

Socio-economic impact of South Summit in Madrid



**SOUTH
SUMMIT**

Report carried out by:



April 2023

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In the context of slowing global investment in startups, Spain has managed to increase the value of its entrepreneurial ecosystem by 8.6% in 2022

The high **macroeconomic uncertainty of 2022** has posed major challenges for the global entrepreneurial ecosystem....



Inflation



Rise in interest rates

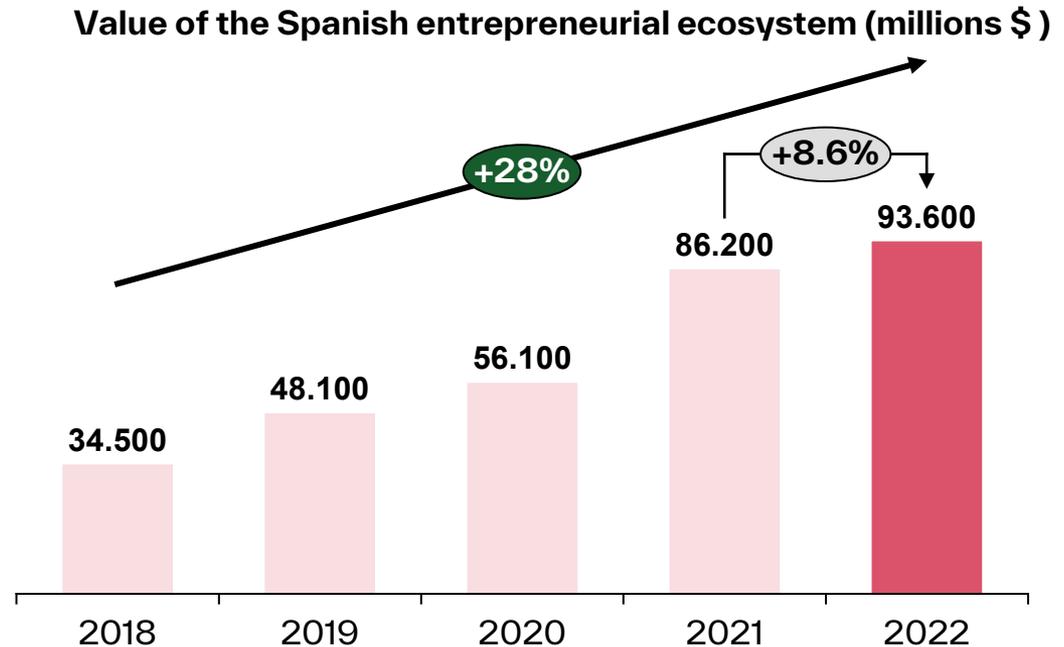
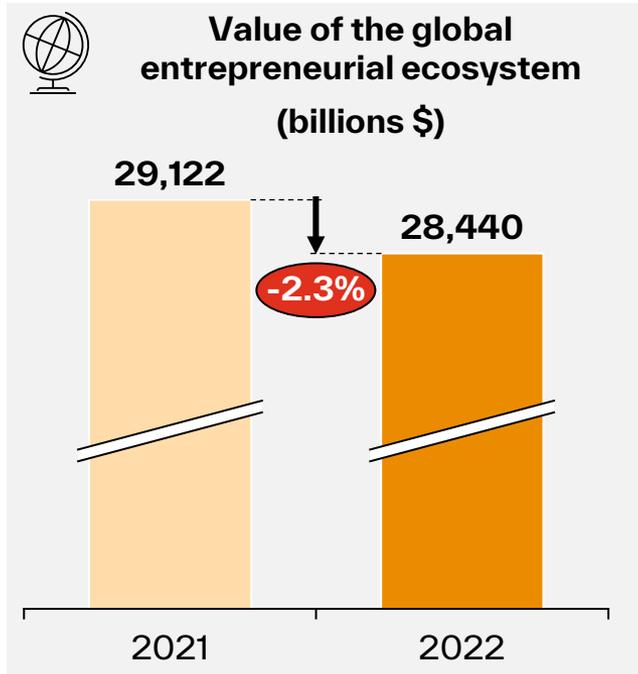


