INSIGHT

04/2017 QUARTERLY MAGAZINE

BUSINESS AND INTEGRIT TOGETHER AT WORK

The new compliance approach of Prysmian Group

Staying the course in the UK

Profitability stays high

The mobility revolution

Prysmian Group



BUSINESS AND INTEGRITY CAN WORK WELL TOGETHER

Editorial Team Insight

rofitability improved despite broadly stable revenues. That is the bottom line from the first nine months' financial statement approved by the Prysmian Group Board of Directors. CEO, Valerio Battista, noted that cable technology is actually demonstrating it can make a significant contribution to digitalisation projects, with the development of newbroadband networks, and in the use of renewable energy sources, by helping make businesses, such as offshore wind farms, more and more competitive.

Doing business successfully, for a global and responsible company, is not just about making money. In this issue, we FOCUS ON the value of integrity at Prysmian, which is something that goes beyond the simple observance of rules and regulations, as explained in an interview with Alessandro Nespoli, Chief Compliance Officer of the Group. Our GLOBAL SCENARIO takes us to Britain, where Prysmian is staying the course as the country ventures into the uncharted waters of Brexit, described by Llyr Roberts, CEO of Prysmian UK.

Then we have a look at the global power grid challenge launched by China, with the projects contained in its GEI plan, aimed at triggering worldwide investments worth \$50 trillion in the MARKETS & TRENDS section. In TRACKING THE FUTURE, we're taking a closer look at the mobility revolution, focusing on the move from fossil fuels to electric power and the advent of digitalisation, that could lead to a quick and dramatic change to the worldwide transportation landscape.

In DOING BUSINESS, we report on Prysmian's contribution to the cabling project in the Amazon region, with the production of 400 km of optical cables in the plant of Sorocaba, Brazil. We also explore in a 'journey to the centre of the earth', Prysmian's state-of-the-art downhole technology, that delivers reliable, long-life and cost-effective oil well and production management solutions. This issue's GETTING THINGS DONE section features Valerio Battista telling the FT/ Etno Summit that the connectivity of the future is based on fibre.

Last but not least, PEOPLE. Attracting talented recruits, and making them 'Sell It' is the aim of Prysmian's innovative three-year programme, designed to gear-up fresh sales forces and bring them up-to-speed on the business of selling the Group products and culture around the world.



STAYING THE COURSE IN THE UK

As the country ventures into uncharted territory over Brexit, Llyr Roberts, CEO of Prysmian UK, affirms commitment to the Group's strategic pillars, whilst maintaining competitive advantage through stringent cost management.

A 100 YEAR STRONG EXPERIENCE

Prysmian UK is the manufacturer of the famous fire protection FP range for more than 30 years and the largest cable manufacturer in the country with over 100 years of experience. The UK operation employs more than 1,300 personnel across four sites and is well placed to support its local and global customer base with energy and telecom cables and accessories with varying voltage capacities. At higher voltages, Prysmian offers a maintenance and installation service via its Energy Network Solutions business unit. Its XLPE Xpress service delivers high voltage cables and accessories from stock. At lower voltages Prysmian's comprehensive range of building wires and power cables are available through a first class network of wholesalers and distributors.



afety, Quality, Service." LlyrRoberts, CEO of Prysmian UK operations, has a three-word answer when asked about his priorities

while dealing with market uncertainties due to the unfolding process of Brexit. Llyr explains that as the UK economy is projected to slow-down over the coming years, "We are unlikely to benefit from a growing cable market." A side effect of Brexit is that costs are increasing on the back of a devaluing pound as Prysmian UK purchases most of its raw materials (in Euros) from European suppliers.

The company has to continue to aggressively manage its cost base in order to maintain competitiveness: "Cost management," Llyr says, "comes in the form of many initiatives, although

efficiency and optimisation in everything we do is at the forefront." This largely relates to our production processes in the form of material consumption and

> scrap generation, "Although we must strive to be high-performing and efficient in all areas of the business not only manufacturing."

> However, notwithstanding the need to address our cost base, Llyr states, "Our operational priorities continue to be 'Safety', which means a zero harm environment for all employees, 'Quality', which is right first time manufacture and ensuring that no defective products reach

our customers, and finally 'Service', which is reliably and consistently delivering products and services in full and on time."



Llyr Roberts, CEO of Prysmian UK operations

GLOBAL SCENARIO

Looking ahead to 2018, Prysmian UK is finalising its business planning process: an extremely detailed exercise culminating in the agreement of our Management Plan. Llyr sees the impact of Brexit negotiations as "overlaying on any current market or business assumptions as we move ever closer to the early 2019 separation from the EU." From Prysmian's perspective, he goes on, "We simply have to maintain the maximum level of speed and flexibility, and be prepared to react and respond should our business environment change for the better or for the worse."

In his view, it is only through the collective efforts of every single employee in the company "That we can hope to deliver the business results expected of us, whilst helping the group to achieve its growth ambitions." We simply have to maintain the maximum level of speed and flexibility, and be prepared to react and respond should our business environment change for the better or for the worse.

Entering into details of how he sees the business trend in the coming year, Llyr tells us that the Trade & Installers business, albeit under pressure from importers, is expected to show a stable volume in the domestic market, while he expects to see a substantial drop in demand from Hong Kong (the UK's traditionally largest export market).

Power Distribution has experienced a dramatic slow-down in 2017, and - although he expects a partial recovery in 2018 - the market won't recover to past volumes. High Voltage has experienced one of the strongest ever years in terms of volume, much of which will not be installed until 2018, despite the majority of the cable having been delivered and invoiced this year: "We will have a very busy installation period where excellence in project execution will be our highest priority."

ENHANCING CAPABILITIES IN THE OFFSHORE WIND INDUSTRY

UK is strengthening its leadership in offshore wind energy, as the share of electricity generated from offshore wind farms here is higher than any other country in the world and it is expected to grow further. That's why Prysmian plans to strengthen its operations in this industry are tightly tied with the Country.

The long-term growth perspectives in this industry have led Prysmian Group to further strengthen its commitment to this strategic market with an on-going investment in 2016-2017 of more than €60 million towards its production facilities and installation capabilities. In April this year, the Group announced the capability of its production facility in Wrexham to manufacture both 33 kV and 66 kV submarine cable cores used for the inter-array cable connections in offshore wind farms, confirming investment plans to enable further growth in the business, to sustain and create local jobs and provide UK manufactured cables for the next generation of UK and European offshore wind farms. In that industry, between 2012-2016, the Group invested around €200 M to create a world-class fleet of vessels, Cable Enterprise, Giulio Verne and Ulisse, able to lay cables at all water depths, while another €40 M had been allocated for retooling its production sites in Pikkala, Finland, Drammen, Norway, and Arco Felice, Italy, to handle the production of cables with voltages of up to 600 kV.



Heexpects Network Components, OEM and Oil & Gas to remain flat, while Telecom is currently experiencing an explosion in demand which is expected to continue through 2018. Llyr notes that "With a global shortage of optical fibre which is predicted to continue at least until late 2018, we will not be able to capitalise on every commercial opportunity which comes our way."

The challenge, he summarizes, will be to "manage the supply chain such that we give priority to our loyal customers whilst maximising profitability."

OUTSIDE THE BOX 'FUTURE THINKING'

Prysmian UK launched an initiative called 'Future Thinking' to give employees the opportunity to take part in shaping the future, and learn how the business can become better in delivering effective and rapid change.

