Instituto Nacional de Tecnología Industrial
INTI

Ministerio de Economía Argentina
Secretaría de Industria y Desarrollo Productivo

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SMEs EXPORT

Argentine technology and innovation

SUSTAINABLE MOBILITY

INSTITUTIONAL RELATIONS AND COMUNICATIONS OPERATIONAL MANAGEMENT
Institutional Relations Deputy Management

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Sustainable mobility

Introduction

INTI, the National Institute of Industrial Technology, with more than 65 years of experience, has accompanied the national industry with a federal perspective with different roles, such as that of a metrological reference, as a leader in testing, collaborating with the national regulatory framework and intervening in the development and innovation of new technologies.

The new technological paradigms, such as Sustainable Mobility, are recognized as strategic activities and should be approached through the concept of "Ecosystem", due to the number of actors involved, which leads to a previous analysis to detect the necessary articulations and to carry out an analysis of the needs and activities that must be carried out in order to obtain effective impacts.

The great synergy between INTI centers, each with its different expertise, gives different approaches to provide integral solutions to the projects.

Following this conception of work, INTI collaborates with the different governmental, provincial and/or municipal agencies, through regulated programs, for example, Model Configuration License (LCM), Certificate of Homologation of Safety Autoparts (CHAS), technical consultancy, etc. And, in collaboration with the industrial sector, with supplier development programs, technological development and product and process quality, with the ultimate goal of meeting the needs of the population, providing safety, reliability in what it consumes, and contributing to technological independence and the progressive increase of national content.

From our portfolio of projects that the Institute is working on, we can mention the following projects and programs that range from micro mobility to vehicles suitable for cargo, or passenger vehicles that meet safety criteria. Providing innovative solutions in last mile transportation, which is, in the near future, a means to be incorporated into the variants of sustainable mobility, which will have to be articulated with other means of mass and public transportation.

As a virtuous example between the Institute, the private companies and the public sector, **the RETROFIT program** accelerates the transition to electromobility. It consists of replacing the conventional engine with an electric motor and its corresponding battery pack, where active and passive safety must be prioritized, without altering the initial structural conditions of the vehicle, for which there must be controls to ensure the conditions of circulation through the acceptance criteria, therefore, the verifications that are performed are of great importance, so a strategic linkage was made with different companies for its realization and effectiveness.

On the other hand, in the search for being at the technological forefront and finding solutions for the industry, investments are made to accompany electromobility, with the development of the “National Center for Lithium Batteries” (CENBLIT) in conjunction with CETEM (ADIMRA), which will strengthen the national lithium battery industry, through the local development of components, second life projects and their final disposal. The creation of laboratories is an area that allows innovation, control and competitive improvement of parts, auto parts or vehicles.

Diego Marino, Eng.

HEAD OF THE MOBILITY INDUSTRY DEVELOPMENT DEPARTMENT

CONTROL VEHÍCULAR ARGENTINO S.A., Diagnostic equipment for electric transport

The level of pollution produced by the vehicle fleet through greenhouse gas emissions is a serious problem the world faces. In this scenario, there is a clear trend to replace internal combustion engine vehicles with electric variants. This implies working hard on the generation of infrastructure that not only covers energy supply but also the inspection of this new generation of transport. In this sense, the company **Control Vehicular Argentino S.A. manufactures and commercializes equipment for electrical reconversion, automotive diagnostics and technical verification of traditional, hybrid and electric vehicles.**

"The company approached us with the purpose of certifying its dynamometric benches and, given that there was no standard in the country, from the Mechanics Center we generated a methodology based on which, periodically, the company performs the certification under the procedures of the National Institute of Industrial Technology (INTI)", explains Martín Torreblanca, technological referent of the Institute.

On the other hand, Alejandro Palacios, member of the Certification Body, adds that CVA S.A. was granted four Certificates of Conformity of Technical Aptitude after having passed the corresponding tests carried out at the INTI Mechanics Center. This allowed the company to position its brand globally, export to 27 countries and target new markets.

"The **first mobile laboratory of Technical Vehicle Verification for electric vehicles** was jointly created. Measurement parameters were adjusted for this type of vehicles and the control procedure was established in order to certify the technical aptitude of the equipment", says Diego Marino, head of the Development Department for the Mobility Industry at INTI.