Geopolitical conflicts



Bottlenecks in supply chains

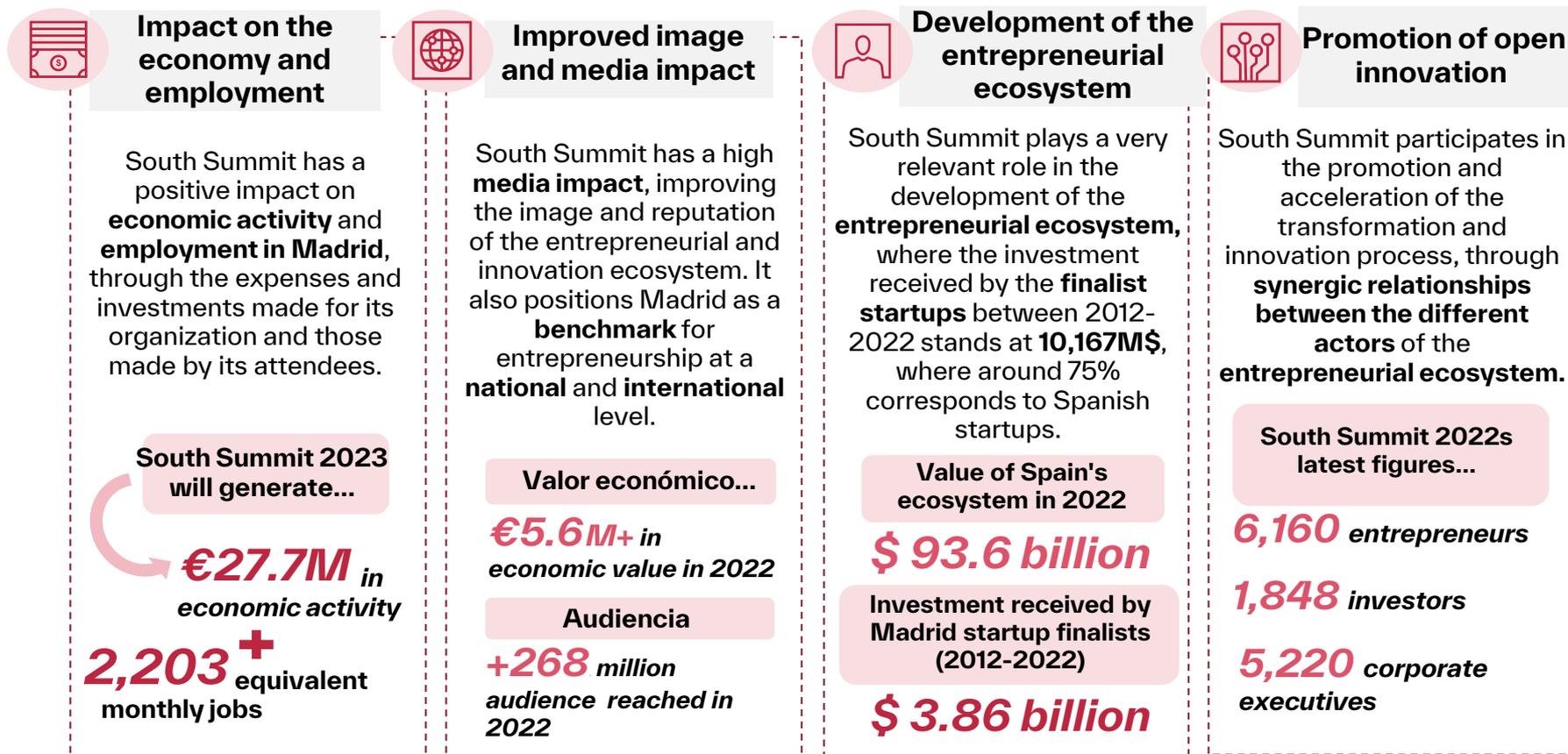
...with the **trigger for the collapse of Silicon Valley Bank** in 2023



Source: South Summit, Dealroom and World Economic Forum (Data extracted in April 2023).

South Summit continues to support startups in Spain in its 11th edition, offering an innovation platform that connects all the players in the global entrepreneurial ecosystem

What are the impacts generated by South Summit?



Source: South Summit; PwC analysis based on South Summit and INE

Introduction to South Summit



South Summit is a platform that connects startups, investors, corporations and public institutions in all parts of the world and in all sectors

South Summit has established itself as a **dynamic platform for the innovative ecosystem**, contributing in its more than 10 years of history to **corporate cultural change**, the **attraction of talent**, the generation of **high-value connections** and the **global economic transformation of Spain and Madrid**.

General information on the next event

Madrid 2023

Where?



La N@ve,
Madrid



When?



