

ANNUAL REPORT 2016



dictuc
INGENIERÍA QUE TRANSFORMA

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1. | PRESENTATION





PRESENTATION

For almost 80 years, Dictuc has propelled its work to become the engine of the country's technological development.

Dictuc offers high impact solutions and well being for society, through innovation and knowledge transfer.

The professional and ethical excellence that characterizes the work of Dictuc today shines with a new image, a new way of showing itself to the world; which adapts to the current times, but keeps the excellence trademark of Engineering UC that characterizes its services.

At Dictuc there is the conviction that with originality, innovation and scientific accuracy, what seems unlikely can become achievable. Each challenge increases the passion for making the world a better place, sustainable and welcoming for everyone.

Services are performed by specialist units, whom draw inspiration from the power of science and technology to take care of the needs from different productive sectors in the country.

At Dictuc we are inspired by the possibility, through engineering, of creating the future, expanding development possibilities and contributing in a significant way to the quality of life, of both, people and society.

Dictuc is... engineering that transforms.



2. | CORPORATE INFORMATION

2.1 INTRODUCTION OF AUTHORITIES

PRESIDENT OF THE BOARD LUIS FERNANDO ALARCON

This year, Dictuc presents itself with a new image that proves its ability to renew itself without losing its trademark of tradition and excellence it has kept for almost 80 years as an affiliated company of the Pontifical Catholic University of Chile, and as effective vehicle for the transfer of advanced knowledge from our Engineering School toward society.

This change also shows the adaptability Dictuc has to focus its services to the needs of the country, identifying the productive sectors in which it can contribute, with its 28 service units and 8 Spin-Offs.

With this new image and the work of everyone who is a part of Dictuc, the dream of becoming the engine for Chile's technological development is even closer, allowing for each day to have more innovative and effective

solutions proposed to face the problems from the industry and the country.

It is also important to note the great support received from the professors of the Engineering School, through their innovative projects, since it is their talent as well as their experience which allow Dictuc to generate, day by day, more value for the society and a better quality of life for everyone.

All the aforementioned is Dictuc's foundation, it is the essence that allows us to move forward, improving and earning recognitions. Dictuc's certification as a B Company is an example and a clear sign that Dictuc uses the market's force to generate a positive difference in the environment, operating with high standards of performance and transparency.



I would like to use the opportunity to thank the hard work carried out at Dictuc, for all the contributions generated for the School, the University, and the society.

DICTUC CEO FELIPE BAHAMONDES

In 78 years of history, Dictuc has managed to transform all the acquired experience in quality services that allow it to be recognized nowadays as a leader agency in engineering applied to the development of innovations and technology transfer.

The recognition attained by Dictuc is not based only on the quality of the services offered, but also on their continuous development and renovation to fit the needs of the country.

This is due to the existence of a permanent commitment at Dictuc to offering quality services that have a direct and positive impact on the society, which is why there is an ongoing generation or implementation of concrete solutions for national and international companies.

To achieve all this, Dictuc has multidisciplinary teams that focus their work everyday to get the company to be the engine of Chile's technological development and become the most important agency leading technology transfer in Latin America by the end of the decade.

Through this publication, we want to account for this, which is why we are presenting our 2016 results, highlighting the several services offered by our 28 units, which are related to the nine sectors of national concern we currently cover.

This annual report edition, besides providing a series of interesting and relevant data about our organization, is different from the rest because it highlights our new corporate image, which in turn reflects our ability to



adapt to current times, maintaining our usual trademark of quality and excellence.

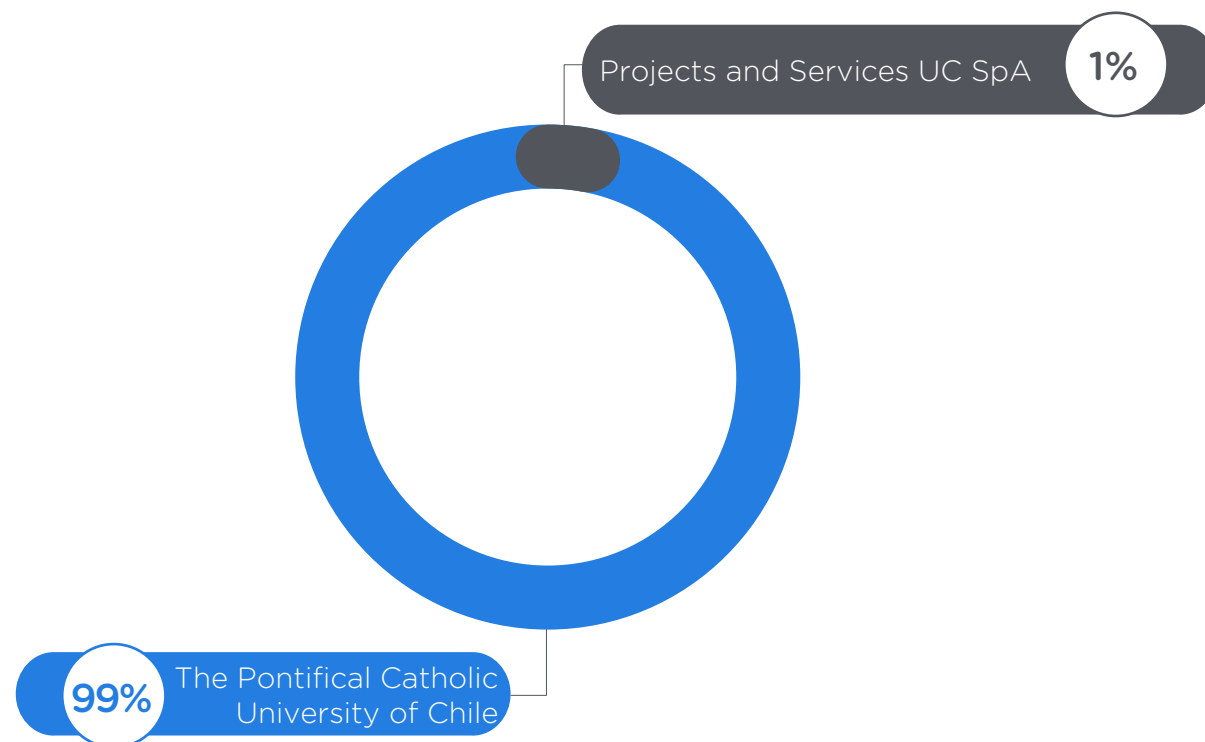
Welcome to Dictuc.



2.2 CORPORATE STRUCTURE

Dictuc is a Closed Joint Stock Company, incorporated by public deed on January 21st of 1994 before the Notary Public of Santiago, Mr. Sergio Rodriguez Garces. The extract was published in the Official Gazette dated January 29th of 1994 and registered in page 1898 N° 1535 of the Registry of Commerce, of the Real Estate and Commercial Registry of Santiago.

The Pontifical Catholic University of Chile owns 99% of the shares at Dictuc S.A., and Projects and Services UC SpA owns 1% of the shares.





2.3 OUR POLICY

Dictuc of the Pontifical Catholic University of Chile develops, from the field of Engineering, certification activities, inspections, calibrations, laboratory trials, multidisciplinary consultancy, technological development, information management, continuous education, innovation, and entrepreneurship support and the creation of new businesses.

The activities at Dictuc comply with the requirements of its Quality, Safety and Occupational Health Management System, maintaining a permanent concern for the impact its work may have on the environment and the community.

Through its management system, Dictuc constantly seeks the satisfaction of their customer's, worker's, the University's and the community's expectations, while generating resources to invest in physical and

technology infrastructure, which allows them to develop their activity in a sustainable way and support with resources the achievement of the academic project of the Pontifical Catholic University of Chile.

In this context, the Policy at Dictuc is supported by

- The development, implementation and continuous improvement of the management systems based in current legislation, regulations and standards regarding quality, safety and occupational health, which allow it to work with excellence, maintaining the integrity and wellbeing of its workers, minimizing the negative impact the activity may have and preventing pollution.
- The permanent commitment of its managers is to promote the compliance by the whole organization with the requirements

of the current regulations of Dictuc's management systems, stipulated and communicated through manuals and corporate documents.

- The commitment of the supervisors regarding the compliance with this policy, generating a motivating working environment and ensuring the necessary resources for the correct performance of its workers in every level within the organization.
- The establishment of specific goals and objectives in all of Dictuc's units and the work of the management in supervising its compliance.
- The encouragement for developing tools for selection, assessment and training ensuring a competent staff across the different levels of the organization.

- The implementation of internal means of communication inform in an efficient and effective way of the mission, the goals, policies, and results of the operations at Dictuc.
- The communication to the community of Dictuc's works, protecting the brand's value and the institution's prestige.
- The execution of activities in an unbiased way, not allowing for commercial, financial or any other sort of pressures that may compromise impartiality.
- The implementation of a code of conduct and a Model for Crime Prevention, that ensure the compliance of high integrity, transparency and ethic standards in processes and businesses.

In the light of this policy, Dictuc carries out its work aiming for excellence in its procedures and results to satisfy the expectations of its clients, workers, the University, and the country.

CEO



2.4 CORPORATE GOVERNANCE

BOARD



Luis Fernando Alarcón
President



Jaime Bellolio
Director



Juan Carlos de la Llera
Director



Patricio Donoso
Director



Juan Carlos Ferrer
Director



Renato Ramírez
Director



Jorge O'Ryan
Director

MANAGEMENT



Felipe Bahamondes
CEO



Mauricio González
Financial Administration
Manager



Mariela Silva
Corporate Affairs Manager



María Isabel Gallardo
Head of Quality Assurance



Gabriela Moraga
Operations Manager



Julio Lavarello
Personnel Manager



Vidal Rodríguez
Information Technologies
Manager

ADVISORY COUNCIL

Rodrigo Escobar
Pablo Irrarázaval
Sergio Maturana
José Francisco Muñoz
Alfredo Serpell

2.5 UNITS ORGANIZATION CHART



2.6 DICTUC DERIVATIVE COMPANIES

Dictuc model accelerates knowledge and technology transfer process even further, by means of the creation of spin-offs - originated from this units or projects lead by UC Engineering academics -, of which Dictuc holds an average of 29.3% ownership.

Dictuc spin-offs:

Asesorías y Servicios Tribológicos del Norte Grande S.A.

