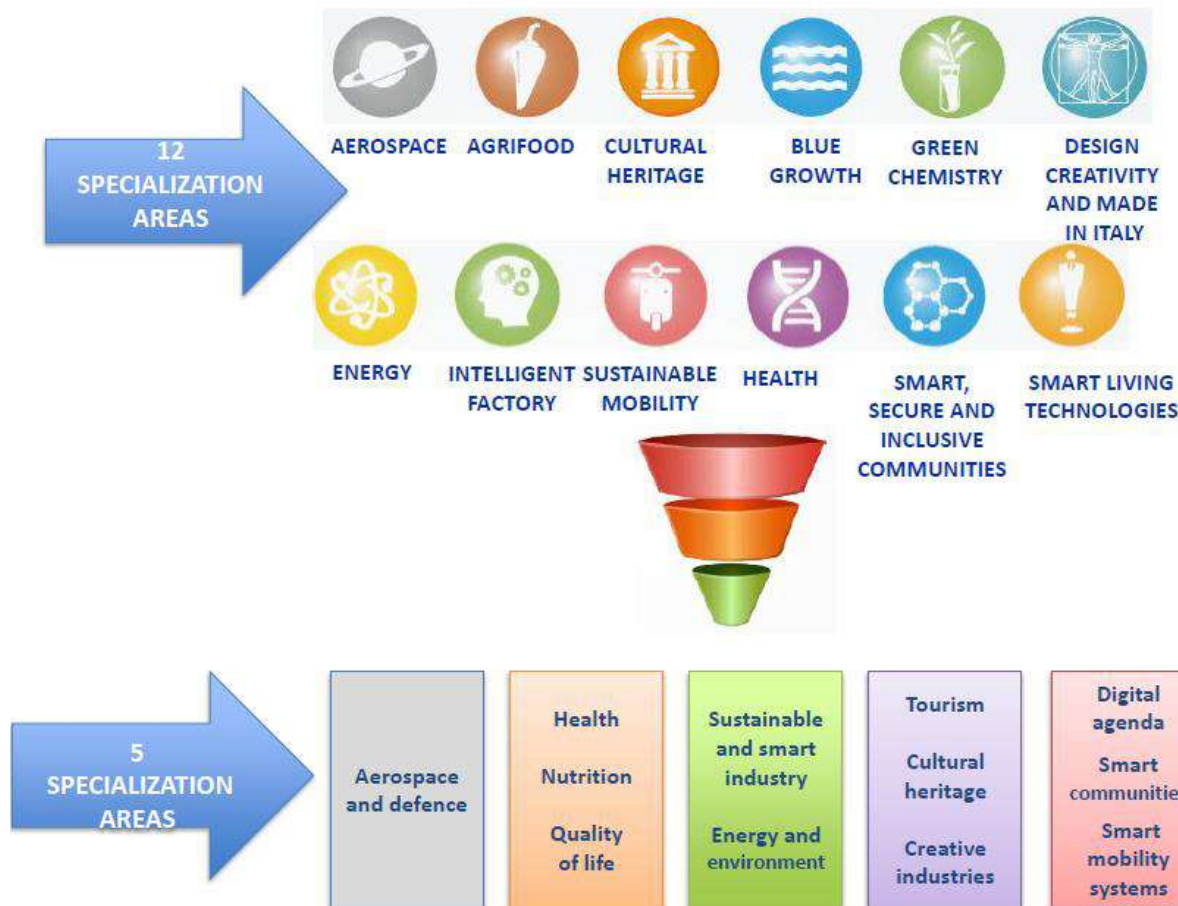
# Italian Cybersecurity Market, 2016 – 2018



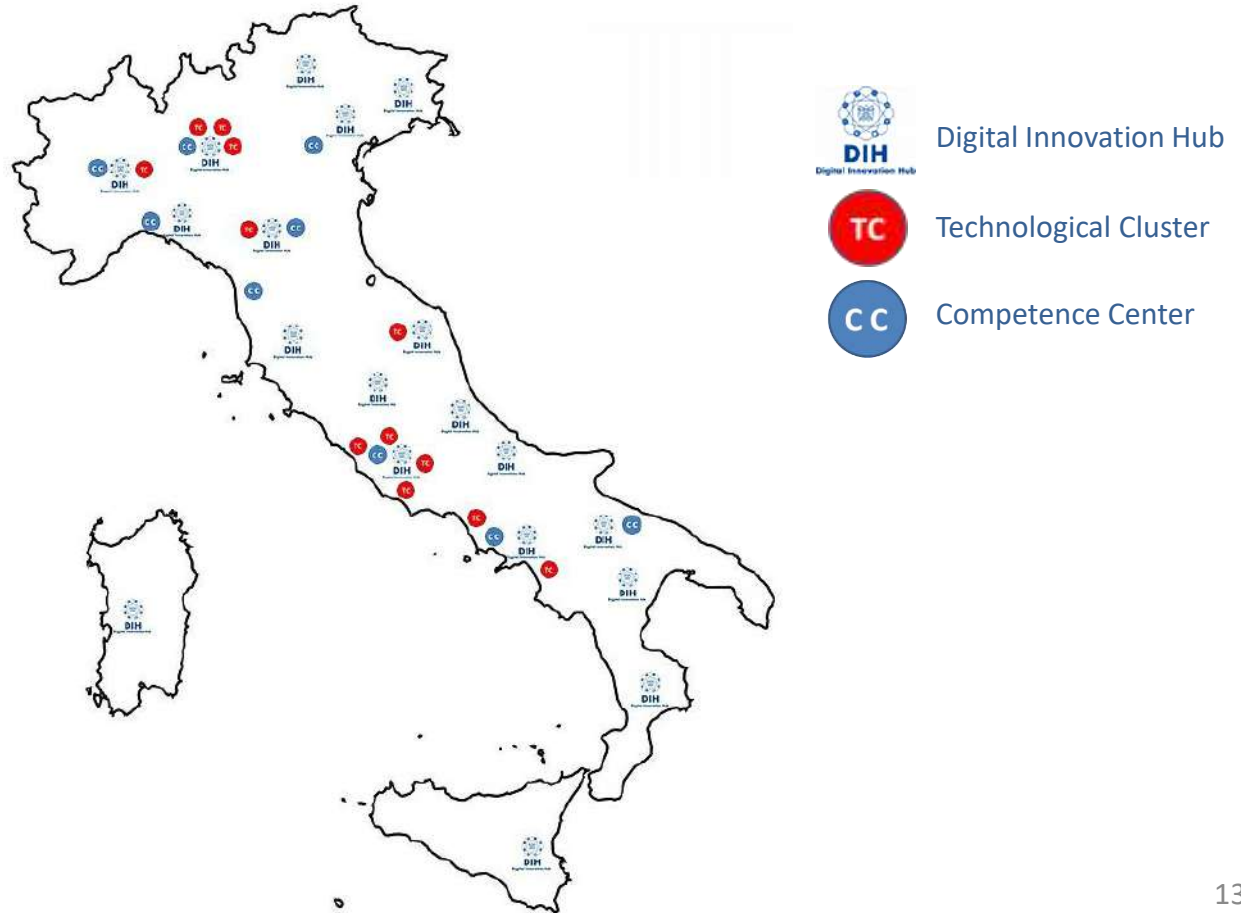
# Italian Cybersecurity Architecture



# NATIONAL RESEARCH PROGRAMME 2015 - 2020



# The Italian Innovation Network





**ENERGY**



**DESIGN  
CREATIVITY  
AND  
MADE IN ITALY**



**AGRIFOOD**



**CULTURAL  
HERITAGE**



**BLUE  
GROWTH**



**GREEN  
CHEMISTRY**



**AEROSPACE**



**SMART,  
SECURE AND  
INCLUSIVE  
COMMUNITIES**



**INTELLIGENT  
FACTORY**



**SUSTAINABLE  
MOBILITY**



**SMART LIVING  
TECHNOLOGIES**



**HEALTH**

**12**

## **NATIONAL TECHNOLOGICAL CLUSTERS**



# NATIONAL TECHNOLOGICAL CLUSTERS

The **12 National Technological Clusters (CTN)** are **structured aggregations** of **enterprises, universities, public or private research institutions**, including financial entities active in the field of innovation, composed of several **public-private aggregations**, including existing Technological Districts and focusing on specific technological and applicative fields.



**PURPOSE:** Development of **National Meta-Districts** aimed at boosting sustainable **economic growth** both at local and national level to the benefit of the whole national economic system.

Italian Clusters are aligned with **Europe 2020 Strategy** and with **Horizon 2020 challenges**





# National Competence Centres

Politecnico Torino Manufacturing 4.0	Additive manufacturing, data science and big data Focus on automotive, aerospace, energy
Politecnico di Milano Made	Enterprise 4.0 - Cyber Physical System
Università di Bologna BI-REX	Big data Focus on mechatronics, automotive, biomedical, agrifood
Scuola Sant'Anna di Pisa Artes 4.0	Robotics and virtual environments
Università di Padova SMACT	Tecnologie Smac: social media, mobile, analytics and big data, cloud, IoT, automation Focus on clothing, furniture, agribusiness
CNR Liguria Start 4.0	IoT (Internet of Things), augmented reality, big data, block chain, robotics, connectivity 4.0 Focus on energy, transports, blue growth, port
Federico II Napoli Industry 4.0	All industry-enabling technologies 4.0 Focus on automotive, aerospace, agriculture, pharmaceutical
La Sapienza Cyber 4.0	Cybersecurity



# Digital Innovation Hub



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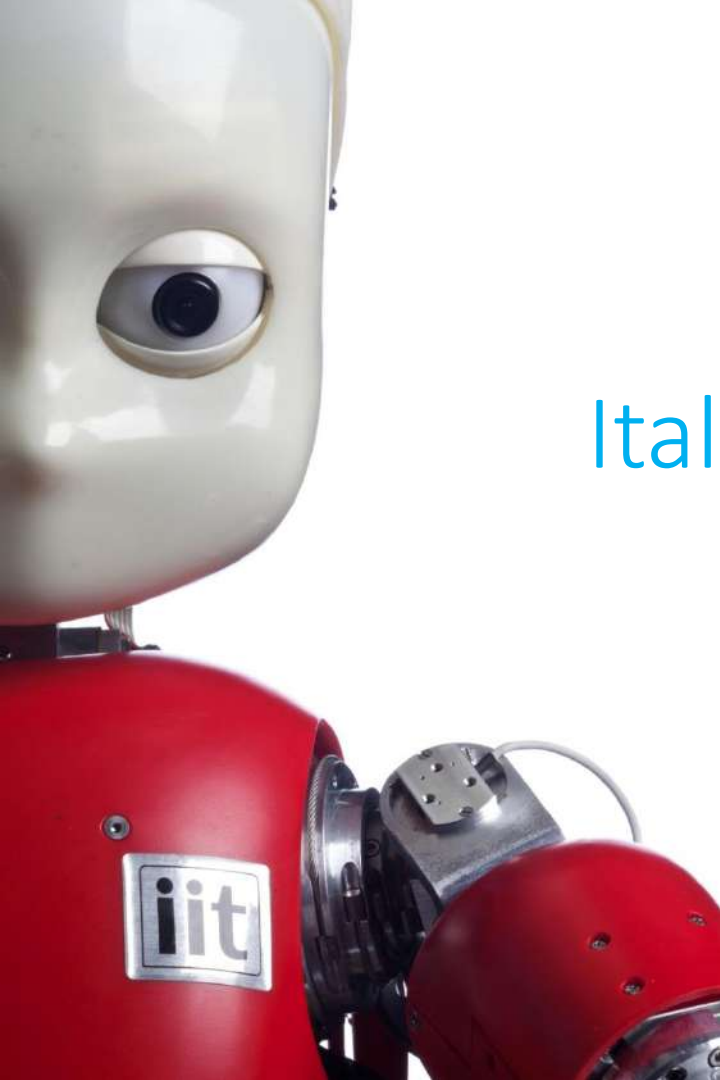
الإمارات العربية المتحدة  
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## Giorgio Metta