7th, 8th and 9th of June 2023

Covers all sectors



Fintech



Sustainability



Software



Education



Health



AgriTech



Sportstech



Spacotech

and more ●●●

With a global reach

It attracts **entrepreneurs, investors, speakers, corporations, media**, etc. from all over the world and from all sectors.



TODAY 2030: South Summit is committed to an entrepreneurial ecosystem with five central axes: **PLANET, PEOPLE, PROSPERITY, PEACE AND PARTNERSHIP** - the 5 Ps: Planet, People, Prosperity, Peace, Partnership - of the 2030 agenda.

The next South Summit in Madrid in 2023 will commemorate its 11th edition, following the figures achieved in 2022.

South Summit 2022 key figures

- 1 Participation of **6,160 entrepreneurs**, **1,848 investors** and **5,220 corporate executives**. 
- 2 **250 billion dollars** investment portfolio 
- 3 **10.17 billion dollars** cumulative **investment** in the finalist startups 
- 4 Participation of **686 speakers** and over **220 media** 

Hall of Fame



Source: South Summit

South Summit was launched in 2012 with the aim of promoting innovation and entrepreneurship in Spain

The future is written through open innovation

In the midst of the economic crisis, South Summit was born with the aim of promoting innovation and entrepreneurship as drivers of the **technological and digital revolution**, essential for long-term economic growth.

Let's prove to the world how bright the South is!

The organisation changes its name to **South Summit** in 2014, where it begins its expansion and international recognition. Madrid becomes a focal point for innovation in Spain and Europe. Likewise, the meeting place is changed to **Las Ventas**, where Spanish tradition is combined with the innovation of startups.

South Summit Development. We land at L@ Nave!

Following its success, the **headquarters are moved to L@ Nave**. In addition, the company enters Latin America with the Pacific Alliance and the first meetings in **Colombia and Argentina**.

Consolidation in Madrid and expansion in Spain and Latin America LATAM

Consolidation of **Madrid** as one of the most representative **hubs** in the world. In addition, South Summit organises meetings in **Peru, Chile and Colombia**.

Fuente: South Summit



Throughout its various editions, it has managed to consolidate itself as a reference meeting at national and international level

Resilience in the face of COVID-19: Investing in reinvention

Due to the restrictions caused by COVID-19, South Summit organised the **Virtual South Summit** to bring together the entrepreneurial ecosystem. To this end, it invested in a new concept of film production that would bring together and connect all the players in the ecosystem. The meeting was joined by 9 other Virtual Summits: LATAM, Africa and 7 sectoral summits (Health, Mobility, Fintech, Education, Connectivity, Sustainability, enlightED).

Shape the Future and Green Economy

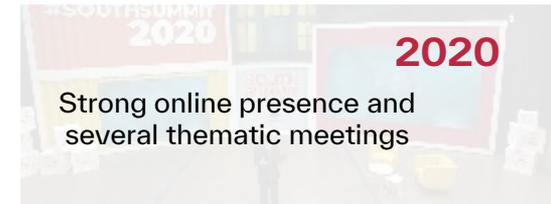
The meeting was organised in a **hybrid format**: 12,000 people attended in Madrid and another 10,000 virtually. In addition, meetings were organised in Bizkaia and Valencia. In 2021, South Summit focused on 4 pillars: **sustainability, connection, innovation and business.**

Decoding Complexity

In 2022, **South Summit celebrated its tenth anniversary** by "decoding complexity", i.e. by complexity, i.e. driving ecosystem actors in the search for innovation. In 2022, the first meeting also took place in Porto Alegre, Brazil, with **20,000 participants.**

TODAY 2030

South Summit is committed to an entrepreneurial ecosystem with **five central areas: PLANET, PEOPLE, PROSPERITY, PEACE AND PARTNERSHIPS** - the 5 P's: Planet, People, Prosperity, Peace, Partnership - of the 2030 agenda.



South Summit is a meeting place for the main players in the entrepreneurial ecosystem: entrepreneurs, investors and corporate representatives

Figures South Summit 2022

 **Entrepreneurs** 

6,160 entrepreneurs

Some of the startup finalists...

Winner



Best team 

Most disruptive 

Most sustainable 

Most scalable 



Source: South Summit

 **Investors** 

1,848 investors, of which around **20%** are international

National and international investors...



 **Corporate representatives** 

5,220 executive managers

Participation of major corporations...