"Thanks to the assistance provided by the Institute, we have been able to unblock trade barriers abroad and export unique products that measure the safety of the vehicle fleet in the world", says Constantino Abella Roigt, president of the company.

CVA S.A. was able to patent three measuring devices that facilitate in a simple and safe manner different types of controls that usually have to be performed on vehicles.

One of them is the **Evolution 3**, a device that differentiates itself in the market for its portability in performing vehicle diagnostics in only three stages: 1- Aligner at the pass, where the lateral displacement of the platform determines the convergence or divergence of the vehicle. 2- Suspension bench, which provides a reliable and precise evaluation of the suspension system, and 3- Brake tester, which quickly and efficiently verifies the condition of the brake system.

Christian Delutis, in charge of the company's Design, Research and Development area explains **that this equipment, unlike those marketed in other countries, does not require an infrastructure for its use.** Its main destination is car repair shops, since, in addition to vehicle diagnostics, it allows a repair-oriented analysis.

Another product of their invention is the Revolution Truck, which, in addition to the equipment of the Evolution 3, performs diagnostics on vehicles weighing from 2 to 20 tons per axle.

Both units can incorporate a backlash detector, opacimeter and gas analyzer that measures through non-dispersive infrared, free hydrocarbons, carbon monoxide, oxygen, nitrous oxide and carbon dioxide.

Its third patent corresponds to the **incorporation of hydrostatic propulsion to the Evolution 3 and Revolution Truck**, whose innovation is based on the fact that the platform of the measuring equipment is locked so that the car can leave the roller after undergoing the vehicle technical verification tests.

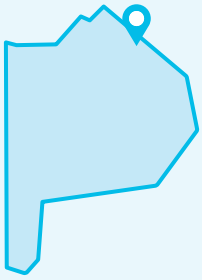
In December 2019, the European Union announced its intention to reduce greenhouse gas emissions from road transport by 90% by 2050 compared to 1990. This was accompanied at the end of October 2022 by the announcement of a ban on the sale combustion vehicles beyond 2035.

Source: corresponsables.com

"Today it is a priority to stop the polluting activity, for this reason, in addition to offering our products, we transfer the turnkey manufacturing methodology to any country that wishes to contribute to clean automotive production. **We are the only company in Latin America that complies with international requirements to supply equipment and set up official technical verification plants"**, says Abella Roigt.

The company gained access to very demanding markets such as Germany, Belgium, Canada, Spain, France, Mexico and the United States. It now wishes to enter Brazil and then the rest of Latin America to convert combustion vehicles to electric vehicles, as it does in Argentina.

"CVA is a company with a global vision, a leader and innovator in automotive diagnostics. **We have the know-how, the track record, the technology accredited by more than 27 countries and the vital technology to migrate from combustion to the electric transition and alternative energies in a safe, efficient and sustainable way.** The first car was electric and today it is electric again with the simplicity and efficiency of its ancestors", concludes Abella Roigt.



CONTROL VEHICULAR ARGENTINO S.A.

Florida, province of Buenos Aires. Argentina

Manufacturer of automotive and VTV diagnostic equipment.

-Two plants of 1500 m^2 each one.

-Production capacity: 400 to 500 equipments per year.

-The production and outsourcing of the company is adjusted to the potential demand.

- **HS CODE:**

-9031.20.90.900Z / Brake tester.

- 9031.20.90.900Z / Suspension bench

- 9027.10.00.900M / Gas analyser

- 9031.20.90.900Z / Mobile Brake tester

- 9031.20.20.90.900Z / Aligner

- 9031.20.90.900Z / Play detector 9031.20.90.900Z / Play detector

BICI PERETTI S.A., certified and customized bicycles

The bicycle is the most traditional option for sustainable mobility. Its use avoids issues regarding traffic, infrastructure, stress, while at the same time promoting health and the creation of green spaces. In this sense, Argentina has an interesting potential to capture the interest of those who prefer this type of mobility.

Bici Peretti S. A. is a second generation family business with more than 35 years of experience in the industry, is firmly consolidated in the sector. Through its commercial brand SLP, it offers a wide variety of designs, frames and sizes to suit the functionality and preferences of each type of customer. It diversifies its portfolio with models oriented to women cyclists and children, with diverse functionalities depending on the user's needs.