A pilot project focused on employee engagement. Most colleagues in the UK will have seen posters, screens and new intranet pages which visualize the latest news and key performance metrics for all to see.

The results demonstrated the great potential for the Future Thinking concept, as the team also explored some of the profound technological changes that will affect our industry within the next 25 years. Future teams will work on projects of their choice which they believe will improve Prysmian in the UK.



Business and integrity together at work



Alessandro Nespoli, Chief Compliance Officer at Prysmian, explains in an interview with INSIGHT why the value of integrity goes well beyond the simple observance of rules and regulations, and in fact, permeates the entire spectrum of company life.

hen it comes to ethics, no challenge is too big, or too small, if it means doing things right. This is what I've always stood for, and this is exactly what Prysmian intends for its integrity initiatives". With an attitude that perfectly matches the company, one would be forgiven for thinking that Alessandro Nespoli has always been at Prysmian, but in fact he only recently joined the Group from Luxottica, as Chief Compliance and Internal Audit Officer.

"When I joined", Alessandro recalls, "I began to discover the company by starting with its values: excellence, integrity and understanding. And I decided to focus on integrity, to try to integrate the concept into tangible examples and a cultural approach".

To translate this value into real action, the Group launched the Integrity First project at the end of last year. Alessandro notes that "Integrity is an ever-present concept", but he adds that until now it has only really been referred to in

the Group's whistleblowing programme – the effective tool created for identifying fraud and misconduct. "Now we intend to expand it by developing and sharing a new compliance ecosystem", he says. According to Nespoli this ecosystem will cover a series of issues and actual behaviours "that shall ultimately become part of the DNA of Prysmian Group's people".

Alessandro explains, "Ethics influence our way of working and making decisions, while having an impact on our stakeholders and customers". As it affects reputation, "it is the most important asset we must preserve. If customers trust us, they will do business with us". The new compliance ecosystem will oversee different issues and set forth even those behaviours that are not strictly compliance-related. As Alessandro stresses, "This culture of integrity is reinforced by our company's Code of Ethics, based on three pillars: ethics in business activities, ethics in internal relations, and ethics in environmental and social matters". It means that ethics "is pervasive and regards everyone within and outside the organisation".



THE PRYSMIAN GROUP HAS ADOPTED A WHISTLEBLOWING PROGRAM TO ENSURE INTEGRITY COMPLIANCY.

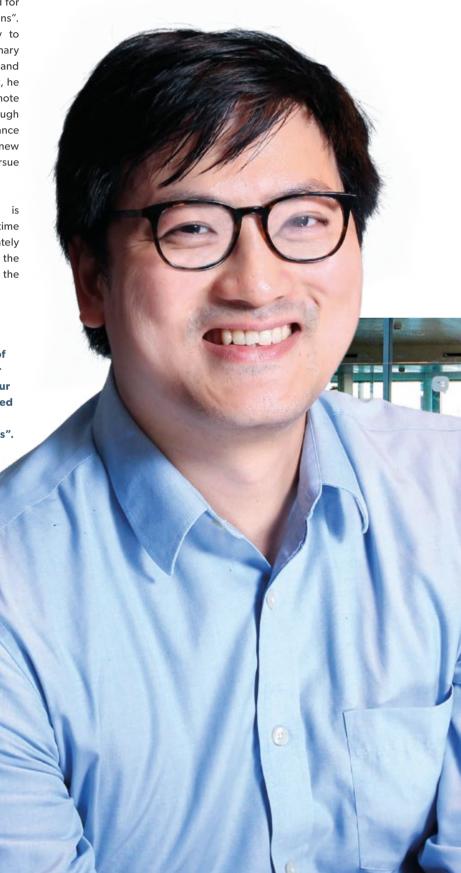


FOCUS ON

Nespoli also discussed how to enact the change, pointing out the "need to become the role models for compliance issues" within the organisation, and for "showing consistency between words and actions". Alessandro believes that "compliance is key to Prysmian Group, and local managers are the primary compliance owners; they act as mouthpieces and are an example when it comes to integrity". But, he adds, "we are also champions, because we promote and spread the company's Code of Ethics through our daily actions". By creating a strong compliance culture, the company will be able to adapt to new legislation more quickly, allowing it to better pursue its business goals.

Complying with regulatory requirements is mandatory, time consuming and complex, but time can be optimised and resources more adequately allocated to develop a stronger system, turning the whole process into an opportunity that gives the company a competitive advantage.

"This means", Alessandro notes, "that we will become more agile in responding to new regulatory changes; remain one step ahead of our competitors; build awareness around our own compliance culture to help strengthen our reputation; reduce penalties and fines imposed by authorities, and instill confidence in our people, our partners, and all our stakeholders".





We are also champions, because we promote and spread the company's Code of Ethics through our daily actions".

According to Alessandro, "Promoting compliant and ethical conduct and behaviour will positively influence our business: the purpose is to further strengthen our ethical DNA, involving everybody in a shared control system". In his view this is not just an economic issue; it concerns the company's most valuable asset - its reputation. Preserving it is in the interest of each and every person, and of the company as a whole. "Compliance is an 'all-together' job", Alessandro stated.

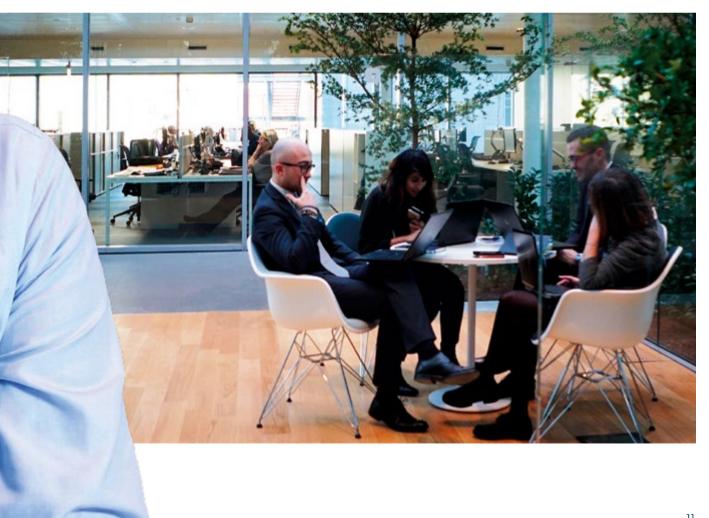
SHARING AND SPREADING THE ETHICS DNA

The Compliance arm of Prysmian, in co-operation with SDA Bocconi and the Group Academy, launched the Integrity First professional training programme in July 2017, with a focus on anti-bribery and anti-trust issues. Over the six planned editions, training involves around 200 sales managers from different corporate regions. The Digital Academy with online courses focused on anti-bribery and anti-trust issues for Italian affiliated companies, has been recently launched.

Among the topics of the next courses, close attention will be paid to the issue of data protection, as on May 2018 the European Union's General Data Protection Regulation (GDPR) comes into effect.

According to professor Markus Venzin of SDA Bocconi, the participants of the programme will act as change agents - Integrity First will help them to understand and embrace the need for high ethical standards in connection to Group strategy, which is a prerequisite for an effective change process. Digital training for all sales people will also be launched on the same topics.

The ultimate goal is to make people distinguish legal from ethical issues and, while considering country differences in legal frameworks, have all Prysmian people following a universal ethical code of conduct, all around the globe.