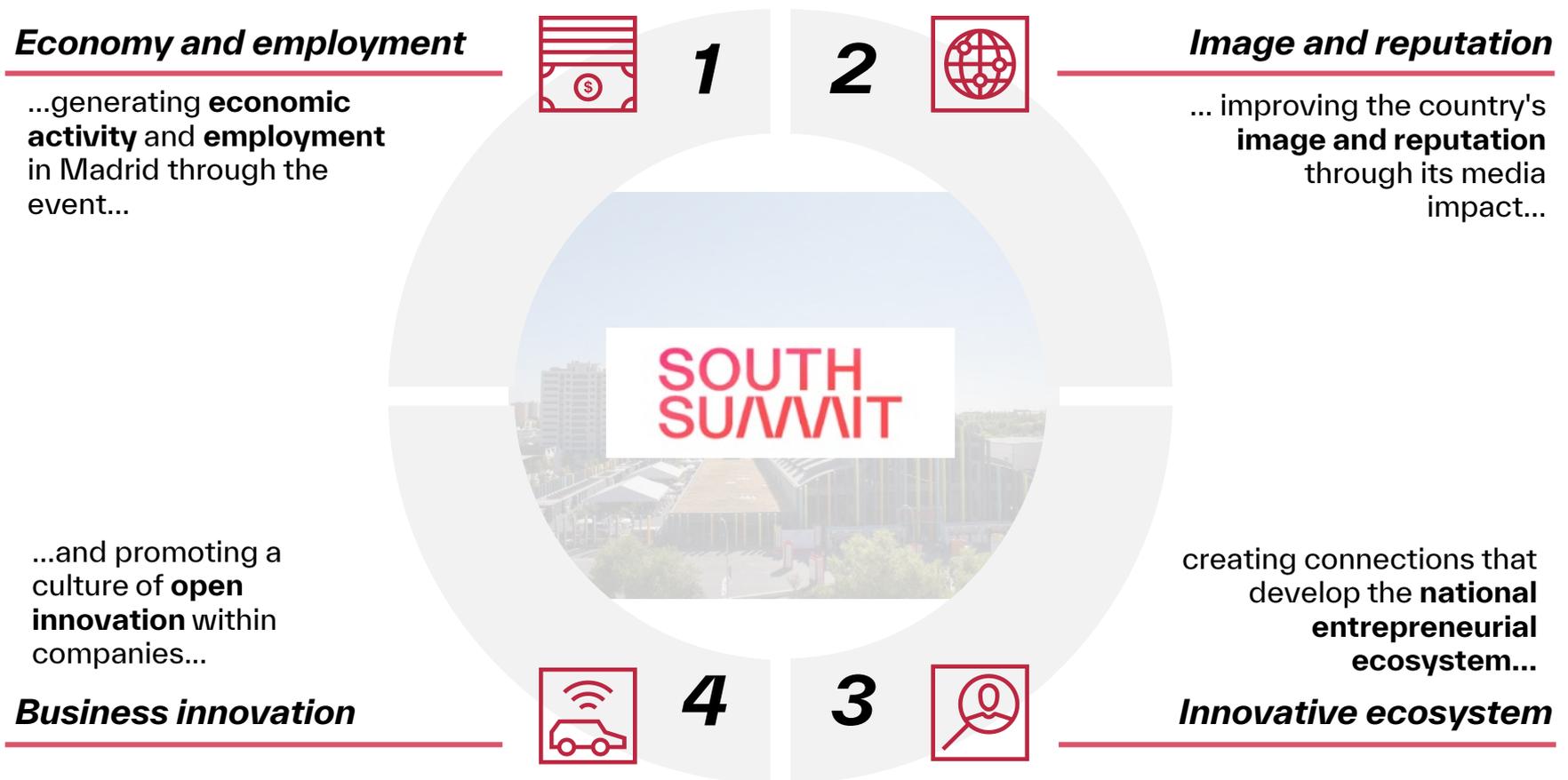
South Summit Madrid contribution



2



As in previous editions, South Summit 2023 will generate a contribution to society and to the Spanish productive fabric through the following areas:



**SOUTH
SUMMIT**
INNOVATION IS BUSINESS

2.1 Impact on employment and the economy



South Summit generates a positive impact on the economy and employment in the city of Madrid



Impact generated by the event

This type of event generates **economic activity**, thanks to the **expenses and investments** made during the organisation of the event.

These impacts have been calculated based on the information on expenses and investments made by South Summit.