<http://www.dictuctribologia.cl/>

Incorporation year: 2009
Associated entrepreneur: Pedro Cancino
Dictuc share percentage: 70%



Gestión de la Producción Asesorías SpA

www.gepro.cl

Incorporation year: 2014
Associated professor: Luis Fernando Alarcon
Dictuc share percentage: 28%



Sirve S.A.

www.sirve.cl

Incorporation year: 2003
Associated professor: Juan Carlos de la Llera
Dictuc share percentage: 17.5%



Tekemi S.A.

www.tekemi.com

Incorporation year: 2010
Associated professor: Pablo Irarrázaval
Dictuc share percentage: 21.2%



Pricing SpA

www.pricing.cl

Incorporation year: 2014
Associated professor: Juan Carlos Ferrer
Dictuc share percentage: 28%



Shift SpA

www.shiftlabor.com

Incorporation year: 2014
Associated professors: Juan Carlos Ferrer, Juan Carlos Muñoz
Dictuc share percentage: 28%



Notus SpA

In progress.
Associated professors: Pedro Gazmuri
Dictuc share percentage: 20,0%



RiskAmerica SpA

www.riskamerica.com

Incorporation year: 2015
Associated professors: Gonzalo Cortazar, Nicolas Majluf
Dictuc share percentage: 21.8%



Also, Dictuc has sold its ownership in some of its spin-offs companies:

- Solex S.A. (1999)
- Efusión S.A. (2011)
- Natural Response S.A. (2012)
- Desert King Chile S.A. (2012)
- Napsis S.A. (2013)
- Eduinnova S.A (2015)
- Sistemas de Productividad y Gestión S.A. (2015)
- Videla y Asociados S.A. (2016)



3. | WHO WE ARE

3.1 OUR ESSENCE

PILLAR FOR TECHNOLOGY TRANSFER, ADDING VALUE TO THE SOCIETY

Dictuc's vision is to become the engine for technological development in the country, solving existing needs for people and creating value through the application of innovation and transferring the knowledge generated by the Engineering School, with professional and ethical excellence, ensuring a generation of impact and wellbeing to the society.

To make this vision a reality, Dictuc has elaborated a strategic plan focused in different dimensions.

- Involvement of larger group of permanent academics to their activity.

- Greater professionalization, efficiency, and effectiveness in its administration.
- Creating value through the activity of trials and certifications, and the development of a spin-off portfolio with an impact.

All the previous information supported by an account communicating its stakeholders (Engineering School; Higher Management and other Faculties of the University; Community, and Collaborators) about Dictuc's contribution to Chile's progress and the impact its activity has on people's wellbeing, taking as its own the University's Third Mission.

PUBLIC COMMITMENT TO UC ENGINEERING WITH AN IMPACT ON SOCIETY

Dictuc shows with concrete facts that it is possible to link academy and investigation with the real problems in society, generating a virtuous cycle. Through its activity, Dictuc improves the image of the UC as an objective and independent institution, a model for faith and public trust, contributing consistently in time to the University's Third Mission. These contributions are to be communicated via the construction of a new identity that highlights the real impact Dictuc produces in people's lives.

DICTUC SUPPORTS A SUSTAINABLE DEVELOPMENT OVER THE COURSE OF TIME IN UC ENGINEERING

A relevant element in the future development of UC Engineering is to generate an economy that allows to have a sustainable in time. In this sense, Dictuc's permanent support has facilitated the development of UC Engineering, currently generating about CLP \$12 million annually by each ordinary permanent academic.



3.2 OUR HISTORY

From the beginning, the Pontifical Catholic University of Chile had in its spirit the goal of adapting to the country's needs, looking for ways to transfer the knowledge and technology generated at the education center to society, contributing to improving the quality of life of people and the country.

In this context, during the decade of the 1930's the UC put its school

laboratories for material trials to the service of the country's productive sectors. This vision is aligned with the creation of the Production Development Corporation (CORFO) in 1939, stating the existent synchronicity between the Catholic University and the growing demand for knowledge that Chile's technological development has required, seeking to deepen the bonds between knowledge and society's needs.

As a part of this policy to strengthen bonds with society, in 1938 the Institute of Material Research was created at the UC Engineering School, which objectives were to provide certification of high quality products, training, advance courses, studies and project development in different engineering specialties.

In 1947, looking for a wider and more specialized service offering,



the Directorate for Scientific and Technological Investigation of the Pontifical Catholic University of Chile, Dictuc, was created. The growing development of a more professional, industry oriented work, encouraged the incorporation of Dictuc S.A. in 1994, as the Catholic University's subsidiary. Thus, achieving a more fluid functioning, under the concept of a private institution, expanding the service offering to sectors that were not exploited previously.



The country's new scenarios and companies have encouraged Dictuc to incorporate the innovation management and support to entrepreneurship, through the systematization of said services of creation, support, and participation in projects of R+D+I.

Therefore, Dictuc is the current main subsidiary of the Pontifical Catholic University of Chile, transferring expert knowledge and technology generated



at the UC Engineering School, to put them to the service of the community in concrete solutions for the needs of the country, with a new image to present to the country, and its certification as a B Company, in recognition for the good practices executed within the company.



3.3 OUR DREAM

To become the engine for technological development in the country, with the purpose of solving existing needs and creating value through the application of innovation and knowledge transfer; with professional and ethical excellence, ensuring a generation of impact and wellbeing to the society.



3.4 WE ARE A B COMPANY

In May 2016, Dictuc obtained a certification as a “B Company”, which is a recognition to the use of their activity and not only for the company’s health and the stakeholder’s benefit, but for the wellbeing of its workers, the environment and the social environment as well, with good practices for corporate governance and transparency.

Receiving this certification is an important achievement since only 7% of the assessed companies reach this certification, therefore it is a clear sign that Dictuc uses the market force to generate a positive difference in the environment, operating with high standards of performance and transparency.

- At Dictuc we carry out specialized services to solve specific problems and develop projects of great magnitude, relevance and diverse for people.

- At Dictuc we generate financial resources for the development of the educational project of the UC Engineering School.
- At Dictuc there is a strong commitment to make the dream of a better Chile for the people a reality.
- At Dictuc we transfer cutting-edge knowledge from the UC Engineering School to society.

Dictuc yesterday, today and tomorrow, to the service of the country, the people, and their new challenges.





4. | OUR CAPACITY

4.1 SECTORS

To achieve our dream of being the country's engine for technological development, we have defined nine sectors or national concern topics, in which Dictuc puts their different specialists to the service of society, in order to offer solutions that stand out because of the quality of its results and the innovation applied in them.

These sectors increase or vary according to the needs detected at a national level since Dictuc's main commitment is to offer high-impact solutions and wellbeing for society as a whole.

Dictuc is engineering that morphs according to the needs of a developing country.



Food and Health



Education



Energy



Management



Industry and Mining



Infrastructure and Construction



Environment and Natural Resources



Transportation and Logistics



Information Technologies

4.2 TYPES OF SERVICES

Complying with the definition of the Sectors Dictuc serves, there is also a service structuring according to the type. According to this, currently at Dictuc, the following types of services are developed:



Consultancy and Studies



Certification



Technical Training



Expert's Reports



Laboratory Trials



Technology Transfer



Inspections

4.3 SERVICE UNITS



Dictuc performs its work through service units, which are led by a managing professor or an academic department of the UC Engineering School. Likewise, other units are under the administrative direction of Dictuc Area Managements.

Units also provide services to an endless number of specialties in engineering, related to different issues of national concern, and they are formed by teams of professionals, technicians, and officers, committed to Dictuc's mission and the abilities, knowledge, and experience to address the challenges the country requires.

The work in these units is endorsed by a management system that ensures quality in their processes and trustworthy and timely results; with a strategy based in differentiation with quality, multidiscipline, innovation and contribution to the country.

FOOD AND CHEMICAL ANALYSIS

alimentos@dictuc.cl

The Food and Chemical Analysis unit has Microbiology, Food, and Chemical Analysis laboratories.

The Microbiology Laboratory is focused on determining microorganisms in food manipulators (hand swab), surfaces, cooking utensils, food, and products, with the previous sample collection in places where food is prepared, expanded or served. In parallel, there's hygiene and quality inspections, based in good manufacturing practices and food sanitary regulations.

The Food Laboratory performs analysis on the nutritional labeling in foods, including fatty acids and sugar profiles. A physico-chemical analysis of products and additives for the food industry, canned products, oils, dairy and byproducts, meats and their byproducts, cereals, milk and



byproducts, oils and fats, juices and sodas, tea, salt, amongst others.

The Chemical Analysis Laboratory performs use and efficiency trials in

diverse products in own brands such as diapers, school supplies, barbecue coal, detergents, dish soap, cotton, amongst others.

WATERS AND LIQUID INDUSTRIAL RESIDUES ANALYSIS

aguasyriles@dictuc.cl

In this Dictuc unit, we have the experience and the capacity to carry out a remarkable work in quality certifications for waters of diverse types, such as potable, irrigation, residual and the one used in dialysis. Along with chemical and bacteriological analysis of different origins, the work on this area is fundamentally oriented to advise its clients in the resolution of problems that may arise.

Besides, through this unit we collaborate with the sanitary and health authority in the supervision of the compliance of the corresponding regulation, be it in a parallel control of the sanitary ones, in sample collection and analysis of liquid industrial residues, as well as in the elaboration of Chilean regulations that concern the analysis' task.



SCENTS AND FLAVORS CENTER

aromas@dictuc.cl

Unit specialized in analysis and assessment of chemical, sensory and hedonic components of foods and beverages, allowing the introduction of modifications from the raw products, going through the productive process until it reaches the consumer. For this, it has the Sensory Assessment, Chemical Analysis, Scents and Flavors Bioengineering and New Products Development Laboratory.



CETIUC

cetiuc@dictuc.cl

CETIUC Center focus on the study and communication of the strategic use of the information technologies in the most important organizations of the country. CETIUC performs a series of studies and consultancies in this area.



CORPORATE INFORMATION TECHNOLOGY

computacioncorporativa@dictuc.cl

In this unit, we provide development services for custom software applications, oriented to empower the business processes of small and medium enterprises. We use modern software engineering methodologies and work in different platforms, including .NET solutions and AMP solutions (Apache-PHP-MySQL), among others. Particularly, we have developed applications for accounting management for companies in the health sector.

We also provide consulting in management of information systems, purchase, development, migration, go-live, operation, quality control and maintenance systems.

Recently, we have developed, along with Carnegie Learning Inc. (Pittsburgh,



USA), software applications destined to support school education, based in cognitive coaching technologies. Along with these products, we offer consultancy and support for school

mathematics teaching, with student-centered strategies and supported by Cognitive Coaching technologies.

INNOVATION MANAGEMENT

gestiondelainnovacion@dictuc.cl

The Innovation Management unit performs expert consulting services to develop programs for innovation management implementation in companies. This involves all factors associated to a multidimensional phenomenon such as innovation, amongst which we can count: competitive strategies, processes, organizational management, mobilization, and innovation ecosystems.

