# **2016 Sustainability Report**



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# **Ansaldo STS in brief**

Ansaldo STS

Ansaldo STS<sup>1</sup> is active all over the world as a contractor and supplier of turnkey services and solutions by executing large global projects for passenger and freight railways and metro lines.

In addition to being known for the turnkey projects for large metro lines, Ansaldo STS boasts significant long-term experience in the high speed sector as a supplier and integrator of all sub-systems: **interoperable signaling systems**, **telecommunications**, **electric power supply**, **on-board equipment and integration**, **and electrification and** *WaySide* equipment.

# It designs, builds, installs and operates signalling systems and components to

manage and control railway and metro lines.

**It is an international Organization** based in Europe, the Middle East, North Africa, the Americas and the Asia Pacific region.

# Four key strategic pillars

- *Business driven* business-focused Organization;
- Strategic centre management founded on strong, centralised guidance;
- *Efficiency* industrialisation of the executive methods and globalisation of R&D (research and development) activities to develop a standard product portfolio;
- *Global* global management of the procurement process.

1. In this report, "Ansaldo STS" and "Group" mean all companies included in the 2016 consolidation scope. "Ansaldo STS S.p.A." instead means the parent.

# **Sustainability at Ansaldo STS**



# SUSTAINABILITY GOVERNANCE

# INTERNAL SUSTAINABILITY COMMITTEE

Composed of the managers of the main company functions, this committee defines strategic guidelines, commitments and projects for sustainable development and social responsibility. It reports directly to the CEO and General Manager and through him to the board of directors.

## MATERIALITY ANALYSIS

Ansaldo STS defines the content of the Sustainability Report by asking group management and its stakeholders for their opinions on the different aspects to be considered in the report. This enables the company to more thoroughly report on sustainability issues that affect its stakeholders' judgments and decisions.

# STAKEHOLDER INVOLVEMENT

Ansaldo STS is committed to understanding the needs and expectations of its people and involving them in projects to develop skills and expertise. It is focused on constantly monitoring its customers' satisfaction and plays an active part in handling relations with local communities be they municipal authorities, citizen associations, users of metros and trains, companies or local laborers. It also participates in research and training projects with institutions and universities.

## SUSTAINABILITY PROGRAM

Reporting on its commitments, investigations of the quality of its interaction with its stakeholders and the results of the materiality analysis allow Ansaldo STS to compile an annual sustainability program aiming at constant improvement.

# SOCIAL INNOVATION

Ansaldo STS operates daily with the aim of improving quality of life by designing new transport systems which, every day, safely carry millions of people and materials without polluting, by developing increasingly compact and energy-efficiency hardware, by researching new green technologies and, above all, by optimizing consumption and avoiding waste.

Today the Ansaldo STS team within the Hitachi group can further develop its innovative approach, also by tapping the group's references in the Big Data and Internet of Things field. It is now possible to come up with solutions that improve performance and services offered by combining

different technologies.

## RESEARCH AND DEVELOPMENT FOR CUTTING EDGE PRODUCTS AND SOLUTIONS

In 2016, Ansaldo STS invested approximately €38.6 million in research and development to supply its customers and end users with cutting-edge products and solutions and the very best railway and urban rail transport system design and construction methods and procedures in order to increase safety and reduce their direct and indirect environmental impact.

# SAFETY AND RELIABILITY

Ansaldo STS ensures that it develops and delivers products, applications and systems that are: safe, in compliance with Italian and international laws and reliable, pursuant to its customers' needs and its internal quality standards. It achieves this through RAMS (Reliability, Availability, Maintainability & Safety) activities.

## PRODUCTS AND SOLUTIONS THAT RESPECT THE ENVIRONMENT

For Ansaldo STS, innovation is synonymous with respect for the environment. It is committed to researching products and solutions that contribute to reducing energy and raw materials consumption. It pays increasing attention to using environmentally-friendly materials, starting at the design stage.

# $\bigcirc$ THE ENVIRONMENT, HEALTH AND SAFETY

## FIGHT AGAINST CLIMATE CHANGE

Ansaldo STS reports on direct and indirect greenhouse gas emissions (Scopes 1, 2 and 3) in accordance with the GHG protocol<sup>2</sup>, undertaking to decrease these emissions, in part through people mobility policies, plans to cut energy consumption and improve efficiency, use of energy from renewable sources and to manage waste effectively.

## INTEGRATED QUALITY, SAFETY AND ENVIRONMENT MANAGEMENT SYSTEM

Ansaldo STS has an Integrated Management System (IMS) for the quality, safety and environment, which integrates all group processes in one single structure, enabling the Organization to operate with shared objectives. It has also certified its individual sites in accordance with UNI EN ISO 14001 and OSHAS 18001 standards.

# WORKERS' HEALTH AND SAFETY

Promoting the health and safety of its workers is a strategic commitment for Ansaldo STS. The company also tracks "near misses" – which are accidents without consequences resulting from undesired or unexpected situations, which could potentially harm people or things – to identify the appropriate solutions before a real accident happens.

# **COUR PEOPLE**

### **PEOPLE CARE**

"People" is one of the five values that the company has elevated to symbolize its identity. People are at the very "heart" of its Organization. "People Care" is a far-ranging concept for Ansaldo STS which covers worker wellbeing as both professionals and as people. It focuses on work environments and monitors relations between managers and their teams and between colleagues. Ansaldo STS offers a wide range of benefits and services.

## TRAINING AND PROFESSIONAL GROWTH

Ansaldo STS considers professional, managerial and specialist training a fundamental lever to enhance its people's skills. The Global Job System is applied to the entire workforce and interacts with the Performance Development Plan to plan career objectives and individual development paths that match new business contexts.



2. The Greenhouse Gas Protocol (GGP) is the most widely used international accounting tool for government and business leaders to understand, quantify and manage greenhouse gas emissions.

# CHAIN SUSTAINABILITY

Ansaldo STS is committed to defining, sharing and implementing a sustainability roadmap for its supply chain to promote a sustainable business culture with its suppliers. The aim is to progressively improve the economic, environmental and social impact (labor and safety practices, respect for human rights and the development of local communities) along the entire supply chain.

# ATTENTION PAID TO THE COMMUNITY

## RESEARCH PROGRAMS WITH INSTITUTIONS AND PARTNERSHIPS WITH UNIVERSITIES

Ansaldo STS contributes to our society's technological advancement by participating in research projects with Italian and EU institutions and training projects with universities on issues such as safety, energy efficiency, satellite signaling and the monitoring of railway transport system infrastructure.

## CORPORATE AND SUSTAINABILITY COMMUNICATION

This is the eighth Ansaldo STS Sustainability Report edition in accordance with the "G4 Sustainability Reporting Guidelines" by the Global Reporting Initiative and it is subject to limited assurance. Ansaldo STS adheres to the Global Compact and is a founding sponsor of the Global Compact Network Italy Foundation. It also participates in the Carbon Disclosure Project and is on UNIFE's Sustainable Transport Committee.



# ECONOMIC SUSTAINABILITY

# **BUSINESS STRATEGY AND MODEL**

Ansaldo STS's economic sustainability is its strategic answer to the macroeconomic context and transportation market trends, based on a business model that develops distinctive abilities and the necessary skills to boost the company's competitiveness on markets - growth in human and organizational capital.

# **CORPORATE GOVERNANCE**

Ansaldo STS's corporate governance system is designed to maximize value, monitor business risks and achieve transparency with the market, balancing the interests of all its shareholders, with specific attention to minor ones.

# Letter from the Chairman and CEO

We design and implement solutions and components for rail transport and mobility, creating value for our community. We are committed to create innovative products which improve the quality of life and sustain responsibly the world we live in

> Andrew Barr Chief Executive Officer and General Director of Ansaldo STS

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2016 was a year full of commitments and changes. An exceptional year for the successes achieved and the solid basis that we are building to ensure continuous future growth.

Ansaldo STS brand remains strong around the world especially now it is within the Hitachi group. We can seize

new opportunities by sharing the ethics and principles that have always characterised Ansaldo STS. Particularly with the unique vision of the mission of the Social Innovation and the awareness of the importance of our work for the daily lives of millions of people, for their movements and for the transport of goods that everyone needs.

For example, think about what the digital revolution, which is also underway in our sector, can do. The use of Big Data and the Internet of Things help to precisely pinpoint the position of a train on the line, to analyse the behaviour of travellers in order to better meet their actual needs. We are working to develop new applications also on this direction for an increasingly personalised offer. Ansaldo STS has been working on these topics for some time, touching on them in many areas of our activities as clear **Corporate Social Responsibility** mission, and today we continue to follow the principles and the possible future developments with the utmost care.

This is sustainability for social development, contributing with safe, efficient, reliable and ecologically compatible solutions; focusing on technical solutions in response to the user's needs in increasingly complex and diverse contexts and lifestyles. Therefore, in 2016 as well, we wanted to consolidate the foundations of our actions, which include the environment and resources safeguarding, respect and protection of people and their safety, collaboration with local communities and dissemination of the principles of sustainability to all partners working with us.

# Our commitment continues to be aimed at improving people's lives every day,

at connecting the moments of daily life and enabling the creation of increasingly tangible and feasible social occasions and opportunities for economic development, through the use of technology.

I thank all customers, colleagues, shareholders, partners and all stakeholders for this great effort.

This is why we are so committed to communication, through all means, both outward and within our company, to create opportunities for gaining knowledge about us and the development of our human resources.

Thus we are increasingly focused on R&D, on innovation and technological development and on more attentive staff management. Finally, we continue to provide priority support to the business through consolidation actions that increasingly strengthen the potential of our company, which has now become a certainty in an ever more complex and evolving market.

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Ansaldo STS considers the social, economic, logistics, architectural, environmental and structural context of each project it handles, planning, designing and building signaling and railway and mass transit systems that provide the best possible combination of safety, efficiency and return on investment. Company profile 🚺 🕥 👰 🕋 💼 🚮





# **Our mission**

Ansaldo STS combines experience and human, financial and technological resources to provide innovative solutions in the design and construction of equipment and systems for conventional and highspeed railway lines and mass transit rail network signaling and automation for passengers and freight. The more we make sustainable long-term decisions, the better the interaction between our company, society and the environment will be, and this approach is part of our competitive edge.



#### Our mission | Company profile

### **Our values**

To achieve its objectives and growth and maintain its sector leadership, Ansaldo STS bases its operations on solid, unwavering ethical values and principles. Everyone in the Organization is required to uphold this culture and make the same commitment to ethical conduct, embracing the company's principles and values.

Ansaldo STS's values, and those on which it has based its business are:

#### **PEOPLE** Customer

satisfaction and the development of new products depend on the abilities of the professionals working to achieve them, Ansaldo STS's employees. This is why Ansaldo STS is a company founded on people. Everyone in the Organization works to make Ansaldo STS a good environment and place to work, where people learn, achieve and celebrate success. Ansaldo STS always prioritizes its people and their safety.

#### FOCUS ON CUSTOMERS

Our technologies safely move millions of people every day. This drives Ansaldo STS to do its best to increase and maintain high excellence services for rail transport users. Because of its customers, Ansaldo STS is able to understand and meet their specific requirements with advanced solutions.

### TEAM SPIRIT

None of these operating objectives can be achieved by one person alone. The company's professionals work in a single, integrated Organization, capable of making the most of their different cultures and professional training. This team spirit can also be found in managers who ensure cooperation and the growth of the company culture, while achieving established objectives and the company's mission. Ansaldo STS strongly encourages attainment of its people's aspirations through team objectives.



#### INTEGRITY

If people are to work together effectively, mutual trust must be fostered, and this is only possible if everyone works and acts in a way that is transparent, loyal, honest and proper. Similarly, customers must have the absolute certainty that integrity is a fundamental value for Ansaldo STS, and that this value is reflected in its products, through the utmost care and attention to safety.

# INNOVATION AND EXCELLENCE

Understanding, studying and developing solutions to improve responses to customers and market offers lie at the crux of Ansaldo STS's activities, in which work is constantly focused on providing customers with innovative and excellent products that represent the company's competitiveness on the market.

# Our history in 10 phases



## 1853

Gio. Ansaldo e C. was founded in Genoa. At the time, Ansaldo was already synonymous with excellence in the Genoese industry.

### 1880

Ansaldo e C. was founded for the construction and maintenance of railway equipment. At the end of the century, the company began to build boats and its production stretched from the port of Genoa to the western edge of the city, and employed over 10,000 people.

#### 1904

Ferdinando Maria Perrone bought Ansaldo and within only a few years' time boasted 10 production sites with a record number of 80,000 employees in 1918.

### 1935

The damages caused by WWI and the financial crisis of 1929 required the Bank of Italy's intervention. The crisis ended with the establishment of IRI (the Institute for Industrial Reconstruction), which took over control of Ansaldo and sold it to Finmeccanica in 1948.

#### 1980 - 1989

Finmeccanica and Ansaldo created Ansaldo Trasporti (ATR), a prime contractor active in the integrated system segment and which was listed on the Milan Stock Exchange in **1986**. In **1988**, it acquired 100% of the capital of Union Switch & Signal (US&S), today Ansaldo STS USA, a leading signaling systems company. In **1989**, it acquired 49% of CSEE Transport, formerly known as Compagnie de Signaux pour Chemins de Fer, headquartered in Paris.

#### 1990 - 1999

It entered the North European market with its acquisition of the Standard Radio & Telephon (SRT) transport division. The new company was named Ansaldo Trasporti Signal System AB (ATSS). In **1993**, Ansaldo Trasporti listed US&S on the NASDAQ. It entered the Australian market and then the Asian Pacific market through US&S. In **1996**, Ansaldo Trasporti created Ansaldo Signal NV, later listed on the NASDAQ, in which all signaling activities, specifically Union Switch & Signal and those of CSEE (of which it acquired the remaining 51%) were concentrated. US&S Australia became the regional headquarters in **1997**.

#### 2000 - 2009

At the end of 2000 Ansaldo Trasporti launched a business restructuring plan through which the activities of the "vehicles" division, with electrical and electromechanical expertise. were integrated with those of Breda Costruzioni Ferroviarie SpA, designer and manufacturer of the mechanical part of the vehicle, thus enabling the realization of a complete vehicle system (AnsaldoBreda) and the "Sistemi" company division was assigned to Ansaldo Trasporti - Sistemi Ferroviari SpA. In July 2001, the merger program for Ansaldo Trasporti in Finmeccanica was implemented. In 2006, a special



purpose entity - Ansaldo STS acquired all Ansaldo Signal and Ansaldo Trasporti Sistemi Ferroviari shares from Finmeccanica. Ansaldo STS has been listed in the STAR segment of the Milan Stock Exchange since 29 March 2006. In **2007**, Ansaldo STS developed the first Vital Positive Train ControITM system for the railway network in Alaska. The first ERTMS line in India was supplied, delivered and commissioned in **2008**. The new catenary-free power system for trams, TramWave®, was unveiled at the UITP fair in **2009**.

### 2010 - 2014

In **2010**, it acquired the Copenhagen contract to build the Citvringen. In 2011, Ansaldo STS arrived in Hawaii by signing a very important contract worth a total of US\$1,344 million for the development of the technology and supply of vehicles for the new driverless urban rail in Honolulu. In 2012, in Australia, Ansaldo STS's signaling solution was hailed as a revolutionary technological innovation at global level. It was the centralized interlocking and automatic train protection (ATP) system using satellite positioning. In 2013, Ansaldo STS was awarded the contract to develop the technological

part of the longest line (over 40 km) of the new Riyadh metro in Saudi Arabia. In the field of innovation, in **2013** research projects become fruitful with the first contract for a tram powering solution without overhead lines called TramWave<sup>®</sup>. The year **2014** was exceptional owing to the goals reached and surpassed thanks to orders like: Lima metro, Milan Line 4 (Italy), the Aarhus LTR system (country) and the variation to the Copenhagen City Ring (Denmark), the Navi Mumbai Metro (India) and several contracts with Rio Tinto (Australia).

### 2015

On 24 February 2015, Hitachi Ltd. and Finmeccanica S.p.A. reported that they had signed binding agreements whereby Hitachi would purchase Finmeccanica's entire equity investment in Ansaldo STS S.p.A. (approximately 40% of share capital) and AnsaldoBreda S.p.A.'s current business, except for some revamping activities and specific residual contracts. Since 2 November, Hitachi has become the new majority shareholder, with an equity investment of 40%.

#### 2016

On 4 January 2016, Hitachi Rail Italy Investments S.r.I. launched a public tender offer for the remaining 60% of Ansaldo STS's shares. The takeover bid application period ended on 14 March 2016.

Ansaldo STS S.p.A.'s ordinary shares tendered totalled 12,832,398, 6.416% of the share capital of the Company. Therefore, Hitachi Rail Italy Investments S.r.I.'s equity investment in Ansaldo STS S.p.A. was 46.482% of the share capital as at 21 March 2016.

In consideration of Hitachi Rail Italy Investments S.r.I. reaching an interest below 90% of the share capital of Ansaldo STS S.p.A., the prerequisites for exercising the Commitment to Buy were lacking. Hitachi Rail Italy Investments S.r.I. afterwards purchased additional 8,581,223 ordinary shares of Ansaldo STS S.p.A. Against this purchase, Hitachi Rail Italy Investments S.r.I.'s equity investment in Ansaldo STS S.p.A. is 50.772% of the share capital as of today.

# 2017

### 50<sup>th</sup> anniversary of the birth of railway signaling

"Whoever says something is impossible should not disturb those that are working on it" [Albert Einstein]

Railway signaling (RS) consists of a set of fail safe and mistake proof technologies that are specific in content and application methods.

The purpose of the RS is to guarantee railway traffic safety in any operational and environmental condition. One can easily imagine that when the train became the fastest means of land transport from the very beginning tools and methods to ensure the safety of people and objects had to be studied at the same time.

Since they had to deal with random events with just as chance consequences, RS techniques developed only thanks to the creative imagination of designers and their skill to put lessons learned into practice. Over 200 years were necessary to give rail transport the absolutely highest level of safety compared to all modes of transport. This target has to be maintained and overcome based on the developments technology has to offer, so the RS techniques never reach final goals and, to the contrary, stimulate ongoing methodological and instrumental innovation following the change brought about by both technological development and an age-old and always attentive reading of everyday experience.

Today's Ansaldo STS does not forget the 9 specialists of railway traffic automation - "Railway signaling" in the specific sector - who in 1967 started to develop expertise unseen until that day in the company's know-how and at the heart of RS.



# **Business Lines**



The integration between Hitachi Rail and the Ansaldo companies generated enormous value and augmented the Group potential on the market. Indeed, the three companies stand out owing to their long tradition and abundant wealth of knowledge in the common field of production and engineering. Each company brought with it different skills, different products and different markets. Ansaldo STS strengthens Hitachi Rail's positioning in traffic and signaling management systems and expands its abilities to supply turnkey systems, complete packages that can include train signaling, construction and maintenance, and even management of the railway network.

The complementarity of the products and services, along with the distribution of production facilities and development sites will allow to increasingly consolidate the Company presence in existing markets and increase its effectiveness in the new markets.





# Integrated system solutions

All over the world, Ansaldo STS assists its customers to design and develop reliable and sustainable solutions for rail transport networks, making mass transit more efficient and safe and contributing to resolving the problems caused by the growth and concentration of the urban population.

From passenger to freight transport networks, from urban to high speed or conventional interurban and cross border transport, Ansaldo STS designs and uses cutting edge technology to meet operators' requirements and optimize service regardless of traffic density and complexity. Ansaldo STS has made its mark on the railway sector by using state-of-the-art technologies for large projects, such as:

• ERTMS / ETCS technologies, adopted to make high speed lines safer and more interoperable; Ansaldo STS's success factors

- CUTTING EDGE TECHNOLOGY
- INNOVATIVE APPROACH TO COMPLEX PROJECTS
- INTERNATIONAL REACH AND GLOBAL CAPACITY
- EFFICIENT SOLUTIONS FOR INTEROPERABLE SYSTEMS
- CAPACITY TO BUILD INTEGRATED SYSTEMS
- Satellite positioning technology for the effective and safe management of railway traffic;
- Driverless and unmanned solutions for better operating efficiency and flexibility and to cut operating and maintenance costs;
- **CBTC signaling technologies** to improve service using the distancing logic based on moving blocks, mainly used for metros;
- Catenary-free technology (TramWave®) to protect the environment and historical city centers;

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• Large component portfolio, which includes all signaling aspects and system solutions (such as point machines, signals, level crossings, relays, etc).





### **1. URBAN PUBLIC TRANSPORTATION**

For Ansaldo STS, public transport means above all urban transport. Characterized by high traffic densities and a considerable volume of passengers in rush hours over relatively short distances, urban transport requires high safety, availability, flexibility and reliability levels to ensure operational efficiency and comfortable travelling for passengers.

### **Metros**

Binary circuit systems	CBTC systems
Milan metro, Lines 1 and 2 (Italy)	Paris (France), Line 3 - (12 km)
Rome metro, Lines A and B (Italy)	Shenyang (China), Line 1 (29 km) and Line 2 (25 km)
Naples metro, Line 6 (Italy)	Chengdu (China), Line 1 (15 km) and Line 2 (41 km)
Paris, RER A (France)	Xi'an (China), Line 2 (26.6 km)
Naples metro, Line 1 (Italy)	Hangzhou (China), Line 1 (53.6 km) and Line 2 (18.6 km)
Seoul, Lines 5, 7 and 8 (South Korea)	Zhengzhou (China), Line 1 (26.2 km)
Dallas, DART light rail system (USA)	Ankara (Turkey), Lines M1 (32 km), M2 (18 km), M3 (8 km), M4 (5 km)*
Portland, "West Side Corridor" light rail system (USA)	Dalian, Lines 1 and 2 (China)
Shanghai, Line 2 (China) - 2002 & Extension	Navi Mumbai Metro (India) (21 km)
Lisbon, Line B (Portugal)	Stockholm (Sweden), "Red Line" (41 km)
Los Angeles, "Green Line" (USA)	Southeastern Pennsylvania Transportation Authority (SEPTA) CBTC "Media Sharon Hill Lines" (29 km)
Tanjin-Binhai, (China)	Tianjin Line 5 (35 km)
Charlotte, "South Corridor" light rail transit system (USA)	
Pittsburgh, "South West Corridor" light rail transit system (USA)	
Belo Horizonte metro (Brazil)	
Shanghai, Line 2, Westward Extension (China)	
Chicago, "Blue Line" (USA)	
Genoa, Line 1 (Italy)	
Sao Paulo, Lines 7 and 9 (Brazil)	
Shanghai, Line 2, Eastward Extension (China)	
Pittsburgh, "North Shore Corridor" (USA)	
Washington DC, "Red Line" & "Blue Lines" (USA)	
Los Angeles County Metropolitan Transportation Authority (LACMTA), "West Side Subway Extension" (USA)	
Massachusetts Bay Transportation Authority (MTBA) "PTC System" (USA)	

\* Ankara Metro received the Safety Assessment Approval for CBTC operation.

Updated Ankara Metro progress is highlighted with the completion of the CBTC system installation, testing and commissioning activities for the M1, M2, M3 lines in August 2015. On 17 March 2016, Safety Assessment Report and Certificate for M1, M2 and M3 lines was issued for regular Revenue Service in CBTC mode. The CBTC system for the M1, M2 and M3 lines have been available to the Client use, ready for Revenue Service, since 17 March.

#### **Driverless metros**



Binary circuit systems	CBTC systems
Copenhagen Lines M1/M2 (Denmark)	Taipei, Circular Line (Taiwan)
Riyadh Princess Noura University Campus (PNU) (Saudi Arabia)	Copenhagen, City Ring (Denmark)
Brescia metro (Italy)	Milan metro, Line 4 (Italy)
Milan metro, Line 5 (Italy)	Riyadh metro (Saudi Arabia)
Rome metro, Line C (Italy)	Lima metro, Lines 2 and 4 (Peru)
UI-Shinseol (Korea)	Glasgow metro (Scotland)
Honolulu metro (US)	
Thessaloniki metro (Greece)	

### Turnkey driverless metros around the world

Driverless metros ensure high performance in terms of technology and transport capacity. The main driverless metros built by Ansaldo STS around the world (Ansaldo STS has managed Lines M1 and M2 in Copenhagen since 2002, Milan line 5, Milan line 4, Brescia, Rome line C, Thessaloniki, Taipei, Riyadh, Copenhagen Cityringen lines M3 and M4, Honolulu, Lima, etc.) are listed below. Ansaldo STS currently manages driverless metro projects around the world that cover more than 250 km.

	Track	Stations	Headway	Capacity	Trains	O&M
Copenhagen M1/M2	21 km double track double tunnel	22	min 90 s	12,000 (4p/m²)	34 3 carsper train (39m)	13 + 3 years In operation since 2002
Brescia	13.7 km double track single tunnel	17	min 90 s	17,000 (6p/m²)	21 3 cars per train (39m)	2 years of operation 7 years of mainten.
Thessaloniki	9.5 km double track double tunnel	13	min 90 s	21,000 (6p/m²)	18 4 cars per train (50m)	3 years of service assistance
Rome line C	25 km (+17) double track double tunnel	30 (+12)	min 120 s	36,000 (6p/m²)	30 (+13) 6 cars per train (108m)	Local existing Operator training
Milan line 5	12.6 km double track single tunnel	19	min 75 s	28,000 (6p/m²)	21 4 cars per train (50m)	27 years as member of the Concess.
Taipei (CBTC)	15.4 km double track viaduct	14	min 90 s	26,000 (6p/m²)	17 4 cars per train (70m)	Future system extension: 52 km, 56 stations, 64 trains
Riyadh Princess Noura Univ. Campus	11.3 km double track viaduct	14	min 90 s	4,400 (2.5p/m²)	22 2 cars per train (29m)	3 years
Copenhagen City-ring (CBTC)	17 km double track double tunnel	17	min 100 s	12,000 (4 p/m²)	28 3 cars per train (39m)	5 + 3 years
Honolulu	32 km double track viaduct	21	min 90 s	7,200 (3.2 p/m²)	20 4 cars per train (38.5m)	12 years
Milan Line 4 (CBTC)	15.2 km double track double tunnel	21	min 75 s	28,000 (6p/m²)	47 4 cars per train (50m)	25 years as member of the Concess.
Riyadh Line 3 (CBTC)	40.7 km double track double tunnel	22	min 90 s	18,000 (6p/m²)	47 2 cars per train (32m)	10 years option In operation in 2019
Lima Lines 2-4 (CBTC)	35 km double track single tunnel	35	min 80 s	Line 2 32,500 Line 4 15,500 (6p/m²)	42 6 cars per train (108m)	30 years as member of the Concess.
Glasgow Subway (CBT)	C)10.5 km twin subway lines	15	min 90 s		17 (39 m)	10 years

#### Tram systems (including catenary-free solutions)

Tram systems (including catenary-free solutions)	1
Midland light rail system, Line 1 - Birmingham (UK)	
Manchester Metrolink (UK)	
Sassari light rail system (Italy)	
Dublin, Lines A, B and C (Ireland)	
Florence, Lines 1, 2 and 3 (Italy)	
North East Campania metro (Italy)	
Zuhai (catenary-free) (China)	



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### 2. RAILWAY SOLUTIONS

#### A trendsetter in cutting edge technologies

Ansaldo STS has been a global trendsetter in railway technologies for decades:

• In France, since 1981, with the Paris-Lyon line (the first high-speed line in Europe).

- In Spain, with the construction of the first high-speed line (Madrid-Lerida), using ERTMS technology
- In the United Kingdom, with the first high-speed line connecting Paris to London and the first ERTMS-line (Cambrian line).
- In Sweden, with the Haparandabanan line (the first ERTMS line in Sweden).
- In Morocco, with the Tangier-Kenitra line (the first high-speed line and first-time application of ERTMS technology in Africa).
- In Italy, with the first-time application of ERTMS Lev. 2 technology to the country's high-speed system.

#### ERTMS/ETCS Lev. 1/Lev. 2 main contracts

#### High-speed and main line technologies

- TVM: tailor-made signaling system developed by Ansaldo STS in the early 1980's to meet the specific needs of the first high-speed lines in France, China and South Korea.
- ERTMS/ETCS Lev. 1 & Lev. 2: signaling standard solutions coupled with technologies for high speed, conventional and heavy transport lines and railway networks with increased safety and interoperability.
- Ansaldo STS is part of the eight UNIFE companies that developed the ERTMS project together with the European Union, economic parties in the railway sector and the GSM-R technology industry.



### 3. FREIGHT AND HEAVY TRANSPORT SOLUTIONS

#### Freight and heavy transport lines

Ansaldo STS is a global partner in the freight, heavy and mining railway transport sector. Sophisticated modular and scalable control and planning systems contributed to a significant increase in the safety, reliability and efficiency levels of railway lines.

# The benefits of the solutions offered by Ansaldo STS's freight and heavy transport systems

Ansaldo STS's innovative signaling and telecommunication system includes satellite positioning, claiming another first in terms of upgrading and operational flexibility of railway lines used for heavy transport and mining. Furthermore, this system:

- is based on Ansaldo STS's solid experience, knowledge and technology;
- is modular and scalable;
- allows the implementation of cost-effective solutions which can be strengthened and expanded over time;
- allows smooth migration to a fully automated system (including management of driverless trains).

#### Railway projects for the Australian mining industry

Ansaldo STS has designed and implemented transport and signaling solutions for Western Australia's heavy mining railway transport and is currently delivering a number of turnkey systems in the Pilbara region, in the north-west of the country. This is the first driverless railway to be used for heavy transport: thanks to Ansaldo STS's driverless technology, a 1,500 km railway line for heavy transport is being automated.

# Ansaldo STS's main freight transport contracts - Australia

- Rio Tinto Iron Ore, Framework Agreement 2,000 km, Signaling and telecommunication systems: Signaling system based on radio communication with driverless trains – wayside-vehicle
- Roy Hill Iron Ore Project– 350 km, Signaling and telecommunication systems: Signaling system based on radio communication with satellite positioning wayside-vehicle
- Fortescue Metal Group, Signaling and telecommunication systems 250 km, (interlocking) signaling system and telecommunications
- Hamersley Iron, Lang Hancock railway line 65 km, Signaling (Interlocking, ATP system) and telecommunication system and freight protection system along the line system
- Aurizon (formerly, Queensland Rail (QR) National) Design and implementation of several (interlocking) signaling projects in East Australia in association with the Synergy Alliance
- Pilbara Iron 7-Mile Yard Design and implementation of (interlocking) signaling systems
- Australian Rail Track Corporation (ARTC) Design and implementation of several signaling and

telecommunication projects (interlocking, train movement control and supervision system, TLC) in association with the ARTC – Ansaldo STS Network Control Systems Alliance (AANCSA)

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- Australia Rail Track Corporation (ARTC) / Lockheed Martin – 120 km, pilot project, design and supply of advanced train management systems (ATMS) (train movement advanced management systems), (interlocking, train movement control system, ATP, satellite positioning) – wayside-vehicle
- Robe River Iron, projects for Western Creek Cape Lambert & Mesa A line– Signaling (interlocking, train movement control system, automatic train protection (ATP), freight protection system along the line) and telecommunication systems - wayside-vehicle
- Brookfield (formerly WestNet Rail) Midwest Rail Signaling systems (interlocking and computer-assisted train control system) for several projects
- Newcastle Coal Infrastructure Group (NCIG) Port-Kooragang line – Signaling systems (interlocking and train movement control system)
- Public Transport Authority (PTA) (formerly Westrail) Koolyanobbing-Kalgoorlie – 190 km, Signaling systems (interlocking)

### Ansaldo STS's main freight transport contracts -North America

- PTC (Positive Train Control) system
- PTC VitalNet<sup>®™</sup> systems and components already developed for:
  - Union Pacific
- CSX Transportation
- Burlington Northern Santa Fe Railways
- TSR server for PTC Office:
- SEPTA
- Office systems
  - Over 80,000 km of freight transport lines managed using ASTS office systems, including:
  - Union Pacific (Planning system for traffic optimization)
  - CSX Transportation (Control, supervision and automation system)
- MicroLok<sup>®</sup> II components for interlocking and signaling (LED, level crossings, relays, track circuits, point machines)
  - Over 10,000 units sold to US and Canadian railway companies, including:
    - Union Pacific
    - CSX Transportation
    - Burlington Northern Santa Fe Railways
    - Canadian Pacific
    - Canadian National Railway
    - Alaska Railroad
  - Norfolk Southern
  - Kansas City Southern Lines
  - Quebec North Shore & Labrador Railway.

# Ansaldo STS around the world

Ansaldo STS, headquartered in Genoa, has four main operating companies:

- Ansaldo STS S.p.A. with offices in Genoa, Naples, Piossasco (TO) and one production site in Tito Scalo (PZ);
- Ansaldo STS US, with offices in Pittsburgh (Pennsylvania) and one production site in Batesburg (South Carolina);
- Ansaldo STS France, with offices in Les Ulis and one production site in Riom;
- Ansaldo STS Australia with offices in Brisbane, Perth and Karratha.

Ansaldo STS also owns operating entities in Germany, Sweden, Finland, the UK, Spain, China, India, Malaysia, Botswana, South America and Canada as well as many permanent establishments and partnerships in other countries such as South Korea and Turkey.



	EMPLO	YEES	2016 (%)	2015 (%)
COMPANY	2016	2015	2	2010 (70)
ASTS <sup>3</sup> ITALY	1,712	1,555*		
ASTS FRANCE	868	822**	15	17
ASTS USA	712	672		
ASTS APAC	597	656	43	41
ASTS CHINA	62	67		18
Total	3,951	3,772		
			22	22

\* Including Ansaldo STS Deutschland GmbH employees.

\*\* Including Ansaldo STS UK Ltd. and Ansaldo STS Sweden AB employees.

3. ASTS is used to refer to the group of companies in each geographical area.

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×

X

X

# Main ongoing projects

X

X

#### SUSTAINABLE GLOBAL LEADERSHIP ×

- OVER 3,000 KM OF CONVENTIONAL SYSTEMS
- MORE THAN 270 KM OF UNMANNED AND **DRIVERLESS METROS**
- 230 KM OF CONVENTIONAL METROS
- OVER 5,000 KM OF HIGH SPEED SYSTEMS
- OVER 80,000 KM OF MANAGED FREIGHT LINES

# Asia Pacific and Australia

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South Korea HSL Metropolitan Line

China China Metro: Shenyang, Chengdu, Hangzhou, Xian, Zhengzhou, Dalian, Shanghai, Wenzhou, Tianjin line 5

India KFW, TPWS (North - South) *Metro:* Calcutta, Mumbai Monorail, Navi Mumbai Metro, Noida Metro

Malaysia MNDT, KVDT

Taipei Metro: Circular Line San-Yng MRT System

Australia Rio Tinto - framework agreement (RAFA) Roy Hill Moreton Bay Rail Link Forrestfiled Airport Link

# North Africa and the Middle East

Algeria Oued Tlelat-Tlemcen line

Morocco Tangiers-Kenitra HSL Saudi Arabia Riyadh Metro Line 3

United Arab Emirates - Main line Abu Dhabi section 1

# Europe

Italy - High-Speed line Brescia-Treviglio Milano-Genova (Terzo Valico) Direttissima Roma-Firenze

Italy - Conventional Line Torino - Padova line

Italy - Metro Roma, Napoli, Milano, Brescia, Genova

France - High-Speed line Tours-Bordeaux (SEA Le-Mans-Rennes (BPL)

**Spain - High-Speed line** Madrid-Lerida O&M La Robla - Pola de Lena

UK Ferriby-Gilberdyke line Metro: Glasgow Subway

Denmark Copenhaghn Metro and City-Ring + O&M, Aarhus LRT

Belgium Metro Bruxelles Lines 1 and 5 Metro: Ankara

Sweden Happarandabanan Metro Stockholm Red Line Ester Line 2

**Germany** SeRoBe, Velaro

Greece Thessaloniki Metro

Turkev Mersin - Toprakkale Gebze - Köseköy



# Americas

East coast Washington Metro - CSX New York Metro SEPTA PTC & Sharon Hill Long Island LIRR MBTA

West coast LACMTA - LA West Side

Hawaii - Honolulu Driverless Metro

Lima - Perù Metro Lima Lines 2 & 4





# 2016 results









MAIN PLANT ROLL-OUTS **STATIONS** PROJECTS KM OF 30+ 1,300 Km 190 DELIVERED LINES ACTIVATED **Conventional Line** Metro M2 Metro Ankara (CBTC + Automation) ACC Brescia Centrale (IXL) ACCM Genoa Junction (IXL + Automation) ACC Napoli-Villa Literno (IXL + Automation) Dalian L1 phase 2 (CBTC) Roma Termini Activities on SED-T (Automation) Torino-Padova (IXL + Automation) SCC Napoli & Palermo Nodes Enhancement (IXL + Automation) High Speed Lines Various Outsourcing Potenza, Taranto, Pisa S.Rossore, Foggia, Ponente Ligure (IAP + IeC) SCC Upgrade Bari Lamasinata (Automation) Parigi - Strasburgo Phase 2 (RBC) Revamping ACC Roma Termini (IXL + Automation) PAI 2006 Framework 6 Stations (IXL) Treviglio - Brescia (HSL) Gebze - Kosekoy (IXL + ETCS Lev1 + Automation) Mersin Toprakkale 9 Stations (IXL + Automation) Sudokwon (TVMS) MBRL Moreton Bay Rail Link (Macrolock Series) PBI 138 Stations (IXL) Freight lines KFW 7 Stations (IXL + Automation) Roy Hill (VSS + Automation) SEPTA (Microlock + PTC) **Rio Tinto** LAMCTA MLK Upgrade (Microlock) Freight customised ETCS Lvl 2 overall AutoHall<sup>™</sup> Network Commissioning of project / project phases as scheduled

# MAIN PROJECTS ACQUIRED

Country	Project	Customer	Value (€ million)
Taiwan	Sanying Line, MRT System	NCTG DRTS	220
Italy	High speed Milan-Genoa	Consorzio Saturno	175
Great Britain	Glasgow Metro - maintenance included	Strathclyde Partnership for Transport	139
Australia	Auto Haul - variations	Rio Tinto Iron Ore	96
Belgium	Brussels Metro	STIB	88
Italy	ACC-MDD Rome-Florenece, including SST ERTMS ETCS Lev. 2	RFI	75
U.S.A.	LIRR Ronkonkoma	LIRR	38
Malaysia	KVDT	Dhaya Maju Infrastructure	37
Italy	Line 6 - Variations	Municipality of Naples	30
Australia	Forrest Field Airport Link	Salini Impregilo Spa - NWR Pty Ltd J\	/ 30
France	Maintenance 2016	RATP	27
India	Noida Metro	Delhi Metro Rail Corporation Limited	26
Sweden	ESTER - Line 2	Trafikverket	21
Great Britain	Ferriby Gilberdijke	Network Rail	20
U.S.A.	LIRR MID-DAY - Depot	LIRR	17
Other EU / Asia	Service & Maintenance	Other	65
Other EU / Asia	Components	Other	49
U.S.A.	Components	Other	50

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#### **Glasgow Metro**

In March, the Ansaldo STS - Stadler consortium won the contracts for modernizing the Glasgow Metro with advanced technology. The contracts comprised the supply of 17 new trains, the Communication Based Train Control (CBTC) driverless signaling technology, platform doors and depot equipment, and respective maintenance services for modernizing 10.5 km of twin metro lines and 15 stations of the Glasgow Metro system.

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The project that "Strathclyde Partnership for Transport" (SPT) - the Glasgow Metro manager - assigned had a total value of GBP 203.2 million. The value of Ansaldo STS's portion was GBP 104.3 million, and deliveries were scheduled to be completed within 66 months.

Under the contract, Ansaldo STS will implement its CBTC system and the driverless solution for the entire line, as well as the communications network, the Operational Control Center, the Platform Screen Doors (PSD) and the test track of the depot. It will





also be responsible for integrating the system, the tests and the maintenance support services (GBP 7.5 million).

#### Taipei Metro

As members of the ARH consortium (made up of Ansaldo STS S.p.A., RSEA Engineering Corp. and Hitachi, Ltd.), Ansaldo STS and Hitachi, Ltd. signed a turnkey contract with New Taipei City Government Department of Rapid Transit System (NTCG DORTS) in June.

As consortium leader, the scope of the work for Ansaldo STS includes the supply of CBTC (Communication-Based Train Control) technology and all electromechanical systems (power supply, telecommunications, platform doors, ticketing system, SCADA and depot equipment) for the value of €220 million (not including VAT).

CBTC technology is paving the way to a new era in the railway transport control sector as it increases flexibility, cuts maintenance costs and improves interoperability.



This turnkey project for NTCG DORTS comprises civil, electromechanical and rolling stock works, and it is the first medium-capacity metro built and managed by New Taipei City.

The total length of the San-Ying Line is 14.29 km, with 12 stations and one depot. This line with its completely elevated stations leaves the Dingpu Blue Line station of the MRT in Tucheng and goes to Yingge, passing through Sanxia.

As part of the "3-rings-3-lines" project, the San-Ying Line will enter the construction stage in the second half of 2016 and its completion is slated for 2023. It will be a comfortable and safe public transport system for the citizens of New Taipei City.

### **Brussels Metro**



In October, Ansaldo STS signed a €88 million contract with STIB (Société des Transports Intercommunaux de Bruxelles) for the automation of lines 1 and 5 as part of the Brussels metro modernization program (Pulsar project).

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Ansaldo STS will supply STIB its CBTC Driverless solution to increase operational performance, efficiency and safety of the east-west axis (lines 1 and 5) of the metro as part of the modernization project. Total length will be 35.5 km with 37 stations, with a comprehensive fleet of 60 trains.

The framework agreement also includes optional lines 2 and 6.

The scope of the work includes the study, design, production, full integration, tests and commissioning, as well as the training, maintenance and relevant services for the systems and sub-systems, both wayside and on board.

With this new contract, Ansaldo STS is strengthening its position of global excellence for CBTC technology.

#### Rome - Florence High-Speed Railway in Italy

Ansaldo STS won two contracts in October that came to the total value of €75 million. They cover the signaling of the Rome - Florence section highcapacity/high-speed Turin - Milan -Naples line.

The scope of Ansaldo STS's work in the contracts awarded by RFI (Rete Ferroviaria Italiana) concern the design and execution of works for the building of the ERTMS/ETCS Level 2 Wayside Subsystem (SST) of the ACC-M and the complementary and additional operations to technologically upgrade the Rome -Florence section of the high-capacity/ high-speed Turin - Milan - Naples line.