Federico Paterson, head of INTI's bicycle certification area, says that the company has been working with INTI for more than ten years.During that time, has seen its continuous growth, and today it has become a model in its field.

The company approaches INTI every year to renew its Product Safety Requirements Certification. In order to achieve this, the Certification Body audits its processes in search of continuous improvement, focusing on the traceability of its components, the production system and the final product. As a complement to the audit, samples are taken from bicycles which are subjected to more than thirty tests in the mechanics center, including, for example, marking, braking distance and component fatigue, among others.

"We have reached a certain level where we know that the quality of our products is assured for both domestic and international consumption", says Tomás Sarasin, company's managing director.

The size of the bicycle market is expected to grow from USD 53.9 billion in 2023 to USD 66.22 billion by 2028, at a compound annual growth rate of 4.20% during the period (2023-2028).

Source: Mordor

Bici Peretti S.A. is one of the few companies in the country that has the Product Safety Requirements Certification and is well established in the national market for its wide range of innovative designs. Its manufacturing process includes a conveyor belt with pre-assembly substations until the final assembly and placement of the wheels.

"Our products convey passion for sport and life quality. Passion, because we know the tastes and needs of our customers, and quality of life because we provide more than just a bike. We provide answers and surprise the customer even in the smallest details. **On the other hand, our products are accessible and we are a reference in terms of price", Sarasin reflects.**

Each bicycle model is available in 4 sizes, designed with different aesthetic design and technology that provides an identity and functionality tailored to the user's profile. For example, a particular beam is combined with the same color as the frame of the bicycle, with the brand's own characteristics.

The company also has a long track record in the production of electrically assisted bicycles, which are becoming increasingly popular in urban areas thanks to the advantage of reducing pedaling effort.

The company is currently present in the Uruguayan market and its export targets are to enter the United States and Brazil, since it sees in those destinations an important demand for sustainable mobility.

"We are exporting the SLP type mountain bike 29 wheel range because it is a very versatile line that allows us to have features for different types of use such as recreation, mountain, rural; with an excellent combination of design, quality and price," says María Rosa Holhman, Marketing Manager.

"We continue to grow exponentially with more experience, safety and innovation. Each line is designed and developed according to the functionality and profile of the customer. Our goal is to improve the experience of every cyclist and make them as passionate as we are about this type of mobility," Sarasin reflects.

BICI PERETTI S.A.

Rafaela, province of Santa Fe. Argentina

Develops, produces and sells products related to the bicycle world.

-Production plant: 12,000 m².

-Annual production capacity: 250,000 units.

• HS CODE:

-8712.00.10 / Bicycles of the touring, beach and cross type.

-8711.60.00 / E-Bikes

NEIL CLIMATIZADORES, low energy consumption evaporative conditioning for motorhomes

The electrical consumption of motorhomes is key as they need to be autonomous in places where there is no electrical power available. The Neil air conditioners, better known by their trade mark "Comfort", generate cold by evaporation which, unlike an air conditioner, has a very low power consumption (maximum 7 Ah at 12v), and is connected directly to the vehicle's battery. **In addition, it produces a natural cooling, without CO2 emissions and reduces the emission of greenhouse gases.**

Neil Climatizadores has been dedicated for more than 20 years to the design, manufacture and installation of evaporative coolers, ideal for motorhomes and vehicles in general. With the **patented "pre-cooling" system in Argentina and Brazil, the company offers a differential product in terms of performance compared to the rest of the air conditioners in the foreign market.** It does not consume fuel, is easy to install and can be used with the vehicle stopped and the engine off without reducing power.

Among its models, the Neil Camper stands out for its easy installation. It offers an efficient solution in motorhomes due to its low power consumption and good performance in cold generation, which makes it an innovator in the foreign market. It has an electric sleeve that allows to take advantage of the installation of the air conditioner to connect all types of solar panels on the roof with the solar regulator inside. It is suitable for all vehicles, avoids water leaks in cable entry from the outside, and has a photovoltaic cable on the outside and Connect command (Bluetooth) to control it from the cell phone.

According to Canstar Blue, the average reverse-cycle split-system air conditioner could cost about $0.60 per hour. However, an evaporative cooling system could cost less than $0.10 per hour with another $0.02 for water.

