TerniEnergia Group

A global smart technology enabler for energy and environmental efficiency

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Smart Company

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information technology
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ternienergia.com

FROM IT AND LEADING PHOTOVOLTAIC TO TECHNOLOGICAL ENABLER

An active player in critical systems, smart and digital energy, mobility, energy efficiency and circular economy

TERNIENERGIA SpA, established in September 2005 and part of the Italeaf group, is the first Italian global technological enabler, committed to bringing energy solutions to the world and for the efficient recovery of resources, integrated and sustainable.

TerniEnergia, is a leader in the international photovoltaic market - with significant experience in the construction and management of PV systems - and in the circular economy.

Active since 1979 in the development of ICT solutions for business customers in the SW development and Integration, Energy, transport

Created by the merger of companies in the field of telecommunications and monitoring equipment for power transmission networks, produces specialized monitoring and control solutions.
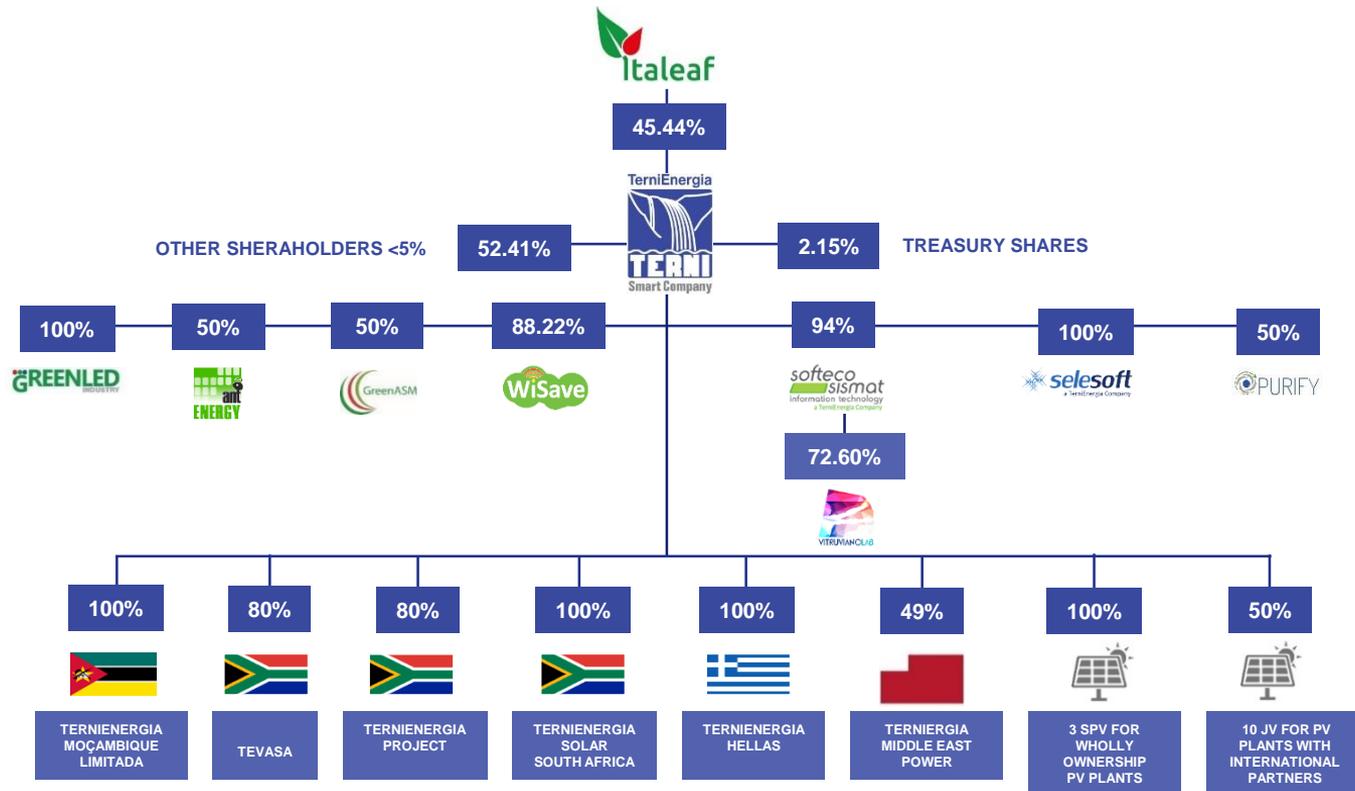
DIGITAL ENERGY COMPANY, TECHNOLOGICAL ENABLER

It offers the development and supply of digital technologies and the creation of "intelligent" services and solutions for public and private customers in emerging sectors.