Ansaldo STS will supply the ACC-M and ERTMS/ETCS Level 2 signaling systems, the Axle-Bearing Temperature Detection system, the Rail Temperature Monitoring system, the power supply systems, the upgrading of buildings and the telecommunications systems.

The Ansaldo STS signaling systems will serve the current 234 km of double track line, raising the line to the highest technological level.



#### Milan - Genoa High-Speed Railway

On 28 December 2016, the "Consorzio Saturno per la realizzazione di opere ferroviarie ad elevato contenuto tecnologico per il sistema ferroviario italiano ad alta velocità" ("Saturno Consortium for the building of high technology railway works for the Italian high-speed railway system") of which Ansaldo STS S.p.A. is member signed the engagement with the General Contractor, Consorzio Collegamenti Integrati Veloci ("Cociv"), to build the technological systems of the AV/AC (High Speed and High Capacity) Project of the Milan-Genoa line, Terzo Valico dei Giovi.

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The scope of work for which Ansaldo STS is responsible is the supply of the technological systems for the railway signaling systems, the command and control (SCCM/AV), light and motive power system, and that for monitoring safety in tunnels. The total amount of the works assigned to Ansaldo STS was €175 million.



"Terzo Valico" is a new high speed/high capacity line that will strengthen connections between the Ligurian port zone and the major railway lines of North Italy and the rest of Europe. This project is part of the "Rhine - Alps" corridor, one of the most strategic trans-European transportation corridors (TEN-T core network) connecting the most populated and industrialized European regions.

In line with the strategy of favoring eco-friendly transportation modes that the European Union recently reconfirmed with the "Lighthouse" (COM (2011) 21) initiative, the project will allow substantial volumes of goods traffic to be shifted from the roads to the railways in the future, all to the benefit of the environment, safety and the social community.

ANSALDO STS presents ERSAT: the satellite technology applied to railway traffic management for the first time in Europe

The ERSAT Project was presented with Rete Ferroviaria Italiana and Trenitalia in Sardinia in February to demonstrate how this technology works.

ERSAT is the latest-generation signaling project that interfaces and supplements - for the first time in Europe - the European Rail Traffic Management System (ERTMS) with Galileo satellite navigation and positioning technology.

ERSAT's advantages are:

a) increased rail traffic capacity;

- b) guarantee of high railway safety and punctuality standards; and
- c) lower operating costs since the new technology will require fewer installation and maintenance investments.



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# **Corporate Governance<sup>4</sup>**

Ansaldo STS adopts a corporate governance system that is based on the highest business management transparency and fair practice standards. This corporate governance system is compliant with the provisions of law and with the regulatory provisions of Consob and Borsa Italiana. It is also in line with the contents of the code of conduct for listed companies adopted by Borsa Italiana S.p.A. - which Ansaldo STS has implemented - and international best practice. The corporate governance system is aimed at maximizing value for shareholders, monitoring business risks, transparency with the market and reconciling the interests of all shareholders, with particular attention on smaller shareholders.

Ansaldo STS's corporate governance system is based on a traditional model, and includes:



The company's main corporate governance tools today are listed below:

By-laws;

**LOOLS** 

- Code of ethics;
- Organizational, management and control model pursuant to Legislative decree no. 231/01;
- Shareholders' meeting regulations;

- Board of directors' regulations;
- Risk and control committee regulations;
- Appointments and remuneration committee regulations;
- Executive committee regulations;
- Related party transactions
  procedure adopted pursuant to article
   4 of Consob regulation
   no. 17221 of 12 March
   2010;
- Procedure for keeping and updating the list of persons with access to privileged information;
- Procedure for the management and communication of privileged and confidential information;
- Internal dealing code of conduct.

## **Board of directors**

Ansaldo STS's board of directors has the widest powers for the management of the company, with the power to take any and all suitable action to achieve the company purpose, except for those reserved for shareholders.

The current board of directors was appointed by the shareholders during the ordinary meeting held on 13 May 2016.

<sup>4.</sup> For additional details, reference should be made to the "Directors' report on the corporate governance system and the implementation of the code of conduct for listed companies for 2016".



#### NOTES

The symbols shown hereunder must be placed in the "Office" column:

This symbol indicates the Director responsible for the internal control and risk management system.

This symbol indicates the primary person responsible for the issuer's management (Chief Executive Officer or CEO).

The date first appointed given for each director means the date when the director was appointed for (absolutely) the first time to the issuer's BoD.

The list from which each director was taken is indicated in this column ("M": majority list; "m": minority list). The number of offices of director or statutory auditor held by the interested party in other companies listed in regulated markets, including foreign, in financial, banking and insurance companies, or those of considerable size, is indicated in this column. The offices are specified in detail in the Corporate Governance Report. The offices indicated for the directors who left during the year of reference refer to the date they left. \*\*\*

This column indicates the director participation in board and committee meetings respectively (number of meetings attended compared to the total number (\*) of meetings that they could have attended).

(\*\*) The gualification of the member within the committee is indicated in this column: "C": chairman; "M": member.

#### DIRECTORS WHO LEFT DURING THE YEAR

Office	Members	Year of birth	Date first appointed *	In office since	In office until	List (M/m)	Exec	Non- exec.	Indep. under the code	Indep. under the Cons. fin. act	(*)	(**)	(*)	(**)	(*)	(**)	(*)	(**) (*)
Chairman	Stefano Siragusa	1976	1 January 2014 <sup>(5)</sup>	2 November 2015	13 May 2016	М	Х	-	-	-	7/7	-	-	-	-	-	-	
Deputy Chairman	Karen Boswell	1963	2 November 2015	2 November 2015	13 May 2016	М	-	Х	-	-	6/7	-	-	-	-	-	-	
Director	Paola Giannotti	1962	2 November 2015	2 November 2015	13 May 2016	m	-	Х	Х	Х	7/7	М	5/5	-	-	-	-	
Director	Giovanni Cavallini	1950	5 April 2011	2 November 2015	13 May 2016	m	-	Х	Х	Х	6/7	Ρ	3/5	-	-	-	-	
Director	Giulio Gallazzi	1964	15 April 2014	2 November 2015	13 May 2016	m	-	Х	Х	Х	7/7	-	-	Ρ	8/8	-	-	
Director	Bruno Pavesi	1941	30 March 2012 <sup>(6)</sup>	2 November 2015	13 May 2016	М	-	Х	Х	Х	7/7	М	5/5	М	8/8	-	-	
Director	Alessandra Piccinino	1962	9 November 2015 <sup>(7)</sup>	9 November 2015	13 May 2016	-	-	Х	Х	Х	7/7	-	-	М	7/8	-	-	

(1) Alistair Dormer, as chairman of the board of directors, has an executive role, although he did not receive any specific proxy from the board. Consequently, he

does not hold any executive role within the company, due to the positions he holds in the Hitachi group. Note that the shareholders in their ordinary meeting held on 19 January 2017 resolved to start corporate liability proceedings pursuant to art. 2393 of the Italian Civil Code against Mr. Bivona who, as a consequence, was removed from office and they appointed Mr. Michele Alberto Fabiano Crisostomo to replace him. (2)

Co-opted by the board of directors on 25 November 2015, replacing Ryoichi Hirayanagi (4)

Note that Mr. Garraffo resigned from one of the above offices with effect starting from 30 November 2016. Co-opted by the board of directors on 11 December 2013 and, with effect from 1 January 2014, replacing Mr. Grasso. (5)

Co-opted by the board of directors on 30 March 2012, replacing the director Filippo Milone. (6)

(7) Co-opted by the board of directors on 9 November 2015, replacing Barbara Poggiali.

During the year 2016, the Board of Directors met 16 time, the Risk and Control Committee 9 times, the Appointments and Remuneration Committee 12 times and the Executive Committee once.

Board of Directors BY AGE AND GENDER	MEN	WOMEN
< 40	-	-
40-50	2	1
51-60	2	2
> 60	2	-

#### Appointment of the board of directors

The company is managed by a board of directors consisting of at least seven and not more than 13 members. Before electing the board, the shareholders decide what the number of members will be within this range. The directors are appointed for up to three years and can be re-elected pursuant to article 2383 of the Italian Civil Code.

In line with the amendments to the Consolidated finance act introduced by Law no. 120 of 12 July 2011, the current by-laws – following the most recent changes made by the shareholders at the extraordinary meeting of 6 May 2013 – provide for mechanisms to ensure a balance of men and women on the boards of directors and statutory auditors, which will be applied upon the first three renewals of the board of directors after one year following the date when the aforementioned law takes effect (i.e. after 12 August 2012).

The directors are appointed by the shareholders during an ordinary meeting by voting for lists. Each list must include two candidates who meet the independence requirements provided for by law, indicating them separately and placing one at the top of the list. Furthermore, lists with a number of candidates equal to or more than three must include candidates of different genders, in accordance with the notice of call of the shareholders' meeting, so that the new board of directors is comprised of members of the least represented gender, in accordance with current legislation. In the event of fractions, the number is rounded up.

If these obligations are not met, the list is considered as not having been submitted.

In order to ensure the effective participation of noncontrolling owners in corporate management and the transparency of the selection and appointment process for directors, the by-laws explicitly enable each shareholder to submit or participate in the submission of one list only, that each candidate can be presented in one list only or will be considered ineligible and that each rightful voter can vote for one list only. The shareholders elect the Chairman of the board of directors, selecting the Chairman from among the members of the board. If the shareholders do not elect the Chairman, the Chairman is elected by the board itself. The board can also elect a Deputy Chairman, replacing the Chairman when the Chairman is absent or unable to chair the board.

For additional information on the appointment of the board of directors during the ordinary shareholders'

meeting of 13 April 2016, reference should be made to the Company's website<sup>5</sup>.

#### Directors' requirements and duties

Under the by-laws, in order to take office as director, one must not only meet the requirements of honorableness provided for by current legislative and regulatory provisions (or any similar requirements established by equivalent provisions), but must also meet the specific requirements of professionalism indicated in the by-laws.

In particular, candidates may not be appointed director of the company, and if they have been appointed, their term of office is considered immediately terminated, if they do not have at least three years of overall experience in the following:

- administration or supervision activities or managerial duties with companies with a share capital of at least €2 million;
- professional activities or university teaching as a full professor of legal, economic, financial or technical/ scientific subjects closely related to the company's business activity; or
- senior management functions with public bodies or administrations active in the credit, financial and insurance sectors or, in any case, in industries which are closely related to the company's business activity.

This experience can be assessed on the basis of the candidates' curriculum vitae, which should contain exhaustive information on the personal and professional characteristics of each candidate and be available to the public, along with each list pursuant to article 144-octies, 1 of the Issuers Regulation. The board of directors verifies that these requirements are met by each of its members.

#### **Non-executive directors**

The board of directors is mainly comprised of nonexecutive members (who have not been assigned any operating powers and/or management functions within the company) to guarantee, given the number of such directors and their degree of authority, that their judgment significantly influences board decisions.

Non-executive directors bring their specific expertise to board discussions, to support the examination of matters considered from a different perspective and to encourage the adoption of well- thought out resolutions, in line with the company's interests. At present all members, except the CEO and Chairman, are non-executive directors.

5. http://www.ansaldo-sts.com/it/governance/consiglio-amministrazione/nomina

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#### Independence of directors

The board of directors appointed by the Shareholders' Meeting held on 13 May 2016 is made up of 6 independent directors and, to be more precise, the directors Giuseppe Bivona (replaced following his dismissal by Mr. Michele Alberto Fabiano Crisostomo), Rosa Cipriotti, Alberto de Benedictis, Mario Garraffo, Fabio Labruna and Katharine Painter.

At the time the lists were presented, these directors undertook to promptly notify the board of directs of any changes in their declaration of being in possession of the independence requirements.

The board verified that the independence requirements of the directors pursuant to art. 148, paragraph 3 of the Consolidated finance act (applicable to directors pursuant to art. 147-ter, paragraph 4 of the Consolidated finance act), art. 3, paragraph 2 of the Code of Conduct and art. 37, paragraph 1, letter d) of the Market Regulation (i) regarding the directors Giuseppe Bivona, Rosa Cipriotti, Alberto de Benedictis, Fabio Labruna and Katharine Rosalind Painter exist on 16 May 2016 and, as regards the director de Benedictis, the requirements were once again checked on 11 July and 19 December 2016; (ii) regarding the director Mario Garraffo, on 24 May 2016 (since he was absent at the previous 16 May meeting); and lastly (iii) regarding the director Michele Alberto Fabiano Crisostomo on 30 January 2017.

In verifying the independence requirements of the directors, the board evaluated, based on the statements of the above people or however on the information at the Company's disposal, whether the independent directors are party to any relationships that could, or could appear to, jeopardize their independent judgment. The findings of this evaluation were disclosed to the market in the press releases distributed on 16 May 2016 and, with regard to Mr. Garraffo, on 24 May 2016.

On 10 June 2016, after the appointment of the board of directors, the board of statutory auditors, on the basis of the statements made by the directors and considering the board's findings, certified proper application of the criteria and verification procedures adopted by the board to evaluate the independence of its members.

No meetings of the independent directors of the company were scheduled in 2016 since such need was not seen, also considering that the board was appointed only on 13 May 2016.

# Board of directors activities and assessment of its functioning

In 2016, the board held 16 meetings. Any absences were duly justified. The average length of the board's meetings in 2016 was approximately five hours.

The meetings of the board of directors saw the participation, depending on the items on the agenda, of the Chief Financial Officer, the Chief Operating Officer, the Internal Audit Manager and, upon the Chairman's recommendation, other company managers, in order to provide suitable details on the items on the agenda.

In 2016, the secretary to the board Francesco Gianni as well as General Counsel & Compliance function manager Filippo Corsi participated in all the board meetings.

In accordance with the by-laws, the board of directors meets whenever the Chairman, or another member in his place, deems it necessary, or upon the written request of the majority of board members.

On 24 November 2016, with respect to the annual evaluation process of the size, composition and working of the board and its committees, in accordance with the recommendations of article 1.C.1.g) of Borsa Italiana's code of conduct for listed companies, the board



decided by majority, with the nay votes of Mr. Fabio Labruna and Ms. Rosa Cipriotti, to not carry out this evaluation process in 2016 since most directors, appointed by the shareholders in their meeting of 13 November 2016, held this office for the first time.

### Committees

In order to increase the efficiency and effectiveness of the work of the board of directors, the risk and control committee and the appointments and remuneration committee have been established within the board and in accordance with the criteria of the code of conduct that the company decided to adopt.

In this respect, following the approval of the December 2011 edition of the code of conduct, the Company approved the adoption of the principles in the updated code, thereby updating its corporate governance system to meet the new provisions. Specifically, on 18 December 2012, the Company decided, inter alia: (i) to set up an appointments committee, combining it with the previously established remuneration committee and naming the new committee - vested with the dual function - the "appointments and remuneration committee", approving its regulation; and (ii) to modify and redefine the duties and functions of the different parties involved in the company's internal control and risk management system, also approving the regulation of the "risk and control committee".

### **Risk and control committee**

The risk and control committee currently in office is comprised of three directors, who are all non-executive and independent. They are the directors Alberto De Benedictis (Chairman), Mario Garraffo and Katharine Rosalind Painter, appointed by the board of directors on 16 May 2016. Pursuant to the code, at the time of their appointment, the board of directors examined the accounting and financial experience of the chairman, Alberto De Benedictis, and the members Mario Garraffo and Katharine Rosalind Painter. In the period from 1 January 2016 to 13 May 2016, the members of the risk and control committee were: Giovanni Cavallini (Chairman), Bruno Pavesi and Paola Giannotti.

The committee meetings are governed by an internal regulation which was last modified by the board on 18 December 2012. The regulation was also found to be compliant with the amendments introduced to the code of conduct in July 2015. The updated version of the regulation is available on the company's website<sup>6</sup>.

The risk and control committee has advisory, proposal and preliminary preparation functions on behalf



6. http://www.ansaldo-sts.com/sites/ansaldosts.message-asp.com/files/downloadspage/7\_regolamento\_comitato\_controllo\_e\_rischi\_en\_1.pdf
of the board of directors, mainly in relation to the definition of guidelines for the internal control and risk management system and the periodic evaluation of the adequacy and effective functioning of the organizational structure of such a system.

Specifically, the committee is responsible for verifying the functioning and adequacy of the internal control and risk management system, as well as the effective compliance with procedures and internal directives adopted to both ensure sound and efficient management and identify, prevent and manage, insofar as possible, financial, operational and fraud risks to the detriment of the company.

#### Appointments and remuneration committee

In accordance with the provisions of article 37 of the market regulation, all members of the appointments and remuneration committee are non-executive and independent.

The committee was appointed by the board of directors on 16 May 2016 and is comprised of the non-executive independent directors Katharine Rosalind Painter (Chairwoman), Alberto De Benedictis and Mario Garraffo.

In the period from 1 January 2016 to 13 May 2016, the members of the appointments and remuneration committee were: Giovanni Cavallini (Chairman), Bruno Pavesi and Alessandra Piccinino.

In accordance with article 6.P.3 of the code of conduct, when the committee members were appointed, the company's board of directors verified and certified that all the directors had accounting and financial expertise and experience.

The committee's activities are governed by a regulation in line with the code of conduct. The board approved the regulation on 29 January 2007 and it was later modified on 12 May 2008, 5 March 2012 and 18 December 2012. The regulation is available on the company's website<sup>7</sup>.

With respect to the code of conduct committee's functions for both its role in the appointment of directors and remuneration, reference should be made respectively to articles 5 and 6 of the code, which can be found on the Borsa Italiana S.p.A. website<sup>8</sup>.

#### **Directors' remuneration**

Information on the remuneration of the directors, the General Manager and key managers is given in the remuneration report, which is prepared pursuant to articles 123-ter of the Consolidated finance act and 84-quater of the Issuer Regulation, published on the Company's website<sup>9</sup> and made available to the public in the other ways provided for by current legislation. On 25 February 2016, the company's board of directors, with the prior approval of the appointments and remuneration committee, approved the company's remuneration policy for 2016 and Ansaldo STS's remuneration report, prepared pursuant to article 123ter of the Consolidated finance act. The first section of the report illustrates the Company's remuneration policy and the procedures followed to adopt and implement this policy and it was therefore put to a nonbinding vote by the shareholders on 13 March 2016, in accordance with article 123-ter. The shareholders approved the report.

Furthermore, on 24 March 2017, upon the proposal of the appointments and remuneration committee, the board of directors approved the remuneration policy for 2017.

On the same date, the board of directors approved, with the prior approval of the appointments and remuneration committee, the remuneration report pursuant to article 123-ter of the Consolidated finance act. In accordance with the aforementioned article 123-ter.6 of the Consolidated finance act, the first section of the remuneration report, which illustrates the 2017 remuneration policy for members of the board of directors, the General Manager and key managers as well as the procedures followed for its adoption and implementation, was submitted to the non-binding vote of the ordinary and extraordinary shareholders' meeting on 11 May 2017. The shareholders approved the report.

7. http://www.ansaldo-sts.com/en/node/634/code-self-discipline

8. http://www.borsaitaliana.it/borsaitaliana/regolamenti/corporategovernance/code2015.en.pdf

9. http://www.ansaldo-sts.com/it/assemblea-azionisti-2015

### **Board of statutory auditors**

The statutory auditors are appointed by the shareholders during an ordinary meeting by voting for lists. In line with the amendments to the Consolidated finance act introduced by Law no. 120 of 12 July 2011, the current by-laws - following the most recent changes made by the shareholders at the extraordinary meeting of 6 May 2013 - provide for mechanisms to ensure a balance of men and women on the boards of directors and statutory auditors, which will be applied upon the first three renewals of the board of statutory auditors after one year following the date when the aforementioned law takes effect (i.e. after 12 August 2012).

As with the presentation of lists of candidates for the appointment of members of the board of directors, if a list of candidates for the office of statutory auditor is not submitted within the above term, the lists will be considered as not having been submitted.

The lists include the names of one or more candidates, and the number listed may not exceed the number of members to be elected. Each candidate can be presented in one list only or will be considered ineligible. Lists are divided into two sections: one for candidates for the office of standing statutory auditor and one for candidates for the office of substitute statutory auditor. The first candidate in each section must be registered with the roll of certified auditors and have at least three years of experience in the performance of legally-required audits.

Furthermore, the lists that, considering both sections, include a number of candidates equal to or greater than three must also include, for both the first two candidates on the list for standing statutory auditors and the first two candidates on the list for the replacement statutory auditors, candidates of different genders.

The Chairman of the board of statutory auditors is appointed by the shareholders and is the standing auditor elected by the minority, unless only one list is voted for or no list is submitted. In these cases, the shareholders appoint the Chairman of the board of statutory auditors according to the legal majorities.

The current board of statutory auditors was appointed by the shareholders' meeting held on 11 May 2017 and its members are the standing statutory auditors Antonio Zecca (Chairman), Giovanni Naccarato and Alessandra Stabilini, and the substitute statutory auditors Valeria Galardi, Cristiano Proserpio and Alessandro Speranza. No meetings of the board with its new structure had been held as at 31 December 2016.

The board of statutory auditors in office in 2016, appointed by the shareholders in their ordinary meeting of 15 April 2014, had three standing statutory auditors and three substitute statutory auditors.

During the year, the board held 25 meetings. The following table provides information on the attendance of each statutory auditor at the meetings of the board of statutory auditors and the board of directors in 2016:

## Board of Statutory Auditors in office

Members	Attendance Board of statutory auditors	Attendance Board of directors
Giacinto Sarubbi (Chairman)	100%	100%
Renato Righetti	100%	100%
Maria Enrica Spinardi *	100%	100%

\* in office since 15 April 2014.

Corporate Governance Company profile

The board of statutory auditors is responsible for monitoring:

- compliance with the law and bylaws;
- compliance with the principles of correct administration;
- the adequacy of the company's organizational structure in the areas for which it is responsible, the adequacy of the internal control system and the administrative/ accounting system, and the latter's reliability in correctly reflecting operations;
- the actual implementation method of the corporate governance

rules established by the codes of conduct prepared by the companies that manage regulated markets or trade associations, with which the company is required to comply through public disclosure;

- the adequacy of the company's instructions to its subsidiaries pursuant to article 114.2 of the Consolidated finance act;
- the financial disclosure process;
- the efficiency of internal control, internal audit and risk management systems;
- the legally-required audit of the annual separate

and consolidated financial statements;

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- the independence of the independent auditors or independent audit company, particularly with respect to the provision of non-audit services to the company;
- the compliance of the company's related party-transaction procedures with the principles of the related-party regulation and their compliance, reporting to the shareholders in this respect pursuant to article 153 of the Consolidated finance act.



## Internal control and risk management system

Ansaldo STS's internal control and risk management system provides for the involvement of the following officers:

- · Board of directors;
- Director responsible for the internal control and risk management system;
- Risk and control committee;
- Internal Audit Manager;
- Manager in charge of financial reporting pursuant to Law no. 262/2005;
- Supervisory body set up in implementation of Legislative decree no. 231 of 8 June 2001;
- Board of statutory auditors.

With the assistance of the risk and control committee and also on the basis of the activities of the director responsible for the internal control and risk management system, the board of directors defines guidelines for this system, so that the main risks to which the company is exposed are correctly identified and adequately measured, managed and monitored. It also determines the degree of compatibility of such risks with business management in line with the strategic objectives identified. In addition, within the scope of the definition of strategic business and financial plans, the board of directors defines the nature and level of risks, in accordance with the company's strategic objectives. The methodological approach taken to evaluate and manage the internal control and risk management system refers to the internationally recognized Enterprise Risk Management framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO report).

The Internal Audit unit's audit plan was approved by the board of directors as required by Borsa Italiana's code of conduct for listed companies and the unit manager prepares regular reports for the risk and control committee. Specifically, audit procedures performed in 2016 covered contract, engineering and development, purchases and compliance of certain significant procedures for compliance purposes and monitoring progress of the actions plans drawn up as a result of the audit work.

# Anti-corruption and the prevention of corporate crimes

In order to ensure that the conduct of all those operating on the company's behalf or in its interests is always consistent with the principles of correctness and transparency in business dealings and company activities, Ansaldo STS has adopted an Organizational, management and control model (the "Model") in line with the requirements of Legislative decree no. 231/01 and the guidelines issued by Confindustria, Italy's main Organization representing Italian manufacturing and service companies. The code of ethics is an integral part of this Model. The company has also set up a supervisory body to monitor application of the Model.

The Company ensures that all employees are completely familiar with the Model by providing them with informative reports when it is updated. Employees working in risk areas, as well as executives and managers, sign periodic statements to certify the respect of the Model and, when needed, to describe the most significant relationships with customers and representatives of public administration.

The Model was most recently updated with the board of directors' resolution of 27 February 2017<sup>10</sup>. This latest update was adopted mainly in order to introduce (i) the offence of organ trafficking provided for by Italian Law 236 of 11 December 2016, which introduced art. 601 *bis* to the Italian Criminal Code, in Special Part "F" of the Model dedicated to "Conspiracy" and (ii) the new offence of unlawful brokerage and labor exploitation provided for by art. 25-quinquies of Italian Legislative decree 231/01, introduced by Italian Law 199 of 29 October 2016 by amendment of art. 603 bis of the Italian Criminal Code. to Special Part "C1" of the Model dedicated to "Offences of employing citizens of third-party countries whose stay is irregular and the reduction to slavery or its maintenance".

The Model is available on the company's web site.

Ansaldo STS S.p.A.'s supervisory body has several members. including two external members, one of whom serves as Chairman, and both of whom were selected among academics and professionals with demonstrated expertise and experience in legal, economic and financial issues, as well as one internal member who is the interim General Counsel & Compliance manager. The board of directors approved the current composition on 16 May 2016 after expiration of the three-year appointment of the supervisory body, so all previously appointed members of the body were confirmed for another three years. Any conduct contrasting with the ethical principles described in the code of ethics or the indications in the Organizational, management and control model pursuant to Legislative decree no. 231/01 can be anonymously reported to the supervisory body, which evaluates the reports in accordance with the relevant company procedure currently in place. In this respect, in 2016, no reports were made and no sanctions were imposed following violations pursuant to Legislative decree no. 231/01.

10. For additional details, reference should be made to the "Directors' report on the corporate governance system and the implementation of the code of conduct for listed companies for 2016".

## Organization

Ansaldo STS boasts an integrated, global Organization capable of providing an adequate response to demand for standardized solutions in the railway transport market and, in particular, the signaling technology market.

It has four key pillars:

Business Driven	Business focused organisation
Strategic centre	Strategic management model founded on a strong, centralised guide
Efficiency	Industrialisation of the executive methods and globalisation of R&D activities to develop a standard product portfolio
Global	Global management of the procurement process
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### Organization

Over the past few years, the market has become increasingly dynamic and competitive, seeing a progressive consolidation of market leaders of ever larger sizes through mergers and acquisitions involving companies in the sector. This trend, along with the need to respond to competitive pressure on prices and the standardization of products and technical solutions, has led Ansaldo STS to revise its Organization to further improve efficiency and effectiveness.

The following are the main elements underpinning the company's organizational structure:

 clear organizational identification of a strategic unit directly reporting to the CEO with responsibility for defining strategic guidelines relating to business development and management of the product/ technical solutions portfolio on Ansaldo STS's markets;

- identification and organizational segregation of business/project management from the technical performance of projects by establishing business units and an Operations Unit;
- identification and clear segregation of the businesses that currently characterize Ansaldo STS's offer: Railway/Mass Transit and Freight transport;
- clear organizational identification of a unit directly reporting to the CEO with direct responsibility for safety/RAMS ("Reliability, Availability, Maintainability & Safety");
- clear organizational identification of a unit directly reporting to the CEO with direct responsibility

for Institutional Affairs, External Relations & Communication; its task is to manage communication, relationship and representation activities with public bodies, public and private administrations, diplomatic representations and national and international trade associations.

 Human Resources & Organization Unit, Administration, Finance and Control (CFO Unit) and Staff Functions increasingly focused on generating value by acting as business partners to facilitate and support the achievement of the company's short, medium and long-term objectives.

Accordingly, the main structure consists of the following organizational units directly reporting to the CEO:

The following organizational structure is updated to March 31, 2017:



## The Railways & Mass Transit and Freight Business Units

- are responsible for managing the performance of both projects and sales activities at global level, in line with the centrally-defined strategic guidelines;
- are organized by market areas referred to as regions.
   Each region covers a geographical area in which Ansaldo STS currently has projects underway;
- have a central organizational unit responsible for performing/coordinating the bidding activities in the individual regions;
- are responsible for managing sales activities for business expansion/development on markets not yet covered (new geographies) by implementing the strategic guidelines defined by the Company;
- are responsible for defining and implementing Business Development activities;
- have the task of monitoring technology development in order to propose and stimulate ideas and concepts for new and different products/materials/technologies based on market trends/demands, by creating, as well, a proper "innovation network" and identifying financing opportunities;
- ensure the definition and implementation of products portfolio strategy, according to strategic guidelines defined at a central level.

#### The Operations Unit:

- identifies and implements efficiency-improvement activities and programs, which, in line with the group's strategic guidelines, ensure continuous improvement in the efficiency and effectiveness of the implementation and development of technical products/solutions;
- provides the business units with all parts, systems and services to optimize procurement and production times and costs;
- contributes to Company strategy definition for what concerns technical products/solutions by ensuring its implementation in terms of development, engineering and quality;
- manages technical resources;
- ensures the implementation of shared processes, procedures and tools;
- ensures the capitalization and exchange of knowledge;
- ensures the Information Technology infrastructures, applications and services as well as the implementation of corporate policies regarding IT Security;
- promotes innovative projects, applications and solutions in the field of satellite technologies and identifies new telecommunications solutions for train and metro lines control systems.

### **Team-based organization**

Collaboration, management of work groups and a process-based approach are key factors in the successful implementation of the business strategy, as no single organizational unit has all the required levers to achieve business targets.

To ensure a structured and formalized approach to its project activities, Ansaldo STS has defined an internal organizational structure for project teams that operate in key processes: the Bidding Team and the Project Team. The teams are composed of people assigned from the relevant operating units who have the necessary skills for the projects. The teams work as levers in the management of interdependencies, interfaces and conflict, and ensure coordination between the organizational units. The aim is to ensure an in-depth focus on customers, efficiency and standardization of processes and flexibility. Each team is led by a Team Manager with ultimate responsibility for the team's output and coordinates the team's resources.

Depending on the scope of the work and the requirements, the hierarchical function or center managers select team members. Each team member is assigned a specific job and responsibility for identifying the required resources. Once they have been assigned to a team, members answer to the team manager with respect to deadlines, costs and the quality of the output.

### SUSTAINABILITY GOVERNANCE

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Ansaldo STS boasts a widespread presence on international markets with operations in varied contexts and many different stakeholders, making governance of sustainability issues and the management of relationships between Ansaldo STS and its stakeholders of the utmost importance. Stakeholders include any party - individuals, groups, companies or institutions that are public or private with a direct interest in the company's





### Sustainability governance

Transparency and upstanding conduct in operations and trust and cooperation with stakeholders are the ethical principles to which Ansaldo STS aspires to effectively and fairly compete on markets, improve customer satisfaction, increase value for shareholders and develop the skills and professional growth of its human resources. The company's socially responsible conduct leads to its focus on **sustainable development**, which for Ansaldo STS is two-fold:

- it is tied to the achievement of the company's mission, which is to develop railway and mass transit systems and create increasingly sophisticated products and solutions that are safe and environmentally-friendly;
- it is based on the ways in which the company pursues its mission: Ansaldo STS has a corporate governance model, an internal control and risk management system, an integrated environment, safety and quality

management system and has established an Internal Sustainability Committee, enabling it to continue on a sustainable growth path and ensuring that each member of its staff acts in accordance with a culture of responsibility.

Ansaldo STS is aware that its ability to develop efficient, long-term and sustainable solutions affects the quality of life of future generations.



### **Internal Sustainability Committee**

In 2011, Ansaldo STS set up the Internal Sustainability Committee (also referred to as the "Committee"), made up of the managers of the main company functions. The Committee's mission is to define the company's strategic guidelines for sustainable development and the promotion of social responsibility initiatives and see that they are implemented. The Internal Sustainability Committee reports directly to the CEO and General Manager of Ansaldo STS and collaborates and coordinates with the company's organizational units.

The Committee is responsible for:

- assessment of social and environmental risks that concern the company's operations and evaluating the related performance;
- definition and monitoring of the sustainability program, made up of financial, social and environmental objectives;
- implementation of the relevant codes and rules of social and environmental conduct defined by the company (code of ethics and EHS procedures and policies) or relating to international standards (Global Reporting Initiative, the Global Compact, the Carbon Disclosure Project, etc.);
- definition and coordination of listening to, discussing with and involving stakeholders: sharing results and the steps to be taken;
- definition and implementation of an internal and external sustainability communication plan.



The Internal Sustainability Committee specifically engaged in defining and sharing the 2016 and 2017 reporting program which featured the following objectives:

- align with the requirements of Legislative decree 254/2016 on the reporting of non-financial information and on diversity, and take steps to adopt the 2016 GRI Sustainability Reporting Standards;
- extend the opportunities and risks (both inherent and residual) analyses tied to sustainability management of Ansaldo STS, through their description and identification of their importance;
- map the risk of human rights violation for the definition and implementation of a specific policy;
- update the materiality analysis;
- improve internal and external sustainability communications;
- confirm the membership of the Global Compact and the participation to the Carbon Disclosure Project.

## The board of directors' involvement

The board of directors is involved in approving the Sustainability Report while the CEO and General Manager approve the sustainability program, i.e., the action plan to be implemented, the targets to be achieved and the reporting activities.

In 2017, specific and periodic communication activities have been launched aimed at keeping the board of directors updated on the activities carried out by the Internal Sustainability Committee and on the program and the procedures adopted to prepare this document, taken also as reference for CSR activities.



### Materiality analysis

Through the materiality analysis carried out in 2015 and confirmed for 2016, Ansaldo STS has analyzed the most relevant aspects of sustainable development and reported them to its stakeholders. The stakeholders' judgment was "weighted" based on a map which assessed their ability to influence the company's performance and to be influenced by it.

Aggregation of the results gave the following matrix.



IMPACT ON ANSALDO STS' PERFORMANCE

#### Economic and governance

**aspects** have a great influence both in terms of stakeholders' opinions and the impact on the company's performance. *Customer satisfaction, Creation of economic value* and *Innovation* are, in this order, seen internally as the most influential aspects affecting the company's performance. Customer satisfaction and Anticorruption are also the most influential economic aspects with respect to stakeholders' opinions. The Quality of governance and the Integrated quality, safety and environment management system are highly influential aspects with respect to both Ansaldo STS's performance and stakeholders' opinion. Social risk management has a medium to high influence on both stakeholders' opinions and the company's performance.

**Social aspects** have a medium to high influence on stakeholders' opinions and performance. *Workers' safety*, *Training* and *Welfare* are considered as factors that have



a high positive impact on the company's performance internally. *Workers' safety* is the most important of the three for stakeholders.

Respect for *Human rights* is extremely important, both internally and externally, while *Respect for local communities* is more important externally. *Sustainability of the supply chain* was also valued as of medium to high importance and influences stakeholders' opinions more while the *Equal opportunities* and *Stakeholder involvement* aspects have the same impact on opinion and the company's performance.

**Environmental aspects** have a medium to low influence both with

regards to the stakeholders' opinion of the company and its performance. This is mainly due to the following factors: the type of business carried out by Ansaldo STS and its sector is not seen as problematic in environmental terms; moreover, internally, the company is aware of the care taken to manage these aspects.

Consumption of energy and raw materials are seen by the company as important to its performance: if the company can reduce them, it saves money, positively affects the environment and improves its stakeholders' opinion of it, triggering a virtuous circle. A reduction in the environmental impact of products has a medium effect on stakeholders' perception: specifically, if the products are assessed by customers as delivering high performance, the company's competitiveness grows.

The *Reduction of greenhouse gas* production has a medium and medium-low effect on stakeholders' opinions and the company's performance, respectively.

Finally, *Water management* and *Protecting biodiversity* are the least important aspects both externally and internally. This is due to the general view that only certain material impacts can damage biodiversity, which is not the case with regard to Ansaldo STS.

### Sustainability risks and opportunities

Enterprise Risk Management (ERM) is one of the key aspects of the Corporate Governance system and involves all organizational levels with different roles and responsibilities. The aim of ERM is to:

- increase the awareness of business risks by identifying, measuring and monitoring risks;
- improve the sustainability of business performance through risk prioritization and mitigation strategies;
- ensure transparency and strengthen the company's reputation by spreading the culture of risk, monitoring and compliance.

Risk Assessment is an essential element of the ERM Framework and contributes to defining business strategies by identifying and managing potential risk events that are likely to affect the actual achievement of business goals and results.

Risk Assessment also includes the preparation of action plans whose implementation is subject to

ongoing monitoring and quarterly reporting. Once the risks are identified, they are assessed on the basis of the potential impact should the event occur and of the likelihood that the event will occur. Risk assessment involves taking into account the consequences of risk events both in terms of inherent risk (prior to control) and residual risk (after control). Risk assessment is graded as Low, Medium and High and is applied both to inherent and residual risk.

In accordance with the European standard ISO 9001:2005, the Ansaldo STS Enterprise Risk Management model will be updated in order to face the opportunities "that can derive from a favorable situation to the achievement of an expected result, for example circumstances which allow the company to attract customers, to develop new products and services, to reduce waste or improve productivity". The opportunities will be determined by considering as a reference the company's strategic plan and the sustainability report. The 12 Key Risks identified by the ERM are provided in the table below, as well as their current connection with the aspects identified as relevant for the company's sustainability and included in the materiality matrix.

KEY RISK	MATERIAL ASPECTS FOR SUSTAINABILITY
<b>MACROECONOMIC AND GEOPOLITICAL SCENARIO:</b> - Economic and Geopolitical instability resulting from external factors.	Economic value creation
	Economic value creation
OBSOLESCENCE	Customer Satisfaction
produced and acquired, to promptly detect obsolescence.	Supply chain sustainability
	Innovation
	Economic value creation
- Preventive management of the safety systems.	QSE management systems
	Customer Satisfaction
SUBCONTRACTORS	Economic value creation
- Local or new subcontractors selection;	Customer Satisfaction
- Suppliers technical and financial qualification;	QSE Management
- EHS performance requirements.	Sustainable Supply Chain Management
STRATEGY	Economic value creation
- Competition at a global level;	Innovation
- Definition and implementation of the strategy;	Quality of Governance
- Resource optimization.	Environmental impact of products
LEGAL AND GOVERNANCE	Economic value creation
- Conformity and compliance able to satisfy different local	Anticorruption
- Governance;	Quality of Governance
- Communication.	Human rights protection
RESOURCES	Economic value creation
<ul> <li>Availability of necessary competences to manage the business with flexibility;</li> </ul>	Training and development
- Background, knowledge and skills;	Corporate welfare
- Resources empowerment.	Stakeholder engagement
BUSINESS CONTINUITY	Economic value creation
- Safety of workers;	Safety of workers
- Physical safety of the IT systems;	QSE management systems
- Protection of corporate assets.	Social risk management
REQUIREMENT AND CONFIGURATION MANAGEMENT	Economic value creation
<ul> <li>Requirements, interface and scope of work requirements;</li> <li>Compliance of requirements;</li> </ul>	Customer Satisfaction
<ul> <li>Configuration management of consolidated products;</li> <li>Technical standards evolution;</li> <li>System integration.</li> </ul>	Innovation
PROJECT BUDGET	Economic value creation
<ul> <li>Planning, management and control of time, costs and quality;</li> <li>Scope of work:</li> </ul>	Customer Satisfaction
<ul> <li>Priority management;</li> <li>Estimation of external costs and requests for changes.</li> </ul>	Training and development
CONTRACT NEGOTIATION AND MANAGEMENT:	Economic value creation
<ul> <li>Contractual and infancial terms;</li> <li>Contract complexity (Turnkey, Project Financing);</li> <li>Negotiation of passive and active contractual terms;</li> <li>Specific Occupational Health, Safety and Environmental regulation in new countries.</li> </ul>	Stakeholder Engagement
PRODUCT DEVELOPMENT AND TECHNICAL SOLUTIONS:	Economic value creation
<ul> <li>Implementation of the product roadmap;</li> <li>Introduction of a new product or technical solution;</li> </ul>	Innovation
- Competitiveness and performance of the technical solutions.	Customer Satisfaction

## Stakeholder engagement

For Ansaldo STS social responsibility translates into the daily focus and care of its relations with stakeholders. It understands their needs and expectations due to the definition and implementation of specific tools for dialogue and interaction.

### Stakeholder mapping

The objective is to give each stakeholder category a "weight" to reflect how each category influences the company's performance or is influenced by the company.

Ansaldo STS's performance is evaluated considering the three components that characterize sustainable growth:

- economic, i.e., attainment of turnover, new customers, order backlog and profitability objectives;
- social, i.e., the company's capacity to create "shared value" (not just economic) by satisfying requirements and expectations;
- environment, health and safety, i.e., meeting objectives to reduce the company's direct and

indirect impact on the environment and its workers' health and safety.

The scores assigned by each member of the Internal Sustainability Committee are reflected in the following map:

The stakeholder category perceived to be most strategic for the company, in line with its culture and values, is that of the customers, followed by shareholders and employees. The latter's influence on the company is seen to be greater than the company's influence on them. This decision reflects Ansaldo STS's culture of placing its people at the heart of its Organization, seen as essential to its success.

Suppliers, local authorities and central public institutions are slightly lower on the matrix. Once again, their influence on Ansaldo STS is seen to be greater than Ansaldo STS's influence on them. Local communities, the financial community and future generations are more influenced by the company's operations.



### **Relations with stakeholders**

Ansaldo STS has presented the different ways it interacts with its stakeholders in this report, distinguishing between:

- **information sessions:** one-way communication by the company to stakeholders;
- **consultation/dialogue:** when the company asks for stakeholders' opinions (e.g., through surveys, polls, focus groups, etc.) or sets up permanent discussion groups;
- **partnerships:** specific projects carried out and/or managed with stakeholders.

This description is useful to understand how to improve the interaction methods with different stakeholder categories to gradually increase the opportunities for dialogue and partnerships, and in so doing create shared value.