PROFITABILITY STAYS HIGH IN THE FIRST NINE MONTHS

Adjusted EBITDA up 3.3% to €545 million with a major improvement in margins for strategic businesses of Energy Projects and Telecom.

he Board of Directors of Prysmian Group has approved the results for the first nine months of 2017, which display an improvement in profitability despite broadly stable revenues, showing signs of some upward movement in the third quarter.

Commenting on these results, CEO Valerio Battista noted in particular that "we're seeing significant growth in volumes and margins for Telecom, driven by rising demand for optical cables, and improving margins for Energy Projects thanks to progressive in-sourcing of submarine cable installation services". The CEO pointed out that cable technology is demonstrating it can make a significant contribution to digitalisation projects, with the development of new

broadband networks, and to the use of renewable energy sources, by helping make businesses like offshore wind farms more and more competitive.

The market scenario in which the Group operates, Mr. Battista remarked, "offers good opportunities that we intend to pursue by focusing on product and service innovation". Despite the negative impact of results reported by the subsidiary Oman Cable Industries and of adverse exchange rate movements, Prysmian has confirmed the full year 2017 earnings guidance already communicated to the market of an Adjusted EBITDA in the range of €710 million

Sales

amounted to €5,865 million in the first nine months declining organically by 1.1%, but with the negative gap narrowing in the third quarter to -0.4% thanks to further revenue acceleration in Telecom's optical business and to a recovery in Trade & Installers.

Adjusted EBITDA

climbed 3.3% to €545 million with a margin on sales of 9.3%, stable compared with the first nine months of 2016 but with a marked improvement in profitability by the strategic businesses of Telecom and Energy Projects. This has absorbed not only the effects of less upbeat earnings performance by other businesses and the subsidiary Oman Cable Industries, but also the adverse impacts of exchange rates.

Net Financial Debt

amounted to €1,052 million at 30 September 2017 compared with €1,017 million a year earlier, having made €100 million in share buybacks since January. The principal factors influencing Net Financial Debt in the past 12 months have been: €617 million in net cash flow provided by operating activities before changes in net working capital, €99 million in cash used by increased net working capital, €101 million in tax payments, €239 million in net operating capital expenditure in the past 12 months, including €46 million to acquire the High Voltage assets in China.

Guidance

for full year 2017 is confirmed with an Adjusted EBITDA in the range of €710-€750 million, up from €711 million reported last year.

Energy projects

Adj. EBITDA / % of Sales



Energy Projects

Growth in submarine business profitability



In the first nine months, Adjusted EBITDA climbed 4.1% to €179 million with a margin on sales up to 17.2% from 14.6% in the same period of 2016.

Prysmian Group Energy Projects Operating Segment posted sales of €1,039 million, down organically by 6.7% after postponing installation milestones due to rough weather in the North Sea. 3rd-quarter stabilisation for HV underground.

n the Submarine Cables and Systems the strategy of insourcing part of its installation activities, combined with a favourable execution mix, helped boost profitability. Business prospects are encouraging, especially in the increasingly competitive offshore wind farm business, also thanks to advances in the technological solutions offered by the cable industry, with higher voltage cables supporting larger turbines.

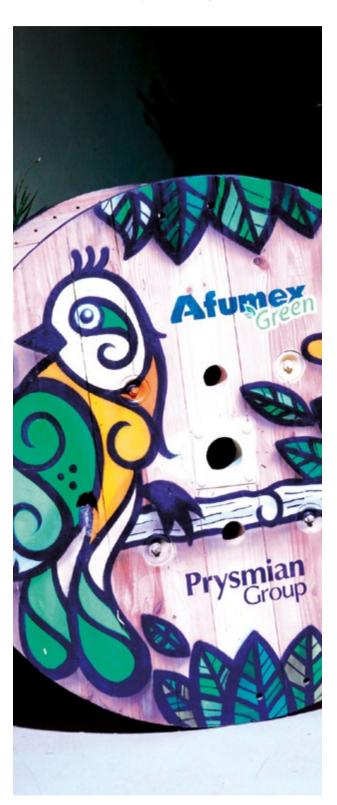
Growth prospects for submarine cables are supported by the much greater competitiveness of offshore wind power generation, measured by the reduction in the so-called Levelized Revenues of Energy (LRoE), featuring in the award of recent tenders in Germany.

Sales of High Voltage Underground were affected by flagging demand in France, Northern Europe and the United States, only partly mitigated by growth in the Asia Pacific region. The business has witnessed a progressive stabilisation over the course of the year. Profitability was affected by the change in the Group's perimeter in China, only partially tempered by positive performance in Asia Pacific.

The underground and submarine power transmission order book at the end of September 2017 stood at $\{2,500 \text{ million}, \text{ slightly higher than in December 2016}.$

Energy Products

T&I also helped by CPR



But the Middle East posted a negative performance due to weak regional economy while Industrial & NWC improved organically, although the business mix was still weaker than a year earlier.

Sales amounted to €3,672 million, largely in line with the first nine months of 2016. Adjusted EBITDA came in at €194 million with a 5.3% margin on sales from 6.4% in the first nine months of 2016.

nergy & Infrastructure amounted to €2,467 million, down 1.2%, with Adjusted EBITDA at €107 and margin on sales at 4.3% versus 5.4% in the same period of 2016. The decline was largely due to negative performance in the Middle East. Trade & Installers showed a recovering trend in Europe, after a weak start to the year, with much of the momentum coming from the Netherlands, Italy, Spain and the Nordics, demonstrating how the Group is making the most out of the new Construction Products Regulation, which has dictated a rise in quality standards. Performance was also positive in Asia Pacific, while less encouraging in the Middle East affected by economic downturn. Power Distribution reported a slight fall in sales, due to the anticipated market slowdown in Central and Eastern Europe. Positive performances were recorded in the Nordics, USA and Asia Pacific.

Sales of Industrial & Network Components rose 2.2% to €1,100 million, confirming the positive trend by some OEM niches and Automotive, while Adjusted EBITDA came in at €88 million with margin on sales down to 8.0% (from 9.3%), basically due to an unfavourable mix of applications.

Specialties, OEMs & Renewables enjoyed positive organic sales growth, fuelled by APAC, North America and Turkey. Railway posted good volumes and Infrastructure turned in a solid performance, helped by robust order intake. Mining continued to recover while Crane, Marine and Defence were still weak after peaking in 2016. Margins were nevertheless squeezed due to an unfavourable mix of business. Elevators did well in Europe but sales continued contracting in China, which negatively impacted profitability. Automotive enjoyed further double-digit sales growth in the third quarter, thanks to growth in Asia Pacific, North and Latin America, with profitability also improved. The Network Components business recorded a slight increase in third-quarter volumes, despite continuing signs of HV slowdown in China, France and the Netherlands. Medium and low voltage performed well in Europe and the United States.

Oil & Gas

Positive performance by Core Cable

But Surf was still affected by soft demand in Brazil.

DHT saw an onshore recovery, but the offshore market was still weak.

In the first nine months sales fell organically by 13% to €201 million, a slight improvement from the -14.8% reported in the first half. Adjusted EBITDA was €5 million, down from €9 million in the same period of 2016, with a margin on sales of 2.3% versus 4.1% in 2016.

n the third quarter the Core Cables Oil & Gas business accelerated the positive performance seen in the first half of the year, particularly driven by onshore projects in North America and the Middle East, while offshore remained weak. The recovery in volumes along with the efficiencies achieved have supported profitability.

