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PROSPERITY AND ECONOMIC PROMOTION

40 years, 40 reasons
Point 4 — Prosperity and economic promotion
INCASÒL 40th aniversary
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CATALONIA HAS HISTORICALLY BEEN A REGION OF TRADE, LOCATED ON ONE OF THE MAIN TRANSPORT ROUTES IN SOUTHERN EUROPE AND OPEN TO SHIPPING ROUTES. AFTER A LONG PERIOD OF CRISIS, CATALONIA BEGAN ITS INDUSTRIALISATION IN THE 19TH CENTURY, KICKING OFF A TIME OF ECONOMIC EXPANSION AND MODERNISATION THAT LAID THE GROUNDWORK FOR THE TERRITORIAL MODEL OF MODERN CATALONIA.

During the Franco years, heavy industry, the beginning of tourism and spectacular population growth fuelled the Catalan economy in the second half of the 20th century. The arrival of democracy coincided with a crisis in the industrial model, and one of INCASÒL's tasks since it was created has been to create spaces that can suitably host new economic activities that allow for the much-needed modernisation of the economy.

Today, the Catalan economy is more diversified, based on small and medium-sized companies located all over the region. For opportunities and growth to reach the whole region, INCASÒL has worked hard to create spaces for economic activity that adapt to the potential and specific characteristics of each area, working to prevent the uncontrolled spread of industry in rural areas.

The Catalan economy is also open to the world and one of its great strengths is its export capacity. Each year, Catalonia welcomes roughly 20 million visitors and a good part of the goods for southern Europe pass through our territory. Infrastructures, always an unresolved challenge, play a key role. INCASÒL, jointly with other administrations, is active in attracting foreign investment. To do so, we have to offer attractive, competitive spaces with good connections to infrastructures that can adapt to changing needs that sometimes have difficulties finding their place in the region.

The Sustainable Development Goals urge us to make economic progress compatible with new environmental requirements and to do so with a commitment to territorial cohesion and social equality. Climate change is imposing a profound shift in our productive model: from a linear economy, based on extracting resources and then returning them to the environment in the form of waste, we must move towards a circular economy in which resources are reused, not discarded. New sectors for economic activity must be eco-friendly and foster the green economy.

But the economy also faces other challenges for the future related to new technology. The changes we will have to face in the 21st century will mean some jobs are no longer necessary. However, new ones will be created in creativity and knowledge. To achieve a true digital transformation, we must bridge the gap between economic activity and knowledge and embark on projects that allow us to attract leading companies in the new economy. Spaces for economic activity must promote a concentration of talent and knowledge transfer so they will become truly international hubs. They must also, however, take advantage of the specific characteristics of each territory to drive the transformation and adaptation of local economies.

One of the keys to the spectacular economic growth of these past 40 years has been our great adaptability, which INCASÒL has played a noteworthy role in. In 2020, we were forced to test out a new way of working, with increasingly flexible, dislocated workplaces. It seems clear that new productive spaces, tied to the new economy (creative, green and circular) will be fully integrated into the urban fabric and will be areas of the city with mixed uses and activities, making them more complex and diverse, where environmental parameters will play a key role.

A COUNTRY OPEN TO TRADE AND PIONEER IN INDUSTRIALISATION

Catalonia has benefited from its privileged geographic location, which has helped make it an open, trading economy. Catalonia's first complex urban settlement, the Empúries colony, was essentially a trading outpost. During the Roman era, the Empire's main trade and transport route ran across the Iberian Peninsula: over 1,500 kilometres long, crossing Catalan territory from north to south. Along its path, important trade cities sprung up, including Tarraco (Tarragona) and future territorial hubs like Dertosa (Tortosa) and Gerunda (Girona). Finally, the road crossed the Pyrenees at La Jonquera and continued on to Narbonne, where it changed name, becoming Via Domitia and ending up in Rome.

Trade in the Roman era was based mainly on mining from southern Hispania and agricultural products, such as oil and wine from the Mediterranean rim. We do know, however, that cities like Barcino also had small factories like salted fish workshops to make garum, a highly prized condiment that Barcelona exported throughout the Empire in small decorative glass bottles, which were also produced in the city. We know the economy of Tarraco had an extraordinary urban industry making items for daily use, above all in bronze and terracotta but also some in glass and other metals. With the fall of the Empire, drop in population and end of trade, maintaining the urban structures became impossible. Cities turned into small rural centres and the economy became a system to produce what was needed for internal consumption, regulated by the new feudal structure.

After Barcelona was recaptured by the Frankish army in 801, the city became the most southerly urban centre in the Carolingian Empire and the closest to the border with the Caliphate of Córdoba. Its location, sandwiched between the Islamic and Christian worlds, made it a gateway for European traders moving into Al Andalús on the lookout for luxury items. The core centuries of the Middle Ages were a time of great progress in nautical technology. The flow of traders and goods invigorated local trade, although very slowly. Contact with the eastern Mediterranean also began, bringing spices and luxury items to Catalonia and products like Catalan coral to the East. With the conquest of Mallorca and other maritime territories, Catalan trade expanded and grew more and more. These were

The Catalan Atlas (1375): the most important Catalan cartographic map of the Middle Ages, attributed to the Mallorcan Jew Cresques Abraham

times of intense economic and commercial contact throughout the Mediterranean Basin, where Catalonia played a noteworthy role. The Crown of Aragon became a small trading powerhouse with over 75 embassies, called Consulates of the Sea, which regulated the rights and duties of traders based on its own civil code. The commerce markets (llotja) in Barcelona, Mallorca, Perpignan and Valencia are proof of its urban economic power, as well as beautiful examples of secular Catalan Gothic architecture. In the Late Middle Ages, Catalan maritime trade, and very specifically that of Barcelona, was influenced by Catalan traders and sailors in a wide variety of far-off lands: the Maghreb, Egypt, Palestine, the Byzantine Empire and, naturally, other European states. This commercial power made Barcelona one of the main trading ports on the Mediterranean, on par with Venice, Genoa and Constantinople. Other Catalan cities with exuberant economies, like Tortosa, also established codes of commerce for their sea and river transport.

The Late Middle Ages was also a time of growth for cities and saw significant urban culture, accompanied by the advent of the manufacturing bourgeoisie and new urban liberal professions. In the artisan city of the Late Middle Ages and early Modern Era, production took place within the city. It was small industry and trade that shaped and breathed life into cities, as the guilds provided social structure and brought new urban institutions into government, such as Consell de Cent (Barcelona) or La Paeria (Lleida, Cervera and Balaguer). The importance of these proto-industrial activities inside the city can be seen in the names that remain part of many towns and cities today, reflecting their specialised regions and industrial areas: tanneries (adoberies) in Igualada and Vic, and cork workshops (suro) in Palafrugell, etc. As well as hundreds of pre-industrial buildings all over the region, some recovered thanks to programmes led by the Catalan Land Institute, like the Alfolí de la Sal in l'Escala and la Farga del Comú in Banyoles.

Despite a long period of crisis, Catalonia's foundations in trades and production allowed it to quickly adapt to the Industrial Revolution. Things began to change with the first chintz factories established from 1740, when territories of the former Crown of Aragon were allowed to start taking part in trade with the Americas, previously the exclusive domain of Castilians. While Castile's trade with the West Indies had been based on extracting natural resources and revenue, by the time the Catalans joined in, the most valuable mineral resources had been nearly exhausted. The chintz industry (a type of cotton print fabric) copied and substituted fabrics from India and the Middle East, which were more hygienic, comfortable and showy than the traditional wool ones made locally. The production of chintz would fuel Catalonia thanks to the protectionism of the Spanish monarchy, which prohibited import and use of foreign cotton materials. This urban manufacturing proto-industry was the origin of manufacturers: businesspeople who were not governed by the structure of a guild. It was these same manufacturers who would go on to create bigger and bigger business conglomerates. In the beginning, the factories were located within the city (in Barcelona, mainly in the neighbourhood of Sant Pere). However they grew quickly in number and size, forcing some outside of the urban centres. This helped even more to dissolve the corporate world of the guilds, which meant losing an element that structured and served as a reference for urban social structure and laid the groundwork for a new social class: the proletariat.

This pre-industrial activity once again fuelled international trade, which had stagnated with the loss of the Mediterranean colonies but now looked to America, especially the Antilles and Cuba. The indians or indianos (people who went to America and returned wealthy) were pioneers who, with the opening up trade routes, embarked on the economic adventure of "doing the Americas" (fer les amèriques – going to America to make one's fortune). Indianos came from all social classes and made one or several trips to the Antilles over the course of their lives. When they returned to Catalonia, they showed off their new wealth in their clothing and by building the typical homes, known as cases d'indianos, that would change the make-up of coastal towns like Sant Feliu de Guíxols, Begur, etc. In the Americas, they did all sorts of things: trading and manufacturing cacao, tobacco, coffee and rum. Some brands of Caribbean rum still bear Catalan family names today, like Barceló and Bacardí. The latter invested their fortune in a huge real estate development

that created Plaça Reial in Barcelona. To grow cotton in the Caribbean (this crop is highly sensitive to frost and, therefore, not suitable to the Mediterranean climate), they used slave labour. So some Catalan indianos also brought slaves from Africa to America and cotton to Catalonia. Large transatlantic companies, like that of Antonio López Marqués de Comillas, made this constant maritime trade possible. The new bourgeoisie accumulated capital and financier and future mayor of Barcelona Manuel Girona founded the first modern bank in the city in 1844. Institutions like the Junta de Comerç (Board of Trade) would help adapt to new uses and customs of international trade, while also setting up the first technical schools, including nautical, chemistry, mechanics and economics studies.