For this reason, it leads in this area thanks to teams and experts, both national and international, specialized in innovation and entrepreneurship, working in innovation models for high profitability.

Besides, it offers diagnostics, workshops, and training especially focused on implementing management mechanics for personnel



that can generate, strengthen and develop the abilities for value creation in the organizations.

ENVIRONMENTAL MANAGEMENT AND POLICY

greenlab@dictuc.cl

Specialist unit in analysis of the highest quality for public and private decision-making in sustainability and environmental management areas. Amongst its studies, they are also dedicated to the analysis of issues such as energy and climate change, air quality management, irrigation assessment and management, and social assessment of projects.



ENGINEERING OF FIRE PROTECTION

fuego@dictuc.cl

In this unit, we analyze issues related to fire safety, the previous assessment of said safety based on engineering and regulations, and the execution of associated trials.

For this, we have the equipment for trials complying with both national and international legislation.

Besides, we advise companies on products or facilities development so they can offer greater safety against fires, as well as performing risk assessments destined to identify and rationalize protection measures, with an emphasis on people safety, asset protection, and operational continuity.

Likewise, we carry out investigations on fires and other similar events to determine causes, sources, spreading means, amongst other aspects.



TRANSPORTATION AND LOGISTICS ENGINEERING

transporte@dictuc.cl

The Unit performs design and modeling of transportation networks, comprehensive traffic analysis for road design and operations optimization in the logistic chain, road impact studies (EISTU), road safety audits, road risk analysis, expert's reports on accidents, vehicle fleet analysis, preference studies, design and analysis of surveys, demand predictions, determination of willingness to pay for goods and services, as well as audits and logistic diagnosis on transportation components in commercial, industrial and mining projects.



STRUCTURAL ENGINEERING

ingenieriaestructural@dictuc.cl

Unit specialized in trials, complex consultancies, and experts' reports, using cutting-edge generation facilities and equipment and expert knowledge, that despite being specialized in static, also perform specific dynamic trials. It has a modern Static Trials Laboratory, with a Reaction Flagstone and Wall on one side with three 60/30-ton actuators, and a vibration table of 4-ton capacity, on the other side.

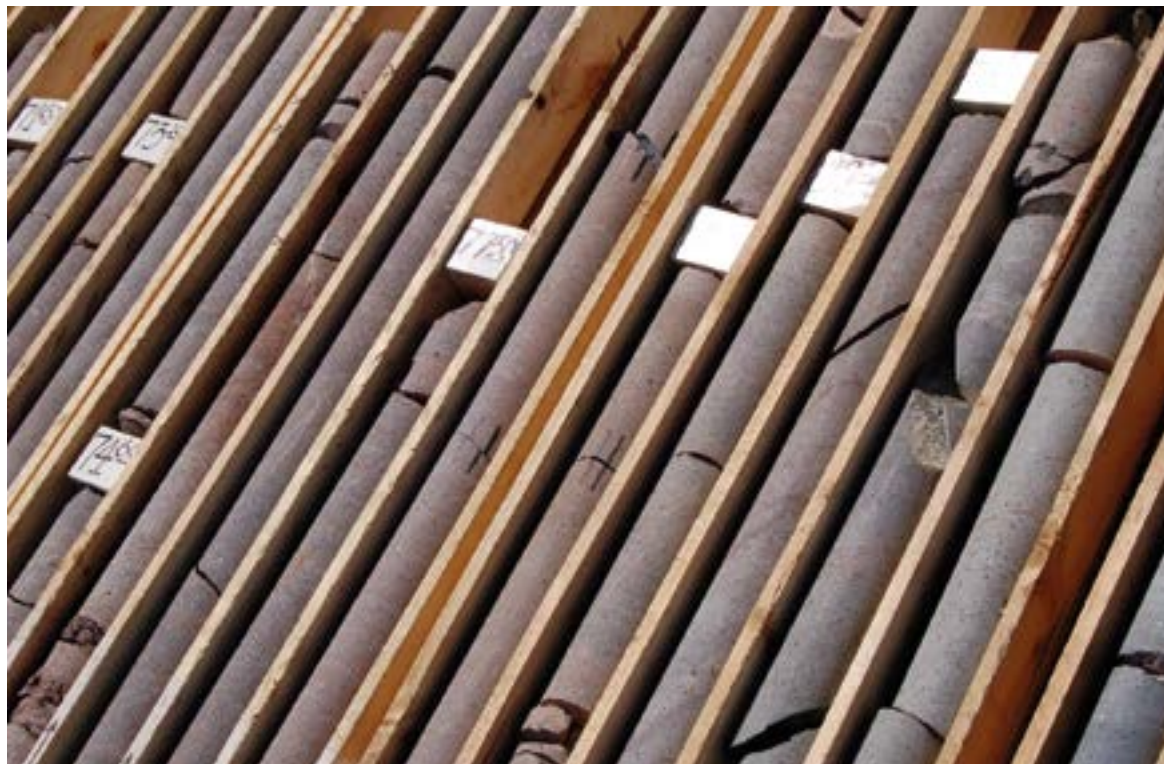


GEOTECHNICAL ENGINEERING AND SOIL MECHANICS

mecanicadesuelos@dictuc.cl

Unit performing consultancies, geotechnical probing for projects and structures, special trials on soil and rocks, and filling compaction control for a diverse range of industries, such as mining, construction, energy, and large works.

The lab is credited by the ISO 17025 Chilean standard.

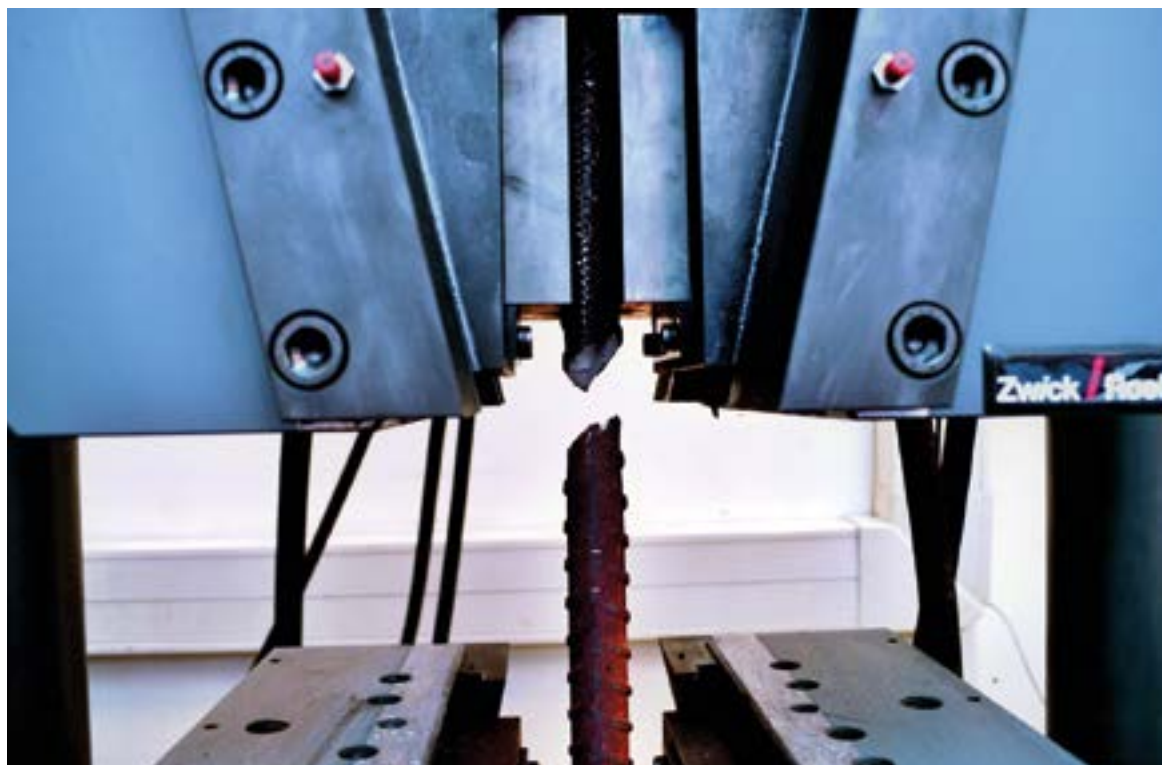


MECHANICAL ENGINEERING

ingenieriamecanica@dictuc.cl

The Mechanical Engineering unit offers certification, trials and inspection services in a wide scope of products in the fields of construction, safety, agricultural irrigation, and sanitary and gas facilities.

The unit has a team of highly capable people with modern equipment for the execution of mechanical trials, with five universal trial presses with a capacity ranging from 100 grams to 130 tons, two optical emission spectrometers, ozone aging chamber, saline mist chamber, durometers (Rockwell and Shore), Charpy impact pendulums, Benches for water and gas meter tests, equipment for non-destructive trials (ultrasound, magnetic particles, Eddy currents).



THERMAL ENGINEERING AND ENVIRONMENT

ingenieriatermica@dictuc.cl

In our Unit, we have professionals with experience in Energy and Environment, as well as the support from professors from the UC Engineering School.

We offer consultancy and services to industrial and commercial sectors linked to conversion processes and thermal energy use



ROAD ENGINEERING

ciiv@dictuc.cl

At the Road Engineering unit, we are dedicated to the study, development and scientific and technological investigation of topics related to road infrastructure, with a special emphasis on road surfaces.

At Dictuc's Road Engineering we develop new road technologies, road pavement design, industrial and airport studies, among others, with the mission of being a team capable of overcoming - with innovation and professionalism - the challenges that demand knowledge and experience in the field of road and pavement engineering, in teaching, investigation, and consultancy areas, always ensuring positive impacts on society.



