



Digitisation, connectivity and social innovation



A GROUP OF STRATEGIC VALUE

The Company stands as a digital ecosystem “enabler”, connecting companies, government bodies and local communities, so as to create positive synergies for development. The contribution the Group makes towards growth in the sectors in which it operates doesn’t stop at infrastructure projects but ranges from digital solutions for government local bodies to cloud services for businesses, digital platforms for healthcare, applications for people with disabilities to technologies for reducing energy use by cities and companies. Various initiatives have been developed in this context, including the crowdfunding platform that receives requests for donations and other non-profit-making financial assistance for people intending to implement environmental protection and social projects.

The increasing development of digital infrastructure and services must be matched by an adequate demand for connectivity to provide a return on the investments made. This demand reflects the level of digital culture present in the country: the more consumers are informed and aware of the benefits of using the Internet and ultrabroadband, the greater the penetration of ultrabroadband connectivity and the rate of adoption of digital services. In order to promote the growth and spread of digital culture, the Company is promoting and implementing several projects, mainly through the Corporate Shared Value department: from TV programmes (Start!) to education in schools (At Digital School with TIM), popularisation of classical music (Pappano in Web) to online safety campaigns (Navigare Sicuri) as detailed in the Digital Culture chapter of this report.

[G4-DMA Product and Service Labeling], [G4-DMA Marketing Communications], [G4-DMA Customer Privacy], [G4-DMA Compliance]

Material issues in this chapter:

- network coverage
- listening and transparency towards customers
- innovation management
- sensitive data management and protection
- child protection

Relevant company policies: Service Charter and General Subscription Conditions, Self-regulation Code for mobile services and Code of Conduct for premium services, Guidelines for responsible marketing, TIM Disclosures pursuant to article 13 of the Privacy Code, Compliance requirements for the processing of anonymised or pseudonymised data, Respect Human Rights in the TIM, Whistleblowing, available at www.telecomitalia.com.

Effectiveness and monitoring: the company uses some numerical KPIs in order to monitor the effectiveness of management processes and ensure the monitoring required by quality management systems and internal control structures. This chapter presents the ones related to the cover of the territory with broadband infrastructures, customer satisfaction, the number of conciliation requests received and resolved, the number of reports received. The KPIs regarding numerical targets are presented in an appendix to the report. In particular, targets are listed for service activation, complaints, support and maintenance, availability and broadband network coverage.



ULTRABROADBAND NETWORKS: A NATIONAL TREASURE

TIM operates the biggest fixed voice and data infrastructure, covering the whole of Italy, and provides one of the country's most extensive and advanced mobile network platforms. Therefore, in terms of size, ubiquity and infrastructural and technological assets, it is a "system company", integrated with the territory and with the social, economic and production fabric, with a pervasive role for the whole of the country's economy and the competitiveness of its companies, the efficiency of its public administration and, more generally, the welfare of its citizens.

[G4-EC7a], [G4-EC7b], [G4-EC8a], [G4-EC8b], [G4-DMA Indirect Economic Impacts]

The Group contributes to produce approximately 0.7% of the added value of the Italian GDP¹. The Group's business generates direct work for approximately 51 thousand people in Italy; if indirect employees are considered, i.e. those operating on projects connected with the business of TIM, it is estimated that approximately 106 thousand units, corresponding to approximately 1% of employees of the entire private sector, would represent the direct and indirect work attributable to the Group in Italy.

In recent years we have been witnessing a "digital transformation" process that involves all players in the economic (changes in technology and ways of working) and social systems, with significant impacts throughout the world. This process should now be considered "irreversible" and represents the basis for the development of new business models, in turn included in new "ecosystems," based on enabling platforms such as information systems, customer experience, analytics, intelligence, etc., which require rapid technological evolution also to ensure the rapid and secure collection, processing and exchange of important quantities of information instantly.

TIM plays a broadly strategic role in this area and is in the front line in the development of new models, both as a leading player in the ICT sector and as an enabler in other sectors of the economy, translating into products and services two keywords of digital transformation: Internet of Things and Cloud.

[G4-EC7a] TIM is aware of this strategic role and works constantly to manage and update the infrastructure and technology it makes available to the country: in 2016, the Company invested around 1.5 billion euros in innovative infrastructure and services, primarily aimed at the new generation networks. The Group's three-year business plan for 2017-2019 confirms its commitment to investing in advanced infrastructure and technologies and is focused on next generation ultrabroadband networks in particular, a major undertaking that network technicians and engineers are working to deliver every day.

To complete the undertaking to create a new generation access network (NGAN), the Group has signed a joint venture (Flash Fiber S.r.l.) with Fastweb to promote the creation of ultrabroadband infrastructure with FTTH (Fiber To The Home) technology in the main Italian cities. Flash Fiber is 80% owned by TIM and 20% by Fastweb and its goal is to create an optic fibre access network which plans to connect around 3 million homes in the 29 main Italian cities by 2020 using FTTH technology, which permits connection speeds of 1 GB per second, for a total investment of 1.2 billion euros.

The Company has confirmed its commitment to offering the most advanced and reliable technology for mobile phones too. In 2016, the mobile network coverage of the whole country



with the new 4G/LTE standard was almost completed, and in order to quickly respond to the growing demand for high speed data the Group is involved in testing 5G technology, which allows it to respond to the growing demand for ultrabroadband while on the move linked to the explosion of video content, social networks and digital services. The Group was one of the signatories to the document “Manifesto for timely deployment of 5G in Europe” presented to the European Commissioner for the digital economy, Gunther Oettinger, with which the major mobile operators, together with important technological partners, committed to develop 5G technology from 2018, focusing on its commercial launch by 2020. Moreover, TIM and Ericsson have signed an agreement to launch the “5G for Italy” programme with the aim of creating an open ecosystem for research and the implementation of innovative projects enabled by 5G technology in order to speed up the digitisation of the country.

[G4-EC8b] TIM’s commitment is also shown by its participation over the years, as the only operator, in the Eurosud public tenders organised by the Ministry of Economic Development (MISE)¹, which are essential for ensuring ultrabroadband coverage in “market failure” areas (known as “white areas”, in which there is a risk of no return being made on investments) and therefore achieving the objective of 30 Mbit/s coverage of 100% of the population by 2020.

[G4-DMA Indirect Economic Impacts] The ambitious investment plan TIM is implementing coincides with a phase in which the Italian government is engaged in devising and implementing the national strategic ultrabroadband plan, which aims to achieve the challenging objectives of the European Digital Agenda in terms of a widespread supply of infrastructure and an increase in the demand for digital services.

In this regard, in 2016 the European Commission made the digitisation targets in the member states even more challenging: in September, when the proposal to review the “European code for electronic communications” was made, the Commission presented three strategic connectivity goals for 2025 (the related approval process is still ongoing), with the aim of satisfying European citizens’ growing requirement for connectivity and strengthening the competitiveness of Europe.

- the great socio-economic engines such as schools, universities, local administrations, etc., must have access to high speed connectivity (1 Gbps);
- all European families, in rural or urban areas, must have access to connectivity that offers download speeds of at least 100 Mbps;
- all urban areas and the main roads and railways must have continuous coverage of the 5G networks.

THE ECONOMIC EFFECTS OF BROADBAND AND ULTRABROADBAND NETWORKS ON GROWTH AND EMPLOYMENT

[G4-DMA Indirect Economic Impacts], [G4-EC7b] The spread of broadband and ultrabroadband networks is a boost for the economic growth of countries.

Several studies have been carried out to measure the specific impact of ultrabroadband networks on economies. TIM has decided to use the Impact of Broadband on the Economy of 2012 (ITU - International Telecommunication Union) as part of its TIM Shared Value model.

¹ In 2016 two calls for tenders for the competitor pre-qualification phase were published for the creation, in the “white areas” of most Italian regions, of ultrabroadband networks for a total of 2.6 billion euros.



According to this study, around one euro of GDP is generated for every euro invested in building the UBB network. According to the study, investments in new generation networks have a major impact on employment as well, with 15,700 jobs potentially being created for every one million euros invested in building the UBB network.

TIM NETBOOK: A WAY TO IMPROVE TRANSPARENCY IN THE DEVELOPMENT OF NETWORK INFRASTRUCTURE AND ENCOURAGE THE DEVELOPMENT OF DIGITAL PROJECTS

[G4-DMA Indirect Economic Impacts] In order to make the effective development of broadband and ultrabroadband networks even more transparent, from 2012 TIM published the TIM Netbook - <http://www.telecomitalia.com/tit/it/innovazione/rete/netbook.html> -, which accurately and meticulously tracks the “progress achieved in the work”. The TIM Netbook is a publication that shows the Country and the main stakeholders the state of the network with extreme transparency, clarity and precision, using data and maps to illustrate the size and structure of the TIM infrastructure, the evolution in terms of exchanges (which are increasingly connected by fibre-optic cables and fitted with new generation equipment for managing broadband traffic) and broadband network coverage in each individual Italian province. From 2016, the focus was placed on the analysis of the ultrabroadband infrastructure with the inclusion of data on the new generation networks, the extension of which represents the goal for the years ahead. In addition to the annual edition in interactive PDF format, quarterly monitoring in “open data” mode was added.

TIM'S COMMITMENT TO MINIMISING THE NEGATIVE IMPACTS OF CREATING NEW NETWORKS

[G4-EC7b] The creation of fixed and mobile network infrastructure can cause disruption for local communities (the work needed to lay fibre-optic cables can create noise and traffic). TIM mitigates these negative aspects by using innovative excavation and cable laying techniques, including the digging of micro-trenches instead of the normal ducts and using innovative materials. This leads to an overall reduction in the time required to carry out the work and in traffic disruption, as well as significantly reducing both the environmental impact (lower emissions and less waste for disposal) and social impact (fewer accidents at work).



NETWORK INFRASTRUCTURE AS AN ENABLING PLATFORM FOR DEVELOPING THE DIGITAL ECONOMY AND INCREASING THE COMPETITIVENESS OF THE COUNTRY

[G4-EC8a] The latest OECD Science, Technology and Industry Outlook¹ report provides a very clear summary of the aspects that determine the different levels of competitiveness of countries and outlines the “recipes” that economies should implement to overcome the crisis:

- promoting innovation, particularly by offering training systems geared above all to stimulating talent, disseminating the new skills required by production systems, extending the segment of the population susceptible to new technologies;
- increasing the productivity of labour, which explains the different rates of growth in the wealth of countries most open to new technologies and other economies;
- identifying new growth opportunities in solutions that address environmental protection, the ageing population, improving quality of life in urban areas;
- increasing the effectiveness of local and national research and development systems, connecting them to international research networks and to the main reservoirs of knowledge, increasing opportunities for interaction between research and businesses.

As General Purpose Technologies (GPTs), i.e. enabling technologies needed to activate new services and solutions and disseminate digital culture, the broadband and ultrabroadband infrastructure is one of the main drivers that will enable the developments advocated by the OECD. Since 2009, a study by Waverman in fact indicated broadband as a vehicle for increasing the efficiency - and therefore the competitiveness - of an economic system by improving the productivity derived from the greater use of ICT technologies. Naturally, the more the economic system is open to using new technologies, the wider this impact will be.

¹ Science, Technology and Industry Outlook, OECD



DIGITAL INCLUSION

[G4-EC7], [G4-EC8] In order to deal with the digital divide that has arisen in the so-called marginal areas of Italy, which would otherwise remain excluded from the mainstream plans of telecommunications operators, owing to the low profitability of investments, between 2005 and 2016, TIM implemented a programme of extraordinary investments allowing ADSL coverage (gross coverage¹> 70%) to be provided for approximately 7.700 municipalities in total (4.350 more municipalities than December 2005).

In December 2016, TIM activated around 9.670 exchanges, including 8.425 optical fibre ones. Alongside its plan to extend coverage, TIM has launched an additional plan to expand the active network², where necessary, to guarantee full usability of the service by customers and the development of digital inclusion.

The following table shows the percentages of coverage as of December of the past three years

Description	2016	2015	2014
ADLS Coverage (*)	99.31	99.10	98.75
UMTS and HSDPA coverage (**)	>97	96.00	96.00
LTE coverage (**)	>96	88.00	77.00
Next Generation Plan (fixed telephony) cover (***)	58.9	42.00	28.10

(*) The percentage refers to fixed TIM telephone lines.

(**) The percentage refers to the residential population. Coverage values are subject to change based on ISTAT and urbanisations updates.

(***) The percentage is determined by the ratio between the number of properties connected with “cabinets” reached by access optical fibres (or which can be served directly from an exchange if within acceptable distances) and the total number of properties that have or have had active telephone lines in the past.

In order to promote digital inclusion and the consequent coverage of the remaining geographical areas of “market failure”, TIM cannot avoid engaging in joint “public-private” initiatives.

Two types of action have been taken so far, both fully in line with European competition rules:

- the first is a “central” approach involving collaboration with Infratel Italia S.p.A. (Infrastructure and Telecommunications for Italy)³, the public entity that builds the passive broadband (optic fibre cable), organic and integrated infrastructure throughout the country, with the aim of increasing digital inclusion in lower income areas of the country;
- the second is a “local” approach, based on collaboration with regions that promote projects aimed at increasing the digital inclusion, e.g. through forms of financing centred

¹ Official TIM Coverage data refers to the technical coverage of the telephone population (in terms of 64 kbit/s equivalent lines) gross of areas that cannot technically be served, due to the characteristics of the copper access network (presence of digital devices such as, for example, MPX, UCR or MD48, excessive distance from the exchange, etc.).

² The plan consists of actions to ensure full enjoyment of the service by customers by expanding the capacity of equipment used, in terms of both user ports and bandwidth available on the Internet. The technical term for this is desaturation of DSLAM equipment, performed either in advance or once specific broadband quality and availability thresholds are exceeded.

³ The company was set up on the initiative of the Communication Department of the Ministry of Economic Development and Invitalia, the national inward investment and business development agency, and is the entity implementing the Broadband Programme.



on public tenders using the so-called claw-back model, which provides for contributions to be paid to offset the lack of return on investments.

Using the above forms of intervention, in some cases simultaneously, TIM has in recent years signed cooperation agreements with several local entities, (such as: Memorandum of Understanding with the Emilia-Romagna region and Lepida¹, with the Autonomous Province of Bolzano), some of which are still under development in 2016). Amongst others, we note the award of a tender in 2012 by the Marche region to complete digital inclusion (through state-of-the-art broadband services with speeds of up to 20 Mbit/s) in the region's market failure areas. The project was completed during the last quarter of 2015.