The great social and economic shift that industrialisation brought about was preceded by a series of technological innovations that would forever change the manner and scale of production. The advent of the steam engine, which could work non-stop with stable output from a power source that was neither human nor animal, changed work conditions and human relations governing production forever. In Catalonia, there are two things that made it possible to adapt quickly to the industrial economic model: the business structure already in place thanks to the cotton industry set up by the indianos and the huge fortunes amassed by the manufacturers and indianos, which gave rise to what is known as the haute bourgeoisie with lots of capital and entrepreneurial spirit.

The first industrial chimney for a steam engine was at the factory Ramón Bonaplata inaugurated in the northern part of the Raval neighbourhood in 1832, which employed 700 people. This milestone marked the transition from the proto-industrialisation of the indianos' weaving factories towards a fully industrial economy with huge social, economic and territorial consequences. It is important to note that the Barcelona city walls remained standing until 1854 and, as a result, many of the new factories were established inside the walls or in towns on the Plain of Barcelona. While residential buildings before that could make room for small manufacturers or factories, the huge change in scale so factories could take advantage of steam

← Working girl or The little weaver, work by Joan Planella i Rodriguez, 1882. Museum of the History of Catalonia

Fundición de San Antonio Hierro y Cobre ↓

power required specific buildings. Free space inside the city walls, particularly in the Raval area which still had fields, made room for these large constructions. On top of this occupation of open space, the waves of people immigrating from the countryside and booming population, over a very short period, meant there was no room within the walls and this area progressively became more and more densely populated until it became untenable and, as we saw in point 1, highly insalubrious.

In 1860, construction of the Eixample began and, just a few years later, there was a "gold rush": investors saw that developing this area was an excellent business opportunity. The indianos who had returned from the colonies had fresh capital to invest. Wealthy families felt the right side of the Eixample was the best place for their homes. The project became consolidated, although the construction boom contributed to the progressive loss of green spaces and facilities. Barcelona also needed more and more space for industry. In the first Eixample, factories co-existed with residential buildings and, as the central area became consolidated, these industries were increasingly forced out towards the periphery of the Eixample, or further afield. The hydropower from the Canal de la Infanta, on the left bank of the Llobregat River, had already attracted industries to l'Hospitalet and Sants, including the famous España Industrial. In Poblenou and other towns on the Plain of Barcelona, the arrival of new industries was unstoppable. Factories like Can Batlló took up whole blocks of the Eixample. Years later, this factory in the left-hand side of the Eixample, given its central location, would become a public facility: the Barcelona Industrial School. The factory was moved to a more open location on the outskirts, in the neighbourhood of La Bordeta. Today, this unused space that is now very central thanks to the southern extension of Gran Via, is being recovered to use as a new neighbourhood centre with facilities, parks and social housing. In Sant Andreu, the Fabra i Coats factory has also become a great cultural centre and others like La Pegaso and La Maquinista are now parks or shopping centres. This centrifugal displacement of industry has been constant in all Catalan industrial cities. Sabadell and Terrassa have made pushing large factories out of the city centre a virtue in their urban growth, creating more open spaces in the city and quality facilities that also preserve their industrial history. As we saw in Barcelona, the industrial outskirts of these cities became consolidated in an urban border that separated the cities from the surrounding landscape.

Catalonia, beyond the capital city, also saw a transformation that expanded along the main inland river valleys through industrial colonies. Industrial colonies are one of the most iconic elements of industrialisation in Catalonia. Large industries stuck close to the rivers to take advantage of water as power source alternative to coal and the affordable land prices. They moved to the banks of the Llobregat, Ter, Segre and Cardener rivers, as well as some of their tributaries. Bages, Berguedà, Osona, Ripollès and Baix Llobregat counties filled with factory complexes set up like small towns around the factory, copying a model first used in England in the middle of the 18th century. Their isolation, the fact that they were completely disconnected from any other urban area, meant that workers spent nearly all their time inside the colony and, so, it had to meet all their needs in terms of housing, education, upkeep, healthcare and, even, leisure activities. These needs were addressed with only the most basic services. The goal was to strike a balance between work life and social or family life: a "social peace" that would help drive production. The textile colonies represented the spread of factories outside of urban areas for the first time and made new modes of transport necessary to sell the products they manufactured.

The Industrial Revolution was accompanied by the first expansion of infrastructures, from the steam ships that changed the scale of these vehicles and, therefore, the ports, to the railway, the great point of reference for infrastructures in the 19th century. The history of the Catalan railway dates back to 1848, when the first rail line on the Iberian Peninsula was inaugurated, connecting Barcelona and Mataró. The following decades saw a great expansion of the Catalan rail network, fuelled by several companies. The rail network was one of the first modern infrastructures rolled out in Catalonia, beginning to give it a territorial structure tied to the economy. The rail connection with Paris came after the two main Catalan rail concessions (Camins de Ferro de Barcelona a França

per Figueres and Companyia del Ferrocarril de Tarragona a Martorell i Barcelona) merged in 1875 to create Companyia dels Ferrocarrils de Tarragona a Barcelona i França. The new company continued the train line to Portbou and Cerbère and three years later, on 20 January 1878, inaugurated the international rail connection. At the same time, a Franco-Spanish agreement in 1904 urged the creation of two more connections between Catalonia and France, paid for by the Spanish government in the first national investment in railways in Catalonia. This agreement created the "Transpirinenc" line, from Ripoll to Puigcerdà, with an international connection to La Tor de Querol. The line, with a very complex route, reached Puigcerdà in 1922 providing a second connection to France, although much less competitive for passengers in terms of travel time. The third project to connect the two countries, a personal obsession of General Primo de Rivera, was to run from Baeza (Jaén) to Saint-Girons in the Ariège department of France. The project was interrupted many times but, nevertheless, the stretch north of Lleida was revived under the Franco regime. In the end, the line went no further than La Pobla de Segur, heeding the World Bank's recommendation to the Spanish State. So the third connection was never operational.

The social, economic and cultural push that came along with industrialisation fuelled Barcelona's status as the capital and, soon, aimed to transfer it to the whole territory. The Commonwealth of Catalonia and the Republican Government of Catalonia worked to make the idea of the City of Catalonia a reality. This concept aimed to promote the economic, social and cultural regeneration that came along with the Industrial Revolution throughout Catalonia and, to do so, needed a plan to coalesce the region through infrastructures and services. In 1914, when the Commonwealth was created, only 38 of the 1,087 towns had a telephone. After rolling out 6,000 kilometres of phone lines, this service reached 400 towns. Fifteen years later came the first territorial plans that laid the scientific groundwork for country cohesion and creating a network of prosperous, well-connected cities extending services throughout Catalonia.

In 1932, architect Ramón Puig Gairalt signed the

Preliminary draft of the Regional Planning zone plan by Rubio and Tudurí brothers, 1932

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Colònia Vidal (Puig-Reig, Berguedà)

project for the first airfield in Barcelona. That same year, the Republican Government of Catalonia made its first attempt to give Catalonia a Plan: the Rubió i Tudurí brothers (Santiago, an engineer, and Nicolau, an architect), influenced by trends from countries like the Netherlands, were commissioned to draft the Regional Planning for Catalan territory. This was the first precedent for regional planning in Catalonia through a general analysis of the territory that identified several areas of productive specialisation (industry, agriculture, forestry, mining, trade and residential, etc.), as well as identifying landscapes or areas of particular natural interest. The Plan posited a first hypothesis for the network of road connections that would bind the whole territory and identified the main urban hubs that structured the region. In reality, the Plan achieved the level of a preliminary study or proposal, but wasn't truly a plan in the strictest sense. The Regional Planning was a highly analytical plan, with a very short section of proposals limited to a map of Catalonia showing different areas of specialisation. The work analysing and studying the territory in this pre-project for distributing Catalonia into areas was key to the future of regional planning.

"Anglo-Saxons call organising the various human and natural activities on the surface of a country or region 'Regional Planning'. The reasons this planning is advisable are seen in those countries that, given the entrepreneurial nature of their inhabitants or natural, economic and historical causes, are overactivated; countries where various activities of human life fight bitterly for the surface area of the region and the right to occupy and sometimes damage the natural landscape."

Nicolau Maria and Santiago Rubió i Tudurí. Regional Planning Report, 1932.