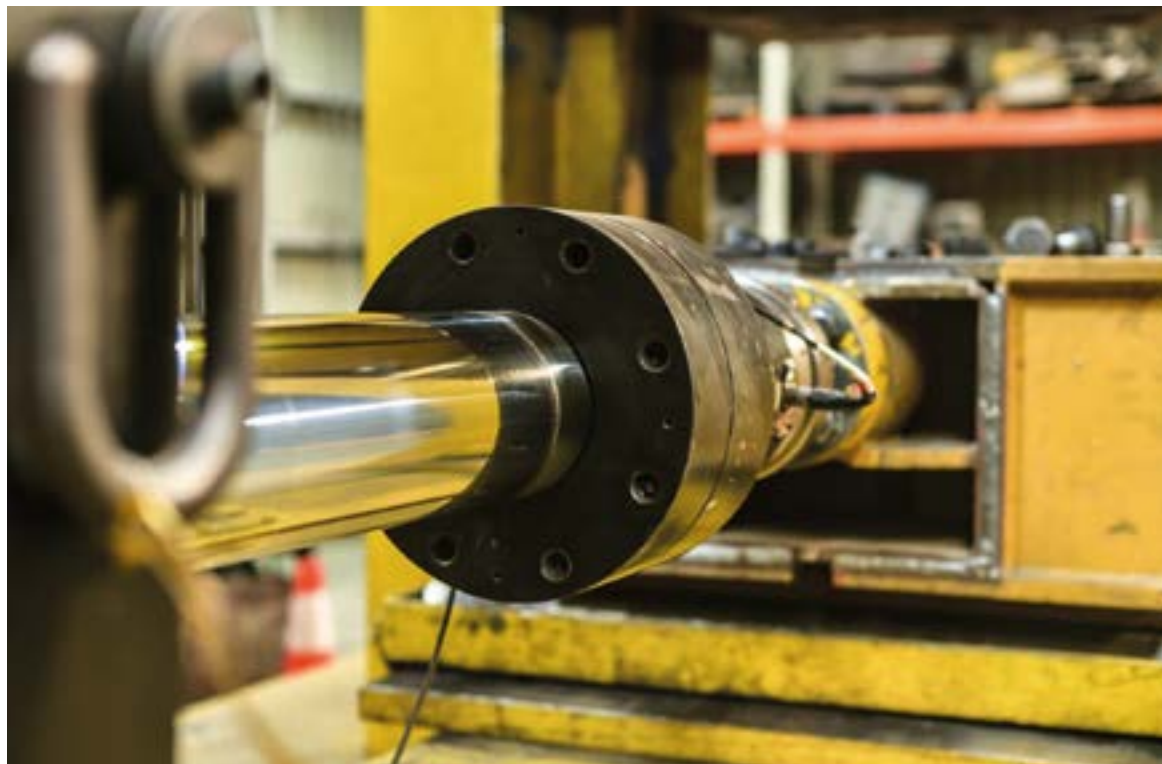
DYNAMIC TRIALS LABORATORY

lead@dictuc.cl

The Dynamic Trials Laboratory is mainly oriented to the study of structural and mechanical vibration reduction systems, with an emphasis on seismic isolation and energy dissipation.

It possesses all the necessary instrumentation for the measurement of shifts, speeds and forces with diverse systems of load application, which allows it to have a great flexibility in the configuration of different trials to be performed.

With the equipment available at the laboratory, it is possible to simulate seismic action, through real or cyclic seismic movements in structural elements of any kind, be it on A real scale or a reduced one.



HYDRAULICS LABORATORY

labhidraulica@dictuc.cl

The Hydraulics Laboratory was founded at the Main Campus of the Pontifical Catholic University of Chile in 1923. Years later, in 1974, it was moved to the San Joaquín Campus, and since then it has developed several physical models of important Hydraulic Works.

Physical modeling is the most trustworthy tool to study the behavior of complex, non-conventional hydraulic structures. For this, the Hydraulics Laboratory at Dictuc puts the experience and necessary equipment for design, construction, and exploitation of physical models at the disposition of national engineering.

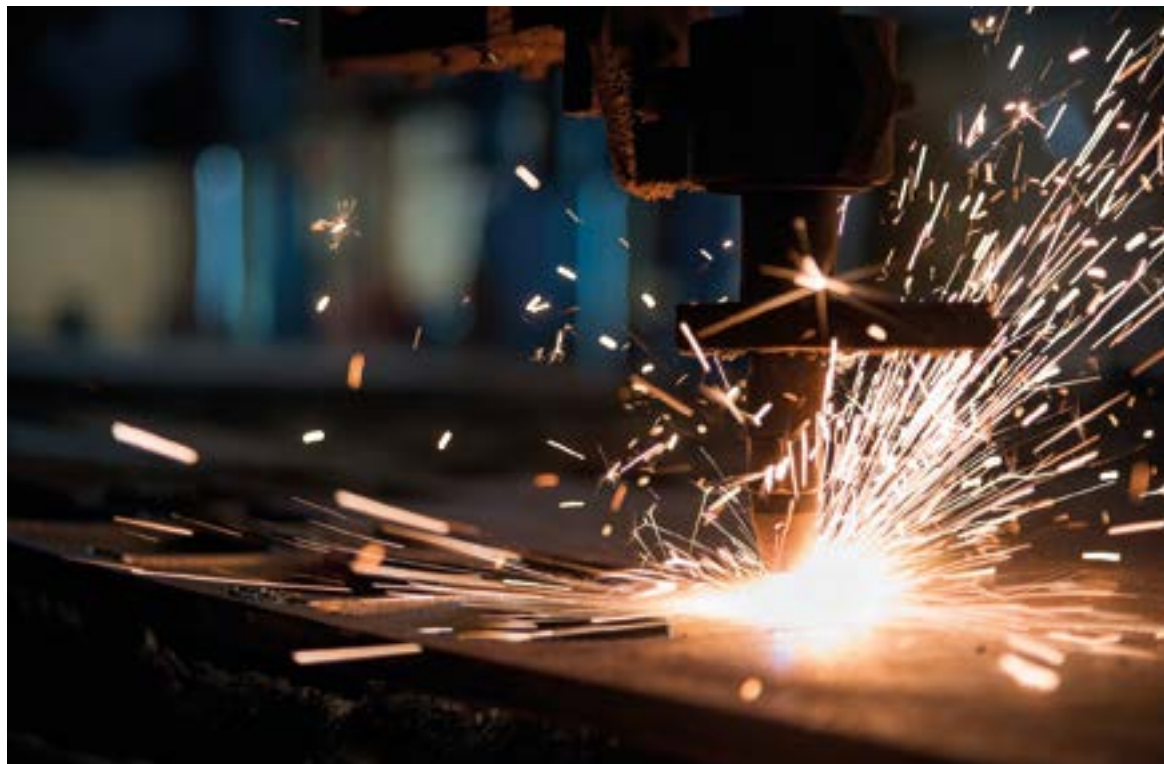


METALLURGY AND MATERIALS LABORATORY

metalurgica@dictuc.cl

In this laboratory, we deliver mechanical services in material characterization, measurements of mechanical properties linked to metallic alloys and other engineering materials, and micrographic and macrographic observations of them.

Besides, at the laboratory, we have the capacities and skills to perform fault analysis due to parts fracture and machinery elements, of material wear and metal corrosion.

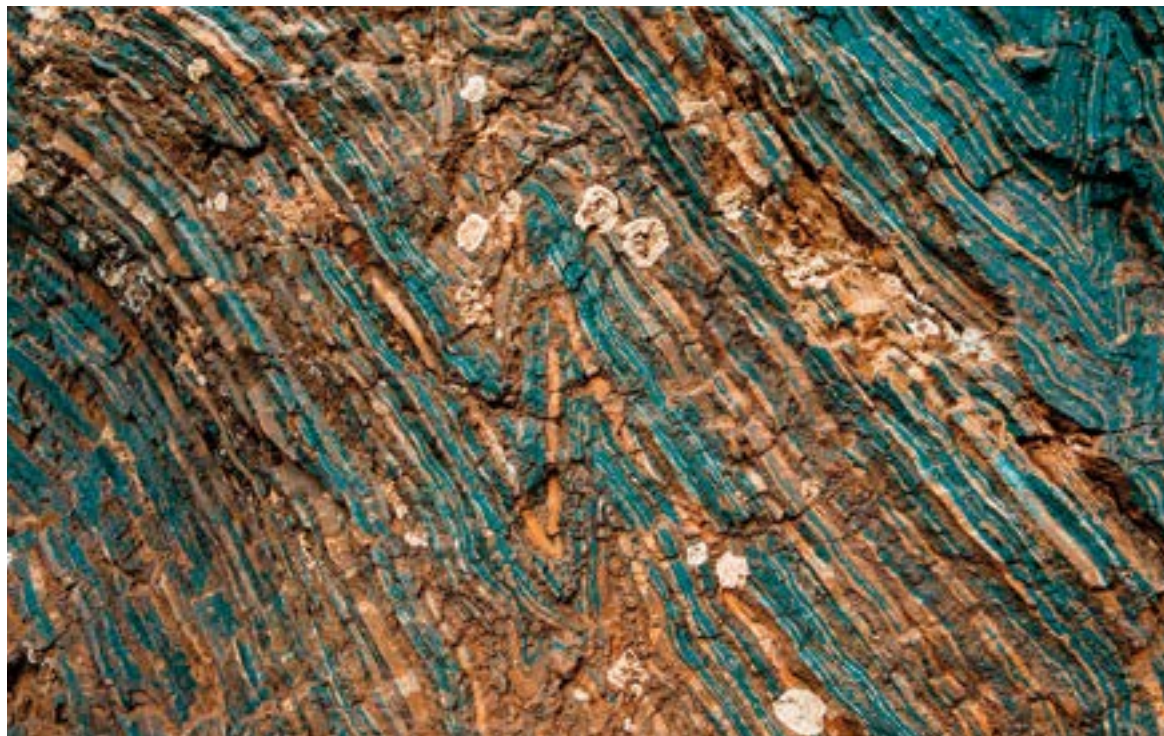


ADVANCED TECHNOLOGICAL LABORATORY FOR MINING

labmineria@dictuc.cl

This service unit, provides knowledge and advanced technology services to the industry and the community in general, through chemical analysis in solid material and solutions, analysis in trace elements, preparation of reference materials, analysis of separation and extraction processes, characterization of critical supplies, flotation and leaching trials, electrochemical trials, wear and corrosion trials, application of ANSI and ASTM regulations, among others related to Mining.

At Dictuc we have a quality assurance plan, which guarantees the validity of the results via permanent control of instruments and equipment, reference material analysis, benchmarking and instrumental calibration with certified patterns related to NIST.



MECHATRONICS

mecatronica@dictuc.cl

In this unit we develop mechatronic projects to provide answers to challenging needs and requirements from national companies, culminating with the materialization and operational start-up of the solution.

For this, at the unit, we specialize in offering technological solutions for complex industrial problems that are solved using advanced methods and technologies for design and manufacturing, from mechanical, electronic, structural and information engineering.



METROLOGY

metrologia@dictuc.cl

At the Metrology unit, we offer services for instrument calibration and measurement patterns determining the errors contained in these equipment, and delivering traceability with international recognition, complying with the requirements from the management regulations applied in Chile and overseas. Likewise, we certify parts and pieces, provide specialized consultancy and internships to the national and international industrial environment.

To reach our objectives, we have advanced technology facilities and equipment, properly traced, for the application of measurements for dimension, torque, pressure, and temperature.