As from the second half of 2013 and through to September 2015, as part of the National Broadband plan, the Ministry of Economic Development (MISE) issued eleven regional tenders through Infratel Italia S.p.A., identified as the implementing organisation and assignee of the funds provided.

The funds allocated for projects to extend broadband technology to digital inclusion areas amount to 353 million euros, including 225 million euros to be allocated to the "claw-back" model: the contribution for each region can correspond to a maximum of 70% of the cost of the project to widen digital inclusion. The tenders issued relate to the following twelve regions: Abruzzo, Calabria, Campania, Emilia-Romagna, Lazio, Liguria, Marche, Molise, Sicily, Tuscany, Umbria and Veneto.

No calls for tenders were issued in the last five regions: Basilicata, Lombardy, Piedmont, Apulia and Sardinia.

For the remaining three regions (Friuli Venezia-Giulia, Trentino Alto-Adige and Valle d'Aosta) no actions is planned on the part of MISE as these regions have their own independent plans. TIM has participated in all the tenders issued to date, except for the Liguria region: it was awarded the tenders called for the regions of Calabria, Campania, Lazio, Veneto, Tuscany and Sicily (with total contributions assigned in the amount of around 63 million euros), whilst those relating to Abruzzo, Emilia-Romagna, Marche, Umbria and Liguria were awarded to NGI S.p.A.

For Molise, a first call for tenders was cancelled and a second saw no one bid.

PRESENCE OF THE GROUP IN BRAZIL

[G4-EC7a] A focus on innovation and investments in new infrastructure and technology also characterise TIM's action in Brazil, a country where the Group has been operating since 1997 through its subsidiary TIM Brasil and which is the Group's second biggest market. Its presence in Brazil has been increasing in recent years thanks to strategic acquisitions: the Intelig and AEM Atimus fixed network infrastructure has allowed the Group to strengthen the backbones and connecting links of the mobile network radio base stations through the use of fibre-optic cables which, in view of the development of LTE networks, are even more important and strategic.

¹ Lepida SpA is the operating tool promoted by the Emilia-Romagna region for the unified and standardised planning, development and management of the telecommunication infrastructure of entities connected to the network. The company also promotes interventions in favour of digital inclusion in rural or mountain areas.



In the past 5 years alone, TIM has invested more than 23 billion reais in Brazil, focusing primarily on building new generation infrastructure and actively contributing to the modernisation of the country.

In recent years, TIM has strengthened its infrastructure further, in order to support the growth in data, focusing in particular on 4G technology, which offers better quality of service. These important investments have allowed TIM to strengthen its leadership in 4G, in terms of the percentage of people reached and the number of towns and cities covered. As of the end of 2016, TIM covers 95% of the Brazilian urban population, with a presence in over 3,460 towns and cities. In particular, 89% of the urban population is covered by 3G technology and 74% by 4G. Finally, in 2016 TIM Brasil completed the sale of the fifth tranche of the towers to American Tower do Brasil, in order to optimise the financial resources to be directed to the development plan.

[G4-EC7b] In Latin America, ever since it was introduced, mobile telephony has played a key role in the process of integrating more disadvantaged people, contributing to cohesion and to involvement in social and democratic life. TIM Brasil manages almost 63 million mobiles lines and has always played a major role in this context. The work already done to extend mobile network coverage to the whole country is continuing on a number of development fronts, which include improving the quality of the network in major cities, developing Mobile BroadBand and Fiber-To-The-Site (FTTS) in some cities, pilot small-cell and Wi-Fi projects and developing the LT Amazonas Fiber transmission project in the Amazonian region.

[G4-EC8] TIM Brasil is notable for its social inclusion projects, such as the Transamazonica Digital, which takes fibre optic to certain municipalities in the regions of Amazonas, Pará and Amapá. However, the availability of infrastructure is only one of the ingredients and has to go hand-in-hand with an overall digital growth of the population in a literacy development process that will increase demand and stimulate investments. Part of this process is the “National Broadband plan” for Brazil (PNBL - Programa Nacional de Banda Larga), in which the Group has been involved from the start. It is a federal programme which has led the Country towards the objective of encouraging and disseminating the use and distribution of ICT goods and services, extending network coverage to the more remote areas of the country and making services more accessible to all segments of the population, contributing to reduce economic and social inequalities.

TIM Brasil has continued to promote commercial offers to encourage the spread of the mobile web, bringing new flat offers to the market and low cost services which are particularly suited to helping to widen the socio-cultural digital inclusion (for example INFINITY WEB and LIBERTY WEB).

In 2016, the new logo was launched in Brazil, in line with what was done in Italy in 2015, accompanied by the claim “Evoluir è fazer diferente” (Evolve and do things differently). The claim emphasises the new market positioning aiming to highlight the quality offered, the innovation and the utmost attention to customer needs, which are the three pillars of TIM’s new strategy.

Moreover, the Data Connections project reaches all public schools located in rural areas within the area of TIM coverage (data download at 256 kbps and upload at 128 kbps). In December 2016, 95% of the project had been developed.



CUSTOMERS

The aim of the Group is to ensure an immediate and effective response to customer requirements, modelling their conduct on business propriety, transparency in contractual relations and undertakings, courtesy and collaboration, ensuring customer focus and in full compliance with the principles established by company procedures. Cooperation with consumer associations, which includes entering into specific agreements with them, is also highly valued.

The relevant stakeholders are:

- consumer customers, particularly customers with special needs (the disabled, the elderly, children, etc.);
- business customers and local government offices;
- consumer associations.

[G4-DMA Product and Service Labelling] In recent years the telecommunications market has changed profoundly following digitisation and the increased capacity for choice consumers have in an ever more dynamic market.

The experience gained in comparison with the offer of different sectors, made more accessible to different categories of customers, also thanks to the spread of digital channels, increases customers' expectations and guides the construction of the perceived quality of the service, the relationship with the brands and the resulting behaviours. This is changing the business models and the operating procedures of telecommunications operators.

In this context an understanding of customers' expectations and the Customer Experience appraisal represent a strategic factor in the offer of services, making it possible to identify which aspects need to be worked on for an improved service, to the benefit of economic sustainability, loyalty and positive word of mouth.

In order to understand and measure customer expectations, the Company has developed an extensive system of listening in order to detect Customer Satisfaction and the Customer Experience at different moments of interaction with the company: web browsing, purchasing a service, calling customer care, reporting a fault, and posts on social networks are all important aspects of the relationship with customers monitored for continuous improvement.

[G4-PR5] Activities that involve listening to the customer, which are always evolving, are broken down into different types of surveys to uncover the customer's experience at different times during the customer journey and monitor the quality indicators.

The research includes the monitoring of the Customer Satisfaction Index (CSI) - which adopts international standards (ACSI, American Customer Satisfaction Index) - to detect the quality perceived by customers and for competitors. The CSI result of 2016 relative to Consumer customers recorded a slight downturn compared to 2015 (-1,9%)¹ but its values were still very high. The strong ties customers demonstrated with respect to the Group are also seen in the high propensity to loyalty, in an increasingly competitive context where the consumer's experience is enriched through comparison with different markets.

Monitoring the CSI has earned certification of conformity with standard UNI 11098:2003 and has been included in the managerial incentive system (management by objectives).

TIM has also adopted new methods of listening with a view to Customer Experience Management (CEM) in order to better understand the customer experience and obtain indications to improve processes, also permitting the so-called "close the loop" with the taking

¹ For the consumer customer, the CSI in 2014 amounted to 76.53 and 76.89 in 2015.



charge of and resolution of the reports collected from customers. TIM's ever greater focus on "continuous improvement" to improve processes and the Customer Experience is confirmed by the results of the Net Promoter Score (NPS)¹ collected from customers who spoke with the telephone assistance service and that are confirmed to be extremely positive (NPS above 10).

Projects developed by the Company to improve the Customer Experience and make employees play an active part in developing innovative, effective solutions, include:

- "Customer Journey Lab": the project aims to allow colleagues/investigators to experience the service received by consumer customers first-hand by selecting, purchasing, activating and using services, so as to identify the customer's perception and the main areas requiring attention/strengths;
- "Chi-ama TIM": a tool used by TIM employees to channel reports received from customers, friends or acquaintances regarding the fixed line service requirements of consumer customers, of a commercial or technical nature. The project makes employees active participants as the promoters of solutions in the management of customers;
- "Listening to Customer Care operators," launched to collect the requests and problems experienced by customers in listening to Customer Care operators, enhances the experience of those in day-to-day contact with the customers and who have in-depth knowledge of their needs and expectations, as a further contribution to the identification of opportunities to improve the customer Experience in using the Group services.

Confirming its commitment to quality of service and transparency in its relations with customers, TIM Brasil is the first Latin American company to have launched a "Portas Abertas" (open doors) website in 2013, showing the plans for expansion of the technical network. Among other things, the website offers customers the chance to:

- interact with the company regarding the technical network coverage map for each individual street;
- receive notifications regarding both maintenance and any failures to achieve technical network objectives;
- provide TIM with feedback on the perceived quality of the network..

Among the actions taken in 2016, it is worth highlighting the launch of the online chat service (available on the Web and via the TIM mobile app for smart phones), the improvement in several automatic and digital portal services, the humanisation of caring on digital channels in general, the creation of an online (web chat) channel for customers with questions about Anatel (Brazilian National Telecommunications Agency).

TIM Brasil also talks to its customers via Twitter and Facebook. @TIMBrasil" (<https://twitter.com/TIMBrasil>), which as of December 2016 had more than 736,000 followers, and Facebook (www.facebook.com/timbrasil) with over 1,834.000 likers. . Since 2012, the company has also activated a further channel "@TIM_AJUDA" (https://twitter.com/TIM_AJUDA), which allows it to communicate with customers via Twitter. As of December 2016 this channel has almost 259,000 followers. As part of the development of customer services, a new version of the MEU TIM (My TIM) app was launched in May 2016 for customers who want to have information always available on their smart phone, including consumption, the latest bills, the remaining balance and current promotions. This app has been accessed over four million times a month. Furthermore, the "Seu de Verdade" (Really Yours) campaign launched at the end of October 2016, which ended in December 2016, was very well received, with 1.5 million unique users

¹ The Net Promoter Score (NPS), an indicator founded on international standards and used in different industrial sectors, is based on the likelihood of recommending the operator in relation to the experience had. On a scale of 0 to 10, "promoters" are customers expressing votes of 9 or 10 "detractors" are those providing a score of 0 to 6, whereas the rest of the customers are considered as "passive" and are not counted towards calculating the NPS. The indicator is calculated as the difference between the percentages of "promoters" and "detractors."



and 1.2 million logins to the app in the month of December alone.

TIM Brasil carries out two types of nation-wide customer satisfaction surveys by means of interviews:

- the TIM and competitors' consumer customer survey, conducted twice a year (May and November) on a "reflective" basis, measures the customer's general perception of the Company e.g. sales structure, call centre, network coverage and quality of the network (also as regards the Internet connection), technical support, the price of services, promotions, billing;
- the call centres survey, conducted once a month on a "reactive" basis, with the involvement of TIM customers (consumer and business) who have contacted the call centre in the previous 15 days.

	2016	2015 ¹	2014
Consumer Customer survey (*)	7,30	7,22	7,54
Consumer Mobile Telephony Call Centre Survey(**)	7,31	7,28	7,30
Business Mobile Telephony Call Centre Survey(***)	6,81	7,21	7,16

¹ Some 2015 values as been reworked

(*) Average index, on a scale of 0 to 10.

(**) average mobile consumer customer satisfaction index on a Scale of 0 to 10.

(***) Average mobile business customer satisfaction index on a scale of 0 to 10.

Since 2012, in full compliance with privacy protection requirements, TIM has been monitoring "conversations" on the Web regarding quality in the Telecommunications sector, relating to both fixed and mobile communication and the consumer and business segments. This monitoring takes place using a tool that performs a semantic search and analysis of the subjects most frequently discussed on the Internet and analyses the "tone" (web sentiment) of conversations about TIM and its competitors. The aim is to make a prompt assessment of how customers perceive offers and services, gaining a greater insight into issues to support the business.

Use of social networking in customer care

In recent years, the Customer Relationship Management of the Group has been increasingly focused on the monitoring of new digital contexts, identifying the future of assistance, care and loyalty of its customers in the monitoring and management of caring contacts obtained from the social networks (Twitter and Facebook).

In 2010, the Company launched the Caring on Social Media project to make the most of the opportunities provided by the new web communication channels. Over the years TIM has built a new relationship with digital mobile and fixed telephony customers in order to strengthen their trust, based on the re-engineering and reviewing of the processes, the development of management systems, the extension of monitoring times and investments in the training of social caring agents.

In 2015 the Company launched the integration of the Telecom Italia and TIM Facebook pages into the single official TIM page, which boasts two million fans, offering a single business vision, generating positive sentiments towards the brand and creating a single point of reference for fixed/mobile customers.

In 2016 the Company continued its work of reviewing the offer of social caring through the definition of organizational actions and a new model for managing reports from social networks, seeking to improve the service levels and monitor the social channel 24 hours a day; after launch an ad hoc survey is planned designed to detect customer satisfaction.

In 2016, TIM's social caring department handled 864K caring interactions on the Facebook



page and 220K on Twitter, with an upwards trend over the course of the year (in particular, in total the customer caring requests were made up of 745K from mobile phones and 339K from landlines); TIM continues to be the most followed in Italy in terms of the number of fans and followers. Moreover, in the telecommunications industry rankings monitored by Socialbakers, the official TIM page came first for customer service on Facebook in December 2016, with a response time of eight minutes and a response rate of 99% of posts published on the page; the parameter is calculated considering the ratio between the number of public posts handled and the response time by the Brand over 24 hours (indicator AMUQ¹).

In 2016 TIM renewed its primary role on the social networks confirming its digital leadership in the rankings for the third quarter of 2016, produced by Socialbaker, respectively coming in as fourth brand worldwide and first brand in Italy. Significant results were seen in terms of engagement and the number of new followers TIM acquired on Twitter during the #SocialParty, an event organized by TIM to launch the new logo.

The initiatives designed to promote connectivity and social innovation also proved to be important, such as the exclusive collaboration with the Civil Protection Department which sees TIM in the front row engaging influencers or promoting specific education in the event of environmental emergencies, in order to help - through the network - improve the timing and distribution of information useful to the population. This has enabled TIM to consolidate its leadership in the various communities that have been created in the different social networks (facebook, twitter, google+, instagram, youtube) around its main brands: TIM, TIM Impresa Semplice, TIMvision, TIMmusic, Working Capital, Serie A TIM, Nuvola Italiana, with more than eight million likers and followers.