This Regional Planning would be followed by the Government of Catalonia's General Plan for Public Works from 1935. Commissioned by Minister Joan Vallès, it was the first comprehensive infrastructure plan for Catalonia with a united, cohesive vision for the territory. The plan by engineer Victoriano Muñoz Oms included a very mature, detailed vision of aspects like the road network, including motorways like the Eix Transversal (Transversal motorway) that wouldn't be built until the end of the 20th century. Plus, it included detailed aspects like marking the whole coastline with lighthouses and aerial pathways leading into Catalonia's main airports, among others.

The development of industry, particularly in the textile sector and metallurgy, marked a second process of industrialisation in the region in the early 20th century. Spain's neutrality in World War I was an especially powerful moment for Catalan industry, which received orders from the belligerents until the Spanish government broadened the terms of its neutrality. Industry required energy and getting it was key to territorial development for a large part of the 20th century: producing hydroelectric power was one of the cornerstones of the Catalan power system, which helped fuel industrialisation and reduce the historical energy dependence in Catalonia, where fossil fuels like coal are scarce. The first years of the 20th century saw the beginning of the first stage of investment in hydroelectric power plants, mainly in the Pyrenees mountains and foothills. They took advantage of the Noguera Pallaresa and Noguera Ribagorçana rivers. Later, in the 1950s, under the Franco regime, and through the 1960s, dams would continue to be built along the Ebro and Segre rivers. Creating new hydroelectric power plants and distribution companies led to steam engines being replaced by electric motors in industry. Electricity also fuelled development of the railways and urban public transport, with engineer and businessman Frederick Stark Pearson (of Barcelona Traction, Light and Power Company) playing a key role, and the creation of the first large financial groups in Catalonia. A whole series of elements that laid the groundwork for the region's new economic development and social evolution that would determine its physiognomy for most of the 20th century.

The War brought economic activity to a dramatic halt, especially during the autarchic period of the 1940s, when the international situation and isolation dramatically slowed the growth that had begun under the Republic. Soon, however, during the 1950s, the creation of the INI (Instituto Nacional de Industria - National Institute of Industry) promoted regions that, like Catalonia, had a foundation of industry that

allowed for economic activity to be restarted. The establishment of large companies fuelled Barcelona's industrial belt, which saw spectacular growth in the successive waves of migration and economic opening of the Franco regime. The successive waves of the textile crisis led to diversification of Catalan industry. On 9 May 1950, SEAT (Sociedad Española de Automóviles de Turismo) was founded and three years later, the company inaugurated its factory in the Zona Franca area of Barcelona, which won out over other cities thanks to its port. In the late 1960s, many cities with an industrial tradition didn't have urbanised land for new companies and that hindered their economic growth. INUR (Instituto Nacional de Urbanización - National Institute of Urbanisation), which fell under the Ministry of Housing, developed land for homes, but also for industrial purposes. INUR focused on more populated areas with proven demand for land for new companies, but its centralised actions from Madrid meant many of these actions weren't very respectful of the territory and didn't properly fit into the urban areas.

INCASÒL, when it was created, had to review the distribution of industrial land in Catalonia, striving for territorial balance, and cities had to incorporate the industrial sectors that had been built in inconvenient places with poor connections however they could. Spaces for industrial activity grew unchecked throughout the Franco regime, sometimes as an extension of the urban footprint but, with the generalisation of the private vehicle, also isolated or spread around the region in very low-quality industrial estates, in terms of space and the environment. Moreover, the industries that took the place of textiles and developed under the Franco regime, like in most countries around us, did so with very relaxed or non-existent environmental controls. In Catalonia, mining and chemical industries in Tarragona, Flix and Barcelona; the tanning industry in Vic, the paper industry in Sarrià de Ter and the power industry with the incinerator in Sant Adrià and thermal power plant in Cercs, among many others, caused serious damage to the environment over these years. On top of industrial development, 1960 saw the beginning of tourism and the following boom that would end up laying the groundwork for one of the keys of our current economic model.

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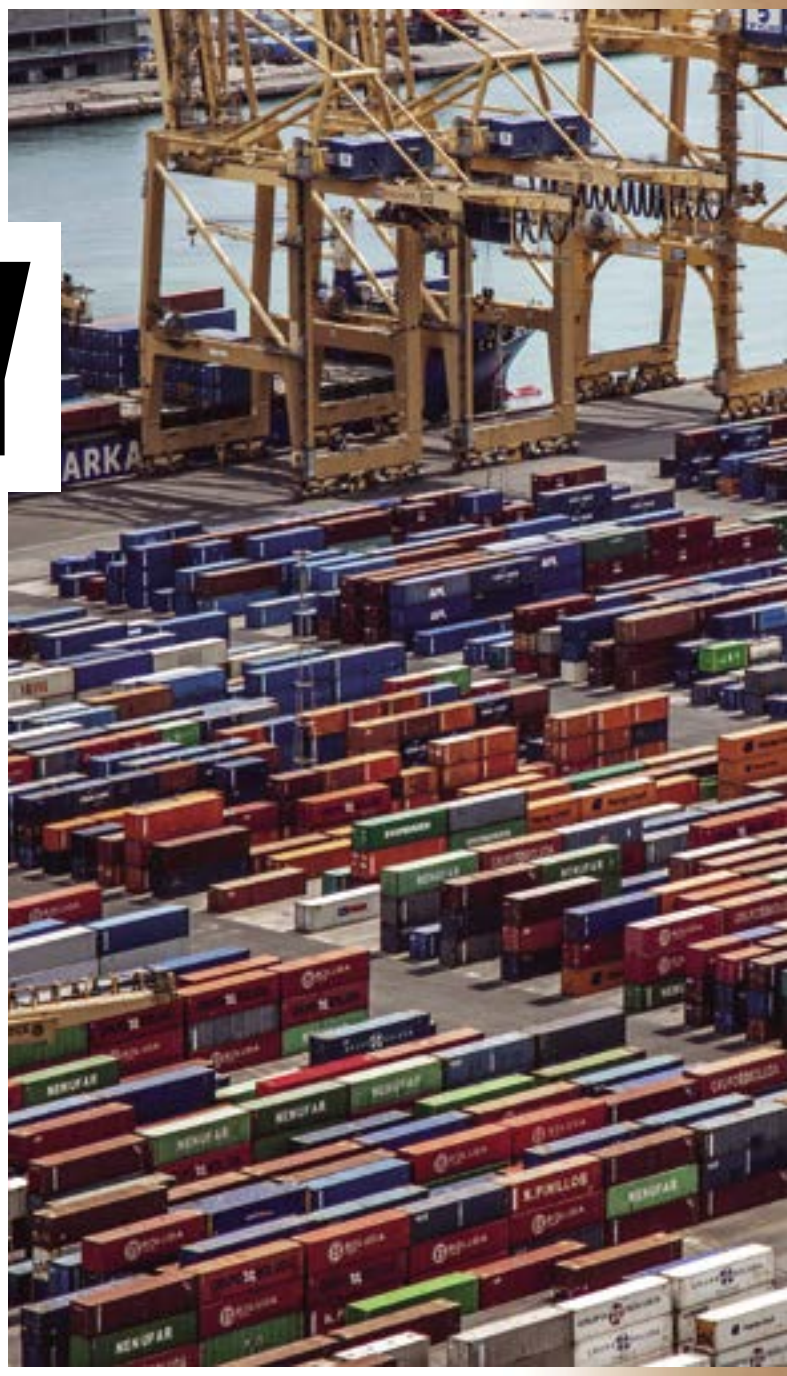
Chain production of the Seat 600 at the SEAT factory in the Zona Franca