STAKEHOLDERS	INFORMATION SESSIONS	CONSULTATION/DIALOGUE	PARTNERSHIPS
CUSTOMERS	<ul> <li>Periodic project meetings</li> <li>Meetings with customer senior and top management</li> <li>Participation at trade fairs, conferences and opening ceremonies</li> <li>Communication via the social media</li> </ul>	<ul> <li>Customer satisfaction survey</li> <li>Hazard Workshop to test the safety of products and solutions</li> <li>Open Day to collect feedback from end users</li> </ul>	Joint venture agreements
HUMAN RESOURCES	<ul> <li>Communications about the company's performance, delivery of its main projects, acquisitions of new orders</li> <li>Communication campaign "Share the passion, a call to action" for the Value to Action</li> </ul>	<ul> <li>Climate analysis through launching of a global yearly survey</li> <li>Assessment of managers by groups of peers (360° for executives)</li> <li>Talent selection and development programs (Knowledge Owners)</li> <li>Coaching sessions for international work teams (Project team effectiveness)</li> <li>Open Day for colleagues, families, the community and local institutions</li> </ul>	<ul> <li>Strategic project "Value to Actions" for innovation in the management of operations, allocation of resources, commercial strategies and supplier management, in compliance with the company's values</li> <li>Co-funding of manager courses in the top 10 international business schools (50-50 project)</li> </ul>
SUPPLIERS	Requests for information, references, catalogues, etc	<ul> <li>Requests for technical and price bids;</li> <li>Negotiations</li> <li>Online survey of sustainability issues (TenP of Global Compact Network Italy Foundation)</li> </ul>	<ul> <li>Medium to long-term supply contracts</li> </ul>
BANKS	<ul> <li>Invitations to participate in deals</li> <li>Communication and presentation of project data</li> </ul>	<ul> <li>Meetings to present projects and their details</li> <li>Negotiation of terms and prices</li> </ul>	<ul> <li>Partnerships for the guarantees related to the O&amp;M Riyadh Metro and O&amp;M Riyadh Princess Nura contracts</li> <li>Partnerships for the guarantees related to the newly acquired projects: Noida Metro, Glasgow Metro, Pulsar Brussels and Sanying Line Taiwan</li> <li>Partnership for the negotiation of the credit letter for the Noida Metro India project</li> </ul>
INVESTORS/ FINANCIAL ANALYSTS	<ul><li> Roadshows</li><li> Conferences</li><li> Video conferences</li></ul>	<ul> <li>Roadshows</li> <li>Conferences</li> <li>Video conferences</li> </ul>	
ITALIAN AND EU PUBLIC INSTITUTIONS	<ul> <li>Institutional communications (internet news, press releases, etc.)</li> </ul>	<ul> <li>Consultations about potential partnerships for research projects</li> </ul>	Joint research projects
LOCAL AUTHORITIES/ PUBLIC ADMINISTRATION	Regular institutional communications	• Charity Day	
LOCAL COMMUNITIES	<ul> <li>Reports on the progress of projects to the local community (together with the local institutions)</li> </ul>	<ul> <li>Participation in local stakeholder committees</li> <li>Customer satisfaction of rail users</li> </ul>	Participation in programs to develop local communities
TRADE ASSOCIATIONS	Institutional communications (internet news, press releases, etc.)	<ul> <li>Consultations about potential partnerships for research projects</li> </ul>	<ul> <li>Joint research projects</li> </ul>
THE MEDIA	Regular institutional communications	Consultations for more details of specific issues	
DIGITAL USERS / SOCIAL NETWORK	Regular institutional communications	Ongoing communications and regular updates of the website	Partnerships with social networks to develop web communications and relations.

## Involvement of local communities: social and environmental impacts

Ansaldo STS's active role varies depending on the type of project and part played in handling relations with local communities, be they municipal authorities, associations of residents, users of metros and trains, companies or local labor.

It complies with the site environmental management procedures for the environmental aspects of its projects, starting with an initial analysis of the works planned, discussed and agreed with the subcontractors as well. The next stage is preparation of a monitoring plan to ensure ongoing compliance with the law and to adopt all available opportunities to limit the impact of setting up a work site. Sometimes, the customer (public sector body) defines specific characteristics of the work after assessments have been made of its impact on the environment, the society and health and safety. In this case, Ansaldo STS studies and presents the best possible solutions.

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Ansaldo STS is actively involved in programs to communicate and interact with the communities affected by its works in various ways:

- it participates in committees that represent local stakeholders;
- it promotes communication between the local authorities and citizens;
- it engages in direct communication;
- it takes part in programs to develop local communities.





## HONOLULU METRO

The Honolulu metro is a US\$1.4 billion contract, the largest ever to be performed in Hawaii. It will have a positive effect on the local environment and society as Honolulu is the second most congested US city after Los Angeles. The metro will change the style and quality of life of Honolulu's residents who take an average of two to three hours a day to travel to work. Passenger transport will be rolled out in 2020 creating employment for 300 local workers.

## Communication and involvement of the local community

As part of the tender qualifications, Ansaldo Honolulu (the general contractor led by Ansaldo STS of which Hitachi Rail Italy S.p.A. is a partner) developed a special communication plan to keep the local community up-to-date with the project. Moreover, since 2012, it has coordinated the communication activities with the communication activities with the contractor. The population's perception of the works' progress is monitored closely and the company is committed to supporting the customer in its communications.

Ansaldo Honolulu is a member of Move Oahu Forward, a local stakeholder committee whose mission is to promote initiatives that improve mobility and the quality of life, to contribute to developing the economy and future growth, safeguarding the island's unique ambience and lifestyle. This committee is convinced that the Honolulu metro project is a step in this direction.

Ansaldo Honolulu has set up a website to update the local population and authorities: http://www.ansaldohonolulurail.com/

#### **Sustainability**

The Ansaldo Honolulu website contains a section on sustainability, to highlight the company's focus on occupational health and safety and environmental protection, in accordance with US federal and State of Hawaii local and international regulations, and in line with Ansaldo STS's model.

## Development programmes for the local community

Ansaldo Honolulu, Honolulu Authority for Rapid Transportation (HART) and the Office of Continuing Education and Workforce Development (OCEWD), part of Leeward Community College, have worked together since 2011 to provide training and enable the hiring of 300 employees to carry out operations & maintenance activities for the metro. In November 2015, Ansaldo Honolulu participated in a workshop with all the representatives of the State of Hawaii education sector (high schools, community colleges, universities) to discuss the educational path for the next generations of Hawaii residents to enable them to benefit from metrorelated business opportunities.

Since 2015, it has also participated in many jobs fairs in the State of Hawaii.

## Communication and involvement of the state community

Every year, a delegation from Ansaldo STS and Ansaldo Honolulu meets with members of the US Congress in Washington DC as part of the "Hawaii on the Hill" programme organized with the support of the Chamber of Commerce of the State of Hawaii.

The meetings with congress members and federal office directors cover transport, the employment market and business relationships with Hawaii, the rest of the United States and Pacific Ocean area.

#### The Honolulu train

The first Honolulu train was delivered at the end of March 2016, exactly as scheduled, much to the satisfaction of the local community that attended the launch event in May 2016 and the periodic "Train Community Day" events with public viewing of the train.



## LIMA METRO

Lines 2 and 4 of the Lima metro is a project worth US\$5.658 billion and is one of the greatest works of Peru in terms of both high engineering and required technology.

The works cover 35 km of underground tunnel (27 km for line 2 and 8 km for line 4), for a total of 35 stations and 2 depots for the maintenance and parking of trains. Total journey time is 45 minutes, a saving of approximately 90 minutes daily.

Lima will benefit from efficient and sustainable transport which will contribute to stimulating economic and social development and resolving traffic congestion.

The new line features a sophisticated driverless train system and will serve over 600,000 passengers per day.

Its construction saw the participation of leading international design, construction and management companies. Ansaldo STS is part of this group and contributed its experience in railway technology and equipment.

## Communication and citizen participation

The Line 2 Lima metro Consortium, of which Ansaldo STS is a member, hired a local company to implement a social and communication management program which includes:

- management of relationships with the community directly affected by the construction (project's area of influence);
- full communication: in the area directly affected, with the public, the authorities and the social networks. As part of this project, a website was created which provides updates on the construction of line 2 <u>https://www.facebook.com/</u> <u>linea2metrolima?fref=ts;</u>
- social indicator monitoring;
- managing relations with the press and the media;
- social risk surveillance and prevention, crisis management and immediate reply.

## Development programs for the local community



During the entire construction phase, the project will require around 300 direct jobs and

8,000 indirect jobs. Furthermore, over 2 million people in the directly affected areas will be able to benefit from:

- more jobs during construction and operations
- travel safety
- shorter travelling time
- greater productivity
- more family time
- more customers for companies when the metro will be operational
- more safety
- more value for the whole local area.

## COPENHAGEN METRO - O&M and Cityringen project

This project consisted of building the metro (completed in 2010), for which Ansaldo STS was assigned the operations & maintenance component (until 2018), and construction of the new "Cityringen", a 15.5 km driverless metro system with 17 stations and a surface maintenance center. It will transport up to 240,000 passengers 24/7 starting from 2018.

The customer, Metroselskabet, analyzed the economic-social, environmental and health and safety impacts before defining the metro's specific characteristics. Ansaldo STS was able to satisfy its requests thanks to its design and technological expertise and its capacity to reduce environmental impact and guarantee safety.

## Involvement of the local community

Local community involvement is regulated by the contract. Ansaldo STS has appointed a PR manager who participates in meetings to coordinate communications with the employer, organizes work site visits by citizens and updates the information used to for communication, especially on the web site.

Ansaldo STS participates in the following initiatives organized by Metroselskabet:

- monthly meetings with a work group comprised of the customer, other contractors (CMT, Salini), employers and trade unions. The group's key objective is to prevent and monitor all complaints or disputes about labor conditions;
- the MSURR committee, a group consisting of first aid personnel, the head of the local police and the Danish emergency management agency (Beredskabstyrelsen). The committee is in charge of all issues related to evacuations, first aid and other emergency management problems both with respect to the metro's operation and construction of the Cityringen. Its members

discuss and agree on principles and procedures to ensure very high safety levels based on documented descriptions.

## Development programs for the local community

A "gentlemen's agreement" provides for the hiring of local labor (more than 200 employees) with incentives for additional hires.

#### **Customer satisfaction**

Ansaldo STS was awarded the contract to operate and maintain the Copenhagen Metro until the end of 2018. This contract was agreed in January 2010 following a European tender. The contract remuneration is indexed to service availability, punctuality and the results of customer satisfaction surveys. Customer satisfaction is indeed of vital importance to the Metro, both in terms of maintaining existing customers and attracting new ones. Accordingly, the Danish customer, Metroselskabet, and Ansaldo STS devote considerable attention to customer feedback.

Various tools are used to understand Danish metro passengers' needs and expectations. They include quarterly customer satisfaction surveys. In 2012, for the third year in a row, the Copenhagen Metro was named the world's best automated metro. This award was given at the Metrorail conference of leading experts in metro systems around the world. A key element in the selection of the awardees was the high level of control and customer satisfaction.

Since the metro was rolled out in 2002, customer satisfaction with Metroselskabet has been carefully monitored through surveys conducted by an independent entity. However, only after the M1 and M2 lines were completed, were customer satisfaction results included in the contractual agreements. Metroselskabet and Ansaldo STS continue to analyze and report on the survey results, which are published quarterly.

Surveys were performed on a sample of approximately 5,000 users and their satisfaction is regularly monitored in accordance with the following aspects: Satisfaction with the journey, Cleanliness of the stations, Cleanliness of the stations, Timeliness, Service quality, Updating of information and Safety.



Each of these performance factors is directly assessed by passengers and then compared with specific, predefined targets. The summarized results of the 2016 survey are given below.

### A royal smiley

The Danish authority for working environment assigned, in 2015, the Ansaldo STS team the highest score in the assessment of health and safety compliance: a royal smiley.

The authority uses smileys to assess companies' compliance with applicable provisions. The assessments are posted on the website to enable the public to monitor a company's performance. There are four health and safety assessment levels: red, yellow, green and royal smileys. The latter reflects the top level, for companies that have obtained an officially-recognized health and safety certificate confirming the extraordinary efforts made and the results achieved to ensure a high level of compliance.

The target was achieved thanks to the involvement and the support of the entire project team from the beginning of the project in 2012. During this period of time, Ansaldo STS's HSE management department worked hard to meet all requirements and confirm compliance with the highest environmental, health and safety standards of the Cityringen project.



## Sustainability program

Ansaldo STS draws up a sustainability program each year, made up of the objectives to be targeted to ensure the ongoing improvement of its performance using annual reports of its commitments, surveys on the quality of its engagement with stakeholders and the aspects that emerged from the materiality analysis as a base.

INNOVATION AND THE ENVIRONMENTAL IMPACT OF PRODUCTS AND SOLUTIONS	
• Renewal of the CMMI (Capability Maturity Model Integration) Level 3 Certification for Software Development	2017
• ISO 9001 certification in compliance with the new 2015 version	2017
Commitment in Shift2Rail activities with current and new projects	2022
• Upgrade of third generation entities in order to meet all market demands	2018
Participation in IN2STEMPO project that aims at defining solutions for smart energy management	2022
<ul> <li>Participation in CONNECTIVE project that will provide a technical framework and a set of tools for a rail sector digital transformation</li> </ul>	2022
Active contribution to definition of pilot regional line "Pinerolo – Sangone" with RFI, based on satellite technology	2017
CUSTOMER SATISFACTION AND QUALITY IMPROVEMENT	
• Renewal of the CMMI (Capability Maturity Model Integration) Level 3 Certification for Software Development	2017
ISO 9001 certification in compliance with the new 2015 version	2017
HUMAN RESOURCES	
<ul> <li>TRAINING AND DEVELOPMENT</li> <li>Improve performance evaluation system in order to make the process of assignment and evaluation of objectives more efficient</li> <li>Upgrade Talent Management process aiming at ensuring a better integration of development and organization processes and their conformity with corporate strategic objectives</li> </ul>	2017
<ul> <li>CORPORATE WELFARE</li> <li>Implement Flexible benefits measures for all employees, planned for the period 2017-2019</li> <li>Carry out further corporate welfare initiatives on the occasion of the renewal of the second level supplementary contract</li> </ul>	2017-18
<ul> <li>COMPENSATION AND BENEFIT</li> <li>Implement a worldwide compensation and benefit model addressing middle managers</li> </ul>	2017

THE ENVIRONMENT, HEALTH AND SAFETY	
<ul> <li>ENERGY</li> <li>Reduce energy intensity performance indicator of buildings/offices by 5% [GJ/m2]</li> <li>Reduce the energy intensity performance indicator of buildings/production sites by 1% [GJ/m2]</li> <li>Increase the percentage of electrical energy obtained from renewable sources by 5%</li> </ul>	2017
GREENHOUSE GASES • Reduce the GHG emission intensity indicator by 10% [tCO2e/€million turnover]	2017
<ul> <li>WASTE</li> <li>Reduce the weight of waste per hour worked at production sites by 5%</li> <li>Reduce the weight of waste per hour worked at offices by 5%</li> <li>Increase the percentage of recycled waste at production sites by 10%</li> <li>Increase the percentage of recycled waste at offices by 10%</li> </ul>	2017
<ul> <li>WORKERS' SAFETY</li> <li>Reduce the injury frequency and severity indicators at production sites by 10%</li> <li>Reduce the injury frequency and severity indicators at offices by 10%</li> </ul>	2017
<ul> <li>HSE BEST PRACTICE</li> <li>Increase the sharing of HSE operating control best practices</li> </ul>	2017
HSE TOOL <ul> <li>Implement a tool for managing and monitoring HSE activities</li> </ul>	2017
<ul> <li>HSE MANAGEMENT SYSTEM</li> <li>Update the HSE management systems according to new standard ISO14001:2015, in line with new ISO9001:2015</li> </ul>	2017
SUPPLY CHAIN	
<ul> <li>Implement a procurement digital platform with advantages in terms of environmental sustainability and risk management</li> </ul>	2018
THE MEDIA AND SUSTAINABILITY COMMUNICATIONS	
Develop initiatives related to CSR and to internal corporate culture	2017
• Participate in Hitachi social Innovation Forum and share and present products and objectives on social innovation	2017
Participate in CSR Forum ("Salone della CSR") in order to prove externally Ansaldo STS commitment	2017
Support and participate in further initiatives together with Global Compact Italia Network Association	2017
COMMUNITY	
<ul> <li>UNIVERSITIES</li> <li>Continue the collaboration with italian major universities in order to share training activities and find smart students that meet Company needs</li> </ul>	2017
<ul> <li>TRADE ASSOCIATION</li> <li>Continue to play an active role in trade associations and, in particular, take initiative as part of the UNIFE sustainability committee</li> </ul>	2017

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### **Reporting on commitments**

Target achieved

Target partially achieved



Target not achieved



IN 2015 WE SAID	IN 2016 WE DID	
INNOVATION AND THE ENVIRONMENTAL IMPACT OF PRO	DDUCTS AND SOLUTIONS	
<ul> <li>Compact peripheral stations: implementation of third- generation bodies which generate savings of approximately 40% and introduce an innovation from a functional point of view</li> </ul>	<ul> <li>The realization of third generation entities reached a level of consolidation that enabled the activation of Punta Raisi IXL system</li> </ul>	
• Smart-mobility and energy efficiency: application of the results of the research projects completed in 2015, specifically in relation to eco-driving algorithms and the completion of tests of super capacitors	<ul> <li>In the eco-driving field, the implementation phase of a project shared with RFI/Trenitalia/Politecnico di Milano is concluded; this project implicates an experimentation in the field of energy efficiency algorithms in 2017-2018</li> <li>During 2016 further tests on optimization of algorithms of management of the charging and discharge phases of the SuperCapacitors have been conducted, aiming at automating the phases with respect to line voltage</li> </ul>	
• Participation in Shift2Rail calls with additional proposals, progress of the projects underway and finalization of those to be completed by 2016	<ul> <li>During 2016 all required proposals have been presented, especially X2Rail2 in which Ansaldo acts as project coordinator. All projects that were to be concluded, have been concluded</li> </ul>	
Development of railway signaling systems which use satellites for train detection and communications	<ul> <li>The satellite system has been applied within the RoyHill (Freight) project. The trial site in Sardinia, in 2016, kept on with consolidation tests, concluded in February 2017</li> </ul>	
CUSTOMER SATISFACTION AND QUALITY IMPROVEMENT	т	
Customer satisfaction: increase customer surveys on 2015	8 Customer Surveys and 2 Partner Surveys were carried out	
Extend the scope of application of the IRIS - International Railway Industry Standard – certification to the design and development activities of the Riom site	Scope of application of the IRIS - International Railway Industry Standard – certification extended to the design and development activities of the Riom site	
Extend ISO 9001 certification to the Lima site	ISO 9001 certification extended to the Lima site	
Complete the inclusion of the documentation in the baseline CMMI (Capability Maturity Model Integration) in the Integrated Management System	The inclusion of the documentation in the baseline CMMI (Capability Maturity Model Integration) in the Integrated Management System was completed	
HUMAN RESOURCES		
<ul> <li>Improve recruiting activities through employer branding campaigns based on social networks</li> </ul>	<ul> <li>In 2016 the Company increased the use of the LinkedIn tool and extended it to selections for foreign branches and offices</li> <li>In 2017 the Company wishes to further strengthen this tool: the purchase of a new LinkedIn license is envisaged for all Italian offices</li> </ul>	
Consolidate the "Talent" project with Knowledge Owners and possibly extend it to other key parties	<ul> <li>The "Knowledge Owners" project was consolidated and reached excellent results in terms of corporate technical know-how sharing. Almost 20% of the company's personnel was involved in training/technical and specialized courses held by Knowledge Owners. The aim was to share and disseminate specialized technical skills regarded as strategic for the company</li> </ul>	
Improve personnel travel management	<ul> <li>In 2016 special attention was given to personnel travel, making sure employees could travel more comfortably and at better travelling conditions in keeping with expected saving. New agreements are being concluded in 2017 with major hotel chains to guarantee increasingly higher service standards which take into account the needs of personnel on business trips</li> </ul>	
<ul> <li>Implement measures to retain the company's key skills</li> </ul>	• Extension of management skills subject to comprehensive assessment. Launching of an initiative for updating the corporate people strategy especially with regard to Talent & Competence Management processes. The initiative was launched during 2016 and includes a subsequent definition and implementation phase in 2017	
Include protected worker categories	<ul> <li>6 disabled employees were included and another one already in the workforce was counted</li> </ul>	
Consider the possibility of testing smart working schemes	<ul> <li>Feasibility and benchmarking analyses were carried out to test smart working schemes in the company. Possible discussions with trade unions are expected to be launched in 2017 regarding the implementation of smart working in Italy.</li> </ul>	0



#### IN 2015 WE SAID

#### **IN 2016 WE DID**

THE ENVIRONMENT, HEALTH AND SAFETY		
<ul> <li>WORKERS' SAFETY</li> <li>Reduce the injury frequency and severity indicators at production sites by 10%</li> <li>Reduce the injury frequency and severity indicators at offices by 10%</li> </ul>	<ul> <li>WORKERS' SAFETY</li> <li>Although the indexes are very low compared to industry, in production sites the indexes increased: the frequency indicator from 0.27 to 0.07, the severity indicator from 1.07 to 12.77.</li> <li>In offices the frequency indicator slightly increased, whereas the severity indicator decreased by 11%</li> </ul>	
<ul> <li>ENERGY</li> <li>Reduce the energy intensity performance indicator of buildings/ offices by 5% [GJ/m<sup>2</sup>]</li> <li>Reduce the energy intensity performance indicator of buildings/ production sites by 1% [GJ/m<sup>2</sup>]</li> <li>Increase the percentage of electrical energy obtained from renewable sources by 5%</li> </ul>	<ul> <li>ENERGY</li> <li>The energy intensity indicator of buildings has increased by 6,7% in the offices.</li> <li>The energy intensity performance indicator of production sites decreased by 4.8%, mainly due to less EE consumption (-6.0%)</li> <li>the amount of electrical energy obtained from renewable sources increased by 1.8%.</li> </ul>	
GREENHOUSE GASES • Reduce the GHG Emission Intensity indicator by 10% [tCO2e/€million turnover]	<ul> <li>GREENHOUSE GASES</li> <li>GHG emission intensity indicator [tCO2e/€million turnover] increased by 5.4%.</li> </ul>	
<ul> <li>WASTE</li> <li>Reduce the weight of waste per hour worked at production sites by 5%</li> </ul>	<ul> <li>WASTE</li> <li>The weight of waste per hour worked at production sites decreased from 0,399t to 0.114t</li> </ul>	
<ul> <li>Reduce the weight of waste per hour worked at offices by 5%</li> <li>Increase the percentage of recycled waste at production sites by 10%</li> </ul>	<ul> <li>The weight of waste per hour worked at offices increased from 0.055t to 0.277t</li> <li>The recycled waste at production sites increased from 33%</li> </ul>	
Increase the percentage of recycled waste at offices by 10%	<ul> <li>The recycled waste at production sites increased from 33% to 53%</li> <li>The recycled waste at offices decreased from 54% to 44%</li> </ul>	
SUPPLY CHAIN		
<ul> <li>Create global commodities that will increase the specialization in certain technologies and will generate a global vision of the supplier base, with the possibility of improving the effects of sustainability</li> </ul>	<ul> <li>Sourcing processes were designed and implemented in order to balance, on the one hand, global activity synergies and, on the other, local sourcing activities for the projects involving various geographical areas</li> </ul>	
• Continue the TenP project on suppliers' sustainability, analyzing the output of the online survey on respect for human rights, work conditions, the environment and fight against corruption	<ul> <li>Ansaldo STS selected an accredited number of suppliers who participated in an online survey about sustainability issues such as: human rights respect, working conditions, environment and fight to corruption. During 2016-2017 the results of the survey will be analyzed and an intervention plan will be defined, aiming at improving sustainability</li> </ul>	$\bigcirc$
• Extend the tests commenced in France for the automated preparation and sending of supplier rating reports to Italy	<ul> <li>This will be part of the project launched for the digitalization of the procurement and supplier qualification process. The project will start to be implemented in 2018</li> </ul>	Ο
<ul> <li>Approve the general conditions for purchasing goods and services in Italy with inclusion of sanctions clauses for non- compliance with the code of ethics</li> </ul>	<ul> <li>Clauses have been included through the publication of the document (IMS – IND069) General Contract Terms for work assignments, assemblies, complex supplies and installation, even in Package modes, functional for the realization of Railway Works</li> </ul>	
Continue the standardization of the supply contract general conditions in Ansaldo STS's various legal entities	<ul> <li>This will be part of the project launched for the procurement digitalization process. The project will start to be implemented in 2018</li> </ul>	0
THE MEDIA AND SUSTAINABILITY COMMUNICATIONS		
<ul> <li>Re-launch of "The Ansaldo STS forest never stops growing" campaign as part of the publication of the 2015 Sustainability Report</li> </ul>	<ul> <li>In 2016, the campaign was not renewed because it has been chosen to communicate and spread otherwise the publication of the sustainability report</li> </ul>	
• Develop accurate videos and communication on sustainability and social innovation. Some events have already been scheduled, including forums and specific initiatives	<ul> <li>The 2015 sustainability report, issued on November 2016, has been promoted through social media and during trade fairs and events. Furthermore, a video was prepared to explain results and contents of the report</li> </ul>	
<ul> <li>Internal training and development of the social innovation and sustainability culture to facilitate the understanding of the commitments taken on and the activities developed at group level</li> </ul>	<ul> <li>The new corporate intranet enabled the spread of articles regarding topics of CSR, sustainability, Welfare and HSE that will continue throughout 2017</li> </ul>	

#### IN 2015 WE SAID

#### **IN 2016 WE DID**

#### COMMUNITY

#### UNIVERSITIES

- As part of the "Knowledge Owners" talent management project, new agreements will be signed with specific departments of Italian, French, US and Australian universities to support the company's most technically talented resources
- ITALIAN AND EUROPEAN INSTITUTIONS
- Continue with the Italian and European research projects that are underway, in collaboration with universities and research bodies, to increase safety and environmental compatibility and apply for funding by coordinating new project proposals

#### UNIVERSITIES

 New collaborations with Italian, French, American and Australian universities have been realized, aiming at supporting Company technical talents

#### **ITALIAN AND EUROPEAN INSTITUTIONS**

 With respect to the STARS satellite project, Ansaldo STS continued its collaboration with UNIFE and the main GNSS research organizations. Furthermore, Ansaldo STS actively participated in the preparation of the pilot project for the Cagliari – San Gavino Sardinia line and the related technical/ business proposal requested by RFI and Trenitalia



### **Ethics and integrity**

Considering its history and vocation, the Ansaldo STS group has always based its business development on the creation of safe, efficient, reliable and environmentally-friendly railway and metro transport systems and solutions, placing its full focus on the people these systems and solutions serve, who live in increasingly complex contexts with increasingly complex lifestyles.

#### **Code of Ethics**

The code of ethics clarifies the commitments and responsibilities that should guide the company's business and activities, requiring compliance by anyone involved in any way with Ansaldo STS.

The code of ethics is available on the company's web site<sup>11</sup>. It is a key element of the internal control system, and compliance with it enables Ansaldo STS and the group companies to prevent certain irregularities or illegal acts prohibited by the regulations of the various countries where Ansaldo STS operates, particularly Legislative decree no. 231/01 in Italy.

The code of ethics was formally adopted for the group companies by resolution of the respective boards of directors or equivalent management bodies. It was shared with all group personnel using the same methods as those applied by the parent Ansaldo STS.

In addition, a code of ethics control body was set up within each group company to promote the implementation of the code of ethics. A special information channel for the code of ethics was also created, and can be used to report any conduct that is inconsistent with the principles of the code of ethics by sending an email. The reports are sent and managed in accordance with a group procedure.



11. http://www.ansaldo-sts.com/sites/ansaldosts.message-asp.com/files/docs/asts\_cod\_etico\_uk.pdf

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#### Human Rights protection and labor policies<sup>12</sup>

Ansaldo STS upholds and promotes human rights in every context in which it operates, by creating equal opportunities for its people and fair treatment for all - regardless of race, nationality, political creed, religion, gender, age, minority status, disability, sexual orientation, personal or social condition – and always respecting the dignity of each individual and each employee.

Ansaldo STS does not allow or tolerate the establishment of employment relationships, even by external collaborators, suppliers or business partners, violating the existing legislation on child, woman and immigrant labor, and carefully controls the risks associated with the employment of forced workers. The Company, besides, requires its contractors and subcontractors to ensure the same attention in order to contribute to abolish such illegal behaviors.

Ansaldo STS offers equal opportunities, ensuring fair treatment on the basis of individual expertise and abilities and hiring people under legal employment contracts, mainly on an open-ended basis, in accordance with laws, national labor agreements, company agreements and current regulations. Ansaldo STS guarantees that its workers are free to join trade unions, and sees that its relationships with the unions are cooperative and friendly in which workers may report their opinions to Human Resources directly or via delegates.

#### 2016 events

In 2016, the code of ethics control body did not receive any reports of violations of the code related to Ansaldo STS S.p.A. or other companies belonging to the ASTS group.

#### Training on the code of ethics

Ansaldo STS relentlessly promotes and fosters awareness of the code of ethics and the related protocols and updates, as well as knowledge of the areas of activities in the various functions with responsibilities, hierarchical relationships, duties and training. It informs employees on the code of ethics and the related protocols first by distributing specific documentation to all employees and workers collaborating with the company in any way, and requires, when the material is delivered, that they sign a statement certifying that they have read the documentation received. In addition, company personnel can, at any time, ask supervisors for guidance and clarifications on the content of the code of ethics, protocols and duties assigned to them. When new employees are hired and/ or contracted, Ansaldo STS immediately gives them the information necessary for adequate knowledge of the code of ethics and protocols, with particular respect to those that concern them specifically.

#### Global Compact



Once again this year, Ansaldo STS has adhered to Global Compact, a voluntary United Nations initiative to encourage respect for human rights, labor, the environment and anti-corruption set out in

10 principles. Its confirmation reiterates its commitment to considering Global Compact and its main principles an integral part of the company's strategies and culture.

#### **Global Compact Network Italy Foundation**

Global Compact Network Italy (GCNI) was founded in 2002 to contribute to the development of the "Global Pact" in Italy. In June 2013, the GCNI created the **Global Compact Network Italy Foundation**, with **Ansaldo STS as founding member and sponsor**, along with 17 other Organizations, private companies, universities and research institutes, non-profit foundations and civil society Organizations.

#### CSR Manger Network

Through Andrea Razeto – External Communications, Ansaldo STS participates in the CSR Manager Network, the national association that groups the professionals of the main Italian companies committed to sustainability issues. The association is a place to discuss Italian and foreign best practices and acts as a representative body and communicates with the world of politics, business associations, trade unions, environmental associations and other NGOs. It also promotes and tests sustainability and actively participates in national and international discussions. It is the Italian network hub for similar associations that are being set up around the world. The CSR Network is Italy's official representative in the Global Network of the World Business Council for Sustainable Development (WBCSD).

<sup>12.</sup> Ansaldo STS acts in accordance with the UN's International Bill of Human Rights (which includes the Universal Declaration of Human Rights, the International Convention on Civil and Political Rights and the International Convention on Economic, Social and Cultural Rights), the ILO's Fundamental Conventions (nos. 29, 87, 98, 100, 105, 111, 138 and 182), the Declaration on Fundamental Principles and Rights at Work, the UN's Convention on the Rights of the Child, the ILO's Conventions nos. 107 and 169 on the Rights of Indigenous and Tribal Peoples, the European Convention on Human Rights and the OECD's guidelines for multinational enterprises.

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Ansaldo STS has always devoted ongoing attention to research and development, in order to identify and create innovative technical solutions and develop products of the very highest quality, safety and environmental standards.



### **Innovation governance**

Ansaldo STS's innovation governance model involves all its companies and combines strategies, technologies, products, resources and markets so that research and development arises out of the excellent, distinctive expertise found within the company and the real needs of its customers. Ansaldo STS's organizational structure ensures internal factors and external assessments are systematically integrated.

#### INNOVATION GOVERNANCE SCHEME



## **Research projects with EU and Italian public institutions**

At Ansaldo STS "**Innovation**" (see "Innovation governance scheme") also means participating in research projects funded by the European Commission, the Ministry of Education, Universities and Research, the Ministry for Economic Development and the Ministry of the Environment.

With regard to European research, the "Shft2Rail" project began in the latter part of 2016, and its main goals are:

- efficient and eco-friendly railway transportation;
- better mobility and reduced traffic congestion;
- more safety and security;
- activities focused on social-economic improvement.

A challenge for "smart, green & integrated" transport.

Ansaldo STS is a founding member of this "joint undertaking" involving another 7 founding members, 12 associates and 32 member states of the European Union for a total investment of approximately €450 million.

### 1. European research projects

In 2016, Ansaldo STS was involved in the following projects funded by the European Commission:

- NGTC (Next Generation Train Control), to develop future railway and metro traffic control systems, in which Ansaldo STS played a leading role in the satellite positioning work package;
- MANTIS, funded by the ECSEL Joint Undertaking (public-private party that disburses European Commission funds for innovating embedded systems) and by the Ministry of Research, whose goal is to increase knowledge of the decision-making process for the railway system maintenance stage;
- IN2RAIL, in connection with the Shift2Rail initiative; the project goal is to optimize the railway infrastructure by cutting its construction and maintenance costs and increasing its capacity.

## Shift2Rail Joint Undertaking (S2R JU) projects

The SHIFT2RAIL JU public-private partnership kicked off in 2016, with the following projects initiated during the latter part of the year:

- CONNECTA, CONtributing to Shift2Rail's NExt generation of high Capable and safe TCMS and brAkes, which sets out to contribute to the next generation of TCMS architectures and components with wireless function, as well as to the upcoming generation of electronic braking systems;
- X2RAIL1, Start-up "Activities for Advanced Signaling and Automation System", whose goal is to meet the long-term requirements of a future flexible and smart traffic management system;
- IN2SMART, Intelligent maintenance systems and strategies, that aims to provide an innovative holistic solution for railway asset maintenance;
- ATTRACTIVE, Advanced Travel Companion & Tracking Services, whose purpose is to improve the travel experience of passengers who use railway transportation systems by developing an integrated solution;
- FR8RAIL, Development of functional requirements for

sustainable and attractive European rail freight, intended to take on the major challenges for developing sustainable and attractive rail freight traffic in Europe;

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- PLASA, Smart Planning and Safety for a safer and more robust European railway sector, whose objective is to augment the customer's experience and the robustness of the system in the European railway sector. On the one hand, the objectives are to improve the planning activities of the various railway system operators through railway simulation and, on the other, to provide a methodology for managing railway system safety based on risk assessment;
- IMPACT1, Indicator Monitoring for a new railway PAradigm in seamlessly integrated Cross modal Transport chains – Phase 1, to create an integrated sub-system in order to represent all Shift2Rail innovations;
- ARCC, Start-up activities for freight automation that basically deals with freight traffic issues.

Lastly, the first activities pertaining to IP2 got under way in 2016. IP2 concerns introduction of innovative systems to the traffic signaling and management area.



### Satellite technology projects

The satellite technology projects funded by the European Union are listed below. First and foremost there is ERSAT EAV, of which Ansaldo STS is project coordinator. Its objective is to adopt and characterize the satellite technologies in the railway signaling context, with particular reference to checking the suitability of EGNSS/EGNOS technology and of the new Galileo services to be used in ERTMS signaling. As part of the ERSAT EAV project, definition of new GNSS algorithms capable of using Signal In Space of the GPS, EGNOS and Galileo constellations was completed in the first half of 2016. Preliminary verifications of their proper behavior were also made, and confirmed the correctness

of the Open and Modular Architecture of the Ansaldo STS Augmentation System. Afterwards, demonstrations of the proper functioning of the trial site in Sardinia were presented at national workshops.

#### GSA Horizon H2020 Research Program

In 2016, the activities pertaining to the STARS and RHINOS projects part of the GSA Horizon H2020 Research Program commenced.

With regard to the STARS project, important research activities were carried out during the first half of 2016. They concerned definition of the methodology and tools required to calculate the Ground Truth (temporal and spatial reference) for which performance measurements can later be made. Measurement activities were also conducted at the Sardinia trial site with the aim of acquiring Signal In Space (RF signal) and Observation data regarding GPS, EGNOS and Galileo in different railway environmental conditions.

As for the RHINOS project, definition of a functional architecture of an ERTMS system based on future satellite technology fit to meet strict requisites such as track discrimination, high availability and integrity was completed during the first half of 2016.

### 2. Italian research projects

With respect to national research, Ansaldo STS participates in the Liguria Region's "Technologically Integrated Intelligent Systems" district, and in DATTILO (High-Tech Transport and Logistics District) and the TOP IN laboratory (Innovative Optical-electronic Technologies) in Campania. In addition, Ansaldo STS participates in the "Embedded" and "INSIST" university/company networks for excellence, which concern themselves with ICT, energy and transport issues. As regards the funded projects in progress, the following is reported:

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- Tesys Rail, whose goal is to define expedient strategies for railway traffic energy optimization.
- The following PON3 projects through the DATTILO (High-Tech Transport and Logistics District) in Campania and the TOP IN laboratory (Innovative Opticalelectronic Technologies) in Campania:
  - the MODISTA project that deals with innovative solutions for remote monitoring and preventive diagnostics of infrastructures and fleets of vehicles in order to raise the

availability, efficiency and safety levels;

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- the OPTOFER project that covers application of the innovative optical-electronic technologies for railway infrastructure monitoring and diagnostics;
- the FERSAT project that studies a railway signaling system suitable for urban environments based on the innovative use of satellite technologies and their integration with existing technologies;
- the NEMBO project that studies and tests embedded highly efficient innovative systems for railway applications.

### **REGIONAL GROUPING FOR RAIL TRANSPORT**

Ansaldo STS, Confindustria Genoa and the Liguria Region's "Technologically Integrated Intelligent Systems" district (SIIT) have joined forces to promote development of a regional technological grouping for rail transport, involving SMEs, universities and the CRN (Consiglio Nazionale delle Ricerche, National Research Council). Their aim is to present research topics pertinent to the Horizon 2020 programme and especially the European multinational Shift2Rail project to the Department of Economic Development of the Liguria Region to be included in the next programming schedule.



## Main products conceived and undergoing development

Over the years, its development of products and solutions - **Development and Engineering** - (see "Innovation governance scheme") has carried Ansaldo STS to a leadership position in the Signaling Systems and Railway and Mass Transit Sectors.

### OTP - Optimizing Traffic Planner<sup>™</sup>

OTP is an innovative traffic management and railway handling system that redirects traffic in real time to increase speed and optimize vehicle movement, identifying the shortest and most efficient paths for trains. The OTP system can substantially increase network capacity, reducing operating costs at the same time.

## ATC (Automatic Train Control) and ATP (Automatic Train Protection) systems

These are automatic train speed control systems in line with ERTMS (European Rail Traffic Management System) standards. They enable operators to control the safe movement of trains on railway lines, continuously monitoring their position, maintaining safe distances and compliance with speed limits. The ATC system also includes a driverless function with various degrees of automation. Over the years, this system's specifications evolves and in addition to being a company taking part in defining new specifications, ASTS adapts all of its systems in keeping with the European standard.

### **Applications**

Completion of the Pioltello-Treviglio (Italy) and Berlin-Rostock (Germany) Pilot Lines adjusted to the latest version of the ERTMS specifications.

### CBTC – Communication Based Train Control

CBTC is a two-way, radio-based train distancing communications system between wayside and vehicle. It is in line with international standards (IEEE 1474.1.2.3) and offers utmost operating flexibility and complete interoperability on metro lines managed by different systems/technology operators. The control systems installed on board calculate the vehicle's position and adapt the movement of the vehicles within the authorized limits (MAL = Movement Authority Limit). Each vehicle's position is updated and reported continuously to the wayside Area Controller. The Area Controller can update each vehicle's MAL, knowing the position of the previous vehicle going in the same direction. This tool makes it possible to set a "moving block", which safely and significantly shortens the headway between two consecutive trains on the same track, increasing the transportation system's overall capacity. Communication between the control systems in the adjacent interlocking areas, in rail yards and on board, allows for a safe time management between the vehicles headway and the line capacity.

### **Applications**

Ansaldo STS has already installed this technology and fully put it into service on Line 3 of the Paris Metro and on Line 1 and Line 2 of the Chengdu Metro and on Line 1 of the Zhengzhou Metro in China. This system is instead in the design stage and in some cases in the installation stage on projects such as the Ankara Metro, the Red Line in Stockholm, the Circular Line in Taipei, Line 4 in Milan, the CityRingen of the Copenhagen Metro, the Riyadh Metro (with the latter two managing the driverless mode) and another six metro lines in China in the cities of Shenyang, X'ian, HangZhou and Dalian.

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### Wayside platform

Ansaldo STS has implemented the interlocking platform known as WSP (Wayside Standard Platform), capable of managing a greater number of trackside equipment using a smaller number of basic components and integrating safety, diagnostics and traffic management functions in one single control station, poised to become the best response to the increasingly sophisticated demands of the railway and metro market. ASTS also adapts its interfacing with the yard using new generation equipment and components.

### **Applications**

Ever since the late 1990s Ansaldo STS has implemented the requisites for the "open" platform on standard protocols, such as: Lyon-Marseilles TVM lines (1999), ERTMS lines Rome-Naples (2005), Turin-Milan (2006), Milan-Bologna (2008), Zheng-Xi (2010), Brescia-Treviglio (2016), Madrid-Lleida (2011), Cambrian (2011), Poříčany-Kolin (2011), Haparandabanan (2013), CBTC lines in Chengdu (2011), Shenyang (2012), the Ankara Metro (2014) and Turin-Padua conventional lines (2014).

#### **TRAMWAVE®**

This is a power system for trams that uses an embedded ground-level power supply which only energizes the part of the line being used by a tram. The system enables the protection of historic city centers, as it eliminates conventional overhead electric lines. The concept behind this innovative tram system and the excellent results achieved in the wake of testing have generated enormous interest among urban planners in countries looking for safe, ecological and low-environmental impact public transit solutions.

### **Applications**

A contract with the Chinese company CNR Equipment Engineering Co Ltd was signed in November 2013. It covered the supply of 8.7 km of TramWave® double track contact line to build a new tramline in the city of Zhuhai, in south-east China. This agreement also covered the installation of the associated collection, diagnostics and power supply systems. This is the first time Ansaldo STS will build a catenary-free tramline, and the technologies will also be transferred to the JV CNR/GRG, which will be able to produce and sell the product in the Chinese territory in exchange for a lump sum and royalties for every km of line sold. In November 2014, a trial run took place on the occasion of an international event held in the city of Zhuhai. It covered a 1-km TramWave-equipped section using a tram vehicle belonging to the fleet. The works were completed in 2015 and the trial run was extended to the entire line while awaiting activation of the revenue service at the end of the testing phase.