Vice Scientific Director, iCub Facility Director

Italian Institute of Technology



# Italian Institute of Technology

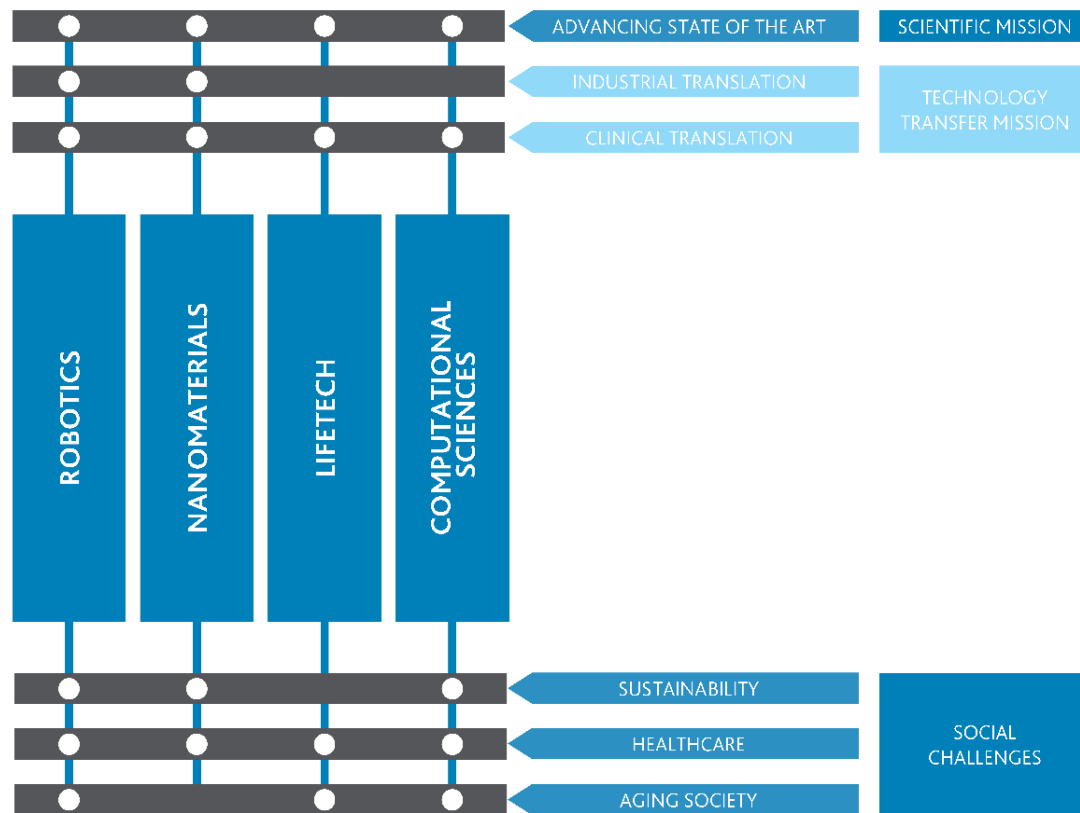
*technology with the human touch*



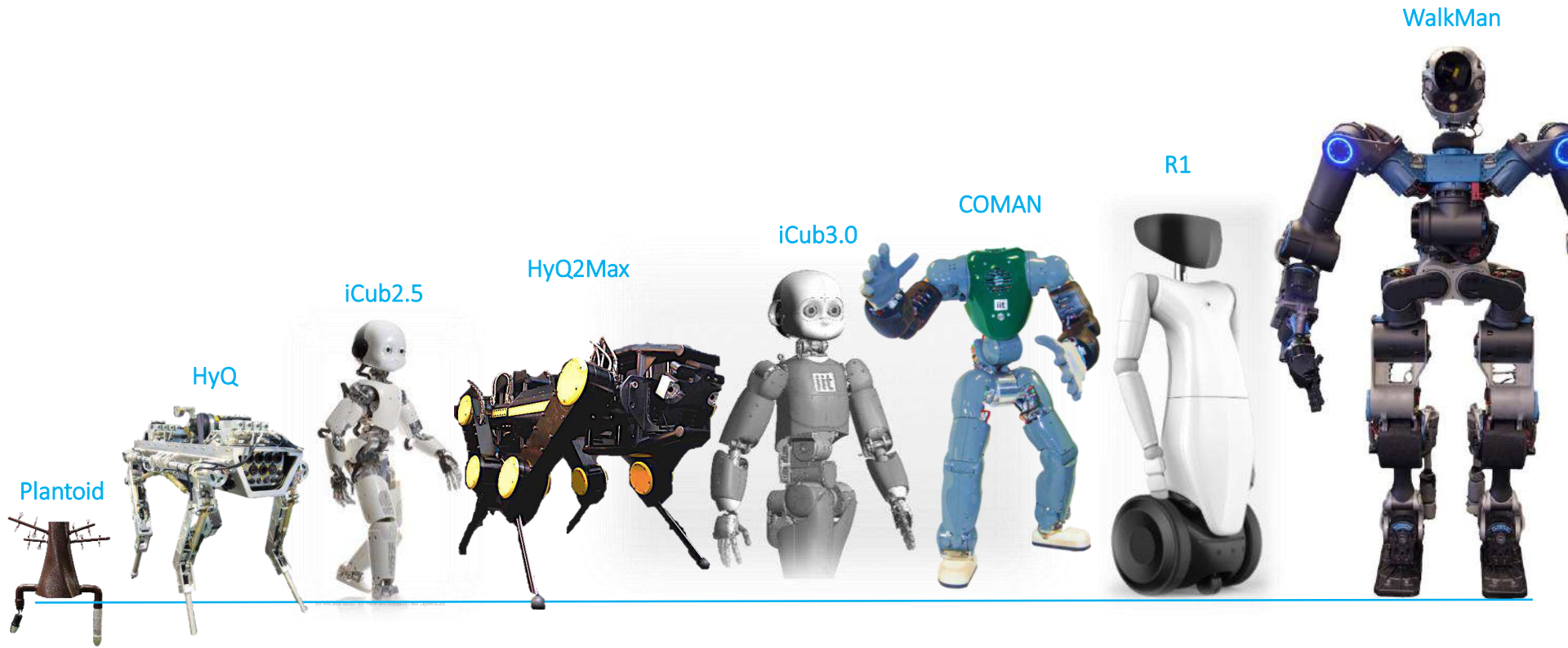
ISTITUTO ITALIANO  
DI TECNOLOGIA

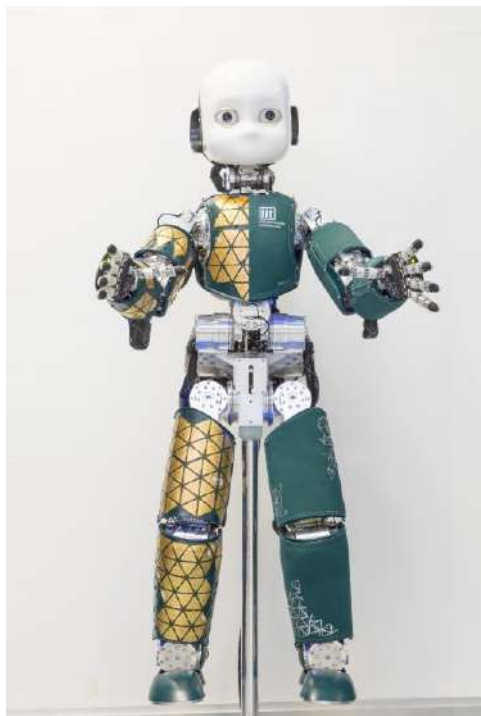


ISTITUTO ITALIANO  
DI TECNOLOGIA



# our family of robots















vodafone









+





+

**PATENTED**



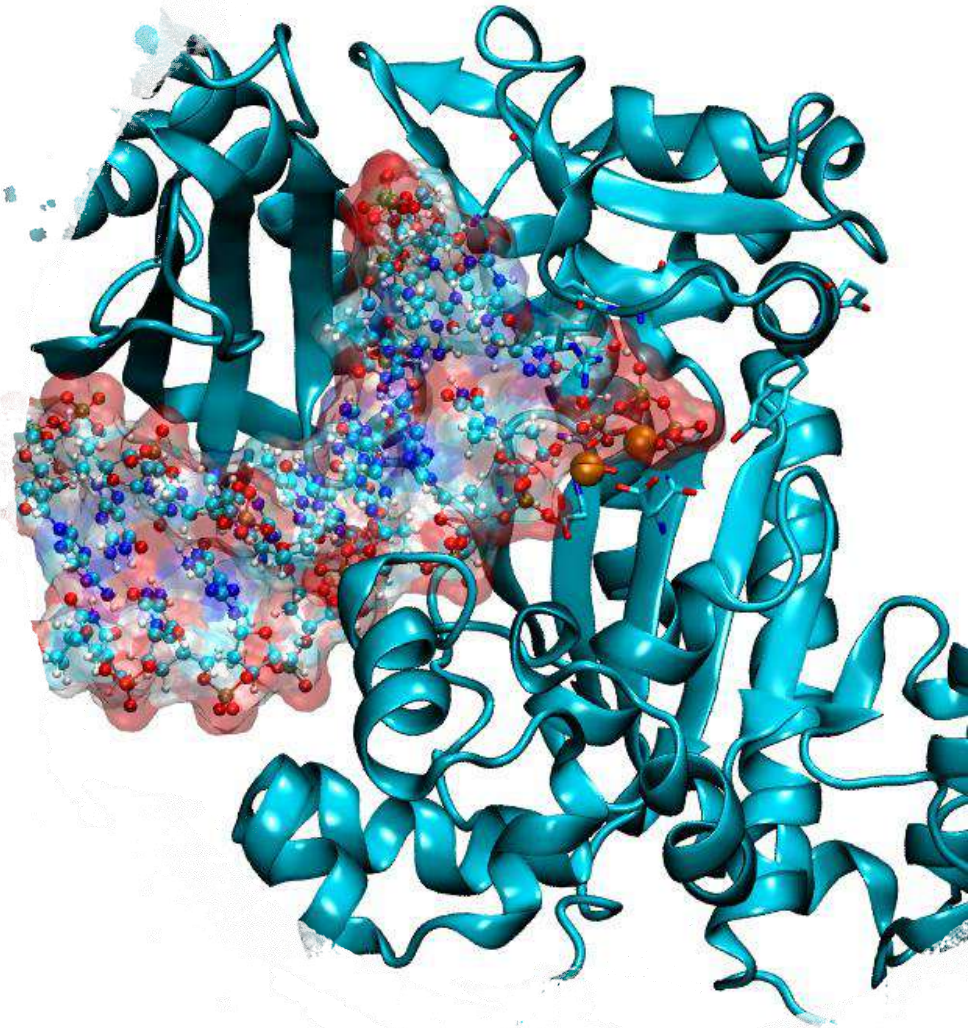
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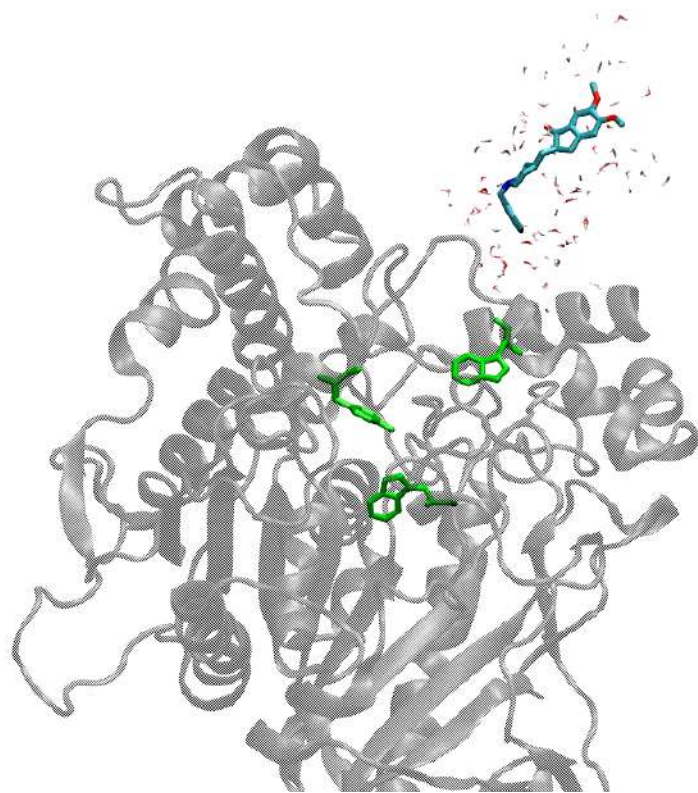


# digital tech for health

- ↓ IIT and Gaslini Children's Hospital
- ↓ 40 families analyzed
- ↓ 19,396 genes, 6Tb in 48 hours
- ↓ 150,000 variants per sample!
- ↓ 50-100 variants for manual analysis
- ↓ 1 candidate mutation found



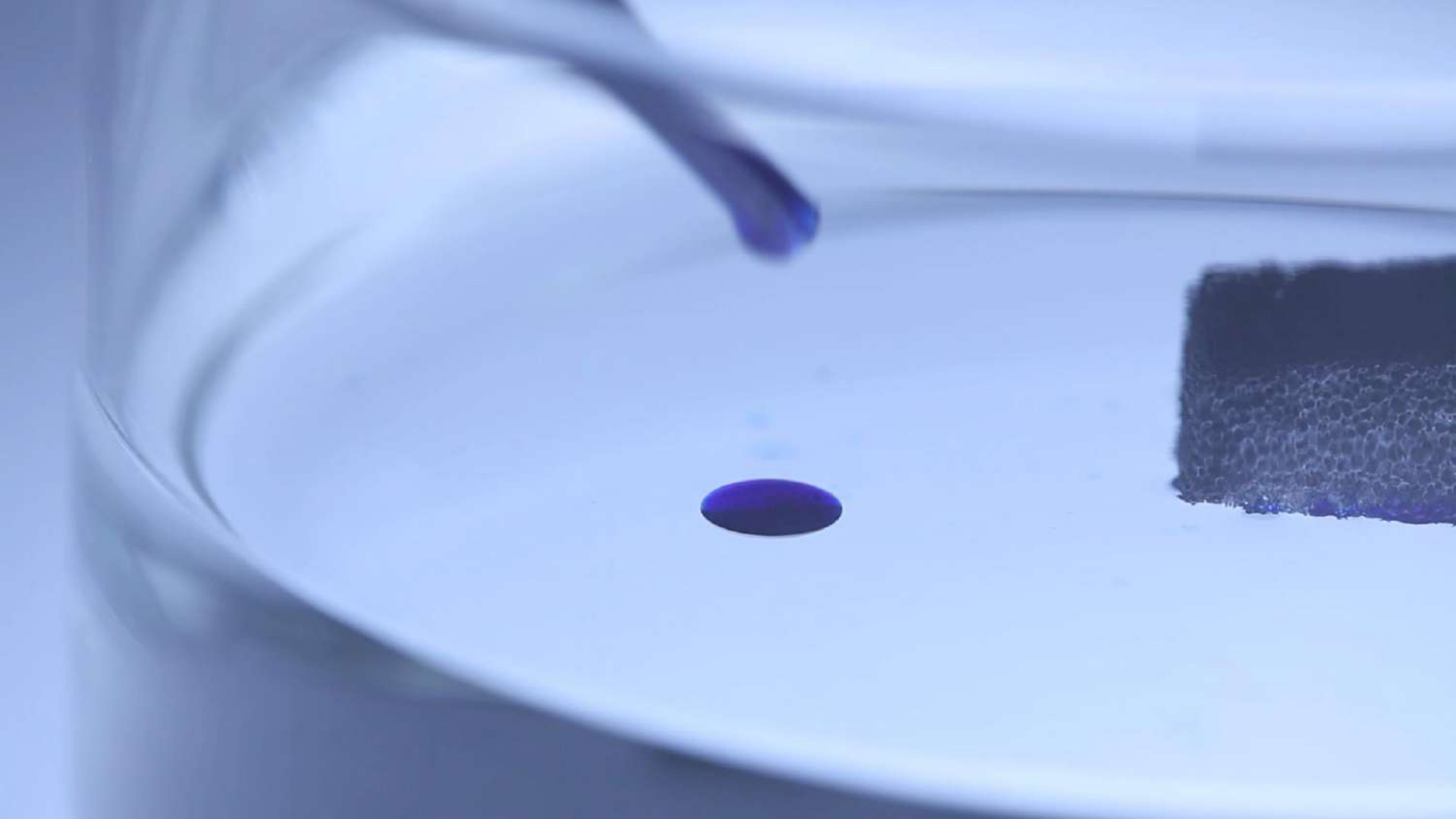
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how food waste  
becomes food  
packaging





iit

ISTITUTO

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# Valeria Sandei

## CEO

## Almawave an Almaviva Company





Absolute digital.