Tourist poster from the time of Cadaqués

40 YEARS OF SUCCESS... ONE CRISIS AND ONE UNCERTAINTY

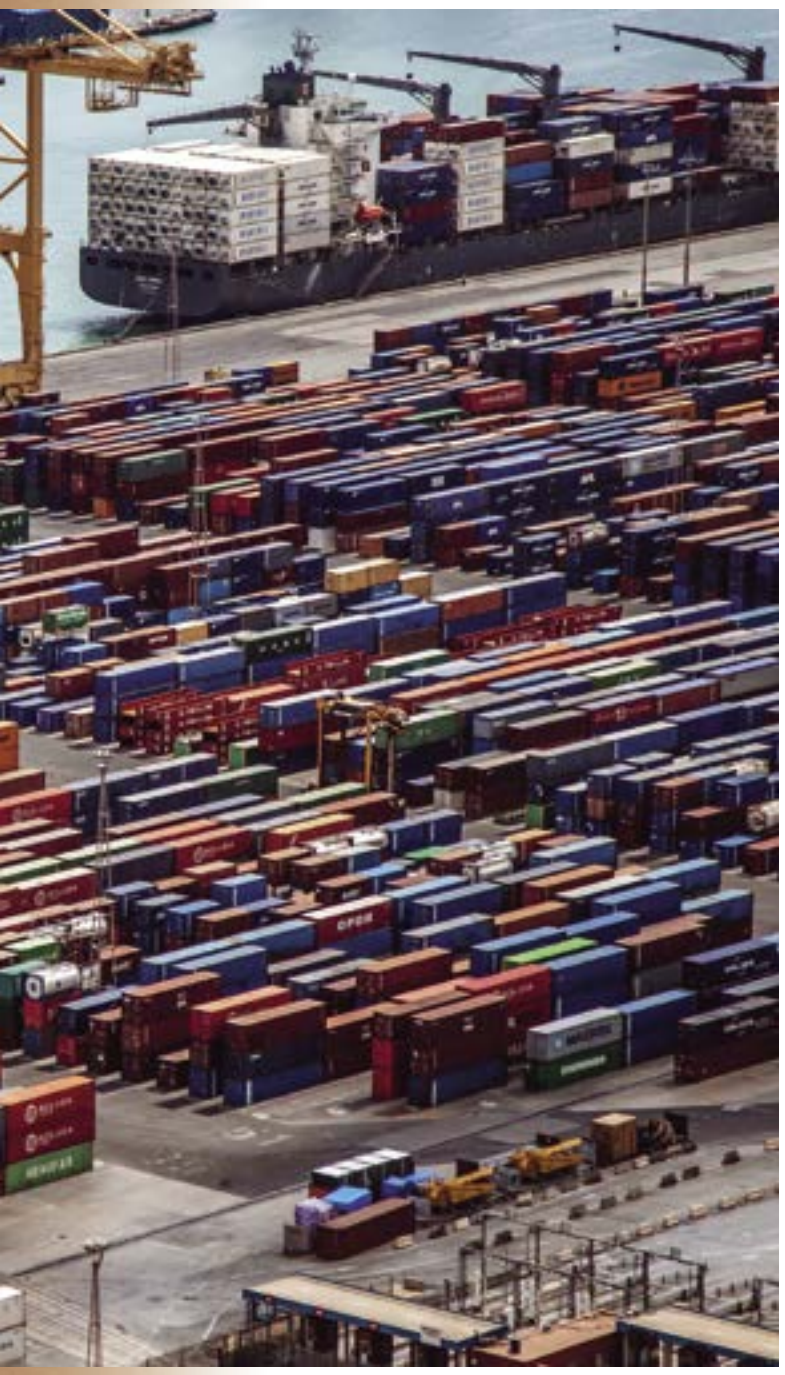


At the end of the Franco period, the global oil crisis was a first warning that the prevailing growth model was inviable. In October 1973, the Arab nations decided to block oil exports to countries that had supported Israel in the Yom Kippur War. This strategy, along with control over production, drastically forced up the price of petrol over the following months. The global economy's extraordinary dependence on fossil fuels was made clear and it triggered a global crisis. After a timid recovery, in 1979 a second oil crisis broke out, this time due to a series of instabilities in the Middle East: the Iranian Revolution, the armed conflict between Iran and Iraq, and the backdrop of the Cold War between the United States and the USSR.

In addition to the economic crisis, a significant industrial crisis also battered Catalonia: many companies closed and unemployment rose. With the Catalan industry shrinking and closing down, the demand for industrial land dropped sharply. New technological processes and ways of organising production had made many of the existing industrial facilities obsolete. So, despite low demand, companies often wanted new premises and needed urbanised land with three requirements: more space on the ground floor, fewer surrounding buildings, and, above all, better connections, infrastructures and services.

After the two successive oil crises had passed, the Catalan economy began to grow faster than it ever had before. INCASÒL was founded in 1980 as Catalonia pulled out of the economic crisis and companies were reconverting industry. The Institute quickly became a key stakeholder in Catalonia's much-needed economic recovery, as it took a lot of work to adapt our territory and urban spaces to house the new needs that came with the business and production activities required by this huge economic growth. One of INCASÒL's roles is to create spaces to welcome and attract industries and companies that drive the region's economy, to provide spaces that fit the characteristics, capacities and potential of each territory, helping promote territorial cohesion and generating economic opportunities. One of INCASÒL's first decisions was to abandon the model that promoted large estates far from the urban grid with difficult connections and integration, which is what INUR had proposed at the end of the Franco regime. The new model required more isotropic

Management of maritime containers in the Port of Barcelona



distribution in the region and, above all, consensus with the town councils. In short, making sure industrial land developments suited the needs of local economies.

In this regard, one of the Institute's challenges in its first years was to rebalance the excessive weight of Barcelona's industrial belt, bringing development opportunities to more peripheral counties where industrial needs were quite different from the heavy industry of the Barcelona and Tarragona metropolitan areas. This task of regional rebalancing through new land for industry and economic activities has been one of the Institute's longest lasting programmes and, with different approaches, is still under way today.

REASON 21 – WE ARE BUILDING A NETWORK OF SPACES FOR INDUSTRIAL ACTIVITY ADAPTED TO LOCAL NEEDS

Over the past 40 years, Catalonia has had the most prosperous period in all its history. This economic progress came with spectacular population growth: in 1980, the Catalan population was under 6 million while today we are 7.5 million, up 27%. This increase in population is not due to the birth rate but to the waves of immigration in economic boom times. Today, 1,100,000 foreigners live in Catalonia. This population growth is in large part due to the region's economic growth, and achieving it required great effort to adapt our territory to the changing needs of the economy.

If we look quickly back over the growth and crisis periods of the past 40 years, we see that, with the arrival of democracy, Catalonia worked very hard to get its standard of living on par with its European neighbours through the combined efforts of the public and private sectors. The Franco regime ended with an economic crisis that began with the 1973 oil crisis and, after a brief recovery, plunged into the second oil crisis of 1979. Soon, Spain joined the European Community, in 1986, ushering in the greatest period of growth for the Catalan economy, which lasted until 1992. During this time, the economy grew 4.7% per year cumulatively and did so in a quite consolidated way, as the 4.4% increase in GDP per inhabitant shows. Over this period, moreover, the population remained fairly stable, which allowed the administrations to invest in reversing the shortcomings that had piled up over the previous decades, improving urban areas and public services. This expansive period culminated with the 1992 Olympic Games, where Catalonia and Spain (also through the Universal Exposition in Seville) showed off to the world, which was surprised by how quickly the country had modernised after the dictatorship.

After 1992 came a small post-Olympic crisis with a slight correction of the economy (the GDP dropped in 1993) but, on the whole, economic growth continued in 1992-2000, more moderate but still at 2.5% per year, faster than other European countries. With the population increasing very slightly, just 0.3%, wealth remained distributed among citizens, with a 2.3% increase of the GDP per capita.

With the turn of the century, everything changed. The GDP grew at an average yearly rate of 3.6%. The growth model for this period was labour-intensive, mainly in construction, combined with a considerable increase in immigration from non-EU countries. The social situation in cities and many small towns changed substantially with the population increasing 2.2%. At the same time, there was a strong capitalisation of the economy, based in large part on assets tied to construction. Despite the strong growth and unlike previous decades, the GDP per inhabitant only rose 1.4% per year.

From 2007, the international financial crisis and the burst of the real estate bubble saw the GDP drop for the first time in 2008. The steepest drop was in 2009; then the economic rebound of 2010 extended through early 2011, when the economy once again began to shrink. The lowest point of this shrinkage due to the debt crisis in the Euro zone was in 2012, although the economy

continued to shrink until 2013. During that period, the GDP dropped a cumulative average of 1.5%. Despite the recession, the balance of immigrants coming to the country remained positive for the period as a whole and continued driving population growth, which only stopped in the last two years of the crisis. As a result, between 2007 and 2013, the GDP per inhabitant dropped a cumulative average of 2% more than the GDP.

The recession was also noted in the cut-backs to social services and the drop in the administration's ability to make investments. Spain had joined the Euro zone and the European Economic and Monetary Union in 2002. The convergence and control mechanisms applied by the European Central Bank meant Spain couldn't do what it had done in previous crises: increase public spending by racking up more debt. The Union forced Spain to control spending with the threat of economic intervention.

From 2014, the Catalan economy started growing again, with the GDP up 1.8% in 2014 and 3.9% in 2015. Growth continued at a very good pace in 2016 (3.4 %) and 2017 (3.3%). In 2018, growth was more moderate, at 2.6%, in line with the less favourable foreign context, mostly due to global trade tensions. For the period as a whole (2013-2018), growth was a cumulative average of 3% per year. In this period, population growth was 0.3% per year, which put the average increase in GDP per capita at 2.7% per year.

The Catalan economy, in general, grew slightly ahead of the Spanish average for the 2013-2018 period, and that has its weight in terms of the GDP for 2018 at 19.0%. Nevertheless, Madrid has seen even better growth, taking the lead in Spanish GDP growth and GDP per capita.