### Satellite signaling

For the first time in railway history, Ansaldo STS has enabled the satellites use to manage safe train travel. In March 2012, Ansaldo STS signed the 3InSat contract with the ESA (European Space Agency) to develop and validate new safe geo-localization and satellite telecommunications platforms to be used for ERTMS-ETCS railway signaling systems. Ansaldo STS is the head of an industrial consortium that includes the participation of, inter alia, RFI, DB-Nets and DLR (Germany's space agency), which, together with ASI (Italy's space agency) are the greatest contributors to the European satellite navigation system, GALILEO.

Ansaldo STS's solution constitutes a technological innovation of global importance. It will use geolocalization satellite technology instead of conventional train localization systems, which require electronic devices installed along the railway line, thereby reducing costs and environmental impact.

### **Applications**

The development stage of the satellite systems was completed in 2014 and following a testing phase on the Cagliari-Olbia railway line with the prototypes, the testing phase came to a successful conclusion with results appreciated in both the national and international railway sectors. Following a preliminary stage for checking the feasibility of the TLC satellite system integrated with the cellular network, during the second stage carried out in 2015 and 2016 the functions and performance of the train and wayside satellite positioning equipment were fully checked. The 3InSat Project wound up in 2016. In the aftermath of the positive results attained up to today, RFI and Trenitalia officially voiced their interest in adopting the integrated satellite solution on ERTMS L2/L3 on almost 45% of the conventional secondary network, replacing the current signaling systems.

In order to maintain its leadership position in the ERTMS satellite technology sector and to extend the existing functionalities, Ansaldo STS launched the following projects:

- the "ERTMS on Satellite Enabling Application and Validation" project financed by the GSA in 2015;
- the "Satellite Technology for Advanced Railway Signaling" project financed by the GSA (European Global Navigation Satellite System Agency) launched in 2016;
- the "Railway High Integrity Navigation Overlay System" project which was launched by the GSA in 2016.

Furthermore, Ansaldo STS is party to a contract for the provision of a signaling system for freight traffic that positions rolling stock using the satellite technology, for the customer Roy Hill. The line was activated in both IETO mode and full LDS mode during 2016.

### **TCCS - Train Conformity Check System**

TCCS is a multi-functional railway portal that automatically detects irregular conditions that affect rolling stock in transit. It is one of the company's key projects thanks to its cutting edge technology. Thanks to its sensors, the portal controls passing trains at cruise speed and overlaps the visible form, laser and infrared to detect:

- the composition of the train and models of component vehicles;
- overheated parts of the train and fire risk;
- abnormal load;
- shape compatibility.

TCCS ensures higher safety standards for the railway system, reducing the risk of accidents.

### **Applications**

The TCCS product was developed starting from the multi-function portal prototype installed in Sezze (Latina), ordered by Rete Ferroviaria Italiana following its call for tenders. Today it has been completed and is up and running. In 2015, two new portals were installed in Italy (on the Milan-Genoa and La Spezia-Parma lines). The goal was to guarantee safety in order to protect the railway tunnels. SIL4 certification according to CENELEC standards was obtained.


Ansaldo STS ensures that it develops and delivers products, applications and systems that are: safe, in compliance with Italian and international laws applicable to railway systems and reliable, meeting its customers' needs and its quality standards. It achieves this through RAMS (Reliability, Availability, Maintainability & Safety) activities.

These activities are performed on all Ansaldo STS projects in which safety and reliability are relevant, which constitute over 90% of total company activities.

Safety and reliability are achieved through hazard analysis, a structured process in line with sector standards. It begins with the identification of hazards based on previous experience, the assessment of specifications for the various processes stages and hazard workshops during which experts from Ansaldo STS and from the customer discuss the various issues. Potential hazards are then included in a hazard log, which is constantly updated over the life cycle of the project. For each hazard mapped, the log also includes the mitigation measures, activities to check that they were effectively implemented and an assessment of the residual hazard. The residual hazard level is assessed and accepted only if it is below the limits established by standards and customer requirements.

The main safety standards are those issued by CENELEC - European Committee for Electrotechnical Standardization. Specifically, relevant standards are:

- CEI 50126 on RAMS applicable to railway field;
- CEI 50128 on software security;
- CEI 50129 on electronic device safety;
- CEI 50159 on railway communications security.

# Recording and assessment of non-conformities and accidents to improve safety

Any non-conformities with safety specifications during the development, testing and, obviously, roll-out, is carefully analyzed and recorded. In general, no conduct of this type is tolerated and requires a review and change (hardware or software) in the element that does not meet the technical specifications provided for.

In general, Ansaldo STS gathers two types of data to assess the

reliability of its products: data on parts (fault charts), beginning with the assistance requests sent to the Service unit, and data on systems affecting the key service parameters (frequency of trains, skipped runs, delays, etc.). Data on parts are analyzed to identify the most defective parts and alternative solutions are sought to improve performance, while for data on systems, all service interruptions are analyzed to determine the causes.

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#### **Reliability of solutions**

The reliability of solutions is also due to the use of redundant platforms that provide fault tolerant configurations, i.e., those that can continue to function even when certain sections present faults. This type of approach was successfully applied in Italian highspeed railways, where specific systems have been developed for the diagnostics and control of the electrical substations. These tools make it possible to plan "preventive maintenance" on lines, i.e., monitoring all substations and reporting when one of them is at risk of faults. In this way, greater environmental sustainability is ensured, with the resulting reduced consumption of spare parts and lower risk of service interruptions on the line due to faults.

#### Safer spaces for customers and end users

Ansaldo STS offers passengers safe and controlled areas by equipping network vehicles with sensors that constantly monitor railway areas. The sensors operate around the clock.



# **Energy efficiency and respect for the environment**

Ansaldo STS's unwavering commitment to providing its customers and end users (passengers and freight) with the best products and system solutions, the use of the best design methodologies and procedures and the best existing construction methods and processes contributes to increasing safety and reducing direct and indirect impact on the environment.

#### **Energy efficiency**

Ansaldo STS's research into energy efficiency concentrates on the following macro-areas:

- "Assistance with the design of turnkey systems", through holistic hardware-in-the-loop simulators to provide a transport system that uses energy efficiently.
- "Operation rail & driverless", focused on searching for the optimum speed profile, considering scheduling and driving conduct.
- "Technologies for energy savings", for ground recovery

systems, geothermal heat pumps, simulators for the optimal size of supercapacitor accumulation systems.

The company develops these areas as part of the MERLIN (Management of Energy in Railway Systems), OSIRIS (Optimal Strategy to Innovate and Reduce energy consumption In urban rail Systems) and SFERE (Sistemi FERroviari: ecosostenibilità e Risparmio Energetico) research projects.

Two important innovations introduced by Ansaldo STS in signaling systems for train control relate to the use of public telecommunications networks and GPS - Global Positioning Satellite - technology. The use of these new control systems will replace track equipment, which requires greater energy consumption. These systems will especially be used on low traffic lines in Europe, which make up about 50% of the total network length.

The company is currently standardizing the new COTS (Commercial Off The Shelf) hardware platforms based on CPU with Atom (single or dual core) technology, which allow a reduction in consumption from about 250 W to about 30 W for each processing unit, nearly 90%. For example, as there are more than 250 CPU on the northbound line, the estimated energy saving is approximately 1,320 KW a day.



### ANSALDO STS'S MEASURES TO IMPROVE THE SUSTAINABILITY OF ITS PRODUCTS AND SOLUTIONS



### **Reducing raw materials consumption**

The use of powerful technological platforms integrating several functions in the same subsystem enables Ansaldo STS to reduce the size of equipment and their connectors, using simple and effective systems for scheduling, testing and roll-out. In addition, the search for increasingly standardized designs encourages innovation and a reduced use of components.

Specifically, over the past few years, methods to compact hardware of the central and outlying units of the railway control systems produced by Ansaldo STS were introduced and refined. They are based on both mechanical and technological solutions and allow a reduction in volumes, size, heat dissipation and waste to be eliminated of roughly 35%-40%.

Other methods to eliminate and simplify hardware included:

- the use of software from different subsystems on the same machine, such as for example, interlocking and radio block center, usually used on separate hardware;
- the use of environmental sensors already in place as standard features on the CPUs instead of the previously used external sensor units;
- replacement of very bulky (and energy consuming) sophisticated industrial monitors with commercial equipment that meets the modern Green IT paradigms including with respect to the environmental impact of the materials used (this approach had already been implemented in the Turin-Padua Northbound Line and is of great interest for the revamping of the existing systems);
- centralized diagnostics (via web) rather than located in the outlying sites;
- maintenance systems based on commercial handheld devices replacing the traditional "heavy" equipment (this approach had already been implemented for the Roy Hill project);
- study and testing of embedded highly efficient innovative systems for railway applications (NEMBO research project).

#### Ecodesign

Partly in response to certain new contracts (e.g., the Montreal MPM-10 train control system project), Ansaldo STS is paying greater attention to studying ecodesign aspects, including to meet customers' environmental standards, such as:

 Analysis of compliance with REACH – Registration, Evaluation and Authorization of Chemicals regulation (an integrated registration, evaluation, authorization) and restriction system for chemicals established in the EU);

- Analysis of the re-usability and recyclability of materials;
- Life Cycle Assessment (LCA)<sup>13</sup>.

The methodological approach entails a comparison of processes, materials and products in order to evaluate whether choices are ecologically compatible. The design stage, along with an analysis of costs and quality level, makes it possible to identify critical points in the life cycle. The analysis process is carried out using software and considering the applicable legislative requirements and UNI ISO 14040 standards<sup>14</sup>.

There is also more focus on the choice of materials, increasingly based on their ecological compatibility, starting from the product's design stage (e.g., resins and paints of tropicalized circuit boards).

New approaches to hardware testing make the simultaneous testing of thousands of units possible, whereas previously tests were performed on one "box", or controller, at a time. This solution, called WSP Sim, has already been used for the Pisa system (northbound line).

The environmental management requirement for some ongoing contracts (e.g., the Copenhagen Cityringen) is to define an environmental policy to be applied during all the system implementation stages and requires preparation of an environmental impact plan, an environmental action plan, etc.. In particular, with respect to ecodesign, environmental impact considerations must be included in the project flow in line with the environmental policy. The following objectives are set:

- base the environmental management system on the DS/EN ISO 14001 standard;
- consider environmental issues when taking decisions and include them in the project characteristics;
- work to high environmental standards and improve performances as much as possible over the project term;
- use raw materials and energy efficiently, optimizing their re-use and recycling to minimize waste and waste products;
- safeguard environmental values and culture;
- prevent unwanted environmental consequences and reduce the project's environmental impact;
- make a separate, specific and measurable commitment to respect nature.

14. The regulation describes the principles and reference framework to assess the lifecycle.

<sup>13.</sup> Life Cycle Assessment ("LCA") is a methodology that evaluates a series of interactions that a product or service has with the environment, considering its entire life cycle, which includes pre-production (including the extraction and production of materials), production, distribution, use (including re-use and maintenance), recycling and final disposal. The LCA procedure is standardized at international level by ISO 14040 and 14044 (International Organization for Standardization).



### LED technology

For the last few years, Ansaldo STS has produced LED-based traffic lights at the Tito Scalo and Batesburg sites. This innovation has a positive impact on energy consumption, the management of maintenance and the disposal of maintenance material. Suffice it to say that bulbs were normally changed every four months, while LED bulbs last at least ten years.

Specifically, the following products have been developed, produced and are already installed (such as the Turin-Padua line) in Italy alone:

- SALACC (LED signaling for electronic central management systems)
- Blue LED Signal for electronic central management systems
- Blue LED Signal for ACEI systems
- Shunting Signal LED for electronic central management systems
- Shunting Signal LED for ACEI (currently being endorsed with RFI)

### Reliable and efficient hourly traffic

The tools that Ansaldo STS has designed and produced enable operators to create more efficient timetables for trains running on railway infrastructures, establishing, in particular, which places are the best for stops, junctions and passing, and determining travel times to minimize waits and consumption. Therefore, these tools make it possible to prevent and supply pro-active measures to combat traffic caused by train delays, scheduled and non-scheduled maintenance, natural disasters and personnel shifts. This support technology is also used to significantly cut down on fuel by increasing the average speed of trains, concurrently reducing the waste of fuel for acceleration closely followed by braking due to temporary slowdowns or stop signals.

# Investment in innovation and intellectual property

As of December 31<sup>st</sup> 2016, total expenditure for research and development came to €38.6 million (2015: €39.8 million), with income generated from grants of approximately €1.9 million (2015: €2.9 million).

Ansaldo STS carefully safeguards its intellectual property, requiring, inter alia, the filing of patents and the registration of trademarks. At year end, it held 74 families of patents, while 8 were under evaluation, and 33 registered trademarks.



### THE ENVIRONMENT, HEALTH AND SAFETY

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Ansaldo STS chose to comply with the environmental ethics principles and pay attention to the physical safety and the health of workers, which are strategic aspects for the company and which it pursues with continual improvement. The choices are geared toward constant compliance with current legislation and the attainment of high prevention and control standards by adopting specific policies and promoting the virtuous conduct of its collaborators and stakeholders. The Environment, Health and Safety 🕡 💿 😳 🐼 💼 🎍 🏤 🚮

00000) (00000) (00000) -10.7% -24.7% Water withdrawal Energy consumption per hour worked in per employee in production sites production sites -27.1% -5.0% Water greenhouse gas withdrawal per production employee in (2014 - 2016)office sites Integrated **Management System** 27.1% Quality, safety and environment Electrical energy from renewable energy source -12.3% -6.U<sub>%</sub> -1.9% Electrical energy Electrical energy consumption per consumption Overall hour worked in in production sites energy production sites consumption

# **Environmental sustainability**

Today growth is attainable through sustainable development, by combining environmental protection and a rational use of energy with innovation and change. This is the foundation on which the present and future strategies of Ansaldo STS are built.

Ansaldo STS's guiding environmental sustainability principles are:

- observance of current legislation;
- prevention of environmental damage caused by its operations;
- carrying out its operations in a sustainable manner;
- constant updating of its monitoring tools;
- ongoing improvement;
- reporting of the environmental performance of its activities;
- its employees adopting sustainable conduct.

In order to actively and responsibly contribute to combating the challenges posed by climate change,

Ansaldo STS complies with the current regulations and also applies best practices to achieve better results, continuously improving its environmental management in an economically effective way.

To this end, it has developed an approach based on the preventive analysis of the impacts of its operations on the environment and the constant monitoring of consumption and waste during production. This approach has allowed the company to identify "environmental improvement" areas and to intervene with specific measures:

- energy efficiency, through tailored initiatives to optimize office lighting by installing low power systems and building insulation systems designed to reduce the need for heating;
- **increase personnel's awareness** of the issue of environmental protection, encouraging them to adopt environmentally-conscious conduct to save energy, as part of ongoing improvement.



# **Environmental policy: Ansaldo STS's commitment**

The management of environmental topics, the battle against climate change, environmental protection and sustainable growth are factors strategic in running and developing the company's activities.

# The four key principles of Ansaldo STS's environmental policy

- 1. Protect the environment by preventing impacts.
- 2. Improve and foster the environmental characteristics of products and services.
- 3. Create value for the company.
- 4. Satisfy and go beyond the legal obligations of compliance and voluntary commitments.

## The four strategic objectives

- **1. Application** of **Environmental Management Systems** recognized at the international level to the entire Organization. These systems are inspired by the principle of ongoing improvement and the definition of environmental indices in order to measure the environmental performance of the entire Organization.
  - Annual preservation of the ISO 14001 certifications.
  - Rationalization and simplification of the certifications in the various organizational areas.
- 2. Reporting to the citizens, institutions and other stakeholders on the management and **environmental** results of the company.
  - Publication of the Sustainability Report and open access given to the key environmental parameters.
  - Communication with the analysts and participation in various Sustainability indices.

### 3. Promotion of sustainable environmental

- **practices** with suppliers, contractors and customers.
- Use of environmental performance-based supplier qualification criteria.

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- Updating/training meetings on the important environmental aspects at the time works are started by passing on the Environmental Policy and explaining how the impacts generated by the activities carried out (waste, emissions, discharges, etc.) are to be managed.
- Assessment of the suppliers based on the environmental performance of the activities carried out on Ansaldo STS's behalf.
- 4. Satisfy the legal obligations of compliance and voluntary commitments
  - Ensure that the activities are carried out in compliance with said obligations and commitments.
  - Assess fulfillment of the subscribed obligations and commitments.
  - Correct any non-conformities on observance of subscribed obligations and voluntary commitments.

Ansaldo STS' environmental policy is based on the application of UNI EN ISO 14001:2004 requirements and those of other relevant international standards, compliance with applicable domestic and international legislation, developing a program focused on the continuous improvement of environmental standards. The policy is shared with all Ansaldo STS personnel and all concerned parties online and via the company Intranet.



### Integrated Management System

Ansaldo STS has implemented an Integrated Management System (IMS) for the environment, safety and quality, establishing global corporate policies and procedures to ensure the controlled management of processes and activities relating to safety in the workplace and environmental protection. Subsequently each company established local environmental and safety policies, on the basis of legislative requirements and corporate policies and procedures.

The main advantages arising from it are:

- Uniform management: the creation of a single corporate management system ensures the same methods are used for organizing all Environment and Health and Safety activities.
- Optimization of resources: the uniform management of the Environment, Health and Safety areas makes exploitation of potential synergies in the Organization possible (audit and training).

 Standardization of improvement objectives: integration allows univocal decision-taking criteria to be identified for only of the power of the second sec

identified for selecting company objectives and for defining programs to implement them.

- Involvement of personnel at all levels: rationalization in using human resources and in assigning responsibilities makes involving personnel and raising their awareness easier.
- Single document and data management system: even at the documents and forms level integration prevents duplication of records common to the various

areas, and sharing information simplifies internal communication.

• Identification of new strategic approaches: analyzing processes not only from the quality viewpoint, but also from that of environmental impact and reduction of risks for workers, allows us to single out new requirements, design alternatives and opportunities to save.

Enhanced usability of documents has been achieved by implementing the new company Intranet, which allows all employees to more easily consult the corporate and local IMS documentation.





All production sites and the 19 sites listed in the tables below are certified for quality (ISO 9001), health and safety (OHSAS 18001 and AS/ZNS 4801:01 for Australia) and the environment (ISO 14001) in progress at the Copenhagen site. The Tito Scalo production site also has EMAS Registration (Eco Management and Audit Scheme).

COUNTRY	PRODUCTION SITE	ISO 9001	ISO 14001	OHSAS 18001
USA	Batesburg	•	•	•
FRANCE	Riom	•	•	•
ITALY	Tito Scalo	•	EMAS	•

COUNTRY	<b>OFFICES (NON-P</b>	RODUCTION SITES)	ISO 9001	ISO 14001	OHSAS 18001
	UNITED KINGDOM	London	•	•	•
	FRANCE	Les Ulis	•	•	•
		Madrid	•	•	•
	SPAIN	Zaragoza	•	•	•
EUROPE	SWEDEN	Stockholm	•	IN PROGRESS	GREEN SMILE WITH CROWN
	DENMARK	Copenhagen	•	•	•
		Genoa	•	•	•
	ITALY	Naples	•	•	•
		Piossasco	•	•	•
USA		Pittsburgh	•	•	•
		Brisbane	•	•	AS/ZNS 4801:01
		Newcastle	•	•	AS/ZNS 4801:01
AUSTRALIA		Perth	•	•	AS/ZNS 4801:01
		Sidney	•	•	• AS/ZNS 4801:01
		Karratha	•	•	AS/ZNS 4801:01
		Kolkata	•	•	•
INDIA		Noida	•	•	•
		Bangalore	•	•	•
CANADA		Ontario	•	•	•

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# Training



Ansaldo STS's training path has been implemented with the cooperation of training needs managers (TNM).

This initiative aims to identify personnel who can serve as contacts for Human Resources in the definition of specific training and development plans for operational structures, in order to facilitate understanding of the

specific needs of each operational unit and make it possible to define projects that more accurately target their actual needs. TNM is distinguished by its concept of "Community", which translates into encouraging the creation of a network to reduce geographical distances. In 2016, Ansaldo STS carried out training and information sessions to draw attention to:

- the procedures and requirements of the Integrated Management System;
- the roles and responsibilities needed to achieve compliance with the environmental policy and the procedures and requirements of the Integrated Management System, including preparing for emergency situations and response capacity;
- the potential consequences of not complying with the specified operating procedures.

The training sessions were held by personnel competent in the relevant field. The specialized technical focus of the training demonstrates Ansaldo STS's aim of targeting operating positions involved in duties and activities that are potentially critical in terms of the environment.

ENVIRONMENTAL TRAINING	2014	2015	2016
Total hours of environmental training	2,713	919	1,189

At the production sites, where environmental risks can potentially be higher, environmental training has doubled compared to 2015, increasing from 201 to 447 hours.



# **Climate change**

The fight against climate change is a challenging and urgent objective.

On 11 November 2016 Italy ratified the Paris Agreement to curb global heating of the planet, which entered into effect internationally on 4 November 2016 when the membership threshold of 55 countries, representing 55% of the greenhouse gas emissions globally, was passed.

Ansaldo STS sees climate change as an opportunity. As part of this approach, it analyzes the potential impact of its strategic climate change decisions in the short, medium and long-term, in order to find opportunities to develop the business, improve its efficiency and to identify the related risks.

The company is committed to progressively reducing GHG emissions in all of its processes. Its activities and initiatives to combat climate change are part of the environmental management system that Ansaldo STS

has established at a global level, developing a carbon management strategy based on the following principles:

- global approach: the development of mechanisms that encompass the commitment of all Ansaldo STS sites;
- reasonable and feasible long-term objectives: the establishment of a clear and realistic vision of the steps to be taken;
- support for the development of technologies: developing advanced technological solutions.

This strategy focuses mainly on three spheres of influence:

- in-house activities and direct emissions from its sites (Scope I emissions);
- electrical energy suppliers and their operating emissions due to Ansaldo STS's activities (Scope II emissions);
- Ansaldo STS's supply chain and the emissions resulting from the production and delivery of goods and services (Scope III emissions).

#### **Risks and opportunities**

For Ansaldo STS, the risks associated with climate change are economic and regulatory in nature, with significant repercussions even on image and reputation.

Ansaldo STS is engaged in offering more sustainable design solutions.

This is achieved with low-carbon technologies and being able to ensure actual fuel savings. In order to be able to establish an improvement strategy, the company reports on direct and indirect greenhouse gas emissions in accordance with the GHG protocol<sup>15</sup>, undertaking to decrease these emissions, in part through people mobility policies, plans to cut energy consumption and improve efficiency, use of energy from renewable sources and to manage waste effectively.



15. The Greenhouse Gas Protocol (GGP) is the most widely used international accounting tool for government and business leaders to understand, quantify and manage greenhouse gas emissions.

### **Carbon Management System**

Since 2011, Ansaldo STS has implemented and renewed its commitment to reduce the greenhouse gas (GHG) emissions produced directly and indirectly in the performance of its activities by applying the carbon management system (CMS), a system that enables it to monitor the carbon emission improvement process. This entails a planning, implementation and measurement process for emission reduction goals. An efficient carbon management policy will enable the company to reduce emissions, decrease consumption

and reduce energy costs, thereby improving its bottom line, with the possibility of investing the savings.

The CMS has been developed in line with the relevant international standards. This system enables the company to perform:

- analyses of actual emissions produced;
- monitoring and reporting on emissions by type (Scope I, Scope II and Scope III);
- comparisons between historical data and forward-looking analyses;

- an assessment of the impact of products, in terms of emissions over their entire life cycle;
- economic/environmental analyses in relation to current regulations on emission reduction to determine assets' potential value-at-risk;
- the measurement of the effectiveness of emission reduction projects;
- communication on Ansaldo STS's emission reduction performance to the concerned parties, media, investors, rating agencies and other organizations.



### Activities carried out to reduce the direct and indirect production of GHG

Within its Organization, Ansaldo STS has appointed a Carbon Manager, an Energy Manager and a Water Manager responsible for providing information and carrying out activities and projects with respect to energy savings at all company operating sites.

#### Travel Policy

Ansaldo STS's initiatives to improve employee travel include optimizing travel paths, using carpooling and car sharing and promoting the use of public transportation and more sustainable means through its travel policy. The effect of the travel policy can be measured with the reduction of total km travelled over the threeyear period 2014-2016 (-13%) and, more specifically with regard to 2015, with the reduction of those covered by long-haul flights (-13%) and by road trips (-8%).

EMPLOYEES' TRAVEL - DISTANCE	2014	2015	2016
Short-haul flights [km]	16,544,435	18,388,450	16,910,878*
Long-haul flights [km]	32,432,536	28,938,809	25,047,575**
Road trips [km]	6,525,112	5,848,083	6,438,933***
TOTAL [km]	55,502,083	53,175,341	48,397,386

\* the 2016 figure compared to past years also includes the Madrid site for 94,500 km.

\*\* the 2016 figure compared to past years also includes the Madrid and Zaragoza sites for a total of 79,236 km.

\*\*\* the 2016 figure compared to past years also includes the Zaragoza site for a total of 1,306,066 km.

#### **Energy efficiency**

Over the years, Ansaldo STS has implemented energy efficiency projects that have contributed to reducing energy consumption by nearly 20% in the last year. Below are examples of steps taken by Ansaldo STS to reduce energy consumption:

- installation of energy-efficient lighting systems and related electrical systems;
- increase in the energy efficiency of air conditioning and air treatment systems;

- elimination of or reduction in the use of transformers and air compressors;
- revision of the automated building management system to turn the lighting system and air conditioning on later in the morning and off earlier in the evening;
- improvement in the data centers' energy efficiency;
- affixing of signs to remind personnel about energy saving projects, such as turning off

lights, laptop computers and devices that consume energy;

- reduction in the number of vehicles used by the company;
- reduction in the total volume of waste sent to landfills by encouraging the use of low impact substances promoting the reduction, recovery and recycling of waste.

### Results

In the last three years (2014-2016), direct and indirect production of greenhouse gas has gone from 19,371.7 tCO<sub>2</sub>e a 18,409.7 tCO<sub>2</sub>e, recording an overall reduction of 962.1 tCO<sub>2</sub>e (-5.0%).

<b>GHG</b> (tCO <sub>2</sub> e)	2014	2015	<b>2016</b> <sup>16</sup>	Var. % 15-16
Energy production (natural gas, diesel)	1,221.0	1,551.5	1,420.1	-8.5%
Transport (diesel, petrol and LPG for cars, lorries and forklifts)	1,616.8	597.9	577.8	-3.4%
TOTAL SCOPE I	2,837.8	2,149.4	1,997.9	-7.0%
Electrical energy consumption	7,995.7	8,113.7	7,847.7	-3.3%
TOTAL SCOPE II	7,995.7	8,113.7	7,847.7	-3.3%
Employee flights (short and long haul)	5,275.8	5,059.3	4,475.5	-11.5%
Company cars (short and long-term lease)	1,504.0	1,100.8	1,267.4	+15.1%
Freight transport (by roads, sea and air)	1,013.3	451.0	591.4	+31.1%
Materials consumption (paper, cardboard packaging and fuel)	532.4	467.2	384.4	-17.7%
Waste (incinerated, disposed and recycled)	212.7	863.1	1,845.4	+113.8%
TOTAL SCOPE III	8,538.2	7,941.4	8,564.1	+7.8%
TOTAL SCOPE I, II and III	19,371.7	18,204.5	18,409.7	+1.1%

16. The 2016 data, compared to the other years, additionally takes into account the Spanish sites of Madrid and Zaragoza, as well as the portion of Scope II emissions related to the consumption of electricity of the Italian sites not covered by the RECS – Renewable Energy Certificate System – certificates. The Scope II emissions related to 2014 and 2015 were recalculated taking this last aspect into account.

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**Scope I.** In absolute terms the Scope I emissions decreased compared to 2015 by 151.5 t of CO<sub>2</sub>e (-7.0%) due to both a reduction, equal to 131.4 t of CO<sub>2</sub>e, of the emissions from natural gas and diesel combustion for heat generation, and a reduction, equal to 20.1 t of CO<sub>2</sub>e, of the transportation related emissions.

**Scope II.** In absolute terms the Scope II emissions decreased by 266.1 t of CO<sub>2</sub>e (-3,3%) compared to 2015.

**Scope III.** The Scope III emissions considered in this report increased as a whole by 622.7 t of  $CO_2e$  (+7.8%). This result was achieved mainly due to the increase, equal to 982.3 t of  $CO_2e$ , of the emissions related to the waste management, and to a slight growth, equal to 307 t of  $CO_2e$ , of the indirect emissions related to transportation (company cars in leasing and freight transportation). On the other hand there was a reduction equal to 583.8 t of  $CO_2e$  (-11.5%) of emissions related to employees' flights.

The following chart shows the trend of GHG Emission Intensity, which measures the tons of GHG emissions compared to € millions of turnover.

#### **SCOPE I** (ton co<sub>2</sub>e)



#### SCOPE II (ton co<sub>2</sub>e)



#### SCOPE III (ton co<sub>2</sub>e)



# GHG Emission Intensity, TOTAL and SCOPE I, II and III (tCO,e/€ million of turnover)





The GHG emission intensity (total) shows a slight increase (+5.4%) from 2015 to 2016. Such result is due to the growth in overall emissions by 1.1%, along with a turnover reduction by 4.1%.

The same consideration applies to each single Scope considered in the GHG Emission Intensity calculation, with different outputs according to the reduction or the increase of the emissions combined with the change in turnover.

- Scope I emissions (direct combustion of fossil fuels from the organization's sources) reduced by -3.1%;
- Scope II emissions (electrical energy used by the organization) increased by +0.8%;
- Scope III emissions (from sources not owned by the organization, related to the transport of people and freight, consumption of raw materials and waste management) increased by +12.4%.

#### Carbon Disclosure Project (CDP)

The significance of the issue of climate change for Ansaldo STS is confirmed through its completion of the Investor Carbon Disclosure Project questionnaire for the sixth consecutive year.

Consolidating the carbon management strategy entails defining a total emission reduction target. The CDP Italy 100 Climate Change Report for 2016, prepared by First Carbon Solutions, includes a detailed analysis of Italy's largest listed companies (in terms of stock market capitalization) on the basis of two parameters:

- disclosure the quality of the information they use for transparent emissions disclosures;
- performance the quality of their climate change management initiatives.

In 2016, the assigned score came from a percentage including both parameters mentioned. Ansaldo STS achieved a score of C, with A being the best possible score, in the Industrial sector, which corresponds to the judgment **Awareness**: considers the extent to which the company has assessed environmental issues, risks and impacts in relation to its business.



F: Failure to provide sufficient information to CDP to be evaluated for this purpose.

#### CDP - ANSALDO STS'S PARTICIPATION Ansaldo STS Country: Italy

Year	Program	Status	Score
2016	Climate Change 2016	Submitted	0
2015	Climate Change 2015	Submitted	C 84
2014	Climate Change 2014	Submitted	B 83
2013	Climate Change 2013	Submitted	<b>B</b> 76
2012	Climate Change 2012	Submitted	D 73
2011	Climate Change 2011	Submitted	<b>B</b> 79

# **Environmental performance**

The scope of the report considered to process environmental, health and safety performance comprises the 18 sites of group companies (Pittsburgh, Genoa, Brisbane, Les Ulis, Bangalore, Solna, Batesburg, Naples, Karratha, Riom, Kolkata, Kuala Lumpur, Piossasco, Noida, Tito Scalo, Perth, Madrid and Zaragoza) that present significant environmental aspects: they are either sites where production is carried out or are non-production sites (offices) with more than ten employees. These sites employed a total of 3,677 employees in 2016, representing 93% of the group total.

### **PRODUCTION SITES**

These are sites in **Tito Scalo**, Italy; **Riom**, France and **Batesburg**, US, where electro-mechanical parts and electronic devices are produced to be used in railway safety, control and monitoring systems. Site activities mainly consist of mechanical processing, the treatment of metallic and non-metallic materials, thermal treatments, superficial treatments and applying glue and resins. Activities important from an environmental viewpoint are mainly painting, welding, molding and cleaning circuits (electronic cards) using solvent.

	Total area	Plants, stor and wareho	rage ouses	Dirt car p and roa	Dirt car parksGreenand roadsareas		Green Runways areas of airfields		vs ds	Employees	Hours worked
	m²	m²	%	m²	%	m²	%	m²	%	no.	no.
TITO SCALO	40,000	8,400	21%	7,600	19%	24,000	60%	0	-	127	223,876
RIOM	17,000	5,610	33%	510	3%	10,880	64%	0	-	143	231,446
BATESBURG	146,330	19,023	13%	45,362	31%	81,945	56%	0	-	198	343,558
Total	203,330	32,523	16%	53,472	27%	115,635	57%	1,700		468	798,880

The three production sites cover a total surface area of 203,330 square meters. Employees number 468 (+11.2% on 2015) and worked a total of 798,880 hours in 2016 (+7.2% on 2015). The Batesburg and Tito sites are located in areas that are included in the list of contaminated sites of national interest.

#### **OFFICE SITES**

Activities performed at the 15 administrative sites mainly consist of signaling plant design, the analysis of safety, reliability and availability, laboratory testing, contract management and control, research and development, procurement, and prevention and protection.

In geographical terms, the locations of office sites are:

- three in Italy: Genoa, Piossasco (Turin) and Naples;
- four in Europe: Les Ulis (France), Solna Stockholm (Sweden), Madrid and Zaragoza (Spain);
- one in the US: Pittsburgh;
- seven in the Asia Pacific: Brisbane, Perth and Karratha (Australia); Kuala Lumpur (Malaysia); Bangalore, Noida and Kolkata (India).

Non-production sites cover a total surface area of 149,137 square meters, with 3,209 workers (+13.3% on 2015), for a total number of hours worked in 2016 of 5,647,421 (-2.8% on 2015).

None of the 18 Ansaldo STS sites are subject to the IPPC (Integrated Pollution Prevention and Control) directive.

#### **Energy consumption**

Energy consumption is an environmental aspect that is assessed and measured at all Ansaldo STS offices and production sites when the environmental aspects of work sites and the construction of civil and technological works are analyzed.

To meet its production and operating requirements in 2016, the group consumed a total<sup>17</sup> of 121,929.5 GJ

#### TOTAL ENERGY CONSUMPTION (GJ)

Electrical Energy Natural Gas Diesel District heating Petrol and LPG



17. Energy resources were recalculated by including also the data on district heating, which was used at the Genoa and Solna sites and that was considered separately in past editions of the report.

of energy. Compared to 2015, **total consumption dropped** by of 2,325 GJ (-1.9%), and this concerned **both the production sites** for 1,413 GJ (-4.3%) and the **office sites** for 912 GJ (-1.0%).

The consumption analysis in absolute value by energy source compared to 2015 reveals:

- an Electrical Energy consumption reduction of 475 GJ (-0.6%) as the consequence of the 1,732 GJ decrease (-6.0%) recorded at the production sites and of the 1,257.3 increase (+2.2%) at the office sites, 37% of which is due to including the Spanish sites in the scope of the report;
- a **reduction of Natural Gas consumption** of 1,769 GJ **(-6.6%)**, mainly due to its decrease recorded at the office sites (-8.4%);
- a reduction of Diesel consumption of 807 GJ
   (-11.2%), also in this case due to its decrease recorded at the office sites (-995.6 GJ, equal to -13.9%);
- a reduction of Petrol and LPG consumption for haulage of 220 GJ (-8.5%);
- an increase in district heating use of 946.4 GJ (+39.1%).



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The energy consumption trend of the three-year period 2014-16 at the production and office sites is illustrated in the following table.

	PRO	DUCTION SIT	ES	O	FFICE SITES	
	2014	2015	2016	2014	2015	2016
Electrical energy (GJ)	29,261.2	28,834.3	27,102.2	60,291.8	56,307.0	57,564.3
Natural gas (GJ)	3,867.3	3,711.2	3,888.9	16,874.1	23,138.2	21,191.3
Diesel (GJ)	42.9	42.9	231.5	22,291.4	7,154.5	6,158.9
District heating (GJ)	-	-	-	2,959.6	2,417.6	3,363.9
Petrol and LPG (GJ)	379.5	389.7	342.3	430.6	2,263.7	2,086.2
TOTAL [GJ]	33,550.9	32,978.11	31,564.8	102,847.5	91,281.0	90,364.6

In absolute terms, about 74% of total energy consumption is due to the 16 office sites and 26% to the three production sites. The percentage breakdown of consumption by type is shown in the chart below.

#### 2016 - BREAKDOWN OF TOTAL ENERGY CONSUMPTION (%)



In 2016, the **Energy intensity** performance indicator showed a substantial reduction at **production sites** 

(-10.7%) due to the combined effect of the increase in hours worked (+7.2%) and the decrease in consumption (-4.3%). The indicator increased slightly (+1.8%) at the **office sites**. Both consumption (-1.0%) and hours worked (-2.7%) were down.

#### **ENERGY INTENSITY Total energy consumption per hour worked** (GJ/no. h)



Considering Electrical Energy consumption only, the **Electrical energy consumption per hour worked** performance indicator in 2016 revealed a 12.3% reduction at the production sites due to the combined effect of both lower consumption (-6.0%) and the increase in hours worked (+7.2%) and a 5.1% increase at the office sites because of higher consumption (+2.2%) and fewer hours worked (-2.7%).

Within the overall reporting scope, the **Energy intensity of buildings** indicator, calculated on the consumption of electricity and natural gas for heating and district heating, showed a reduction at production sites (-4.8%) mostly due to the lower consumption of electrical energy (-6.0%), and an increase at the office sites (+6.7%).

#### **KPI - Electrical energy consumption per hour worked** (kWh/no. h)



# **KPI - Energy intensity of buildings** (GJ/m<sup>2</sup>)



#### Energy efficiency of Italian sites

Ansaldo STS concluded the project to reduce its energy use at its Italian sites in Genoa, Piossasco (Turin), Naples and Tito Scalo (Potenza) by 20% in 2016. The project was launched in 2010 with an analysis of energy consumption (electrical energy and gas for heating) over recent years and a future projection that showed an increase. As a result, the need arose to contain and reduce consumption and, consequently, reduce GHG emissions (CO<sub>2</sub> in particular).

The types of steps to be taken as part of this project provide, for the Piossasco site, the replacement of much of the energy infrastructure which is obsolete (pipes, valves, lighting, etc.), while for the Genoa, Tito and Naples sites, the approach will focus more on rationalizing consumption (less lighting in offices, including when personnel are not present, turning off PCs and displays when they are not in use, etc.) on the basis of actual needs, with the replacement of certain plants with energy-saving oriented systems only where they are obsolete.

A total reduction in energy consumption at the Italian sites of 8.7% was reported between 2013 and 2016.

ENERGY CONSUMPTION	ELECTRICAL ENERGY (GJ)		NATURAL GAS (GJ)		DISTR HEATING	ICT G (GJ)	TOTAL ENERGY CONSUMPTION (GJ)		Var %	ENER INTENS OF BUILI (GJ/r	GY SITY DINGS n²)
ITALIAN SITES	2013	2016	2013	2016	2013	2016	2013	2016	13/16	2013	2016
Tito Scalo	6,670	5,691	2,984	2,430	-	-	9,654	8,121	-15.9%	1.15	0.97
Piossasco	5,921	5,793	13,267	11,150	-	-	19,188	16,943	-11.7%	0.85	0.75
Genoa	11,540	10,134	-	-	2,424	2,880	13,964	13,014	-6.8%	0.82	0.77
Naples	7,852	8,073	2,138	2,054	-	-	9,990	10,127	1.4%	1.03	1.05
TOTAL	31,983	29,690	18,390	15,634	2,424	2,880	52,796	48,204	-8.7%	0.92	0.84

#### **Renewable energies**

Ansaldo STS again acquired electrical energy consumption certificates for its Italian sites under the Renewable Energy Certificate System (RECS) in 2016. These certificates represent 1 MWh, and attest to the use of energy from renewable sources, which include, as defined by EU directive no. 2009/28: wind, solar, aerothermal, geothermal, ocean, hydraulic, waste-to-energy, landfill gas, residual gas from purification processes and biogas.

By acquiring and subsequently cancelling the certificates (the latter entails the withdrawal of the certificate from the market), Ansaldo STS demonstrates its commitment to environmental sustainability through its willingness to pay the positive difference with the price of electricity from conventional sources.

Since 2014, the Solna site has adopted an energy source mix that is totally renewable (wind power, hydro-electric and waste-to-energy).

2014	2015	2016
,332,424	6,399,993	6,513,346
25.5%	27.1%	27.7%
,	332,424 25.5%	2014         2013           332,424         6,399,993           25.5%         27.1%



#### Consumption of raw materials and materials

Ansaldo STS is aware of the contribution that each company can give to safeguarding the world's resources by adopting policies to reduce the intensive use of raw materials, an objective promulgated by the OECD Council and in the sustainability strategies of many nations.

It is however difficult to make a reliable estimate of the raw materials used by the company and contained in the electronic and electromechanical components for making signaling equipment. This is due to the fact that a considerable and substantially diversified type of small parts (electric cables, screws, bolts) and accessories (boards, monitors, inductive connections, light signals, cabinets) are needed for production. Moreover, the making of the product can follow different paths: complete production inside the plants - from the printed circuit to the finished electronic board, or from the shell to the inductive connection, or assembly of products purchased "semi-finished" (electronic boards, monitors, computers) in the case of more complex systems such as complete cabinets or, as an alternative, processed by outside suppliers.

However, Ansaldo STS's search for increasingly standardized designs and innovation will increasingly lead to an overall reduction in the consumption of raw materials directly and indirectly through a reduced use of components. The use of powerful technological platforms integrating several functions in the same subsystem enable Ansaldo STS to reduce the size of equipment and their connectors, using simple and effective systems for scheduling, testing and roll-out.



The consumption of paper and packaging materials used for shipping follows.

PAPER AND PACKAGING MATERIALS	2014	2015	2016
Paper [t]	97.38	88.74	83.09
Packaging in paper and cardboard [t]	62.27	32.41	15.59
Packaging in wood [t]	n.d.	n.d.	55.72
Mixed packaging used [t]	n.d.	n.d.	1.05
Packaging in plastic [t]	n.d.	n.d.	0.60



> See page 74 "Reducing raw materials consumption" and "Ecodesign"

### **Hazardous materials**

There are no hazardous materials pursuant to Legislative decree no. 344/99 and subsequent modifications and integrations at Ansaldo STS's sites.