Almaviva Group

Dubai, 15/04/2019





# Almaviva The Group

**8**

Countries

**15**

Companies

**62**

Offices  
32 in Italy  
23 abroad

**45<sub>k</sub>**

People  
11k in Italy  
34k abroad

**823<sup>Euro</sup><sub>mln</sub>**

Turnover  
In 2018

## IT

IT Services & innovation to drive disruptive trends and support customers in a continuous transformation



## CRM

A new vision for customer experience management on a global scale



## TECH

Technology to transform customer experience management and enhance IT services & solutions





Almaviva

Stories of excellence in IT



# Excellence for IT



**Vertical Expertise**  
Longstanding Experience



## Transportation

### KEY CLIENTS

- Railway
- Logistics
- Local Transportation

### KEY STATISTICS

- Traffic management for **11,000 trains a day**
- **17,000** rail networks
- **20,000** pieces of equipment in **2,200** managed stations
- **2,000** managed fleet of trains



## Public Administration

### KEY CLIENTS

- Defense & Homeland Security
- Administration & Finance
- Healthcare
- Agriculture
- Education
- Welfare
- Local Authorities

### KEY STATISTICS

- **32 mln** pension slips a year
- **1,5 mln** declarations via will to organ donation
- **1,600km** radar coastal surveillance
- **€8 bln** funds yearly granted and managed



## Financial Services

Bank & Insurance

### KEY CLIENTS

- Core Banking
- Core Insurance
- Governance & Compliance
- Connected Insurance
- BPO
- Wealth Management
- Postal Services

### KEY STATISTICS

- **100** customers among Italian & international banks & insurance companies
- **20** products «Made in Almaviva» for financial services
- **150** installations
- Leader in trust company services

## Technology Trends Deep Knowledge

Modern IT

Cyber-Security

Cloud Computing

Internet of Things (IoT)

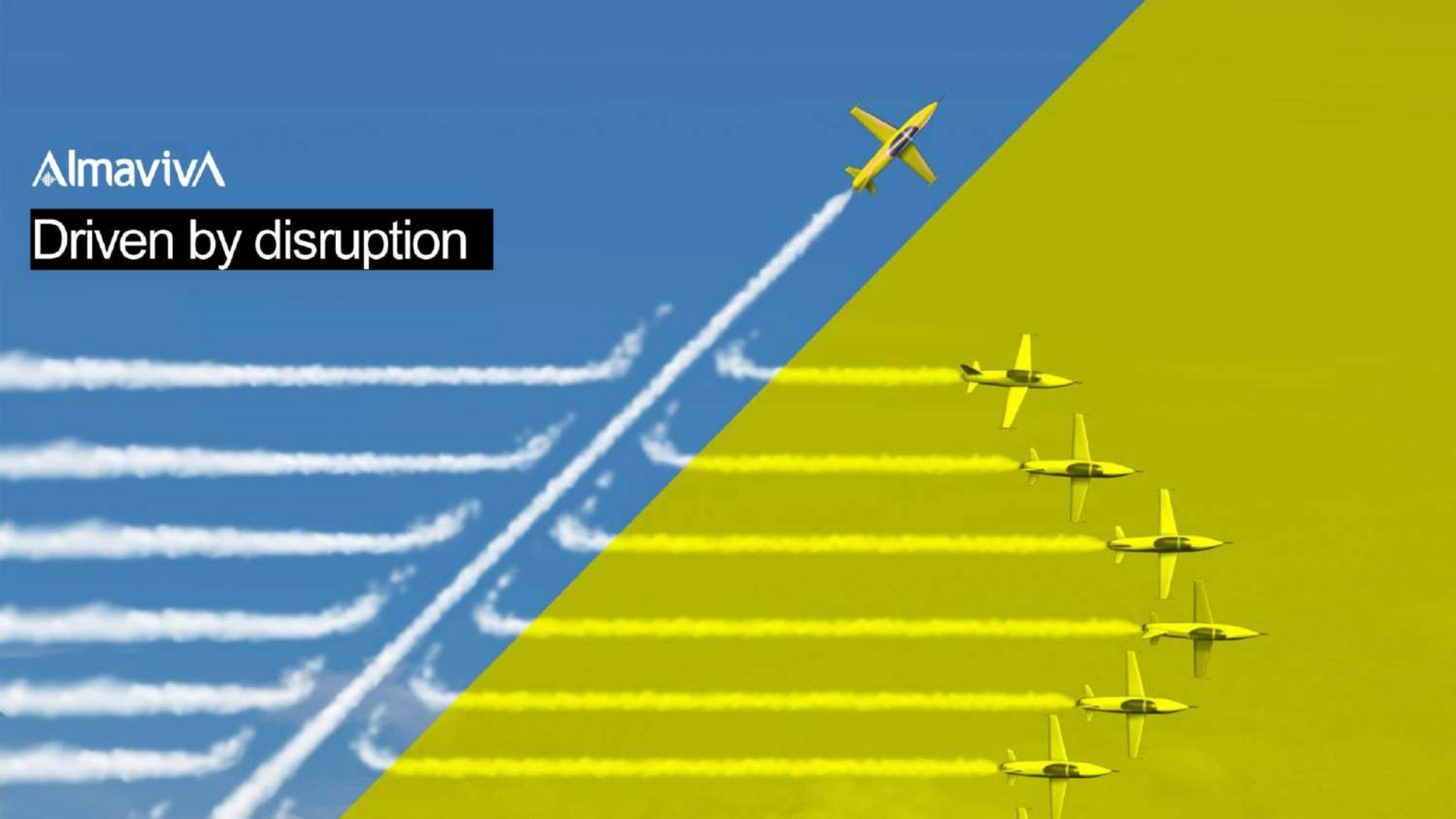
Mobile & Mobility

Big Data & Analytics

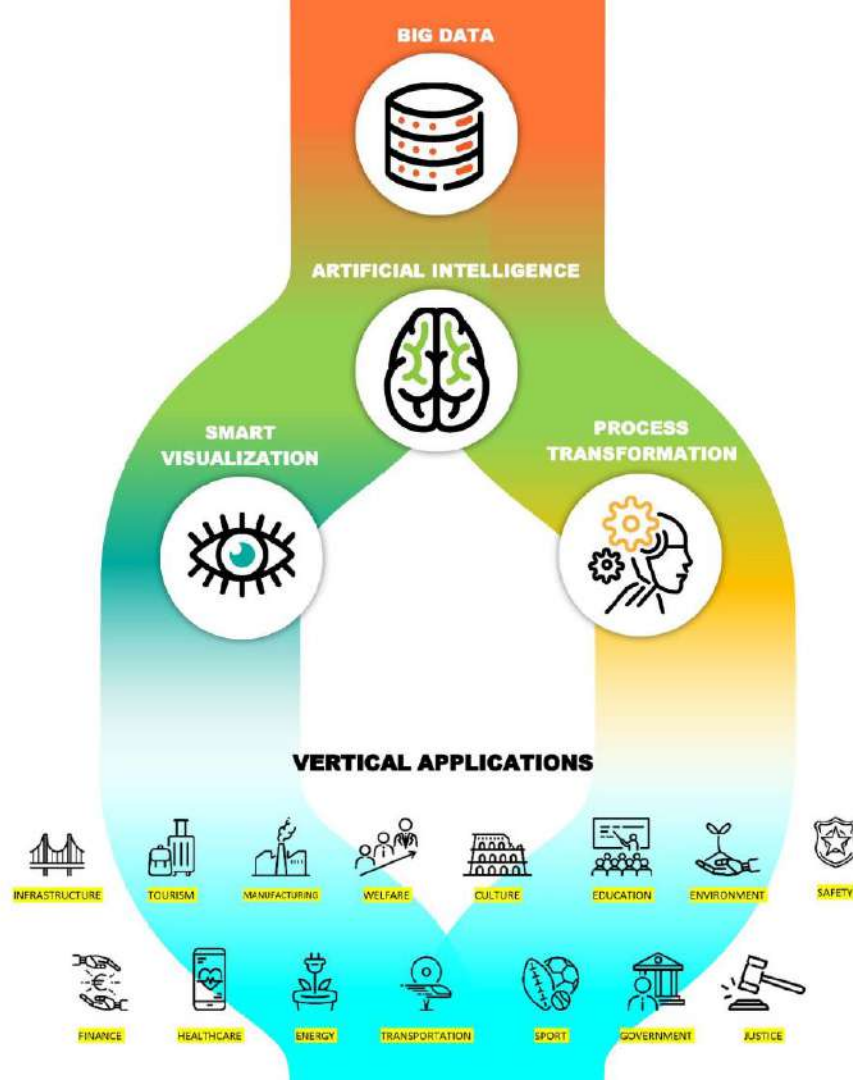
AI & Cognitive technologies

Almaviva

Driven by disruption



# AI for Digital Transformation



## Sample features



**Ontological mapping & search**



**Conversational agent**



**Computer vision & OCR**



**Content classification**



**Language processing (text|voice)**



**Speech recognition**



**Translator**



**RPA**



**Multi-channel technology**

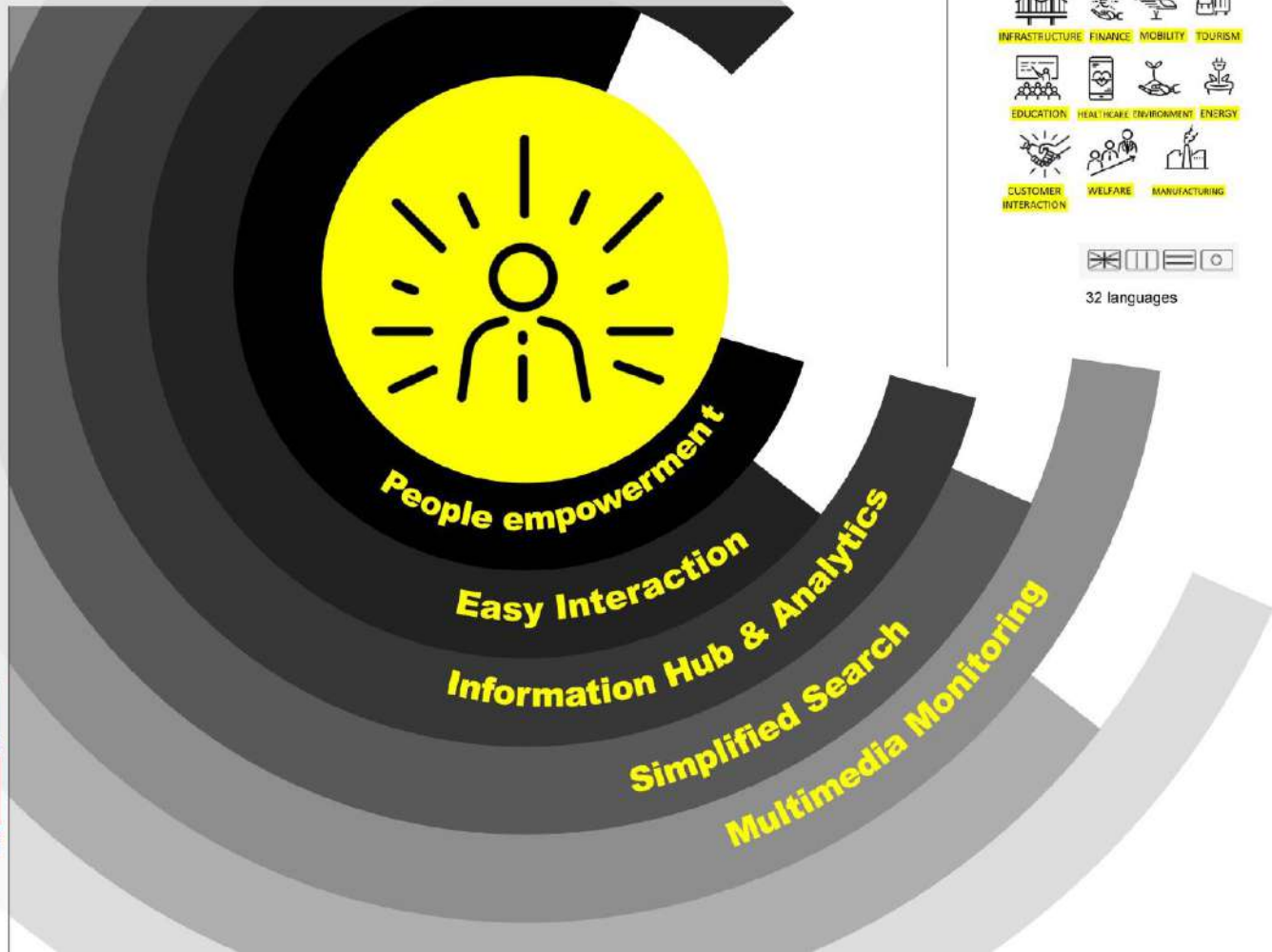
# Customer Experience

## Prizes & awards

- Enabling Technology for CRM BPO Leadership Award, Europe, 2019
- Magic Quadrant for CM BPO, worldwide, 2017
- Top Ten Disruptive Companies, Italy, 2016