The business of Subsea Umbilicals, Risers and Flowlines continued to be affected by challenging market conditions in Brazil, that impacted both volumes and margins. The Downhole Technology business saw onshore volumes recovering in the USA thanks to the shale oil market, contrasting with generally soft demand in the offshore and international markets.



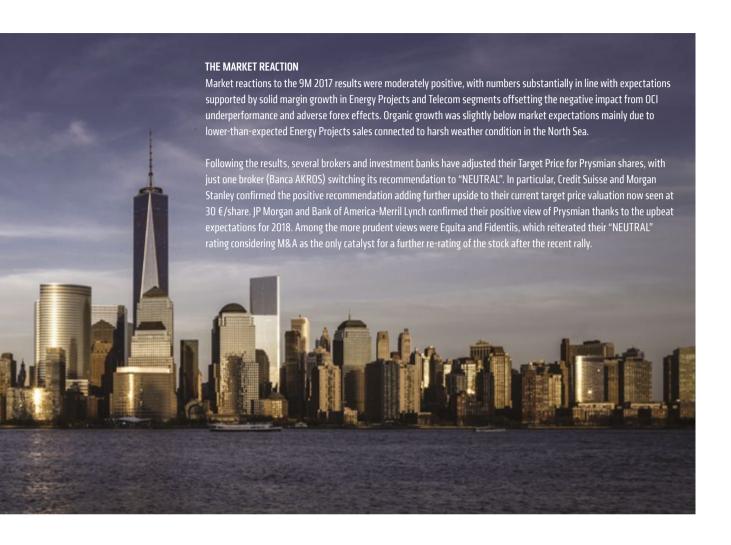
Telecom: further leap in profitability

Sales up 5.9% organically with optical cables confirming double-digit growth in the third quarter. Adjusted EBITDA continued to forge ahead.

Sales grew 5.9% organically to €953 million in the first nine months with optical cables confirming their double-digit pace of growth in the third quarter, despite the challenging basis of comparison with the same period of 2016 and the anticipated decline in copper cables, primarily on the Australian market. Adjusted EBITDA climbed 30.3% year on year to €167 million, with margin on sales also improving to 17.6% from 14.9% one year earlier.

he positive results benefited not only from increased volumes but also from investments to optimise the manufacturing footprint, from efficiency gains in optical fibres and improved results by the subsidiary YOFC. Growth in Europe has proven solid, with major projects to develop broadband networks in France, such as the Trés Haut Débit project, and Italy, where Prysmian has secured orders for optical fibre cables both from the TIM incumbent and the government plan being implemented by Open Fiber. There has also been a steady growth in demand in the U.S. thanks to investments to upgrade the fixed and mobile networks in preparation for 5G technology.

The market for copper cables has been weak, while the high value-added business of optical connectivity accessories performed well, thanks to the development of new FTTx networks for last mile broadband access in Europe, namely in France and Britain. The Group continues to invest to boost production capacity for both optical cables and fibres to support medium-term growth prospects of the business.



Submarine and Telecom to lead growth

The Group expects marginally higher demand for building cables and overall improvement for Industrials. Slight downturn seen for HV underground.

The global economy has steadily improved in 2017, with consumer and business confidence improving in many areas and better-than-expected GDP figures in both developed and major developing economies. The U.S. improved after a disappointing start to the year, while China has maintained a robust pace of growth throughout the year.

In such a context, Prysmian forecasts for FY 2017 that demand in the cyclical business of building wires will be marginally higher than in 2016, while that for medium voltage cables for utilities will be slightly down. The Industrial business is forecast to make an overall improvement, thanks to growth prospects for some OEM applications and Automotive. With Energy Projects seeing a slight growth in market, the Group anticipates consolidating its leadership in Submarine cables and systems while boosting

profitability through the in-sourcing installation activities. HV underground is expected to record a slight downturn partly due to the change in the scope of consolidation after reorganising the manufacturing footprint in China. In the Oil & Gas the stabilisation of the oil price is underpinning resumed demand for Onshore projects, primarily in North America and the Middle East, while the Offshore business remains weak, with the SURF business being affected by soft demand in Brazil. The Telecom segment is forecast to record strong sales growth for 2017, reflecting growing demand for optical cables in North America and Europe, tempered by the expected slowdown in copper cable demand in Australia.

The Group has confirmed its forecast of Adjusted EBITDA for FY 2017 in the range of €710-€750 million, up from the €711 million reported in 2016, based on the Company's current business perimeter and taking into account the existing order book.

CHINA GLOBAL GRID CHALLENGE

In a bid to further enhance integration of the planet's energy infrastructure, China is running projects within the GEI plan, connecting renewable power sources across borders and potentially signalling worldwide investments worth \$50 trillion.

hina's power giants are carving out new business opportunities by building cross-border electricity grids through renewable energy projects. This is all part of the General Energy Interconnection (GEI) initiative, run by the non-governmental Global Energy Interconnection Development and Cooperation Organization (GEIDCO). To-date this Beijing-based organisation has signed memorandums of cooperation with five international partners, with a view to connecting renewable power projects across national borders by overcoming geographical and historical terrain obstacles standing in the way of energy interconnection. GEI projects will also be part of the Belt and Road Initiative. With 305 members, the organisation operates in 32 countries and regions across 5 continents.

GEIDCO aims to set up countrywide supergrids across the world by 2020 with the ultimate goal of putting intercontinental grids in place on each increase clean energy consumption to 80% by then, in addition to reducing carbon emission to 11.5 billion metric tons, and propelling investment in GEI to \$50 trillion worldwide. The deadline of 2050 was set in order to give enough time to effectively solve any geographical or historical issues.

One planned major project is the China-South Asia Energy Interconnection. Others include the construction of two UHV-transmission projects, which will transmit electricity generated in China and Kazakhstan to Pakistan, in order to ease power shortages.

The State Grid Corporation of China – the country's largest utility – has so far built 10 cross-border transmission lines, connecting the nation with neighboring countries such as Russia and Mongolia. In the meantime, China Southern Power Grid, another state-owned powerhouse, has constructed 12 alternating-current lines between Laos, Myanmar





MORE COMPETITIVE THANKS TO JIANGSU

Chinese factory, Prysmian Technology Jiangsu Co. Ltd, has successfully commenced its operations after completing the acquisition of certain assets from former owner Shen Huan Cable Technologies. The company is now fully owned and managed by Prysmian, which provides the new factory with the Group's technologies, assets, competence and expertise, in addition to its most experienced and trained employees in the high voltage business. It is now all set to enhance its competitiveness in the Chinese utilities market.

Jiangsu can count on manufacturing and logistics facilities consisting of an area of more than 190,000 sq meters and five production lines, with a production capacity of over 30,000 tonnes per year. It therefore boasts one of the highest production capacities of the Group.

Jiangsu can also offer a wide range of cable technologies and products, designed and manufactured in accordance with Prysmian Group quality and standards, including extra high voltage and high voltage cable systems, medium voltage offerings ranging from 6 kV to 500 kV, and fire protection cables.