HAZARDOUS MATERIALS	2016
Total nitrogen consumption [I]	40,400
Total consumption of paints [t]	0.91
Total consumption of solvents [t]	1.97
Lubricant oil [t]	0.81
Halogenated hydrocarbons [kg]	4.54
Consumption of ozone-depleting substances [t]	0.26

Substances such as nitrogen, solvents and paints are used in the welding, washing, testing and painting of electronic boards; assembly and resin finishing of coils; assembly and testing of light signals; and equipment temperature cycle testing production processes. Air conditioning systems using ozone-depleting substances - Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs) - are at the Pittsburgh, Genoa, Les Ulis, Batesburg, Riom, Piossasco and Tito Scalo sites. In 2016, consumption of these substances totaled 0.26 t (at the



Pittsburgh, Batesburg and Tito Scalo sites). The air conditioning systems at the Batesburg site also consumed 4.54 kg of halogenated hydrocarbons.

#### **Atmospheric emissions**

ATMOSPHERIC EMISSIONS – PRODUCTION SITES	2014	2015	<b>2016</b> <sup>18</sup>
NOx (Kg)	193.37	185.75	210.55
CO (Kg)	96.68	92.86	105.26
VOC - Volatile organic compounds (Kg)	63.2	67.58*	64.84 <sup>19</sup>
Volatile inorganic compounds (Kg)	0.10	0.10	0.10
Heavy metals (Pb, Hg, Cd, Cr, As, Co, Ni) (Kg)	0.10	0.10	0.10
Particulates (Kg)	1.60	1.60	1.60
ATMOSPHERIC EMISSIONS - OFFICE SITES	2014	2015	2016
SO2 (Kg)	179.24	175.91	108.31
NOx (Kg)	1,123.01	1,464.30	1351.37
CO (Kg)	440.90	599.93	550.07

\* This value was adjusted against the previous edition of the Sustainability Report.

Atmospheric emissions mainly relate to the production sites and only some of the office sites (Les Ulis – France, Pittsburgh – US, Naples and Piossasco – Italy).

In 2016, there was an increase in atmospheric emissions at production sites due to higher consumption of natural gas as thermal plants were working, in contrast to other sites where a decrease was recorded.

The Tito Scalo site monitors emissions of volatile organic compounds, volatile inorganic compounds and heavy metals derived from their production processes. CO and NOx emissions mainly derive from thermal energy plants equipped with effective filters to reduce pollutants.

Data on particulates relate to the Tito Scalo site and concern emissions from the production and handling of goods.

18. 2016 emissions data for NOx, SO2 and CO (like those of 2015) have been estimated based on the consumption of natural gas and diesel to produce thermal energy by using the rates obtained through an analysis of 2014 data.

<sup>19.</sup> Estimated on the basis of 2014 data and the ratio of hours worked in 2016 compared to the hours worked in 2014 at the Tito Scalo site (1.026).

#### Water management

The sustainable management of site water where it is withdrawn, used and disposed of encourages the maintenance and improvement of water use efficiency, ensuring less waste and reduced environmental impact. Ansaldo STS manages water resources with particular attention and over the years has conducted a number of water-saving initiatives. These

include the installation of photocell faucets in Italy, projects to recover rainwater at the Riom site (France) and projects to replace the cooling towers with dry systems.

Ansaldo STS's "Water management guidelines" are applied to all companies with the aim of defining the methods to be followed by the group's Italian companies for the

sustainable management of water at office and production sites.

Ansaldo STS's water procurement sources include aqueducts and water tables where water is drawn through wells.

	PRODUCTION SITES			0	FFICE SITE	s
WITHDRAWAL OF WATER	2014	2015	2016	2014	2015	2016
Water drawn from aqueducts (m³/year)	15,732	14,726	12,329	171,617	160,942	143,153
Water drawn from wells (m³/year)	-	-	-	42,007	41,906	10,616
Other sources of procurement (m³/year)	-	-	-	92	132	-
TOTAL	15,732	14,726	12,329	213,716	202,979	153,769

The use of water is mainly for civil purposes. Water consumption at the Tito Scalo (Italy), Riom (France) and Batesburg (US) sites is very low. These sites reduced their withdrawal of water substantially (-21.6%) from 2014 to 2016, as the Tito Scalo plant cut the amount of industrial water it used for fire drills and irrigation of green areas. The amount of water used for production decreased because electrical circuit cards are no longer rinsed.

Compared with 2015, withdrawal fell at the office sites as well (-11.1%); particularly affecting this result was the decrease recorded at the Naples site.

The water consumption per employee indicator shows a reduction of 24.7% at the production sites and a 27.1% reduction at the office sites, both due to the combined effect of reduced consumption and increase in the number of employees.

#### **KPI** - Water consumption per employee (m<sup>3</sup>/no. of employees)



The wastewater produced at the sites can be classified, on the basis of its use upstream from disposal, as domestic (or similar) and industrial. All Ansaldo STS sites produce wastewater that can be exclusively classified as domestic or similar, except for the Tito site. All the domestic or similar wastewater is discharged into the sewers. The Naples site uses an organic wastewater treatment system. The sites use authorized disposal points. The Batesburg and the Tito Scalo sites' points are monitored.

	PRODUCTION SITES			0	FFICE SITE	S
WASTEWATER	2014	2015	2016	2014	2015	2016
Volume of domestic or similar wastewater (m³/year)	8,863	11,007	9,613	126,912	118,483	105,704
Volume of industrial wastewater (m³/year)	2,518	1,400	1,156	-	-	-
TOTAL	11,381	12,407	10,769	126,912	118,483	105,704

(1)

Industrial wastewater, produced only at the Tito Scalo site, decreased due to favorable weather conditions that allowed a large reduction in consumption. The rinsing water is discharged directly into a consortium sewer while the first rinse water is collected in an external tank and eliminated as waste.

#### Waste production and management

The production of waste is an environmental aspect that is assessed and measured at all Ansaldo STS sites, and when the environmental aspects of work sites and the construction of civil and technological works are analyzed.

The most prominent waste in production sites is related to paper, cardboard and wood packaging, metal and out of order equipment. Ansaldo STS's policy is to reinforce prevention and the re-use, recycling and recovery of waste. All its sites have waste collection areas based on the type of waste and site layout. External specialist companies collect and process the hazardous and non-hazardous waste.

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	PRO	DUCTION S	ITES	0	FFICE SITE	S
WASTE PRODUCTION	2014	2015	2016	2014	2015	2016
Hazardous (t)	14.56	14.50	13.03	21.45	14.72	15.19
% recovered	22%	29%	6%	98%	28%	66%
% disposed of	78%	71%	94%	2%	72%	34%
Non-hazardous (t)	102.13	296.12	77.44	421.44	306.43	1,549.17
% recovered	96%	33%	60%	47%	55%	44%
% disposed of	4%	67%	40%	53%	45%	56%
TOTAL WASTE (t)	116.69	310.62	90.47	442.89	321.16	1,564.36
% recovered	87%	33%	53%	50%	54%	44%
% disposed of	13%	67%	47%	50%	46%	56%



#### PRODUCTION SITES Total waste (t)



#### OFFICE SITES Total waste (t)



**Production Sites** - Total waste production decreased due to the reduction of non-hazardous waste, mainly at the US Batesburg and the Italian Tito Scalo sites. Furthermore, the proportion of recovered waste increased compared to the disposed waste.

**Office sites** - The total quantity of waste produced, particularly non-hazardous waste, increased in 2016. The strong growth is related to the Australian Brisbane and Perth sites. On the other hand, the proportion of disposed waste increased compared to the recovered waste.

#### KPI - Kg of waste per hour worked



The abovementioned trends are reflected by the **Kilograms of waste produced per hour worked indicator**, which strongly decreased at production sites (due to the increased number of hours worked) while the office sites saw a strong growth of the indicator, due to the combined effect of the reduction of hours worked, and the increase of waste production.



#### Packaging, domestic urban waste and metal waste

Ansaldo STS uses various mixes of packaging: plastic, cardboard and wood (crates). Part of the plastic, cardboard and wood packaging is reused to package similar products as Ansaldo STS introduced a specific policy for this, especially for the central warehouses at the Piossasco and Tito Scalo sites.

All cardboard and mixed material packaging are completely recovered as waste.

2016 – Packaging waste	Tons produced	% reused	% recovered as waste
Paper Packaging	69.63	0%	100%
Wood Packaging	32.18	12%	88%
Plastic Packaging	0.30	5%	95%
Mixed material Packaging	9.80	3%	97%

The trend of domestic urban waste is represented by the following table.

Domestic urban waste	2014	2015	2016
Total domestic urban waste produced [t ]	606.57	571.80	1.290.16
Total domestic urban waste per employee [t/empl. N.]	0.16	0.17	0.35

A reduction in the production of this typology of waste was registered between 2014 and 2016. More specifically, tons produced per employee decreased by 11.7% compared to 2015.

Furthermore, the production of metal waste decreased compared to 2015, especially in the US Batesburg production site and in the Italian Piossasco site.

Metal waste	2014	2015	2016
Metal waste for recovery t]	77.03	113.93	66.25



#### Soil remediation

In May 2012, the DHEC (Department of Health and Environmental Control) sent to Ansaldo STS, Batesburg site, the approval of the work plan developed by a specialized consulting firm, which set out a proposal for the characterization of soil and groundwater closed to the factory. The Work approved plan anticipated:

- the installation of 8 permanent wells for sampling;
- a soil and subsoil sampling campaign in the perimeter area to the plant Ansaldo STS;
- gas surveys in groundwater to check the concentration of VOCs in the production of the plant.

In December 2014 was signed the Voluntary Clean Up, a contract between the SCDHEC (South Carolina Department of Health and Environmental Control) and Ansaldo STS USA in which Ansaldo STS is committed to implementing the activities (such as the drafting of the Focused Feasibility Study, the Long Term Groundwater Monitoring Plan, the Health and Safety Plan and the Written progress report) aimed at continuous improvement and constant coordination with the SCDHEC, considering all the possible remedies that can be implemented in relation to cost and impacts on environment, health and regular work activities. ERM (Environmental Resources Management), on behalf of Ansaldo STS USA, has provided the presentation of the SBB (Focused Feasibility Plan, in accordance with the Voluntary Cleanup, regulations and guidelines in the environmental field). In the document, after a detailed background of remediation activities previously carried out, an analysis is made of the possible alternatives and the criteria according to which it will opt for the most suitable choice

(Overall protection of human health and the environment, long term effectiveness and performance, short term effectiveness, compliance with regulatory requirements, reduction of toxicity, mobility or volume, possible implementations, cost, state acceptance). The FFS was presented to SCDHEC and a first meeting was made on 31 March 2015. Additional sampling for detailing the nature of the contaminants in both surface water and sediments have been requested and regularly carried out (late 2015 and early 2016). The FFS has therefore been revised with all the data from the monitoring required and evaluating the alternatives that can be implemented on the basis of a cost-benefit analysis. The FFS has been submitted to SCDHEC in December 2016. It will be up to SCDHEC the final decision on the plan to implement.

#### **Biodiversity**

There are two Ansaldo STS sites in proximity of protected areas:

- Les Ulis (France) total area 20,000 m<sup>2</sup> (40% offices, 30% streets and parking lots, 30% green areas) where administrative and sales activities, as well as tests on electronic systems are carried out. The site is certified ISO 14001 and is close to the Bois of the Gellesche<sup>20</sup>, with an area of 16 hectares.
- Tito Scalo (Pz) total area 40,000 m2 (21% plants, warehouses and offices, 19% streets and parking

lots, 60% green areas) where activities of manual and automated welding, as well as painting of circuit boards, are carried out. The site is certified ISO 14001 and EMAS registered. It is at less than 3 km far from the lake of Pantano, Regional Natural Reserve and Oasis of WWF. Pantano di Pignola<sup>21</sup> is located in a Site of Community Importance and in a Special Protection Area (SIC-ZPS IT9210142), in the municipality of Pignola (Pz). It is also RAMSAR Area (Convention on Wetlands of International Importance). Due to the insignificant activity of the site with respect to biodiversity, the only biodiversity indicator considered by the EMAS is: Number of Employees per m2 of the area.

#### Noise

Noise levels at all Ansaldo STS sites are observed and exterior and interior noises are monitored according to the frequencies provided for by current legislation to ensure compliance with applicable thresholds. When Ansaldo STS is the main contractor, during coordination and security activities, it can ask subcontractors for updates on the performance of measurements to check that the thresholds are not exceeded.

#### **Environmental audits**

The following table shows the environmental, health and safety audits carried out during 2016:

2016 – Environmental audits	PRODUCTION SITES	OFFICE SITES	TOTAL
Number of internal environmental audits	3	15	18
Number of external environmental audits (from suppliers/clients/ certification bodies)	3	15	18

During 2016 there were no external complaints regarding environmental impact, and no infringements of environmental law were identified by external control bodies.

20. http://www.essonne.fr/fileadmin/patrimoine\_naturel/sites-naturels/Villebon-sur-Yvette-Foret\_du\_Bois\_des\_Gelles.pdf

21. http://www.wwf.it/oasi/basilicata/pantano\_di\_pignola/

# **Health and Safety**

Ansaldo STS encourages commitment to protecting the health and safety of workers inside all of its processes. Health and safety responsibility is managed with a structured system of delegations and powers of attorney to define the health and safety responsibilities, tasks and powers assigned to the delegates.

Ansaldo STS has defined a management system integrating all its processes in one central structure. This enables the Organization to operate as a single unit with shared objectives and the global application of health and safety standards.

Ansaldo STS's health and safety management system enables it to define the process operating methods used to achieve compliance with the legislative requirements and verify adequacy and compliance. The fundamental elements of safety awareness are the constant diligence of every person, integrating safety with the processes and training, reporting and analyzing near-misses, and severity in selecting and managing contractors.



#### The health and safety policy

Ansaldo STS's health and safety in the workplace policy is based on the application of the requirements of relevant standards, namely OHSAS 18001:2007, and other international standards, in compliance with national and international regulations. Ansaldo STS develops a plan focused on continuously improving health and safety standards.

Ansaldo STS undertakes to:

- ensure and maintain a safe and healthy workplace environment and prevent injuries, illnesses or damage to the health of employees, suppliers, customers and visitors;
- extend OHSAS 18001 certification to all Ansaldo STS sites, continuously improving the effectiveness of the health and safety in the workplace management system;
- continuously improve the aforementioned management systems' performance, not only with respect to the prevention of injuries and work-related illnesses, but also in terms of more general employee wellbeing;
- adopt risk assessment criteria for all dangers relating to work activities which, in compliance with national and international legislation, also consider best practices;
- increase the training and updating of all employees in order to make them more aware of the risks related to their activities;
- continue developing activities to spread a culture of safety with all suppliers and concerned parties.

This policy is shared with all Ansaldo STS personnel and all concerned parties online and via the company Intranet.

### Training

The company promotes shares and consolidates a culture of health and safety through training to increase employees' awareness of risks and encourage responsible conduct. Accordingly, Ansaldo STS promotes training and updating activities to develop the expertise of its personnel, as personnel can affect health and safety in the workplace through their activities. In 2016, 6,352 hours of safety training were provided, between production sites and office sites included in the reporting scope of this section.

	PRODUCTION SITES			C	ES	
TRAINING IN HEALTH AND SAFETY	2014	2015	2016	2014	2015	2016
Total hours of health and safety training	2,644	2,293	2,152	31,858	8,124	4,380
Total hours of training	10,024	6,906	5,742	77,946	60,232	42,916
Health and safety training as % of the total	26%	33%	37%	41%	13%	10%

2014 data, especially for the office sites, are considerably higher because the company implemented an ambitious training plan in Italy during that year, in collaboration with Fondimpresa.

#### Health and safety performance

As stated in its policy, Ansaldo STS considers safeguarding health and preventing any kind of workrelated accident, injury or illness as a key value. The HSE entity addresses and supports the business on health and safety topics, defines improvement plans and monitors their execution. On the corporate level, it also has the task of defining H&S objectives, the procedures, the KPIs and ensuring their implementation.

Health and safety performance indicators are monitored and analyzed over time, and used to set objectives by breaking them down by risk factor and location.

Safety is therefore a strategic must for Ansaldo STS with all workers contributing every day to ensure safety for end users.

Overall, in 2016, there were eight injuries (entailing incapacity to work for more than three days), five at the office sites and three in production sites (excluding commuting accidents). There was a total of 120 days of temporary incapacity due to injuries, of which 69 at office sites and 51 at production sites.

Injury frequency and severity indicators are reported below.

#### Injury frequency index - OFFICE SITES



#### **Injury severity index - OFFICE SITES**



The office sites saw a slight increase in the frequency rate due to the growth of the number of injuries (from 4 to 5) and a decrease in the severity rate, following the reduction in the number of days lost (from 79.5 to 69).



#### Injury frequency index - PRODUCTION SITES

#### Injury severity index - PRODUCTION SITES



The production sites recorded a slight increase both in the frequency rate, due to the growth, from one to three, in the number injuries, and in the severity, following the increase in the number of days lost (from 4 to 51).

In order to acquire information that is helpful in improving performance, in accordance with the health and safety policy, Ansaldo STS also tracks near misses (accidents without consequences that arise out of undesired or unexpected situations that could have put people at risk), in order to gather and analyze data and information and identify potential solutions in advance. Main initiatives concerned:

- Implementation of the procedure to manage accidents and near misses at global level: Ansaldo STS has created a procedure to provide information on how to correctly manage events entailing injuries, accidents and near misses. This procedure is a valid prevention and information management tool for statistical purposes, to identify the causes of an accident and meet legal requirements relating to health, safety and hygiene in the workplace;
- Implementation of quarterly EHS reporting to monitor and gather main information on the performance of activities carried out in relation to the application of SGS/SGA. These reports are prepared by all EHS officers at work sites;
- Safety meetings for all main work sites.

#### Health and safety committee

Ansaldo STS also holds meetings pursuant to article 35 of Legislative decree no. 81/08, in which the employer (or a representative), the Prevention and Protection Service Manager, Doctor, Safety Officer and Workers' Safety Representative participate. These meetings are called at least once a year and represent 100% of employees of the Italian group companies to which Legislative decree no. 81/08 applies.

SITES	SITES	TOTAL
15	43	58
3	18	21
	15 3	SITES         SITES           15         43           3         18





Ansaldo STS S.p.A. asks its subcontractors for information about the number of injuries

involving their employees in the worksites (excluding commuting accidents) and the number of days of temporary incapacity. The 2014 to 2016 data are as follows

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INJURIES SUBCONTRACTORS WORKSITES	NO. OF WORKSITES	No. of total injuries of subcontractors' employees	Total no. of days of temporary incapacity
2014	32	4	87
2015	60	16	326
2016	46	15	428

#### Costs and investments for the environment, health and safety

In 2016, Ansaldo STS incurred environmental costs to treat and dispose of wastewater, to recover and dispose of waste and for soil remediation work.

ENVIRONMENTAL COSTS (in Euros)	2014	2015	2016
Total cost for the treatment and disposal of domestic and similar wastewater	21,843	23,610	20,676
Total cost for the treatment and disposal of industrial wastewater	5,070	8,762	0
TOTAL WASTEWATER COSTS	26,913	32,372	20,676
Costs to produce, treat, recovery and dispose of toxic and non-toxic waste	89,696	104,733	133,543
Waste production taxes	262,362	268,417	79,751
TOTAL WASTE COSTS	352,058	373,150	213,294
Environmental reclamation costs	79,603	67,356	156,858
Costs to reclaim equipment containing CFC/HCFC and functional clean-up	20,000	25,000	0
TOTAL REMEDIATION COSTS	99,603	92,356	156,858
TOTAL ENVIRONMENTAL COSTS	478,574	497,608	390,828

EHS investments mainly related to air-conditioning systems, heat insulation and LED lighting.

SAFETY AND ENVIRONMENT INVESTMENTS (in Euros)	2014	2015	2016
Investments in the environment, health and safety	339,681	550,716	218,103



# OUR PEOPLE

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Our people are essential to successfully compete in the market. Honesty, loyalty, aptitude, professionalism and technical preparation are aspects in which Ansaldo STS invests and which it requires from its employees so that they can achieve their personal and the company's growth objectives.



Our people 🕕 🌒 🍄 🖓 詰 🍖 🏭 🚮



## Human resource management policy

Ansaldo STS offers equal opportunities beginning with the recruitment process, ensuring equal treatment considering individual skills and abilities.

Over the course of employment, Ansaldo STS undertakes to create and maintain the necessary conditions to further expand upon employees' abilities and expertise on an equal opportunity basis, through a policy based on the recognition of merits and equal opportunities and the provision of specific refresher and specialization courses. This is why employees are required to cultivate and draw on new expertise, abilities and knowledge, while managers and function heads must devote the utmost attention to enhancing and developing the professionalism of their workers.

In the pursuit of company objectives, workers must be aware that ethics

are of immense value to the company and accordingly, no conduct is tolerated that, although it may appear in the abstract to benefit Ansaldo STS, is in violation of the law, current regulations, the organizational, management and control model or the code of ethics.



#### Headcount

At year end, Ansaldo STS's headcount is 3,951, as follows<sup>22</sup>:

2016				2015	j		
MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
1,381	331	1,712	43.3%	1,268	287	1,555	41.2%
689	179	868	22.0%	653	169	822	21.8%
526	186	712	18.0%	488	184	672	17.8%
505	92	597	15.1%	558	98	656	17.4%
39	23	62	1.6%	41	26	67	1.8%
3,140	811	3,951	100.0%	3,008	764	3,772	100.0%
	MEN 1,381 689 526 505 39 <b>3,140</b>	2016           MEN         WOMEN           1,381         331           689         179           526         186           505         92           39         23           3,140         811	2016           MEN         WOMEN         Total           1,381         331         1,712           689         179         868           526         186         712           505         92         597           39         23         62           3,140         811         3,951	2016           MEN         WOMEN         Total         % of total           1,381         331         1,712         43.3%           689         179         868         22.0%           526         186         712         18.0%           505         92         597         15.1%           39         23         62         1.6%           3,140         811         3,951         100.0%	2016         %           MEN         WOMEN         Total         %         MEN           1,381         331         1,712         43.3%         1,268           689         179         868         22.0%         653           526         186         712         18.0%         488           505         92         597         15.1%         558           39         23         62         1.6%         41           3,140         811         3,951         100.0%         3,008	2016         %         MEN         WOMEN         Total         of total         %         MEN         WOMEN         MEN         MEN	2016         2015           MEN         WOMEN         Total         of total         MEN         WOMEN         Total           1,381         331         1,712         43.3%         1,268         287         1,555           689         179         868         22.0%         653         169         822           526         186         712         18.0%         488         184         672           505         92         597         15.1%         558         98         656           39         23         62         1.6%         41         26         67           3,140         811         3,951         100.0%         3,008         764         3,772

Compared to 2015, there was an increase in the number of employees, with the total reaching 179 (+132 men and +47 women), equal to 4.7% of the workforce at the start of the year. This was the result of the increase in the number of employees in Central and Eastern Europe and the Middle East (+157), Western Europe (+46) and the Americas (+40) and a drop in the Asia Pacific (-59) and China (-5).

The total percentage of women making up the workforce is 20.5%, showing slight growth (+0.2 percentage points).

	2016					20	15	
CONTRACT TYPES	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
Employees with open-ended contracts	3,058	786	3,844	97.3%	2,840	735	3,575	94.8%
Employees with fixed-term contracts	82	25	107	2.7%	168	29	197	5.2%
TOTAL	3,140	811	3,951	100.0%	3,008	764	3,772	100.0%

The percentage of employees working under open-ended contracts is 97.3%, up 2.5%, demonstrating the importance that Ansaldo STS places on the provision of steady employment.

		20	16			20	15	
OTHER CONTRACT TYPES <sup>23</sup>	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
Temporary staff	34	11	45	54.2%	13	8	21	21.6%
Contract workers	0	0	0	0.0%	5	0	5	5.2%
Work experience	14	11	25	30.1%	30	16	46	47.4%
Other contract categories	6	7	13	15.7%	19	6	25	25.8%
TOTAL	54	29	83	100.0%	67	30	97	100.0%

The decrease in the use of *other contract* types (-14 employees) was due to the reduction in work experience (-21), contract workers (-5) and other contract categories (-12), offset by the increase in temporary staff (+24).

22. The regions are defined as follows:

• Western Europe: France and the South Korean branch, UK, Spain and Sweden

- America: US and Canada
   Asia Resifie: Australia Mala
- Asia Pacific: Australia, Malaysia, India and Botswana
  China: China and Hong Kong
- 23. This information is given in accordance with an approach that more closely corresponds with Italian and European legislation. Information on non-European countries has been adjusted for classification in the same types considering contractual similarities.

<sup>•</sup> Central and Eastern Europe and the Middle East: Italy and Italian branches (Denmark, Turkey, Greece, Taiwan, Honolulu, United Arab Emirates, Saudi Arabia and Peru) and Germany

	2016				20	15		
CATEGORIES	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
Managers	71	6	77	1.9%	78	5	83	2.2%
Junior managers	360	66	426	10.8%	381	73	454	12.0%
White collars	2,471	669	3,140	79.5%	2,337	617	2,954	78.4%
Blue collars	238	70	308	7.8%	212	69	281	7.4%
TOTAL	3,140	811	3,951	100.0%	3,008	764	3,772	100.0%

The breakdown of the group's workers by professional level is as follows:

The breakdown of the various categories shows a 1.2 percentage points increase in white collars, growing by 186 employees, and a 0.4 percentage points increase in the blue collar category growing by 27 employees. Both managers and junior managers decreased.

Analysis by gender highlights an increase in the percentage of women managers (from 6.0% to 7.8%) and an increase in the percentage of women white collars (from 20.9% to 21.3%)

		2016	6			2015	5	
DEGREE/DIPLOMA <sup>24</sup>	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
Technical high school	807	132	939	23.8%	826	129	955	25.3%
Other high school	279	192	471	11.9%	249	178	427	11.3%
Technical graduates	1,657	284	1,941	49.1%	1,519	207	1,726	45.8%
Other graduates	211	165	376	9.5%	302	220	522	13.8%
Other education	186	38	224	5.7%	112	30	142	3.8%
TOTAL	3,140	811	3,951	100.0%	3,008	764	3,772	100.0%

The breakdown of the group's workers by education level is as follows:

In terms of absolute value and by percentage, growth can be seen in the number of technical graduates (+215 employees, 138 of which men and 77 women, equal to a 3.4 percentage points increase) and non-technical graduates (+44 employees, 30 of which men and 14 women, equal to a 0.6 percentage points increase) while non-technical graduates are down (-146 employees, 91 of which men and 55 women, equal to a 4.3 percentage points decrease).

The average overall age is 42.6 years (42.7 for men and 42.1 for women), slightly less than 2015 (-0.2 years). Compared to the previous year, there is an increase in employees across all age categories: especially those under 30 years of age (+56), between 30 and 35 (+39) and between 41 and 45 (+40). In terms of percentage distribution, this is reflected in the higher growth of employees up to 35 years of age (+1.2 percentage points).

<sup>24.</sup> The relevant framework, compared with Italy's, is: Technical Graduates – university graduates with technical degrees (mainly engineering,); Other Graduates – university graduates with non-technical degrees (humanities, for example); Technical High School – high school graduates with technical studies (electrical studies, for example); Other High School – high school graduates with non-technical studies (electrical studies, for example); Other High School – high school graduates with non-technical studies (classical studies, for example); Other education – not finished high school (middle school degrees, for example).
		2016	ò			2015	5	
405		WOMEN	Tabal	%			Tetel	%
AGE	MEN	WOMEN	Iotal	of total	IVIEIN	VVOIVIEIN	Iotai	ortotal
< 30	274	78	352	8.9%	235	61	296	7.8%
30-35	597	155	752	19.0%	565	148	713	18.9%
36-40	566	148	714	18.1%	561	149	710	18.8%
41-45	425	125	550	13.9%	391	119	510	13.5%
46-50	337	85	422	10.7%	324	78	402	10.7%
>50	941	220	1,161	29.4%	932	209	1,141	30.2%
TOTAL	3,140	811	3,951	100.0%	3,008	764	3,772	100.0%

Gender analysis highlights that female staff, as all staff in general, grows in absolute terms almost across every age group. Specifically, there is a rise in women under the age of 30 (+17) and over the age of 50 (+11); these categories also increase their percentage weight (+1.6 percentage points and +0.6 percentage points, respectively).

The breakdown of the group's workers by seniority is as follows:

		2016	;			2015	5	
COMPANY SENIORITY	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
< 5 years	991	263	1,254	31.7%	854	219	1,073	28.4%
5-10 years	691	178	869	22.0%	864	216	1,080	28.6%
11-15 years	639	170	809	20.5%	533	150	683	18.1%
16-20 years	185	49	234	5.9%	143	30	173	4.6%
20-25 years	131	32	163	4.1%	123	42	165	4.4%
> 25 years	503	119	622	15.7%	491	107	598	15.9%
TOTAL	3,140	811	3,951	100.0%	3,008	764	3,772	100.0%

The average seniority has grown slightly from 12.4 to 12.5 years (for women, it has gone from 12.1 to 12.2 years and for men, from 12.5 to 12.6). In absolute terms, there is an increase in employees with company seniority under 5 years (+181), between 11 and 15 years (+126) and between 16 and 20 years (+61) which also increase their percentage weight. This trend may be seen in both men and women.

Ansaldo STS grants part-time positions, provided that they are compatible with technical and organizational requirements. There has been an increase in absolute terms during 2016 which has especially involved the women of Western Europe.

PART-TIME		2010	6		2015			
out of total employees by geographical area	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
Central and Eastern Europe and the Middle East	0	30	30	1.8%	0	30	30	1.9%
Western Europe	8	52	60	6.9%	10	45	55	6.7%
The Americas	1	8	9	1.3%	3	6	9	1.3%
Asia Pacific	1	3	4	0.7%	1	4	5	0.8%
China	0	0	0	0.0%	0	0	0	0.0%
TOTAL	10	93	103	2.6%	14	85	99	2.6%

		2010	6			201	5	
FUNCTION	MEN	WOMEN	Total	% of total	MEN	WOMEN	Total	% of total
OPERATIONS	2,282	457	2,739	69.3%	2,244	446	2,690	71.3%
RAILWAYS	370	117	487	12.3%	340	87	427	11.3%
FREIGHT	31	9	40	1.0%	35	13	48	1.3%
RAMS	206	58	264	6.7%	157	47	204	5.4%
INNOVATION	22	8	30	0.8%	21	10	31	0.8%
Other	229	162	391	9.9%	211	161	372	9.9%
TOTAL	3,140	811	3,951	100.0%	3,008	764	3,772	100.0%

The table below provides a breakdown of employees by function:

More specifically, compared to 2015, the Railways function increased by 1 percentage point with a rise of 60 employees. The RAMS - Reliability, Availability, Maintainability and Safety - function also rose by 1 percentage point, with an increase of 60 employees; this function ensures that products, applications and systems are safe, reliable and meet both quality standards and customer requirements.

The following tables illustrate the employee turnover rate within the group:

	TOTAL _	BALANCE Year 2015		Increases		Decreases		BALANCE Year 2016		TOTAL
TURNOVER	2015	MEN W	OMEN	MENWO	OMEN	MEN WO	OMEN	MEN W	OMEN	2016
Central and Eastern Europe and the Middle East	1,555	1,268	287	159	48	46	4	1,381	331	1,712
Western Europe	822	653	169	75	18	39	8	689	179	868
The Americas	672	488	184	85	13	47	11	526	186	712
Asia Pacific	656	558	98	81	19	134	25	505	92	597
China	67	41	26	6	4	8	7	39	23	62
TOTAL	3,772	3,008	764	406	102	274	55	3,140	811	3,951

	Increases %	o <sup>25</sup>	Decreases % <sup>26</sup>		
TURNOVER %	MEN	WOMEN	MEN	WOMEN	
Central and Eastern Europe and the Middle East	11.5%	14.5%	3.3%	1.2%	
Western Europe	10.9%	10.1%	5.7%	4.5%	
The Americas	16.2%	7.0%	8.9%	5.9%	
Asia Pacific	16.0%	20.7%	26.5%	27.2%	
China	15.4%	17.4%	20.5%	30.4%	
TOTAL	12.9%	12.6%	8.7%	6.8%	

25. (Incoming in 2016/closing headcount)  $\times$  100. 26. (Outgoing in 2016/closing headcount)  $\times$  100.

## **Recruitment and hiring**

Several years ago, Ansaldo STS introduced sophisticated IT tools to its global recruitment process so that each recruiter had a single database of CVs gathered from a variety of sources. This made it possible to increasingly minimize the use of employment agencies and head hunters.

An agreement the company signed in 2014 with LinkedIn enabled it to improve talent acquisition strategies and achieve positive results both in terms of CVs received, applications considered and in terms of employer branding. Using the LinkedIn license, Ansaldo STS has continued to renew and promote the company image by publishing news, information and commentary on a regular basis.

Furthermore, the constant updating of the company profile and publication of news on the company's business development (handled by the External Affairs Office) keep the participation in social networks alive, also as a result of the new line of editorial content managed by the LinkedIn Narrative Team, consisting of several HR personnel from around the world. Thanks to this initiative (launched in 2015 and developed throughout 2016), our corporate culture has been spread outside the group. Indeed, while Ansaldo STS had 13,000 followers in 2014, its popularity sharply increased in 2016, reaching 60,000. LinkedIn offers two advantages to the company: access to millions of profiles and selection of the best candidates, building up an increasingly extensive and specialized database, as well as allowing potential candidates to learn about the company, its business and organizational culture.

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The direct connection between LinkedIn and Team Management System (TMS) the internal tool used to coordinate the selection process at global level, means the company can automatically publish details about open positions in real time and access a wide network of candidates and CVs. This gives the recruiters greater freedom and faster access to candidates. They can gain a greater understanding of and monitor specific user targets, narrowing their selection criteria. In 2016, thanks to the connection between LinkedIn and TMS, the recruitment database gathered over 23,000 CVs, setting an unprecedented record in the management of job candidates for Ansaldo STS.

Universities, with which Ansaldo STS has forged many partnerships, continue to be a preferential channel for the recruitment and selection of personnel.

Given the international nature of the company's activities and business, personnel, including senior management, are hired on the basis of the specific skills required for the role, regardless of where they are based. Moreover, when projects require many years of maintenance after their roll-out (operation & maintenance), Ansaldo STS prefers to hire local technicians and staff and may seek to hire an entirely local team.



Throughout the entire group, 505 employees (407 of which men and 98 women) were hired in the following categories in 2016: 1 manager, 1 junior manager, 452 white collars and 51 blue collars.

		2016			2015	
HIRINGS	MEN	WOMEN	Total	MEN	WOMEN	Total
Managers	1	0	1	2	1	3
Junior managers	1	0	1	3	1	4
White collars	356	96	452	210	69	279
Blue collars	49	2	51	20	7	27
TOTAL	407	98	505	235	78	313

The following table illustrates the number of new hires by gender, geographical region and age:

HIBINGS	Central and Europe a Middle	d Eastern and the East	West Euro	tern ope	The Ar	nericas	Asia I	Pacific	Ch	iina	то	TAL
YEAR 2016	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
< 30	19	11	29	8	14	1	31	9	3	2	96	31
30 - 39	87	29	32	5	23	5	27	6	3	2	172	47
40 - 49	53	4	9	5	23	0	17	3	6	0	102	12
> 50	0	0	5	0	25	7	7	1	0	0	37	8
TOTAL	159	44	75	18	85	13	82	19	6	4	407	98



# **Training and development**

Market scenarios, which have significantly changed in the past two years, have led to Ansaldo STS facing commercial, technological and managerial challenges that require organizational and management measures capable of refocusing the company culture, adjusting its professional system and updating expertise.

In this context, professional, managerial and specialized training is, and will continue to be, an increasingly crucial lever in the development of human resources. These objectives have been met by pursuing the continuous improvement of training quality standards.

The underlying approach is the translation of the company's strategic targets into consistent operating methodologies, on the one hand, through the development of core skills (necessary to monitor work activities) and, on the other hand, by emphasizing the development of compliance with distinctive ethics from a managerial standpoint.

Training is developed through projects in four main areas:

- regulatory;
- language;
- managerial;
- technical/specialized.

Ansaldo STS also offers specific training courses to certain groups of employees, such as senior managers, growing junior managers, technical experts or young people with talent, ensuring paths that will help them develop in their career or expand upon the skills needed to meet the responsibilities of their job.



In 2016, a total of 74,269 hours of training were provided, slightly less than 2015 (-5.1%), broken down by training category as follows:

% HOURS OF TRAINING BY TYPE	2016	2015
Technical-specialist training	44.8%	38.9%
Language training	21.5%	16.9%
Managerial training	11.9%	12.5%
EHS, Quality, Ethical Aspect	11.6%	18.6%
Mandatory/institutional training	9.3%	4.6%
Refresher training	0.9%	8.5%

The training types are transversal, that is, they include different targets, especially in the areas of regulatory compliance and specific updates for both the general company and individual functions, in order to develop specialized expertise.

Of note is the important role that technical/specialist training plays for the group in line with the corporate mission, and which grew by around 2,900 hours compared with 2015.

The average yearly hours of training per employee in 2016 totaled 18.8 (18.5 for men and 19.8 for women). Details are provided below broken down by category.

AVERAGE HOURS OF	201	6	2	015
TRAINING PER YEAR	MEN W	OMEN	MEN	WOMEN
Managers	11.9	2.3	9.7	37.6
Junior managers	19.0	28.2	19.6	15.3
White collars	18.8	19.8	22.6	19.8
Blue collars	17.0	12.4	12.1	15.4
Average hours per year per employee	18.	8		20.7

Average hours by region and gender in 2016 are illustrated below:

HOURS OF TRAINING PER YEAR BY GENDER	Central Eastern E and the N East	and urope liddle	Weste Europ	rn )e	The Ame	ricas	Asia Pa	cific	Chin	a	тот	AL
AND REGION	MEN W	OMEN	MEN W	OMEN	MEN W	OMEN	MEN W	OMEN	MEN W	/OMEN	MEN W	OMEN
2016	18.1	17.0	23.3	24.8	15.6	13.3	16.8	34.5	11.9	14.7	18.5	19.8
2015	17.3	10.9	28.1	27.1	21.9	19.1	20.0	26.3	33.4	31.7	21.1	19.3

The company invested €1.7 million in training in 2016.

2016 - INVESTMENT IN TRAINING (in Euros)	Central and Eastern Europe and the Middle East	Western Europe	The Americas	Asia Pacific	China	TOTAL
Technical-specialist training	201,390	206,010	197,881	101,056	19,232	725,568
Managerial training	256,577	140,847	28,913	35,757	5,543	467,636
Language training	137,064	90,932	-	-	-	227,996
HSE, Quality, Ethical aspect	54,804	44,650	16,134	32,422	-	148,010
Mandatory/institutional training	16,463	82,945	5,449	15,639	397	120,893
Refresher training	1,006	22,940	-	-	-	23,946
TOTAL	667,305	588,323	248,377	184,874	25,171	1,714,049



## **"50-50" PROJECT**

The project gave the opportunity to anyone who wanted to improve their managerial skills to attend a oneweek executive course at one of the top ten international business schools as per the Financial Times ranking. Participants were required to pay for half of the course fee and to use their holidays to attend, while the company covers the remaining 50% as well as travel and accommodation (hence the name 50-50 project). 8 people applied to participate in this project in 2014 and 18 applied in 2015, mainly employees from the talent pool. The project is now finished and the assessment phase was started in 2016 for the individuals who attended the courses during the previous year.

## 2016 "GLOBAL JOB SYSTEM" UPDATE PROJECT

Ongoing maintenance and updating of the Global Job System (GJS) is a key element in the strategic alignment of business targets and distinctive core competencies.

As part of the ongoing updating, the GJS model updating process was completed for the following professional families in 2016: General Counsel & Compliance, Information Technologies, Innovation, Manufacturing, Performance Excellence Procurement, Quality Assurance, RAMS and Sales & Bidding. All employees were informed about the updating of the models in a series of meetings organized by the individual professional families, and the new models have been published on the company Intranet and implemented in the IT systems (SAP/SABA).



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## "KNOWLEDGE OWNERS<sup>27</sup>" PROGRAM

The two-year Pilot Project entitled Knowledge Owners ended in 2016.

The Project selected 80 technical talents in 2014 and involved them in sharing/teaching technical issues identified as core for business (Transfer Issue), in resolving technical issues identified by the Technical Committee to overcome a number of technical obstacles and at the same time raise the company's competitive level (Technical Issue), and in improving and analyzing specific technical skills for Knowledge Owners (Technical Competency Improvement). Most of all, however, the project encouraged a cultural leap towards pooling the company's great technical knowhow, which has no borders.

The results achieved are detailed below:

 Transfer Issue: 38 courses organized for 779 attendees, 325 of which in Italy, 306 in the USA, 97 in France, 23 in Australia, 17 in Sweden and 11 between Taipei – Lima etc. The satisfaction level expressed by attendees and based on the consistency and applicability of the courses delivered reached 85%.

- Technical Issue: the Knowledge Owners experienced a complex analysis process in which they had to solve the technical issues assigned to them. They had to expand upon the issue and understand how to resolve it in view of the subsequent implementation of the solution identified. Ninety percent of the goal was achieved in practical terms. During the following phase, the technical solutions reached will be shared according to business requirements.
- Technical Competency Improvement: in 2016, the Knowledge Owners were able to strengthen their technical competency, as required by the Project and as shared with their managers. The array of alternatives offered to them (external specialization courses, participation in courses of other Knowledge Owners, purchase of specialized books, association memberships, participation in conferences) was used to enhance their knowledge, regarded not only as an individual asset but as a company asset.
- Cultural leap: thanks to this project the availability towards knowledge sharing will grow within Ansaldo STS; by understanding how the courses are designed and then delivered, the K.O.s are and will be the sponsors of knowledge sharing for the company.



27. People with medium-high seniority in technical areas, with strong technical skills and potential, willing to innovate and transfer knowledge.

### **"TALENT" PROJECT**

In accordance with the talent training plan, a large number of people participated in talent training activities. More specifically, the final conference of the program addressing *Rockets*<sup>28</sup>, during which the participants presented material on "Change Management", was held in April.

