WE SHARE KNOWLEDGE WITHOUT BARRIERS.
intellectual capital

Intellectual capital constitutes the company’s material assets and the value of its knowledge. It promotes the research and innovation activities carried out with regard to processes and products, as well as the commitment to training and dissemination of coffee culture through the Università del Caffè.

SDGs

The specific common benefit goals are the impact targets set out by illycaffè in its articles of association. They are the company’s DNA, the identity that drives its business growth, deeply ingrained in all its business operations.

The outcomes are the true positive value created by illycaffè through its practices, policies and actions expressed by the capital.

The challenges are the obstacles that the context and the sector place before a company in the process of impact creation. Indeed, the latter is an activity that cannot disregard these elements and must describe it transparently.

The Sustainable Development Goals are the 17 United Nations' objectives to which illycaffè contributes in various ways with its activities.

HIGHLIGHTS

- 28 Università del Caffè sites worldwide
- 290 patents, of which 246 granted and 44 pending
- 5 millions of € invested in Research & Development
- 300,364 people trained since the start of the university’s activities

SPECIFIC COMMON BENEFIT GOALS

- “Also considering products and systems based on criteria that are consistent with the principles of sustainability and the circular economy, for the benefit of the planet”
- “Improve energy efficiency and resource consumption, taking into account best practices and innovative solutions with a view to progressive emission reduction”
- “Participate in the international debate on the subjects of the aspiration to happiness, well-being and improved quality of life, mainly, but not exclusively, in the world’s coffee-growing areas”
- “Foster global partnerships to promote sustainability and international awareness of this issue”

OUTCOMES

- Improvement of the experiential impact of coffee consumption
- Reduction of environmental impact through research and innovation in technologies and materials
- Processing and enhancement of the raw material to obtain the highest quality
- Worldwide promotion of Coffee Culture

CHALLENGES

- Finding the right balance between cost and sustainability. In the context of capsule disposal, promoting equally effective recovery and recycling models in countries with different regulations.
- Strengthening women’s leadership and entrepreneurship in coffee growing.
Innovation & research

Flavour is the result of a method. illy’s approach to achieving the best quality coffee combines passion, science and innovation. This method has become a fundamental value that spans the company’s entire history and has contributed to its success over the years. Of the eight radical innovations that revolutionised the coffee industry in the last century, three were developed at illycaffè:

- **1933, pressurisation**: the preservation system that replaces the air inside the packages with highly pressurised inert gas, thereby preserving the coffee’s freshness and aroma over time;
- **1935, the Illetta model**: the predecessor of today’s professional coffee machines with a high-pressure espresso formula;
- **1974, the paper pod**: the industrialisation of the first single-portion pod, which made it possible to export espresso to countries without professional baristas.

Moreover, in 1988, the company patented a system for the digital colorimetric selection of beans, making it possible to only choose perfect specimens. In fact, just one defective bean among the fifty that comprise a cup of espresso is enough to compromise its quality.

The most recent innovation is the Iperespresso system, which features a capsule that extracts coffee in two stages, hyper-infusion and emulsion, producing a uniquely high-quality result in terms of body and aftertaste.

In general, innovation drives research towards increasingly sustainable products and services, starting with improvements to production processes that can reduce the environmental impact of both the company and consumers, while always enhancing the raw material.
illycaffe’s laboratories

The Research and Development Department are responsible for the company’s innovative creativity. Recognised as an international centre of excellence, it develops innovative technological solutions through the experimental activities of 5 specialised laboratories:

AROMALAB - Specialised in research into the characterisation of volatile and non-volatile chemical compounds, the detection of aroma precursors and the identification of substances that determine taste and body. The laboratory also studies methods and processes to ensure that the product is traceable, genuine and safe, as well as researching the potential reuse of processing waste.

SENSORYLAB - Integrating chemistry, physics and psychology, this laboratory deals with the scientific study of the relationship between sensory stimuli – taste and smell – and evoked sensations.

BIOLAB - Divided into two operating units dedicated to microscopy and molecular genetics/biology, this laboratory is tasked with studying the genetic information of the substances present in coffee, understood both as a seed and as an espresso drink.

TECHLAB - Deals with technological development in the packaging and portioned products sector, partly with the aim of reducing the impact of packaging on the environment while maintaining its performance level.

FOODLAB - Dedicated to research on coffee-based food and products. The five laboratories are flanked by two engineering units that have the purpose of product development. The former has the task to design and start production of durable products, the company’s coffee machines. The latter designs and manages orders related to industrial plants for the production of consumable products.