AUTOMATION AND THE MOBILITY REVOLUTION

The transportation landscape is changing quickly and drastically. In December 2016, all-time cumulative global sales of electric vehicles (EVs) passed two million units, of which 38% were sold in 2016. The advent of smart cars and autonomous vehicles will revolutionise global traffic even further. However, to make the most of the opportunities afforded, hurdles need to be overcome in areas such as energy, infrastructure and connectivity.

Powering the transition from fossil fuels to renewables

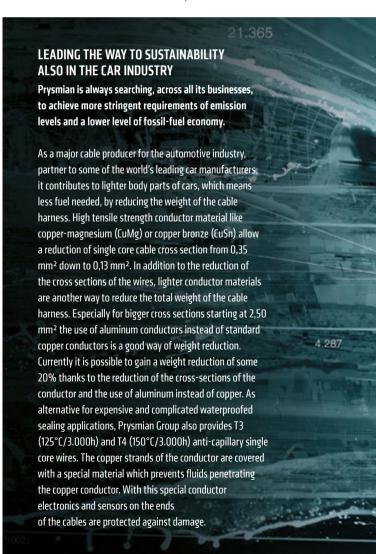
The transport sector is responsible for more than a quarter of total global energy consumption and a quarter of all fossil fuel CO_2 emissions. What's more, the sector's energy usage has been increasing by 2% annually over the past two decades.

On a more positive note, progress is being made in the decarbonisation of the transport sector, with carbon intensity of road transportation declining, according to data from **climateworkstracker.org**. However, to achieve the goals set in the Paris Agreement, the uptake of EVs needs to increase significantly. According to the International Energy Agency (IEA), the world will require 600 million electric vehicles by 2040 to limit global warming to less than 2°C, as set out in the Paris Agreement on climate change. Of course, the resulting increased demand for power needs to be fully covered by renewable sources. Fortunately, renewable energy, in particular solar power, is becoming cheaper.

At the end of 2016, there were more than two million passenger EVs on the roads, roughly 1% of all car sales. However, to reach the climate goals, EV uptake will have to be boosted to 20 million by 2020. The Electric Vehicle Initiative, which includes the governments of China, France, Germany, the U.K., the U.S. and five other countries, has set a goal for 30 % market share for battery power cars, buses, trucks and vans by 2030, according to IEA. The Netherlands intends to phase out all fossil fuel-powered automobiles by 2025. Although India, isn't part of this program, it aims to sell only electric cars by 2030.

Overcoming obstacles to electric vehicle uptake

In spite of the various projects aiming to stimulate EV uptake, there are several obstacles to overcome. For one thing, the range of electric vehicles is still limited compared to that of 'traditional' vehicles. Fortunately, battery technology is developing rapidly. The improving energy density of lithium-ion batteries allows greater power storage in lighter batteries. Efficiency is expected to grow by some 5% per year. At Colombia University, a method has been developed that may even improve the energy density by 10-30%. Furthermore, the cost of lithium-ion batteries, which account for about 40% of the cost of an EV cost, has dropped by two-thirds since 2010. Further reductions are expected in the near future.

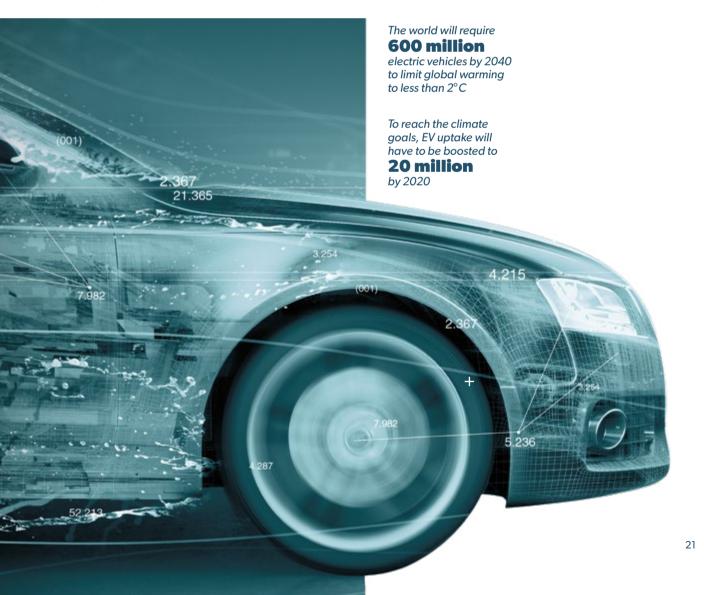


Charging infrastructure is essential to the uptake of electric vehicles. In the absence of ubiquitous charging, hybrids will remain important as an intermediate solution. Ideally, there should be a recharging possibility in every location where a car might conceivably be parked for any length of time.

Bringing down charging times significantly is essential to the widespread adoption of EVs. In Europe some 1,300 DC 'fast chargers' have been introduced, which can repower EVs almost as rapidly as fossil fuel. Norway recently opened the world's largest fast-charging station, which can charge up to 28 vehicles in about half an hour.

How can cabling help?

Within vehicles, cabling needs to be as lightweight, durable and efficient as possible to help limit energy usage and enhance any energy savings to the highest degree attainable. Creating a granular grid with the option to freely store and transport energy to any location and allow fast recharging requires reliable high and low voltage cabling solutions as well as advanced monitoring, control and remote diagnostics systems. And, of course, advanced security measures will also be essential, as consumers will be in close proximity to high voltages.



Autonomous cars: less fuel, greater safety

he growth of digitalisation, deep learning and artificial intelligence is resulting in autonomous driving and efficiencies that allow vehicles to cover ever-greater distances. A wide variety of companies have entered the autonomous vehicle/Al market, ranging from small start-ups to tech leaders such as Uber, Google, Tesla and Apple. 'Traditional' automotive companies are working towards positioning themselves in the market for self-driving cars. Apple's CEO Tim Cook has described creating autonomous vehicles as the mother of all Artificial Intelligence projects.

A self-driving car will be equipped with a variety of sensors, a GPS Unit and an inertial navigation system. The car creates a map of its surroundings based on sensor input and positional information from GPS and navigation system. This allows it to determine the best possible route. However, the connectivity inherent to autonomous vehicles brings a wide range of additional benefits. Machine learning will introduce optimization opportunities, which means reduced fuel consumption – thereby increasing distances that may be travelled - and lower maintenance costs through preventive diagnostics.

Benefits and barriers

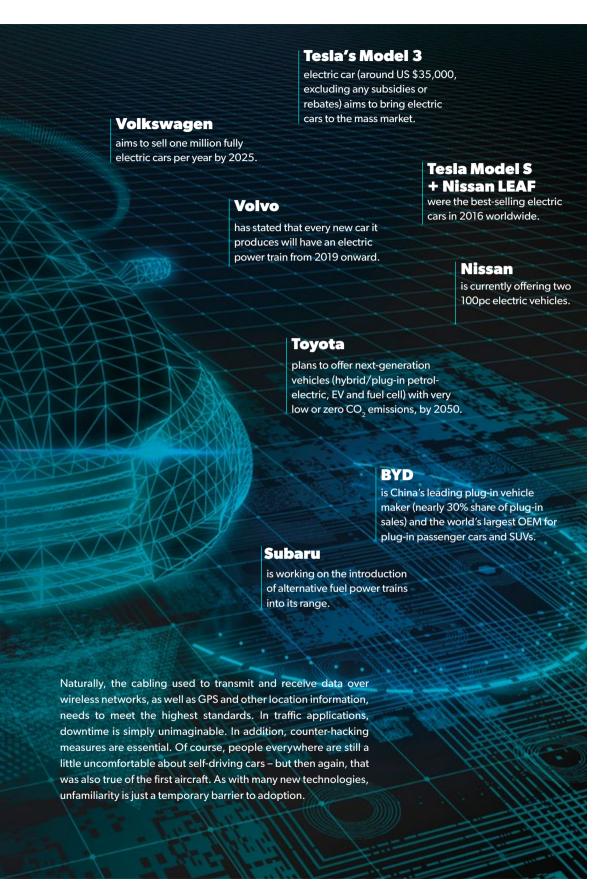
In a report entitled 'IEEE Transactions on Intelligent Transportation Systems', University of California, Riverside, researchers Xuewei Qi and Matthew Barth report that applying Al simulations to fuel consumption can bring a 10.7% energy usage efficiency increase compared to a traditional system. If the control system knows in advance when it needs to stop to recharge, battery potential can be optimally used during each segment of a journey, increasing average fuel savings to as much as 31.5%. Software