The *Rockets* were divided into internationally integrated groups and worked remotely with the aid of a common platform.

Regarding *Key Resources<sup>29</sup>*, the training module "Financial Accounting and Value Creation" was launched in 2016.

The purpose of the course is to provide practical tools to people who do not belong to the sector and allow them, for example, to read the financial statements with a fully aware and overall view.

The growing complexity of the current economic environment requires strong receptiveness and widespread awareness of the financial impacts of business decisions at both top management and middle management levels. Timely, flexible and both technically and commercially accurate decision-making processes are adequate only if integrated with proper financialeconomic analyses and assessments.

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During training, in agreement with the CFO, an internal success story was used to bring the course contents closer to Ansaldo STS' needs.

Eleven sessions were held: 6 in Italy, 2 in Australia, 2 in USA and 1 in France.

Analysis and fine tuning of the people strategy process was also started in 2016. This initiative partially reviews the Talent Management model with a view to ensuring greater consistency between development processes and organization-related processes and to providing increasingly more effective support to the business. This model also seeks to bring coherence and integration to the development paths related to the different model segments, i.e. *Rockets, Key Resources* and *Knowledge Owners*, and to define custom plans that are consistent with business needs and with the aspirations and skills of the people involved in the various programs.



- 28. Low medium experienced population with high motivation to further growth, high performances, availability to international mobility and growth potential (either technical or managerial).
- 29. High experienced population, already in key positions (formalized or project positions), with high performances and managerial potential, committed to higher responsibilities.

## Performance assessment

Performance assessment is a key tool in managing the development of human resources. Ansaldo STS has implemented a global, structured and consistent process at international level called Performance Development Plan (PDP), which it launched in 2010, and which provides for the assignment of performance and development targets and their assessment for all Ansaldo STS personnel. The entire process is managed online, consequently reducing the use of printed paper, and consists of three phases:

- phase 1 planning: relates to the formalized assignment of targets linked to business and/or individual performance indicators and professional development indicators;
- phase 2 coaching: involves the continuous monitoring of performance by the employee's direct supervisor and mentor;
- phase 3 review: the final assessment phase in which all the employee's assessments are

combined (self-assessment, direct supervisor's assessment and those of other people selected from within the Organization for a more comprehensive vision of individual performance).

Over the past six years, this process has been extended to all group companies and has been consolidated in terms of management and development practices. The process now covers over 95% of the company's headcount, a significant result, as it lays a sound foundation for a more objective and structured definition of the development paths and ways in which to reward all Ansaldo STS employees around the world. In particular, after the integration of the Global Job System, implemented in 2012, PDP became an even more complete development tool, as the assessment of abilities and skills performed concurrently with the performance assessment, makes it possible to define individual

targets and growth paths that are effectively in line with expectations for the position.

Career progress, talent management and compensation are tied to the integrated performance/ ability assessment system so that merit is the true enabler of professional development.

From 2012 on, the PDP was also introduced into the executive assessment process. There are some 80 executives around the world who, in addition to having been assigned challenging performance targets in connection with business priorities for the current year, managed through the MBO incentive process, have been set position-holding targets taken from the roles and mandates outlined for each managerial position.

In 2014, in line with the company's management development strategy, the 360° assessment



process was introduced for executives with respect to certain abilities considered crucial for the leadership style of Ansaldo STS's managers. All executives participating in the program were able to receive feedback from managers, peers and direct colleagues and to identify in a structured way their strengths and areas for improvement.

The use of this more structured, challenging approach in the assessment of managers is considered one of the tools to strengthen a managerial culture more focused on putting into practice the soft skills that the company values, such as team spirit, people management skills, change management skills and international cooperation. By including managers in the PDP-based assessment and development process, the system is now consistent throughout all levels of the Organization.

In 2015, the 360° process was improved further with respect to the IT system, and it was also extended to talents and middle managers worldwide. In addition, another three specific competencies were added, for a total of seven key competencies on which managers, peers and teams assessed employees. During the year, 325 Ansaldo STS resources around the world participated in this project and were given the chance to identify the development objectives of the 2016 PDP plan in a more structured manner.

Over the past two years and in line with the empowerment programs, the PDP has been fine-tuned further so that not only functional heads are being assessed, but also project managers (PMs) and project engineers (PEs). These employees were given the task of managing their team's output and defining, monitoring and assessing project objectives. This strong commitment assigned to the key roles in the project teams (PMs and PEs) is designed to enhance the independence, effectiveness and leadership of these teams.

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Project managers were required to participate in the annual PDP process to improve the effectiveness of project teams. Their role was to assess the members of their team based on the objectives they had assigned them. This strong commitment allowed:

- all team members to be more responsibly engaged in attaining the project objectives;
- the more consistent matching of functional objectives with the project objectives, thanks to the approach shared by the project managers and unit heads;
- the teams to be more closely involved in the shared objectives.



## Internationalization and multiculturalism

A global company such as Ansaldo STS must constantly maintain a high level of internationalization and encourage its personnel to adopt a multi-cultural approach.

In 2016 the management process for international personnel assignments was consolidated. The figures clearly show the high percentage of non-local personnel working in the company (8.2%) which further rose during the year (from 241 to 323 people).

		2016	
Region	Local personnel	Non-local personnel	Total non-local personnel
Central and Eastern Europe and the Middle East	1,712	<ul> <li>Albania 2, Argentina 1, Australia 3, Bosnia 1, Canada 1, Brazil 1, China 16, Colombia 3, Egypt 11, Germany 1, France 1, Greece 2, India 6, Iran 2, Italy 25, Jordan 4, Lebanon 1, Moldavia 1, Lithuania 1, Malaysia 1, Pakistan 6, Poland 1, Romania 4, Spain 4, Sudan 1, Sweden 1, Syria1, Taiwan 1, Thailand 2, Tunisia 2, UAE 1, United Kingdom 2, USA 1, Yemen 1, Venezuela 1</li> </ul>	113
Western Europe	868	Algeria 2, Belgium 2, Cameroon 3, China 8, Congo 1, France 5, Gabon 1, Germany 1, Guinea 1, Ivory Coast 1, Italy 10, Lebanon 1, Korea 2, Morocco 7, Portugal 6, Romania 2, Senegal 1, Spain 1, Tunisia 3, USA 1	59
The Americas	712	Australia 1, Belarus 1, China 5, France 2, Greece 1, India 6, Ireland 1, Italy 10, Kazakhstan 1, Korea 2, Malaysia 1, Mexico 2, Moldavia 1, Pakistan 1, Russia 3, Samoa 1, UK 1, Ukraine 20	60
Asia Pacific	597	Australia 3, Brazil 1, China 3, Holland 1, France 2, Germany 2, Jamaica 1, India 18, Iran 1, Ireland 4, Italy 15, Kenya 1, Nepal 1, Malaysia 6, New Zealand 2, Pakistan 1, Philippines 2, Singapore 2, South Africa 1, Sri Lanka 3, Thailand 3, Zimbabwe 1, United Kingdom 14	88
China	62	France 1, Italy 1, Malaysia 1	3
TOTAL	3,951		323

International assignments are also important. Although of a temporary nature, they require a long stay abroad (on average between 2 and 3 consecutive years).

_	2016								
Original region	Workforce abroad	Destination countries							
Central and Eastern Europe and the Middle East	70	30 (Denmark), 7 (Peru), 9 (Turkey), 5 (Saudi Arabia), 5 (USA Hawaii), 3 (Greece), 3 (Taiwan), 2 (Sweden), 2 (Australia), 1 (France), 1 (Germany), 1 (China), 1 (UAE)							
Western Europe	8	3 (Sweden), 3 (Morocco), 1 (UAE), 1 (Peru)							
The Americas	3	1 (Peru), 1 (Korea), 1 (Italy)							
Asia Pacific	2	1 (France), 1 (Italy)							
China	1	1 (Italy)							
TOTAL	84								

The international mobility process and the attention paid to employees working far from their home countries was once again geared towards integration, in which, depending on the relevant issues, HR parties and external experts are involved.

In this respect, some of the steps taken in recent years and reinforced during the year are reported below:

- preliminary ad hoc meetings, which not only provide basic technical and logistic information for staying abroad, but also strengthen staff engagement;
- special training, including in the new language;
- constant monitoring of immigration issues, which are arising around the world and differ widely from one country to the other, bearing in mind the global trend that on the one hand seeks to promote international mobility, while on the other it seeks to protect the local population, for both political and economic reasons, especially in certain countries;

- support to help encourage greater awareness of multi-culturalism and assist the overcoming of any cultural/conduct barriers, while respecting each person's values (home and host);
- supervision of the integration process in the various countries, beginning with the management of job opportunities on a global scale;
- a system that monitors connections between development of personnel and international experiences;
- commitment to governing the structured connection between the performance provided during an international experience and remuneration policies, especially with the use of performance-based bonuses connected to the results achieved during the work abroad;
- focus on repatriation and retention, which are always particularly critical personnel management aspects;
- continuation of a network of relationships and information between HR specialists to support the internationalization process with an integrated approach and

also through a cross-cutting HR International Mobility Team;

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- ongoing attention to internal communication, using all of the channels provided by the company, especially technologically advanced and user-friendly solutions;
- continuing integrated activities with Health & Safety and Security to ensure safe work conditions abroad;
- ongoing cooperation with the Administration department with respect to taxes and accounting, in order to comply with all relevant legislation and corporate procedures.



## **Remuneration and incentive systems**

Ansaldo STS manages employment relationships with its employees in accordance with the laws in place in the various countries where it operates. Below is a brief summary of the main legislation/regulations.

## ITALY

Employment is governed by the Constitution, Italian Civil Code and special laws, as well as by the national labor agreements and EU laws. Ansaldo STS applies the national labor agreement for the metal-mechanic industry and the national labor agreement for managers of companies that produce goods and services, which establish minimum standard remunerative/regulatory terms for all contractual categories. In addition, Ansaldo STS applies supplementary company agreements (excluding managers), which it agrees with the trade unions. These agreements provide for more favorable terms for employees.

## **UNITED STATES**

There are no national labor agreements governing employment. Each employee individually negotiates the terms of employment.

However, there are supervisory and protection bodies:

- Equal Employment Opportunity Commission (EEOC) is the federal commission that ensures equal opportunities in labor (no discrimination on the basis of religion, sex, age, disability, etc.);
- Fair Labor Standard Act (FLSA) is a federal act that sets the standard for child labor, overtime and minimum wages. These aspects are also governed by each individual state, in accordance with their specific requirements. All labor regulations are reported to employees by posters hung in visible areas.

#### FRANCE

There are national labor agreements with trade unions ("Convention Collective") and agreements at company level. The "Convention Collective" establishes minimum wages for each category and the main terms of employment (responsibility levels, trial periods, required notice, etc.). The employment terms set forth in individual contracts may be more favorable to employees but not less favorable than those defined under general labor legislation. In addition, French law requires annual negotiations with the trade unions on remuneration, contractual terms, equal opportunities with respect to gender, the disabled, training and development. French law also enforces respect for human rights, equal opportunities, child labor restrictions, freedom of association and the protection of privacy.

#### SPAIN

Spain also has national labor agreements with trade unions that are applicable to all workers at both regional and national level. The employment terms set forth in individual contracts may be more favorable to employees but not less favorable than those defined under general labor legislation or collective agreements. Spanish law is particularly specific with respect to that already established by the national constitution in terms of equal opportunities and non-discrimination in the workplace, freedom of association, trade union representation, the protection against child labor and maternity benefits, with specific benefits for working mothers. AUSTRALIA

Remuneration and incentives are governed by national employment standards (NES) relating to minimum wages, work hours and general terms of employment. Employees whose work is assessed using the Global Job System and who receive Hay grades below 12 are remunerated in line with the national labor agreement. This agreement, which was ratified by the Italian labor court, provides for annual wage adjustments when they are negotiated (currently 2%). In the second half of 2015, a new company agreement (2016-2018) was negotiated with the trade unions. This agreement will introduce a new remuneration and classification system based on abilities and in line with the master agreement for national industry. In addition to that provided for by the agreement, remuneration will be increased on the basis of individual performance defined in the annual revision process.

## INDIA, MALAYSIA, BOTSWANA

All employment agreements are individual. However, the above procedures provide for the application of minimum standards at group level in these countries. Accordingly, tools such as market benchmarks and salary reviews are also applied in these countries, using the same criteria as that for Australia. Ansaldo STS therefore ensures its employees receive remuneration and benefits that are comparable with those offered by the best companies in these countries. The offices in Botswana were closed in November 2016 following conclusion of the ASTS contract.

## **CHINA**

There are no national labor agreements. Each employee individually negotiates the terms of employment. In China, there is the Labor Law of the People's Republic of China and the Constitution of the PR of China, which ensure the freedom of association, equal opportunities, etc.. In October 2011, the Chinese government published new labor market regulations which will also apply to foreigners working in China (including, for example, the introduction of social security contributions).



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## **Fair remuneration**

Ansaldo STS manages employment relationships with its employees in accordance with the laws in place in the various countries where it operates. It also periodically weighs the most significant positions in the Organization with the support of a company specialized in this field and compares the remuneration of the employees holding such positions on a weighted basis, against the market benchmarks. If the remuneration is not in line with the market (and, obviously, if the employees have received positive performance assessments), their remuneration is adjusted.

Ansaldo STS can establish higher levels of remuneration than general market brackets for positions that are particularly critical and important or to limit the risk of employees leaving the company, with a resulting loss of expertise.

Since 2013, in addition to the periodic assessments of positions, Ansaldo STS has extended the weighting to lower levels of its Organization as well, using the results of the GJS project, which involved approximately 3,000 of the company's personnel. This made it possible to create a tool useful in the global assessment of the consistency between the responsibilities and remuneration, without distinguishing by country, sex, culture, etc., in accordance with the company's values, which protect and promote the equal treatment of people.

The following table illustrates the ratio of women's gross average remuneration compared to men's, broken down by category and region:

	Central and Eastern Europe and the Middle East	Western Europe	The Americas	Asia Pacific	China
YEAR 2016	WOMEN/MEN	WOMEN/MEN	WOMEN/MEN	WOMEN/MEN	WOMEN/MEN
Managers	68%	-	87%	-	-
Junior managers	96%	86%	95%	90%	71%
White collars	95%	94%	81%	80%	66%
Blue collars	100%	96%	84%	-	-

The following table illustrates the ratio of the highest paid employees' remuneration to the median remuneration of all other employees in the different regions:

HIGHEST REMUNERATION AS A RATIO TO MEDIAN REMUNERATION	2016	2015
Central and Eastern Europe and the Middle East	7.1	7.3
Western Europe	3.3	2.9
The Americas	2.1	3.4
Asia Pacific	1.9	2.1
China	2.9	2.9

The ratio of entry-level remuneration and the minimum legal remuneration for women and men is shown in the following table:

RATIO OF ENTRY-LEVEL REMUNERATION AND THE MINIMUM LEGAL REMUNERATION	2016	2015
Central and Eastern Europe and the Middle East	1.1	1.1
Western Europe (FRANCE)	1.1	1.0
The Americas	1.7	1.8
Asia Pacific	1.0	1.0
China	1.0	1.0

#### Performance-based incentive systems

Performance-based incentive systems are mainly linked to the management by objectives (MBO) process or specific performance indicators (KPI) for strategic projects entailing bonuses upon their successful conclusion. Managers, certain junior managers in key positions for the business and strategic project team personnel are included in these programs. The bonuses, which are calculated as a percentage of gross annual remuneration, vary depending on the responsibilities held.

Over the past few years, in keeping with company strategies, the MBO program has been integrated within one single system that is increasingly electronic with the production of less paper.

In accordance with regulations for listed companies, Ansaldo STS has a remuneration committee set up by resolution of the company's board of directors. It meets regularly and the Head of Human Resources participates in the meetings. The committee's activities include:

- proposing the financial/regulatory package for the CEO and key managers. To this end, the committee relies on market studies performed by specialized companies which provide appropriate benchmarking;
- evaluating the CEO's proposals on general remuneration and incentive criteria for company management.

The committee has also analyzed and approved a document, which is usually updated each year, prepared by Human Resources, positioning all company management in a performance/potential matrix in order to consider, for the purposes of determining remuneration, whether the person can be replaced, appointed to other positions, etc.

Fixed and variable incentive systems are therefore defined in line with the position held, considering the specific position and the individual manager's positioning in this matrix. Similar assessments are performed for people who are eligible for the stock grant plan (medium/long-term plan).

The following table compares the number of managers included in the incentive system at the end of 2016:

	Central an Europe a Middle	d Eastern and the East	West Euro	tern ope	The Am	Asia The Americas Pacific				а
YEAR 2016	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN W	OMEN
STOCK GRANTS	28	2	5	-	3	-	-	-	-	-
CASH (long-term)	4	-	-	-	-	-	-	-	-	-

# **People Care**

The concept of "People Care" is a far-ranging concept for Ansaldo STS which covers worker wellbeing as both professionals and as people. The concept is linked to the "Total Reward" strategy, based on tangibles and intangibles, to improve personal satisfaction. It is no coincidence that "People" is one of the company's five values in its identity: people are at the very heart of the Organization, and this demonstrates the company's focus on making the work place an environment where they can gain experience, develop competencies, forge relationships and find motivation continuously. Ansaldo STS's focus on people can be first seen in the way it guarantees a comfortable and motivational work environment by actively supporting, through its corporate processes, relationships between managers and employees and relationships between colleagues. Furthermore, there are various support services available in different countries for employees and, in some cases, their families as well.

Flexible schedules, agreements with entertainment and sports centers, benefits like health insurance, family open days, employee scholarships, corporate welfare and celebrations of successful projects are some of the tools used.



## **Employee initiatives (corporate welfare)**

Ansaldo STS follows an extensive policy to manage initiatives that support employees. This policy includes a series of benefits allocated and used on the basis of an employee's professional position and the social and cultural customs in their respective countries. Below is a list and brief description of the main benefits and initiatives supporting employees under the company's policy.

# Company health insurance

Ansaldo STS Italy offers its employees a supplementary health insurance. These policies cover a wide range of medical needs (e.g. specialist examinations, hospitalization, medical services, etc.) and vary according to each employee's professional position (senior and junior managers, white and blue collars have different limits of indemnity).

Employees may decide whether to take out these additional policies. Should they decide to do so, a monthly contribution is withheld from their payslips to cover part of the cost, while the company bears the residual amount. France has a supplementary health insurance scheme which cover employees and their family, which is mandatory by a company agreement.

Ansaldo STS Australia has established Corporate Membership with Medibank Private and RT Health (a fund created in Australia to specifically support the Transportation Industry, enabling Ansaldo STS Australia employees to access a top class, comprehensive Health fund at very competitive rates in addition to a range of special benefits on joining, including waiver of waiting periods and gift vouchers.

# Company accident insurance

Ansaldo STS Italy offers its employees insurance for work and non-work related accidents covering accidents both in the workplace and outside the workplace, for all employees, seven days a week, 24 hours a day. The cost of this policy, which covers all employees, is fully covered by the company. The same policy is offered in France, Australia and China to all white collars. It is not offered in the US, as this kind of cover is included in the company life insurance policy.

# Salary continuance insurance

Ansaldo STS Australia offers employees who work more than 15 hours per week salary continuance insurance. The policy provides for the assignment of 75% of their income for a maximum of two years if the employee is unable to work due to illness or injury.

#### **Health checks**

Ansaldo STS Italy offers managers the chance to have an annual medical check-up with the full cost covered by the company. In China, these check-ups are offered to all employees. In Spain, annual medical check-ups are legally required for all employees.

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#### International travel insurance, e.g.: Europe Ass

In Italy, France, Australia and the US, Ansaldo STS offers an accident insurance policy covering any accidents or first aid and medical care (as well as luggage and personal item coverage) to employees working abroad (either on a business trip or under secondment). The costs of this policy are fully covered by the company. Ansaldo STS China has also begun offering this policy.

#### Life insurance

Ansaldo STS offers its employees a life insurance policy. The costs of this policy are fully covered by the company. This policy is offered to Ansaldo STS managers in Italy and Spain, and to managers and all full-time employees in the US (company life insurance, accidental death & dismemberment & LTD insurance). It is also offered to all employees in France who share the cost with the company.

#### **Fuel allowance**

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In Italy, Ansaldo STS offers middle managers and managers with company car a fuel allowance up to an annual limit, which may be used for car refueling. The costs are fully covered by the company.

#### Company car

Ansaldo STS offers employees company cars with a policy that is similar to a lease. The car may also be used for personal reasons, i.e. it may be used by employees, as well as by their family members or close friends, after notifying the company. Employees pay a monthly contribution, while the company pays the remaining amount. In Italy, the company has signed an agreement so that all employees can purchase the company cars when they are replaced at advantageous prices. Company cars may be assigned to managers and junior managers with high profiles in Italy and Spain, and to Ansaldo STS managers in the US. They are also offered in France and China. In Australia, company cars are assigned to employees only for work-related purposes, while they may be used by junior managers and managers also for personal reasons.

#### **Company housing**

Ansaldo STS offers housing to employees seconded in the medium to long-term. The cost of the housing is fully covered by the company.

### Corporate credit cards

Ansaldo STS Italy offers employees the possibility to obtain corporate credit cards linked to the employee's bank account at special terms agreed by Ansaldo STS and the bank. The credit cards available to Ansaldo STS employees are Visa and American Express. The costs of Visa cards are fully covered by the company, whereas employees contribute to a small portion of the costs charged by American Express, Ansaldo STS also offers its Italian employees the possibility to open current accounts under special terms with selected banks. Furthermore, bank branches and ATMs are located at some of the main offices of Ansaldo STS, making it easier and more efficient for employees to make use of main banking services. These arrangements are also in place in the US, but not China. In Spain, France and Australia, credit cards are linked to the employees' bank accounts and only offered to people who travel frequently for work to cover expense notes.

#### Professional membership allowance

BANK

Ansaldo STS offers its employees the possibility to join professional associations (e.g. the register of engineers) and fully covers registration costs. This benefit is offered to Ansaldo STS Italy managers, all US and Australian employees, but not Ansaldo STS France (where the benefits are granted on a case-by-case basis). In China, the company refunds engineers and managers for the registration costs if they have been approved by HR. In Italy, the company is carrying out a project with the register of engineers to organize training courses at its sites so employees can earn the credits needed for registration.

## Travel Tracker: travel safe

Ansaldo STS's expansion in markets and its current organizational model require the presence of its personnel in many different countries, which often present challenging safety conditions and weak healthcare and welfare systems. To mitigate critical issues arising from travel and relocation abroad, Ansaldo STS is implementing a system at all sites to ensure adequate protection from outside events. In this context, in order to prevent and remedy any issues, the company is equipped with a tool called the "Travel Tracker (TT)", provided by International SOS, which makes it possible to track planned travel in real time. As soon as an employee confirms his or her travel booking through the Ansaldo STS travel agency, International SOS gathers the information and enables company personnel responsible for this activity to quickly identify those employees in areas with high health and safety risks. International SOS, working in collaboration with Ansaldo STS, manages this database. Additional TT services include:

- Personal Travel Locator (PTL): personnel travelling for business can input their own and their family members' travel plans which have not been booked using the company travel agency or while they are on long-term secondment and the travel details are automatically uploaded to the TT database.
- Automated Travel Advisory (ATA): when tickets are booked for the selected destinations, in accordance with parameters established by Ansaldo STS, travelers receive an automated travel advisory on the destination country via e-mail, containing information on public and personal safety, health conditions, driving, vaccinations and illnesses, food and water recommendations, local culture and conduct in the workplace, holidays and demographics.

Furthermore, employees may register with International SOS (www.internationalsos.com), a service that provides alerts on countries of interest selected at the time of registration. The International SOS Alarm Center Paris, a call center, is available for any reason.

# Canteen and break area service

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Ansaldo STS Italy, France and US provide a canteen service at all main offices (e.g.: Genoa, Pittsburgh, Les Ulis, Tito Scalo, etc.). In Italy, employees contribute to the canteen costs through deductions in payslips, whereas in the other countries, they pay directly when using the canteen services. This service is provided under special terms which are regulated by agreements between Ansaldo STS and the companies that operate the canteens.

#### Recreation centers

Ansaldo STS Italy employees have set up recreation centers, referred to as "CRAL". These are a form of free association of workers and are structured as separate entities from the company. Employees who join the CRALs pay a fee deducted from their payslip. Membership entails a contribution by the company. CRAL members may participate in a number of activities (sports or other) and take advantage of discounts at partnering shops (bookshops, opticians, etc.). No such agreements are in place in France, the US or Australia.

## **Pension plan**

Ansaldo STS manages pension plans with its employees in accordance with the laws in place in the various countries where it operates. Changes in defined benefit plans and post-employment benefits are shown below:

	Post- employment benefits	Defined benefit plans
Value at 31 December 2015	17,948	15,207
Cost (of the service and interest)	787	990
Contributions paid	(478)	(450)
Actuarial gains (losses) recognized in equity	37	2,007
Value at 31 December 2016 <sup>30</sup>	18,294	17,754

The average term of post-employment benefits is 12 years while that of the other defined benefit plans is 18 years.



## ITALY

In Italy, Ansaldo STS offers its employees a pension fund through the "Cometa" Fund, the National Supplementary Pension Fund for workers in the "Metal-mechanical and plant installation industry", set up to provide workers in this industry with greater pension coverage than that offered by the mandatory social security plan. When they join the Cometa fund, workers sign the application form and create an individual position, transferring employees' leaving entitlement, an individual entitlement required by Legislative decree no. 252/2005, to which the employer is required to add a contribution under the aforementioned decree. When they retire, employees may choose how to receive the Cometa annuity:

- immediate life annuity: i.e., immediate payment of a life annuity for the policyholder's entire life;
- immediate certain annuity and life annuity: i.e., immediate payment of certain annuity for five or ten years, followed by a life annuity until death;

• immediate reversible annuity: i.e., immediate payment of a life annuity until death, subsequently reversible (60% or 100%) to another person until death.

#### **AUSTRALIA**

In Australia, the pension fund is referred to as superannuation, a sum of money set aside during the life of an employee, from the beginning of employment, to cover the future pension. Ansaldo STS pays contributions to the pension funds on behalf of its employees calculated as a percentage of annual fixed remuneration defined by the Australian Taxation Office. The company makes pension fund payments directly to the providers selected by employees. The percentage has increased since July 2014 from 9.25% to 9.5%. Employees are encouraged to increase the contributions to their pension funds, including with incentives in the form of government grants. Temporary residents who have left Australia may request payment of their superannuation.

### INDIA

Pension fund: contributions to the pension fund are equal to 12% of the base remuneration of the employee to which a further 12% must be added, paid by Ansaldo STS. These contributions are deposited in the employees' account with the relevant pension fund and returned to the employee upon retirement, through monthly pension payments, plus accrued interest. The 15% of employees' base remuneration is deposited with the Life Insurance Corporation of India through the Superannuation Trust Fund. This amount will accrue interest and at the time of retirement employees may decide to receive their pension based on different payment methods.

<sup>30.</sup> The main actuarial assumptions used are as follows: post-employment benefits - discount rate 1.50%, turnover rate 2.09%-5.69%; defined benefit plans - discount rate 1.4%, salary increase rate 2.5%, turnover rate 0.91%-3.26%.

## MALAYSIA

In Malaysia, pension plans are offered through an employee pension fund (EPF) set up with employees' contributions deducted from their monthly remuneration (at least 11%) and the employer's contributions (at least 12%). Both portions are accrued over the term of service of each employee. This system was not affected by the introduction of the minimum retirement age, because workers can contribute until the maximum age of 70. Even foreigners working in Malaysia may contribute to the fund on a voluntary basis, but the employer's minimum obligation is for only 5 Renminbi per month, unless it decides otherwise. In this respect, foreigners may revoke their entire contribution upon termination of employment and their return to their home country.

#### **SPAIN**

In Spain, all employees have a supplementary pension fund called "Plan de Previsión Social Empresarial" (PPSE), which is the same as normal pension funds and is subject to Spanish law. This is an important social benefit and reflects the company's decision to take care of its employees. Contributions to the PPSE are paid by the company only and not by employees. The amount of the contributions is established in a way that ensures a minimum contribution for all employees, also considering each employee's base remuneration. For example, in 2016, the annual contribution paid by Ansaldo STS Spain to the PPSE was equal to €92,346.68.

#### FRANCE

France has various pension systems depending on the classification of workers in the national labor agreement. There is nothing specific for Ansaldo STS France. In the French system, pension benefits are funded directly with the contributions of the employees and employers through basic systems (CNAVTS) and complementary combinations (AGIRC ARCCO).

#### US

Ansaldo STS USA offers a retirement benefit plan for which workers are directly responsible for managing their investments in the plan. Ansaldo STS does not have a segregated account to guarantee the related funds. For each employee, 2% is deducted from remuneration regardless of whether they contribute to any of the pension funds. Furthermore, if the employees defer any payments, Ansaldo STS pays 100% of the first US\$250 and 50% of the subsequent 6% of the deferral. This type of pension fund differs significantly from the traditional one.

#### **CHINA**

Ansaldo STS offers its employees in China pension plan benefits through the central government's National Social Security Fund (NSSF), whereby employees pay contributions (maximum of 8% of the limit set by the government), as well as the company (maximum of 20% of the limit set by the government). Both contributions are deposited in the social security fund of each registered employee and accumulate on a monthly basis.

This system is also used for foreigners legally eligible to work in China since January 2014. Foreign employees are required to contribute to the pension plan if they are taxpayers in China. Furthermore, foreign workers may withdraw their contributions when they leave the country. However, the employee's portion may be withdrawn if the contribution was paid less than ten years earlier and if the foreign worker has not yet reached the retirement age (60 years for men and 55 for women).



## **Protected worker categories**

The policies for the inclusion of disabled people in the headcount fall within the framework of a program defined at European level with respect to social inclusion policies. In Italy, the integration of disabled citizens or citizens belonging to protected categories is subject to Law no. 68 of 12 March 1999, which first recognized the dignity and social value of the disabled by effectively including them in the labor market. Having abandoned the concept of the "mandatory" hiring practices that were provided for by the previous law (Law no. 482/1968), Law no. 68/99 introduced the key concept of "targeted" employment, defined in article 2 as "a set of technical and support tools which make it possible to adequately assess disabled people in their work abilities and to recruit them for the most suitable position, by analyzing positions, forms of support, positive actions and

solutions to issues related to environments, tools and interpersonal relations in the daily place of work and contact".

Compliance with the provisions of Law no. 68/99 entails the obligation for companies to hire a specific percentage determined in the same law of personnel in protected worker categories. In Italy, in particular, the percentage of disabled workers required by law for Ansaldo STS S.p.A. is 7%. Ansaldo STS has reached agreements with the labor centers for the hiring of people in protected worker categories.

During 2016, six disabled persons were hired and another employee was counted who was already a member of staff. The group expects to hire more disabled workers in 2017.

	Central and Ea and the Mi	stern Europe ddle East	West Euro	ern ope
YEAR 2016*	MEN	WOMEN	MEN	WOMEN
People with disabilities	55	20	6	9
% of total workforce	3.98%	6.04%	0.87%	5.03%

\* This figure is not available for Asia Pacific, and Ansaldo STS has not hired any disabled people in China. Information on the disabled cannot be gathered in the US.

## **Parental leave**

Ansaldo STS acknowledges the need for its employees to balance family life with their work commitments and offers flexible hours and part-time to personnel with children under 12 or family members with disabilities. To this end, in 2016, Ansaldo STS signed an agreement with trade unions to allow parental leave also on an hourly basis. Employees may still

take parental leave on a daily or continuous basis in compliance with existing legislation. In 2016, 125 employees used parental leave (78

women and 47 men) and 97 returned from parental leave (59 women and 38 men), compared to 42 (38 women and 4 men), who had taken parental leave in the previous year.

	Centr Eastern E the Mid	al and urope and dle East	We Eu	estern irope	The A	mericas	Asi Paci	a fic	С	hina	т	otal
2016 - PARENTAL LEAVE	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN W	/OMEN	MEN	WOMEN	MEN	WOMEN
No. of employees who have the right to parental leave	1,381	331	689	179	448	175	244	58	39	23	2,801	766
No. of employees who took parental leave	6	42	37	27	0	4	4	5	0	0	47	78
No. of employees who returned to work after their period of leave	0	34	36	18	0	4	2	3	0	0	38	59
No. of employees who returned to work after parental leave and who were still employed 12 months	Э											
after returning to work	0	18	28	16	0	1	1	3	0	0	29	38

People Care Our people

2015 -	Central and Eastern Europe and the Western Middle East Europe		ern ope	Asia The Americas Pacific					а	Total		
PARENTAL LEAVE	MEN	WOMEN	MEN V	VOMEN	MEN	WOMEN	MEN W	OMEN	MEN W	OMEN	MEN W	OMEN
No. of employees who have the right to parental leave	1,268	287	653	169	462	173	350	65	41	26	2,774	720
No. of employees who took parental leave	1	30	36	21	0	3	3	4	0	1	40	59
No. of employees who returned to work after their period of leave	0	24	35	12	0	3	3	3	0	0	38	42
No. of employees who returned to work after parental leave and who were still employed 12 months after returning to work	e O	16	38	18	0	2	1	1	0	0	39	37

The return rate and the rate of people who, 12 months after they returned were still employees (job maintenance rate) are shown in the following table:

	Centr Eastern E the Mid	al and urope and dle East	Western Europe		The An	nericas	As Pac	ia ific	China		Returr	n rate*
Rates	MEN	WOMEN	MEN V	OMEN	MEN	WOMEN	MEN V	OMEN	MEN WON	1EN	MEN V	VOMEN
Return rate*	0%	81%	97%	67%	-	100%	50%	60%	-	-	81%	76%

\* The return rate is calculated as the ratio between the number of employees who returned to work in 2016 after their period of leave and No. of employees who took parental leave in 2016. It was not possible to take into account the number of employees who took the parental leave in 2015 and who returned to work in 2016, nor the number of employees who took the parental leave in 2016 and who will be on return during 2017.



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# **Trade unions**

The relaxed relationship that Ansaldo STS maintains with its employees is reflected in an extremely low rate of trade union disputes. This context often leads to the resolution of any issues with employees internally, with scarce recourse to intervention by trade unions, which, in any case, act in an environment of general cooperation. The only strikes declared have been due to general political and trade union issues, which have nothing to do with the company.

## ITALY

Ansaldo STS's system for trade unions is based on two levels of participation, given the fact that the company has various operating sites scattered throughout Italy:

- 1. Strategic Observation;
- 2. National Coordination.

## **1. STRATEGIC OBSERVATION**

In order to analyze the market scenario and the competitive positioning of the business areas of Ansaldo STS, a strategic observatory has been established, made up of six members selected by the trade unions (three national secretaries and three national coordination members), along with the company's top management. The observatory meets annually (usually within the first quarter), and within the context of its activities, company management provides appropriate information on company strategies, the main organizational changes and the trend in employment. The observatory may also meet at the request of one of the members if, during the year, any significant changes occur with respect to the issues discussed in the annual meetings.

### 2. NATIONAL COORDINATION

The national coordination for the FIM, FIOM and UILM trade unions at the local representation units was established to ensure the trade unions are adequately informed of issues relating to technological, organizational and production changes, horizontal mobility, investment and employment programs, professional training projects and production decentralization policies. The national coordination, which entails the participation of a maximum of 15 trade union representatives in the local representation units of the different company offices, is a party at national level for the negotiation of integrative level 2 contracts and any restructuring or reorganization processes. Finally, a trade union relationship system is in place with the individual local trade union representation units at the production sites, for specific issues pertaining to the individual sites.

In Italy, data on trade unions may be gathered from the trade union dues deducted from payslips. There is no such deduction abroad and therefore Ansaldo STS is not able to record any specific data. Ansaldo STS employees have joined the following trade unions: FIOM-CGIL (with 10 union delegates), FIM-CISL (with 6 union delegates), UILM-UIL (with 2 union delegates) and UGL Metalmeccanici (no delegates). In December 2016, the percentage of workers who had joined a trade union was 31.04% of the total headcount, while 100% of the trade union members can be broken down as follows: FIOM 46.6%, FIM 23.4%, UILM 29.8%.

## **SPAIN**

Trade unions relationships at Ansaldo STS Spain are calm and friendly. To express their opinions, workers may contact, either directly or through the personnel delegates, Human Resources, thereby enriching the direct relationship between the company and its employees. The system of trade union relationships at Ansaldo STS Spain is based on the following:

- STRATEGIC LINES information on corporate trends, organizational changes and, in short, company procedures and policies are provided by Ansaldo STS and consequently adopted and applied also in Spain;
- NATIONAL COORDINATION the structure of Ansaldo STS Spain includes personnel delegates who represent the UGT trade unions (which are the largest trade unions

in Spain). In Spain, the trade union meetings are held very often with all personnel representatives to reach general agreements.

## FRANCE

Each month, in France, personnel delegates may present individual or collective issues to their employers, in relation to the application of the law, regulations and collective agreements. Employees may also, either individually or with the assistance of delegates, submit their requests directly to Human Resources. The French trade union system is defined by specific and extensive regulations, the key points of which are the following:

 staff representatives are elected every three years by employees. Their role is to manage individual or collective complaints related to remuneration, work conditions, the application of the labor law, health and safety;

- monthly meetings with employers who are required to respond to all requests;
- a works council is elected every three years by employees. It is informed and consulted on issues related to the organization (new organizations, new technologies, etc.), employment (staff, temporary workers, subcontracts, work-loads, etc.), company strategies, business and related results, training, health and safety;
- monthly meetings with the legal representative of the company;
- committees on training, welfare benefits, etc.;
- trade union delegates are appointed by the trade unions. Their job is to represent the trade unions, organizing within the company and negotiating company agreements.

## **AUSTRALIA**

Relationships with trade unions in Australia were extremely positive in 2016, with substantial discussion in preparation of the new national threeyear agreement.

A key result of this process has been greater communication with employees, generating more feedback and participation in improvements, in a positive environment in which expectations are listened to.

There were no disputes with trade unions, strikes or complaints to the labor court during the year.

Ansaldo STS's ongoing commitment to involving its employees through active communication and discussion mechanisms is expected to prevent these issues from arising in the future as well.

## Personnel covered by national labor agreements

The total number of employees covered by national labor agreements, where this type of trade union negotiation is applicable, is shown below:

	Central and Eas and the Mid	tern Europe dle East	Western E	urope	Asia Pacific		
2016	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	
Managers	52	5	9	0	0	0	
Junior managers	280	50	53	11	0	0	
White collars	1,010	270	549	145	0	0	
Blue collars	39	6	62	22	6	0	
TOTAL	1.381	331	673	178	6	0	

The percentage of employees covered by national labor agreements in Central and Eastern Europe and the Middle East is 100%, while in Western Europe it is 98%. The percentage is minimal in the Asia Pacific due to Ansaldo STS's ongoing efforts to invest in a fair work environment with respect to the market. The data are not meaningful for the Americas and China as there are no national labor agreements in these areas.



#### Types of agreements

At group level, Ansaldo STS has reached formal agreements with the trade unions in the various countries concerned, as shown in the table. In Central Europe and Western Europe, the agreements relate to, inter alia, work hours, remuneration and health and safety conditions in the workplace. In Australia, the types of agreements are negotiated with the unions, while in Malaysia, there are no formal agreements and employees must only comply with the Employment Act of 1955 (which establishes that the number of hours worked may not exceed 48) and specific Acts enacted by the government with respect to health and safety.

# Prior notice in the event of organizational changes

The adjustment of the organizational structure, along with the operating procedures that support it, is an ongoing and continuously evolving process that meets the similarly ongoing and continuously evolving scenario in markets where Ansaldo STS operates. In the event of particularly significant organizational changes, specific communications initiatives target broad categories of employees to explain the reasons for the changes. Furthermore, in Italy, the currently applicable national labor agreement provides for a specific meeting to inform the trade unions of decisions that have a material impact on labor organization. A similar procedure is provided for in France, requiring a mandatory document to be sent to the work council explaining the reasons for the organizational change, followed by a meeting with work council representatives no later than 15 days after the document is sent.

## In-house communications

In 2016, in-house communication played a primary role in ASTS to achieving business goals. For this reason, the company decided to launch an internal project aimed at increasing the frequency and quality of information and at improving in-house communication language by making it easier, more straightforward and clearer. The primary objective of this internal project was to provide employees with a new in-house communication tool: a new Intranet allowing them to be updated in real-time, in the same manner and across all group areas.

The Intranet renewal project was planned and implemented by an internal team - the "Intranet Team" - consisting of employees from all of Ansaldo STS' different geographical areas and from various technical and staff units.

Thanks to the new Intranet, the company set itself the goal of capitalizing and optimizing its own internal competences and experience under a common framework, so that they could become a heritage shared by all employees.

The new Intranet was created not only to make the content more accessible, but also to make it more

user-friendly and easier to understand. As a result, the following macro in-house communication thematic areas were defined:

- Our Voice: collects all company news, official communications and events;
- ASTS in Progress: involves and informs employees about all corporate changes and developments;
- **My ASTS:** gives a general overview and operational support to all employees. My ASTS not only provides details on corporate organization, but also useful information about professional development plans, travel, job security, and much more;
- **Our Countries:** a complete guide to all useful information/services regarding the various geographical areas where the company operates;
- Our Knowledge: addresses "Ansaldo STS' knowhow and knowledge", its procedures, products, training and the main tools it uses to support employees' work.

The project adopted an iterative approach. This is why it was organized and released in successive waves to allow ongoing improvement of the site's functions and structure.

## **Complaints**

Ansaldo STS has a limited number of pending disputes that are managed through the courts, as it resolves conflicts daily, meaning that most complaints are settled without involving the labor courts.

	2016					
COMPLAINTS	Central and Eastern Europe & the Middle East	Western Europe & North Africa	The Americas	Asia Pacific	China	
Total number of formal complaints concerning work practices, of which:	3	4	0	8	0	
reported in 2016	2	2	0	8	0	
resolved in 2016	1	0	0	6	0	
Number of complaints reported before 2016 and resolved in 2016	1	0	0	0	0	

# SUPPLY CHAIN

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Ansaldo STS has drawn up new criteria to assess and monitor its suppliers and to define a new action plan to assist them improve their sustainability given the increasing importance of the supply chain's social and environmental aspects.