**Almawave**  
*Conversation in action*

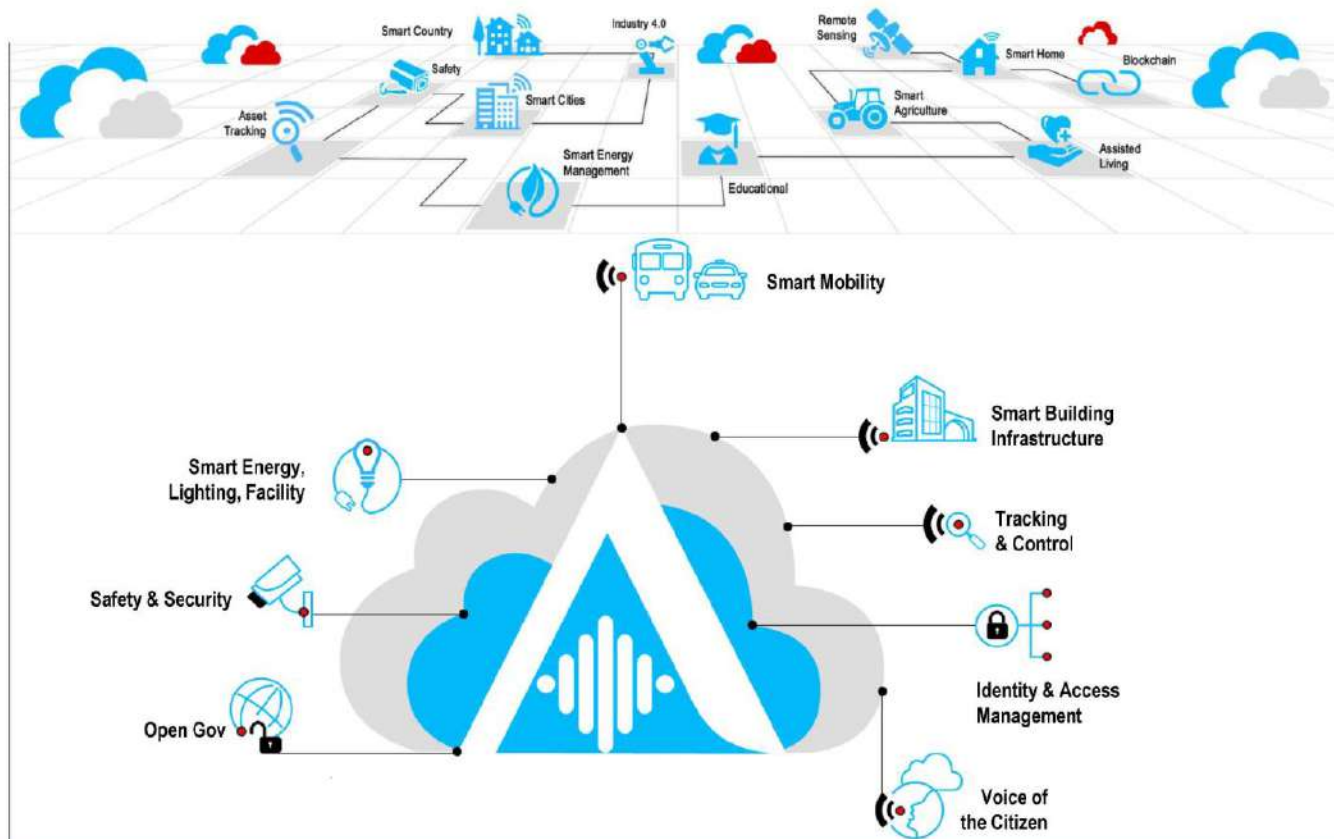


32 languages



# IoT

Smart spaces & services enabled by IOT for a better quality of life & interaction for citizens & customers



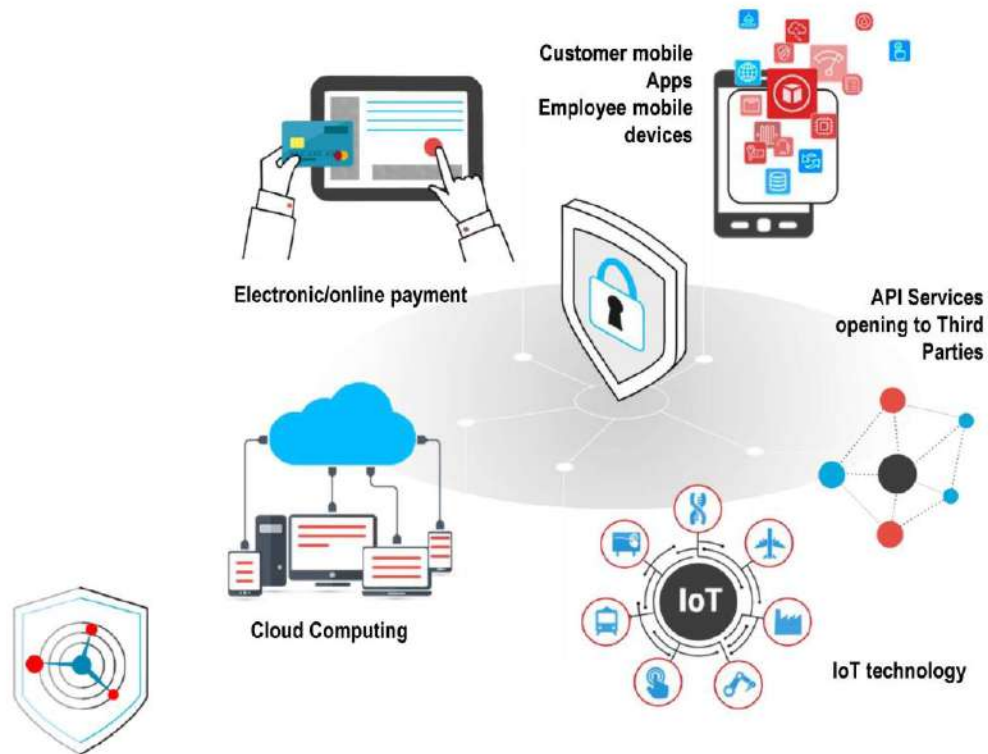
- Advanced Big Data
- Human-Decision Support Systems
- Spatial thinking
- Machine Learning & Artificial Intelligence
- Deep Learning
- Advanced human-machine interaction



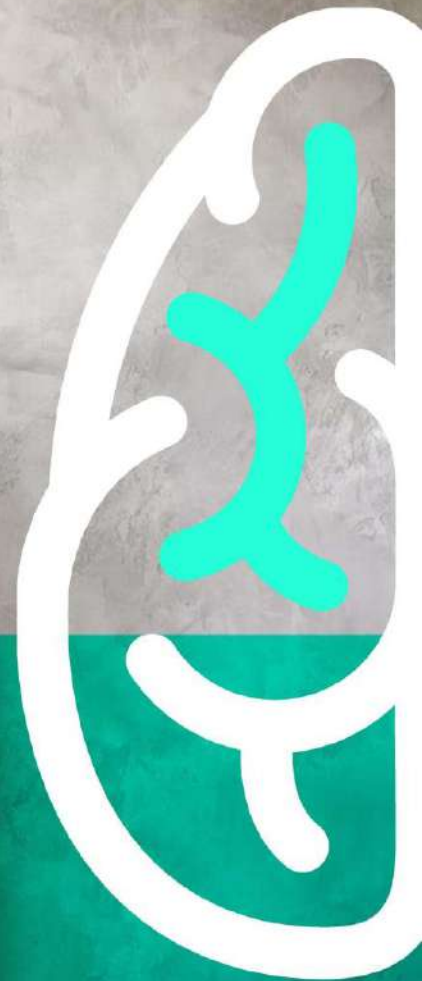


# Cyber Security

**Fighting violations & reacting to attacks is not enough – you need to know and prevent potential threats**



- Security Consulting & Advisory
- Identity & Access Management
- Advanced Cyber Security
- Threat Management
- Mobile Security
- Data Protection
- Fraud & Transaction Management
- Managed Security Services



powered by **Almawave**  
*Conversation in action*

**iit** ISTITUTO  
ITALIANO DI  
TECNOLOGIA



R1 has been developed by IIT- Istituto Italiano di Tecnologia (Italian Institute of Technology), a research institute established in 2003 to promote excellence in fundamental and applied research, develop higher education in science and technology and foster the evolution of industry towards the forefront of technological innovation



R1 is a humanoid robot designed to operate in the service and domestic robotics market



R1 can take care of customers by providing assistance, information, recommendations, directions, advertisements, help and individuals, supporting a high quality of life



**Height:** 115-135cm (extensible)

**Weight:** 51kg

**Communication system:**

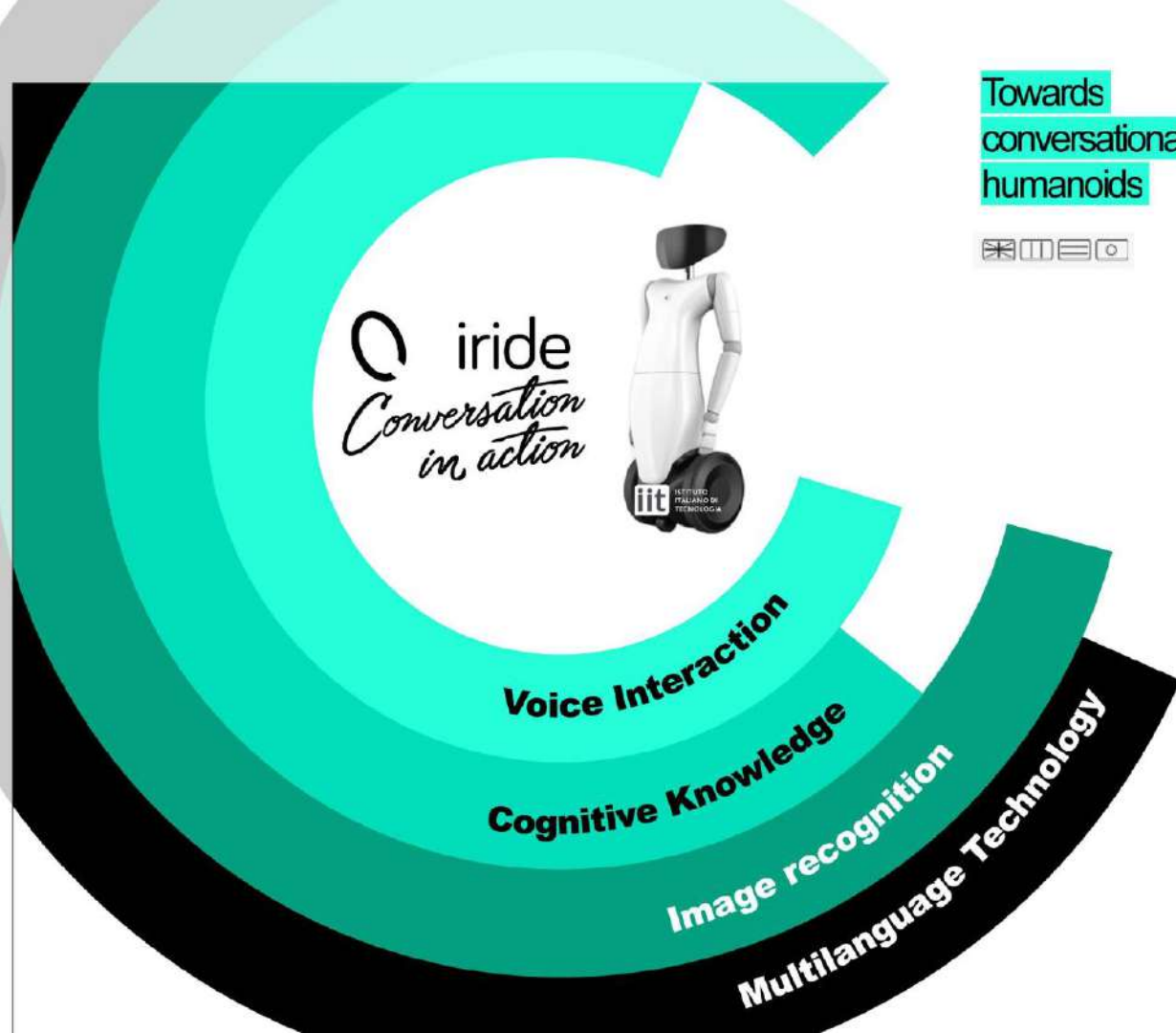
- Loudspeaker
- RGB display (80X32 16 bit color depth)

**Sensors:**

- stereo cameras (including RGBd)
- microphones (x4-8)
- encoders (each joint)
- six axis force/torque sensors (arms)
- tactile sensors (capacitive) fingertips and skin on the forearms
- Gyroscopes
- Accelerometers
- IMU
- lasers (x2)



# Cognitive technology for humanoids







## Use cases for Expo Dubai2020

### Safety

- Videosurveillance
- Anomaly detection
- Object identification
- Audio recording

### Assistance

- Information
- Interaction
- Multilingual

Italian | English | Arabic

powered by

**Almawave**  
*Conversations are actions*

**iit** ISTITUTO ITALIANO DI TECNOLOGIA





Absolute digital.