Drivers of economic impact



Impacts generated by event attendees



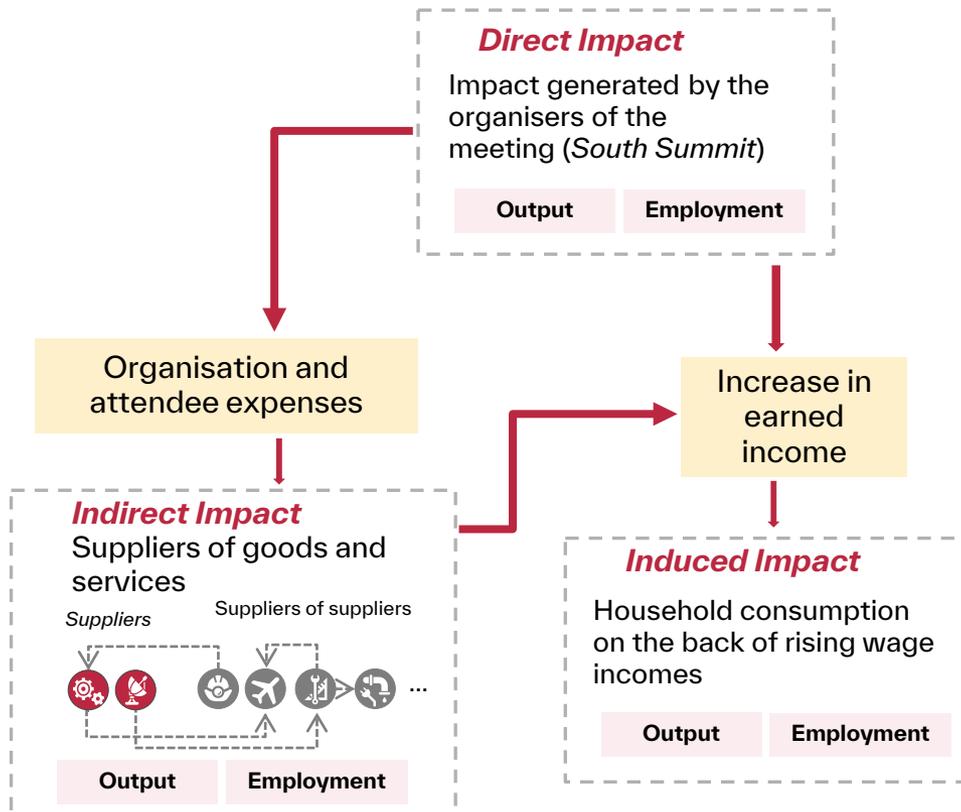
The **expenses incurred by the attendees** represent an **additional increase in the economic activity of the city** during the days of the meeting.

For the purposes of calculating these impacts, we have used the total number of attendees broken down by their origin.

Source: PwC analysis based on information provided by South and INE.

Note: We predicted 22,000 attendees based on the number of attendees of the last edition 2022 and the available capacity of the Nave.

These impacts include not only those generated directly, but also indirect and induced



Types of impact

Direct impact

Corresponds to the impact generated by *South Summit* as organiser of the event.

Indirect impact

Increased economic activity (production) and employment, generated by the expenses and investments made by the event organisers and attendees.

Induced impact

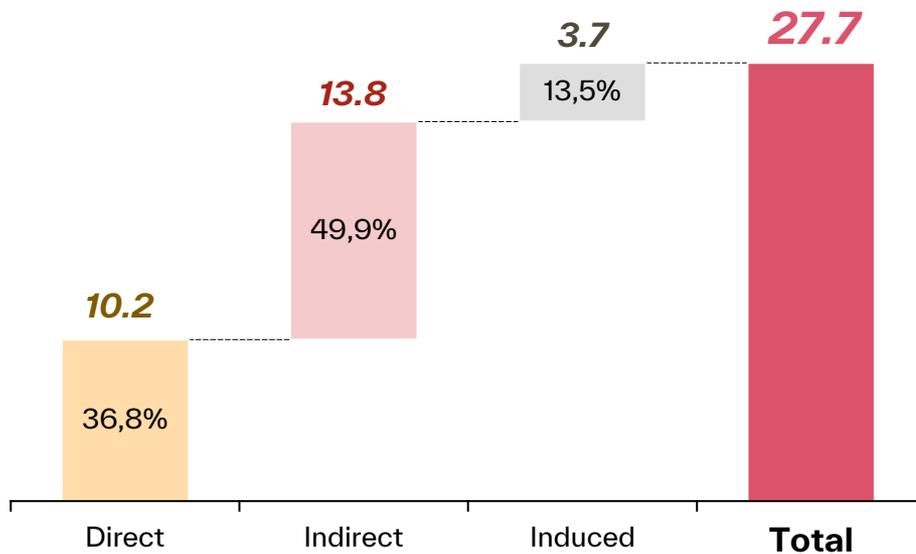
Increased economic activity (output) and employment, generated through household consumption, resulting from higher wage incomes as a consequence of direct and indirect impacts.