Involvement of call centre operators

In 2016 all the preparatory activities to carry out the porting of all the content from the mini-sites of the TUO portal (acronym of Trova, Usa e Organizza [Find, Use and Organise] an information tool available to all call centre operators to fulfil the needs of customers as effectively as possible) to the new Drupal platform were performed in order to ensure technological adaptation aimed at improving the efficiency of the solution, which makes the most of the consolidated and much appreciated usability of the interface.

Moreover, the portal always provides the search engine solution of Google Search Appliance, Google's solution for websites which replicates, in these environments, the speed and accuracy performances that the search engine offers on the web in order to make it simpler, thanks to innovations made by Google, to search for the content featured on the platform (hereby reducing the stress suffered by the operators of 187 and 119 call centres) and as a consequence increasing the perception of competence in providing answers to customers.

Customer Satisfaction within incentives schemes

TIM's managerial incentive systems include many targets associated with customer satisfaction indicators, in keeping with the business plan for the current period. The targets are made up of several aspects corresponding to different market segments.

Specific targets associated with quality parameters and consistent with the criteria established for Customer Satisfaction indicators are also found in the collective incentive systems which involve some of the personnel from the Customer Care and Open Access departments.



CONCILIATION PROCEDURES

The conciliation procedure between TIM and the Consumer Associations who signed the framework agreement for the out-of-court settlement of telephone disputes, was the first example of joint conciliation in Italy. Introduced on a trial basis in 1991 by SIP, it was implemented throughout the country in 1993 and in 1995 the European Union recognised it as a “Pilot project for consumer access to justice”. The model is still used today but has been adapted over the years to fulfil new requirements, computerised and made easier to use, while maintaining the basic values that made it such an excellent tool, contributing to improving the transparency of the system, customer relations and a number of the Company’s operational processes. In 2011, the joint conciliation model was brought to the attention of the European Union and, on October 25 of the same year, the European Parliament recognised the “Italian joint conciliation model as an example of best practice based on a protocol drawn up and signed by the Company and consumer protection associations, under which the Company undertakes in advance to use ADR¹ to settle any disputes that may arise in the areas covered by the protocol”. Twenty-one Consumer Associations have signed up to the conciliation agreement to date, of which twenty are registered with the CNCU (National Council of Consumers and Users), an organization representing consumer associations and users at national level, chaired by the Ministry of Economic Development, with the task of contributing to the improvement and strengthening of the Consumer/User’s position in the market. Since February 2016, with Directorial Resolution no. 7/16/ADR, the “Equal Conciliation Tim Telecom Italia S.p.A.- Consumer Associations” body has been registered, on a provisional basis, in the list of ADR bodies pursuant to art. 141-octis of the Consumer Code and Annex A of Resolution 661/15/CONS. The registration must be ratified by AGCOM as definitive by 31 June 2017, after the procedure has been adapted to the new legislation in force.

In 2009, in compliance with the voluntary undertakings given and approved by the Italian Communications Authority in December 2008, Telecom Italia also started managing conciliation requests submitted by customers at the offices of Co.Re.Com.² and the Chambers of Commerce, thus providing a “single point of contact” and replicating the organisational model successfully applied for joint conciliations. This system allows customers who do not wish to approach a Consumer Association to use an alternative method for resolving their dispute through a streamlined and out-of-court procedure.

Than handling of conciliations takes customer requirements into account and, regardless of the selected procedure, allows their relationship with the Company to be improved.

The “single point of contact” model has so far allowed the undertakings given to AGCOM to be fulfilled and the expected qualitative and numerical results to be reached. The Co.Re.Com channel is in fact becoming increasingly popular compared to other channels (recourse to Chambers of Commerce is now secondary and accounts for fewer than 5% of conciliations).

The positive trend seen in the conciliation system in previous years continued in 2016 (albeit with a significant increase in the number of cases handled); in fact:

- 98% of the requests for equal conciliation discussed (11,981 out of 12,242) were reconciled, a percentage that is stable year on year despite the 27% increase in the cases discussed in 2016 with respect to the previous year (9,668 in 2015);
- 83.6% of the requests discussed at the Co.Re.Com. and Chambers of Commerce were reconciled (25,053 reconciled out of 29,961 discussed). This percentage has remained high considering the 22.6% increase in the cases discussed with respect to the previous year (24,429 in 2015).

¹ Alternative Dispute Resolution.

² Regional Communication Committees.



TIM supported the conciliation activity by means of:

- seminars and joint training initiatives involving dedicated personnel from TIM, AGCOM, Co.Re.Com. and Consumer Associations;
- debates, conferences, interviews and other promotional activities involving senior management in order to disseminate the correct cultural approach to the subject.

Conciliation is becoming increasingly widespread among customers, particularly in view of the:

- large number of Co.Re.Com., which are opening provincial offices in many regions to make the conciliation system more easily available to people (avoiding the costs involved in travelling to regional capitals);
- better knowledge of the procedure, which is considered to be a quick and economical way of resolving disputes.
- economic crisis, which leads people to resort to conciliation even for small amounts (e.g. potential inefficiencies involved in transferring from one operator to another).

In Brazil, TIM has close relations with government-run consumer rights associations, including SENACON (National Consumer Protection Secretariat) and PROCONS (Consumer protection and defence programme). Since 2011, the TIM Brasil Group is considered to receive the lowest number of complaints made to PROCONS regarding the telecommunications sector.

In 2014, SENACON launched the Consumer.Gov platform, which makes it easier to resolve customer complaints and simplifies the work done by PROCONS. TIM Brasil was one of the first company to sign up to this platform and has undertaken to resolve the complaints registered on it. Customers can state on the platform if the complaint has been resolved or not and review the quality of the response given by the company. On average, the rating of TIM Brasil was 3.34 on a scale of one to five.

In 2014, TIM Brasil founded the Users Council, one of the tasks of which is to present solutions that improve services to users. Together with the Public Defence Department, the Council has created a new conciliation channel aimed at avoiding complaints being lodged with the courts, providing a free direct line for communication between public defenders and TIM.

In 2016, TIM achieved excellent results in settling claims submitted by PROCON offices: CIPs (Preliminary Investigation Letters) 82%; justified complaints 76%. TIM also has relationships with consumer protection associations like ABRAREC, IDEC and PROTEST, which promote a culture of good relations between companies and customers, improve training and ensure excellent customer service. TIM also takes part in the conciliation forum between companies and customer defence bodies, for the purpose of resolving conflicts proactively.

CERTIFICATION

For areas of the company which have a significant impact on the community, because of the products and services they offer, the Group has obtained and/or confirmed certifications to ensure that procedures and conduct are adopted in line with the expectations of the stakeholders.

The certifications achieved for the main activities are shown below:

- quality of products and services offered: UNI EN ISO 9001:2008 standard;
- environmental protection: UNI EN ISO 14001:2004 standard;
- limit greenhouse gas emissions: standard UNI EN ISO 14064-3;



- efficient energy management: standard ISO 50001: 2011;
- protection of human capital by companies and suppliers: SA 8000 standard;
- health and safety at work: BS OHSAS 18001:2007 standard;
- general requirements for the competence of testing and calibration laboratories: ISO/IEC 17025 standard;
- Information Technology services: ISO/IEC 20000-1 standard;
- data security: ISO 27001 standard;
- protection of personal data in Public Cloud services: ISO/IEC 27018 standard;
- software and IT solution production processes: CMMI-DEV (Capability Maturity Model Integration - Development) certifications;
- respect for principles intended to promote trust between consumers and businesses operating on the Internet: WebTrust (Certification Authorities - SSL Baseline Requirements Audit Criteria);
- fulfilment of the AGID (Digital Italy Agency) requirements to perform the role of:
 - Accredited Certifier for Qualified Signatures, the National Service Charter and Timestamping;
 - Accredited Operator for Certified Email;
 - Accredited Custodian for storing electronic documents.

Detailed information about the certifications achieved by the various functions/companies of the Group can be found in the sustainability section of the telecomitalia.com website.

In Brazil, as required by ANATEL (National Telecommunications Agency), the Brazilian telecommunications authority, KPI Survey Method Quality Certificates were also achieved for the whole country regarding:

- personal mobile service (TIM Celular);
- switched fixed telephone service (TIM Celular and Intelig);
- multimedia communications services (FIBER).

CHILD PROTECTION

[G4-PR6] Group companies have undertaken numerous initiatives to protect children from content that may harm their psychological and physical development (for example, content that is violent, racist, offensive to religious sentiment, etc.). Among these, precise guidelines have been adopted for classifying and checking distributed content. These cover both the content offered directly by Group companies and content owned by third parties offering their own services on space purchased within Group's portals. These guidelines are regularly updated in keeping with regulatory and technological evolution.

For this purpose, the Group, in accordance with current regulations and self-regulatory codes signed, implemented procedures to prevent children from accessing adult content on all the Group's service platforms (tablet/smart phone app, web, IPTV, TIMvision by decoder, smart TV, Xbox, WAP services).

Specifically:

- TIMvision: is TIM's TV on demand, with 8,000 titles available in a single monthly subscription which includes TV series, cartoons, films and documentaries to watch on TV with a TIMvision decoder or smart TV, web, smartphone and tablet. The adult-only content (highest classification CS 3.1), access only available with a decoder, is pay-per-view content and can only be viewed after entering the parental control PIN and purchase



PIN. The parental control functions are governed by legal provisions and mentioned in the statement sent to customers after they sign up to the service;

- WAP services: content is always moderated in advance by TIM, in order to verify compliance with the classification guidelines, and delivered by a centralised platform. The PIN for accessing adult content is supplied by text message, at the customer's request, after the person to whom the number is allocated is confirmed as being an adult;

For fixed consumer broadband customers the Total Security software is available: a complete suite of security services based on ZoneAlarm® technology that protects you when surfing the Internet from viruses, hackers and spyware that may attempt to install themselves on your computer. Furthermore, parental control ensures that children can surf the Internet safely, only on sites suited to them, with antispam to protect them from unsolicited emails. Total Security includes the following services:

- antivirus and antispyware, to detect and remove viruses and spyware;
- parental control, to protect young people against unsuitable content;
- firewall for networks and programmes to block any attacks by hackers and harmful programs;
- advanced download protection to analyse downloaded files before they can infect the PC and send a report if they come from a dangerous source;
- anti-phishing and site status, in order to block unsafe websites which deceive people into revealing their personal data;
- protection against unsolicited emails (SPAM), to block unsolicited emails automatically on their email clients. The email protocols are: POP (Post Office Protocol) 3/IMAP (Interactive Mail Access Protocol) incoming only, SMTP (Simple Mail Transfer Protocol) outgoing only;
- wireless PC protection to defend your PC against risks associated with connecting to unprotected networks;
- protection from keyloggers;
- advanced computer attack prevention.

The TIM-Protect solution is the exclusive TIM option for total protection against WEB threats:

- *parental control*: protects young people while surfing the Net, filters WEB searches, gives warnings in the case of behaviour that is judged to be dangerous, allows you to block access to sites or apps or limit their use (maximum usage time setting);
- *theft protection*: protects the device from loss and/or theft, ensuring remote control by sending a simple instruction (block device, find device, delete data, SIM change notification);
- *protection and privacy*: protects all access to e-commerce, home banking and social media websites. Ensures privacy by filtering unwanted calls and messages.
- *antivirus*: manages the device securely without affecting its operation, protecting it during use against viruses, malware and other threats.

The Company is particularly focussing attention on parental control, with the launch of offers dedicated to the younger generation (under 12s) with the TIM Protect service included, at no additional cost. The Company is also implementing comarketing initiatives with certain operating partners in the "kids" segment, which is particularly sensitive to matters of child protection.

New Android apps have been released to improve the User Experience of customers using the TIM Protect service. In December 2016 an IOS version of the app was released - in a test environment - in order to extend the features of TIM Protect to Apple devices too.

For the purpose of combating online child pornography and computer crime, from an organisational point of view and internally, TIM has identified, within its company Security department (Security Operation Center department) the role of "Key contact for the



Postal Police.” This person manages relations, and the flow of information, with the Postal Police (CNCPO - National Centre for the Fight against Online Child Pornography, CNAIPIC – National Centre against Digital Crime for the Protection of Critical Infrastructure etc.) and the competent authorities, and has the task of coordinating, within the Group, the process of abuse management, in accordance with the relevant legislative framework. Furthermore, the Group has adopted the organisational model in accordance with Legislative Decree 231/2001, which defines the tools required to oversee and anticipate offences, particularly the dissemination of child pornography, as well as to ensure the organisational/disciplinary management of computer crimes.

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For this purpose, TIM has fielded resources, technologies, processes and tools to prevent and combat “abuse”, meaning any activity committed in violation of the rules of conduct and legislation that governs the use of network services, digital systems or means of communication in general. The prevention initiatives undertaken by the Security Operation Center (SEC.SOC) are detailed below:

- “abuse” topic area on the company Intranet, which informs company staff and makes them aware of the activities conducted and the tools that exist for preventing digital crimes and protecting children who use the Internet services provided;
- form available on the Group’s corporate and commercial portals, which can be used by end customers, or by outsider users, to report any crimes involving child pornography encountered while browsing the Internet. There is a guide to completion, and reports can also be submitted anonymously;
- management of the abuse desks: operational groups who handle abuse differentiated by type of service (consumer and business), formed in accordance with the national and community regulations on child protection, the prevention of digital criminality and the fight against sexual exploitation (child pornography). Their task is to receive alerts from external users/customers regarding alleged computer crimes or the presence of child pornography on the Group’s networks, and then direct them to the relevant department, where necessary involving the relevant authorities through the key contact for the Postal Police.
- filtering: in accordance with the implementing Decree of Law 38/2006 (Gentiloni Decree) which defines the technical prerequisites of filtering tools that providers of Internet network connections must use in order to prevent access to sites identified by the Postal Police through the CNCPO. TIM has also introduced a filtering system for foreign websites with child pornography content; The system is also used to block - in compliance with Law 296/2006 (art.1 subsection 50), relating to ending tax evasion and avoidance in the gambling sector - the resources flagged up by the Customs and Monopoly Agency;
- drafting of “Guidelines for combating child pornography on line”, which are intended to make the identification of cases of child pornography to be notified to the Postal Police as objective and uniform as possible. The aim is to minimise any potential interpretation



uncertainty of the subjects concerned (chat moderators and/or community services, developers, abuse desk operators etc.) and to ensure compliance with current regulations. The guidelines are also modelled on those provided and implemented by the CNCPO and the major external organisations operating in this field (Save The Children, Telefono Arcobaleno etc.).