can learn from past journeys and driving habits to optimize power consumption in ways that humans simply can't.

Connecting vehicles to the Internet of Things and 5G networks also makes a broad variety of Smart City applications possible. This ranges from adaptive street lighting to smart parking management, route optimization and safety enhancements. For fleet owners and transport companies, the optimization benefits are huge.

Safety is another important area in which machine learning, connectivity and artificial intelligence can bring vast improvements. A report from US consulting firm, McKinsey & Company claims that U.S. road deaths could be reduced by 90% thanks to autonomous vehicles. Tesla CEO Elon Musk even claims that selfdriving technology will become so advanced that lawmakers will have to consider outlawing manual driving. Chris Gerdes, professor of mechanical engineering at Stanford University, and director of the Center for Automotive Research (CARS) and the Revs program, stated he is confident that cars will soon have skills on par with the very best human drivers - and possibly even better. Together, all vehicles in Waymo, formerly known as Google's Self Driving Car program, travelled more than two million miles on U.S. streets and only once had fault in an accident. That's ten times safer than the safest category of drivers in the US, and 40 times safer than new drivers.

National and international legislation is a hot topic: there need to be regional and global standards governing not only traffic participation and safety standards, but also responsibilities of autonomous vehicle owners, manufacturers and other stakeholders.



WORLD TOP 10 AUTOMOTIVE EV GROUPS

28 Renault-Nissan

12Mitsubishi

11 GM

9 Toyota

8 Tesla

6 Ford

4 BYD

3 BMW

3 Geely Group

3 Volkswagen Group

% of all-time total EV sales until April 30th, 2015

Source: ev-sales. blogspot.nl



Prysmian's state-of-the-art downhole technology delivers reliable, long-life and cost-effective oil well & production management data solutions.

or more than thirty years, Prysmian has pioneered the development of groundbreaking downhole technology solutions. The search for ever more innovative new products and services has always been at the heart of the Prysmian culture.

Balancing the design requirements for reliability, long-life and cost-effectiveness has been a stimulating and demanding task. This reference is not casual. In Jules Verne's masterpiece, Journey to the Centre of the Earth, written over 150 years ago, Otto Lidenbrock explains to Axel, his nephew and narrator of the novel, how scientific research works: "science is eminently perfectible, my lad, and each theory has constantly to give way to a fresh one".

Prysmian solutions are used to connect the surface with equipment and sensors located in oil wells hundreds of meters below the surface of the Earth. Reliability, long-life and cost-effectiveness are then crucial for monitoring the conditions of a well and managing the production of oil and gas. Prysmian's experience and expertise

is the result of the acquisitions by Prysmian, of Draka and Gulf Coast Downhole Technologies (GCDT) which were completed in April 2017. The integration of these businesses allows us to address the needs of a wide range of applications from the opening and closing of valves, to downhole flow measurements and flow assurance. These demands also include technology that can be used in high temperature, extreme pressure and aggressive / corrosive wells.

This aligns with Prysmian Group's commitment to respond quickly and promptly to our customers' demands. As CEO Valerio Battista stated soon after the acquisition of GCDT, "customer proximity is one of our primary goals. Making leverage of our global presence, we will bring Gulf Coast Downhole Technologies expertise and innovative abilities to a bigger customer audience, granting us the opportunity to develop a versatile and advanced supply chain".

The PDT product portfolio includes downhole cables, control lines & flatpacks, protectors and a range of associated accessories and





Customer proximity is one of our primary goals. Making leverage of our global presence, we will bring Gulf Coast Downhole Technologies expertise and innovative abilities to a bigger customer audience, granting us the opportunity to develop a versatile and advanced supply chain".

services. The cable range includes Tube Encapsulated Cables (TEC) which are used to carry data or supply power to downhole instrumentation, sensors and powered equipment and Tube Encapsulated Fibre (TEF) which are used in temperature, pressure, flow, strain measurement and acoustic sensing applications.

From simple, single duty land-based installations through to the most complex multi-parameter systems for deep water developments, operators all around the world rely on Prysmian Downhole Technology. "Our success is a result of the dedication and hard work of our people," said Giovanni Calimani, who leads the PDT team. "Our people's experience, knowledge and skill has created a world beating portfolio that is relied on by customers all around the world to produce vital information about their oil and gas production," he explains.

The welding, assembly, flushing and filling processes are so specialised that PDT has had to invest in a machine shop and

employ specialist in advanced manufacturing techniques to build and continuously improve the equipment to manufacture and assemble our products.

This gives PDT a major advantage over the rest of the industry. Rather than needing to compromise a solution to match a standard range of products, PDT designs and then manufactures a solution that exactly matches a customer's needs. And being a specialist who produces thousands of meters of TEC a year, they do this at a very competitive price.

 $The Group's global \ expertise \ in the Oil \& Gas \ industry \ is \ mirrored \ in a \ brand \ new \ dedicated \ website \ area, \ launched \ in \ October.$

Aimed at boosting Prysmian reach to its customers, the new area includes a more efficient navigation and several content that will help visitors understand how the Group helps customers in the oil & gas industry address their toughest challenges.

ENERGY FROM WIND IN ICY CONDITIONS

Tahkoluoto: a world-first for offshore wind farming

ocated in the Baltic Sea, just off the coast of Finland, the Tahkoluoto offshore wind farm was inaugurated in October by Finnish company Suomen Hyötytuuli.

It is the world's first offshore wind farm designed for icy conditions, and will begin to produce energy in the autumn of 2017.

This pilot project was launched in 2010, with the installation of its first turbine, and has been developed and finalised over the 2015-2017 period, with the installation of an additional 10 turbines.

The final take-over took place ahead of schedule, and since then, Suomen Hyötytuuli and its partners have significantly increased their knowledge of offshore wind power in the Baltic Sea. They are now able to produce offshore energy on an industrial scale.

Prysmian Group contributed to this important project with the supply of approximately 14 kilometres of 30 kV submarine cable, which has been installed on the seabed.

The cable was manufactured in the Finnish plant

of Pikkala, one of the Group's centres of excellence for high voltage cable production and high voltage direct current (HDVC) technology, allowing large amounts of energy to be transmitted over long distances.