TerniEnergia is listed on the STAR segment of Borsa Italiana S.p.A. (TER.MI).

SIMPLIFIED GROUP STRUCTURE

THE TERNIENERGIA FIGURES

ECONOMICS

Employees
443

Revenues
84,2 ML

Net assets
57,5 ML

PV plants
238 MW
Managed

PV plants
403 MW
Installed

Data at 31/12/2016

SUSTAINABILITY
energy and environment

Renewable generation
62 ML kWh / year

Biogas
4,8 GWh / year

CO2 saved
33.000 TON / year

Compost
13.800 TON / year

Purified water
438.000 MC / year

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PV POWER GENERATION ASSETS

43 PV
plants in Italy

41.5 MW
total capacity

11.5 MW — JV with funds, investors and industrial partners
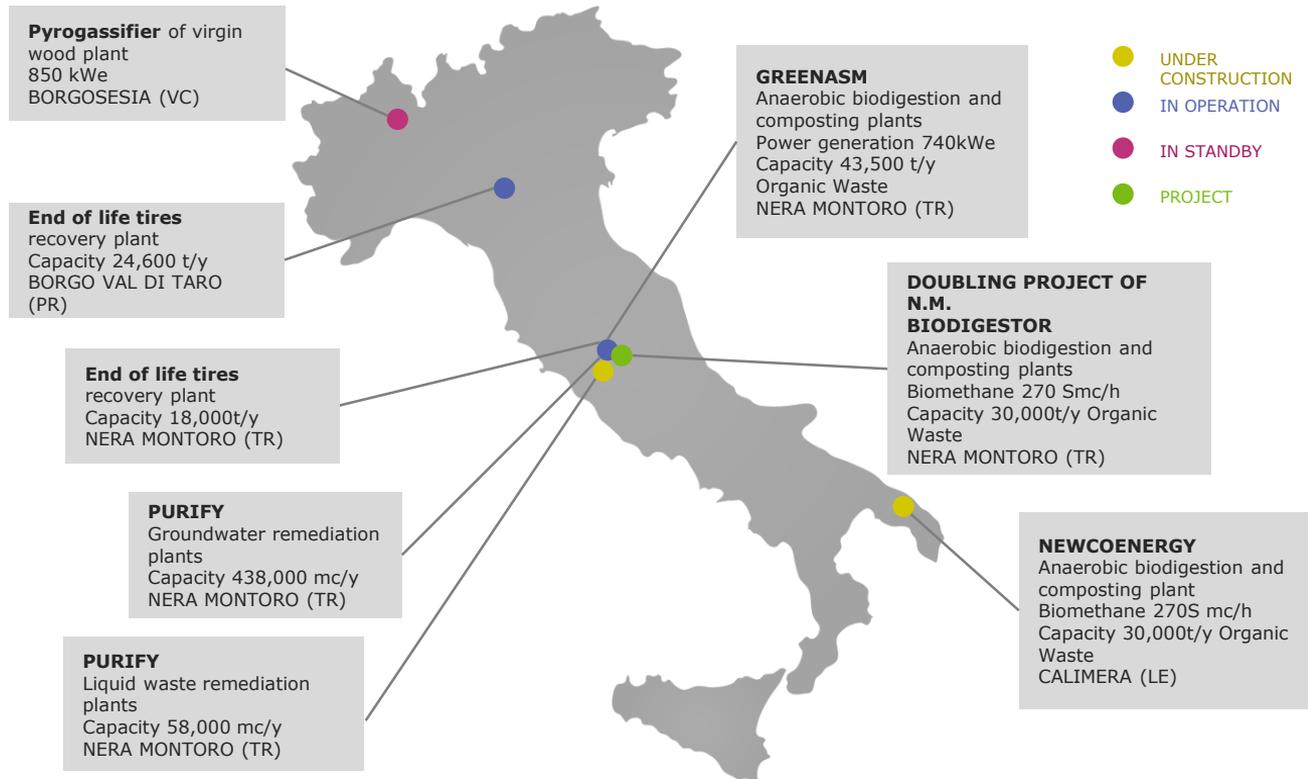
30 MW — Full ownership
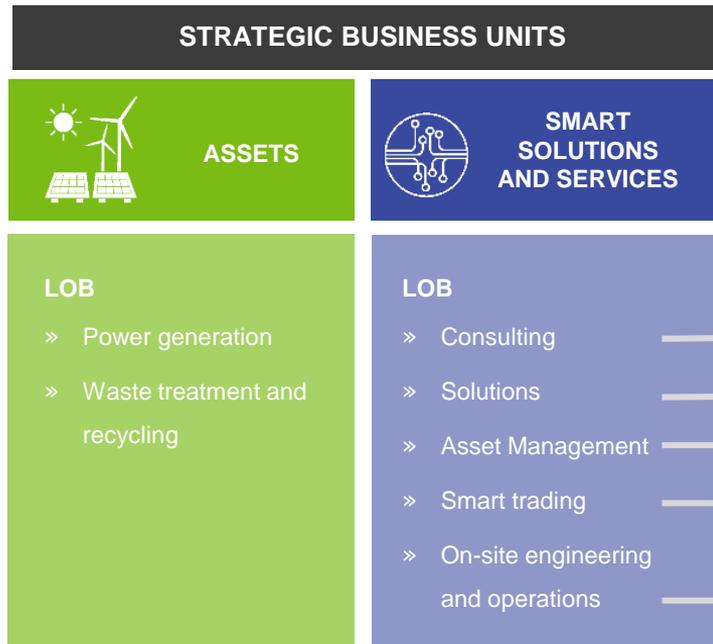
~60.4
million kWh/year
total power generation