Moreover, the Agency participates in the following international activities:

- “GSMA - Mobile Alliance against Child Sexual Abuse Content” Work Group in the context of the GSM Association, for technological, policy and communications initiatives aimed at protecting children in the mobile phone sector. Amongst other aspects, the initiative deals with awareness raising, the fight against illegal content and the classification of content, and an important part of the programme is dedicated to Safer Internet Centres, present in more than 30 different countries, to provide support and information for children, parents and teachers. The scope of the activities implemented by the Alliance includes the agreement stipulated with Child Helpline International, aimed at protecting children and safeguarding their right to be heard. TIM has subscribed to the initiative, undertaking to support child helplines on a national level, through the drafting of a document that highlights the best practices for the applicable Notice and Take Down procedures. For 2017 there are plans to develop best practices, in cooperation with Interpol, on the enforcement procedures applicable in some countries;
- ICT Coalition for Children Online, launched in 2012, which sees TIM as an active member participating in the activities run by the coalition which promotes the safe and responsible use of the Internet. The Company has subscribed to the principles adopted by the Coalition, participates in the six-monthly forums and the meetings organised by the Coalition with the important stakeholders (e.g. NGOs) and the European Commission and European Parliament. In 2016, the Coalition updated the founding principles of its constitution, on the basis of which a new phase of verifying their implementation will be launched. The Coalition, moreover, participates in a series of meetings/conferences with the most representative institutions and bodies entrusted with child protection;
- activities of the European Commission as part of the Better Internet for Kids (“BIK”) strategy for defining and implementing the principles and technologies required to make the Internet a safer place for children. In this context, TIM has been invited and is participating in the “Alliance to better protect minors online” initiative proposed by the European Commission, DG Connect. In this context, the Company has been involved in preparing a Statement of Purpose for the Alliance (SoP), both individually and through the ICT Coalition (signed 7th February 2017)¹. Signing the SoP commits companies to adopt a series of measures aimed at improving child protection online;
- TIM is a member of the COP (Child Online Protection) Board of the International Telecommunication Union (ITU) which seeks to protect children;
- it cooperates in the context of the Italian Child Abduction Alert System (ICAAS) project, for the creation of a web portal providing an “early warning” of missing children. In this context, in 2011, Telecom Italia signed the “Allarme Scomparsa Minore” (missing child alert) agreement with the Ministry of the Interior’s Public Safety Department. In this context, in 2016, the TIM Crisis Management Department - working with the Presidency of the Council of Ministers, the Civil Defence Department and other relevant institutional bodies - participated in five civil defence and protection drills intended to:
 - test the soundness of the emergency planning and ability to respond of the operational structures;
 - maintain staff, structures and tools of the emergency management system in a state

¹ The other companies subscribing the initiative are (in alphabetic order): ASKfm, BT Group, Deutsche Telekom, Facebook, Google, KPN, The LEGO Group, Liberty Global, Microsoft, Orange, Rovio, Samsung Electronics, Sky, Spotify, Super RTL,, Telefónica, Telenor, Telia Company, Twitter, Vivendi, Vodafone



of readiness;

- identify, where necessary, actions to improve internal company processes and the processes used to interface with the relevant stakeholders (institutions, communities, customers).

This involvement is necessary because TIM, as a provider of essential services, is part of the National Civil Defence System.

The Group has also implemented appropriate filtering and abuse prevention systems for services delivered in Brazil (video and audio content, and images). Customers can buy services with sexy content through the main page of the WAP portal; to enter, customers must click on “ADULT”, declare they are of age and enter a password. Tim Brasil restricts the portfolio of adult content to level 3.2 of the international classification.

PRODUCT RESPONSIBILITY

TIMItalia is primarily an operator of telecommunications services, which do not endanger the physical health of users¹, and it does not produce the telecommunications equipment it sells². In order to verify that the products placed on the market comply with health and safety legislation, the company has:

- appropriate internal structures that check the incoming quality of the products it markets (telephones, modems, etc.), both in Italy and in the production centres of manufacturers overseas;
- laboratories that test the products marketed by the Group, particularly as regards the electromagnetic emissions of the mobile phones.

In this way, any non-conformities of products are detected prior to their market release, ensuring that products that do not conform with the essential requirements of the European Directives do not reach the end customer.

Services provided to customers are subject to the requirements set out in the Service Charters and in the Terms & Conditions of Subscription, available at telecomitalia.com.

[G4-DMA Customer Health and Safety], [G4-PR1] In its laboratories, TIM validates the satisfaction of the essential requirements envisaged by the current Directives for the release of CE marking; conformity with these requirements is certified at source by the manufacturer. For products sold in Italy, the reference framework is the set of standards that support Directive 1999/5/EC, arranged by product macrofamily³.

With regard to protection and the safety of customers in using the equipment, the Group carries out checks on:

- levels of electromagnetic emissions (SAR) of technologically-innovative smartphones/tablets/modems comply with Standards IEC 62209-1/2;
- the technical provisions aimed at reducing the risk of electric shock, overheating, fire and

¹ Threats of a psychological nature or relating to security and privacy are dealt with in the Child Protection, E-security and Privacy sections.

² Olivetti, a company of the Group operating in the sector of products and solutions for information technology and the digital hub of TIM, has hardware production systems. In the context of the Group as a whole, these activities are not significant as the entire turnover of Olivetti amounts to 1,1% of the TIM Group.

³ For “Corded terminals”, the following standards may be applied: EN 60950, EN 55022 and EN 55024; for “Cordless terminals” standards EN 60950-1, EN 50371, EN 62311, ITU-T P360, EN 301489 and EN 301406; for “Mobile terminals (smartphones, data cards etc.)” standards EN 60950-1, EN 62209, EN 302291, EN 301908, EN 301893, EN 301511, EN 300440, EN 300328 and EN 301489.



mechanical dangers, through the application of standards EN 60950-1 and EN 60065.

The following were also verified:

- the energy efficiency aspects required by the EuP (Energy-using Products) Directive: equipment placed on the market is checked against the stand-by/off-mode power consumption and performance limits set by European Regulations 1275/2008/EC, 801/2013/EC and 278/2009/EC, for equipment and their external power supplies (available as accessories);
- functionality in different environmental conditions of installation and use of terminals and accessory components for connection to the fixed network: checks are carried out on compliance with temperature and humidity ranges established by ETSI (European Telecommunications Standards Institute) for the specific “service condition”, on which different “severity” levels are based. Checks are carried out on the basis of the following standards: IEC-EN Series 60068-2-1 (cold), 2 (dry heat), 14 (temperature changes), 30 (humidity changes), 78 (continuous humidity). For the most widely available products, with external plastic parts (e.g. AG, Access Gateway), “flame resistance” is checked in the event of malfunctions of the internal electrical parts;
- electromagnetic compatibility aspects, regulated by Directive 2004/108/EU (in future 2014/30/EU): every item of electronic equipment is checked for unintentional electromagnetic signal emissions - in order to avoid interference harmful to radio communication - and the fulfilment of certain immunity from electromagnetic interference requirements. In TIM constant checks are carried out on terminals and network equipment to determine whether they comply with the requirements of international ETSI, CENELEC (European Committee for Electrotechnical Standardization) standards regarding electromagnetic compatibility. In particular, checks are carried out on the compliance of equipment with the limits set by standards to limit the emission of electromagnetic disturbances which, in addition to polluting the surrounding environment, can interfere with radio communications.

By law, telecommunications equipment sold in Brazil must be approved by the regulatory authority ANATEL, which verifies, in its laboratories, the conformity with Brazilian legislation on electrical and electromagnetic safety. There is specific legislation to be complied with for each kind of equipment. TIM Brasil asks its suppliers to ensure that equipment has the ANATEL certificate of approval.

[G4-PR2]] Over the past three years, no non-conformities with European customer health and safety legislation have been found in any product that has reached the final marketing stage, neither in Italy nor in Brazil.

[G4-PR3] When contracts are drafted, for all fixed telephony products, TIM requires packaging to include an environmental statement, a statement about the origin of the tantalum if it has been used in the components, a user manual containing safety information, details of any hazardous materials in the product and disposal information. In respect of the labelling of mobile devices, as they are consumer products that TIM merely resells and that do not require any customisation. The Company simply requires national legislation to be complied with. In Brazil, TIM complies with national legislation but does not have the procedures concerning the information and labels on products and services. Contracts with suppliers of mobile devices include a ‘product packaging’ clause, which requires each supplier to include - in each box - the instructions and warnings concerning the correct use of both the product and the accessories assembly kit and the connection jacks that may be associated with the product. For a particular product range, TIM eco-friendly, discussed in detail in the Environmental Protection chapter (see *TIM eco-friendly*), all the relevant environmental parameters are also shown (e.g. energy consumption).



[G4-PR4] Over the past three years, no non-conformities regarding product information and labelling have been found in any product that has reached the final marketing stage.

There have however been a few cases in which non-conformities with regulations concerning information about services have been found. More specifically, in Brazil in 2016, 3 incidents occurred resulting in a total penalty of 743,749.74 Reais; in 2015, 1 incident occurred, resulting in a total penalty of 2,897,416 Reais and in 2014, 3 incidents occurred, resulting in a total penalty of 1,533,820 Reais¹.

In Italy, the regulatory Authority's sanctioning procedures for non-conformities with regulations regarding information on services are part of the system of "penalties for the violation of regulatory legislation regarding consumer protection in the supply and use of TLC products and services"; which means that, for Italy, non-conformities regarding information on services have been merged with non-conformities regarding the supply and use of services (table below)².

[G4-PR9] The number and total monetary value of the fines for non-conformities with laws and regulations regarding the supply and use of products and services in Italy³.

Descrizione	2016	2015	2014
Number of fines for non-conformities regarding the supply and use of products and services	4	4	7
Total monetary value of these fines (in euros)	410,000	2,833,000	1,102,000

³ In 2016, the Italian competition authority AGCOM (Autorità Garante della Concorrenza e del Mercato - Italian Competition Authority) launched four proceedings against TIM, two of which were filed following appeals lodged by TIM (one regarding misleading information and aggression towards active customers and the other moral suasion in Web sales). Of the remaining two, one ended with a penalty being imposed of EUR 410,000 (it related to changes in the duration of options) and the other is expected to end in May 2017 with the risk of a penalty being imposed of EUR 200,000 (it relates to an alleged violation of the rules on distance contracts signed away from commercial premises).

[G4-PR7] Overall number of non-conformities with legislation and voluntary codes regarding marketing communications in Italy.

Type of nonconformity	2016	2015	2014
Number of non-conformities with legislation resulting in a fine or penalty	0	0	0
Number of non-conformities with legislation resulting in a warning.	0	0	0
Number of non-conformities with voluntary codes ²	4	0	2

² I casi sono regolati dall'istituto di Autodisciplina Pubblicitaria, il quale opera in conformità al codice della comunicazione commerciale ed è competente nel definire tutte le controversie in materia di pubblicità che coinvolgono i soggetti associati, direttamente o indirettamente. Le decisioni del Giurì non sfociano mai in sanzioni pecuniarie ma, se del caso, in un ordine di desistenza dal comunicato pubblicitario contestato.

In Brazil, the only notifications relating to advertising and marketing communications are issued by CONAR (Conselho Nacional de Autorregulamentação Publicitária), a non-governmental self-regulation organisation for advertising which assesses non-conformities

¹ 50 In 2016, 2015 and 2014, in Brazil, there were no incidents of this kind, other than the cases reported, which all resulted in financial penalties.

² 51 It has not been possible to obtain a complete picture of the non-conformities that resulted in "warnings" in Italy in the current year because the concept of "warning" is not clear cut. The issue of whether and how to assess the various kinds of "warnings" that arrive from the regulatory authority will be considered in detail in future. Furthermore, as things stand at the moment, there is no system for receiving reports on the violation of self-regulatory codes concerning customers other than the reporting mechanisms stated in Chapter Sustainability and Governance.



with the Brazilian Advertising Self-Regulation Code (“CBAP”) and can recommend that the company change/correct or suspend the advertising (it does not impose financial penalties); CONAR seeks to ensure that each advertisement is true, honest, compliant with the laws of the country and the principle of fair competition. The infringement proceedings may be closed if the parties reach a settlement, if the perpetrators cease the infringement or even if the violation of the Code of Ethics has not been demonstrated.

ANATEL can impose fines or warnings in cases of “general marketing communications” that are not compliant (there were none in the years 2016 and 2014, but two fines in 2015).

[G4-PR9] The number and total monetary value of the fines for non-conformities with laws and regulations regarding the supply and use of products and services in Brazil.

Description	2016 ¹	2015	2014
Number of fines for non-conformities regarding the supply and use of products and services	2	3	5
Total monetary value of these fines (in R\$)	274,698	13,592,963	13,214,257

¹ These are two fines imposed following an alleged failure to comply with consumer protection legislation. Furthermore, in 2016, the Brazilian company paid five fines relating to 2011, 2012 and 2013 (mainly relating to the supply of the fixed line service) amounting to BRL 1,893,488 in total.

In 2016 TIM Brasil did not receive notification of non-conformity; in 2015 TIM Brasil received 5 notifications of non-compliance with the codes: 4 proposed by competitors and one by CONAR; in 2014, CONAR did not report any type of non-conformity.

SAFEGUARDING PRIVACY AND PERSONAL DATA PROTECTION

[G4-DMA Customer Privacy], [G4-PR8]

In order to ensure that personal data is protected in the performance of business activities, TIM has applied an organisational model, since 2003, which includes a Privacy Department supervising correct application of the relevant regulations throughout the Group (according to Legislative Decree 193/03, known as the known as the “Privacy Code”). In this context, when it establishes or acquires new companies, the Parent Company also provides the support required to identify and carry out the formalities required.

The adoption of legal measures and the instructions of the Privacy Guarantor for personal data protection is assured by constantly updating the Group regulations and policies. Among these, the “System of rules for the application of the privacy regulation in the TIM Group” is particularly important, which defines the provisions and operating instructions for each commitment concerned and which in 2015, was completely revised and updated, according to the regulatory evolution and the introduction of new customer services.