The plant supports major renewable energy development projects, especially in Northern Europe. In fact, Prysmian has recently been awarded two important projects in this region: the MEG Offshore 1 (Merkur offshore wind farm) in Germany, and the Danish Horns Rev 3 in the North Sea.

of 30 kV submarine cable



DEBATING THE CONNECTIVITY OF TOMORROW



Prysmian CEO Valerio Battista at the FT-ETNO Summit: fibre is the future The meeting took place at a very meaningful time, when technology and mobility have brought about unprecedented opportunities and challenges, and while Europe is moving closer and closer to reviewing the Union's telecommunication rules that will set the framework for progress in the years to come.

he connectivity of the future is based on fibre.

That was the message delivered by Prysmian

CEO Valerio Battista at the eighth edition
of the FT-ETNO Summit, where leading
policymakers, regulators, industry executives and
investors from Europe and beyond gathered in Brussels
to discuss and debate the future role and development
of the communication industry.

Mr Battista underlined that "business is based on fibre. The last mile can be based on cables, antennas, and satellite, but the substance doesn't change. The base is always fibre. Moreover, the network Europe is going to build must be future-proof".

According to Mr. Battista's vision, future-proof means infrastructures that must exist for 20-30 years, where the quality of products is essential: "Through quality, we can build reliable networks, with no interruptions to services and a very low latency".

Mariya Gabriel, European Commissioner for Digital Economy and Society, launched a call to look at the big picture and to stay true to the ambition of the founding fathers of European Union: "We need to concentrate our efforts towards connectivity, which is paramount. My goal is for Europe to catch up with today's leading countries and continents, such as the US, Japan and South Korea". In his keynote lecture, Jeremy Rifkin, Sustainability Adviser to the European Commission's presidents, stated that the European Union is the ideal location to explore the opportunities of modern connectivity and shared mobility thanks to the elimination of country borders, since, "technology and digital infrastructures don't like borders. They just like open space".

During the summit, regulators, industry executives and journalists discussed the reforms to the Electronic Communications Code (issued in October 2016), alongside the policy priorities of the new European Parliament and their impact on European telecoms, media and technology.



SHOWCASING INNOVATION AT THE IWCS SYMPOSIUM

Held in Orlando, Florida, the IWCS: International Cable and Connectivity Symposium 2017 was the ideal opportunity for Prysmian to present its new, state-of-the-art technologies in cable and connectivity products, processes and applications.

This edition saw over 150 papers and presentations in 20 compelling sessions over three full days, providing great learning opportunities from renowned industry experts.

Expert speakers addressed important issues and economic trends facing the industry, followed by an interesting panel of Chief Technology Officers (CTOs) and industry leaders, who presented their visions for 'Telecommunications in 2025'.

Marcelo Andrade, Vice President R&D Prysmian, took part as the Group's representative and pointed out that "the cable world, and the fibre one in particular, is changing rapidly with new technologies, applications and the needs of a digital society. Hyper connectivity, video streaming, autonomous driving, virtual reality, smart homes, convergence, and more will soon dominate our life".

How is Prysmian Group responding to these changes and challenges? "With new, innovative products and customised solutions, such as high-density cables with flexible ribbon designs, micromodules (Prysmian Flextube®) and multi-loose tube designs that will reach densities well above 5 f/sqmm," Andrade informs. Together with Andrade's speech, many colleagues from some of Prysmian's divisions around the globe – the US, Italy, Netherlands, Spain, France and Brazil – presented their research and thoughts during the event.

Jeff Barker, Director Telecom R&D North America Prysmian, participated as chairperson to the sessions 'Next Generation Fibre Cable Design' and presented a series of technical papers to be discussed in seven different technical sessions.

At the event, Prysmian also received the prestigious 'Jack Spergel Memorial Award for Outstanding Technical Paper', for its offering entitled 'Solutions to Improve Optical Fibre Cables Flame Retardancy' written by Mauro Maritano, Marelli Paolo, Vito Scrima, Giacomo Colombo Serri, and Marta Garcia S. Emeterio.

Cabling the Amazon region

400 km of optical cables produced in the plant of Sorocaba

rysmian Group has signed a contract with PRODEPA, the state-owned telco Telebràs, and the development agency of Pará (Brazil), to deploy optical cables for a broadband project in the Amazon region.

The project, known as Xingu Conectado, will connect 12 municipalities and is expected to benefit around 600,000 people with a 10Gbps capacity. Prysmian will supply 400 km of optical cables produced in the plant of Sorocaba, São Paulo, with delivery expected to be completed in September.

Sorocaba is fast becoming the centre for production of fibre optics in South America; the Group has just announced the investment of \$5.7 million for the expansion and modernisation of its fibre optic plant.

Prysmian's intention is twofold. To expand production capacity to meet the growing demand for fibre optic infrastructure and optical cables, especially in regions away from the country's large urban centres. And also to expand presence throughout the market, with special attention being given to the growing importance of small and medium-sized regional broadband internet providers.



\$5.7
million for the
expansion and
modernisation
of Sorocaba plant



Supporting Italy's Industry 4.0 initiative

Prysmian and IATT, together for 'Objective 2025', an alliance for the nation's digital development.

he Industry 4.0 Italian initiative took centre stage at the

'Objective 2025: Italian Industry Allied for the Digital

Development of the Country' conference, organised in

Milan by Prysmian Group and the Italian Association for

Trenchless Technology (IATT). The industry's main players, along
with representatives of trade, industry, utilities, and the Public

Administration, attended the event.

Industry 4.0 is seen as a milestone for the industrial and service sectors, in addition to being a pillar for revamping the Italian economy, according to an ambitious plan launched by the Rome government in September 2016. "The future of Italy is inextricably linked to a process of digitalisation in which optical fibre plays a key role, along with trenchless technologies," commented Carlo Scarlata, Chief Commercial Officer at Prysmian Cavi e Sistemi Italia. "As Italy's sole optical fibre producer, we are on the frontline of investment and research, and are deploying all of our technologies and expertise to the field".



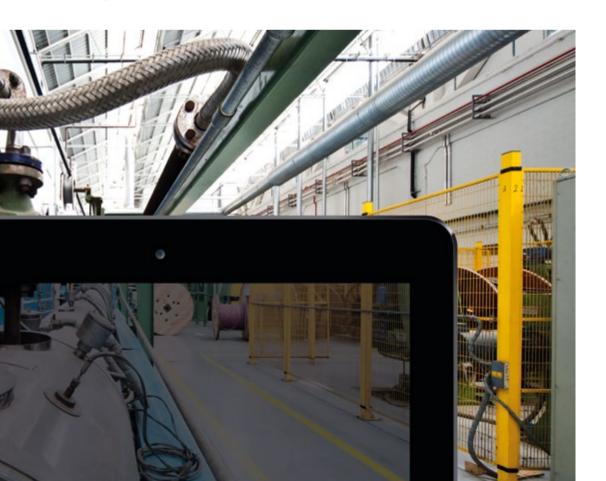
The future of Italy is inextricably linked to a process of digitalisation in which optical fibre plays a key role, along with trenchless technologies".

Carlo Scarlata, Chief Commercial Officer at Prysmian Italia





The common goal is to provide Italy with access to a series of cutting-edge services based on integrated systems that offer: increased data volume; calculation capacity and connectivity (which in turn will translate into big data); open data and cloud computing; the creation of analytics to derive value from the data collected; the rise of new forms of man-machine interaction and augmented reality, and, finally, the development and improvement of the transfer of digital instructions to the real world, such as advanced robotics, Internet of Things solutions and 3D printers.