In 2020, the pandemic sparked an unexpected crisis that is very different from the other cyclical, systemic crises before. The incredible uncertainty of a situation that hadn't been seen since 1918 means experts don't fully agree on how we will pull out of it. What is clear is that the situation is getting more complicated as the virus reappears in successive waves and that the vaccination process hasn't been as quick as expected. However, everyone hopes that from autumn of 2021, we will have overcome the pandemic and returned to the pre-pandemic period of growth, although it is true that this growth had started to show signs of slowing in 2019. How the pandemic will develop in the future isn't the only thing that is uncertain, so are our return to international mobility and the effectiveness of the actions of fiscal and monetary authorities (including the EU recovery funds). On top of these doubts, there is the tension on the international stage between China and the US. All of these aspects will determine economic growth in Catalonia.

It is important to remember that land policy addresses long-term, not temporary needs and, as a result, the history of INCASÒL is closely tied to the fluctuations of the economy over the past 40 years. On the one hand, its ability to act depends on how much the Catalan public administration can invest. On the other, expansive economic cycles demand space for growth and new companies, while in periods of crisis, many of the actions planned seem incoherent or inadequate, or are de facto put on hold for years. Managing this uncertainty tied to the cycles of the economy,

Volume of Catalan exports

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	2017 volume (€M)
European Union	45,982.4
Rest of Europe	5,398.6
Asia	4,731.8
Africa	4,294.4
South America	4,147.2
North America	2,900.5
Middle East	2,357.2
Oceania	389.1

↑

Ca n'Alemany sector of economic activities in Viladecans

Main export sectors in Catalonia in 2017
(Percentage of total exports)

17%	16.5%	11.9%	7.1%	6.9%	6.2%

Source: Acció

particularly in land programmes for economic activities, is one of the Institute's tasks.

INCASÒL, as happened with the INUR housing estates (explained in Point 2), also received the same institution's actions to promote industrial land from the State. The property transferred was significant but of very unequal quality and geographic distribution. Moreover, many of the actions were in the very early stages and hadn't even undergone urban planning yet. In these cases, INCASÒL inherited not only the land but also the lawsuits of former owners whose land had been expropriated by INUR. It was important to take into account the people's opposition to developing new industrial areas in city centres, like the Pedrosa estate in

l'Hospitalet de Llobregat or Gallecs (where the plan was not only for a new city, as we saw in Point 1, but also new industrial areas).

On top of the fluctuations in the economy, the differing approaches of the political parties that have governed Catalonia have left their mark on how the Institute operates: not only has the weight of the various policies varied over time but also, from a land-management standpoint, there have been periods focusing on acquisition and others on capitalisation. Additionally, it is important to remember that the Catalan Land Institute works with urbanisation timeframes that are often much longer than economic cycles. We will see that there are actions regarding land for economic activities that, before they were completed and with all the spaces occupied, had to be reformulated due to changing industrial and business requirements. Because, in urban-planning terms, 40 years isn't very long and, nevertheless, the Institute's work and the transformative effect its actions have had on the economy are very clear throughout Catalonia. It is impossible to imagine how Catalonia could have faced the incredible economic changes over the past 40 years without the ingenious work of INCASÒL to make industrial land available and do so in an orderly way with a view to territorial balance.

View of Viladecans The Style Outlet. Image courtesy of Batlleroig ⟶


GBYGUES

THE CATALAN ECONOMY TODAY

Catalonia, with 16% of Spain's population, accounts for 20% of its GDP, with a volume similar to Finland. The average wealth of Catalans is similar to that of Italians, right at the mean for the European Union. Much of this dynamism is based on our capacity for internationalisation. Catalonia only has 1.5% of the European population but has 3.6% of all exports from the 27 countries in the Union. Catalonia welcomes over 20 million visitors each year, 7 million more than all of Portugal and nearly 400 million tonnes of goods are managed and pass through our territory.

Currently, within Spain, Catalonia is the second autonomous community when ranked by GDP, after Madrid, and the fourth in GDP per capita, after Madrid, Basque Country and Navarra. The weight of internal demand in Catalonia is lower than the Spanish and EU averages. This is particularly clear in public administrations' consumer spending, which in Catalonia is 15.3% of the GDP but 19.6% for Spain as a whole, 21.8% for the Euro zone and 21.7% for the EU-28. Catalonia's positive balance of trade (12.2% of the GDP) is much higher than that of Spain (2.7%), the Euro zone (4.3%) and the European Union as a whole (3.2%).

The Catalan economy has opened up to the world: in 2018, Catalonia welcomed 25 million visitors (from other Spanish communities and foreign countries).

The total volume of tourists visiting Catalonia in 2019 was 39.4 million: 49.2% from abroad, 38.4% from Catalonia and 12.4% from the rest of Spain. In terms of total tourist spending, which hit €25.17 billion, most is from foreign tourists (84.7% of the total) and to a lesser degree from Catalan residents (7.7%) and tourists from the rest of Spain (7.5%). Catalonia's tourist offering includes over one million accommodation bed places, according to 2019 data. This figure also includes bed places in dwellings for tourist use, which is estimated based on the number of units registered (and therefore less reliable statistically). According to data from Eurostat, the tourist accommodation bed places in Catalonia for 2019 made up 22.1% of the Spanish total and 2.5% of the EU total, not counting the ones in dwellings for tourist use. Business tourism is a significant part. Catalonia regularly hosts over 50 large-format fairs. In 2018, 480 congresses were held with an impact of €1.9 billion. A person attending a congress spends €400 per day on average. In total, over 50 million journeys pass through the El Prat airport each year.

On top of the flow of people, our is also a region of goods transit: nearly 400 million tonnes pass through Catalonia each year. Logistics, like tourism, makes up 12% of our GDP and includes storage, management and transport of all sorts of goods. In Catalonia, goods

Map of the Mediterranean corridor ⟶

are mainly transported by road and that has a huge impact on the environment. Some 20,000 lorries cross the border each day and most cross the region from north to south. Apart from mobility infrastructures, logistics requires large support infrastructures like ZAL (Zones d'Activitats Logístiques - intermodal logistics platforms), CIM (Centres Integrats de Mercaderies - integrated freight centre) and LOGIS. Some of them, like CIM Vallès in Santa Perpètua and LOGIS Empordà in Vilamalla, have been developed directly by INCASÒL and are managed by CIMALSA, a public enterprise of the Government of Catalonia.

Mobility infrastructures, therefore, act as a catalyst and are absolutely necessary to the economy. Our network of infrastructures is inherited from the Roman roads, transformed and adapted from the network of Medieval paths and tolls. The rivers and plains have historically been home to transport lines, around which urbanisation has taken place, and as we saw in the past, economic activity is concentrated around the corridors of infrastructures. Over the past 40 years, Catalonia has been working to reverse its historical deficit of infrastructures, but it still has shortcomings compared to other European transit regions. Catalonia has a very significant deficit in conventional railways compared to similar European regions, both for passenger and freight transport.

By joining the European Union and the single market, the role of old continental trade routes has come centre stage. The Mediterranean Corridor is a 3,500-km transport line that crosses Europe from north to south. Along its path, we find 54% of Europe's population and 66% of its GDP. Catalonia, in its central position along this corridor, is a gateway and a transit area: a primary transport and logistics hub. To achieve its full potential, it is essential to finally promote the large transport and communication infrastructures that are needed to complete the Mediterranean Corridor, especially in terms of railways.

Although improving infrastructures is still an unresolved matter in Catalonia, our privileged geographic location has helped fuel our economy and attract international companies. But, to do so it has had to offer competitive spaces, suited to companies' needs and, above all, well connected to the large mobility and transport infrastructures.

REASON 22 – WE PROMOTE SPACES FOR ECONOMIC ACTIVITY IN HIGHLY ATTRACTIVE, COMPETITIVE LOCATIONS

Industrial production space has been intrinsically tied to raw materials, energy sources to power the production process, more or less qualified labour, and proximity to markets or the ability to reach them easily. The relationships among these factors have a common denominator: cutting production costs and generating competitive synergies.

In sectors of economic activity, we aim for a mix of uses, generally avoiding specialisation, which leads to overly rigid offering. There are activities, however, that are by nature difficult to combine with others or make compatible with social use for safety or environmental reasons. The zoning for economic activity sectors is mainly conditioned by the compatibility of the uses and their surroundings, and the potential for applying corrective measures to attenuate any hazardous or bothersome conditions they may entail. In this regard, the three basic indicators of compatibility between activities and residence can be summed up as follows: firstly, loading and unloading; secondly, noise pollution; and, finally, fire danger or hazardous products.

REASON 23 – WE HELP COMPANIES IN SECTORS THAT ARE STRATEGIC TO CATALONIA'S ECONOMY FIND THEIR PLACE IN THE TERRITORY

Catalonia's economy is highly diversified and industrially based, although over the years the services sector has been gaining ground. The industrial sector made up 20.7% of the economy in 2018, more than in the Spanish economy (15.9%) and most of the biggest economies in the Euro zone. Catalonia is home to 23.1% of all industry in Spain. The most important branches of the Catalan industrial sector are: chemicals and oil refinery (14.3%), followed by food, beverages and tobacco (13.5%); and to a lesser extent metallurgy and manufacture of metal products (8.7%), transport materials (8.2%) and pharmaceutical products (7.9%). The branches that have gained the most since 2000 are waste management and sanitation and the chemical, power and pharmaceutical industries. Catalan companies are mainly small and medium-sized (98.9% of companies have fewer than 50 employees) and highly dynamic (95% of the most dynamic companies in terms of revenue and profitability are SMEs).