Supply Chain 🕦 🕥 😳 🖓 💼 🙀 👬 🚮



## Interdisciplinary qualification process

coordinated by the Supplier Qualification & Monitoring, which involves the technical office. Procurement, Quality and the Health Safety and Environmental function

## **Qualification questionnaire** integrated with HSE

aspects adoption of ISO 14001 and OHSAS 18001 management systems; application of REACH/ROHS/ RAEE; regulations data on accidents, non conformities, training and emergencies

## Types of purchases and suppliers

Ansaldo STS considers the supply chain management process a critical factor for the success of its business. Strategic procurement management requires a broad vision of the process along the entire value chain, from the definition of product specifications and service to delivery. Ansaldo STS's management method is interfunctional and provides for the involvement and approval of all bodies concerned by the overall logistics.

Given that it designs, builds and operates transportation and signaling systems for railway and urban rail transport, Ansaldo STS's supplies include:

• **Materials** – purchase of electronic cards, mechanical and plastic parts, wayside equipment, cables, racks, cabins, industrial PCs, on-board equipment and electromechanical components.

- **Services** facility management and HSE, payroll services, professional and ICT services, logistics services and travel.
- **Business services** engineering and development services and RAMS activities (reliability, maintenance, availability and security).
- **Turnkey projects and subcontracts** the award of a turnkey contact relates to systems that interact with the rest of the technologies for the specific contract such as: installation systems, telecommunications systems, auxiliary braking systems, power supply and systems, supervision and control systems, depots for equipment, signaling systems, rails and civil works.

2016 orders by supplier on a geographical basis were as follows:

YEAR 2016					
ORDER <sup>31</sup> BY GEOGRAPHICAL BASE (in Euros)	Italy/EU <sup>32</sup>	Asia Pacific <sup>33</sup>	The Americas <sup>34</sup>	Other	TOTAL
Materials	87,336,835	8,632,759	94,884,635	2,003,295	192,857,524
Services	110,653,877	20,686,820	14,364,520	19,429,489	165,134,707
Business services	179,665,330	2,030,988	28,647,777	854,581	211,198,676
Turnkey projects and subcontracts	151,985,403	29,669,630	106,976,165	23,254,933	311,886,131
TOTAL	529,641,445	61,020,197	244,873,097	45,542,299	881,077,038



31. Intragroup orders were excluded.

- 32. Mainly Italy and France; followed by Spain, Sweden, Germany, UK, Belgium, Switzerland and Denmark.
- 33. Mainly Australia and India; followed by Malaysia and China.
- 34. Mainly US; followed by Canada and Brazil.

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The number of active suppliers in 2016 increased from 3,017 to 3,250. They are analyzed by geographical area and order size below:

- 60% are European suppliers;
- 18% are suppliers in Asia Pacific;
- 21% are suppliers in North/South America;
- 2% are suppliers based in other areas.

YEAR 2016 NO. OF SUPPLIERS GEOGRAPHICAL BASE ORDER SIZE	No. of TOTAL SUPPLIERS	No. of BIG suppliers (supplies >€200K)	No. of MEDIUM suppliers (30K€ < forniture < €200K)	No. of SMALL suppliers (forniture <€30K)
Europe	1,936	313	549	1,074
Asia Pacific	593	41	108	444
The Americas	671	89	148	434
Other	50	15	18	17
TOTAL	3,250	458	823	1,969

The economic benefit of working with Ansaldo STS can be measured by considering its suppliers' workforces. Accordingly, the following should be considered:

• 43% of Ansaldo STS's orders are for high labor-intensive services (100%);

• 35% of its orders are for turnkey contracts and subcontracts which have an average labor intensity factor of 50%;

• 22% refers to supplies of materials with a medium labor intensity factor of 20%.

Therefore, the labor intensity factor of Ansaldo STS's orders is roughly 65%: about €571 million paid to suppliers is to cover their labor costs.

# Supply chain sustainability policy

Ansaldo STS has conducted an initial mapping of its supply chain with respect to compliance with Environmental, Social and Governance (ESG) criteria. Indeed, the standard purchase order model includes general supply conditions, compliance with the code of ethics and, when vetting new suppliers, Ansaldo STS gathers information on their compliance with quality, hygiene, health and safety in the workplace standards and their environmental policies, by requiring ISO 9001, ISO 14001 and OHSAS 18001 certification (see Vetting and eligibility of suppliers). Ansaldo STS applies these characteristics as preferential requisites and they are considered in the supplier's eligibility score. The mapping showed:

SUPPLIER MAPPING	2016	2015	2014
Number of suppliers in the register by direct and indirect product types (2010-2016)	15,025	17,059	16,112
Total active suppliers	3,250	2983	3,072
Number of suppliers covering 80% of the value of orders	190	192	203
Qualified suppliers (Classes A and B)	124	166	198
of which:			
ISO 14001 certified suppliers	17	13	30
OHSAS 18001 certified suppliers	15	7	17

Mapping is the first step in the definition of the specific sustainability policy for the supply chain. The main guidelines of this policy will be:

- audit activities on site suppliers, including a review of sustainability performance, with technical controls on products for suppliers of materials;
- collaboration between Ansaldo STS and suppliers in product design;
- activities to inform suppliers about sustainability issues;
- the extension of annual monitoring activities to suppliers classified in the A category.

# Monitoring of social and environmental impact

Since 2014, Ansaldo STS has been involved in testing TenP - the sustainable supply chain self-assessment platform, designed by the Global Compact Network Italy Foundation (of which Ansaldo STS is a founding member) to assist member companies to collect information on their suppliers' sustainable performance. The intention is to identify common solutions to improve the supply chain's sustainability.



As part of this project, Ansaldo STS selected an accredited number of suppliers which it invited to complete an online survey about sustainability issues such as respect for human rights, labor conditions, the environment and anticorruption.

In 2016 and 2017, it will analyze the feedback of this survey and define an action plan to improve sustainability.

## The digital platform

In 2018, the Procurement digital platform will be implemented, which will bring benefits in terms of:

- environmental sustainability, as the tool will eliminate a portion of printed copies that are made for orders and contracts, through digital exchange of documents and digital signature;
- risk management, as the use of the platform will ensure compliance with company procedures;
- business continuity, as it will enable the monitoring of the suppliers' performance and will reduce the risk of business disruption as digital data repository;
- risk mitigation for the financial assessment of suppliers.

# Vetting and eligibility of suppliers

Supplier vetting and the process for the purchase of assets, goods and services are carried out in accordance with the principles of the code of ethics and internal quality procedures, as well as in accordance with current environmental, health and safety regulations. In the management of relationships with suppliers and subcontractors, as for all business and financial dealings of any kind, Ansaldo STS requires its counterparties to conduct themselves in accordance with the principles of loyalty, fairness, transparency, efficiency and legal compliance.

To this end, suppliers and subcontractors are vetted on the basis of objective, transparent and documentable evaluation criteria, in accordance with the principles of the code of ethics and all procedures provided for by specific protocols, in writing and in line with the current hierarchical structure.

A new Supplier Qualification & Monitoring Unit, part of the Quality Assurance function coordinates supplier qualification. In addition, Ansaldo STS has specified that the qualification process is interdisciplinary and based on opinions of several units involved therein: the Technical, Procurement, Quality and EHS units. Ansaldo STS revised the supplier questionnaire (FOR 019), introducing specific questions about the environment and safety, directly involving the EHS unit in supplier qualification and defining a list of "sensitive" goods, where the latter unit's involvement is mandatory.

The questionnaire update covered the following EHS aspects:

- introduction of a safety management system compliant with the BS OHSAS 18001 standard;
- introduction of an environmental management system compliant with the UNI EN ISO 14001:2007 standard;
- introduction of sustainability procedures/programs;
- application of the legislative requirements to comply with the REACH/ROHS/RAEE regulations;
- collection of data about accidents, non-compliance, training and emergencies.

As Ansaldo STS continues to increase its operations in emerging countries, it prefers large companies that preferably have the quality, environmental and safety certificates when vetting and qualifying suppliers.



#### Suppliers and service providers

Relationships are based on the correct management of supplies in terms of quality, cost-effectiveness, ability to meet delivery times and compliance with the requirements for goods purchased. Ansaldo STS's objective with suppliers of businesscritical materials, such as electronic cards and racks and cabinets, is to sign medium to long-term agreements so that they can act as genuine partners in the supply chain.

#### Packages/subcontracts

Purchasing a "package" refers to the assignment of a turnkey plant that will correctly integrate with all other technology comprising the entire project. In this case, the assignee is not considered a mere supplier, but a bona fide partner, and must inevitably form an integral part of all stages in the performance of the entire project. Therefore, these contractors work alongside all Ansaldo STS's bodies (PM, Engineering, Quality, Logistics and Construction) throughout the entire process and, for correctness and transparency purposes, they are updated on the progress of the other technologies, any critical issues with respect to the project, and are invited to the meetings held with other contractors and the end customer.

### The vetting process

The supplier vetting and assessment process entails the following stages, in accordance with the procedures established for the management of this process.



Ansaldo STS's Procurement function vets potential suppliers of materials, service providers and, in particular, suppliers of packages/ subcontractors, with the support of other company functions (Engineering, Administration and Finance, Legal Affairs, Quality, EHS and Construction).



Throughout the entire assessment process, Ansaldo STS verifies that suppliers meet requirements in order to approve them and include them in the list of eligible suppliers for specific goods categories and, thus, that may be used for the issue of purchase orders. Depending on the importance of the product types, the assessment methods used range from a simple analysis of the documents requested of and received from the supplier to the preparation of assessment reports following an inspection of the supplier's site. The following functions may request the inspection:

 the Procurement function, for a more reliable assessment of strategic suppliers;

- other functions when they do not have enough information;
- the Quality function when the assessment of the supplier's organizational system, quality management system or overall capabilities is not sufficient considering the type and importance of supply. The assessment team examines the various business areas depending on the type of purchase (materials, services, packages, etc.), on the basis of the required processes (design, supply, assembly, etc.) and, finally, on the basis of their importance.
### **Eligibility criteria**

Drawing on the technical and specialized expertise of the concerned company bodies, the Supplier Qualification and Monitoring function assembles the assessments of potential suppliers prepared by the functions involved in the qualification process according to highly detailed requirements that fall under the following categories:

- financial situation and results;
- management, sales and logistics organization;
- production potential and technical expertise;
- whether it has quality management systems certified by accredited bodies, giving priority to companies with the International Railway Industry Standard (IRIS) certification;
- whether it has environmental management systems and health and safety management systems certified by accredited bodies;
- its willingness to be inspected;
- whether it has been endorsed by the Italian Railway Network (RFI) or other bodies;
- the identification and traceability of production lots.

Since 2012, the part of the eligibility process entailing the gathering of the above subset of information has been extended to the bidding procedure as well, with the subsequent advantage of reducing the time needed to complete the process once the supplier has been selected.

With a view to continuous improvement, two new key aspects have been introduced into the eligibility process. The first relates to the fine-tuning of the process, while the second is organizational in nature.

Approximately 139 audits were performed in 2016 on the most important qualified suppliers and approximately 124 new suppliers were qualified.

### **Contractual tools**

Ansaldo STS uses various supporting contracts, depending on the goods and services purchased from a given supplier.

For standard materials and services, all initiatives favoring long-term arrangements are preferred (framework agreements, partnerships, memoranda of understanding, etc.) with vetted suppliers, and periodic controls on the suppliers' processes are performed, in addition to scrupulous checks of supplies to monitor suppliers' ethical conduct, adequacy, reliability and timeliness.

For specific materials and services for projects, Ansaldo STS uses purchase orders. The standard order includes a summary of the general supply terms, legal requirements – with specific reference to the protection of workers and the protection of personal data – and a notice of compliance with the code of ethics.

The order includes a description of the characteristics and requirements, quantities and delivery times for the materials and services, and may also refer to specific documents clarifying the technical specifications for more complex devices. For turnkey packages and contracts, Ansaldo STS agrees ad hoc contracts whereby the contractors undertake, through their organization, using the necessary means and with management at their own risk, the construction of the relevant plant or service.

Furthermore, all contractual documentation is attached to the contract. This documentation normally consists of the main contract (that agreed by Ansaldo STS with the customer), the technical documents defining the scope of the work in detail, detailed project plans, Ansaldo STS's code of ethics and legally-required documents (safety and coordination plan and facsimile of workers' protection statements), etc.



### Monitoring

Suppliers are constantly monitored through contacts between them and the Ansaldo STS functions with which they operate (Procurement, PM, Engineering, Quality and Supply Chain Quality, Logistics and Construction). At least once a year, personnel working with suppliers participate in a vendor rating process that takes into account the suppliers' conduct and performance vis-à-vis the supplies ordered, in order to update the suppliers' assessment and establish whether they will remain in the list of Ansaldo STS suppliers. Scores are given in four main areas: Quality, Timeliness, Flexibility and Charges. This monitoring system is applied on a continuous basis only to suppliers of strategic materials, and the results are assessed each quarter. The parameters considered are:

- Price (calculated as the variation in the cost of the product);
- Quality (calculated as the percentage of faults);
- On-time delivery.

The global performance of suppliers remained high, with only 10 suppliers receiving unsatisfactory ratings.

### V2A-New Road project

In 2016, Ansaldo STS continued striving for the technical and commercial optimization of external costs, carrying forward the inter-functional V2A-New Road project, launched in 2014. A few macro categories of costs were considered strategic as part of this project. For each macro category, international and inter-functional teams were identified to evaluate and implement specific ways of increasing efficiency in the medium and long-term. The performance level achieved is in line with targets.



Vetting and eligibility of suppliers Supply Chain 🕕 谢 😳 🖓 💼 🐞 🚮



### **Responsible litigation management**

In general, litigation between Ansaldo STS and its suppliers/contractors may involve breaches of contract by the aforesaid counterparties, relating to either any framework agreements for work/supplies or to Ansaldo STS's individual orders with such parties. Although it is difficult to completely prevent disputes,

Ansaldo STS endeavors to periodically improve the content of its general terms and conditions and, whenever possible, to standardize sub-supplies. In the scope of this improvement, and in collaboration with the Procurement and Supply Chain functions, guidelines were defined to harmonize the general contractual terms and so ensure Ansaldo STS's compliance with contracting and public supply regulations.

Given the consolidation of the activities abroad, Ansaldo STS tends to include arbitration clauses in the related contracts, in order to prevent any evasive conduct by suppliers (supported by the governing law which, in these cases, is almost always the local law), and avoid any discrepancies between the main contract with the customer and the subcontracts, which could give rise to procedural difficulties in recovering the amounts due. In addition to ensuring the impartiality of the proceedings in multicultural environments, the use of arbitration ensures, as a general rule, a considerable reduction in the time required to settle disputes and allows the company to restore, in the short term, business relationships with the counterparty, which are fundamental for the company's growth and sound functioning.

## COMMUNITY

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Ansaldo STS promotes society's scientific, cultural and social progress by actively taking part in research projects with national and EU institutions on ICT and the sustainability of transportation systems. It also encourages technological and managerial training through partnerships with universities.

Community 🕕 🌒 🍄 🖓 💼 🍖 👬



# **Media affairs**

The main purpose of external communications is customer communications and, more generally, market communications, in order to contribute to the creation of value, improving the way in which the Ansaldo STS brand is perceived by the many professionals who participate in decision-making that affects investments and the main operating activities.

Institutional communications target the top management of major national railway companies and the public administrations of urban areas interested in transportation solutions, the operating units of customers responsible for performing contracts, the technical/contractual supervisory bodies appointed by customers or required by local legislation, professional associations in the sector and opinion makers. The objective of technical/business communication is to inform the various professionals that are most involved in qualification with customers, design, implementation, commissioning, approval, after-sales service, staff training and workers' safety at the sites.

It pursues these objectives by creating a work community that can adjust its response to the market in terms of timing and procedures, by participating in trade fairs, by appearing in specialized publications with institutional and product advertisements, along with articles detailing certain aspects, company publicity on the website, the publication of leaflets and broadcasting of videos for sales and marketing, training of customers' staff and workers' safety at the sites.



MONTH	EVENT	LOCATION
February	UIC ERTMS	Brussels
March	Eurasia Rail	Istanbul
	Middle East Rail	Dubai
	Inauguration of San Pasquale Line 6	Naples
	Metro train delivery ceremony	Genoa
April	ASI-IIN convention	Rome
	The Future of Signaling (CIFI)	Florence
	Roy Hill Delegation	Genoa-Naples
	Making	Rome
Мау	Honolulu train delivery ceremony	Honolulu metro (US)
	Railexpo	Tehran (Iran)
	Regional and local public transport network planning, operation and management	Genoa
	MetroRail	London
June	WCRR	Milan
	Major Cities of Europe Conference	Florence
	ModernRailways	Beijing (China)
	Africa Rail	Johannesburg
	RSSI	Grapevine (Texas)
September	Innotrans	Berlin
October	Town Hall	USA
	Move App	Milan
	Science Festival	Genoa
November	CBTC World Congress	Copenhagen
	Mena Rail	Dubai
	WTMS	Pietrarsa (Naples)
	AusRail	Adelaide (Australia)
December	Hitachi Social Forum	Sydney (Australia)
	AICQ convention	Florence
	Town Hall	Brisbane (Australia)

### A year of events and contact with our stakeholders

In Ansaldo STS's opinion, the trade fair is without a doubt one of the most important sales and marketing tools, where privileged contact is made between the exhibitor company and the stakeholders. It is a strategic tool for being in the front line and for building customer relations.

The main objectives that Ansaldo STS sets for itself by taking part in a trade fair are improving its image, strengthening the brand, entering new markets and presenting new technologies and products.

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The most significant occasion in 2016 was participation in Innotrans (Berlin), the most important show anywhere in the world for the rail industry, where Ansaldo STS appeared together with the other Hitachi Rail group companies. There we were able to show the market our even more solid, sustainable, compact and innovative company.

### The Media

Ansaldo STS develops its relationships with the media by focusing utmost attention on the quality of information, which must always meet requirements of transparency, timeliness, truthfulness, complete ease of use and widespread distribution. These characteristics enable Ansaldo STS to base its communications on the constant symmetry of information to all media outlets, also considering the fact that the company is listed on the stock market. Relationships with journalists are managed at several levels: from the highest, with directors and deputy directors of publications, to middle range, with head editors and senior editors, to writers. Indeed, relationships must be forged across the board for constant support with respect to issues relating to Ansaldo STS's business.

In its communication activities, Ansaldo STS mainly targets sector leaders:

 national press agencies that handle general news (e.g., ANSA, ADN-Kronos and AGI) and national press agencies specialized in business news (e.g., Radiocor, Mf Dow Jones and Reuters), as well as the international press specialized in business news (Reuters International, Dow Jones and Bloomberg);

- dailies (e.g., Il Sole 24 Ore, MF, Italy Oggi, Repubblica, Secolo XIX, Messagero, Il Mattino and others);
- periodicals (e.g., Milano Finanza, Corriere Economia, Repubblica Affari&Finanza, Il Mondo and The Economist);
- the radio (Radio 24);
- television (Class CNBC);
- online media;
- blogs, such as letters to investors and similar posts.

It enjoys ongoing and fruitful relationships with local business and general media outlets in which it has sites (particularly Genoa and Naples) or where it carries out projects, such as Rome, Milan and Brescia.

### Advertising campaigns

In 2016, the analysis and evaluation made the previous year became consolidated and in this way the major international publications in the railway transport/ signaling sector were confirmed, including Railway Gazette International, International Railway Journal, Ville Rail & Transport and some of the leading web publications.

Considering the importance of the Innotrans 2016 event, this year the Group focused highly on advertising initiatives tied to the show with the purchase of advertising space inside and outside the trade show. We move people and freight safely on every continent

Ansaldo STS A Hitselai Group Company



Ansaldo STS AHILLEN Group Co



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#### Price sensitive communications to the market

All Ansaldo STS information that can be defined as price sensitive (i.e., that could materially affect the share's price on the stock market and that is disclosed via Borsa Italiana's NIS -Network Information System) is subject to a standard procedure, revised again in 2016, that requires the company's External Communication function, in charge of press releases, to work closely with the Investor Relations function and the legal function and the internal communications. The company issued 67 press releases in 2016. Ultimate authorization for the issue of press releases always lies with the CEO and CFO.

#### **Digital communications**

#### The Corporate website

Customer communications take many shapes and cover many channels. The External Communications department at Ansaldo STS always follows the principle of timeliness and expediency. To arrive on time and in the right way, when and where the strategy requires, to meet the target customer's informational needs, in addition to those of other potential stakeholders, such as investors, partners or suppliers. In 2016, the company made increasing use of the digital media channel, less used in the past, and continued to update its website and also used the social media and institutional sites. A full-scale update is scheduled for 2017. In the edition *Webranking by Comprend 2016*, Ansaldo STS's corporate website obtained 61 points (out of 100 points possible) and placed 13th in the Italian ranking, losing 2 positions compared to last year and 2 points of the total score. The Italian research edition considered 110 companies. Forty were ruled out because they had scored less than 30 points in past years, leaving 70 companies to vie for the title.

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The chief reason for the poorer performance in 2016 is tied to presentation of the 2015 Sustainability Report after the evaluation period ended. A complete revision and update of the website is scheduled in 2017, with this document being presented in time.

#### 2015 Integrated Review

The third edition of the Integrated Review was given a new graphical layout in 2016 for the report on the previous year.

This is one more step forward in the direction of an integrated view of business, social and environmental management and a new tool for the public demonstrating how sustainability is an integral part of Ansaldo STS's day-to-day work, and an increasingly key element for pursuing dialogue with stakeholders, so they have adequate tools to read about and understand the company.





#### **Social Media Communications**

The year 2016 was dynamic. New initiatives were kicked off to develop currently existing digital communication channels, improve their content and format and communication functions, and more than anything else, to facilitate dialogue outside the company.

At the same time, a relationship was forged with the Wikipedia editors to keep the pages on the company and its business updated in both Italian and English. Communications channels were developed and updated via social media, in line with the sector approach and creating more ongoing interactive communications with the public.

The success garnered by the investments in communications and content can be seen by the development of the LinkedIn platform, where the company's followers have grown from roughly 53,700 in 2015 to over 60,500 at year-end 2016. This reflects Ansaldo STS's professional activities and communications, which an increasingly number of sector users wishes to access.



techologido del Nodo terrovano di Cenhoxi, il cui completamento permetterà di migiorre il controli del traffico ferroviano tra Uguría e Basso Piemonte per più di 180 km di line.



#### 2016 most popular Twitter



Company events, commercial successes and exhibitions are regularly presented to the public's great interest.

As of today, the channels at the stakeholders' disposal are updated in real time with the most important information.



In 2016, almost 200 tweets and over 70 LinkedIn posts were published, and communication via Facebook was strengthened.

As for LinkedIn, of the over 60,000 followers, 3,000 are company

employees, which is to say that roughly 76% employees are followers, fully reflecting the sound results of Ansaldo STS's efforts to improve values in general and team spirit specifically.

#### Internal communication via the Intranet

Use of the Intranet as a strategic internal and organizational tool has intensified considerably.

In 2016, more than 40 articles regarding the initiatives and major successes of Ansaldo STS around the world were published.

Today Ansaldo STS is able to quickly share the most important corporate news throughout the company.

The primary objective of Ansaldo STS's internal communication is to involve all employees in order to connect people, form functions, set processes in motion and interact with the systems by defining connections that give the company added value.

Knowing what Ansaldo STS colleagues are doing around the world in order to better define future identity, priorities and goals.

A communication process aimed at reinforcing the sense of belonging and participation in order to achieve organizational well-being and the creation of a better work environment within a large network where knowledge and experience can be shared.

To meet these needs, the new Ansaldo STS Intranet designed and structured in different clusters to provide simple search and management of knowledge sharing processes became operational in December 2016.



### **OUR VOICE**

To always be up to date on all the latest news of the industry, the events Ansaldo STS participates in around the world, the latest information coming from Top Management, the daily press review, the press releases and the pages of the trade journals that talk about us. To be informed on Ansaldo STS's various geographical areas all the time and everywhere.

### **AROUND ASTS**

This is the corporate Intranet section dedicated to all official communications and tools connected with the company's development. Here we can find surveys on the evolution of the Ansaldo STS group, all the news and official Ansaldo STS communications.

#### **MY ASTS**

Who Ansaldo STS is: corporate identity, employees, company culture with its missions and visions. My ASTS is yours, mine, our space. A space where we can find tools, services and information helpful in understanding the world of Ansaldo STS.

### OUR COUNTRIES

These pages contain the documents, information and local communications so that whoever is travelling, and those working at the various sites, can be informed on local life. In this way, the countries where Ansaldo STS is active can be represented as much as possible.

#### **OUR KNOWLEDGE**

It is the sum total of all information on the products, processes, tools and professional expertise employed in daily challenges.

The purpose of this section is to provide access to all formalized information in the company and, on this basis, provide a place where experiences can be shared.

A Narrative Team was created to make management of this important communication tool easier. It is a group of people coming from departments throughout the company who collect, spread and update contents concerning company initiatives all around the world. Talking about the company to connect colleagues or work teams. Ansaldo STS's Narrative Team works every day to make internal communication effective and transparent.



### Ansaldo STS and the community

Each year sees Ansaldo STS committed to various charitable events, investments in the community and sponsorships. In 2016, total donations and sponsorships amounted to roughly €739 thousand, as shown below by geographical segment:



### Sponsorships and donations procedure

Ansaldo STS has a procedure for sponsorships, advertising initiatives and contributions to associations and bodies that sets out the general principles, scope of application, roles and responsibilities for making decisions and the costs incurred for sponsorships and donations. It checks the party that receives the sponsorship or advertising fee or is given the grant to ensure that they will be able to carry out the related project, there are no conflicts of interest, no convictions for crimes and that the party does not reside in a tax haven.

Donations alone totaled €63,293 related to education and young people's development, health and social welfare, as well as art and culture.

## Partnerships with universities: technological and managerial training

Ansaldo STS continued its relationship with Italian and foreign

universities and training schools also in 2016 in order to contribute to the students' theoretical and practical knowledge and to offer traineeships, scholarships and other opportunities for young motivated and enterprising people.

During 2016, we increased our collaboration relationship with the Faculty of Engineering in Genoa and studied ad hoc career paths

for young and brilliant graduates arriving at the company who were recommended by professors owing to the excellent results they obtained. After completing their internship, the young people are assessed by internal tutors who followed them during their training in the company. If the results reach the high expectations set, they are placed at Ansaldo STS, either in Italy or abroad.

In addition to signing an agreement with the University of Genoa, the company came to an agreement with the top secondary school with an emphasis on sciences in Genoa, Cassini, so that we take an active part in the school-work program. These opportunities allow us to help and guide brilliant young people in their future university programs. The engineering faculty supports the young people during this stage with explanations and guidance in making decisions.



### Agreements with universities

Ansaldo STS has framework agreements in place with the Italian Universities of Genoa, Turin, Rome and Basilicata, relating to a number of three-year PhD partnership programs, annual or two-year research contracts as well as numerous theses and internships. The company also has a framework agreement with the German University of Dresden, specialized in railway signaling and is also developing partnerships with the Universities of Rome and Milan.

In 2016, Ansaldo STS continued its close collaboration with the faculty of electrical engineering of the University of Genoa, with which it shares targeting training to single out interesting profiles that meet the requirements of our business.

# **Trade associations**

Ansaldo STS actively participates in UNIFE projects (association of European railway builders), UNISIG (association of European railway signaling companies) and UITP (international public transportation association), ANIE (National Federation of Electrotechnical and Electronic Companies), AICQ (Italian Association for a Quality Culture), the Italian partner of EFQM (European Foundation for Quality Management), Cosila (consortium for safety in the workplace) and Unione degli Industriali/Confindustria (Industrialists' Union/Italy's main organization representing Italian manufacturing and service companies), in Naples and Genoa, specifically.

In the scope of UNIFE, Ansaldo STS collaborates to, among other things, promote the extension of the use of railway transportation through the implementation of technological standards (ERTMS and TSI) and by proposing European research projects to improve safety, energy efficiency and environmental protection in the field of railway transportation. Specifically, with this project, proposed by the railway JTI SHIFT2RAIL, ASTS aims to reduce emissions, for a modal shift in transportation, in line with that indicated in the transportation white book published by the EU Commission.

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Furthermore, also as part of UNIFE, Ansaldo STS sits on the Sustainable Transport Committee, which aims to define a common, consistent and effective consensus in the railway industry with respect to environmental issues and, particularly, energy efficiency (reliable standards to measure energy consumption), the evaluation of the life cycle as one of the main criteria in the decision-making process, eco-procurement and noise and emission reduction.





# ECONOMIC SUSTAINABILITY

Market characteristics
Business model
Strategy
Economic value directly generated and distributed
Customer satisfaction
Ansaldo STS and its banks and insurance companies
Shareholders

Ansaldo STS's economic sustainability is its strategic answer to the macroeconomic context and transportation market trends, based on a business model that develops distinctive abilities and the necessary skills to boost the company's competitiveness on markets - growth in human and organizational capital.

Economic sustainability 🕕 🍥 🌻 🖓 💼 🍖 🎄



# **Market characteristics**

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Economic sustainability is therefore increasingly tied to social and environmental aspects, both at company level and in terms of market scenarios. Ansaldo STS has evaluated the repercussions on transportation systems that macrotrends involving variables related to the environment, health and safety, demographic growth and economic development in emerging countries will have and the result is that the global transportation market will shift ever more towards rail transport that is safe, efficient and capable of meeting growing environmental concerns.

### The market and Ansaldo STS's position

#### The market and its evolution

Ansaldo STS's market remains sound and shows global growth rates of around 2% to 3% per annum. The key market drivers remain positive: growth in global trade and growing traffic, urbanization, environmental concerns, expanding emerging markets, infrastructures and intermodal transport. In part due to urbanization trends, emerging markets are growing faster than highly industrialized nations, increasing their relative weight. However, there are also sound growth opportunities to be found in the United States and Australia as well as the signaling segment. The result of these trends is a reduction in Western Europe's weight.

### Ansaldo STS's position

Ansaldo STS boasts solid roots in industrialized countries' markets and it is well positioned in emerging markets. It can meet global demand thanks to its demonstrated skills and expertise in delivering on time and according to budget.

# Traditional and emerging technologies

ERTMS, CBTC and driverless technologies are becoming global standards. Focus is now shifting to the technological innovations destined to dominate the market in the next few years, GNSS (Global Navigation Satellite System), used in remote areas with low traffic and that are difficult to reach.

#### Ansaldo STS's position

Ansaldo STS's product portfolio includes traditional technologies and innovative, high-tech transportation solutions.

#### **Price pressure**

Competition pressure continues to intensify between the world's leading players, triggering a significant reduction in unit prices, mainly in the signaling sector, where Ansaldo STS responds with both innovation and product differentiation, continuously striving to improve its efficiency and effectiveness by creating specific plans.

### Ansaldo STS's position

Ansaldo STS has built its business model around customers, ensuring product flexibility and maintaining competitive prices by standardizing products and implementing efficiency-boosting projects.

### **Business model**

Ansaldo STS's abilities and organization fully meet the need to innovate in order to boost transportation efficiency and safety and reduce the environmental impact.

Ansaldo STS is, indeed, a company that operates on a global market. It boasts great flexibility in meeting international demand and is open to new markets. It carries out research and development for transportation solutions that focus in particular on the environment and safety. It facilitates the standardization of solutions, while also developing the ability to create customized products for different customer needs. It has the necessary financial soundness to meet future challenges, lead innovation and make the most of growth opportunities by promoting new projects. Ansaldo STS's business model is customer based, and enables it to forge fruitful, longlasting relationships at global level.

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### **ANSALDO STS' BUSINESS MODEL**

# Technological *leadership* in terms of safety and the environment

Ansaldo STS offers integrated solutions based on technological leadership in terms of safety and the environment and holds a predominant technical leadership position in certain market segments (ERTMS, driverless, mass transit, HSL, etc.).

# Solid roots and growth wherever the demand is

Long-standing technological leader in the western world, growth in emerging market economies, investments in R&D, continuous monitoring of deadlines and budget.

# Serving the customer's future needs

Ansaldo STS can meet the new requirements of markets, such as driverless freight transportation, the introduction and integration of extremely safe technology that guarantees operating efficiency.

### Technological Integrator Signalling Supplements Supplements

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**Operation and Maintenance** 

#### Global organisation

3,951 professionals offer global research, expertise, experience, know-how and best practices wherever the market needs them.

#### No dependent rolling stock supplies - only privileged partnerships

Ansaldo STS is capable of aligning its solutions to any rolling stock supplier and is flexible in the design and creation of a selected solution.

# A partner throughout the customer's entire value chain

Ansaldo STS is leader in the supply of cutting-edge integrated transportation solutions by combining traditional and non-traditional technologies and operation and maintenance services.

#### Financial support to customers

Ansaldo STS can leverage its sound net financial position and innovate its profitability model by introducing pay-per-use formulas on long-term contracts and optimising the total cost of ownership for its key customers.



### **Strategy**

Ansaldo STS is committed to maintaining and developing a series of distinctive abilities and expertise that create value and guarantee long-lasting company growth over time. This commitment can be seen in the company's three strategic trajectories:

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#### 1. Selectivity:

focus on markets where it has a strong competitive position. Ansaldo STS's growth is the result of a continuous process beginning with its awareness of its positioning and competitive edge, the identification of market opportunities in relation to its competitive levers and their translation into action plans. This process has led to the definition of strategic markets - the domestic market and the areas in which the company has a significant, recognized presence, as well as markets presenting growth opportunities, by focusing on large projects with low overheads.

#### 2. Innovation:

focus on innovation as a lever to gain competitive edge for long-term growth.

Ansaldo STS's innovation strategy to increase turnover is based on improving the products it currently offers customers and differentiating its product portfolio to expand the offer, extending its business model by offering complementary services that meet its customers' specific needs (management and maintenance activities) and meeting the specific needs of customers given their particular geographical situations (complex areas with low traffic volumes), offering cutting-edge satellite technology solutions.

#### 3. Flexibility and efficiency:

maintain its competitive edge by optimizing the business model with a focus on the flexibility of the offer and operating efficiency.

Efficiency is one of the strategic levers in which Ansaldo STS invests to bolster its competitive position and ensure excellence in the performance of activities. To pursue these aims, it has launched an improvement program that covers all company areas and exploits the opportunities arising from its global organization.

In order to ensure the implementation of all efficiency initiatives, and, in general, all strategic initiatives, Ansaldo STS has developed an *Action Implementation Monitoring* (AIM) system. Through AIM, the following have been defined:

- the definition process for action and monitoring plans;
- the governance rules to ensure the frequency of review meetings focused on initiatives and the identification of any corrective action in the event of critical areas;
- tools to support management of
- the initiatives.

The contribution that Ansaldo STS expects of AIM is:

- completeness: having a consistent, updated picture of all initiatives underway;
- consistency: doing what has been proposed and following up on it until implementation;
- initiatives explicitly linked to company plans.

# Economic value directly generated and distributed

Ansaldo STS recognizes the importance of balancing the distribution of value generated by its activities to stakeholders, the value that they have directly or indirectly contributed to generating.

By analyzing distributed economic value, Ansaldo STS studies the flow of resources directed towards its employees, suppliers, service providers, lenders, the public administration and the communities in which it is present.

ECONOMIC VALUE GENERATED AND DISTRIBUTED (figures in K€)	2016	2015
Economic value generated	1,362,831	1,438,285
Revenue	1,327,386	1,383,837
Other revenue	18,659	18,284
Financial income	16,786	36,164
Profit from non-current assets held for sale	0	0
Economic value distributed	1,297,730	1,354,077
Operating costs (procurement, services and investments)	849,608	907,779 <sup>35</sup>
Employee remuneration	332,338	321,676
Shareholder remuneration	36,000	30,000
Lender remuneration	37,466	46,369
Public administration remuneration	41,579	47,429
Donations and sponsorships	739	824 <sup>36</sup>
Economic value withheld	65,101	84,208
Depreciation, amortization, impairment losses and adjustments	23,198	21,172
Self-financing	41,903	63,036

The value generated by the group in 2016 amounts to about  $\in$ 1.36 billion, while the value withheld by the company - mainly consisting of amortization, depreciation, impairment losses and accruals to provisions for risks, along with the self-financing - is  $\in$ 65.1 million.

Almost €1.3 billion was distributed, and was divided among the following stakeholders as follows:

- the largest amount, or roughly €849.6 million, relates to costs incurred to purchase materials (suppliers), services (contractors and subcontractors) and other goods;
- approximately €332.3 million go to employees, mainly for wages, salaries, social security and pension contributions and defined contribution plans;

- approximately €41.6 million to the tax authorities and other local bodies for direct and indirect taxes;
- €37.5 million to lenders for interest and commissions, financial expense and operating exchange rate differences;
- €36.0 million to shareholders in the form of dividends;

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 €0.74 million to the community in the form of gifts, donations and sponsorships (with or without publicity).



The figure was adjusted with respect to the Sustainability Report 2015 due to the exclusion of € 62K moved into Donations and sponsorships.
 The figure was adjusted with respect to the Sustainability Report 2015 due to the inclusion of € 62K from Operating costs.

### **Customer satisfaction**

Customer satisfaction is central to Ansaldo STS's strategy: the ability to understand customers' needs and expectations and meet them is the top value on which it bases its company culture. In general, each customer has a contact at Ansaldo STS, a specific Project Manager overseeing its contract.

The Project Manager is responsible for ensuring the customer is satisfied, responding to any issues that might arise over the course of the contract.

The organization of proposal activities and project management is fundamental to carrying out a project that meets the quality requirements of the products and services offered and in order to provide them according to deadline and budget restrictions. To this end, the objective of project management is to protect the interests of Ansaldo STS's stakeholders, including shareholders, who are mainly focused on the results of the business, and its customers, who want to receive top quality responses according to established schedules in line with the transportation needs of a city or the community at large.

In this area, the most significant development in market dynamics in recent years has entailed the progressive shift from the provision of products and technologies to customers' demand for turnkey transportation solutions that efficiently meet the needs of local and national institutions. This new type of offer requires an ability to work alongside customers, who are increasingly less frequently considered buyers and ever more partners, in the management of a project throughout its entire life cycle, taking action, if necessary, in project financing initiatives as well, and thereby with private sources of funding, and consequent involvement in not only the design and construction, but the subsequent management and maintenance of solutions as well.

Ansaldo STS operates with customers mainly consisting of public institutions on long-term projects. It is therefore affected by a myriad of external factors such as the macroeconomic scenario and the consequent availability of sources of financing and the need to operate, especially in terms of urban public transportation projects, in city centers with many interferences that could impact the steady performance completion of a project and influence the quality of life of the local communities.

Clearly, in a context such as this, project management skills and processes are essential for the achievement of the pre-determined objectives and to ensure sustainability with stakeholders. To this end, it is necessary to identify and monitor any uncertainties typical of the business and, more in general, to manage risks. Ansaldo STS implemented adequate risk management procedures with the aim of managing risks and maintaining the objectives of the project in the best way possible.

The risk management process provides for the identification and proper assessment of all significant risks already at the bidding stage and their monitoring throughout the entire life cycle of the project, in order to immediately identify potential mitigation actions to be taken. Furthermore, in accordance with international best practices, Ansaldo STS directly collaborates, when required, with customers to manage risks together, thereby minimizing their impact, not only in terms of risks for Ansaldo STS, but for the end customer as well, and, accordingly, for all stakeholders. In this respect, Ansaldo STS has created standard procedures that it uses for integrated risk management with end customers.



# Control of project operational risks

To mitigate risks relating to the quality, deadlines and costs of a project, Ansaldo STS:

- adopts risk management processes, both during the bidding and project performance stages, to minimize the consequences of negative events and maximize the impact of positive events, through constant monitoring of risks, mitigation and opportunities;
- adopts project lifecycle management processes based on the constant comparison of physical progress with accounting progress;
- clearly assigns responsibilities to the project manager, project controller and project team;
- periodic review of the project and review processes of estimates during bidding;
- periodic monitoring and reporting of projects by the risk management function;
- provides for an independent review of key projects by the risk management function.

### Customer satisfaction

A specific team handles Customer Satisfaction ("CS") activities. The team is made of the managers of the various functions: System Assurance & Control, Railways & Mass Transit and Freight and Operations Business Units.

Customer Satisfaction activities consist of various stages and are carried out using different tools to accurately monitor customer satisfaction level and the progress of projects until their completion. These tools include:

• Customer Satisfaction Monthly Meeting: monthly meetings via videoconferencing, to discuss CS activities and reach decisions on the steps to be taken.

# Customer Satisfaction Quarterly Reports: quarterly

reports prepared with the support of the business unit managers on critical projects. In 2016, 22 critical projects have been mapped. The Project Manager is responsible for reporting on critical points (in terms of planning, quality and costs) and the related mitigation action. A statistical analysis on the development of these critical points is attached to the report.

- Customer Satisfaction Survey: a series of one-on-one interviews with top representatives of a sample of customers. This survey begins with a letter signed by the CEO of Ansaldo STS sent to the customer's CEO. It is carried out using a specific questionnaire attached to the letter to the customer. Since the end of 2012, 26 interviews have been conducted: Spain railways, Swedish railways (twice), British railways, Italian railways (two), French railways, Hyundai-Rotem (twice), Aurizon, Sydney Trains, Calibre Rail, Insigma (twice), CSX (twice), Union Pacific, BNSF and customers of the Taipei, Washington, Copenhagen (twice), Stockholm (twice) and Los Angeles metros). Customer feedback is sent after any corrective action has been defined and performed following an evaluation of the questionnaires received. Interviews with Ansaldo STS partners in the consortia also began (two interviews conducted in 2016).
- **Complaints Management:** the Project Managers are responsible

for recording customers' complains, which are sent each quarter to the Customer Satisfaction Coordinator, until the complaint is resolved. The Customer Satisfaction Team checks and records all information and, twice a year, prepares a global analysis. This analysis is used as the basis to calculate the "customer complaint" KPI.

- Customer Satisfaction of Project Teams, i.e. customer satisfaction is evaluated for each key project considering the following main aspects: contract value, project duration/ delay, service quality and product quality. The Regional BU managers gather the results of these surveys from the Project Managers. Finally, the CS Team checks the global results and their consistency with expectations.
- Customer Satisfaction Reports: reports prepared half-yearly by the Customer Satisfaction Process Owner. These reports summarize CS activities in the period (CS of the Project Teams, complaints analysis and focus on various projects) and are sent to the company's senior management. They are included in the Management Review.

Based on the Customer Satisfaction Survey and direct interviews with customers in 2016, the average scores comparing Ansaldo STS products with competitors (the range of scores goes from 1, extremely unsatisfied, to 10, extremely satisfied) are given below.