An important development in the regulatory framework of reference is the publication of the EU Regulation 2016/679, on 4 May 2016, on the protection of natural persons with regard to the processing of personal data (known as the “General Data Protection Regulation” or GDPR), which will come into force in Member States from 25 May 2018. This Regulation will introduce various innovations, including:



- harmonisation of legislation, with common rules directly applicable across the EU;
- applicability also to non-EU parties that process the data of people in the EU for specific purposes;
- accountability of parties that treat the data (requirements regarding privacy impact assessment, privacy by design, documentation of activities, etc.);
- introduction of the concept of pseudonymisation of the data and the respective rules;
- introduction of the Data Protection Officer figure;
- economic significance of the sanctions applicable in case of violation.

In the second half of 2016, TIM started planning adjustment measures in order to comply with the new requirements and ensure conformity in the processing of personal data by the established deadline of May 2018. In particular, there is a plan to set up an inter-department working team to determine the adaptation measures in detail, considering the technological and organisational context and business activities. Furthermore, TIM is actively involved in the dedicated GSMA and Confindustria task forces.

In operational terms, during 2016, particular attention was paid to the subject of telemarketing, which is an important tool for TIM's business activity. TIM has always been committed to ensuring that telemarketing is carried out in compliance with the rules: TIM has no interest in contacting people who have stated that they do not want to receive promotional calls, given the negative impact this can have on its relationship with customers and, more generally, its reputation.

To this end, TIM has revised the relevant company processes, implementing a series of improvements to the activities associated with contacting people by telephone for commercial purposes, including:

- strengthening of controls on contact centres and the production of contact lists;
- optimisation of internal processes and procedures for recording objections to further data processes for marketing purposes expressed by the people contacted.

Furthermore, a training plan was implemented for the internal staff and commercial partners, in order to ensure the full understanding and application of the privacy rules, particularly with regard to sales and marketing activities. 23 local meetings were held in total, involving around 500 people. The ongoing training activity on privacy in 2016 also included an in-depth analysis of privacy aspects in the context of projects based on the analysis of big data.

The effective application of the regulations is monitored through a control system based on regular self-assessment procedures by those responsible for handling the data, and on sample checks carried out by the relevant central departments, based on established procedures and methodologies. In consideration of these activities, a Report is envisaged on the status of adoption of the security measurements envisaged by privacy legislation that, in a company document, formalises the activities carried out to guarantee compliance with the provisions on personal data processing, the results achieved and the status of plans for improvement.

Finally, also during the course of 2016, TIM continued to take the steps required to implement provisions in its internal processes to deal with any violation of personal data security relating to electronic communication services (so-called "data breaches").

The following table shows:

- the information requests made to TIM, in Italy, by the Italian Data Protection Authority, including those made following reports from customers;
- the percentage of such requests filed by the Italian Data Protection Authority based on explanations supplied by TIM.



Description	2016	2015	2014
Requests received*	33	220	435

(*) the percentage of requests filed in 2014 and 2015 was higher than 98%, the data for 2016 will be published as soon as it is made available by the data protection authority

With regard to Brazil, as pursuant to article 5 of the Federal Constitution, and article 3 of the General Law on Telecommunications no. 9.472 of 1997 the right of customers to the confidentiality of their personal data is established (except the cases provided for by the law). The personal mobile service regulation, in articles 89, 90 and 91 of Resolution 477 of the national telecommunications agency (ANATEL), requires companies to take responsibility in this respect and establishes that any waiver of confidentiality must take place only if requested by the relevant authority in the cases provided for by law. Federal Law no. 12,965 (Marco Civil) of April 2014, articles 10 and 11, ensures the privacy and protection of personal data for Internet users.

In order to ensure the confidentiality of its customer information, in accordance with national legislation (including Articles 10 and 11 of the “Marco Civil”), TIM Brasil has issued relevant internal policies and procedures based on the “need to know” (personal data processing is restricted to the minimum required to carry out the work) and separation of functions principles. These policies and procedures recall the methods for the classification and management of information in order to guarantee suitable protection levels. In 2016, TIM Brasil received 14 complaints¹ of alleged violations of privacy from customers (the process is in the initial stages). There were no complaints in 2015 and only 1 case in 2014².

It should be noted that the difference between the legislations of Italy and Brazil does not allow for any comparisons to be drawn between homogeneous data.

RESEARCH & DEVELOPMENT AND INNOVATIVE SERVICES

The Telecommunications sector has undergone a quick and major transformation in recent years, characterised by the decline in traditional voice services and the growth of fixed and mobile broadband and the new services enabled by it, thereby contributing towards the rapid digitisation of the life of consumers and business processes.

Innovation, both technological and business-based, is confirmed as the central element to respond to the change in the technological, market and competitive context. In line with this context, the Group has taken action in several ways:

- reinforcing the lines of internal Innovation, focusing the activities of the labs and research groups on key aspects of the development of the fixed and mobile network moving towards the future 5G standards and ultrabroadband, and issues concerning service platforms and the new operations systems, also by means of agreements aimed at collaborating with

¹ Eleven cases related to a fraudulent SIM card swap which allowed the perpetrator to obtain confidential information used to commit blackmail and theft. Two cases related to a request for confidential information without legal authorisation. The last case relates to the transfer of a line from one customer to another.

² The 2014 case refers to an extraction of telephone data without legal authorisation. The penalty applied was 5,000 reais.



- universities of excellence, developing the Joint Open Labs (JOL) with some of the main Italian universities;
- promoting innovation and the creativity of employees launching projects to crowdsource ideas with the Idea Sharing initiative¹ ;
 - confirming the leaning towards “Open Innovation” principles in relations with the world of start-ups, new innovative entrepreneurship. Open Innovation, in fact, enables the innovation contributions generated within to be integrated with external sources of innovative ideas. Consequently, the flows of ideas coming from the ecosystem are flanked by activities of:
 - co-innovation, co-creation and generation of ideas and values by means of new partnership models with the most important global players;
 - catalysing of the innovation capacities of start-ups through the TIM #Wcap acceleration programme and investments in equity through TIM Venture;
 - simplification of the process of activating supplies made by innovative start-ups through the so-called “Albo Veloce” (Fast Supplier List), which enables the qualification on the list of suppliers of a start-up with a simplified, faster procedure, and “Basket Innovazione” (Innovation Basket), a budget dedicated to encouraging the purchase of solutions from the start-ups included on the Albo Veloce partially covering the costs.

Different innovative solutions and prototypes were transformed into business propositions and commercial opportunities for TIM, including CitySensing (a platform for managing large events in urban areas based on the collection of Big Data from social media and mobile networks), Cloud Robotics and Virgil (solutions involving drones and remote presence robots connected through the TIM 4G network), Internet of Things systems, including Smart Agriculture (developed with Olivetti).

In addition to contributing to developments within the Company, TIM produces a significant number of patents: in the 2015-2016 period it filed over 120 patents. In order to maximize their value, a spin-up model was recently developed, that is the launch of start-ups that have received assets and the rights to use patents in exchange for equity options.

These public-private partnerships have enabled the Group, in the last three years, to obtain over 5 million euros in European funds; moreover, TIM collaborates with the most important European and North American universities and centres of excellence. Again under the scope of the relationship with universities, in the last four years 133 PhDs have been financed, sponsoring first level masters' degrees at the Scuola Superiore Sant'Anna di Pisa (Management, Innovation and Engineering of Services and Digital Life & Smart Living) and Tor Vergata university (Big Data in business), and the TIM Chair in Market Innovation at Milan's Bocconi University.

Moreover, activities to accelerate and invest in start-ups have continued. Since 2013, the TIM #Wcap start-ups have launched over 50 go-to-market activities within TIM, thanks to which turnover was generated. TIM #Wcap is indeed the business accelerator of the TIM Group that each year selects, finances and accelerates digital start-ups. From 2009 to date, more than 9,000 business ideas have been received and examined and approximately 300 projects have been selected and supported, to which 6.6 million euros were assigned to facilitate their development. The survival rate of the TIM #Wcap start-ups is over 90%.

Starting with TIM #Wcap, TIM debuted in venture capital in 2014 launching TIM Ventures, the Group company created with the aim of investing in the share capital of the most innovative start-ups in all the sectors of strategic interest for the Company. In just over two years of business, TIM Ventures has invested in 14 start-ups (12 of which came from TIM #WCap) and

¹ Idea Sharing is a competition designed to produce ideas, the purpose being to discover the talent and creativity of the employees to “improve the customer experience of TIM services.” The competition ended in December 2016.



was mentioned as one of the most active Corporate Venture Capital investors at global level in 2015 by CB Insights.

Following on from the acceleration and investment activities carried out in recent years, in June 2016, TIM was ranked by Fondazione Nesta and Startup Europe Partnership in 7th place among the 25 European companies (it was the only Italian one) that “dialogue” best with start-ups.

In Italy, TIM employs approximately 1,200 resources in engineering, technological innovation and service activities. Investments in innovation and transformation amount to 1.9 billion euros, equating to around 52% of the total investments on the domestic market.

The relevant stakeholders for research and development are:

- the areas of the company involved (e.g. marketing and purchasing);
- the suppliers, for the joint development of solutions in accordance with the technical requirements of the TIM Group;
- the traditional (e.g. car makers) and digital (e.g. e-Commerce players) partners, for the joint Go2market of digital services;
- research centres and universities, for cooperation and joint projects; In 2016, 11 research contracts were formalized and came into effect, for a total value of 388,000 euros, exclusively with Turin Polytechnic, on topics such as IoT, smart mobility, privacy protection, new communication services and paradigms; the activities were carried out in the JOL;
- the standardisation bodies and discussion groups at national and international level, which number over 30, and the international research and development bodies (including NGMN, Open Networking Forum, 3GPP, ETSI, IEC, CENELEC, TM Forum, BBF, ITU) in which TIM continues to actively participate;
- the Ministries (Ministry for Economic Development and Ministry of Education, Universities and Research), the European Union and public authorities (e.g. CNR and local authorities) for projects funded through participation in competitive tenders, and partnership initiatives;
- on-governmental organisations, associations, alliances and industry forums (e.g. GSMA, m-health) which bring together all the entities involved in the value chain of the specific market.

This model of managing innovation saw TIM, in 2016, receive the prestigious National Prize for Innovation, established by the Prime Minister's Office and awarded by Confindustria, which sought to reward: the capacity to innovate its portfolio of solutions and services in terms of quality, the structured and efficient process of managing innovation, the company culture geared towards innovation and, finally, the capacity to efficiently transform innovation projects into services to support citizens, businesses and organizations.

RELEVANT ISSUES

The themes on which projects are developed are identified on the basis of the Three-Year Technological Plan, the reference document for the Group, which provides guidelines for the evolution of the network, platform and services. Published annually, following a wide-ranging process involving all the areas of the company involved, the Plan identifies the main external factors (regulations, standards, vendors, other market operators) that may influence the company's strategies and highlights the emerging and cross-cutting technologies in other sectors that may be of interest to the Group.



These guidelines also cover the patents project, which for TIM represents a continuous activity that is structured into numerous processes, involving various corporate departments, aimed at promoting, supporting and optimising patenting activities in the company and, thanks to collaboration with universities, more generally in Italy.

Thanks to the collaboration with Italian universities, patenting by the Group helps the rate of innovation of the country, helping “patent” the universities themselves to a greater extent and making the results of the university research more tangible. The Joint Open Labs (JOL) are part of this context. With the “company on campus” model, they encourage a natural osmosis between the academic and industrial world. TIM has launched this innovative model of cooperation, promoting the development of different JOLs distributed throughout national territory and localised within the various Italian universities.

In a world in which technology facilitates contact with people, by disseminating broadband technology and the services it enables, TIM is making a contribution to overcoming the socio-cultural barriers that restrict the opportunity to take part in the information society and enjoy its benefits. With reference to technological innovation, the following are the projects most worthy of note:

- Support for the launch of numerous LTE Advanced services at 225 Mbps, 300 Mbps and the first “in-the-field” test of LTE Advanced services at 500 Mbps, the first in Italy.
- The creation in Turin of the TIM IOT Open Lab, a distributed laboratory open to partners and companies for the development and testing of solutions for the Internet of Things world, in particular with LTE NB-IoT technology which, thanks to the low cost of the radio modules, reduced energy consumption and the excellent reception of the radio signal, means that even battery-powered objects can be connected in areas that are difficult to reach, such as gas or drinking water meters.
- e2Call: broadband mobile communication technologies represent a platform enabling new functions and services for road safety; in this context the real time communication of information on the situation of the roads and localization techniques which allow the position of vehicles to be identified with high precisions are particularly important. This is the basis on which the e2Call project has been created, with the aim of searching for innovative solutions on board vehicles and on the Internet. The scientific responsibility for the study has been assigned to a joint work group guided by the Centro Ricerche Fiat and TIMLab of Trento, co-financed by the Autonomous Province of Trento. The project closed on 31 May 2016 with a workshop to present the results held in Palazzo della Regione Trentino-Alto Adige, in Trento.
- TIM Personal: the Group wants to play an increasingly important role in clients’ “trusted digital lives”, i.e. for sensitive services for the citizen (transport, ticketing, payments, etc.) for which it is important to have a strong user identification mechanism. The TIM Personal service combines the solidity of a digital authentication mechanism based on the mobile terminal and on the SIM (Digital Identity) with the possibility of making secure payments, all via a single app.
- TIM Market Place and TIM Open: the so-called “Network APIs”¹, which allow interoperability between modules and platforms, mean the smart network can be opened up to the applications of external providers. The TIM Market Place is a tool which, using a coordinated approach with the latter, combines the intelligence and functionality of the network with external services/content, and therefore forms part of the Group’s path of transformation into a Platform Company, based on a new “shared business” model. TIM Market Place has allowed the development of TIM Open commercial services.
- TIM City forecast: given their pervasive nature, mobile terminals can be compared to a

¹ API is the acronym for Application Programming Interface.



capillary network of sensors able to provide accurate data in real time on the distribution of the population over the territory and on its movements (Mobility Patterns). Mobility Patterns enable applications linked to the monitoring and management of the territory, related services and mobility infrastructures, all in respect of privacy legislation, by means of a suitable anonymous, aggregated processing of data. For example, the City forecast service predicts the real time distribution of people (by unit of area) over the territory, even where there are specific events, for example enabling the quantification of tourist presence. The solutions developed in the TIM City forecast project are used by the Mobility Services Agency, a Roma Capitale company, as an analysis tool for monitoring the presence and mobility of the population and Italian and foreign visitors, in particular in the areas of religious and tourism interest, also in connection with the Jubilee.