# Almaviva Group

Dubai, 15/04/2019



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**Federico Cornagliotto**  
**Partner**  
**AizoOn Technology Consulting**

**aizoOn** Presentation for Business Mission to the UAE



15/04/2019

Gartner

Cool Vendor 2016



AUSTRALIA  
EUROPE  
USA

## TECHNOLOGY CONSULTING



500+ engineers and specialists globally supporting our customers

Gartner  
Cool Vendor  
2016

**aizoOn Cool Vendor 2016**

Operational Technology in a Digital Business

Our **Vision** is to use **scientific methods** and focus **on data driven decisions** to enable a more responsible and **sustainable society**

Our **Mission** is to **support our customers in their journey through the digital era**, bringing strong know-how in technology and innovation

**AUSTRALIA**  
Sydney NSW

**EUROPE**  
Torino ITA | Cuneo ITA | Milano ITA | Genova ITA  
Bologna ITA | Roma ITA | Bari ITA | Sheffield UK

**USA**  
New York NY | Troy MI | Cambridge MA | Lewiston ME



# aizoOn ORGANISATION & ACTIVITY LEVELS

## TECHNOLOGY EXCELLENCE

the **Technology Units** oversee the entire spectrum of enabling technologies required by the digital economy

## BUSINESS PROXIMITY

the **Market Divisions** ensure a thorough and attentive knowledge of the needs and transformations taking place in manned areas

## ABILITY TO CREATE INNOVATION

the **Applied Innovation Division** directs and coordinates the development of innovative solutions in accordance with the customer's strategic vision

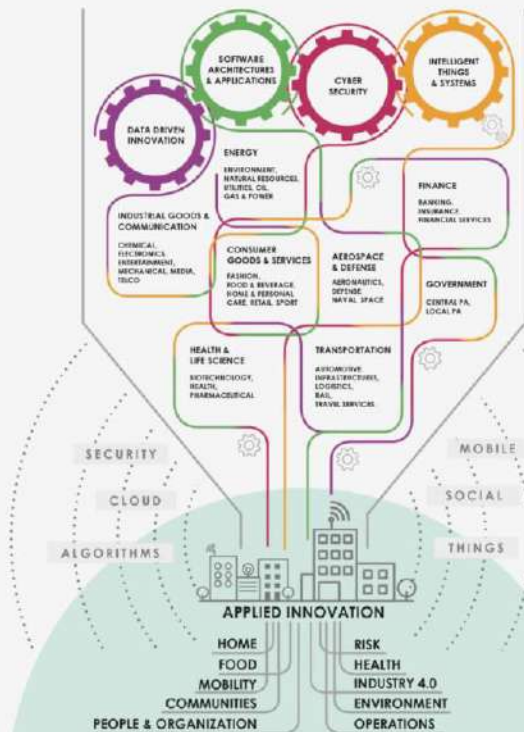
aizoOn has a **unique** ability to support its customers at various levels

Consulting Services

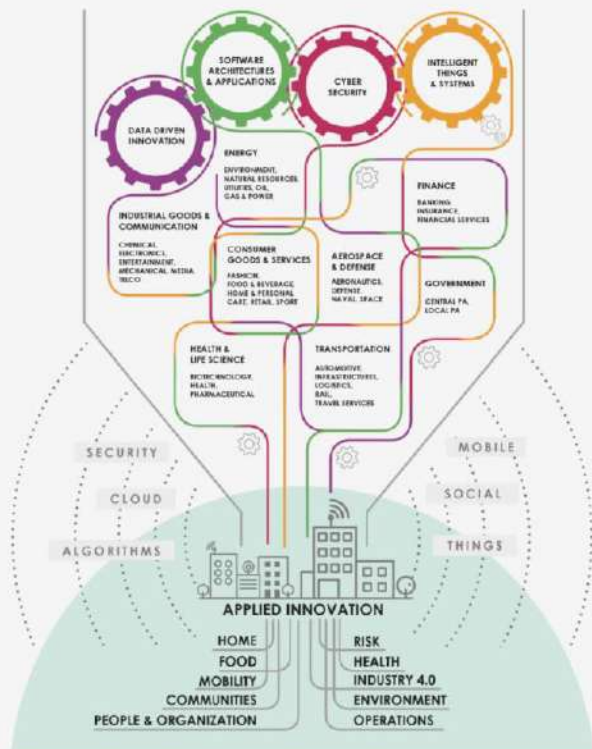
Turn-Key Projects

Proprietary SW Products

Innovation  
R&D / Prototyping / PoC



# aizoOn & cybersecurity aramis



aramis is a **network security** platform developed to reduce the "dwell" time of identification of attacks.

Leveraging **machine learning** algorithms, advanced cyber **analytics** and **threat intelligence** capabilities allows cyber-security analysts to make the critical decision, in real time, and protect their environment from even the most advanced cyber threats.

**AUSTRALIA**  
Sydney NSW

**EUROPE**  
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**USA**  
New York NY | Troy MI  
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**Riccardo Monti**  
**Executive Director**  
**Triboo**



# ICT Roundtable: UAE future agenda for digital transformation and smart cities

## A Digital Project between Italy and Emirates

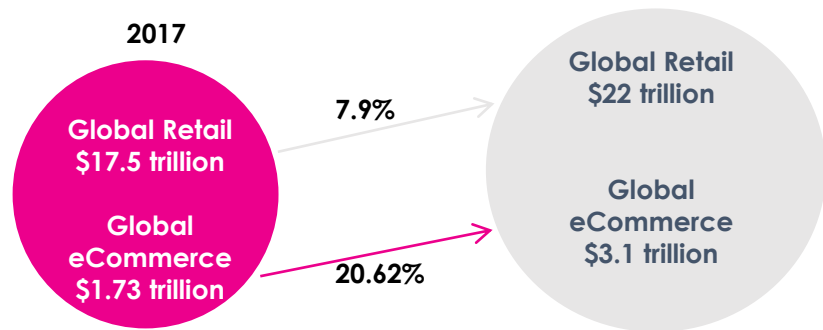
DUBAI, 15 April 2019

TRIBOO

[www.triboo.com](http://www.triboo.com)

# Global E-commerce Snapshot

## Global Offline Retail versus eCommerce 2020



## Number of eCommerce Shoppers Worldwide (2017)

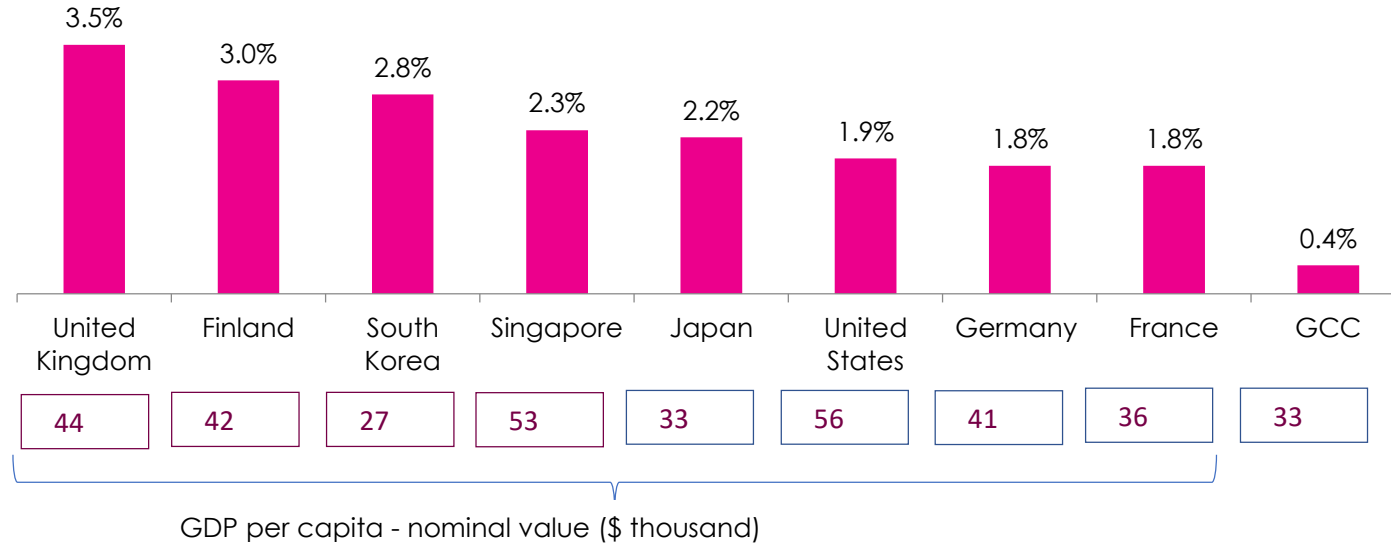
Type	Numbers in 2017
Total Population - on Internet	4.1 billion (54% of population)
- shopping online	1.66 billion (40% of Internet users)
- mCommerce	59% of eCommerce (growing to 70% by 2020)

## Top Retail eCommerce Players

Company	Headquarters	Market Shares of Top 6 E-tailers	Revenue (2017) (\$ . Billions)
Amazon	Seattle, Washington (USA)	72%	\$177.9
Alibaba	Hangzhou, China	9%	\$23
JD.com	Beijing, China	7%	\$16.9
Walmart	Bentonville, Arkansas (USA)	5%	\$11.5
eBay	San Jose, California (USA)	4%	\$9.6
Rakuten	Tokyo, Japan	3%	\$8.3

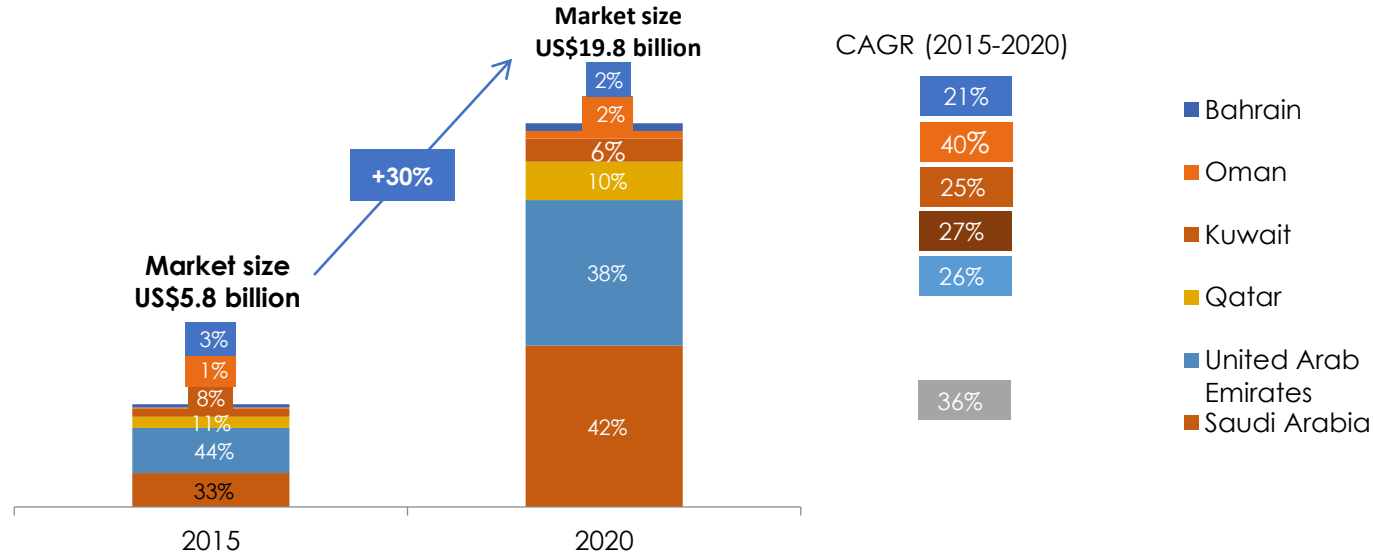
# State Of Regional E-commerce

E-commerce as a % of GDP



**E-commerce contributes just 0.4% to GDP** amongst GCC nations, despite large disposable income levels and strong telecom penetration.

# E-commerce Growth Potential For GCC Nations



- Only **34% of major GCC retailers have eCommerce channels**, versus 58% in the USA
- It is estimated that the **GCC eCommerce market** to reach approximately **US\$20 billion by 2020**, compared to just US\$5.8 billion in 2015
- At a **30% CAGR over 2015-2020**, eCommerce is expected to outperform traditional retail growth, which is forecast to grow at a 9% CAGR over the same period

# Digital State of Affairs in Luxury Fashion

## Ecommerce

- Fashion brands provide exception service but **struggle to translate this online**
- They have been **slow to implement on-site features** for personalized attention
- The industry as a whole **lags behind other verticals in digital sophistication**

## Digital Marketing

- **Search drives 61% of all site traffic** and is crucial for brands
- On Google branded **search terms are the largest investment** by luxury brands
- Brands are also **increasing spend on Product Listing Ads**

## Social Media

- **Facebook and Instagram see near universal adoption** amongst luxury brands
- **Instagram has seen growth of almost 4 times that of Facebook** and almost 2 times that of YouTube in terms of posts and interactions
- **Pinterest adoptions remains high** but growth is declining

## Mobile

- Brands have **shifted their attention from apps to mobile web**
- While 92% of a **user's time** on a phone is spent on an app, **only 5% is spent shopping**
- **Brands are deprioritizing their investments in apps** as only a few shopping apps are consistently used and these are top apps like amazon, etsy etc.



## *Debenhams – A case study on the consequences of not going digital*



Debenhams an iconic British store in operation since 1778 **issued three profit warnings last year** and has been taken over by the banks after accrued debts of well over £600 million

Many in the industry believed **the department store had failed to transform quickly enough**, despite a new brand identity and improvements to store design last year.

Debenhams **blames IT costs and leases for its exception costs write down** which resulted in record losses.