In illy’s laboratories, great importance is attached to studies related to environmental sustainability, with particular attention to the circular economy, optimal use of materials, maximum waste and scrap recovery, and plans to combat climate change.

CLIMATE CHANGE AND THE COFFEE INDUSTRY

Global warming is putting coffee plantations and varieties at risk, severely damaging plants due to high temperatures and excessive rainfall.

According to experts, by 2050 the land devoted to growing high-quality Arabica coffee, which accounts for 70% of coffee produced worldwide, will be halved.

Sustainability

In terms of the circular economy, the goal of the laboratories’ studies is to work on coffee machines’ functionality, aesthetics and design, without compromising the appeal and quality of the products. Materials play a fundamental role in this process. The research increasingly focuses on the use of compostable, recyclable, eco-friendly and non-polluting materials, in full compliance with disposal regulations and the EU RoHS (Restriction of Hazardous Substances Directive) regulations.

Thanks to the Life Cycle Assessment, the company has implemented improvement plans focused on product durability to help recover food waste. In 2018, illy took part in the Prolific project, which plans to create new prototypes of products from coffee, legume and mushroom waste.
illy finances and collaborates in research activities focused on climate change in partnership with several universities and research centres. An important study on the raw data from the reconstruction of the Coffea arabica genome has been made available to the scientific community through the website of the World Coffee Research, a non-profit organisation dedicated to international research and development in the coffee sector. This is a unique study in the field of genetic research, which accelerates science’s commitment to the future of coffee cultivation.

Coffee machines

• To meet the need to reduce energy consumption – going even lower than the mandatory European and international standards – advanced-stage testing is being carried out on high-efficiency heaters which, by using increasingly efficient heat exchange systems, will make it possible to reduce consumption linked to water heating (fast heating).

• In line with the principles of the circular economy, the “Design for disassembling” criterion is applied, which involves the design of coffee machines with a focus on disassembly so that most of their components can be reused or recycled.

• Coffee machines are designed to be increasingly long-lasting. The company offers a maintenance service to help prevent their premature disposal.

In 2019, a framework agreement was signed with the Polytechnic University of Milan for the joint development of research projects to study the future of preparation systems.

THE DE’LONGHI AUTOMATIC MACHINE

A De’Longhi for illy automatic espresso machine has been introduced to the Italian market, optimised to perfectly extract the unique 100% Arabica illy blend. The integrated coffee grinder technology allows you to adjust the grinding level to your preference.

THE HITECH MACHINE

In 2019, a feasibility study for a high-tech machine that will offer an innovative system for managing consumables and their end-of-life was completed.
Coffee and processes

• Research continues into compostable materials for capsules in order to minimise environmental impact without compromising coffee quality and price competitiveness.

• Since 2016, 3 kg coffee containers have been seamed, rather than welded. This is a less energy-intensive process that has reduced material use by around 10% in weight.

• The procedures for collecting and treating used capsules are under review, in compliance with the various local regulations.

To formalise these processes, in 2019, illy formulated a three-year road map that organises activities to reduce the impact of products on the environment, including initiatives to raise consumer awareness.

NEW PRODUCTS IN 2019

• ECO (Easy Capsule Opener), a more effective device than the previous model, which allows you to open used Iperespresso capsules, separating them from the remaining coffee and permitting their correct disposal.

• Compatible capsules in various flavours – classic espresso, long, intense espresso, strong ristretto and decaf classic espresso – thanks to the licensing agreement between illycaffè and JDE.

• “India” origin in the Arabica Selection range.

• Soluble Iperespresso Barley and Soluble Barley&Ginseng capsules for the Home sector.

• ESE pod with compostable paper packaging.

• illy Cold Brew (Bag in Box) format that is ready to use, even without using equipment.

• Ready-to-Drink Cold Brew 250 ml can.
IPERESPRESSO CAPSULE
The Iperespresso system consists of a coffee machine that uses an innovative capsule and features a complete extraction chamber protected by 5 international patents.

2006

X7
X7, the first home boiler machine to use Iperespresso capsules.

IDILLYUM
The first single-variety coffee with a low natural caffeine content and a unique and sophisticated sensory profile.

ILLY ISSIMO /READY TO DRINK
A ready-to-drink product created for consumption outside the home. No colouring agents or preservatives; illy issimo, the result of a collaboration between illy and The Coca-Cola Company, offers the maximum quality, ready to be enjoyed cold.

2008

X1
X1, the second Iperespresso home machine, a top-of-the-range model made of steel.

ILLYCREMA
Iced coffee cream with 100% Arabica illy espresso and ice micro-crystals, without hydrogenated fats, colouring agents or preservatives.