» **All the plants entirely built and operated by TerniEnergia**
» **The energy produced is sold to trading companies and to the national energy services management company (GSE)**

CIRCULAR ECONOMY ASSETS

Pyrogassifier of virgin wood plant
850 kWe
BORGOSESIA (VC)

GREENASM
Anaerobic biodigestion and composting plants
Power generation 740kWe
Capacity 43,500 t/y
Organic Waste
NERA MONTORO (TR)

End of life tires
recovery plant
Capacity 24,600 t/y
BORGO VAL DI TARO (PR)

DOUBLING PROJECT OF N.M. BIODIGESTOR
Anaerobic biodigestion and composting plants
Biomethane 270 Smc/h
Capacity 30,000t/y Organic Waste
NERA MONTORO (TR)

End of life tires
recovery plant
Capacity 18,000t/y
NERA MONTORO (TR)

PURIFY
Groundwater remediation plants
Capacity 438,000 mc/y
NERA MONTORO (TR)

NEWCOENERGY
Anaerobic biodigestion and composting plant
Biomethane 270S mc/h
Capacity 30,000t/y Organic Waste
CALIMERA (LE)

PURIFY
Liquid waste remediation plants
Capacity 58,000 mc/y
NERA MONTORO (TR)

- UNDER CONSTRUCTION
- IN OPERATION
- IN STANDBY
- PROJECT

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STRUCTURE AND MARKETS

STRATEGIC BUSINESS UNITS	
ASSETS	SMART SOLUTIONS AND SERVICES

LOB
» Power generation
» Waste treatment and recycling

LOB
» Consulting
» Solutions
» Asset Management
» Smart trading
» On-site engineering and operations

Skills and development services for industrial customers and public administration in the sectors: energy distribution networks, industrial automation, transport, utilities

ICT solutions for energy efficiency (industry, commerce, transport, buildings), monitoring and control (industry, distribution networks), optimized digital management of resources (water, waste, oil & gas), transport and logistics

Operational solutions, based on innovative tools, for maintenance and management of infrastructures, plants, buildings and industrial complexes

Applications and operational solutions for the new energy markets (Internet of energy)

Implementation and operational management of renewable generation plants and micro-grids

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CONSULTING

Business Process Management

We support Customers in assessment and design of company processes, their interactions and optimizations. Through the initial design of the as-is processes, we provide specialist advice to propose initiatives for the improvement of management and industrial processes through the complete Software life-cycle.

ICT Governance

ICT Governance is organized in line with the Company's strategy so that it can translate into measurable benefits that regulate the best supply of ICT services by analyzing the impacts on resources, available skills, company organization, processes and company information systems.

SW Factory

The software Factory, using modern technologies andmethods of Continuous Integration, guarantees to customers the complete management of the software life cycle through V-Model and Agile methodologies to improve productivity and quality in software engineering.