Driven by local small and medium-sized businesses, as well as large national and international corporations, the Catalan economy today is open to the world and one of its great strengths is its export capacity. Catalonia exports more than it imports. The automotive industry leads exports, followed by chemicals and food. Catalonia also receives foreign investment and has been named by the Financial Times as the best region to invest in Southern Europe, chosen from 450 European regions and cities. That same publication also recognises Catalonia as having the best strategy in terms of attracting foreign investment of all the 'big' European regions.

The Catalan economy has changed a lot, and the tertiary or services sector plays an increasingly important role. As in most developed economies, the services sector accounts for most of economic activity in Catalonia: 74.4% of the gross value added (GVA) in 2019. Trade remains one of our economy's most active sectors. So, when we refer to spaces for economic activities, we don't just mean industry or logistics, but also spaces for retail activity.

REASON 24 – WE PLAY AN ACTIVE ROLE IN ATTRACTING INTERNATIONAL COMPANIES THAT WANT TO SETTLE IN CATALONIA

SDG Catalunya 2030

Generating wealth and economic activity is essential for maintaining and improving our well-being. The United Nations Sustainable Development Goals assume that there can be no well-being without economic progress and urge that this progress and the wealth it creates be properly distributed in this world in which inequalities continue to dramatically increase, and for them to be environmentally sustainable and responsible. The 2030 Agenda recognises that we must prosper, but to do so we have to update the prevailing concept of growth. This is a first step that must be taken before we can start growing in a way that is radically different from any growth so far. So, three of the SDG reference aspects directly tied to the economy, employment and production processes:

SDG 8 focuses on moving towards a decent job market and striving for zero unemployment. This employment must be accompanied by inclusive economic growth that can redistribute wealth. To do so, we have to keep driving economic activity and promoting new production activities.

Spain still struggles to ensure employment, particularly among the young. This is an impediment to our economy that is very difficult to resolve and endangers our growth in areas like birth rate and social justice regarding, for example, maintaining the social welfare system.

To achieve this, SDG 8 encourage us to focus on aspects like sustainable tourism, creativity and innovation, entrepreneurship and microenterprises and SMEs, the new cooperative economy, developing global and regional economies that are respectful of the environment and landscapes. It calls for increased productivity through diversification, modernisation, technology and innovation. But it also requires moving towards a more decentralised, circular economy and assuming certain social commitments, with quality employment, job safety and workplace insertion, with young people in mind, above all.

SDG 9 Industries, innovation and infrastructure, aims to develop reliable, sustainable, resilient, quality infrastructures. The design for these infrastructures must take into account social return and proper territorial distribution to decrease imbalances and inequalities. They must be sustainable and access to them must be accessible and fair.

SDG 9 also refers to promoting a new responsible industrialisation, which leads to a system of just, eco-friendly social relationships. A new industry that is inclusive and sustainable, through clean processes and technology, and that substantially helps boost employment and the GDP. Furthermore, it must also promote innovation and reduce the digital gap if we want to ensure equal access to information and knowledge.

SDG 12 is about responsible consumption and production. It aims to reduce our impact on the planet by producing and consuming only what we need, incorporating the concept that we live on a planet of finite resources into our economic reality. To do so, SGD 12 focuses on promoting sustainable management and efficient use of natural resources, reducing waste generated and food waste, and encouraging ecologically rational management of chemical products in production and consumption practices.

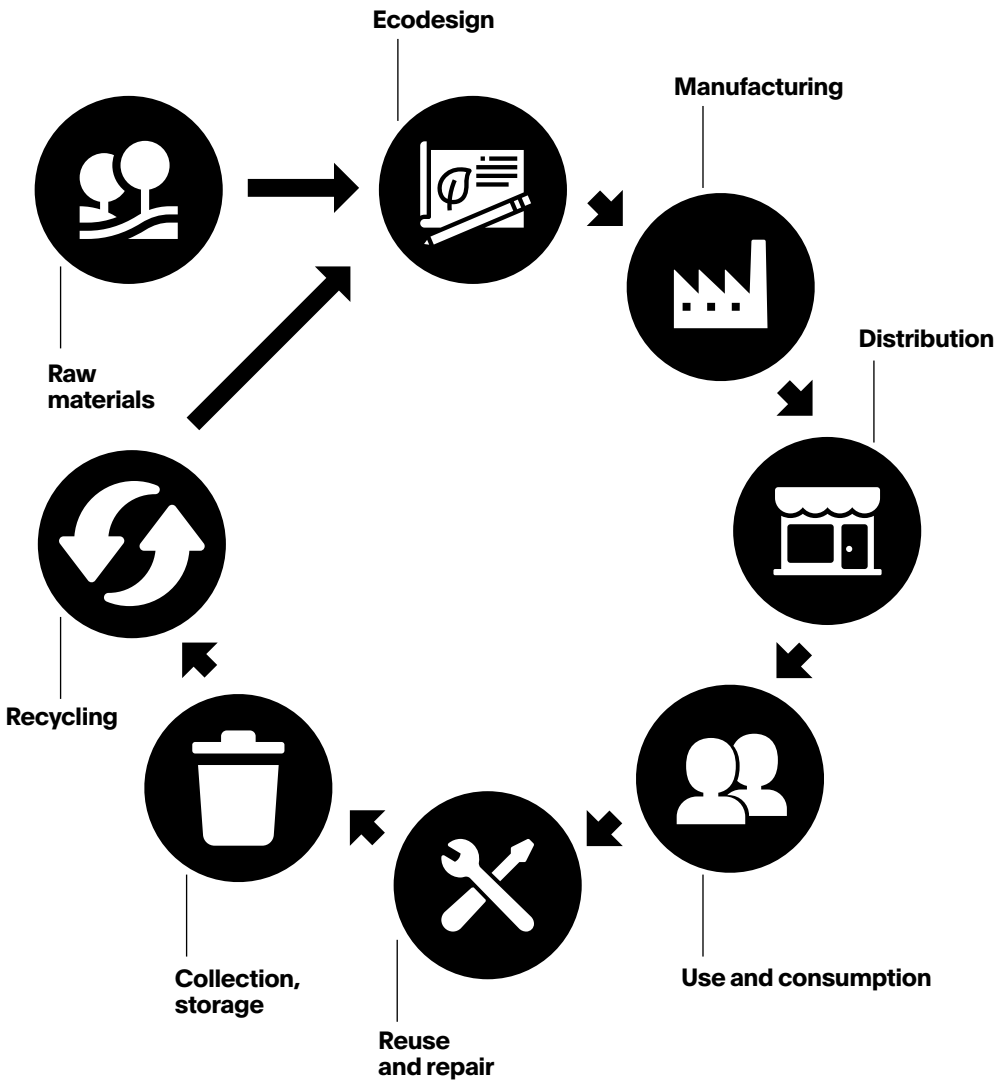
This SDG aspires to ensure proper management of unavoidable waste, above all toxic waste. Companies, especially large and transnational ones, are called on to act more sustainably and transparently. Public powers can also do a lot, through their fiscal and procurement policies, and by promoting social awareness and sustainable lifestyles.

The Urban Agenda for Catalonia reflects the spirit of these and other SDG, and makes prosperity one of its guiding principles, recognising that we must address the environmental crisis and challenge of new technology in order to achieve sustainable economic growth. One of the keys for achieving these goals on the 2030 Agenda is to create the right spaces that are needed for the new economy. INCASÒL has the aim and the mandate of the government to help adapt existing spaces for economic activity and create new ones that are competitive, environmentally sustainable, promote territorial cohesion, social equality and innovation.

TOWARDS A GREEN, CIRCULAR ECONOMY

The Sustainable Development Goals urge us to continue growing, but in a way that is unlike anything before. Climate change is imposing profound changes on our economic model and forcing us to make production activity more efficient and environmentally responsible. To achieve this, we encourage a profound reflection on the growth-sustainability binomial and completely rebuilding an economic system in a way that shows an understanding of the fact that we live on a finite planet with limited resources. As a result, we can't think of a new economic system without first reflecting on its limits and finally accepting that the environmental crisis is impossible to separate from global political and economic security. The World Health Organisation ties 24% of all causes of death on the planet to poor ecological conditions. In many cases, these causes of death are the result of wars and crises rooted in the growing scarcity of resources and depletion of ecosystems. The climate crisis is a human, social and economic crisis, and ecological imbalances will only get worse over the coming decades. What is failing, therefore, isn't nature; it is our society in the way we relate to nature.