2009

X1
X1, the second Iperespresso home machine, a top-of-the-range model made of steel.

X2
X2, the first professional HoReCa boiler machine with Iperespresso capsules.

2007

X2
X2, the first professional HoReCa boiler machine with Iperespresso capsules.

2010

X7.1
X7.1, an upgrade of the X7 with thermoblock technology that complies with regulations on the disposal of heavy metals.

Y1
Y1, Iperespresso home machine made of aluminium and glass with automatic capsule ejection. Thermal management and electromechanical controls.

2011

X2.1
X2.1, an upgrade of the X2 with a thermoblock that complies with regulations on the disposal of heavy metals.

Y1 TOUCH
Y1 touch, an upgrade of the Y1 with soft touch controls and electronic management.

Y2
The new capsule machine for the HoReCa sector.

2012

X7.1 AND Y1.1 TOUCH
Evolution of the machines according to ErP regulations on energy consumption.

DOUBLE ADAPTER
Kit for using IPSO HoReCa capsules in professional grinding machines.

2013

Y5
New Iperespresso home machine with automatic discharge, expanding the “Y” family range.

X7.1
2016
ALUMINIUM CAPSULES
The new line of compatible aluminium capsules* was presented, the result of a licensing agreement signed with JAB.

* Compatible with many Nespresso® coffee machines.

2018
COLD BREW AIR/FLAT SYSTEM
Thanks to the patented illy tapping system, Cold Brew can be enjoyed both in the smooth version with ice and in the illy Cold Brew Aria version, with a soft, lingering foam obtained completely naturally without added ingredients.

ARABICA SELECTION
Presentation of the range of the most distinctive origins of Arabica coffees that make up the illy blend, from Ethiopia, Colombia, Brazil and Guatemala. Available as single varieties and on an intensity scale ranging from the most delicate to the boldest, each origin is produced with a specific roasting curve to enhance the distinctive aromatic notes and taste of the lands of coffee.

2014
YS MILK, X9 AND KISS
New Francis Francis for illy espresso machine models.

ESE SINGLE-SERVE POD
Offers reduced primary, secondary and tertiary packaging.

2015
PILLOW PACK
Filter paper pods for making drip coffee.

2016
COLD BREW SYSTEM
Coffee ground for infusion in water.

PILLOW PACK
Filter paper pods for making drip coffee.

2017
YS DRS ESPRESSO & COFFEE SYSTEM
The coffee machine that you can control with your smartphone via Bluetooth and that allows automatic reordering of capsules using Amazon Dash technology.

PULCINA MOKA
Thanks to the internal shape of its special boiler, Pulcina automatically interrupts coffee brewing at the right time, eliminating the eruption stage – the final extraction stage that produces a burnt and bitter aftertaste – and makes it possible to obtain only the best of the coffee, enhancing its full-bodied, rich aroma.

YP1
The new professional YP1 machine developed by illy and Cimbali allows perfect grinding, espresso after espresso, thanks to Bluetooth technology: it monitors the coffee dispensing time and, if necessary, communicates an appropriate correction to the Conik grinder/dispenser. This technology permits an average energy saving of 25% compared to the previous model.

PERSONAL BLENDER
The prototype was presented in the Coffee Cluster at Expo Milano 2015 and is now used to create Michelin-starred chefs’ personal blends. The machine allows you to create a custom blend, starting with the 9 origins of the unique illy blend.

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2019 Sustainable Value Report
Sequencing of the Coffea arabica genome has been completed, thanks to a partnership led by illycaffè and Lavazza, in collaboration with the Institute of Applied Genomics, IGA Technology Services, DNA Analytica and the Universities of Trieste, Udine, Padua and Verona.

WORLD COFFEE RESEARCH Makes available on its website (worldcoffeeresearch.org/genome) the reconstruction of the Coffea arabica genome.

PROLIFIC illycaffè participates in the PROLIFIC project to develop new products based on a circular economy approach.

BREEDCAFS In 2019, illycaffè continued to contribute to the European Commission’s “Breeding Coffee for Agroforestry Systems” project. Agroforestry is a cultivation model that is adapting and preparing coffee production to respond to climate change. However, few varieties are suitable for this system. Thanks to this project, high-quality hybrids that are more adaptable to agroforestry models have been processed from various botanical species and different geographical origins. This variety will benefit small farmers, increasing their income and improving their environmental sustainability, as well as the European industry, which will be able to benefit from other speciality coffees.