PARTNERSHIPS WITH EXTERNAL PLAYERS

The partnerships with external players, which represent a business development method based on the optimisation of the Group's assets, are worthy of separate mention.

In this context, the Group oversees the various areas of digital services, including:

- Cognitive Computing: an important collaboration agreement has been signed with IBM, which makes the cognitive computing platform, called "IBM Watson", available to the Group. Cognitive computing is a branch of computing that aims to equip machines with the capacity to reason and interact with humans in a natural manner. Watson is the leading technology in this sector and is currently being used in the USA in analysing imaging diagnostics, as well as in the development of automatic agents, referred to as "chatbots" that can dialogue with clients in caring contests on matters that the system has "learnt" previously. The cognitive computing systems learn by reading documents and interacting with human beings and the environment. In agreement with the Customer Care and Open Access Departments of the Group, a study is underway to establish how to make cognitive computing available to technical assistance and commercial customer care processes. The operative projects aim to develop two chatbots that guide clients towards the solution of technical problems connected with Fibre, in one case and a more suitable response to queries on mobile offers, in the other.
- e-Commerce: in a partnership with Amazon, an innovative business model has been developed, which optimises the "proximity" asset intended as the capacity to "reach" the client. In this case, the collaboration is based on a shared remuneration with the partner, reason for which this partnership is considered an important example of the Group's entrance into the value chain of an OTT¹.
- Participation in "The Next Nest" project²: the Group has designed the interactive component of the work, developing a digital abstraction of a canvas by Daniele Gallian, on display at "The Next Nest" exhibition open from April to September 2016 as part of the XXI International Exhibition of the Milan Triennale, which allows visitors to interact in a gestural manner, creating new digital versions of the work that are unique and

¹ Acronym for Over The Top – AGCOM defines them as businesses that provide, through the Internet, services, content (above all video) and "rich media" applications (for example adverts that appear "over" a website page while it is viewed and disappear after a set time). OTTs obtain revenue, for the most part, from the sale of content and services to end users or from advertising space. As they have no own infrastructures, they act beyond the networks, hence the term "over-the-top".



unrepeatable, downloadable thereafter from the installation site. The way in which visitors interact with the work has a great deal of affinity with the ways in which, by means of the telecommunications services, the Group helps the people to live and share social life, home and city, making interaction as natural and simple and helping improve the quality of domestic, social and urban life.

- Big Data: along this route of Open Innovation and Evolution, learning to collect and effectively analyse the huge amounts of structured and destructured data, created by its company systems or available from external sources, has become essential to constantly improve the quality of services and/or stay ahead of demand requirements. For data management to have a positive influence and enable value to be extracted, a radical transformation is necessary that is not only technological but above all organisational, procedural, as well as cultural and of talents. In this logic, the Group has therefore started an evolutionary path based on several design “sites”. Within these sites, various initiatives were launched in 2015 and completed in 2016, with the development of the first “internal” applications (aimed at improving the Customer Experience), the launch of the first services for the Business market on anonymous data, the start-up of the TIM Competence Center that will aim to train the internal competences and scout and search for new Big Data technologies and applications, working in an open logic with the industry’s main players. Moreover, in 2016, additional initiatives were also started, aimed in particular at aggregating different industry players and managers of large quantities of data to construct data partnership models with the aim of developing innovative applications intended for both digital cities (LivingLab project with Turin municipality) and to create innovative services to support private businesses in different fields (e.g. from the insurance world to that of the connected car).

SMART SERVICES

[G4-EC7], [G4-EC8] In the context of public sector services, in accordance with the Italian Digital Agenda (ADI) and European Directives, in 2016 TIM consolidated and streamlined its offer of Smart Services (a range of services for energy efficiency and digital services in urban areas), Urban Security (new services dedicated to security, the environment and optimal energy management) and the Digital School. The aim is to promote the “smart city” (Smart City) model to improve quality of life by developing innovative digital services to ferry communities towards a Smart Community model (as described in the Digital Agenda) that enables new forms of cooperation between citizens and public authorities.

As regards the innovation of business, TIM aims to supplement its offer of connectivity with new innovative services that satisfy the new digital needs of the customer.



LIGHTING SUITE	SMART BUILDING	NUVOLA IT ENERGREEN	NUVOLA IT URBAN SECURITY	NUVOLA IT SCUOLA DIGITALE
<p>Integrated management of the local infrastructural networks and construction of the Smart City environments.</p> <p>Enabled services: planning of electricity consumption and maintenance; energy saving is estimated within a range between 15% (light produced by high-efficiency lamps, e.g. LEDs) and over 30% in the case of light produced by old style lamps (e.g. sodium vapour or incandescence).</p> <p>These values come in addition to the possibility of modulating lighting switching it on and/or reducing intensity of light of the individual lamp;</p> <ul style="list-style-type: none"> video surveillance; digital communication with citizens and users in general (e.g. tourists); Wi-Fi hot spots (broadband access); 	<p>Intelligent management and automation of buildings thanks to specifically designed solutions able to be implemented on a project basis through the components of the Lighting Suite and Nuvola IT Energreen offers.</p> <p>The energy saved can be estimated at around 10%, if only the Metering & Reporting function is implemented, but it can rise to over 50% for specific efficiency projects.</p>	<p>Remote management of energy consumption, implemented on TIM assets and services, for the purpose of saving energy.</p> <p>Enabled services:</p> <ul style="list-style-type: none"> audit energetico on site (analisi on site per l'efficienza energetica); Metering & Reporting; Efficiency strategy (reportistica avanzata e servizi di consulenza di Energy Management); Energy Cost Management Services; Special Project: interventi ad hoc di efficientamento. 	<p>Management of participated security and urban territory control.</p> <p>Enabled services:</p> <ul style="list-style-type: none"> computerised management of the penalty issuing process for traffic and other violations for local public administration; participated management of urban issues, with reporting of safety-related issues, antisocial activities and urban decay; real time monitoring of the urban and natural environment of cities (humidity, temperature, noise pollution, CO2, gaseous pollutants, etc.); monitoring of available public parking spaces. 	<p>Integrated digital management of teaching and school administration.</p> <p>The offer can be configured according to the requirements of the schools and includes a range of integrated, but modular, services, accessible via a single portal-showcase.</p> <p>Enabled services:</p> <ul style="list-style-type: none"> enabling infrastructure (fixed internet, wi-fi & security connectivity); management services for the school (administrative management, cloud electronic register); digital teaching services (application integrated with school e-book stores); devices (for users and for classes).

INFOMOBILITY AND SMART CITIES

Infomobility systems, using information obtained from mobile handsets, allow the optimisation of traffic flows, reducing travel times and the emission of greenhouse gases.

URBeLOG

It is a project financed by the MIUR (Ministry for Education, University and Scientific Research) as part of "Smart Cities", involving Iveco, TIM, TNT and the Temporary Association of Companies (ATI) comprised of: FIT, Italdata and TEMA, Polytechnic of Turin, Bocconi University and Scuola Superiore Sant'Anna. The aim is the distribution of goods over the "last mile" and the project seeks to propose new process methods and an open and integrated ICT environment of reference that allows all stakeholders to interact efficiently, minimizing the environmental impact. TIM is helping to develop an open and cooperative multi-sided platform and an innovative layer of middleware capable of managing all the information available arriving from various sources (in-the-field devices, vehicles, fleet management systems, traffic management legacy systems, etc.). The URBeLOG solutions will be tested in two field trials run in the municipalities of Milan and Turin.



National pilot eCall - I_HeERO project

The public service for vehicle emergency calls to a single emergency number E112 (eCall) will be operational in all European Union Member States for all new models of cars registered and produced from March 2018; during production, the cars must be natively equipped with a mobile network modem capable of automatically calling the emergency number in the event of an accident. All mobile network operators must update their networks so they are capable of correctly processing and routing the incoming eCall to the first level PSAP (Public Safety Answering Point) identified at national level. TIM has already supported the first pilot phase with pre-operative tests and the deployment of the first national eCall PSAP, both in Varese. The second phase of the pilot project (2016-2017) involves the Trento area and will be the last step before full deployment. The pilot phases are co-funded by the European project I_HeERO.

Open Air Lab (OAL): TIM's smart city lab for more sustainable cities

The Open Air Lab, located at TiLab in Turin, represents aspects of a Smart City model, and the transformations that ICT companies and the always-connected dimension will define for the urban scenarios of the upcoming years.

At the OAL the various models are illustrated, like Smart Mobility, smart rest areas, the efficient management of waste and public green areas, the service robotics, urban security, the public lighting network, Smart Metering, gas, electricity and water distribution networks, Digital Island services, with the loan of books and the distribution of food and drink and the public telephone totem.

Moreover, in a garden area, there are objects fitted with sensors for data detection and transmission, such as:

- the smart bench to facilitate social aggregation, which provides connectivity, reproduces light games and music on-line and detects air parameters (atmospheric pressure, pollution indicator, temperature, humidity and light);
- the control room, where, on an IoT-TiLab platform, the data is collected and saved as detected from the disseminated sensors providing innovative services;
- the small greenhouse with weather and environmental sensors to be activated from a remote position and according to weather conditions, sources of light/heat or pumps for watering plants;
- the little dome, container of urban waste with sensors, to track and improve the efficiency of sorted waste collection;
- the bus shelter with traffic and environmental sensors;
- the lamps that can be switched on and have light regulated from a remote position;
- the noise and environmental pollution sensors,
- the gas and water meters to provide customers with a service offering more information and greater efficiency

In the visits to the OAL, attention is focussed on the technological scenarios of the Internet of Things that will characterize the innovation of the upcoming decades; it is an evolving use of the Internet, whereby objects will become recognizable and 'smart' by communicating data collected on themselves and in the environment. Analysts believe that in the next few years we will live in a world where tens of billions of objects will be connected to each other. Gartner believes that objects directly connected to each other and through the mobile networks (4G, 5G and future developments) will increase with a growth rate of 5.5 million per day reaching over 20 billion in 2020.



INNOVATIVE E-HEALTH SERVICES

TIM is actively involved, either alone or in partnership with external partners, in devising and developing healthcare services at national, regional and local level. Designed to improve the Italian health service and the quality and effectiveness of healthcare, the services allow doctors, nurses and patients to carry out many activities remotely.

The main electronic healthcare service applications available or being developed include:

- value products and services for general practice, aimed at enabling new primary care models and proactive medical services (e.g. screening campaigns managed by general practitioners);
- legal archiving of digital diagnostic images on the network, with a guarantee of the authenticity and integrity of documents;
- management of both healthcare, administrative and logistical processes and a patient's healthcare information throughout the period of hospitalisation;
- the management and coordination of operational facilities dedicated to emergencies (118) and continuity of assistance;
- healthcare monitoring (Nuvola IT Home Doctor).

All the solutions comply with the data privacy and transaction security requirements of healthcare processes.

Nuvola IT Home Doctor

This allows patients suffering from chronic illnesses, or in post-hospital care, to monitor their physiological parameters (body weight, blood pressure, heart rate, blood oxygen levels, glycaemia, lung capacity, electrocardiogram, physical activities etc.) directly from their own homes or in properly equipped facilities (medical centres, medical practices etc.). The system consists of a technological platform and software configured on the patient's mobile phone (or alternatively a PC or tablet) and on the healthcare personnel's PC. Based on the plans established by the doctor, patients receive reminders on their mobile phones regarding the measurements to be taken, they take these measurements using portable electro-medical devices equipped with a Bluetooth interface and, using their mobile phone, they send the measurement automatically to the online platform.

The benefits of the service are that it improves the patient's quality of life while optimising costs for the healthcare organisation.

Fisio@Home

This is an experimental motor telerehabilitation service which allows medical personnel remotely to monitor the conditions of patients with orthopaedic. The prototype, tested at the Health Authority of Viareggio, has been developed for the rehabilitation of knees, and the application can be used for other conditions. The system allows doctors to evaluate compliance with the established programme and the correctness of the exercises performed. Movement data is collected by sensors worn by the patient, which measure acceleration, angular speed and magnetic field along the reference axes. The data is sent by Bluetooth to a tablet, where an application processes it in real time in order to extract information that can be used to define the movements and store them.

The sensors, created by Scuola Superiore Sant'Anna, have already been engineered and are ready for large-scale deployment.



Cassiel 2.0

The service provides remote assistance is provided to elderly people, monitoring them and receiving alarm signals in cases of emergency. The sensors located in dwellings process the data collected, to perform behavioural analyses with a view to improving quality of life. The complete solution includes a reminder service, called RicordaMI, to monitor therapies and ensure their completion. Through the involvement of three Federfarma Pisa pharmacies in supplying the requirements and dosages set for each patient, and Farmadati for the supply of the medicines database, the system was successfully tested in the province of Pisa, collecting valuable data to improve the solution. Thanks to the adoption of a simple tablet app, the system also is usable by people with mild cognitive impairments.

The service also allows the health of the cardiovascular system to be monitored, which is very likely to be less healthy in elderly patients, using non-invasive methods (pressure, weight and physical activity), based on statistical models accepted by the scientific community (Framingham risk score).

Formal and informal caregivers can check the state of health of their loved ones on a specific website.

Tele-monitoraggio malattia di Parkinson

As part of the development of a tele-monitoring system for patients affected by Parkinson's disease, TIM has filed two patent applications relating to the upper and lower limbs. Based on the data collected during the trials, machine learning techniques were applied to developing a UPDRS2 automatic assessment algorithm to emulate the assessment provided by the neurologist according to this standardised scale.

WebSensor is a prototype for remote monitoring of progress in Parkinson's disease developed with the support of neurologists. A set of sensors worn on the body monitors the exercises performed by the patient and sends the data to a platform that processes them and supplies parameters that can be used to assess the status of the disease. The hand sensors, which are often uncomfortable to wear, were replaced by an appropriate stereoscopic (LeapMotion) camera that frames the hand and automatically extracts the exact position of the fingers in space. In collaboration with the non-profit organization Neurocare from Cascina (Pisa) data was obtained from over 15 Parkinson's sufferers and the same number of healthy elderly people (controls); this data made it possible to validate the use of the Leap Motion sensor to identify and measure the degree of advancement of the disease.