"And we tell ourselves all kinds of similarly implausible no-consequences stories all the time, about how we can ravage the world and suffer no adverse effects. Indeed we are always surprised when it works out otherwise. We extract and do not replenish and wonder why the fish have disappeared and the soil requires ever more



"inputs" (like phosphate) to stay fertile. (...) We drive down wages, ship jobs overseas, destroy worker protections, hollow out local economies, then wonder why people can't afford to shop as much as they used to. (…)

At every stage our actions are marked by a lack of respect for the powers we are unleashing -a certainty, or at least a hope, that the nature we have turned to garbage, and the people we have treated like garbage, will not come back to haunt us."

Naomi Klein, This Changes Everything. Capitalism vs the Climate, 2015.

We have been discussing the physical limits of growth since the 18th century, based on scientific evidence. The second law of thermodynamics was formulated in 1824 and defines the concept of entropy, which establishes that the transformation of energy, in all its forms (heat, movement, etc.), and matter are not completely reversible. It would take some years before this concept from physics was first applied to economic theory, but it wasn't until the 1970s that we began to speak of the ecological crisis and that was when this concept became tied to the economy with real implications and consequences. Before that, surprising as it may seem, the economy had never faced any ecological limits, so the system could afford to waste resources thoughtlessly with total indifference to the laws of biology, chemistry and physics and, as a result, absolutely no criteria of efficiency. Once these laws began to be considered, it became clear that infinite growth is impossible on a finite planet.

In this context, it is essential to update the concept of growth that can, under no circumstances, be tied to wasting resources. Nor can it be based on an endless accumulation of goods that are constantly becoming obsolete and being replaced. We must therefore rethink an economic model that is based on constantly extracting resources from nature and returning them to the environment in the form of waste and contamination.

"Now that there was no longer any reference to any biophysical substratum, there appeared to be no ecological limits to economic production, as conceived by most neo-classical theorists. What were the implications of this? The unthinking waste of available but scarce resources, and under-use of abundant supplies of solar energy. (...) It is ecological nonsense. The real economic process, unlike the theoretical model, is not, in short, a purely mechanical and reversible process; it is by its very nature entropic and takes place in a biosphere that functions within a temporality that is not reversible."

Serge Latouche, Farewell to Growth, 2009.

On the other end of the spectrum, the circular or green economy is based on reusing, repairing and recycling, adding value to objects: the complete opposite of "disposable" culture. While the linear economy is based on extraction-production-consumption-disposal, the circular economy strives to close the production circle so that, instead of throwing away resources, they are channelled back into the chain: what is waste for one industry could be a resource for another. Doing so requires complex, imaginative relationships within our productive system to create chains to valorise and reuse resources.

In 2015, the Government of Catalonia, at the request of the Catalan Ministry of Territory and Sustainability, approved the Strategy for Promoting Green and Circular Economy, which is based on three focal points: competitiveness, efficiency and innovation. In its preamble, the Strategy states that, after years of crisis, "the countries that are recovering the best are doing so with a firm commitment to sustainable growth models, firmly rooted in competitiveness and improving well-being through, among others, promoting the green and circular economy, which is an opportunity for most sectors."

This model encourages, on the one hand, using resources more efficiently, which also gives companies a competitive edge thanks to the related savings. On the other hand, it promotes developing new activities and quality jobs, and reducing dependence on imported energy sources, raw materials and goods.

The green and circular economy, moreover, contributes value added through its close links to the territory and natural capital, and as a result with the notion of identity, which is extremely valuable in getting citizens involved in transforming the region. This is why a new economy closely tied to the territory that makes us less dependent on and vulnerable to forces abroad is a key element in recovering from this crisis and those that may come in the future.

The green economy is a concept developed by the United Nations Environment Programme (UNEP) in its Green Economy Report (2011). This report defines a green economy as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In a green economy, growth in income and employment should be driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. The shift towards a green economy will revitalise and diversify economies and create quality employment.

"Green growth means fostering economic growth and development, while ensuring that natural assets continue to provide the resources and environmental services on

which our well-being relies. To do this, it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities."

Towards Green Growth, Organisation for Economic Co-operation and Development (OECD), 2011.

From this perspective, it can be said that the green economy isn't a sector at all, but a concept that can be applied to various sectors with the common goal of reducing their impact on the environment and providing goods and services sustainably.

In this context, INCASÒL's role must be to rethink what spaces for economic activity should look like in order to encourage the shift to the new green, circular economy. In the late 20th century, production spaces followed what was known as the industrial "cluster" model, which is simply a concentration of industries that reap the advantages of proximity and concentration. In general, there were two types of clusters: vertical, made up of companies with supplier-customer relationships; and horizontal, comprising companies that target the same markets and use the same raw materials and technology. Obviously, clusters were single-function spaces, with highly unequal spatial quality. Clusters were popularly known as "parks" despite being places that hardly counted for citizens at all, unless they had large or mid-sized retail outlets, which wasn't uncommon.

Now this model is in crisis for several reasons: on the one hand, the concentration of companies can help create new "value chains" in which having different activities side-by-side can lead to new interactions between resources and waste. Therefore, instead of homogeneous concentrations of industries, a combination of various production processes can generate new relationships that make them more circular and to do so requires innovation, creativity and, possibly, new intelligent governance of these production spaces. On the other hand, single-function industrial parks that ignore environmental quality are unacceptable both from a standpoint of a safe and inclusive city, and from an ecological one.

The structure and shape of sectors of economic activity, their location with regard to existing urban fabrics, coherence with the territorial model and integration into the surrounding landscape are all things that INCASÒL never loses sight of. To this end, we must create style guides with clear guidelines of what these spaces should look like in terms of environmental sustainability. New sectors of economic activity will look less and less like the old industrial estates: aspects like plot size and built space allowed are key to making these spaces compatible, both to meet the new needs of companies and so they can enjoy the diversity that fuels circularity. Heavy industry needs light industry because the latter takes care of maintaining and meeting the basic needs of the former. This gives rise to mixed sectors, with production and tertiary activities, as well as general services. Flexible zoning and the ability to change and adapt should ensure diversity in activities and the future evolution of production, industrial and economic processes to fully address environmental sustainability and circularity.

Often open spaces, on industrial estates, were residual places, left-overs from poor topography and deficient urbanisation. Open spaces in sectors of economic activity must play a basic environmental role, both to promote quality of life for users and to ensure the water cycle works properly within them. Open spaces of greater environmental value, like ecological connectors, riverbank vegetation, etc. must be incorporated into the system of open spaces inside the sector, added to open spaces along the border or around them and properly connected to the surrounding landscape. Together, they can promote efficient management of the sectors by playing a role in implementing ecosystem services, power production, rainwater treatment with filtering systems (gravel beds, wetlands, nutrient absorption, etc.) or to guarantee safety, for example, during weather conditions that cause sudden heavy rains. Rainwater filtration conditions, runoff and refilling aquifers are all key in the fight against climate change and in mitigating the urban heat island effect. Green areas can also help improve environmental conditions in the sector in terms of containing noise and framing the best views of the landscape. Another key aspect is comprehensive management of the water cycle in the sectors: studying the feasibility of reusing all water captured in the sector and treating it on site so it can be reused in local industrial processes or for other uses, like watering plants. Choosing and designing plant species and open spaces can promote biodiversity, while also making

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Extension of the CIM El Camp

maintenance easier and limiting the need for water. Finally, we can't forget that the design of the buildings constructed there and the activities taking place in them will determine the environmental behaviour of the whole.

REASON 25 – WE ARE RETHINKING INDUSTRIAL SECTORS TO MAKE THEM COMPATIBLE WITH THEIR SURROUNDINGS AND ENVIRONMENTALLY RESPONSIBLE

THE FOURTH INDUSTRIAL REVOLUTION, KNOWLEDGE AND CREATIVITY

The economy is facing huge challenges related to new information technology, such as the Internet of Things, artificial intelligence and digital manufacturing. Since the Industrial Revolution, productive activity has benefited from new technology and the job market and social interactions have adapted to a changing situation: new technology often leads to new types of labour relations.

In very general terms, the First Industrial Revolution replaced brute force, animal or human, with an engine that could produce energy mechanically. The second revolution came with the advent of electricity and assembly-line production, with people and machines working together. The third, based on the expanding possibilities of electronics and IT, made it possible for robots to perform many mechanical, repetitive jobs, with many human tasks shifting from manual labour to overseeing and controlling machines. Finally, the fourth revolution is tied to the arrival of artificial intelligence and interconnected cyber-physical objects that are self-sufficient and work in a coordinated manner: machines able to make their own decisions according to criteria like energy efficiency and saving materials.

Like in previous waves of industrialisation, the changes we will see in production methods, in the 21st century, will mean many jobs can be done by machines. Many others, however, will be created in creativity and knowledge. Not only will production spaces have to adapt to this wave of changes, workers will also have to retrain to adapt to a new economic model in which smart machines blur the lines between the physical, digital and biological worlds and everything is interconnected: a revolution whose limits are still unimaginable.