Bringing in talent, and helping them 'Sell it'

This innovative three-year programme – inaugurated last April – is designed to gear up fresh sales forces and get them up-to-speed on the business of selling Prysmian's products and culture worldwide.

n the current global scenario, being able to gather and train a motivated sales force represents an asset comparable to the ability of providing customers with state-of-the-art products. Prysmian Group relies in its sales professionals to succeed in an extremely competitive global market.

Sell It is a three-year programme conceived to bring talent into the Company by offering them a permanent contract, a tailored training path and diverse opportunities for personal growth.

The programme will help professionals develop their careers – according to their performance and potential – fostered through specific training activities and mentoring schemes, with a goal to increase sales qualifications and encourage meaningful relationships with role models and seniors.

The newly-hired sales force will take part in a two-week induction in Milan; the first led by SDA Bocconi School of Management; the second aiming to deep dive into the business, to familiarise recruits with Prysmian's top managers in order to teach key sales and managerial skills, and finally, to introduce Prysmian's global HQ.

Ideal applicants should hold a degree in engineering, chemistry or economics and have spent at least three years working for the commercial sector of industrial or customer companies, in frontend sales, technical sales, key accounts and customer-care roles.

This extensive programme aims to find and cultivate the most talented individuals in the commercial sector, to allow them to make the most of their abilities and competencies. "Through Sell It", underlines Fabrizio Rutschmann, SVP Human Resources & Organization of Prysmian Group, "our company confirms its intention to attract talented professionals. The development of human capital is paramount to guarantee the enduring success of our company, and represents one of the pillars of our corporate philosophy".







Fabrizio Rutschmann SVP Human Resources & Organization of Prysmian Group

The launch of the first edition of Sell It in February 2017 thus represented the starting point of an even deeper commitment by Prysmian Group in nurturing young talent. "This is the first time we have launched a recruiting and training programme dedicated to this kind of professional. Our capacity for growth in different markets deeply relies on the quality of our sales team", continues Rutschmann.



We are certain that the strength of the Group, and the relevance of our international projects – developed with many partners – will be an interesting point of attraction for candidates".

Sell It completes a set of three recruitment initiatives undertaken by Prysmian Group. This includes Make It, dedicated to early-career manufacturing engineers (which will see its third edition in fall 2017) and Build the Future, now in its sixth year, aimed at identifying the best recently-graduated talents and at training junior and specialist managers, through a three-year path.

As Hans Nieman, Prysmian Group Executive VP Energy Products, asserts, "Selling is understanding. Understanding the products we are offering, but also the business needs of our customers". This position is echoed by Philippe Vanhille, Prysmian Group Executive VP Telecom Business, who confirms that "what makes a difference is to combine technical intelligence with a passion for engaging people".

The next enrolment period is scheduled for December 2017.



Good people make good companies, and happy customers

So began a truly engaging and inspiring speech from Andrea Pirondini, Prysmian's COO, to new recruits of the Group's illustrious engineering career programme, Make It.

"Our goal is to make our customers happy to work with us", continued Mr Pirondini during the last day of the 'Make It' career programme's induction week in Milan. And these words sum up perfectly the Group's general mission.

The Xperience Lab of Milan's Bocconi University was the ideal location for a speech that was both a lesson in business transformation for the operations sector, and a collection of industrial and personal best-practice insights.

"Working in a factory environment, we have a high risk of forgetting that we are producing for someone who has very specific needs. So, our focus is on operations, which in our Group are highly decentralised, with 82 factories in 50 countries" underlined Mr. Pirondini.

"The last two years in our Operations sector has been dedicated to the 'Fast Forward' programme. We launched this programme to better rationalise our industrial processes, while leveraging on our strategic asset of being present across five continents: a condition that allows the Group to respond in a suitably timely manner to the different requirements of the markets around the world".

Prysmian is constantly evolving in line with new and ever-changing technology. No subject could be more appropriate for an induction session, since the first thing new recruits will learn is to adapt to mutating circumstances.

"Digitalisation, IoT and telecommunications changed the world we're living in. At Prysmian, we are very proud of our past, but we also recognise that some old legacies can be a burden that can slow down the system, and we have worked to change that. But we can evolve only if we act together, moving towards the same goals".





As the COO recalled, "With Fast Forward we drew together new and existing initiatives, with a focus on increased value for the customer, alongside speed and adaptation across people, production resources, and production technology".

Production resources were also an important chapter in Pirondini's speech. "The strategy is very much about where to allocate these resources. Some years ago, we decided to invest for growth in selected areas of the existing business. And we made specific choices that are now starting to produce important returns". One example presented is very telling – the telecom business. "In this sector, the market is giving us a lot of opportunity, in particular in the optical fibre sector where we will invest in excess of €50 million this year".

PRYSMIAN WINS EXCELLENCE AWARD

The Group's Livorno Mare plant has been announced as the winner of the 'Industrial Excellence Award, Italy 2017' competition. As a result, it has gained access to the next phase of the competition – competing for a top European award for industrial excellence. This is the first time ever that the Group has joined this illustrious contest, established in 1995 to benchmark management quality for European competitiveness in the industrial and service sectors. And they're in good company. IEA winners of recent years include the likes of Bentley, Volkswagen and BMW.

This year's Industrial Excellence Award (IEA) focused on how leading European companies develop and deploy their digital enterprise strategies and create superior value to customers.

The selection of national champions is handled by one of the leading business schools in each of the involved countries – SDA Bocconi being Italy's representative for the 2017 edition.

Prysmian's Livorno Mare plant forms part of the Group's Network Components Business Unit, and is a centre of excellence for the development and production of high voltage accessories.

But the world-leading position Prysmian Group now holds is a result of forward-looking decisions made back in 2011-2012. "Investing in optical fibres is now internally recognised as mandatory, but back then the situation was different; our factories weren't profitable since costs were higher, the technology was not widely spread, and there was no sign of the current run to high-speed connectivity.

"We received offers from external buyers interested in our factories. It would have been an easy option to just sell them and concentrate on more lucrative markets. But we would have lost technology, expert people, and a great business opportunity.

"I remember our CEO saying during a meeting 'I like to buy, not to sell', so we rejected the offer, and we turned back to these factories, looking for a way to make them profitable again.

"It took some time, but our current operational organisation owes a lot to that decision...By making the right choices, we now have the expertise to create optical fibre networks able to answer to the needs of today and the years to come", Pirondini concluded.

PRYSMIAN HO OPENED TO EMPLOYEES AND FAMILIES

More than one thousand people gathered in Milan for a momentous occasion – an open day that celebrated the Group's brand-new, smart-working headquarters.

Almost 500 people took the time to pay a visit to the R&D laboratories, while at least as many filled the auditorium to listen to a narration of the history of the Company. Thanks to a brilliant Virtual Reality display, many were able to experience the laying of cables on the bottom of the ocean, as conducted by the Group's cable-laying vessel, the Giulio Verne.

The event was a special way for the families of Prysmian's people to get to know the place where their relatives spend every day of their working life. The new headquarters building has been built to mirror the new approach to work envisioned by Prysmian; one that makes sustainability, innovation and digital transformation its hallmarks.

Follow us





prysmiangroup.com



Disclaimer

The content of this publication is provided 'as is' without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement of intellectual property rights.

For further information please <u>read the terms of use of this publication</u>.