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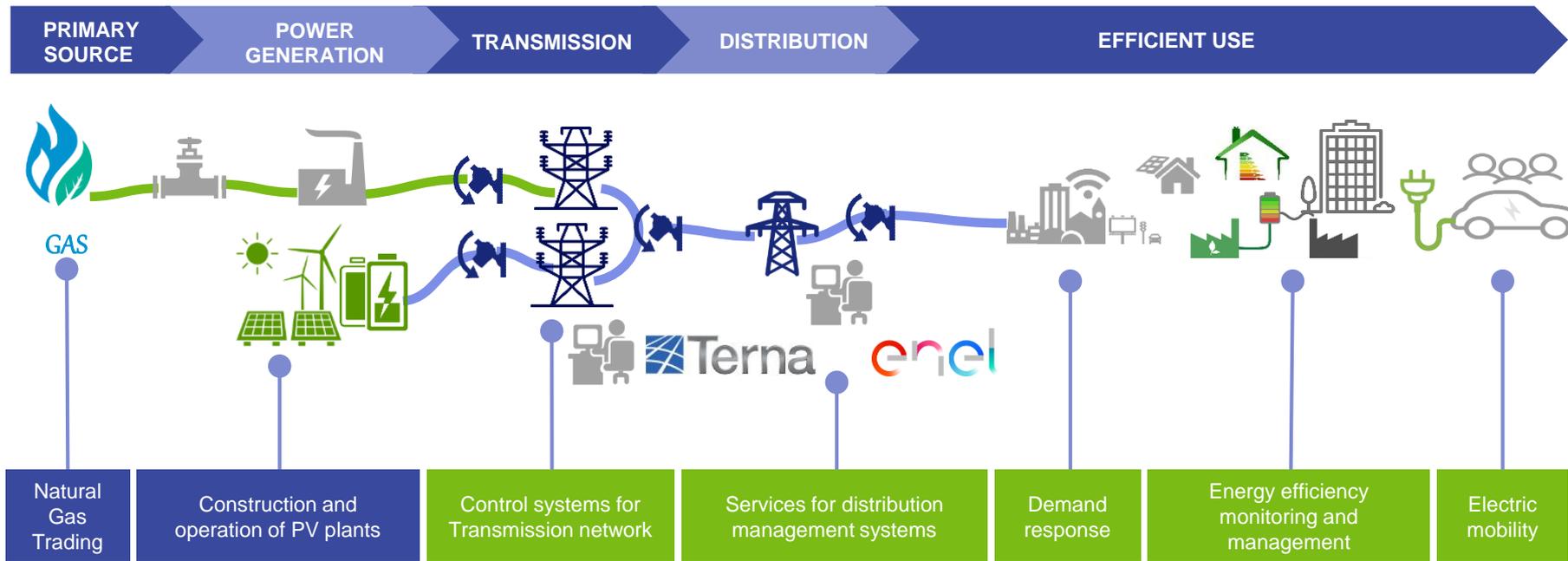
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CONSULTING

Application Management

The Service includes all the activities and services needed for the correct monitoring and maintenance of systems and applications.

The activities we provide include:

- » **Corrective / adaptive maintenance** which includes the activity of correction of malfunctions in accordance with the Customer's ICT facilities.
- » **Evolutionary maintenance** which includes development activities to improve applications and to constantly adapt to new business needs.
- » **Change Management Activities** when the changes impact on the Customer's information system, processes or company organization.
- » **Operational support** to users that includes assistance to requests on the use of system features.
- » **Specialist services** which include the intervention of resources with specialized skills to support the needs of the customer.

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ENERGY : A PRESENCE THROUGH THE WHOLE SUPPLY CHAIN

PRIMARY SOURCE	POWER GENERATION	TRANSMISSION	DISTRIBUTION	EFFICIENT USE

GAS

Terna

enel

| Natural Gas Trading | Construction and operation of PV plants | Control systems for Transmission network | Services for distribution management systems | Demand response | Energy efficiency monitoring and management | Electric mobility |

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ENERGY: TRANSMISSION AND DISTRIBUTION

TRANSMISSION

Standard equipment for the connection of the Terna network (UPDM, UPDC, RTU)

Equipment for Interruptible service

» Control equipment for Terna network:
  » Certificates for installations in AT / AAT cabins
  » Reaction times in the order of milliseconds
  » Standard communication protocols (IEC60870-5, Modbus, IEC61850 family)