Sebastian Neil, the company's president, says that the differentiating advantage of their air conditioners is that they guarantee maximum performance, even in the most adverse climates.

Cristian Sandre, in charge of INTI's Design Management Department, says that the company's relationship with the Institute began after the financing granted by the INTI's Competitiveness Support Program of the Secretariat of Industry and Productive Development of the Ministry of Economy to renew its product for the European market.

The technical assistance began with the preparation of an industry trend report to assess the current market and future positioning of the air conditioner, with a special focus on the key points for adding value to the final product. In this direction, the product's interface and air outlets were redesigned in a strategic manner, giving it a better perception of quality and design, aligned to new trends with a technological resolution for low scale and minimum number of pieces.

Then, a search for local suppliers was carried out and a link was established with the company in order to start the production process for subsequent assembly and export. Finally, a technical recommendations report was prepared in order to quickly scale up the manufacturing of the product through a technological change in the production process of some of its parts.

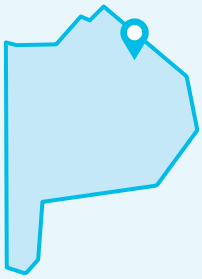
Gastón Bourges, member of the Department of Industrial Product Engineering of INTI's Central Region, explains that through a fluid-simulation software and on the basis of the physical prototype, it was possible to improve the efficiency of the air outlet so that the new shape favors a good flow of conditioned air. To achieve this, we worked on the fluid-dynamic study of the diffuser model of the air conditioner. Several design alternatives were proposed and the most convenient in terms of air distribution and comfort parameters was selected. The INTI specialist also points out the advantage of numerically simulating the air flow to reduce the uncertainty in the development of the prototype, as well as the time and cost of its development.

The quality and performance of the product are superior to those that can be found in the rest of Latin America, since it uses silent pumps and its pre-cooling system makes the air conditioner more efficient. This is due to the water circuit that runs from the external tank to a pre-cooling chamber inside the air conditioner and from there to the filter. This circuit is different from the rest of the air conditioners where the water goes directly from the external tank to the filter.

Thanks to the work carried out with INTI, the company has been able to expand its presence in Europe, mainly in Spain, and to enter the United States," says Neil.

The company has been exporting to Europe for ten years, mainly to Australia, Spain, Holland, Italy and Portugal, Italy and Portugal, where its main clients are GES International, Campilusa and EGA Import. Today, they want to increase their presence on that continent and in the United States, since the motorhome culture is highly developed in these regions.

"The Neil Camper model for motorhomes is our flagship product. We offer all the information to our customers online in four languages, with technical information and video tutorials. We have technical and commercial communication channels, which makes it easier for us to get closer to our customers both in Argentina and the rest of the world," concludes Neil.



NEIL CLIMATIZADORES

Merlo, Province of Buenos Aires. Argentina

Manufacture and installation of evaporative air conditioners for vehicles.

Factory: 570 m²

-Annual production capacity: 2,500 units.

• HS CODE:

-8479.60.00 / Evaporative apparatus for cooling air. Evaporative air conditioner for vehicles.

TECNOTRANS S.R.L., Intelligent transit solutions

In urban planning, the concept of smart city is strongly emerging. This integrates digital technologies in its networks, services and infrastructures, thus making it more efficient and livable for the benefit of its inhabitants and businesses. In this process, the key is to achieve solutions through the use of data to make decisions, for example, to organize vehicular traffic.

Today, it is not enough to install a traffic light and program a green wave. There are more and more options to provide fluency and safety to automobile traffic. In this sense, the company Tecnotrans S.R.L. has an extensive experience in the innovation, development and integration of technological systems for the control and improvement of traffic and transportation in Latin American cities.