Additionally, through this unit, we manage the National Laboratory for National Patterns for Longitude Magnitude Laboratory, appointed in 2001 via decree N°96 of the



Chilean Ministry of Economy. Lastly, it has the DAKKS certification from Germany and better measurement abilities (measurement uncertainties) recognized and published on the International Bureau of Weights and Measures (BIPM) database.

ASSESSMENTS, CONSULTANCY, AND INSPECTIONS

pai@dictuc.cl

Unit that systematizes the multidisciplinary capacities of the Construction units to coordinate and develop assessment, consultancy and inspection services in different matters of interest for the Industry.



MATERIAL RESISTANCE

resmat@dictuc.cl

Unit that has credited labs according to the NCh ISO 17,025 to determine the physical and mechanical properties of different construction materials, as well as thermal, acoustic and lighting properties. Specific methodology design to solve anomalies in construction projects.



RE-SOUL

resoul@dictuc.cl

Re-Soul is a Dictuc unit dedicated to technological innovation in industrial processes, recovering and reassessing byproducts. During 2017 we were present in 3 continents showing our technology and making the first international sales.

Our latest commercial product allows us to recover the odors lost in alcoholic fermentations, due to the CO₂ current, allowing to reincorporate them in the products or obtaining a highly concentrated aromatic byproduct.



ROUTING

contacto@routinguc.cl

Routing, taking advantage of the know how in georeferenced information management, optimization models and routing algorithms, achieves a unique value proposal, which is based in four fundamental pillars.

- An expert team committed to continuous improvement
- A model for predicting transportation times
- Cutting-edge technology developments
- Applied R+D



ELECTRIC CONSULTANCY AND EXPERTISE

serviciosyperitajeselectricos@dictuc.cl

Specialized unit in provide electrical and electronic solutions, through assessments, consultancies, studies, inspections and laboratory tests, in industries related to electric power, telecommunications, construction, mining and electronics.

This unit has a specialized team to perform the necessary measurements to answer the questions that lie behind equipment failures, fire due to electrical cause or electrical accidents. In addition to the measurements to verify the quality of the power supply in different circumstances.

The services of this unit depend on the Electrical Engineering Department of the UC Engineering School.



MECHANICAL WORKSHOP FOR DESIGN AND MANUFACTURING

tallermecanico@dictuc.cl

At the Mechanical Workshop for Design and Manufacturing, we mainly focus on teaching and research support inside the UC Engineering School.

Additionally, at the workshop, we develop different mechanical projects by request of external clients, such as the design and manufacturing of mechanical pieces, structures, and welding in a wide scope of materials.



TRANSIT

transit@dictuc.cl

The Transit unit aims to become a bridge between the academy and the industry, developing innovative and robust technological solutions for sustainable transportation and mobility.

For this purpose, we combine our knowledge about public transportation operations with the latest technology breakthroughs in information, transportation algorithms, statistic learning and data mining.



TRIBOLOGY

tribologia@dictuc.cl

With facilities in the city of Antofagasta, the Tribology unit provides technological innovation services associated to the development of condition monitoring and Mining tribology.

Additionally, this unit performs consultancy in physical assets management, fault analysis and assessments on mechanical components.

The implementation of these services adds value to the clients' business process, through predictive tools and training for solutions to tribological problems.





4.4 ADVISORY PROFESSORS

An essential part of the work at Dictuc is specialized consultancy services, which the academics of the UC Engineering School carry out following the clients' specific requirements.

During the 2016, 65 academics performed engineering consultancy through Dictuc.

Department of Engineering and Construction Management

- Luis Fernando Alarcón
- Mauricio López
- Claudio Mourgues
- Ricardo Serpell
- Guillermo Thenoux
- Carlos Videla

Department of Structural and Geotechnical Engineering

- José Luis Almazán
- Gloria Arancibia
- José Cembrano
- Jorge Crempien
- Juan Carlos de La Llera
- Christian Ledezma

- Carlos Ovalle
- Esteban Sáez
- Hernán Santa María
- Gonzalo Yáñez

Department of Hydraulic and Environmental Engineering

- Rodrigo Cienfuegos
- Bonifacio Fernández
- Jorge Gironás
- María Molinos
- José Francisco Muñoz
- Pablo Pastén
- Francisco Suárez
- Sebastián Vicuña

Department of Transportation and Logistics Engineering

- Ricardo Giesen
- Juan Carlos Muñoz

Department of Industrial and Systems Engineering

- Luis Cifuentes
- Gonzalo Cortázar
- Juan Carlos Ferrer
- Pedro Gazmuri
- Michael Leatherbee
- Alejandro Mac Cawley
- Sergio Maturana
- Tomás Reyes
- Enzo Sauma

Department of Mechanical and Metallurgy Engineering

- Luciano Chiang
- Diego Celentano
- Catalina Cortázar
- Rodrigo Escobar
- Constanza Miranda
- Julio Vergara
- Magdalena Walczak

Department of Chemical and Bioprocesses Engineering

- Eduardo Agosín
- Pedro Bouchon
- José Miguel Del Valle
- Héctor Jorquera
- Loreto Muñoz
- Ricardo Pérez

Department of Electrical Engineering

- Aldo Cipriano
- Christian Guzmán
- Christian Oberli
- Sebastián Ríos
- David Watts

Department of Computer Science

- Ignacio Casas
- Jaime Navón
- Denis Parra
- María del Mar Pérez
- Karim Pichara
- Álvaro Soto

Department of Mining Engineering

- Eduardo Córdova
- Carlos Marquardt
- Rodrigo Pascual
- Juan Carlos Salas
- Álvaro Videla

4.5 ASSOCIATED CONSULTANTS

In addition to the work of its units and academics, last year, Dictuc delivered solutions on specific topics of engineering through professionals of vast trajectory.

- Patricio Guzmán Bonet
- José Montecinos Rupprecht

4.6 CERTIFICATION AND ACCREDITATIONS

With an ongoing commitment to improve its management system, Dictuc works incorporating new business units to its certifications and accreditations.

From 2007, Dictuc is certified under the ISO 9001:2000 standard.

CERTIFICATIONS

Currently, Dictuc is certified under the ISO 9001:2008 standard, valid until September 2018.

The obtainment and keeping of this certification falls under the historic commitment of Dictuc to developing high-quality standards work and fulfilling our customer's expectations.

The units included in the ISO 9001:2008 certification are:

Testing laboratory services:

- Material Resistance
- Waters and Liquid Industrial Residues Analysis
- Food and Chemical Analysis
- Scents and Flavors Center
- Geotechnical Engineering and Soil Mechanics
- Mechanical Engineering
- Thermal Engineering and Environment

Calibration laboratory services:

- Metrology

Product certification:

- Mechanical Engineering

Consultancy and studies:

- Thermal Engineering and Environment

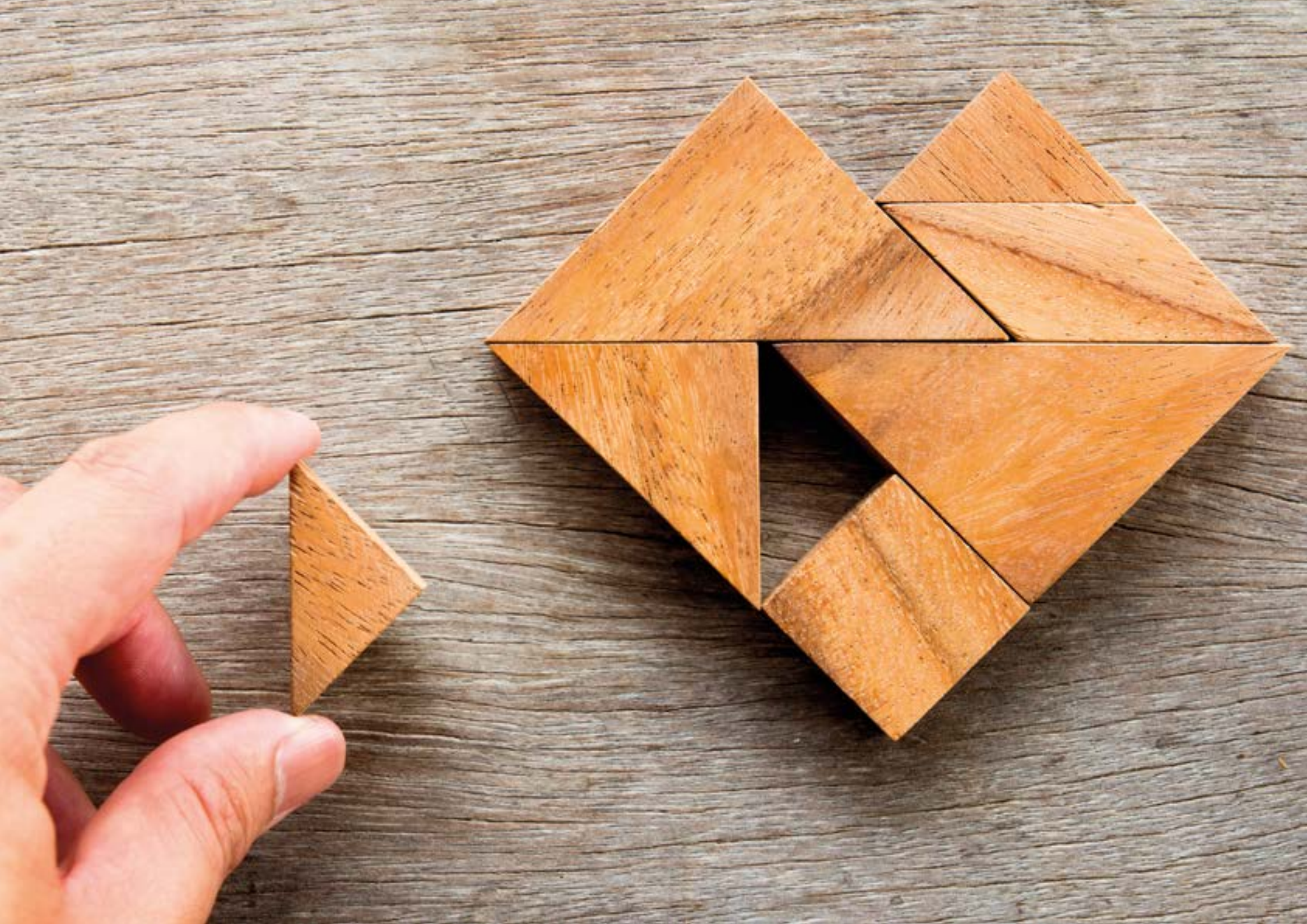
ACCREDITATIONS

Dictuc has accredited units as testing laboratories under the NCh ISO 17025 Standard. In addition, it has a unit accredited as a product certification organization under the NCh ISO 17065.