Ansaldo STS products from a technical point of view	8.3
Best competitor products technically	8.7
Ansaldo STS products cost/value	6.2
Best competitor cost/value	6.3

### **Responsible litigation management**

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Disputes between Ansaldo STS and its customers are mainly "physiological" in nature, i.e., they mainly relate to financial claims made by Ansaldo STS in the form of retentions for extra costs incurred within the context of works carried out in the performance of projects. If not included in subsequent amendments or riders or defined on amicable terms, the claims submitted from time to time can lead to cases brought before courts or arbitration panels specified in the contract. The number of such cases is always below a physiological average of contracts underway.

Nevertheless, Ansaldo STS often tends to reach settlement agreements, considering:

- settlement to be a normal instrument to resolve disputes arising for retentions, and it is also being used in the preliminary stages of ordinary cases as well pending legislation (Legislative decree no. 28/2010) that provides for mediation to seek settlement upon the claimant's initiative;
- settlements represent an excellent way to improve relations with the customers involved in the relevant disputes, and provide value added, where, as is the case of Ansaldo STS, the customer is usually perceived as a privileged partner with which significant long-term relationships must be established.

To this end, litigation management, as illustrated above, cannot be separated from the principle of considering customers' economic and business interests in the current political and economic situation. Therefore, the approach adopted by Ansaldo STS is aimed at ensuring success not only in court, but also credit recovery in the short term, which may include conventional debt restructuring agreements with its customers.

Currently, Ansaldo STS S.p.A. is involved in eight civil, administrative

court and arbitration cases (as either claimant or respondent). Specifically, the most significant cases brought against Ansaldo STS S.p.A. are as follows:

 one civil case with a total value higher than approximately €20 million, for the reimbursement of greater amounts or compensation for damage;

Pending cases brought by Ansaldo STS S.p.A. include:

- four civil cases with a total value of roughly €225 million for Ansaldo STS S.p.A. relating to claims for greater charges and sundry damages;
- three arbitration cases with a total value of over €65 million for Ansaldo STS S.p.A. for the recognition of receivables, greater fees, greater charges and sundry damages.

Litigation involving significant amounts is monitored quarterly in accordance with current procedures, and the flow of communications in place ensures that new updates are immediately known and the related information is reported in order to meet company requirements. With respect to the subsidiaries, in both the Railways & Mass Transit and Freight business units, there is no litigation or risks so material that they merit specific note.

The company is involved in one criminal case arising from a claim dated 4 March 2013 following the partial collapse of a building at Via Riviera di Chiaia 72 – Naples, which, allegedly could have been caused by work in progress to build the Arco Mirelli station of the Naples Metro Line 6. The company holds the work concession for this project, assigned to it by the Naples municipal authorities.

The alleged crimes currently remain those confirmed when the two respondents pursuant to articles 676 and 434 of the Italian Criminal Code were sent to trial, respectively: "Destruction of buildings or other constructions" and "Collapse of constructions or disasters due to negligence".

During 2016, several hearings set for questioning witnesses on the lists submitted by the litigants were held. They will continue into 2017, until the list is completed, to then arrive at the trial stage.

With regard to civil legal proceedings related to the collapse of the building, to date, there are a total of 40 pending disputes, including four for preventive technical assessment, two for damage as per article 1172 of the Italian Civil Code, while the others refer to claims for damages.

Five minor cases were decided by the Justice of the Peace of Naples with settlement agreements.

Following the agreement to rebuild the building that collapsed in Via Riviera di Chiaia, 72 reached with the insurance companies that also authorized reimbursement of the relevant costs, an attempt is being made to find agreements for the compensation of damage to the third parties affected by the collapse, again in agreement with the insurance companies. The purpose is mainly to facilitate overall management of the claim and to avoid a large number of civil appearances in the scope of the criminal proceedings underway.

The lack of premises in order to be able to quantify the total damages is confirmed. They can be appraised only after the numerous negotiations underway with the damaged parties, even if as of today reimbursements for the amount of about €10 million have already been obtained from the insurance companies.

# Ansaldo STS and its banks and insurance companies

Ansaldo STS aims to create true partnerships with leading banks in order to optimize the support it receives in its business activities which are developing in ever more far flung countries which thus pose difficulties and unique aspects in relation to financing and banking.

This means the company needs reliable banks, preferably with a local branch abroad, in order to support the various stages of the operating process, from assessing bids for tenders to setting up local branches to finalize projects acquired.

Thus, Ansaldo STS's strategy is rooted in good, well-established relations with banks. It uses a multi-product approach in order to avoid amassing specific businesses at one bank, while simultaneously achieving cost efficiency.

Ansaldo STS has relationships with leading global banks: Intesa Sanpaolo, UniCredit, CitiGroup, ING, Credit Agricole, BNP Paribas, JP Morgan Chase, HSBC, Nordea, Saudi British bank, Riyad bank, Sumitomo, Bank of Tokyo, Mizuho Bank and Deutsche Bank. Its "prime" bank transactions relate to bank guarantees, bonds, project financing, documentary credits, treasury transactions, treasury management (liquidity, payment and collection management) and financial consultancy.

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With a view to obtain utmost effectiveness from the partnership relationship, Ansaldo STS is aiming at standardizing the consultation and discussion stage with all credit institutions as much as possible, both in terms of presenting projects and in terms of negotiating pricing and special terms and conditions for the financial instruments required.

Ansaldo STS wants to increasingly get preparation of a structured and definitive technical feedback from its credit institutions, along with an indicative economic offer that makes it possible to compare the various solutions proposed.

### Securities and bonds - types and amounts

Ansaldo STS negotiated a set amount of credit lines in order to support its bond and guarantee requirements, which are useful for facilitating business growth. The lack of the ability to obtain guarantees could prevent contracts from being clinched with customers.

In 2016 alone, the company negotiated and obtained additional endorsement credit of €416 million, including a line with Deutsche Bank, BBVA and Mizuho amounting to €200 million.

Over 70% of guarantees issued for group companies are indirect, thus through banks, in favor of the beneficiary. Advance payment bonds are the most widespread guarantee instrument as they enable a purchaser to be reimbursed advance payments on contracts or orders should the supplier breach the contract. Guarantees amount to approximately €3.957 billion at 31 December 2016.

The main issuers were:

- 23 banks (about 30% of the guarantee amounts were used);
- 14 insurance companies (approximately 10% of the guarantee amounts were used).



# **Shareholders**

Ansaldo STS is listed on both the FTSE Mid Cap and Star segments, which includes top-ranking companies that meet specific, binding requirements: high levels of transparency and disclosure, excellent liquidity and corporate governance in line with international standards.

Ansaldo STS's corporate governance system is designed to maximize value for its shareholders, monitor business risks and achieve transparency with the market, balancing the interests of all its shareholders, with specific attention to minor ones.

### Share capital and dividends

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Ansaldo STS's subscribed and	Investor	No. of shares	% held
paid-in share capital amounts to €100,000,000 at 31 December 2016. There are 200,000,000 ordinary shares with a unit value of €0.50. No other categories of shares or financial instruments convertible into or exchangeable with shares have been issued.	HITACHI RAIL ITALY INVESTMENTS PAUL E. SINGER (as general partner, directly and indirectly, of the limited	101,544,702	50.772%
	partnerships Elliott International, LP Elliott Associates, LP and The Liverpool Limited Partnership) UBS	43,253,204 12,619,952	21.626% 6.310%
	OVERALL LONG POSITIONS		
	PAUL E.SINGER*	61,467,632	30.734%
	UBS	13,979,064	6.990%

In addition to relevant legal requirements, in each announcement Ansaldo STS has given great emphasis on the methods of the share capital increase, also giving explanations to shareholders/investors and verifying that the media and other entities have correctly presented the type of transaction.

### Earnings per share and dividend

The company distributed dividends for the first time in 2007 after its stock market listing on 29 March 2006.

In relation to 2015, the company will propose a dividend of roughly  $\in$ 36 million to the shareholders' meeting in 2016, corresponding to  $\in$  0.18 for each of the dividend-bearing shares.

(in Euros)	2016	2015	2014
Basic and diluted EPS	0.39	0.47	0.43
Dividend per share	0.00	0.18	0.15

#### Shareholders | Economic sustainability

### **Investor Relations**

Ansaldo STS's main objective is to maintain ongoing dialogue with the Italian and international financial community, providing sensitive information to the market in a timely and transparent manner and ensuring the correct valuation of the company, in line with its business model, strategies and targets.

This is why the Investor Relations function reporting directly to the Chief Financial Officer constantly meets with the financial community to gain an understanding of its information needs and to support top management in communication decisions.

Various surveys with counterparties confirmed the overall positive opinion of the Investor Relations team's work, acknowledged as the company's main point of contact with the financial community.

The function is also admired for its excellent know-how of the market and the company's business model and strengths/weaknesses, shared by the function head during meetings. The Investor Relations function is also known for its proactive and willing approach and the quality of the information generated.

Financial analysts are seen as important stakeholders, vital for understanding the company setup, the business and the strategies adopted by management.

Total actual coverage basically remained unchanged since the previous year in 10 investment banks; in particular, only five of them kept up active involvement after conclusion of Hitachi's takeover bid on Ansaldo STS's capital and the entrance of the US fund Elliot in the shareholding structure, while the other five - although they did not officially reject the coverage - maintained a more detached attitude while awaiting future developments.



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Some investment banks provide periodic sector research and competitor analyses, which the Investor Relations function gathers, studies and distributes internally, together with the official market disclosures.

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On a quarterly basis before the financial results are issued, the Investor Relations department requests brokers assigned to the company's share for their latest forecasts on the company's key results indicators, and then calculates the averages. This is an accurate update of sell-side analysts' perception, which is discussed and considered by management. This underscores the attention that Ansaldo STS devotes to considering financial communications as a two-way street, in which it is important to gather the market's perception and suggestions, as well as disclosing information.

With regard to communication activities, the annual plan is used to program and develop Investor Relations activities. The aim is to spread and communicate the company's market analyses, policies and strategies.

Though its resources and the quality of its intrinsic activities

remained the same, in 2014, the Investor Relations function took on the monitoring and analysis of the market and the competition, in order to support management.

In addition to the usual daily focus on "rumors" and major market news and weekly news reporting (IR NEWS), the department periodically distributes in-depth analyses and updates on the performance of competitors, markets and main business sector analyses.

# Transparency and accuracy of information

The Investor Relations function also pursues its mission by ensuring total transparency of communications and offering the market all the necessary information for investors to base their decisions on complete, correct and timely information. Accordingly, all the company's communications entail absolute compliance with legislative and regulatory provisions, are comprehensible, thorough and offer consistent disclosure to all investors. Communications about Ansaldo STS outside the company are made exclusively by functions appointed for this purpose and in accordance with the company procedures aimed at ensuring the truthfulness and correct disclosure of such information.

# Share performance and analysts' rating

From 31 December 2015 to 31 December 2016, the share price rose from €9.87 to €11.84, gaining 20.0%.

The share's peak for the period and overall company record of €11.84 was recorded on 30 December 2016, while its low of €9.73 was recorded on 18 March 2016.

An average 201,762 shares were traded daily in the period, compared to 1,308,883 shares traded in the previous year. The decreased volume is a direct consequence of the decrease in free float in the aftermath of the conclusion of the take-over bid launched by Hitachi Rail Italy Investments on Ansaldo STS in the Q1 of 2016 and the subsequent purchases HRII made on the market, which led to an increased investment, up to the 50.772% as at the reporting date, and the aggregated position the Elliott fund reached on the security (about 30%).

In the period considered, the FTSE Italy All Share index lost 9.9%, while the FTSE Italy STAR index gained 4%.



# **Methodological note**

Ansaldo STS' 2016 Sustainability Report, that reached its 8th edition, has been prepared in accordance with the "G4 Sustainability Reporting Guidelines" by GRI – Global Reporting Initiative, using the "in accordance - core" reporting option.

In order to ensure the quality of the report, Ansaldo STS follows the reporting principles for defining report content and quality in accordance with the G4 Guidelines by GRI, which provide a set of criteria to select the information to be included in the report and the related representation methods.

### Principles for defining report content

- Stakeholder Inclusiveness Various activities of stakeholder engagement were carried out, as described in the "Stakeholder engagement" chapter.
- **Sustainability context** In the introductory paragraph "Sustainability at Ansaldo STS", in the "Sustainability

governance" and in the "Innovation" chapters we have tried to give a clear definition of how the company interprets the sustainability as related to the business sector to which it belongs. Further, without losing an overall view, we have tried to describe local initiatives, reporting the features of the different markets (see "Our people" chapter).

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• Materiality – Ansaldo STS' Internal Sustainability Committee carried out a study to reconcile the Materiality Analysis, the risk assessment under the ERM framework and what is required by ISO's 2015 Standards.

To facilitate a comparison between the Aspects defined by the GRI-G4 and the material Topics identified by Ansaldo STS, the following table cross-references them, to inform about any limitations regarding the aspect boundary.

Material Topics identified by		Aspect E	Boundary	Lin	nitation regarding the Aspect Boundary
Ansaldo STS	GRI G4 aspects	Inside	Outside	Inside	Outside
CUSTOMER SATISFACTION	Product and service labeling	Group	-	-	-
CREATION OF ECONOMIC VALUE	Economic performance; market presence; indirect economic impacts; procurement practices	Group	-	-	-
PRODUCT INNOVATION AND SECURITY	Customer health and safety; product and service labeling; customer privacy; compliance	Group	-	-	-
ANTI-CORRUPTION	Ethics and integrity; anti-corruption	Group	-	-	-
OCCUPATIONAL HEALTH AND SAFETY	Occupational health and safety	Group	Suppliers		Reporting scope partially extended to suppliers
PEOPLE CARE	Employment; labor/management relations; occupational health and safety	Group	-	-	-
PEOPLE TRAINING AND DEVELOPMENT	Training and education	Group	-	-	-
QUALITY OF GOVERNANCE	Governance	Group	-	-	-
RESPECT FOR HUMAN RIGHTS	Investment; non-discrimination; child labor; forced or compulsory labor; indigenous rights; human rights grievance mechanisms	Group	Suppliers	-	Reporting scope partially extended to suppliers
MANAGEMENT SYSTEM FOR THE ENVIRONMENT, SAFETY AND QUALITY	Compliance; overall; environmental grievance mechanisms	Group	-	-	-
STAKEHOLDER ENGAGEMENT	Identified material aspects and boundaries; stakeholder engagement	Group	-	-	-
RESPECT FOR LOCAL COMMUNITIES	Local communities; public policy; anti-competitive behavior; compliance; grievance mechanisms for impacts on society	Group	-	-	-
DIVERSITY AND EQUAL OPPORTUNITY	Diversity and equal opportunity; equal remuneration for women and men	Group	-	-	-
SOCIAL AND ENVIRONMENTAL RISK MANAGEMENT	Strategy and analysis	Group	-	-	
SUPPLY CHAIN SUSTAINABILITY	Supplier environmental assessment; supplier assessment for labor practices; supplier human rights assessment	Group	Suppliers	-	Reporting scope not extended to suppliers
REDUCTION OF ENERGY CONSUMPTION	Energy	Group	Suppliers	-	Reporting scope not extended to suppliers
REDUCTION OF THE USE OF MATERIAL	Materials	Group	-	-	-
ENVIRONMENTAL IMPACT OF PRODUCTS AND SERVICES	Products and services	Group	-	-	-
MONITORING AND MITIGATION OF GHG EMISSIONS	Emissions	Group	Suppliers	-	Reporting scope partially extended to suppliers
MANAGEMENT OF WASTE AND EFFLUENT	Effluents and waste	Group	Suppliers	-	Reporting scope not extended to suppliers
EFFICIENT USE OF WATER RESOURCES	Water	Group	-	-	-
PROTECTION OF BIODIVERSITY	Biodiversity	Sites: Napoli, Les Ulis and Batesburg	-	-	-

• **Completeness** - The report has been designed to give stakeholders a complete picture of Ansaldo STS' activities. The scope of the report refers to the Group, as indicated in the 2016 Annual Report. The issues relating to the environment, health and safety refer to subsidiaries' sites that are considered as material, i.e. those with more than 10 employees (see "Environmental Performance" chapter). In the Asia Pacific region, the Group operates through a joint venture, where 40% of people are personnel from Ansaldo STS: these personnel-related data have been estimated (considering 40% of total personnel in the Region).

### Principles for defining report quality

- **Balance** In describing the outcomes of Ansaldo STS' activities, we have sought to reflect both the positive and negative aspects (e.g. when reporting partially achieved goals in 2016 compared with commitments undertaken) to give a balanced view of overall performance.
- **Comparability** To enable stakeholders to analyze changes in the Group's performance, the Sustainability Report includes comparative data of the two-year period 2015-2016. Where significant the comparison covered the three-year period 2014-2016. Income statement figures, expressed in Euros, have been translated at the exchange rates indicated in the 2016 consolidated financial statements. The scope of the data is always indicated (in the text or in a note), along with changes compared to previous years. The report structure has undergone some changes to make it easier to read and more closely aligned with the Global Reporting Initiative guidelines.
- Accuracy Qualitative and quantitative financial information refer directly to the 2016 Consolidated Financial Statements, while the accuracy of Environmental, health and safety data and information come from certified management systems (ISO 14001 and OHSAS 18001). Social data have been mainly extracted from Ansaldo STS' operating systems. Estimated data are explicitly indicated. The conversion rates used for the calculation of GHG emissions are those defined by the Greenhouse Gas Protocol.
- **Timeliness** The Sustainability Report is prepared annually. To better meet the informational needs of stakeholders, where material, events that occurred after the year end were also reported.
- Clarity The report has been structured to make the information easily identifiable by stakeholders (using icons for different sections and a navigation system). The 2016 Sustainability Report opens with the sustainability pillars and the letter from the CEO e General Manager, and includes eight sections: Company profile; Sustainability governance;

Innovation; The Environment, health and safety; Our people; Supply chain; Community; Economic sustainability. This document ends with the Content Index and the Report of the independent auditors. The level of detail of information has been defined in order to make the report comprehensible, accessible and usable by the various stakeholders. The document refers to the Group's website for certain matters, indicating the relevant web page address. The Sustainability Report will be distributed in a short version with highlights and a dedicated refurbished section within the Group's website.

• Reliability – The 2016 Sustainability Report has been approved by the Board of Directors and subjected to limited assurance by an independent body (EY S.p.A.) in accordance with the criteria included in the principle "International Standard on Assurance Engagements 3000 (revised) - Assurance Engagements other than Audits or Reviews of Historical Financial Information" ("ISAE 3000 - revised") defined by the International Auditing and Assurance Standard Board. EY was involved in the various stages of the reporting process in order to facilitate its review, in a constructive climate of collaboration.

### **Calculation Methods**

Below are the methodological indications for some of the indicators included in the Sustainability Report.

### Return rate after parental leave

The return rate is calculated as the ratio between the number of employees who returned to work in 2016 after their period of leave and No. of employees who took parental leave in 2016. It was not possible to take into account the number of employees who took the parental leave in 2015 and who returned to work in 2016, nor the number of employees who took the parental leave in 2016 and who will be on return during 2017.

### Health and Safety indexes

The formulas used to calculate injury indicators are as follows:

- Frequency index = Total n. of injuries / Total hours worked X 200,000
- Gravity index = Total n. of lost days / Total hours worked X 200,000

### Greenhouse gas emissions

The emission factors used to calculate the CO2 emissions reported in this Report are as follows:

- Direct GHG Emissions Scope I: GHG Protocol Tool 2014.
- Indirect Emissions Scope II: GHG Protocol Tool 2012.
- Indirect Emissions Scope III: GHG Protocol Tool 2014 (transport); Boustead Model 5.0 (fuel production); ECOINVENT - LCE Elaboration (paper and paper board); UNFCCC NIR Italy, 2015 (waste).

# **GRI - Content Index**

GENERA	L STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
STRATE	GY AND ANALYSIS		
G4-1	Provide a statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability	p. 6	
G4-2	Provide a description of key impacts, risks, and opportunities	pp. 46-48	
ORGANI	ZATIONAL PROFILE		
G4-3	Report the name of the organization	p.1	
G4-4	Report the primary brands, products, and services	pp.16-21; 68-70	
G4-5	Report the location of the organization's headquarters	p. 22	
G4-6	Report the number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report	pp. 22-23; 88	
G4-7	Report the nature of ownership and legal form.	p. 166	
G4-8	Report the markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries).	pp. 22-23; 25	
G4-9	Report the scale of the organization, including: total number of employees; total number of operations; net sales (for private sector organizations) or net revenues (for public sector organizations); total capitalization broken down in terms of debt and equity (for private sector organizations); quantity of products or services provided	pp.11; 24; 25-29; 77; 105; 137; 157; 166	
G4-10	Total workforce by employment type, employment contract, and region, broken down by gender	pp.105-108	
G4-11	Report the percentage of total employees covered by collective bargaining agreements	р. 133	
G4-12	Describe the organization's supply chain	рр. 140-146	
G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	pp.15-16; 166	
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization	pp. 38; 45; 47-48	
G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses	p. 61	
G4-16	List memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization: holds a position on the governance body; participates in projects or committees; provides substantive funding beyond routine membership due; views membership as strategic	p. 155	
IDENTIF	IED MATERIAL ASPECTS AND BOUNDARIES		
G4-17	List all entities included in the organization's consolidated financial statements or equivalent documents. Report whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report	pp. 22; 169	
G4-18	Explain the process for defining the report content and the Aspect Boundaries. Explain how the organization has implemented the Reporting Principles for Defining Report Content	pp. 46-47; 169	
G4-19	List all the material Aspects identified in the process for defining report content	pp. 46-47; 169	
G4-20	For each material Aspect, report the Aspect Boundary within the organization	p. 169	
G4-21	For each material Aspect, report the Aspect Boundary outside the organization	p. 169	

GENERA	L STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements	pp. 85; 88; 161; 169	
G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries	There were no limitations nor variations which may significantly affect the comparability between periods. Any limitations are precisely indicated through the document.	
STAKEHO	OLDER ENGAGEMENT		
G4-24	Provide a list of stakeholder groups engaged by the organization	p.49	
G4-25	Report the basis for identification and selection of stakeholders with whom to engage	pp.49-55	
G4-26	Report the organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process	pp.49-55; 64-67; 113-117; 148; 154; 167-168	
G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns	pp. 46-47; 163	
REPORT	PROFILE		
G4-28	Reporting period (such as fiscal or calendar year) for information provided	рр. 169-170	
G4-29	Date of most recent previous report (if any)	The Sustainability Report at 31 December 2015 was published in the month of October 2016	
G4-30	Reporting cycle (such as annual, biennial).	p.169	
G4-31	Provide the contact point for questions regarding the report or its contents	p. 184	
G4-32	"In accordance" option and GRI Content Index	pp. 169; 171-179; 180-182	
G4-33	Policy and current practice with regard to seeking external assurance for the report	pp. 169-170; 180-182	
GOVERN	ANCE		
G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts	p. 30-38	
G4-35	Report the process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees	p. 45	
G4-51	Report the remuneration policies for the highest governance body and senior executives	p. 35	
G4-52	Report the process for determining remuneration	p. 35; 123	
G4-54	Report the ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highest-paid individual) in the same country	p. 122	
ETHICS /	AND INTEGRITY		
G4-56	Describe the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	p. 13; 60-61	
G4-57	Report the internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines	p. 34; 38; 45; 132	
G4-58	Report the internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines	p. 38; 61	



GENERA	L STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
Specific	Standard Disclosures		
CATEGO	RY: ECONOMIC		
ASPECT:	ECONOMIC PERFORMANCE		
DMA		p.158-160	
G4-EC1	Direct economic value generated and distributed	p.161	
G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	pp. 83; 101	No detailed information about costs of actions taken to manage risks and opportunities is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future.
G4-EC3	Coverage of the organization's defined benefit plan obligations	p.130	No detailed information about the percentage of salary contributed by employee/employer and the level of participation in retirement plans is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future.
G4-EC4	Financial assistance received from government	p. 75. Research projects co-financed by EU and Italian public Institutions	
ASPECT:	MARKET PRESENCE		
DMA		p.122	
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	p.122	
ASPECT:	INDIRECT ECONOMIC IMPACTS		
DMA		Ansaldo STS tends to procure materials, services and labour mostly on local markets, also with the aim to contribute to the development of local economies (e.g.: Honolulu Metro or Copenhagen Metro). When the project provides for several years of 0&M, nearly 100% of personnel is local	
G4-EC7	Development and impact of infrastructure investments and services supported	pp. 52-55	
G4-EC8	Significant indirect economic impacts, including the extent of impacts	рр. 52-55	More detailed information are not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future.
ASPECT:	PROCUREMENT PRACTICES		
DMA		pp. 52-55. Ansaldo STS tends to procure materials, services and labour mostly on local markets, also with the aim to contribute to the development of local economies (e.g.: Honolulu Metro or Copenhagen Metro).	
G4-EC9	Proportion of spending on local suppliers at significant locations of operation	p. 109. When the project provides for several years of O&M, nearly 100% of personnel is local	

GENERAL	STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
CATEGOR	RY: ENVIRONMENTAL		
ASPECT:	MATERIALS		
DMA		pp. 74; 92-93	
G4-EN1	Materials used by weight or volume	pp. 92-93	No detailed information about raw materials other than packaging materials and chemicals is currently available. Furthermore, distinction between non-renewable and renewable materials is not indicated. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-EN2	Percentage of materials used that are recycled input materials	Most of the raw materials used in production by group companies are not recycled as the finished product must meet high quality and safety standards, required by legislation	Calculation of the percentage of materials that are recycled input materials is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
ASPECT:	ENERGY		
DMA		pp. 72; 78; 85; 90-91	
G4-EN3	Energy consumption within the organization	pp. 88-89. Ansaldo STS Group does not use direct renewable energy sources	
G4-EN5	Energy intensity	p. 90	
G4-EN6	Reduction of energy consumption	pp. 64-67; 72-75; 85	
G4-EN7	Reductions in energy requirements of products and services	p.76-77; p.158	Calculation of the energy consumption reductions is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
ASPECT:	WATER		
DMA		p. 94	
G4-EN8	Total water withdrawal by source	p. 94	
G4-EN10	Percentage and total volume of water recycled and reused	In general, Ansaldo STS does not have processes or production cycles that reuse water	
ASPECT:	BIODIVERSITY		
DMA		p. 97	
G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	p. 97	
G4-EN13	Habitats protected or restored	p. 97	
ASPECT:	EMISSIONS		
DMA		pp. 83-85	
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	pp. 85-86	
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	pp. 85-86	District heating consumption has not currently been included into the calculation of Scope 2 emissions. Ansaldo STS undertakes to provide in the next report Scope 2 emissions associated to district heating consumption
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)	pp. 85-86	
G4-EN18	Greenhouse gas (GHG) emissions intensity	pp. 86-87	
G4-EN19	Reduction of greenhouse gas (GHG) emissions	pp. 85-86	
G4-EN20	Emissions of ozone-depleting substances (ODS)	p. 93	
G4-EN21	NOX, SOX, and other significant air emissions	р. 93	
ASPECT:	EFFLUENTS AND WASTE		
DMA		pp. 94-96	
G4-EN22	Total water discharge by quality and destination	p. 95	Currently some information about the indicator are not available. Ansaldo STS undertakes to provide the data needed for the future



GENERA	_ STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
G4-EN23	Total weight of waste by type and disposal method	pp. 95-96	No detailed information about disposal methods is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-EN24	Total number and volume of significant spills	In 2016 no significant spill was not detected	
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally	p.95. Hazardous waste is treated by external specialised agencies that pick it up directly from the company	
DMA	PRODUCTS AND SERVICES	pp 72-75	
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	pp. 72-75	Calculation of the extent to which impacts have been mitigated is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
DMA	COMPLIANCE	pp 48:79	
G4-EN29	Monetary value of significant fines and total number of non- monetary sanctions for non-compliance with environmental laws and regulations	During 2016 there were no fines and non-monetary sanctions for non-compliance with environmental laws and regulations	
ASPECT:	OVERALL		
	Tatal anvironmental protection expanditures and	p.101	
	investments by type	p.101	
DMA	SUPPLIER ENVIRONMENTAL ASSESSMENTORI	pp. 140-141	
G4-EN32	Percentage of new suppliers that were screened using environmental criteria	p.143	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken	pp.142-144	No detailed information about suppliers environmental assessment and related results is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
ASPECT:	ENVIRONMENTAL GRIEVANCE MECHANISMS		
	Number of aria ances about an ironmontal impacts filed	pp. 48; 79	
	addressed, and resolved through formal grievance mechanisms	p. 97	
SUB-CATE	EGORY: LABOR PRACTICES AND DECENT WORK		
ASPECT:	EMPLOYMENT		
	Total number and rates of new amployee bires and	pp. 104; 124; 130	No detailed information about
G4-LAT	employee turnover by age group, gender and region	pp. 108; 110	the breakdown of new hires and turnover rates by age group is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	p.125-127. The reported benefits refer to employees working under both open- ended and fixed-term contracts, and not include company credit cards	No detailed information about benefits provided to full-time employees that are not provided to temporary or part-time employees is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-LA3	Return to work and retention rates after parental leave, by gender	p.131	Calculation of the retention rate is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future

GENERA	L STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
ASPECT:	LABOR/MANAGEMENT RELATIONS		
DMA		рр. 132-134	
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements	p.134	No detailed information about minimum number of weeks' notice in the various Countries where the Company operates is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
ASPECT:	OCCUPATIONAL HEALTH AND SAFETY		
DMA		pp. 98-99	
G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and saftey programs	p.100	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	pp. 99-100	No detailed information about - breakdown of injury rates by gender and geographical region - occupational disease rate - absentee rate is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-LA8	Health and safety topics covered in formal agreements with trade unions	<ul> <li>p.133. In most countries in which Ansaldo STS operates, national labour agreements govern workers' health and safety. In Italy, these aspects are included in the national labour agreement. The aspects covered by such agreements relate, inter alia, to the following:</li> <li>occupational health and safety risk assessment;</li> <li>prevention and management of emergencies;</li> <li>environmental protection;</li> <li>monitoring of anti-injury data;</li> <li>proposing new initiatives to update workers on any specific risks and/ or issues relating to site environmental impacts</li> </ul>	
ASPECT:	TRAINING AND EDUCATION		
DMA		p.111	
G4-LA9	Average hours of training per year per employee by gender, and by employee category	p.111	
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	pp. 112-117	
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category	p.116	
ASPECT:	DIVERSITY AND EQUAL OPPORTUNITY		
DMA		pp.104; 130	
G4-LA12	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity	pp. 31; 105-108; 130	
ASPECT:	EQUAL REMUNERATION FOR WOMEN AND MEN	100	
DMA		p.122	
G4-LA13	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation	p.122	

GENERA	STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
ASPECT:	SUPPLIER ASSESSMENT FOR LABOR PRACTICES	· · · · · · · · · · · · · · · · · · ·	
DMA		pp.140-141	
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	pp.140; 143	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken	pp. 142-144	No detailed information about suppliers labor practices assessment and related results is currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
SUB-CATE	EGORY: HUMAN RIGHTS		
ASPECT:	INVESTMENT		
DMA		Ethical Code (p.10) and p. 59	
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Ethical Code (p.10) and p.59.	Ansaldo STS does not currently perform specific human rights assessments, but it complies with legal provisions and national and international regulations in this respect. The company will work to define and implement a specific policy on respect for human rights and to collect data needed to fully cover the indicator requirements in the future
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	pp.61; 111	Calculation of total hours of employee training and percentage of employees trained is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
ASPECT:	NON-DISCRIMINATION		
DMA		pp. 60-61; 118	
G4-HR3	Total number of incidents of discrimination and corrective actions taken	No discrimination was noted	
ASPECT:	CHILD LABOR		
	Operations and everties identified as lessing similiaret		
G4-HKD	risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	suppliers or activities believed to present risk of child labour	
ASPECT:	FORCED OR COMPULSORY LABOR		
DMA		pp. 60-61	
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor	Ansaldo STS does not have suppliers or activities believed to present risk of forced labour	
ASPECT:	INDIGENOUS RIGHTS		
DMA		p. 51	
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken	During 2016 there were no violations involving rights of indigenous peoples	
ASPECT:	SUPPLIER HUMAN RIGHTS ASSESSMENT		
DMA		pp.140-141	
G4-HR10 G4-HR11	Percentage of new suppliers that were screened using human rights criteria Significant actual and potential negative human rights impacts in the supply chain and actions taken	p.140 pp. 142-144	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future Ansaldo STS does not currently perform specific human rights assessments, but it complies with legal provisions and national and international regulations in this respect. The company will work to define and implement a specific policy on respect for human rights and to
			collect data needed to fully cover the indicator requirements in the future

GENERAL		Cross-reference	Omission / Reason / Explanation
ASPECT	HIMAN RIGHTS GRIEVANCE MECHANISMS	Direct answer	
DMA		p_60-61	
G4-HR12	Percentage of new suppliers that were screened using human rights criteria	p. 60-61 p. 61 There were no complaints relating to a lack of respect for human rights by outside stakeholders or internally through reports to the code of ethics control bodies in each group company (sent to specific email addresses).	
SUB-CATE	EGORY: SOCIETY		
ASPECT:	LOCAL COMMUNITIES		
DMA		p. 51	
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs	pp. 52-55; 154	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
ASPECT:	ANTI-CORRUPTION		
DMA		pp. 38; 60-61	
G4-SO3	Total number and percentage of operations asessed for risks related to corruption and the significant risks identified	pp. 38; 60-61. By extending the application of the Code of Ethics to all Group companies, all in-house risk divisions are monitored	
G4-SO4	Communication and training on anti-corruption policies and procedures	p.61	
G4-SO5	Confirmed incidents of corruption and actions taken	p.61	
ASPECT:	PUBLIC POLICY		
DMA		Ethical Code (p.10)	
G4-SO6	Total value of political contributions by country and recipient/ beneficiary	"The company does not provide any direct or indirect contributions of any kind to political parties, movements, committees or organisations or their representatives or candidates, except for those due under specific provisions of law" (Code of ethics, page 10)	
ASPECT:	ANTI-COMPETITIVE BEHAVIOR		
G4-S07	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	There were no incidents in this respect	
ASPECT:	COMPLIANCE		
DMA		рр. 47-48	
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	There were no monetary or non-monetary sanctions due to non-compliance with laws or regulations in 2016	
ASPECT:	GRIEVANCE MECHANISMS FOR IMPACTS ON SOCIETY	1	
DMA		pp. 47-48	
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms	There were no grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms in 2016	


GENERA	L STANDARD DISCLOSURES	Cross-reference Direct answer	Omission / Reason / Explanation
SUB-CAT	EGORY: PRODUCT RESPONSIBILITY		
ASPECT:	CUSTOMER HEALTH AND SAFETY		
DMA		p.71	
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	p.71. There is a methodology in place to control safety risks, and it is in line with regulations and standards (which are "labelled" on the product) applicable to all products and systems	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes	p.71. There were no accidents, consisting of deaths, injuries or damage to infrastructures due to defects in products supplied by Ansaldo STS. None of the minor non-conformities noted internally or by customer complaints entailed sanctions or measures	
ASPECT:	PRODUCT AND SERVICE LABELING		
DMA		p.71	
G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	p.71.There is a methodology in place to control safety risks, and it is in line with regulations and standards (which are "labelled" on the product) applicable to all products and systems	Calculation of the percentage required by the indicator is not currently available. Ansaldo STS undertakes to collect data needed to fully cover the indicator requirements in the future
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	p.71. There were no accidents, consisting of deaths, injuries or damage to infrastructures due to defects in products supplied by Ansaldo STS. None of the minor non-conformities noted internally or by customer complaints entailed sanctions or measures	
G4-PR5	Results of surveys measuring customer satisfaction	pp. 54-55; 163	
ASPECT:	CUSTOMER PRIVACY		
DMA		p. 48	
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	There were no complaints	
ASPECT:	COMPLIANCE		
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	Ansaldo STS has not received any sanctions for non-compliance with laws or regulations	



EY S.p.A. Via XX Settembre, 42 16121 Genova

Tel: +39 010 5308111 Fax: +39 010 588636 ey.com

# Independent auditors' report on the "2016 Sustainability Report" included of Ansaldo STS (Translation from the original Italian text)

To the Board of Directors of Ansaldo STS S.p.A.

We have carried out a limited assurance engagement of the "2016 Sustainability Report" (hereinafter also the "Sustainability Report") of Ansaldo STS S.p.A. and its subsidiaries (hereinafter also "Ansaldo STS Group") as of 31<sup>st</sup> December 2016.

#### Directors' responsibility on the Sustainability Report

The Directors are responsible for the preparation of the Sustainability Report in accordance with the "G4 Sustainability Reporting Guidelines", issued in 2013 by GRI – Global Reporting Initiative, that are detailed in the paragraph "Methodological Note" of the Sustainability Report, as well as for that part of internal control that they consider necessary in order to allow the preparation of a Sustainability Report that is free from material misstatements, even caused by frauds or unintentional behaviours or events. The Directors are also responsible for defining Ansaldo STS Group's commitments regarding the sustainability performance and for the reporting of the results achieved, as well as for the identification of the stakeholders and of the significant matters to report.

#### Auditors' responsibility

It is our responsibility the preparation of this report on the basis of the procedures carried out. Our work has been conducted in accordance with the criteria established by the principle "International Standard on Assurance Engagements 3000 – Assurance Engagements other than Audits or Reviews of Historical Financial Information" ("ISAE 3000"), issued by the International Auditing and Assurance Standards Board for the engagements that consist in a limited assurance. This principle requires the respect of relevant ethical principles, including those related to independence, as well as the planning and the execution of our work in order to obtain a limited assurance that the Sustainability Report is free from material misstatements. These procedures included inquiries, primarily with company's personnel responsible for the preparation of the information included in the Sustainability Report, document analysis, recalculations and other procedures in order to obtain evidences considered appropriate.

The procedures performed on the Sustainability Report were related to the compliance with the principles for defining report content and quality of the Sustainability Report, as articulated in the "G4 Sustainability Reporting Guidelines", and are summarised below:

a. Comparison of economic and financial data and information included in the Sustainability Report with those included in Ansaldo STS Group's consolidated financial statements as of 31<sup>st</sup> December 2016 on which we issued our audit report, pursuant to art. 14 and 16 of Legislative Decree dated 27<sup>th</sup> January 2010, on the 27<sup>th</sup> March 2017;

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- b. Analysis, through interviews, of the governance system and management process of the issues related to the sustainable development regarding Ansaldo STS Group's strategy and operations;
- c. Analysis of the process relating to the definition of material aspects included in the Sustainability Report, with reference to the criteria applied to identify priorities for the different stakeholders categories and to the internal validation of the process outcomes;
- d. Analysis of the operation of the processes that support the generation, recording and management of the quantitative data reported in the Sustainability Report. In particular, we have carried out the following procedures:
  - interviews and discussions with personnel of the Management of Ansaldo STS S.p.A., to obtain an understanding about the information, accounting and reporting systems in use for the preparation of the Sustainability Report, as well as about the internal control processes and procedures supporting the collection, aggregation, data processing and transmission of data and information to the department responsible for preparation of the Sustainability Report;
  - on-site verifications at manufacturing plant of Tito Scalo (PZ) and at construction site of Casoria (NA) on Napoli Villa Literno railroad;
  - analysis on a sample basis of the documentation supporting the compilation of the Sustainability Report, in order to confirm the processes in use, their adequacy and the operation of the internal control for the correct processing of data and information in relation to the objectives described in the Sustainability Report;
- e. Analysis of the compliance and internal consistency of the qualitative information included in the Sustainability Report to the guidelines identified in paragraph "Director's responsibility on the Sustainability Report" of the present report;
- f. Analysis of the process relating to stakeholders engagement, with reference to procedures applied, through review of minutes or any other existing documentation relating to the main topics arisen from discussions with them;
- g. Obtaining of the representation letter, signed by the legal representative of Ansaldo STS S.p.A., relating to the compliance of the Sustainability Report with the guidelines indicated in paragraph "Directors' responsibility on the Sustainability Report", as well as to the reliability and completeness of the information and data presented in the Sustainability Report.

Our engagement is less in scope than a reasonable assurance engagement in accordance with ISAE 3000 and, as consequence, we may not have become aware of all the significant events and circumstances which we could have identified had we performed a reasonable assurance engagement.

#### Conclusion

Based on our work, nothing has come to our attention that causes us to believe that the "2016 Sustainability Report" of Ansaldo STS Group as of 31<sup>st</sup> December 2016 is not in compliance, in all material aspects, with the guidelines "G4 Sustainability Reporting Guidelines" issued in 2013 by the GRI - Global Reporting Initiative, as stated in the paragraph "Methodological Note" of the Sustainability Report.



#### Other aspects

The Report on responsible management for the year ended 31<sup>st</sup> December 2015, which data are presented for comparative purposes, has been subjected to assurance by other auditors, who, on 3<sup>rd</sup> November 2016, issued their report.

Genova, 31st July 2017

EY S.p.A. Signed by: Enrico Lenzi (Partner)

This report has been translated into the English language solely for the convenience of international readers



### For information on the Sustainability Report, please contact:

Registered Office: Via Paolo Mantovani, 5 16151 Genoa - Italy

E-mail: andrea.razeto@ansaldo-sts.com

**External Communications Department:** Tel. no. +39 010 655 2068 - Fax no. +39 010 655 2055

This Sustainability Report has been prepared with the contribution and coordination of

Andrea Razeto Vice President External Communications Ansaldo STS External Communications Dept.

and

Ulderigo Zona Sr Vice President HSE & Facility Management, Supply Planning, Construction & Maintenance

Alfredo Tommasone HSE Coordinator - Major Entity Italy HSE Manager Ansaldo STS HSE & Facility Management Dept.

The 2016 Sustainability Report is available online at: www.ansaldo-sts.com

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Respecting the environment, Ansaldo STS has printed this Sustainability Report on paper produced from responsibly managed forests, according to FSC<sup>®</sup> criteria (Forest Stewardship Council<sup>®</sup>)

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## Ansaldo STS A Hitachi Group Company

#### ANSALDO STS S.p.A.

Registered Office: 16151 Genoa Via Paolo Mantovani, 3 - 5 Paid-in Share Capital Euro 100,000,000 R.E.A. n. 421689 Register of Enterprises of Genoa Tax Code 01371160662

www.ansaldo-sts.com

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