PAPI

It is a prototype tested on 30 people aged over 65, suffering from slight cognitive function deficits, for their remote rehabilitation. The system provides a kit of interactive games for Android tablets, designed with neuropsychologists to stimulate the patient's various cognitive functions. The games, tested in collaboration with NeuroCare from Cascina (Pisa), and TrentoRise's living lab in Trento, communicate with a remote server to send data relating to the patient's performance and to download their settings. The experiments have allowed both the games to be improved, making them more interesting for users and integrating them with other games created by third parties (that involve the rest of the family), in a kind of game show that encourages their use (GameBus project).



RESEARCH AND INNOVATION IN E-SECURITY

TIM is involved in research and innovation regarding cyber security and more generally the security of information and networks.

Activities carried out in 2016 included the following:

- the definition and development of innovative enabler prototypes for the security and privacy of future 5G networks under the scope of the participation in the 5G-ENSURE (5G Enablers for Network and System Security and Resilience) consortium funded by the EU with the H2020 programme. The consortium aims to study, define and test the security and resilience measures of the future 5G networks for a 5G Security Architecture;
- the integration, for test purposes, of a system of analysis of the security of Android mobile apps, under the scope of a project financed by EIT Digital¹ ;
- the pursuit of activities for the security of mobile apps and mobile devices;
- the study and development of new security analytics to be used with visual analysis tools and security big data platforms;
- implementation of various scouting and testing campaigns on innovative security solutions;
- the pursuit of the activities overseeing and guiding mobile security with participation in the works of the GSMA Fraud and Security Group;
- the collaboration, within the scope and 3GPP² SA³ SECAM³, for the definition of the security requirements and test methods on devices for 3GPP standard networks and those for the security of 5G infrastructures;
- pursuit of cooperation launched in 2013 with EIT Digital under the scope of the Action Line Guide to Privacy, Security & Trust;
- participation in the works on the newborn ECSO⁴ to guide development of a European ecosystem on cyber security;
- the development, in the context of ETSI⁵, of the works of TC CYBER focused on cyber security;
- the study and development of models for the management of security on telco cloud platforms for IT and network services;
- the development of IPR⁶.

PUBLIC INITIATIVES CONSISTENT WITH THE CORE BUSINESS

Here are some of the projects carried out in 2016 in response to the needs of the community using TIM's technologies.

Fund raising

In a national and international context in which crisis and conflict scenarios multiply, against an ever-increasing number of subjects in need and emergency situations, private fund-raising

¹ European Institute of Innovation and Technology.

² The 3rd Generation Partnership Project.

³ SECurity Assurance Methodology.

⁴ European Cyber Security Organisation.

⁵ European Telecommunications Standards Institute.

⁶ Intellectual Property Rights.



is a key factor in the cohesion and support “from person to person”.

For over ten years, TIM has been a key player in the solidarity chain associated with humanitarian, scientific or environmental projects which it supports by allowing people to make a donation of 1 or 2 euros by sending a text message and of 2, 5 or 10 euros by calling a dedicated free number from a land line. Of the 100 numbers intended for the voluntary sector, of which 2 are for emergencies, 60 are currently configured and available, and shared with other operators.

The amounts collected are returned in full, with no withholdings applied by either the tax authority or the Company for the costs incurred.

In 2016, 126 campaigns were launched (3 earthquake emergencies), 50 of which were managed by *Dono Per*¹ (2 earthquake emergencies) which started its work on 1 October 2016, and around 27 million euros were raised²: around 9 million for emergencies, around 10 million before 1 October and around 8 million after 1 October.

Social innovation

The term Social Innovation defines the set of new ideas that respond to the needs of society more effectively than existing alternatives, while at the same time developing new relationships and collaborations to strengthen it.

WithYouWeDo (withyouwedo.telecomitalia.com) is TIM's crowdfunding platform that promotes and supports the funding of digital projects by individual citizens, businesses, and for profit and non-profit institutions in the fields of social innovation, digital culture and environmental protection. The Company, in addition to making the technological platform available, undertakes to contribute 25% (up to a maximum of 10,000 euros) towards the financing of published projects that reach their financial target, and provides strong communication support and visibility, also through special dedicated initiatives. In 2016, a total of around 850,000 euros was raised.

Moreover, at the end of August WithYouWeDo helped to create unaiutosubito.org, the crowdfunding platform for raising funds for victims of the earthquake that struck central Italy several times. The initiative was highly successful, raising over 1,300,000 euros and thereby setting the world record for raising funds for earthquake victims through crowdfunding.

TIM also continued with its activities in the dissemination of innovative technology to schools: as a partner of *Fondazione Mecenate* it participates in '**Programme the Future**' to encourage the introduction of computational thought and coding in schools; the commitment is broken down into economic support, communication actions and corporate volunteering through its employees. In 2016 TIM also launched '**At digital school with TIM**': a two-year project in collaboration with the Ministry of Education, Universities and Research (MIUR) to introduce teachers to digital innovation, thereby permitting new educational opportunities, as better described in the chapter on Digital Culture of this report:

¹ In 2015, “Dono per...” was established, a limited liability consortium company founded by Telecom Italia, Vodafone Italia and Wind to deal with initiatives for the raising and distribution of funds for charity as well as loans to political parties or movements, as envisaged by the new legislation. The company is a non-profit organisation and, therefore, any operating profit are used for social projects. The new legal entity guarantees a standardised, shared approach with regards to non-profit organisations, political parties, institutions and the media. The Consortium is open to adhesion by other telecommunications operators.

² The amount collected by the date the 2016 Sustainability Report was presented, has been estimated; moreover, the amount collected is not directly attributable to the campaigns run in the calendar year due to the time lag between invoicing and payment.



Research and development in Brazil

In the last three years, TIM Brasil has invested more than 16 billion reais, most of which in innovative infrastructures. The business plan for the three years 2017-2019 envisages investments of around 12 billion reais, almost entirely in the development of the country's 3G and 4G networks, with the aim of reaching cover of more than 92% of the urban population by 2019.

At TIM Brasil, Research and development is carried out by the Innovation & Technology department - headed by the Chief Technology Officer - numbering 27 telecommunications engineers, electricians and electronics engineers, IT experts and other technicians of varying origin, competence and experience, which cover all the network operations, pursue the innovative needs and provide support to R&D. The main responsibilities of this department are the definition of the network's technological innovation, the evolutionary needs for new technologies and devices and the architectural guidelines together with the development of strategic partnerships, so as to exploit the new business models and guarantee the evolution of the network infrastructures according to business strategy.

In terms of infrastructures, one important result was the constitution of the Innovation Lab, which consists of a multi-purpose test environment based in Rio de Janeiro, which is able to guarantee the assessment/validation of innovative services, products and technologies, certifying their functional efficiency and performance and developing new models and configurations, consolidating the innovation flow. The Innovation Lab plays a strategic role in providing support for the conduct of Credibility Test, Trials and Proof of Concept, for the validation of the services in collaboration with the main suppliers of technology and partners, through the sharing of knowledge and the technological infrastructures for interoperability tests, the assessment of capacity and the definition of technical requirements; in synergy with the R&D department, it facilitates innovation and promotes collaborations with universities and research institutes.

In 2016 206 validation and innovation projects were completed, which will tend to increase in view of the extensive range of innovation and research and development initiatives underway. In this sense, the latest technological plan approved (2017-2019), envisages investments in excess of 24 million reais in this project, which also includes the construction of a new Innovation centre (at the Corporate Executive Offices complex) in Barra da Tijuca, in the state of Rio de Janeiro, a building with a surface area of 650 square metres able to accommodate more than 60 people. This new office, which will operate as a national reference point for R&D activities will host technicians and researchers and will be used as an open space of innovation for new opportunities and the development of innovation for the Brazilian telecommunications market.

The Innovation & Technology department has worked on projects aiming to ensure the evolution of the business of TIM Brasil through the recommendation of sustainable, efficient network platforms and "disruptive" models, including anticipating the availability of new services. The main developments are set out below.

The reassignment of the 1,800 MHz spectrum from 2G to 4G is bringing about three important competitive advantages for TIM Brasil:

- 1) reduction of costs for LTE deployment;
- 2) increased LTE coverage area;
- 3) improved indoor coverage.

In addition to the expansion of coverage, use of the 1,800 MHz bandwidth can increase the capacity in cities already covered by the LTE bandwidth at 2.6 GHz, at only a small additional



cost. Another important consideration in this scenario is that 70% of current LTE terminals are already compatible with the bandwidths 1,800 MHz and 2,600 MHz, hence the implementation of LTE 1,800 MHz benefits from the dissemination of devices.

The deployment of the LTE 700 MHz layer will result in significant expansion of the coverage and indoor penetration, promoting the presence of LTE throughout the national territory and consolidating TIM Brasil's leadership in LTE. The actual rollout will follow the rules dictated by the EAD (Entidade Administradora de Processo de Redistribuição e Digitalização de Canais de TV e RTV) in order to manage the spectrum cleaning and avoid interference problems with the analogue TV transmission service. 64% of the devices used by the current users of TIM Brasil services are enabled for the 700 MHz bandwidth. In June 2016, TIM Brasil activated its first commercial LTE 700 MHz network in the city of Rio Verde, which makes it one of the first Brazilian operators to explore this frequency bandwidth.

As part of the IP Multimedia Network Evolution, thanks to tests conducted in the past at the Innovation Lab to evaluate the IMS (IP Multimedia Subsystem, solutions focused on functional tests, specific analyses and interoperability with the so-called "legacy system"), TIM Brasil was able, in 2016, to set up the functional infrastructure to provide services such as Voice over LTE (VoLTE)¹ and Wi-Fi Calling, which allow calls to be made without the need to pass through switched lines, also taking advantage of the extremely widespread presence of Wi-Fi connections.

As regards the Network Functions Virtualization (NFV)² and Software Defined Networks (SDN)³ some initiatives were launched, such as the creation of the "TIM Brasil NFV Program" developed through four working groups (established on the basis of the logical domains and competencies of the NFV) which have a mandate to define technical requirements, infrastructural plans, roadmaps of the virtualised network functions, "open lab" specifications and reference architecture compliant with the ETSI standard on NFVs. In this context the first "Virtual Network Function" made available was the "messaging/VAS Consolidation" followed by IMS and the roaming services platform developed following the NFV approach. Other virtual functions, such as PCRF (Policy and Charging Rules Function)⁴. Preliminary studies are also being conducted on the different approaches to the Software Defined Networking aimed at the creation and full orchestration of the Cloud environment. The main drivers that push the adoption of these innovative network approaches are reduction of the CAPEX/OPex, faster time to market, optimization and boosting innovation.

In the upcoming years mobile networks will have to handle an ever greater amount of traffic due in particular to the use of video content. In order to optimize the use of the network resources TIM Brasil has started to investigate LTE broadcast technology⁵ which enables

¹ VoLTE is a technology that allows voice calls to be made on the LTE (4G) network, based on the IP Multimedia Subsystem (IMS) architectural model. The quality of the calls is better with respect to the past also thanks to the wider bandwidth spectrum reserved for the conversations.

² The NFV benefits from the typical virtualization technologies of the IT world, in order to allow several network applications to share the same hardware and to ensure greater operational flexibility through the use of automated tools for managing the life cycle of the infrastructure and services.

³ Software Defined Networking is a technique that transforms traditional networks into flexible and smart platforms to respond in real time to the bandwidth requirements and the dynamic nature of the modern applications.

⁴ PCRF refers to the software node authorized in real time to determine the policy rules in multimedia network environments.

⁵ It represents an evolution of 4G that enables new generation "mobile TV." The new technology makes high definition video and multimedia content usable and, with a single data flow, delivers multimedia content to a potentially unlimited number of mobile users.



highly efficient video transmission. TIM Brasil has already implemented video transmission through the LTE mobile network in partnership with Ericsson, Samsung and Qualcomm and with the main Brazilian television networks.

The expansion of “4G RAN sharing”¹, in partnership with other Brazilian mobile operators, aims to define the architectural requirements, technical assumptions and specifications for the “RAN sharing” solution, optimising the network resources and costs. TIM has assessed RAN sharing solutions since 2007. Another powerful motivation is the need to extend the 2.6 GHz radio coverage to many cities in a short time, which requires the activation of many sites in compliance with regulatory requirements. Initially, tests were conducted in a controlled environment at the Innovation Lab and thereafter a pilot project was launched to assess other technical problems.

Tests are being carried out to activate savings and energy efficiency solutions, which primarily concern the low traffic periods for the 2G, 3G and 4G access layers. The energy savings may be up to 10% per site, depending on the access technology and the coverage conditions.



SUSTAINABILITY THROUGHOUT THE SUPPLY CHAIN

Suppliers have a direct influence on the communities and in the areas within which they go about their activities and, last but not least, the involvement of the organisations that monitor the related social and environmental aspects, must be considered.

The procurement process adopted by the TIM Group is based on the competitive comparison of the technical and economic characteristics of the offers that are presented by the suppliers selected, based on corporate procedures based on business ethics.

The selection of the TIM Group's suppliers involves a pre-contractual qualification stage in which the economic/financial and technical/organisational characteristics are assessed. If the result of this assessment - which also includes an evaluation of their business ethics and respect for human rights, workers' rights and the environment - is positive, the suppliers are registered on the Group Supplier Database.

Products and services are acquired at the best market conditions possible and must meet specific requirements of functionality, quality, safety and respect for the environment, in complete compliance with current laws and legislation.

[G4-HR1a] In all the contracts signed, there is a specific clause which makes it mandatory for the supplier to accept the principles expressed in the Group's Code of Ethics and Conduct¹.

[G4-HR1a], [G4-HR1b] As regards the domestic operations, the Italian suppliers on the database with considerable value (the threshold is 3,000 euros cumulative per year) receive² initial screening in relation to respect for the principles of the Code of Ethics and are subject to regular assessment. The action taken by TIM to verify suppliers varies depending on the riskiness of the supplier and the value of the purchase, ranging from simple to complex questionnaires and document checks to inspections at the supplier's premises and specific audits on sustainability matters. [G4-HR10] Specifically, in 2016 100% of new suppliers enrolled in the Register signed a specific questionnaire in which they undertook for themselves and for any authorised subcontractors, collaborators and employees to observe the principles of behaviour contained in the Group's Code of Ethics and Conduct³.