The National Institute of Normalization (INN) has granted these accreditations to the units shown in the following chart:

- Material Resistance
- Waters and Liquid Industrial Residues Analysis
- Food and Chemical Analysis
- Scents and Flavors Center
- Geotechnical Engineering and Soil Mechanics
- Mechanical Engineering

Dictuc units	Accreditation certificate	Accreditation area
Food and Chemical Analysis	INN LE 090 Testing Laboratory NCh-ISO 17025	Microbiology area for food products
	INN LE 091 Testing Laboratory NCh-ISO 17025	Chemical area for food
	INN LE 093 Testing Laboratory NCh-ISO 17025	Microbiology area in environments, handling, surfaces and tools
Waters and Liquid Industrial Residues Analysis	INN LE 149 Testing Laboratory NCh-ISO 17025	Microbiology for waters, per INN-SISS agreement
	INN LE 150 Testing Laboratory NCh-ISO 17025	Physical-Chemical for waters
	INN LE 742 Testing Laboratory NCh-ISO 17025	Chemical for atmospheric pollution devices
	INN LE 743 Testing Laboratory NCh-ISO 17025	Soil hemistry
	INN LE 744 Testing Laboratory NCh-ISO 17025	Microbiology for compost and silt
Scents and Flavors Center	INN LE 220 Testing Laboratory NCh-ISO 17025	Chemical for wines and enological supplies
	INN LE 963 Testing Laboratory NCh-ISO 17025	Sensorial assessment
Geotechnical Engineering and Soil Mechanics	INN LE 343 Testing Laboratory NCh-ISO 17025	Oil mechanics area per INN-MINVU
	INN LE 344 Testing Laboratory NCh-ISO 17025	Construction area - Agreegates per INN-MINVU agreement
Mechanical Engineering	INN LE 104 Testing Laboratory NCh-ISO 17025	Mechanical Assays
	INN LE 062 Testing Laboratory NCh-ISO 17025	Product for Fuel - Product for gas fuel per INN - SEC agreement
	INN LE 063 Testing Laboratory NCh-ISO 17025	Product for Fuel Assays - Bins for liquid and gas fuels per INN-SEC agreement
	INN LE 064 Testing Laboratory NCh-ISO 17025	Water guage Assays
	INN CP 014 Product Certification Organism NCh-ISO 17065	Construction Area - Agreegates per INN-MINVU agreement
	INN CP 015 Product Certification Organism NCh-ISO 17065	Construction Materials (Steel and materials for sanitary works and facilities)
Material Resistance	INN LE 510 Testing Laboratory NCh-ISO 17025	Construction Area - Asphalt and asphastic mixes per INN-MINVU agreement
	INN LE 511 Testing Laboratory NCh-ISO 17025	Construction Area - Elements and Components per INN-MINVU agreement
	INN LE 512 Testing Laboratory NCh-ISO 17025	Construction Area - Agreegates per INN-MINVU agreement
	INN LE 513 Testing Laboratory NCh-ISO 17025	Construction Area - Cement per INN-MINVU agreement
	INN LE 514 Testing Laboratory NCh-ISO 17025	Construction Area - Phisical-Chemical per INN-MINVU agreement
	INN LE 221 Testing Laboratory NCh-ISO 17025	Construction Area - Concret and mortar per INN-MINVU agreement
	INN LE 636 Testing Laboratory NCh-ISO 17025	Construction Area - Environment conditioning



5. | OUR PEOPLE



5.1 PERSONNEL

Dictuc carries out its work keeping as ultimate goal to improve the wellbeing and quality of life of people and in this context, the concern for the collaborators has an essential place in the company's duty.

It is Dictuc's collaborators who devote on a daily basis their skills and abilities to carry on the historical path of quality, objectivity, and trust. That is the reason why Dictuc can currently rely on an important ability to face the country's requirements and adapt to changes.

Recognizing this value, the commitment to the company's collaborators shows clearly in Dictuc's Corporate Policy.

5.2 PERSONNEL PROFILES CURRENT NUMBERS

As of December 31, 2016, Dictuc had 376 employees.

GENDER



Female
140



Male
236

AVERAGE AGE



Female
37,8
years



Male
36,7
years

PROFILE

Managers	26
Administrative	122
Professionals	120
Technicians	108

SENIORITY

Years of Service	No. of collaborators
+30	5
20-29	14
10-19	48
5-9	76
0-4	233
Total	376

5.3 RELATIONSHIP WITH WORKERS



Organizational Climate

At Dictuc, there is the conviction that a good organizational climate is fundamental to achieve the objectives and challenges set as a company, which are aligned with Dictuc's Corporate Policy.

In this challenge, in 2014, Dictuc's Board decided to surpass the 70% of approval of a good working atmosphere in the organization, which was achieved by second year in a row, reaching a 70.9% in 2016.

2016 Survey Results

The 2016 version of this survey was done with the participation of 372 collaborators, who represent 91% of the company. It is thanks to everyone's opinion that 16 dimensions of the working atmosphere were evaluated using 48 questions.

Climate connected actions

Actions performed to improve the Organizational Climate at Dictuc are encompassed in the program "I Matter", which started in the year 2013, to reach the achieved goal of 70.9% of approval in the year 2016.

- **Training and Development:** 16,994 hours were invested in training related to technical aspects, quality management, and English, among others. Besides, a Recognition Program was carried out, with the initial task of gathering information on topics expected by the collaborators, and then a series of activities, courses, and improvements to fulfill the expectations of the Dictuc community.
- **Safety:** we worked in strengthening the importance of the Golden Rules, to prevent accidents. In order to do this,

we had talks with the Key Users, who represent the workers in the program "I look after myself, Dictuc looks after me".

- **Social Support:** we granted health loans for nearly CLP \$7,000,000 to people having difficulties paying clinic and hospital bills. We also provided economical support to people with serious diseases with transportation services and others.
- **Performance:** we had a new Performance Assessment system implemented, which reached a 100% of participation among the collaborators. Besides, there were competence surveys in the Administration and the units related to construction areas at Dictuc, with the objective of assimilating the instrument to the behaviors expected from each job position.

- **Benefits:** efforts were focused on relaunching a San Agustin Party that managed to gather each and every collaborator and became a great memory for everyone, seeking alternative improvements according to the company's possibilities.
- **Units with low levels of Organizational Atmosphere:** We worked with the three units that got the lowest percentage in the Organizational Atmosphere 2015 survey, generating support networks in different topics. Thanks to the previously mentioned process, these units increased an average of 10 points in the 2016 measurement.



Development

Scholarship

Financing scholarships shared between the Unit a corporate fund and the collaborator. The company's contribution can cover 50% of the tuition fees.

	2014	2015	2016
Applicants	16	19	11
Total Scholarship Holders	12	13	8

Training

The training hours carried out by Dictuc collaborators during 2016 were 16,994

Dictuc investment: CLP \$18,557,797
Sence investment: CLP \$45,197,956



OCCUPATIONAL HEALTH AND SAFETY

Occupational health and safety are very important issues for Dictuc. This is why there is an ongoing concern on the impact the activities performed may have on our collaborators, the environment, and the community.

This topic is comprised in the Corporate Policy of the company, and it is permanently strengthened through the following programs.

Program "I look after myself, Dictuc looks after me"

- Communicating the Golden Rules and generating activities with the program representatives in the different units.
- Supporting the Joint Committee on the activities arisen from their management, such as the accident

analysis and their corresponding communication.

- Increasing the number of units performing Safety Reflections in an ongoing and rigorous basis.

Competitive Company Program (PEC Programa Empresa Competitiva)

- PEC program audits are performed across all units, training people in charge and generating corrective measures for the detected non-conformities.

Accident Rates. Comparison chart of the last 3 years.

	2014	2015	2016
N° of Accidents	23	14	7
Working Days Lost Due to Accidents in the Workplace	253	126	53
N° of Fatal Accidents	0	0	0

Source: Mutual de Seguridad C.Ch.C.







6. | RELATIONSHIP WITH OUR ENVIRONMENT

6.1 IMPACT OF OUR WORK

Dictuc seeks having a positive impact on the society, through the different services we provide. As a part of this objective, projects have been carried out on the different engineering areas.



Food and Health

- Expert consultant for executing an assessment of the economic offers, applying an Combinatorial Optimization Mathematical Model for contracting food supply service for PAE. National Board for School Support and Scholarships (JUNAEB).
- Matrices Trials, Vicuña, La Ligua, La Calera, Quillota, Curanilahue areas. Hemodialysis Center Vicuña, Ltd. (Centro de Hemodiálisis Vicuña Limitada).

- Dialysis Water Analysis Agreement. Coquimbo Health Department, La Serena Hospital.



Education

- Cognitive Coach Software at the Guatemala Republic School (Colegio República de Guatemala). Maipu's District Corporation for Development and Services.
- Consultancy and Training for Teachers in order to Implement and Assess the Cognitive Coaching Program in the Mathematics Classroom. Maria Ponce de Zoffoli Limited, Education Company (Sociedad Educacional Maria Ponce de Zoffoli Limitada).
- Technical-pedagogical consultancy. Consultancy and Training for Teachers in order to Implement and Assess the Cognitive Coaching Program in the Mathematics Classroom. Belén Educational Foundation (Fundación Educacional Belén)



Energy

- Energy Efficiency Assessment at the Quillota-Petorca Bi-Province Hospital. Master SA. in Engineering and Architecture Agency in Chile. (Master SA de Ingeniería y Arquitectura)
- Survey: The Future of the Transmission Grid and the Required Regulatory Changes: Survey Proposal N° 1: Transmission Extension. National Energy Commission.
- Assessing the air quality impact within, environmental comfort and energy efficiency inside the houses selected in the replacement program in the Aysen Region. Undersecretariat of the Environment.



Management

- 2016 Innovation Management Portfolio Program. Coopeuch and Sacyr Chile S.A.
- Inspection and technical consultancy on boat engines of Eastern Island fishermen. Enap Refinerías S.A.
- Financial Service Provision - Fixed Income Price Vector and Financial Intermediation. Mutual Insurance Association (Mutual de Seguridad) - Chilean Chamber of Construction.



Industry and Mining

- Full Service on used oil analysis (Mining and Plant Equipment). Compañía Minera Zaldivar SpA.
- Performance improvement of the Reverse Osmosis Plant using Solar Heat. Antofagasta Minerals S.A.
- Used Lubricant Oil Analysis and On-site Equipment Sampling Services. Dust suppression assessment and moisturizing plan SCM.Sierra Gorda S.C.M.