We have contributed to the implementation of systems for the supervision and remote control of the Italian National Transmission Grid

DISTRIBUTION

Services for development and evolution of the control system
- national distribution network

» Participation in the development and evolution of the national distribution network control system
» Highly specialized resources in the knowledge of the process of electrical distribution
» Highly qualified resources in the development of applications with latest generation technologies
» Collaboration in ATI and / or consultancy with the major players in the sector in Italy

# ENERGY: TRADING, FLEXIBILITY AND ENERGY EFFICIENCY

SOLUTIONS FOR UTILITIES

Platforms for managing operational processes of Utilities, Large Consumers and Aggregators

Solution for the management of trading and billing in the electricity and gas market

As-a-service solution for the creation and operational management of Virtual Power Plant And Demand Response
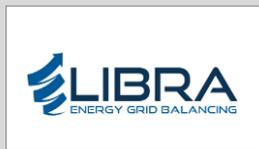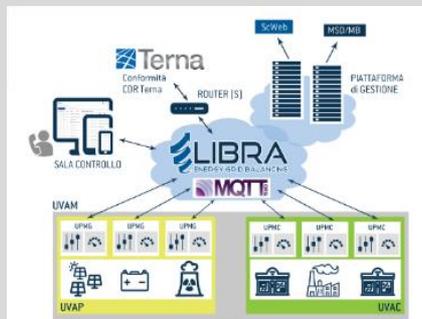
ENERGY EFFICIENCY FOR INDUSTRIAL AND COMMERCIAL USERS

Solutions for monitoring energy consumption, optimization and energy efficiency

Remote control platform

Solutions to support the analysis of energy performance and optimization with KPI and benckmark

Solution for efficient lighting

CRITICAL INFRASTRUCTURES

Monitoring and supervision of plants and infrastructures

Intelligent video surveillance and management of staff access

Intrusion Detection

Vehicle access control

Monitoring and management of operating vehicle fleets

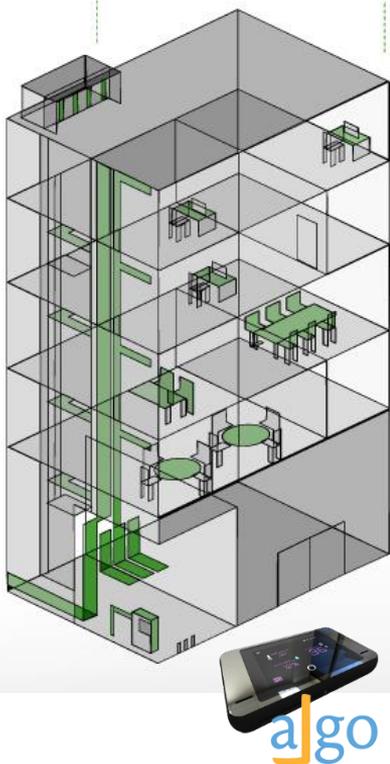Systems for the interaction with the users

Drone based service management (video surveillance, thermography, intervention in case of alarms)

Monitoring of location of critical points (GeoGuard)

Data Analytics (identification of pre-critical situations, process optimization, preventive maintenance, ...)

INTELLIGENT BUILDING AUTOMATION AND ASSET MANAGEMENT

Monitoring and integration of multi-channel data:

Monitoring and operational optimization of HVAC systems telecontrol and alarm systems technology:
- » Electrical installations and lighting,
- » Water Management,
- » Sensor network : Smoke Control, Fire Detection, Indoor Air quality

Facility management :
- » Ordinary and extraordinary maintenance management,
- » Operational optimization, preventive maintenance

Energy Management :
- » Consumption monitoring and energy efficiency

Security & Safety :
- » Intelligent video surveillance,
- » Staff access management, intrusion detection
- » Vehicle access control and parking management

Workspace management:
- » Use of work spaces (occupancy monitoring) and common areas
- » Systems of interaction with users

adverto

RTu-GO

těněg

ES⊙S
Energy Smart Optimisation System

algo

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Smart Transport / Flexible demand transport

» Dynamic and personalized generation of the routes

» Free routes and times, not predefined

» Defined dynamically based on user requests

» Multiple service models (Low demand, diversion on request, totally flexible services)

» General users and specific categories (eg disabled people, tourists, students, etc.)