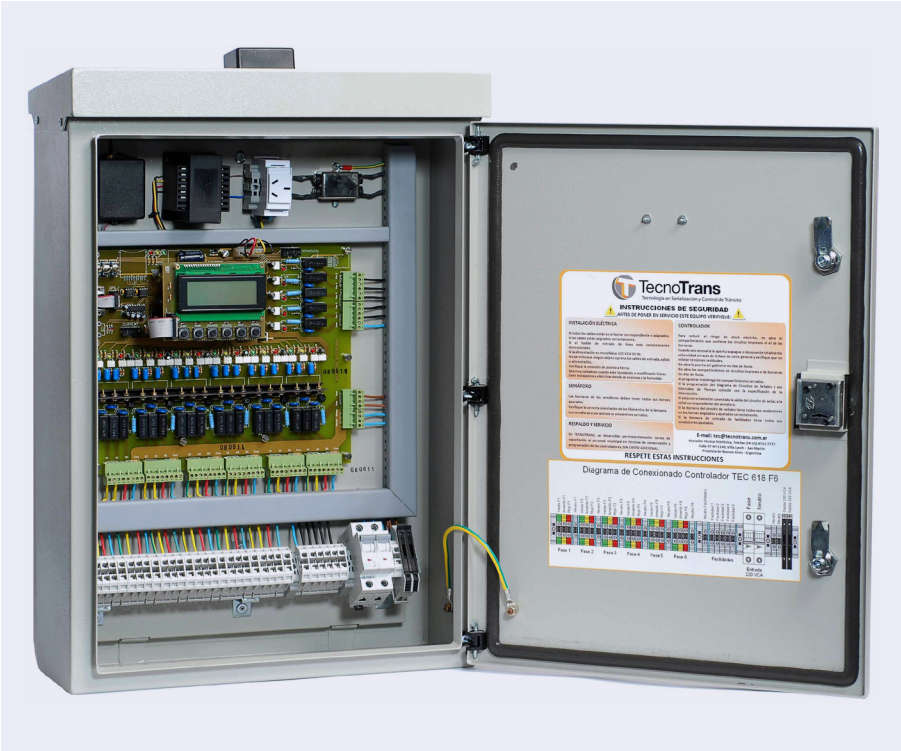
The company manufactures and installs software, state-of-the-art signage, illuminated signage (traffic lights), railway signage (traffic lights), railway and road signaling (demarcation equipment). **It is internationally positioned in the production and marketing of traffic and commercialization of intelligent traffic control equipment.**

Among its most outstanding products are these intelligent traffic controllers that vary according to the complexity of each city and seek to avoid traffic light failures. They provide for a smooth traffic flow and also have electrical and electromechanical protections that allow for intelligent traffic control. They have software that enables autonomous coordination with the traffic lights of an avenue, its intersections and adjustment to the traffic flow.

"The company's approach to the Institute was prompted by the need to carry out tests of various kinds on its products. For example, those determined by IRAM standards: photometric, colorimetric, dust and water resistance, among others. **Access to the tests and the availability of the certificates made it easier for them to ensure the quality and development according to international standards,"** says Adrián Mantellini of INTI's lighting technology laboratory.

According to the Economic Commission for Latin America and the Caribbean (ECLAC), the centralized traffic control systems allow for integrated traffic management, the coordination of axes or networks of traffic lights and of traffic problems by means of cameras, variable information signs, remote detection of faults and management of emergency situations. They are highly profitable projects in social terms, when properly designed and implemented in cities with traffic congestion.

Of its three models, the most demanded is the TEC 618 F6, which has 18 outlets grouped in 6 phases. It is built under the modular controller concept and conforms to international manufacturing standards. In addition, it has removable components, with no interconnection cable between them, and is indestructible in case of insertion in a wrong slot. Thus, each module has a specific function that allows rapid exchange in case of failure or expansion.



All models are traffic-controlled for a dynamic, clog-free flow. A at the same time, they adapt to the day's unforeseen events through the creation of protected corridors: fire, ambulance and school crossings, among other situations,automatically.

Today, using current generations of mobile networks, there are already intelligent systems that adapt the traffic light network to the requirements of cities. In this case, the use of 5G will allow the use of high-definition cameras for better control.

Source: ECLAC

Depending on each need, the private connection of the controllers is installed via fiber optics or special antennas are used to interconnect them with each other. Then, the wired or wireless communication is activated through a central server.

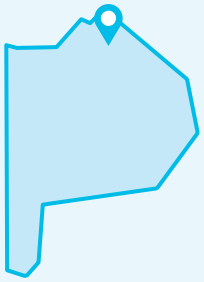
"The price-quality and performance ratio is very good compared to European or North American transit controllers. . They are tailor-made, depending on the topology or climate, among other aspects of a city.