Infrastructure and Construction

- Seismic Refraction Trials and Methods Based on Surface Waves (MOS) and Installation Piezometers on Route 5, La Serena – Vallenar. Sacyr Chile S.A.
- Large Amount Extraction Services and overall BIM Interference Calculation, Talca Hospital construction. Consorcio Constructor Hospital de Talca S.A.
- Consultancy on Implementing Trials in the Self-control Laboratory of Los Condores Hydro Power Plant. Centro de Estudio de Materiales y Control de Obras S.A.

- Wine and Alcohol Tank Fixing Study in the Fourth Region, affected by the Illapel Earthquake. Structural survey in order to verify the integrity of the existent barrels in Salamanca, Punitaqui, La Chimba, Sotaqui, Vicuña and Río Hu Plants. Cooperativa Agrícola Pisquera Elqui Ltda.



Sustainability and Natural Resources

- Physical-Hydraulic Model for Water Discharge and Supply Works on Carén Dam. National Copper Corporation of Chile.
- Environmental Indicator Proposal and Development in order to Support Programs and Initiatives on Green Growth; Sustainable Consumption and Production; Environmental Performance, or Sustainability in Productive Sectors; and Environmental Current

Affairs. Ministry of the Environment – Undersecretariat of the Environment.

- Comparative Analysis of the Life cycle (ACV) of Family-Size Returnable and Disposable Coke Bottles. TriCiclos Consultores S.A.
- Background information for developing the National Standard on Boilers and Combustion Processes (Glass Furnaces and Concrete Plants). Undersecretariat of the Environment.





Information Technologies

- IT User Satisfaction Survey and Annual Subscription to the National Survey on Information Technologies. Saam S.A.



Transportation and Logistics

- Personnel Transportation Route Planning Service. LATAM Airlines Group S.A.

- Logistic Process Audit - Port of Coronel. Cía. Puerto De Coronel S.A.
- Survey on the vehicle movement of the transportation system related to the operation of the future concentration plant of the SGO Project. Minera Spence S A.
- Traffic Mitigation Plan: Expomin 2016 - Espacio Riesco. Fisa S.A.
- 2015 - 2016 Fare Evasion Survey Buses Metropolitana S. A.
- Patient Transportation Route Planning Service. External Service Company of the National Safety Association..



INNOVATION PROJECTS

Dictuc has a wide range of capacities in order to respond to complex issues from different disciplines, through innovative solutions.

Innovation Brokers

We have a team of professionals specialized on:

- R&D Needs Survey.
- Co-developing challenges requiring expert knowledge, focusing on the business impact.
- Seeking and proposing funding sources (CORFO, CONICYT, FIC-R, FIA, COPEC-UC, among others).
- Operating Tax Incentive to R&D.
- Supporting project start up, operation and closure.

- Advising teachers and third-parties associated in:
 - Copyright protection.
 - Technology licensing for use and exploitation.
 - Technology-based company creation: Spin Offs.

Successful Results

In 2016, Dictuc performed knowledge transfer to the society through:

- **8 commissioned research** contracts, 7 of them with CORFO funding.
- **9 patents granted** to the Catholic University (7 national and 2 international).
- **12 patent requests** with the Engineering Faculty.
- **7 Copyright records.**







6.2 RELATIONSHIP WITH CUSTOMERS

Quality, objectivity, and trust are features our organization has earned along 78 years of history, providing services to Governmental institutions, as well as important companies from different productive sectors, both in our country and abroad.

This work has made Dictuc an example for public trust, both national and regional, supported by the technical credibility of our technical work and the unbiased results delivery.

Profile of our Customers/ Productive Sectors

2,226 customers

from the following productive sectors:

- Manufacture.
- Construction and infrastructure.
- Financial and corporate services
- Commerce, hotels or restaurants.
- Electricity, gas, and water.
- Mining, transport, and communications.
- Others.

Figures for contracts and commercial documents

74,813 reports issued

- Standard compliance certifications
- Laboratory trial reports
- Calibration certifications
- Consultancy and experts' reports

400 commercial documents managed

- Contracts
- Addendums
- Final settlements

6.3 DIRECT LINK

PRESENCE IN FAIRS

Photonics West

From February 13th to 18th, Dictuc participated in Photonics West 2016 as an associate institution to the Noiseless Scientific Chamber: Prototype Applying Optimum Reading Noise Reduction of Scientific CCDs project, led by the Professor of the Electric Engineering Department from the Catholic University's Engineering School, Ph.D. Christian Guzman. 1,000+ institutions and 20,000+ people meet in this fair, who attend to know about the new trends and procure the latest equipment, components, and systems available — as well as to get updated on the state of the art medical technology, the Internet, smart manufacturing, and autonomous vehicles, among others.



ExpoMin

Between April 25th and 29th, Dictuc, along with the Catholic University's Engineering School, participated on the 14th Exhibition and World Congress for the Latin-American Mining, which gathers the main players of the industry, where Dictuc specialists answered questions about the service offers on the diverse engineering specialties, with quality, experience and expert knowledge from the Pontifical Catholic University of Chile.

Logistec Expo

On May, the Dictuc's Routing Unit, specialist on transport fleet optimization problems, vehicle routing, localization and capacity of facilities, participated in this international exhibition bringing together the largest number of companies offering logistic solutions, generating information exchange and new concepts among keynote speakers, entrepreneurs, and visitors.

Espacio Food & Service Fair

On September, the 6th version of the Espacio Food & Service fair was performed, on which more than 380 national and international speakers participated. They presented the latest developments on equipment, technology, services, products and logistics in the food industry. Among the lectures, the speech From Engineering to Senses: Innovative chemical, sensory and biotechnological technologies to appeal and maximize consumer experience, given by the Center for Scents and Flavors Unit.

Catholic University's Engineering Business Fair

On September, Dictuc participated on the 25th version of the Business Fair of the Engineering School of the Catholic University, having 38 organizations from different sectors, aimed to offering job opportunities and interviewing Catholic University's students and engineers.



ExpoFuego

Between October 25th to 27th, in Centro Parque at the Araucano Park, Las Condes, Dictuc — through the

Engineering of Fire Protection, as a national example on this topic, offering different services to the industry, in particular Fire Risk Assessment, which was the main technical lecture given by the specialists from this unit.



RELATIONSHIP WITH THE COMMUNITY

In addition to our services, at Dictuc we aim to have a positive impact on the society, through different actions oriented to generate links and relationships with our neighbors and the community.

Hogar de Cristo Consultancy

Dictuc provided consultancy to the Hogar de Cristo foundation, aimed to provide support on standardizing processes within the institution since due to the complexity of this organization, they required a higher maturity level in controlling their processes. The consultancy was performed through the GEPRO SpA spin-off company, which is specialist on competitive development of organizations, through comprehensive project management; and six students from the Engineering School of the Catholic University who were selected by Dictuc for them to undergo a social-nature professional internship in this consultancy.





Sensory Awakening Workshop

Between October and December, Dictuc's Scents and Flavors Center Unit, along with the Catholic University's Elderly Program, invited people between 60 and 75 years old to participate, for free, on the Sensory Awakening Workshop, which sought developing a 17-session training that allows them to recognize a wide variety of scents, flavors, and tastes. This program was performed as a part of a research project, in order to transfer their knowledge to the society.



Sensory panel with neighbor women

It is fully comprised by women between 35 and 55, who have been trained to identify a wide range of sensory features. The training and methodologies used on the Trained Panel are based on international standards and regulations, which guarantee a reliable measurement tool to customers, in terms of accuracy, and precision.

Every panel is comprised by housewives who live in the campus surroundings, who got to be a part of the sensory panel 11 years ago. In this sense, it is worth mentioning that the panelists have more than 2,000 hours of experience on the assessment of different kind of products.

They have conformed panels for different target products, such as wines, alcoholic beverages, fruits, sweeteners, chocolates, among others. The service they provide is paid, and each of them is a part of the technical team of the Scents and Flavors Center Unit.

Mass Consumers Panels

Dictuc, through the Scents and Flavors Center Unit, permanently performs consumer preference research on its facilities, for which the general public is invited, as well as collaborators, Catholic University Students, neighbors of the campus, website and social media users, among others.

Besides making a contribution to these important surveys focused on improving the quality of the food produced by the industry; the neighbors and the community participate in the projects developed by Dictuc and in the mission of transferring technology to the society.



7. | ENVIRONMENTAL COMMITMENT



7.1 PROJECTS AND SERVICES HAVING AN IMPACT ON THE ENVIRONMENT

Across its different units, Dictuc performs services and develops projects having a direct impact on national wide projects, in the areas of sustainable development, environment, and natural resources.

Among all projects developed in 2016, the following are highlighted in this section:

Chañaral Eco-Sustainable Neighborhood

.Framed on the real estate project which became the first eco-sustainable neighborhood in the country, Dictuc carried out a study, along with the Catholic University's Center for Wood Innovation (CIM UC), in order to determine factors such as house orientation and wind direction. Besides, weather studies were performed that might predict wood behavior according to the characteristic weather changes in the

area. This project was developed as a result of the Reconstruction Plan promoted by the Catholic University, represented by CIM UC, along with the Chilean Corporation of Wood (CORMA) and the Ministry of Housing and Urbanism (MINVU).

Project to recover contaminated areas in Taltal

On this study, scientists and specialists from CICITEM, Dictuc, UA's Antofagasta Institute, GTK from Finland (equivalent to the Chilean SERNAGEOMIN) and Northern Catholic University worked collaboratively in order to present a series of proposals and characterizations of polluting agents in 7 abandoned plots located in the Taltal district. These proposals were issued late October in Antofagasta.



7.2 WASTE MANAGEMENT POLICY

As a part of our commitment to the environment, there is a hazardous and special waste management policy in Dictuc laboratories, in order to ensure the internal management, transport, and disposal of such wastes is performed in the safest way possible, particularly complying with the regulation in force. These wastes are classified as Hazardous or Special, therefore each has to go through a series of different processes.

Hazardous waste

- i. Identification of hazardous waste
- ii. Hazardous waste collection
- iii. Storage
- iv. Disposal
- v. Volunteer reporting on SIDREP (Ministry of Health's Hazardous Waste Declaration and Follow-Up System)
- vi. Contingency plan

Special waste

- i. Identification of special waste
- ii. Collection
- iii. Treatment
- iv. Storage
- v. Disposal
- vi. Reporting on SINADER (Ministry of the Environment's National System for Waste Declaration)

7.3 CARBON FOOTPRINT

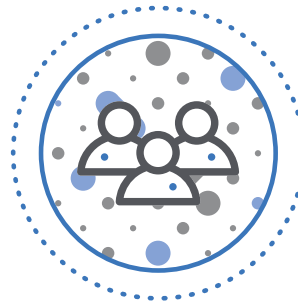
By mid 2016, Dictuc started measuring its Carbon Footprint in order to know the actual impact of its activities on the environment, according to the methodology of Huella Chile.