» Services with reduced environmental impact

» Complete technological and operational support

Smart Parking

» Real-time information on parking availability

» Occupancy control sensors (parking spaces in satin and in structure)

» Location Based Services (LBS) for road users:

  o Free parking information

  o Navigation and addressing Payment

» Operations Center, Monitoring, Analysis and Reporting

» Park+Ride integration

INTELLIGENT TRANSPORT SYSTEMS AND MOBILITY /2

Smart Logistics

» Freight terminals / Logistic Base Management,

» Delivery management: service assignment, fleet location, track & trace

» B2B: cooperative logistics, Last Mile services in areas with reduced accessibility

» B2C: home delivery, Pick-Up stations, etc.

» Reverse logistics and supplementary services (eg third-party warehouse, etc.)

» Energy management

Smart Mobility

» Services and information for multimodal mobility

» Multi-modal planning of movements

» Booking

» Payment

» Notifications and feedback from users
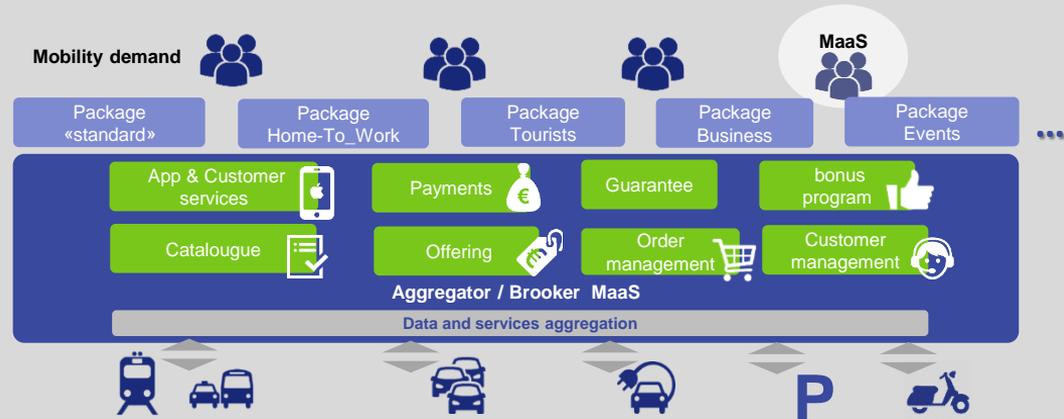
Research and Innovation

RESEARCH & INNOVATION, KEY FACTS

5-8% of company resources devoted yearly to R&I activities

Exploring technologies, developing hi-tech solutions

EU Framework Programs (FP4-H2020), National (MIUR, MISE, MATTM), Regional (POR)

EC Joint Research Centre (Ispra)

Research Clusters: Distretto Tecnologico (SIIT), Poli di Innovazione (Reg. Liguria)

90+ R&I projects

500+ international partners

Coordination of several large projects

RESEARCH & INNOVATION, PARTNERS

TERNIENERGIA GROUP

DOMESTIC

Terni
Headquarter
Strada dello Stabilimento, 1
Fraz. Nera Montoro
05035 Narni (TR)

Milano
TERNIENERGIA Administrative Office
SOFTECO Local Office
Corso Magenta, 85
20123 MILANO

Genova
TERNIENERGIA Administrative Office
SOFTECO Headquarter
Via De Marini, 1
16149 GENOVA

FACTORIES
» Factory Borgo Val di Taro, Località Pieve 2
   43043 Parma
» Factory Borgosesia (VC)
» Factory Calimera (LE)

Catania
SOFTECO Local Office
Stradale V. Lancia 57,
z.i. Blocco Palma, 1
95121 CATANIA

Napoli
SOFTECO Local Office
Centro Direzionale Isola F/3
4° piano interno 10
80143 NAPOLI

Lecce
Via Col. A. Costadura, 3
73100

Roma
VIA CLITUNNO 51,
00198 ROMA

INTERNATIONAL

Atene
52, Akadimias Street

Cape Town
Boulevard office Park, 2nd floor,
Block D, Searle. District of Woodstock

Varsavia
Sw. Krolewska 16, 00-103

Bucarest
Str. Popa Petre 5

Abu Dhabi

Maputo
Mozambico

ternienergia.com
info@ternienergia.com

softeco.it
info@softeco.it

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Smart Company

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sismat
information technology
a TerniEnergia Company

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