While the supply is taking place, registered companies which have received purchase orders

¹ **[G4-DMA Investment]** The Group Code of Ethics (CE) reads: "Compliance with the Code must also be guaranteed by external collaborators and, where envisaged in the company procedural system, by third parties that do business with the Group". In particular, the internal procedures require suppliers to accept the principles laid down by the CE and contracts for temporary consortia or corporate investments to contain clauses for safeguarding the 231 Organisational Model (which is based on the CE). The UN Global Compact is, on the matter of human rights, the point of reference of the Group's CE, which reads: "Telecom Italia has signed up to the United Nations' Global Compact on human rights, work standards, environmental protection and the fight against corruption, and ensures that this institutional commitment is fully implemented by undertaking regular initiatives on environmental and social issues". Moreover, the CE contains specific clauses on the prohibition of discrimination, intimidation, corruption and the protection of health and safety. Moreover, the Group policy on respect for Human Rights specifies that "Fundamental Human Rights (e.g. working hours, fair remuneration, minimum age for starting work, workplace conditions, accessibility to the disabled, protection of maternity, prohibition of harassment, forced/compulsory/restricted labour)" and "rights regarding health and safety (we consider the high standards of health and safety as a milestone of our success and our aim is to minimise injuries and occupational illnesses)" must be guaranteed for both the people of the Group and the human resources of suppliers.

² Excluding local government offices

³ In 2016, in Brazil, such percentage was 99%.



normally undergo incoming quality control checks (a requirement for the acceptance and use of the purchased goods) and monitoring of the vendor rating. Environmental and social checks are also carried out¹.

The purchasing departments focus on specific sectors, so as to provide accurate responses to the requirements of internal customers and stakeholders. These expectations are constantly monitored through surveys of both internal customers and suppliers in order to verify the quality of the services delivered (see *Involvement initiatives*).

[G4-12] Purchases by TIM take place mainly in the two geographical areas where the Group's major operations take place, i.e. Italy and Brazil, and are mostly directed at the following categories of products/services:

- Telecommunications networks
- Telecommunications products
- Information Technology
- Technical and professional services
- Power systems
- Other

[G4-12] In total, in 2016 there were 5,538 suppliers which had purchase orders with the Group, (-16% compared with 2015 and -18% compared with 2014), of which 4,125 were for the domestic BU (+13% compared with 2015 and +18% compared with 2014), 1,419 for Brazil (-24% compared with 2015 and -33% compared with 2014).

[G4-12] For some sectors, the Group also measures and monitors subcontracting suppliers; in particular for network jobs; there were 884 subcontracting businesses (+8% compared with 2015 and +18% compared with 2014). In this sector, therefore, the estimated total number of suppliers involved in the supply chain is 910².

[G4-13] In the last three years no significant changes have occurred in the structure of the Group's supply chain.

SUSTAINABILITY INITIATIVES

In 2016, the process that defines activities aimed at improving the sustainability of the supply chain continued to be applied. These activities involve the qualification, incoming quality and vendor rating stages.

[G4-DMA Supplier Human Rights Assessment] In particular, the suppliers were classified according to the potential risks associated with their sustainability performance, carried out using a specific method that considers the social-environmental and business continuity aspects associated with the procurement markets in which they operate. For this reason, the procurement markets (i.e. procurement categories homogeneous among themselves) have been classified in accordance with parameters such as:

¹ **[G4-DMA Supplier Human Rights Assessment]** In particular, checks are envisaged on health and safety and the environment, the result of which goes towards forming the supplier rating, to which the system of penalties/incentives is connected. [G4-DMA Employment] Checks are also envisaged in relation to respect for employment legislation.

² In the Brazilian BU, at present there is no systematic monitoring of level two suppliers. Assessments are currently under way on how to carry out this monitoring in future.



- the geographical areas of reference and the risks connected with them,
- the potential impact on the environment and on society of the suppliers' activities and of the products/services supplied throughout their entire life cycle, including risks relating to violations of human, employment and environmental rights,
- the impact on the reputation of TIM as a customer.

A matrix has therefore been created which, by relating the spending associated with the specific purchase market to the risk index calculated on the basis of the parameters listed, has allowed purchase markets to be divided into four classes, identifying those most critical from the point of view of sustainability and economic impact. Suppliers belonging to the classes at greatest risk are the subject of sustainability audits carried out by Company personnel or by personnel from third party companies specialising in the sector. These audits are repeated periodically to monitor the implementation of any corrective actions and, if the results are positive, in order to verify that the standard of performance found is being maintained.

The tools developed and used for the Domestic BU have been explained and transferred to the Brazil BU, which is analysing the methods of application to its suppliers.

[G4-HR4a], [G4-HR5a], [G4-HR5b], [G4-HR6a], [G4-HR11] SAll suppliers of the Domestic BU have been assessed to consider the social/environmental risk¹; in 2016, 48 were considered to be at greatest risk (+20% as compared with 2015 and +17% on 2014). 21 purchase markets² and suppliers operating in the following geographical areas are considered to be at greatest social risk: Asia, Central and South America, North Africa and Eastern Europe.

[G4-HR7] For the employees of organisations which supply security guard services in Italy, the Consolidated Law on Public Security must be complied with, in particular article 138, subsection 2, which specifies the professional and training requirements of sworn guards. In Brazil Law 7102/83 lays down rules on private guards. Amongst others, it establishes that all those intending to be hired as guards for a guard business must have attended an advance training course, delivered by schools accredited by the Federal Police. After hiring, once every two years the guards must attend an update course.

[G4-DMA Supplier Human Rights Assessment] Since 2014, all suppliers interested in a qualification process (new, extension or renewal), relating to areas of procurement that present the greatest risk in terms of sustainability answer a specific self-assessment questionnaire to determine the socio-environmental sustainability risk. Periodically updated based on the results and evolution of the qualification process, the questionnaire was developed according to the main requirements of the relevant responsible corporate management standards relating to respect for ethical values and to safeguarding the environment (including SA 8000, Global Compact dell'ONU and ISO 14001) and to the best industry practices.

¹ **[DMA Freedom of Association and Collective Bargaining]** The Group policy aimed at preventing the risk of violation of trade union rights is that relating to "Relations with Suppliers in the TIM procurement process", which reads "...the Group demands of its suppliers and promotes, through them, and including with regards to sub-suppliers, respect for the following principles and provisions of law in force in the countries where these stakeholders operate. All workers must enjoy the legal right to establish and/or subscribe to trade union organisations to protect the individual and collective interests. The role of the workers' trade union representatives must be acknowledged, and they must not be subject to any form of discrimination; in order to go about their union activities, they must be guaranteed remunerated permits and the means necessary to communicate with the workers on the workplace". The same concepts are also stressed in the Group's policy on respect for Human Rights.

² Access gateway-marketing, 3G access, access/release software - mobile, NGAN devices, infrastructural applications, production/collaboration applications, assurance, call centre, cables, creation, data - GBE, delivery, development software, handset, materials-cables/masts/transmissions, middleware, environmental-civil maintenance services/facility management, service layer-vertical applications, server/storage, tablet, WAN - VOIP.



[G4-HR10], [G4-LA14] The self-assessment sustainability questionnaire is integrated into the application that handles the supplier qualification process, which automatically extended it to all new suppliers operating in markets where sustainability is considered to be at risk. Refresher campaigns were mounted for suppliers previously qualified in TIM's Register of suppliers. The results of the questionnaire will make it possible to refine the risk matrix described above.

In 2016, a self-assessment questionnaire was sent out in Brazil on matters of sustainability to suppliers whose orders exceed one million reais, thereby involving 16% of the total number of suppliers. As of the end of 2016 replies had been received from all the 236 suppliers involved. The results will help direct future selection processes.

In October 2016, the ISO 9001:2008 certificate of conformity of the "Quality Management System" was confirmed for the Purchasing and Service Center Logistics Departments under the responsibility of the Business Support Office, with specific recognition for the initiatives taken in the field of sustainability. This initiative has led to the mapping of 23 department processes with the identification of 118 performance indicators that permit the monitoring and improvement of the administration of services supplied to internal clients and suppliers.

The application of the green procurement policy, which contains guidelines for establishing the environmental requirements of products/ services purchased, continues to be an integral part of the procurement policy. The policy covers all stages of the product life: design, production, use and end of life. Published on the "Vendors Hub" supplier portal of TIM and in the sustainability section of the telecomitalia.com website, the document helps to orient purchasing policies towards low environmental impact products and services.

Some questions on the annual satisfaction survey (see *Involvement initiatives*) relate to the green procurement policy and to principles relating to human and employment rights, as well as on their implementation by suppliers, with a view to increasing their involvement in matters of sustainability.

SUSTAINABILITY CHECKS

[G4-DMA Supplier Human Rights Assessment], [G4-DMA Employment] Activities intended to verify the sustainability performance of common suppliers and sub-suppliers continued in 2016 in the framework of the Joint Audit Cooperation (JAC¹) initiative, in accordance with the Memorandum of Understanding signed at the end of 2009 by TIM, Orange and Deutsche Telekom. In 2011, Proximus, KPN, Swisscom and Vodafone Group signed up to the memorandum, followed by Telenor and Telia Company (formerly TeliaSonera) in 2012, Verizon in 2013 and AT&T, Telefónica and Rogers in 2016.

The purposes of the Joint Audit Cooperation initiative are:

- to verify the sustainability of the most important suppliers/sub-suppliers that are common to the members of the JAC, with production plants located in geographical areas with a significant degree of socio-environmental risk. The checks are carried out by means of audits conducted by third parties using a specific method developed by the JAC members themselves, who share the results of the verifications;
- to contribute to the increased sustainability of suppliers/sub-suppliers involved by devising and implementing corrective actions and ongoing improvement programmes, establishing long-lasting and mutually beneficial cooperation with them in terms of efficiency, productivity and risk reduction in the supply chain.



[G4-HR4b], [G4-HR5c], [G4-HR6b], [G4-HR11c], [G4-HR11d], [G4-LA15] Between 2010 and 2016, thanks to the gradual increase in the number of members of JAC, 278 audits were carried out – including 69 in 2016 – in production plants (suppliers and sub-suppliers) located in Asia, Central and South America, North Africa and Eastern Europe. The checks were carried out through international specialised companies selected by competitive tender and related to a total of more than 743,000 workers. The suppliers included in the audit campaign belonged to the user devices and appliances, network appliances and IT equipment production sectors.

The table below shows the non-conformities recorded during audits on Group suppliers, including those relating to Human Rights.

	2016	2015	2014
Environment	31 (23)	27 (22)	14 (12)
Discriminations	3 (2)	5 (3)	2 (2)
Business Ethics	67 (61)	38 (35)	18 (18)
Forced Labour	6 (4)	8 (7)	5 (4)
Child Labour	7 (6)	7 (5)	8 (8)
Freedom of association	8 (8)	2 (2)	2 (2)
Working Hours	49 (36)	33 (27)	23 (20)
Pay	17 (13)	22 (18)	6 (3)
Disciplinary proceeding	4 (4)	5 (4)	4 (3)
Health and Safety	188 (167)	130 (115)	79 (68)

(data relating to suppliers also operating for the Brazil BU is given in brackets)

For all the non-conformities encountered, specific corrective action plans were drawn up that established resolution procedures and timetables amongst others. The implementation of these plans is monitored on a constant basis by the JAC members¹.

On 14 January 2016, Nanjing (China) hosted the fifth annual forum with suppliers involved in the JAC programme, on the matter of: “How Sustainability can accelerate the delivery of business benefits”. The event was attended by over 110 delegates, representing members of the JAC, suppliers, members of the press, entities operating in sustainability and NGOs.

INVOLVING INITIATIVES

Use of the suppliers’ portal (Vendors Hub), launched at the end of 2011 to improve communication and optimise operational processes by applying social networking systems to the business context, is now well established. The portal now includes around 3,900 enabled vendors on the application platform.

The portal allows suppliers to access a private area to view important data and events connected to their relationship with TIM and manage all their own details, thus improving the smooth operation and transparency. The Vendors Hub also includes a public area containing information for potential suppliers.

¹ **[G4-DMA Supplier Human Rights Assessment], [G4-HR11e]** As the aim of the initiative is to help suppliers in the countries at greater risk in terms of the application and respect for sustainability principles improve their performance, non-conformities always result in corrective action and not the termination of the purchase contract.



Documentation is exchanged electronically (e.g. offers, purchase orders, contracts, qualification documentation, surveys), thus reducing the environmental impact resulting from the use of paper, transporting and storing documents.

For the tenth consecutive year, the Group’s main suppliers have been involved in the survey on satisfaction with the Purchasing department and, more generally, with TIM. The online questionnaire, consisting of 28 questions, remained active for 3 weeks. The analysis involved 1,047 active suppliers in the Vendors Hub, with a participation rate of 53,6%. The overall assessment of the supply relationship with the Group achieved a score of 81/100 confirming the positive satisfaction of 2015.

2016 RESULTS AND 2017 OBJECTIVES: ITALY

[G4-DMA Non-discrimination], [G4-DMA Child Labor], [G4-DMA Forced or Compulsory Labor], [G4-DMA Security Practices], [G4-DMA Indigenous Rights], [G4-DMA Supplier Human Rights Assessment].

2016 results and 2017 objectives: Italy

INDICATOR	DETAILS	2016 OBJECTIVE	2016 TOTAL	2017 OBJECTIVE
% suppliers audited.	Total amount of high risk suppliers who have undergone an in-depth sustainability audit since 2010 .	80% of high risk suppliers, as defined in the paragraph on “sustainability initiatives”.	80%	80%
% of suppliers assessed.	Suppliers assessed with a basic ethics questionnaire. Moreover, suppliers belonging to risk sectors are assessed with a more complex questionnaire .	100% of qualified suppliers, as defined in the introduction to the section.	100%	100%
% procurement staff who received training on ESG risks relating to purchasing decisions.	% staff directly involved in procurement, who participated in at least one training session on social, environmental and governance matters.	90%	92%	80%
% contracts containing clauses connected with ESG risks.		100%	100%	100%
% suppliers with ISO 14001 or equivalent certificates.		50% of network suppliers.	79%	50%
Integration of the ESG risk profile in the general supplier risk profile.	All the suppliers qualified and registered in the register of suppliers are assessed based on an overall “Key Risk Indicator” which also includes sustainability indicators.	100% of qualified suppliers, as defined in the introduction to the section.	100%	100%

¹ The number of high risk suppliers varies year on year, as it depends on the orders made every year and the procurement market in which the suppliers operate. The same applies in general to the total number of suppliers belonging to the various procurement markets.

² The KPI refers both to new suppliers and to existing suppliers in case of renewal or extension of their qualification.



2016 results and 2017 objectives: Brazil

INDICATOR	DETAILS	2016 OBJECTIVE	2016 TOTAL	2017 OBJECTIVE
Supplier management.	Number of the main suppliers assessed under sustainability criteria.	200	433	250