"Humans have two types of abilities - physical and cognitive. In the past, machines competed with humans mainly in raw physical abilities, while humans retained an immense edge over machines in cognition. Hence as manual jobs in agriculture and industry were automated, new service jobs emerged that required the kind of cognitive skills only humans possessed: learning, analysing, communicating and above all understanding human emotions. However, AI is now beginning to outperform humans in more and more of these skills, including in the understanding of human

1st

Steam generation

First mechanical loom

2nd

Chain production

Electric energy
First assembly line

3rd

Higher level of automation

Electronics
IT

4th

Industry and smart products

Cyberphysical systems
IoT
Hyperconnectivity
Big data

emotions. We don't know of any third field of activity -beyond the physical and the cognitive - where humans will always retain a secure edge."

Yuval Noah Harari,
21 Lessons for the 21st Century, 2018.

Traditional industry has lost weight in Catalonia. According to the National Pact for Industry (2017), in 2000 industry made up 26.9% of the Catalan economy in GVA while by 2016 it had dropped to 20.8%. As in most developed economies, the services sector accounts for most of economic activity in Catalonia: 74.4% of the gross value added (GVA) in 2019. Since 2000, the services sector has taken on weight in terms of the GVA for Catalonia, at 12.4%. Of all the services, the most noteworthy are real estate income, retail trade and public services, as well as outsourcing activities that were previously part of industrial activity. One of the main sources of services, however, is associated with the tourism sector. The pandemic crisis of 2020 has made it clear that the tourism sector is highly vulnerable and not only in terms of the exceptional situation arising as a result of the pandemic, but due to any sort of global or regional instability. Furthermore, the negative effects of mass tourism on certain landscapes or urban areas are increasing to the point that they could pose a risk to people's quality of life. Mass tourism leads to speculation, specialisation of economic activities, merchandisation of architectural heritage, trivialisation of public space and has a negative impact on natural heritage among other issues. Tourism is very important to our economy, but Catalonia is overly dependent on it and, in many aspects, it is a sector ripe for a shift in model.

Deindustrialisation is not only related to the increase in tourism and tertiary activities, it is also a result of the offshoring of part of production to countries that, with lower living and regulatory standards, offer more competitive advantages. Plus, it is important to highlight the decrease in industry's relative weight hasn't only been seen in our economy. It is a general phenomenon over the past four decades in the European Union, Japan and the United States, where it has had a huge territorial and social impact.

Despite this loss of importance, Catalonia remains one of the main industrial regions in Europe and hopes to stay that way. Therefore, for some time now Catalonia has been aware that we need to relaunch industry to modernise our economy, which is at risk of remaining dependent and expanding sectors and services of little value added that are not very resilient to unstable conditions. The most recent crises have shown that industrial economies have been the strongest in tackling recession and Germany is the clearest example of this. Numerous economists and institutions have brought to light this strength associated with industry and all of them highlight that this dynamism is tied to innovation and research, and that industry is where most of the technological advances at the foundation of economic productivity are generated. We mustn't forget that countries with the most industry tend to have a more equal balance of trade, given the fact that industry makes up more than 50% of exports from developed countries. Jobs in industry, moreover, are highly qualified, more stable and better paid than in other sectors of the economy. As a result, industrial societies enjoy greater well-being and social cohesion and industry is also closely tied to values like striving for excellence and continuous improvement and incorporating research and innovation as an essential element of development. The commitment to move towards clean, circular, efficient, responsible production that makes responsible use of resources and is environmentally sustainable, will further encourage research and value added in industries.

Traditionally, industry has been associated with the manufacturing sector or mining industries, but the traditional distinction between goods and services is increasingly being left in the past and the two sectors are increasingly integrated through numerous areas (concept, design, commercialisation, etc.). This is why we are currently moving from the concept of traditional industry to one of new industry, which is characterised by incorporating more value-added services and inputs in order to better adapt to the needs of consumers and markets. Some of these value-added services could be design and creativity, areas in which the Catalan economy has always stood out and which could now take on a new dimension through an alliance with industrial production.

Creativity and knowledge, therefore, are two pillars on which the new economy must be based for the fourth industrial revolution. In a context of maximum automation of production tasks, what will truly be valued is human capital, which will have to have solid training and new skills that allow people to contribute value added through their ideas. While industrial activities previously took advantage of workers with little qualification and ever-decreasing salaries, now industry will need people who are more qualified and can contribute intangible assets. Put another way, the new economy needs people who are able to think up what machines, although increasingly self-sufficient, are still far being able to do. Advances in artificial intelligence and improved algorithms will make these qualities more and more specific and more human in the emotional and aspirational sense and, therefore, promoting training centres and universities of excellence will be key to boosting competitiveness.

As universities and their research centres are the home of knowledge, human capital will be more and more concentrated there and improvements to industrial production will be determined by the vitality and excellence of these research centres and their ability to do research that is useful to business and a business sphere that can incorporate these innovations stemming from research. This is what we call knowledge transfer. Expanding and making knowledge transfer from universities and research to companies more effective depends on many factors, and one of them is physical proximity. Contact between R&D networks and companies, above all SMEs, allows the latter to incorporate integrated solutions to problems through technology and to boost interdisciplinarity and multidisciplinarity. Concentration drives creativity and leads to unexpected synergies, so talent attracts more talent. This is why, for years now, INCASÒL has been carrying out projects to improve facilities at research centres and bring them to the whole territory and all production centres.

REASON 26 – WE GENERATE SPACES FOR RESEARCH THAT ENCOURAGE KNOWLEDGE TRANSFER

Research centres and universities are concentrated in urban environments. Perhaps by improving Internet connectivity this will become less necessary, meaning that people decide to live in physically isolated locations, connected only virtually, regardless of their qualifications. But the fact that it is possible doesn't make it probable: creative people seek out vibrant, exciting environments and the economy is still far from no longer having physical centres, despite the fact that many production locations are being decentralised from labour environments and creative centres. This is why it is key for towns and cities to encourage a concentration of creativity and to attract creative residents. Nearly 20 years ago, Richard Florida affirmed in his book The Rise of the Creative Class that intangible aspects play an important role in attracting talent to an urban environment, such as climate, lifestyle, safety and even the quality of public services like education and healthcare, environmental quality and culture and recreation options, etc. Years later, the same author retracted this statement in part, recognising that these aspects are necessary but clearly insufficient: all over the world, cities with incredible starting conditions are trivialised and filled with mass tourism, simplifying their economy instead of making it more complex and attractive. To avoid this, direct action is required by creating projects that bring value added for companies. Projects that promote economic activities and make these urban spaces highly attractive for investment from leading companies. Only then, after companies, will people come, a tide that would be hard to reverse. This is why INCASÒL strives to undertake projects that can be catalysts for the local economies, making the most of their strengths, what makes them attractive and their specific qualities to attract companies, investment and, finally, people.

"Cities act as nodes that drive forward knowledge and research. The concentration of activities, goods and services, typical of an urban agglomeration, stimulates improved competitiveness, as well as the appearance and growth of quaternary sectors based on knowledge, information, research and culture. Likewise, structural sectors traditionally linked to urban areas, such as industry, have lost ground in Catalonia in recent years. Much work remains ahead of us in our cities to modernise traditional economic sectors, to sound out new and more sustainable economic models that take advantage of urban potential, and to evaluate the opportunities posed by the energy transition and the impact of new technologies (the Internet of Things, Big Data, information and communication technologies, artificial intelligence, robotisation, biotechnologies, nanotechnologies, etc.)."

Declaration for an Urban Agenda for Catalonia

REASON 27 – WE PROMOTE PROJECTS TO HELP TOWNS AND CITIES ADAPT TO THE NEW ECONOMY

The pandemic of 2020 and 2021 has had a huge impact on the economy and made clear the need to continue diversifying it to make it more adaptable and resilient. The lockdown was also a first test run showing us that we can work in new ways and that the workplace is increasingly free and flexible. Telecommuting was forced on us and will certainly continue to be important over the coming years. It is true, however, that business headquarters and workplaces are far from disappearing and becoming diluted in cities.

← Diagonal-Besòs Campus of the Polytechnic University of Catalonia (UPC)

As we move towards a green, clean economy, it can be more integrated into urban areas and if its main values are creativity and innovation, what is most highly valued of towns and cities is their ability to generate an exchange of knowledge, with spaces for research and training and spaces that are attractive to businesses. Achieving this often requires specific projects: innovative spaces that generate productive ecosystems that encourage exchange and circularity and provide all sorts of services. For these spaces to work, towns and cities must also be attractive to qualified workers and attract talent. Therefore, these urban environments must offer a safe, inclusive social life, with quality cultural and leisure activities where it is also easy to work: shorter commutes and better work-life balance with good environmental quality.

Large spaces for logistics and heavy industry will continue to be necessary, but fewer and fewer people will be working there. However, everything seems to indicate that jobs tied to the new economy will be fully integrated into urban fabrics and that spaces for economic activities will be fragments of the city that combine ever more uses, functions and activities, and they will be much more integrated into towns and cities, making them even more complex, rich and diverse.

Sector of economic activities from
Can Sant Joan to Rubí and Sant Cugat ⟶

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