*"The whole problem with Debenhams is **that it's been too slow – online is not a new phenomenon and they haven't had the right solutions** and they've hung on to the store for too long,"*

*Catherine Shuttleworth, CEO of Savvy,*

	Offer	Awareness	Engagement	Conversion	Retention
Best practices	<ul style="list-style-type: none"> <li>• <b>Clear, distinctive, attractive</b> features</li> <li>• Suitable variety and <b>assortment</b></li> <li>• Product or service <b>exclusivity</b></li> <li>• Competitive <b>price</b></li> <li>• Perceived <b>convenience</b></li> </ul>	<ul style="list-style-type: none"> <li>• Effective <b>SEA &amp; SEO</b> management</li> <li>• Efficient management of other channels <b>performance web marketing</b></li> <li>• <b>Social</b> media coverage</li> <li>• Presence of <b>marketplaces</b></li> <li>• <b>Endorsement</b> from other reliable <b>players / partners</b></li> <li>• Display on <b>offline channels</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Brand Positioning</b></li> <li>• <b>Content consistent</b> with the target</li> <li>• <b>Efficient</b> online store management</li> <li>• Functional <b>mobile</b> experience</li> </ul>	<ul style="list-style-type: none"> <li>• Incentive for <b>the first purchase</b></li> <li>• <b>Service level</b> in line with expectations</li> <li>• <b>Registration</b> and <b>purchase process</b> without clutches</li> <li>• <b>Pre-purchase</b> customer support</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Quality</b> post-purchase <b>experience</b></li> <li>• Post-purchase <b>customer support</b></li> <li>• <b>Push to repeat</b> purchase</li> <li>• <b>Promote</b> the acquisition of other <b>customers</b></li> <li>• <b>Stimulate</b> to interact through <b>all the brand's channels</b></li> </ul>

## Why Triboo?

1. We are a **digital company**, that **combines Italian creativity** with **luxury, fashion** and **quality**
2. Triboo is a “**one-stop solution factory**”, staffed with over 500 professionals from 20 different countries, delivering top quality digital services since 15 years ago
3. With an **integrated offer** of **digital services, marketing sales communication, consulting and training**, Triboo presents itself as responsible for the full value chain tailored to Brands needs
4. Triboo manages **over 100 online & offline stores** with **omni-channel strategy**, as for **lifestyle, fashion & luxury** brands **Moschino, Roberto Cavalli, Alba Ferretti, Carpisa, Yamamay**.  
The logos of four fashion brands are displayed in a 2x2 grid. The top row contains 'MOSCHINO' in bold black uppercase and 'roberto cavalli' in a lowercase serif font. The bottom row contains 'CARPISA' in bold black uppercase and 'yamamay' in a lowercase pink script font.
5. Triboo has **international** coverage and with a **team** with extensive experience globally and specifically in the Middle East

## *Triboo figures*



**500+**  
professionals



**1.000+**  
clients



**100+**  
online stores



**17**  
digital properties



**3.000.000**  
products shipped per year



**100.000.000**  
marketing emails sent per year



**20.000.000+**  
monthly visitors to our websites



**30 millions**  
profiled users through our proprietary DMP

## *Triboo full range of services*



### *Digital Consulting*

- DIGITAL STRATEGY
- DIGITAL TRANSFORMATION
- DIGITAL INNOVATION
- ECOMMERCE OPERATIONS
- DATA MANAGEMENT



### *Digital Integration & Development*

- PROJECT MANAGEMENT
- SYSTEM INTEGRATION
- DEVELOPMENT
- Q&I
- LOCALIZATION
- TRANSLATIONS
- MOBILE APP DEVELOPMENT



### *eCommerce Management*

- STORE MANAGEMENT
- MARKETPLACE
- PAYMENTS
- INTERNAZIONALIZATION
- CUSTOMER CARE
- LOGISTICS



### *China & Far East*

- ECOMMERCE OPERATIONS
- RETAIL O2O & OMNICHANNEL
- LOGISTICS & SHIPPING
- STORE MANAGEMENT
- CUSTOMER CARE
- DIGITAL MARKETING
- INFLUENCERS & PR
- MULTI-LANGUAGE STAFF



### *Content Development*

- PHOTOSHOOTING
- CREATIVITY & COMMUNICATION
- TRIBOO STUDIOS
- BRANDED CONTENT PROJECTS



### *Digital Marketing*

- SEO
- SEM
- SOCIAL MEDIA MARKETING
- DESIGN & UX
- PERFORMANCE MARKETING
- MARKETING AUTOMATION
- LEAD GENERATION
- DIGITAL DIRECT MARKETING



### *Audience & Monetization*

- BRANDING SOLUTIONS
- VIDEO ADVERTISING
- DMP
- PROGRAMMATIC



### *Real Time Analytics*

- WEB ANALYTICS
- VIDEO ANALYTICS
- APP ANALYTICS
- MOBILE ANALYTICS
- CONVERSION ANALYSIS
- ROI AND ADV CAMPAIGN MONITORING
- CUSTOMER DATA OWNERSHIP
- INDEPENDENT SOFTWARE PROVIDER

*... Triboo since its foundation has been actively extending its international value proposition in digital services and content*



# Fashion, luxury, industry and premium experiences

MOSCHINO

*Gianvito Rossi*

ALBERTA FERRETTI

PHILOSOPHY  
DI  
LORENZO SERAFINI

ANTONIOLI

OFF-WHITE



DONDUP

*Luisa Spagnoli*

*Drumchre*  
ESTABLISHED 1770

FABIANA  
FILIPPI



THE BRIDGE  
DAL 1949



Jeep



ALESSI



FERRERO

Pellini

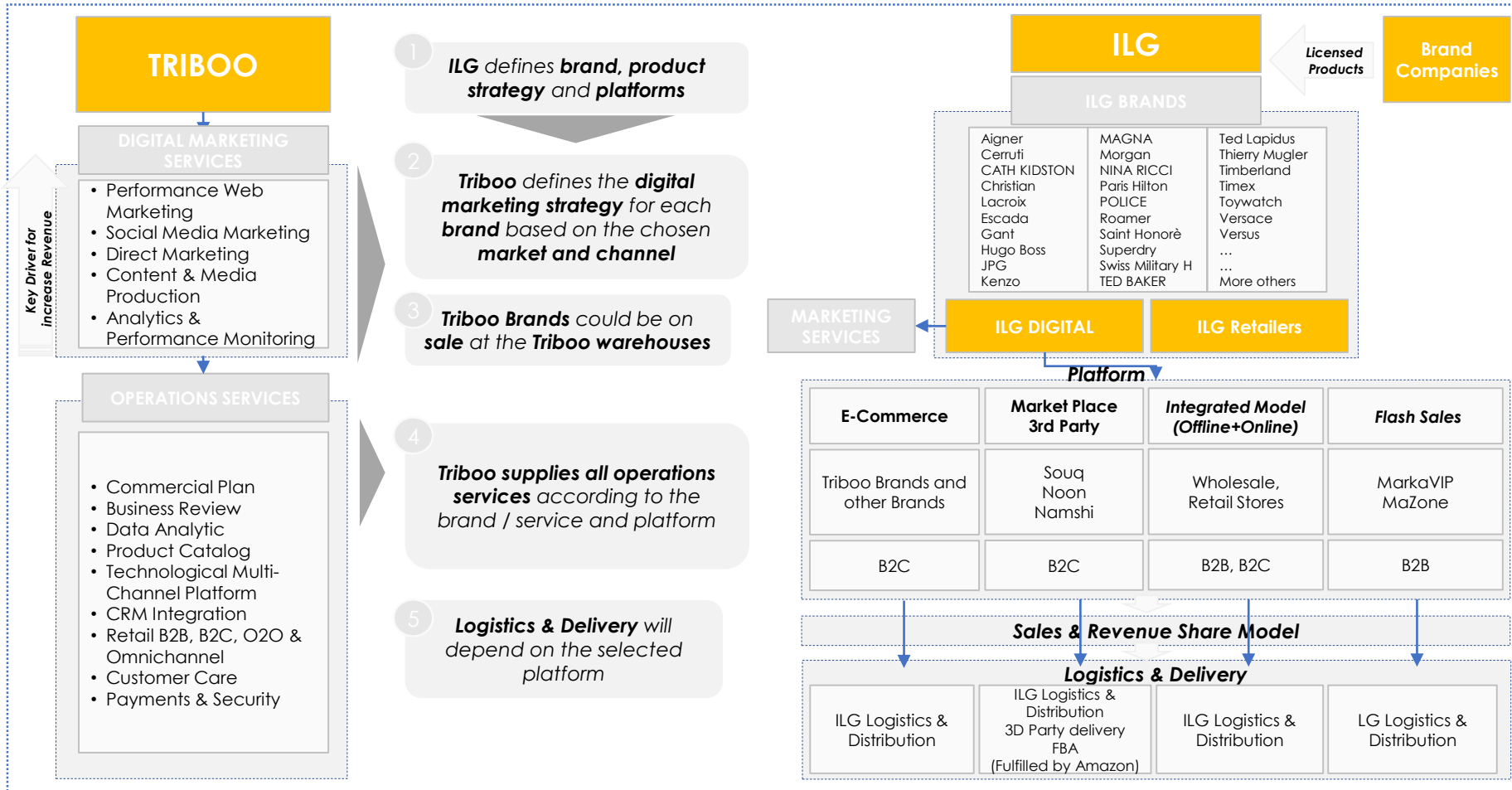


MORE THAN 1.000 CLIENTS PER YEAR

# ILG as global leading company in the field of licensed watches, accessories and eyewear



# TRIBOO ILG Digital Business Model



# Business Mission



to the UAE



April 14-16, 2019



UNITED ARAB EMIRATES  
MINISTRY OF ECONOMY



الإمارات العربية المتحدة  
وزارة الاقتصاد



## ICT Focus Sector Roundtable: UAE future agenda for digital transformation and smart cities

Business Mission  
to the UAE  
April 14-16, 2019



UNITED ARAB EMIRATES  
MINISTRY OF ECONOMY



الإمارات العربية المتحدة  
وزارة الاقتصاد



# Mr. Ettore Scardecchia

## Head of Product Engineering

### AVIO





# AVIO Institutional Presentation

*Dubai, 17<sup>th</sup> April 2019*

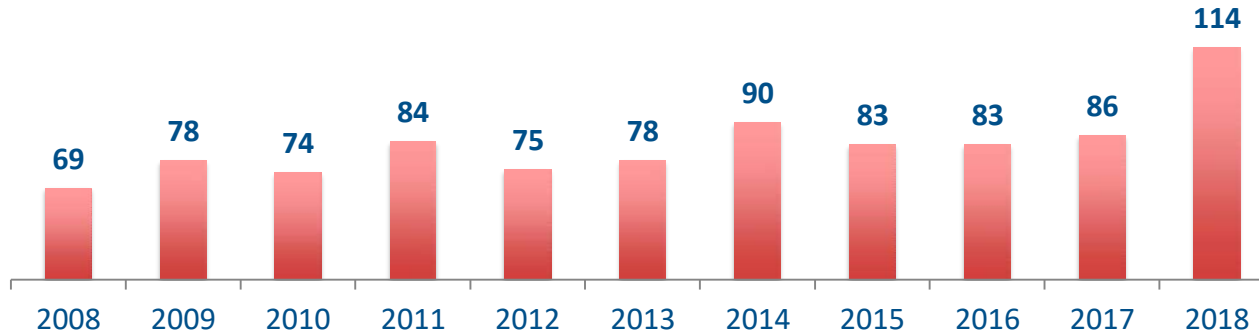
# Avio: a European leader in Space Launch



-  **Prime Contractor**
-  **Partner/Supplier**
- **Public company, 330M€ Mkt Cap**
- **900 employees, ~390 M€ revenues**
- **>65% free float, no controlling shareholder**
- **4% Management share**

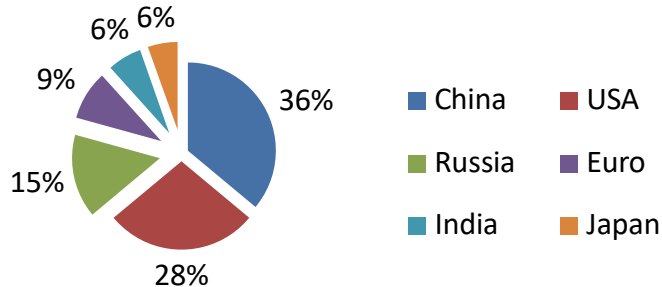
# Space launches grow at 5% CAGR, with few countries having launch technology

2008-2018 Total # of Space Launches Worldwide - CAGR 5%



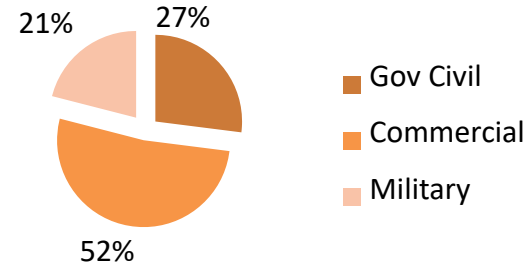
## Space Launches by launch country

2018



## Space Launches by customer type

2017-18



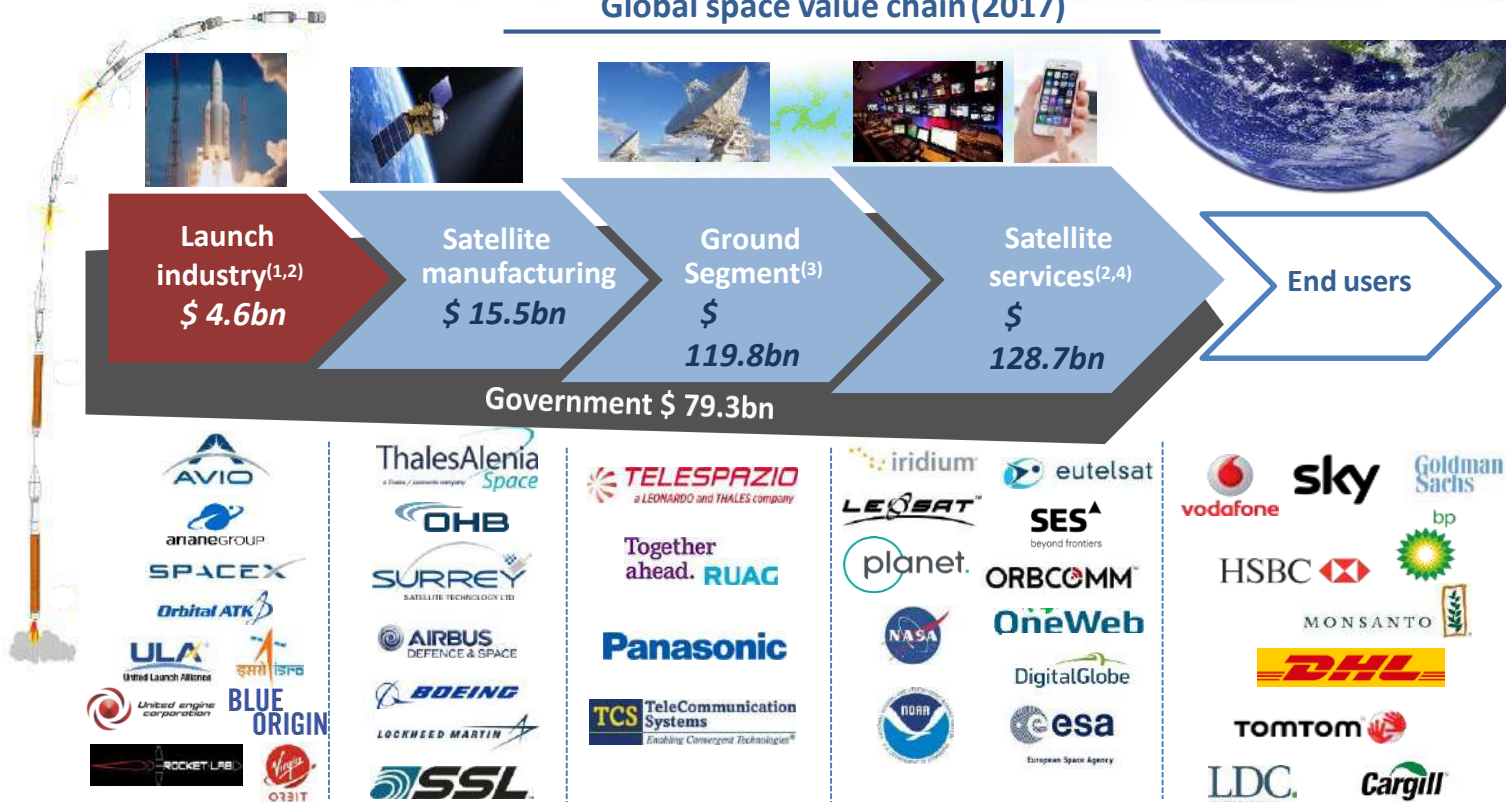
1 Dedicated flights to supply the International Space Station