Taking into account 404 collaborators, the total Greenhouse Effect Gas Emissions by Dictuc accounted for 3.2 ton CO₂eq per collaborator. Having this information enables us to establish a correlation with the carbon footprint per person at national level. In this case, the total emissions account for 6.3 ton CO₂eq per capita.

This significant difference is explained because the sector where Dictuc develops its activities is not an intensive Greenhouse Effect Gas emitter.

Just to continue with correlations, the Total Carbon Footprint emitted by Dictuc is equivalent to traveling along the country from North to South 1,300 times.

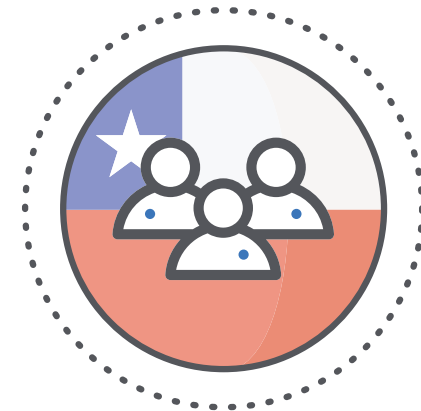
Carbon Footprint Per collaborator



3.2

tonCO₂eq/per collaborator

Carbon Footprint Per Person



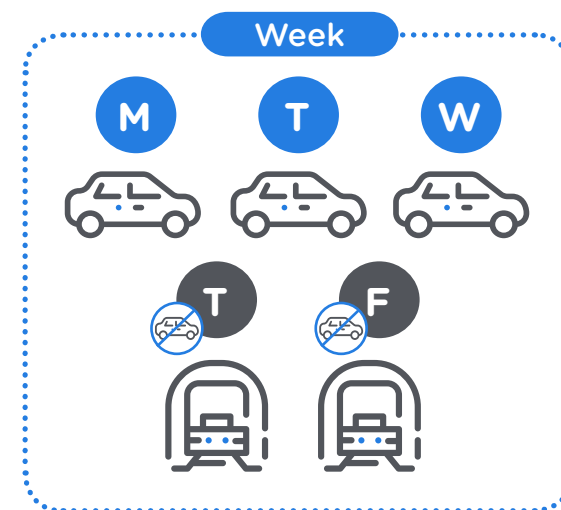
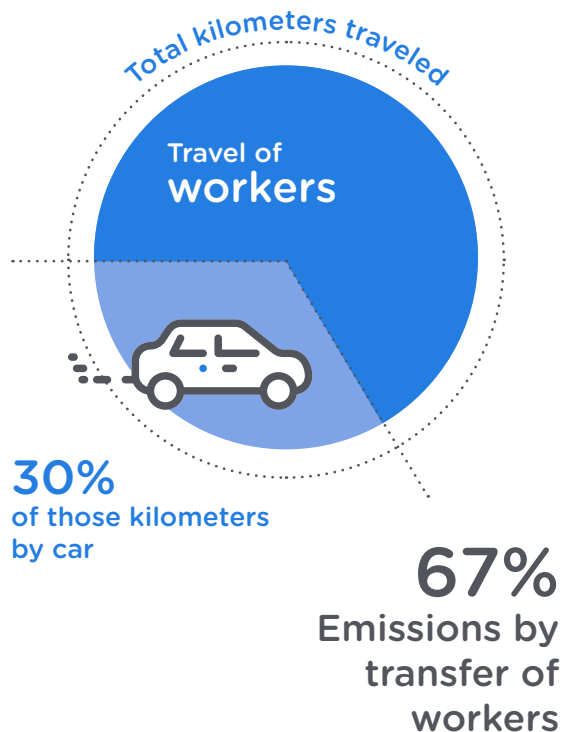
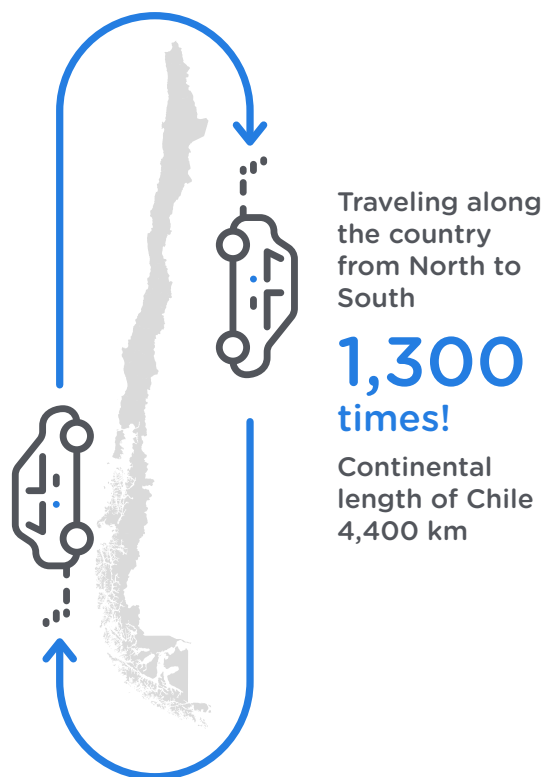
6.3

tonCO₂eq/per capita

Because of these results, it was also possible to determine that out of the total commuting distance, 30% is done by car, from and to workplaces, representing 67% commuting emissions.

Percentage variations on emissions due to personnel commuting may have a significant impact on the total Carbon Footprint results by Dictuc. For instance, if collaborators used the Metro instead of cars, twice a week:

- Carbon Footprint by commuting in Dictuc would decrease 22%.
- Carbon Footprint by collaborator in Dictuc would decrease 29%.



7.4 RECYCLING ELECTRONIC DEVICES

Dictuc entered into a collaboration agreement with CHILENTER, a foundation dependent from the Presidency of the Republic, which aims to put efforts together in order to increase the contribution both companies make in favor of the population, and the environment. In specific terms, the agreement includes electronic device recycling campaigns, where company employees may donate equipment and devices they no longer use.

All the material collected by Dictuc is then donated to CHILENTER for revision. Depending on whether these devices comply with their quality requirements, they go through the recycling line or they are refurbished for a second useful life.

In the latter case, Dictuc and CHILENTER organize joint deliveries of refurbished computers to social organizations or educational centers.





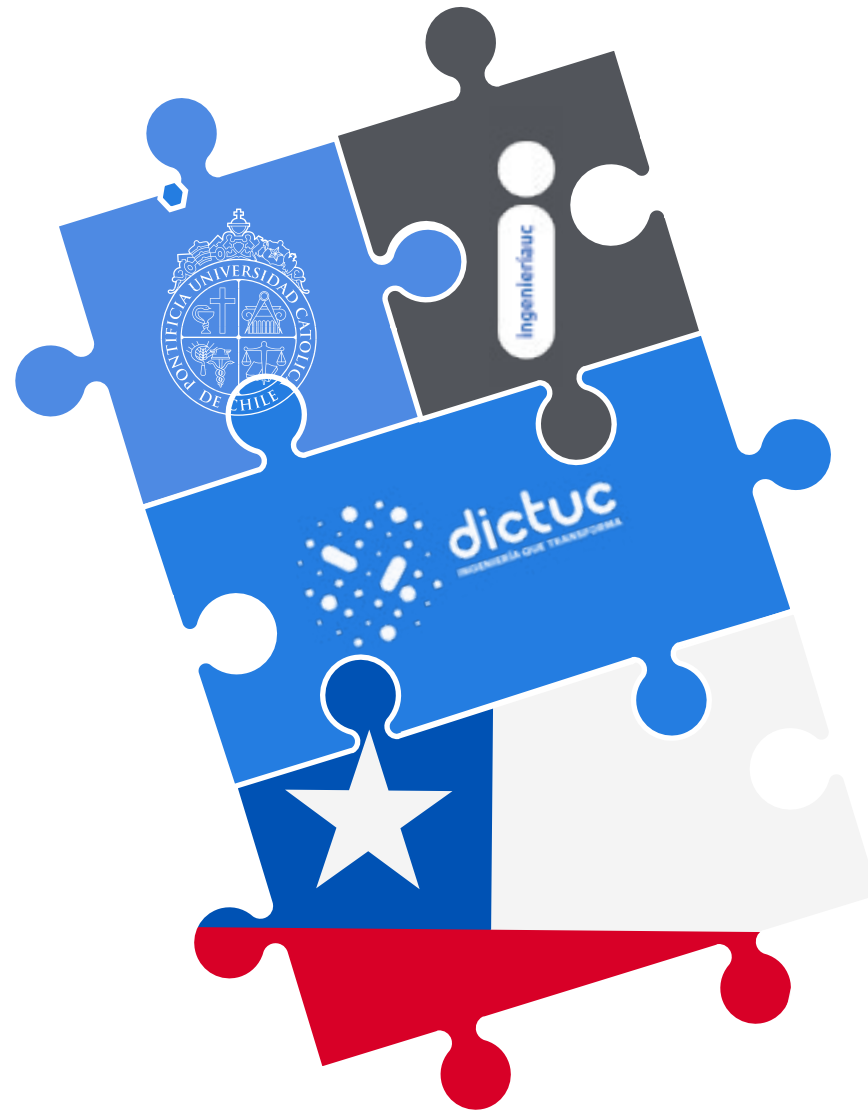


8. | ECONOMIC PERFORMANCE

8.1 BUSINESS MODEL

The business model is based on the detection of needs of the country and looking for solutions from knowledge and the development of high-quality technology, through specialized services covering all UC School of Engineering specialties.

In this way, Dictuc links academy with society in a fast and efficient manner, committing to people, to excellence and to the values of Pontifical Catholic University of Chile, thus putting the PUC School of Engineering knowledge and technology at the service of society, in order to make an early impact on people and to create added value to the UC School of Engineering.



8.2 CONTRIBUTIONS TO THE EDUCATIONAL PROJECT OF THE CATHOLIC UNIVERSITY'S ENGINEERING SCHOOL

Dictuc, through its 28 business lines and the extension work performed by 65 scholars from the Catholic University's Engineering School, generated revenue accounting for 14,992 billion pesos in 2016. If this significant performance is added the spin-off portfolio activity, reconciliated revenue in 2016 reaches around 27 billion pesos — generating, through dividends and settlements, contributions to the Engineering School and its Departments accounting for 1,498 billion pesos.

Within the last five years, revenues generated by Dictuc have enable transferring through different mechanisms 8,529 billion pesos to the Catholic University and the Engineering School. This is, in average, 1,706 billion a year, being the only technology transfer organization in the country with such a significant achievement.





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