PROLIFIC The company is participating in PROLIFIC, the project that gives coffee a second life, designing new products based on a circular economy approach. The partners have launched a study of coffee by-products (from selected green coffee waste) for use in various application areas, in particular food, cosmetics, animal feed and packaging. For example, biodegradable capsule prototypes have been produced, which are still being developed.
Every coffee bean encompasses a whole world: this is the philosophy that guides the activities of the Università del Caffè. A virtuous circle of knowledge that nurtures passion, builds skills and creates value over time.

In 2019, the Università del Caffè turned 20 years old and passed the milestone of 300,000 students. To celebrate the anniversary, an Open Doors event was organized at the Università del Caffè and at illy’s production plant, attended by more than 300 people.

The Università del Caffè was founded in Naples in 1999 and moved to Trieste in 2002. It was created to give all those who work along the supply chain the opportunity to come into contact with, understand, become passionate about and improve the production of sustainable high-quality coffee.

Today it operates through an international network that spreads high-quality coffee culture all over the world through publications, research and in-depth educational training to meet the needs and expectations of coffee growers, hospitality professionals and passionate consumers.

Alongside in-person teaching for producers and professionals and educational sessions for passionate consumers, in the last five years customisable online courses have been introduced through a digital e-learning platform.

The global team of more than 100 teachers consists of 3 levels of expertise:
- Instructors, 13 to date
- Associate Professors, 39 to date
- Full Professors, 61 to date

<table>
<thead>
<tr>
<th>TOTAL NUMBER OF PARTICIPANTS</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producers</td>
<td>306</td>
<td>469*</td>
</tr>
<tr>
<td>Professionals</td>
<td>18,448</td>
<td>20,154</td>
</tr>
<tr>
<td>Consumers</td>
<td>7,202</td>
<td>8,119</td>
</tr>
<tr>
<td>Online participants</td>
<td>1,080</td>
<td>1,268</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>27,036</td>
<td>30,010</td>
</tr>
</tbody>
</table>

* 306 producers trained at the Università del Caffè in Brazil and 163 by other educational activities carried out in Colombia, Guatemala, Honduras and India.
ADVANCED TRAINING FOR PRODUCERS
In 2019, 469 coffee producers were trained.
Producer support activities began in 2000 with a collaboration initiated with PENSA, the University of São Paulo’s Agrobusiness Intelligence Centre. Since 2010, over 9,500 farmers, supply chain partners and professionals working in the coffee sector have participated in training activities on relevant issues such as: responsible farming techniques, economic and administrative aspects for proper management of agrobusiness, resilience and climate change mitigation.

The training activities respond first and foremost to critical issues identified in the field and subsequently raise awareness and develop prevention policies and good practices. In this process, illy and the University involve both its own producers and a wider public in the sector to create a process of collective improvement for the benefit of all actors in the industry.

In Brazil, Colombia, Guatemala, Honduras and India, activities or training sessions have addressed issues related to highly toxic agrochemicals, the production and selection of high-quality coffee, efficient water consumption and appropriate wastewater treatment, minimum wages and good agronomic practices.

TRAINING COURSES FOR INDUSTRY PROFESSIONALS
In 2019, 20,154 professionals were trained.

For professionals who work in bars, restaurants and hospitality, the Università del Caffè offers training and refresher sessions focusing on the product and on the management and promotion of the business. The courses provide a range of immediately applicable knowledge, from beverage preparation to purely managerial skills. In Italy, in 2019, average satisfaction with the course was 9.2/10.

The training activities also involve schools. The Maestri dell’Espresso Junior competition, organised in collaboration with the Cimbali company, is dedicated to teachers and students from Italian hospitality institutes and aims to train future professionals. In 2019, for the 28th edition, 45 institutes and 422 students took part.

EDUCATIONAL COURSES FOR CONSUMERS
In 2019, 8,119 consumers were reached.
The Università del Caffè organises courses for coffee lovers, focusing on various topics such as coffee culture, economics, sustainability, sensory aspects, health, customs and habits, using various engagement methods.

PENSA SEMINAR
Every year the Università del Caffè in Brazil, at PENSA (The Agrobusiness Intelligence Centre of the University of São Paulo), organises a seminar aimed at scientific institutes, national institutions in the sector, producers and the media. In 2019, the following topics, the result of research carried out in the previous year, were addressed:

- Disruptive technologies in coffee production
- Vertical integration in coffee growing
- Climate change, agriculture and coffee: Identification of research areas in Brazil
- illycaffè and flexible strategies: the case of a resilient company.

On this occasion Andrea Illy presented the Virtuous Agriculture project for the first time.