Source : Gunter Space Page and SpaceFlightNow

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# Launch is the upstream part of the Space industry

## Global space value chain (2017)



Source: Satellite Industry Association (2018)

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(1) : Includes launcher manufacturing and launch service activities  
 (2) : Commercial services revenues only (3): Includes GNSS chipsets and Related (4): Includes commercial humanflight



# Space launch has three main sub-segments by type of orbit

## GEO - Geostationary Earth Orbit

Altitude 36,000km



Annual avg volume :  
30 launches, 160 tons



Mature market

Altitude 3,000-22,000km



Annual avg volume :  
12 launches, 19 tons



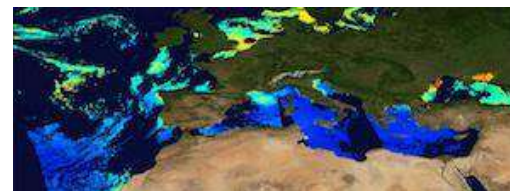
Niche market

## LEO - Low Earth Orbit

Altitude 500-2,000km



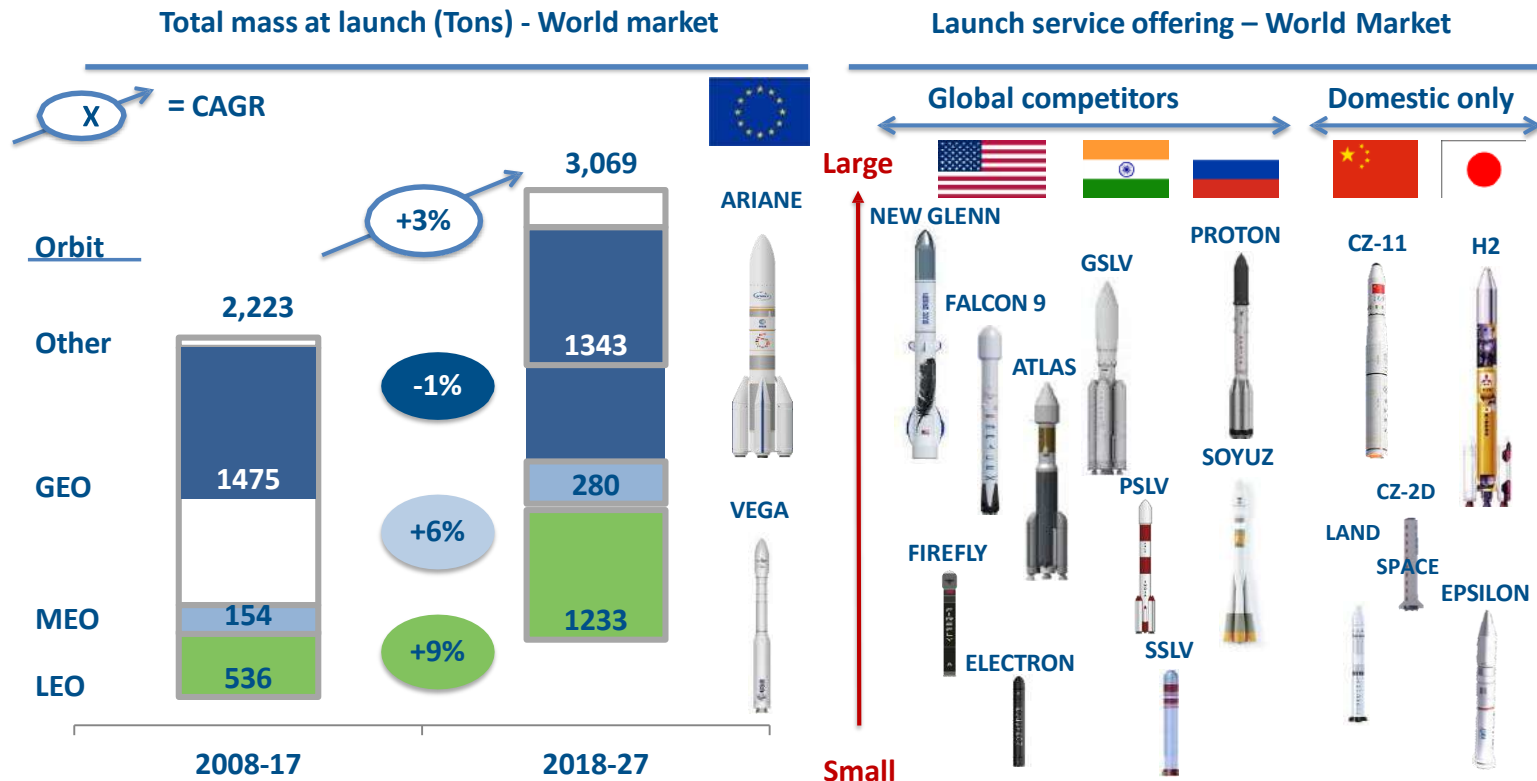
Annual avg volume :  
55 launches, 60 tons



Booming demand



# Demand requirements and product offer both evolving



Source : Avio estimate on Euroconsult data

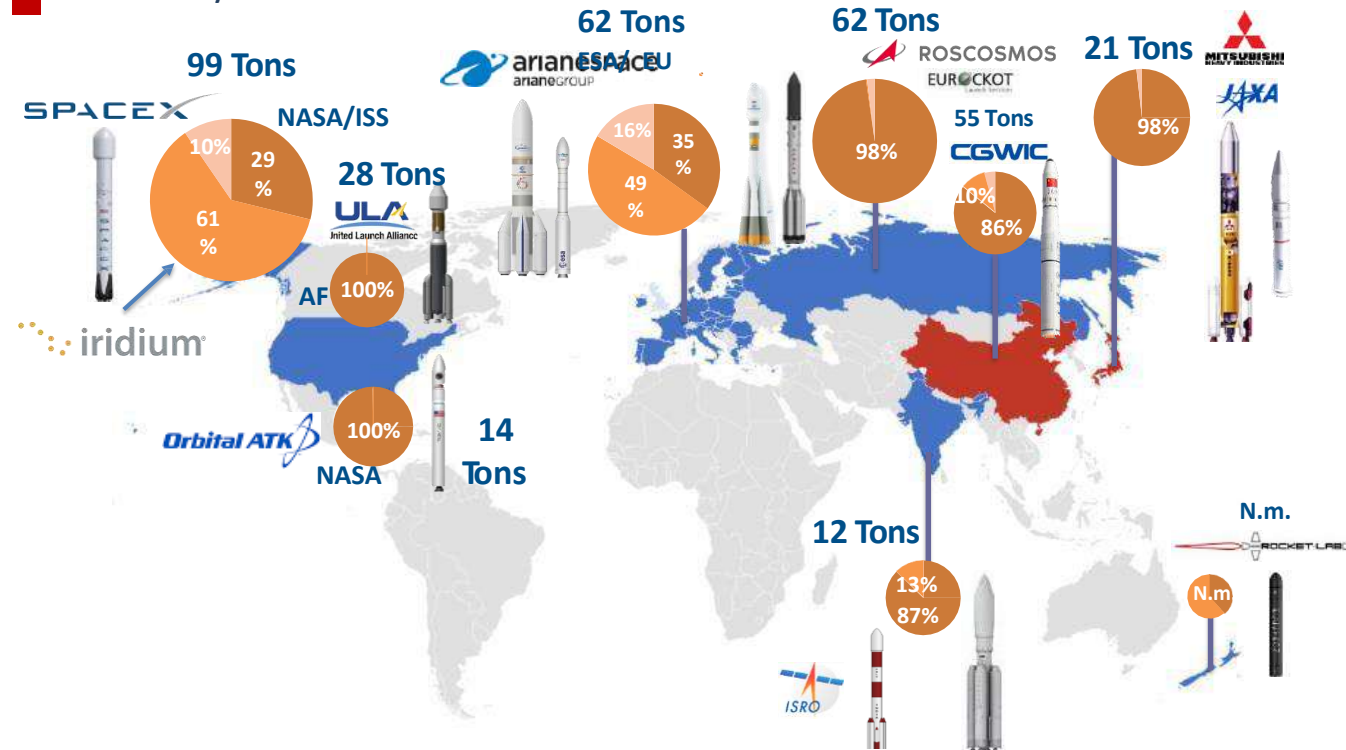
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# Global competition vs service to domestic governments in 2018

Pie size proportional to orbited mass

Domestic «only» markets

Domestic gov Commercial Export gov



SOURCE: Avio elaboration on Gunter Space data

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# Avio: An important heritage of corporate evolution

1912 – 1967



2 entrepreneurs  
(and Senators)  
Defense focus

1968 – 1990



Industrial group (listed)  
Chemicals focus



1965  
Europa  
7  
launches

1994 – 2003

FiatAvio



Industrial group (listed)  
Aerospace focus



1988  
Ariane 4  
104 launches  
(16/year)

2003 – 2015

Avio



THE CARLYLE GROUP

Cinven

Private Equity  
Financial focus



1996  
Ariane 5  
>100 launches  
(6/year)

2017

AVIO



Public  
Company  
Space  
Launchers



2012  
Vega  
14 launches  
(2-3/year)

# Avio works across the full spectrum of the European offer side

## Avio activity by main product lines

**Ariane 5 - Heavy launcher**  
(Avio Industrial partner)  
40% of Revenues



P230 Boosters

Turbopump

**Vega - Light launcher**  
(Avio Prime Contractor)  
55% of Revenues



P80 motor

Zefiro 23 motor

Zefiro 9 motor

Upper stage

Launcher Integr

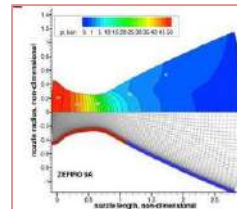
GNC software

 **esa** European launchers

## Avio activity by type of business

**Research & Product Development**

40% of Revenues

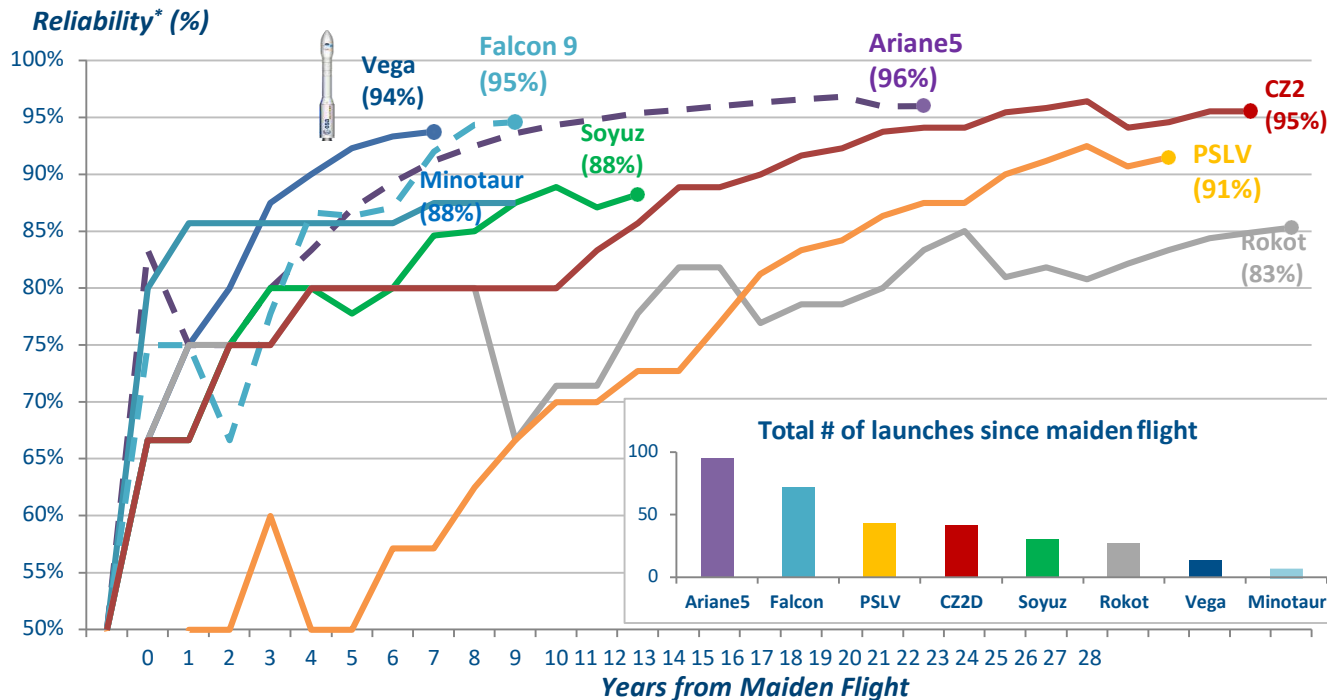


**Propulsion and Launcher Production**

60% of Revenues



# Reliability matters : Vega the fastest to reach world-class levels



\* First level Bayesian estimate of mean predicted probability of success for next launch attempt  $(k+1)/(n+2)$  where k is the number of successful events and n is the number of trials