The company emphasizes the value of its after-sales service: it provides technical training to road personnel in the use of the equipment, and when a turnkey service is installed, the equipment is adjusted on site and its service life is of at least 10 years, provided with remote or "on-site" maintenance," says Marcelo Daniel Ruiz, founding partner of the company.

Another of its outstanding products is the physical railway signaling line, consisting of **10 signs with different types of illumination that indicate, for example, barrier crossings, train driver crossing, signaling for train drivers and railway bell, among others.**

They have the Certificate of Type Recognition issued by Bureau Veritas and have more than 20 years of export experience in countries such as Bolivia, Costa Rica, Ecuador, Morocco and Uruguay, with interest in continuing to deepen their trade agreements in Latin America.

"Tecnotrans was born to improve the quality of life in cities. Our mission to reduce accidents, optimize vehicular traffic times and secure roads. We have a deep knowledge to solve the problems of today's and future urban mobility," explains Daniel Ruiz.



TECNOTRANS S.A.

Bella Vista, District of San Miguel, Province of Buenos Aires. Argentina

Manufacture and installation of software, smart signage, controller equipment, light signaling, railway and road signaling.

-Plant: 4,600 m^2

-Production capacity: 1000 controllers per year.

• HS CODE:

-8530.80.10.000M / Digital, for automotive traffic control. Other apparatus. Electrical signaling apparatus (except those for transmission of messages), safety, control or command apparatus for railways, tramways, roads, inland waterways, areas or parks, waterways, parking areas or parking lots, port installations or airports, other than those of heading airports, other than those of heading 8608. Electrical machinery, apparatus and equipment and parts thereof; sound recorders and reproducers, sound and video television image and sound recorders and reproducers, and parts and accessories of such.

- 8530.10.10.000 N / Railway signals, two types, digital, for traffic control.

- 8530.10.90.000 R / and other.

International Cooperation

HYDROGEN NETWORK: "PRODUCTION AND USES IN TRANSPORTATION AND THE ELECTRIC SECTOR" - H2TRANSEL is an initiative funded by the Ibero-American Program of Science and Technology for Development (CYTED). This instrument, created by the governments of the Ibero-American countries, seeks to promote cooperation in the fields of science, technology and innovation for the harmonious development of Ibero-America.

INTI is part of the consortium created for its execution, coordinated by the Institute of Hydrogen Technologies and Sustainable Energy (UBA-ITHES), the University of Santander and the University of Santander and the University of Malaga, and made up of more than 40 universities, companies and government agencies from 13 Ibero-American countries: Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Spain, Mexico, Panama, Paraguay, Portugal, Uruguay and Venezuela.

The main objective of this Network is to provide a space for the Ibero-American community to analyze and discuss: a) current and future hydrogen production technologies, with emphasis on processes using renewable and non-polluting raw materials, b) advances related to storage, transport and safety, and c) the applications of hydrogen as an energy carrier, in automotive transport, in the electric power sector and its complementation with fuel cells.

Networking makes it possible to articulate the potentialities of Ibero-American R&D groups dedicated to the study of new hydrogen production processes and the development of new applications as an energy vector, linking them with the productive sector and government agencies, with the purpose of establishing tools to find solutions to technical problems, increase the capacity and enhance the development of its members and to progressively contribute to the technological development of Ibero-American countries.

With the growing interest in hydrogen as a clean energy source needed to ensure a sustainable future, it is necessary to generate the appropriate framework so that research groups in our region, working as a collaborative network , can learn about new scientific technological developments and build the necessary capabilities to adapt to the new energy scenario that lies ahead.

The development of new materials for hydrogen storage, new catalysts and photocatalysts for production and purification, the use of non-conventional reactors, the use of biomass and natural gas as raw materials, the development of processes for the capture and confinement of CO2, one of the gases responsible for the greenhouse effect, and the development of fuel cells, are new technologies that should be explored as an opportunity to insert our own technology into the world market or adapt the one that best suits each situation.

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Ministerio de Economía
Argentina

Secretaría de Industria
y Desarrollo Productivo

E-mail: boletin_pymesexportan@inti.gob.ar

INSTITUTIONAL RELATIONS AND COMUNICATIONS OPERATIONAL MANAGEMENT

Institutional Relations Deputy Management

www.inti.gob.ar