SOURCE: Avio elaboration on SpaceLaunchReport data



# European Launcher offering evolving to meet market demand

Key  
Perf  
Data

10.5 tons  
in GTO

1.5 tons  
in LEO

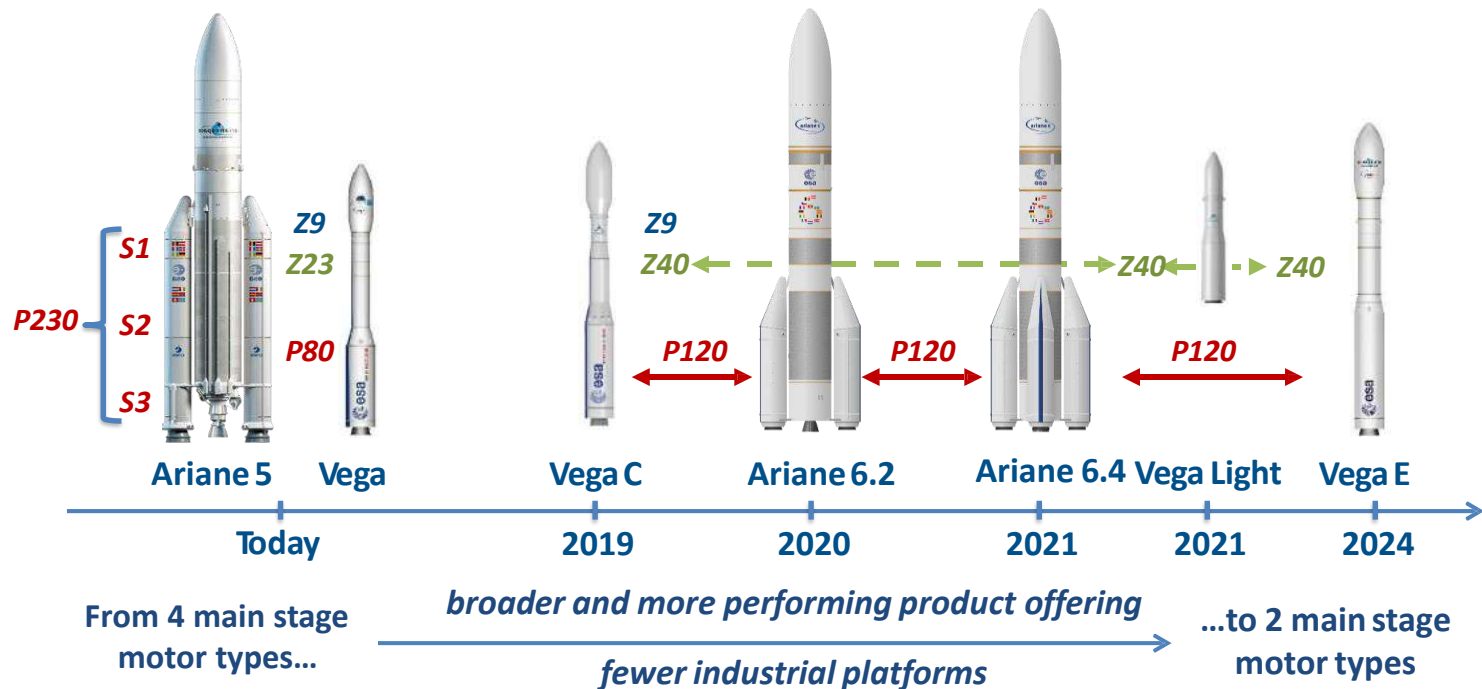
2.3 tons  
in LEO

>5 tons  
in MEO/LEO/GEO

11 tons  
in GTO

TBD  
in LEO

2.8 tons  
in LEO



# Revolutionary automation, advanced materials, simplification approach for main stage (P120) production



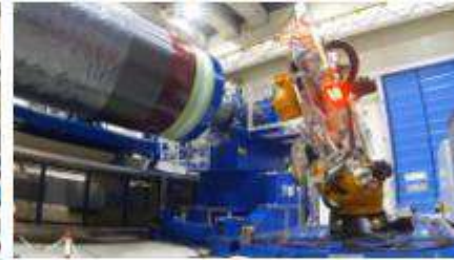
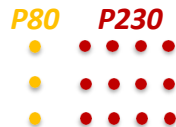
*First flight items  
production*

Vega C MF  
Ariane 6 MF

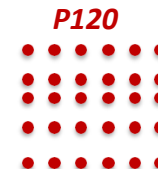
*P120 Full volume  
production*



Vega Ariane 5



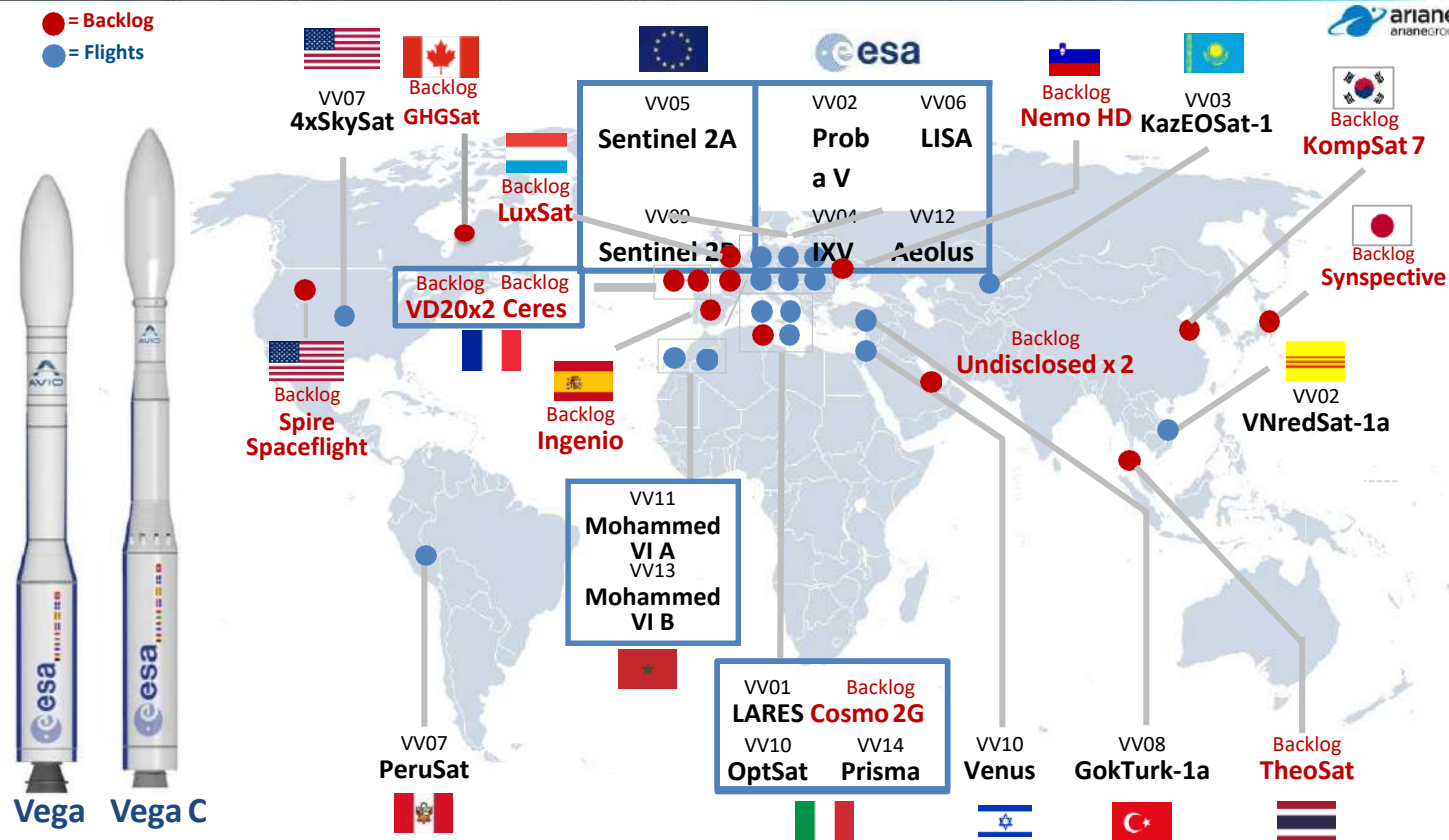
Vega C Ariane Ariane  
6.2    6.4



*Single main-stage, higher volumes*

*Economies of scale*

# Global customer base for Vega since its 2012 maiden flight



# Main production facilities in Colleferro, Italy



**Booster Case Facilities**



**Interstage manufacturing**



**Nozzle Production**



**P120 filament winding**



**Upper stage integration**



**Avio prepreg tow (patent)**



# Main Plants at the spaceport in Kourou, French Guiana



**Mobile Gantry  
Launcher Integration**



**EUP – Stage Integration**



**Regulus – Propellant casting**



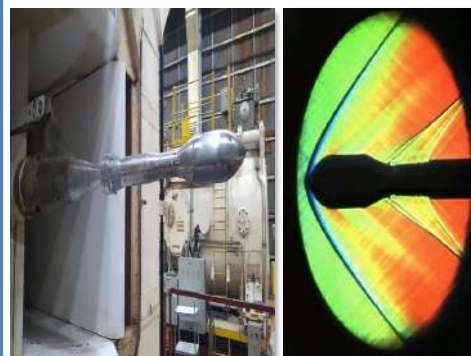
# Development and Testing activities



P120 Static Firing Test (July 2018, Kourou)



New SPTF facility



Wind Test Tunnel for Vega C



Z40 Static Firing Test (March 2018, Sardinia)



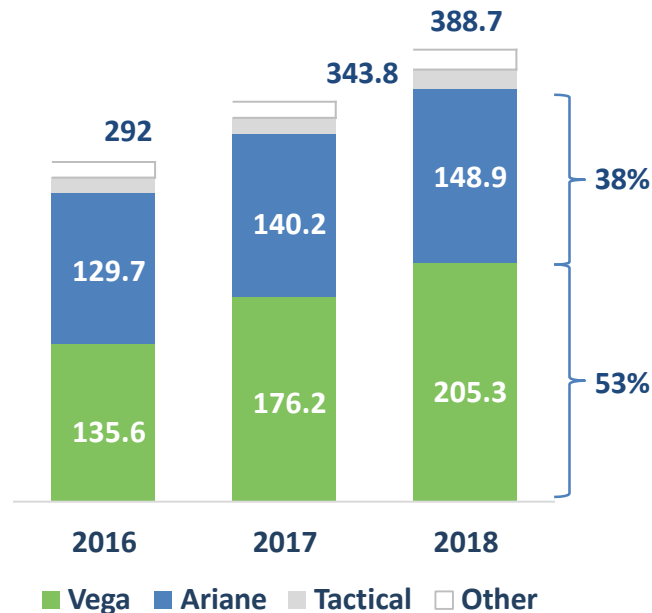
Firing test of Vega E M10 prototype engine



Vega C systems vibration test

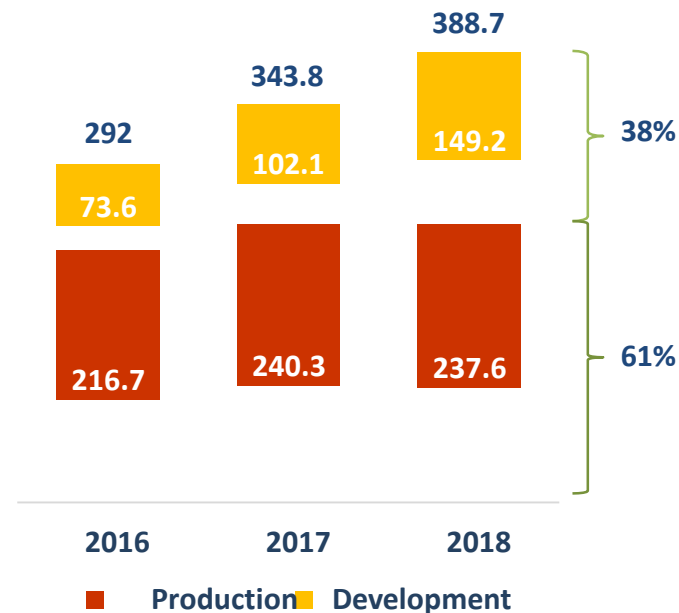
# Net Revenues growth fueled by Vega and development activities

by Line of Business (€ - M)



Vega growing launch rate and dev't activity

by Activity (€ - M)



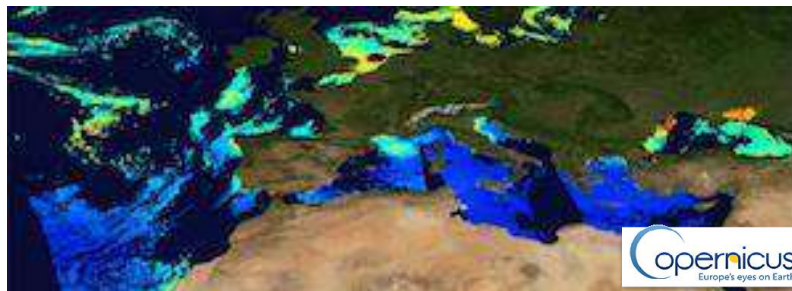
P120 and Vega dev't ramping up

# Appendix

# Smallsat growing demand is fueled by the increasing need for advanced telecom and remote sensing services



Satellite telephone communication



Mediterranean Sea temperature monitoring



Crop vitality monitoring





# Satellite imaging is creating a new «insights economy» to support civil, military and commercial needs



**Military Airfield monitoring**



**Damage assessment : Pre-earthquake view**



**Coal production monitoring**



**Damage assessment : Post-earthquake view**



# Avio is part of the EU critical space infrastructures also through partnership with Ariane Group



## Kourou European Spaceport (CSG)

- Solid rocket motor casting (Regulus – 60% Avio\*) and integration (Europropulsion – 50% Avio\*\*)
- Vega integration and launch operations (Mobile Gantry)



\* 40% Ariane Group, \*\* 50% Ariane Group

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## Colleferro



- Solid rocket motor design, production
- System activities, mission design
- Flight Software Factory
- Liquid propulsion design, production,
- Stage integration (Vega)
- Test center



## Turin



- LOx&LNG turbo-pump design, manufacturing and assembly



## Paris



- Management and design of SRM for development and production programs

## Airola



- Carbon Epoxy Prepreg manufacturing and testing



# Highlights from the 2018 Consolidated Non Financial Statement