Note: Estimation of indirect and induced impacts through the input-output methodology, a standard technique accepted and used by international organisations for this type of measurement. For further information see methodological annex.

The future South Summit 2023 event will generate an estimated economic activity of around €28 million in Madrid's economy...

South Summit 2023 will contribute almost **€28 million** to Madrid's economic activity, marking a **new milestone in the platform's history**.

Impact on output in Madrid in South Summit 2023 (€ million)



x2.7 For every **€1 spent** by South Summit at the event, **€2.7 of economic activity** was generated in Madrid.

Source: PwC analysis based on South Summit and INE.

Note: (1) Item corresponding to the "Cultural Activities" section of Madrid City Council's 2023 budget.

(2) Item corresponding to the "Education" section of Madrid City Council's 2023 budget.

€1,259

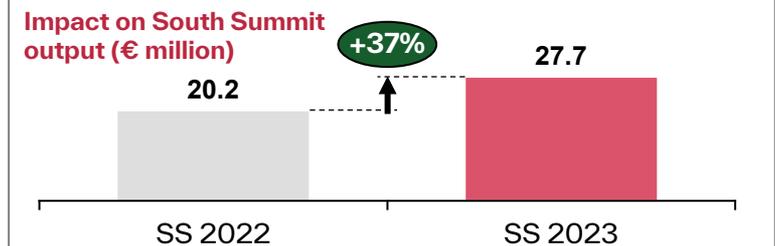
For every visitor who attends South Summit, around €1,260 of activity is generated in the local economy.

The economic impact of South Summit 2023 is equivalent to the..

52% of the expenditure on education of the expenditure on cultural activities budgeted by the Madrid City Council for 2023¹.

18% of education expenditure budgeted by Madrid City Council for 2023².

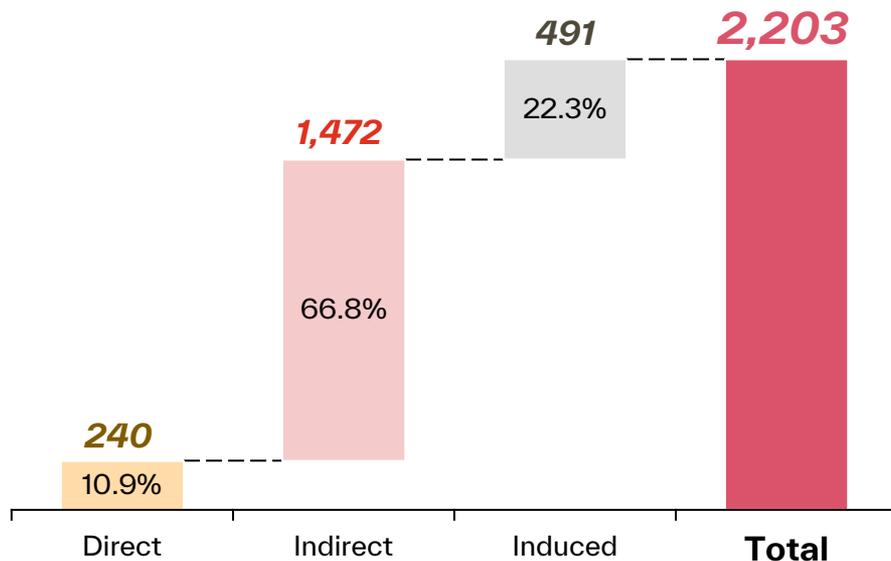
Comparison with South Summit 2022



In terms of employment, the 2023 event will generate around 2,200 equivalent monthly jobs

On the other hand, **South Summit** will contribute to the local economy around **2,200** equivalent monthly **jobs**, of which 11% will be generated by the staff dedicated to the organisation of the event, 67% in the supply chains and 22% in those companies benefiting from the increase in consumption of the employees created directly and indirectly.

Employment impact of South Summit in Madrid in 2023 (equivalent monthly jobs)



x9 For every employee hired directly by South Summit, almost **9 additional jobs** will be generated **in Madrid**.

Source: PwC analysis based on South Summit and INE.

315

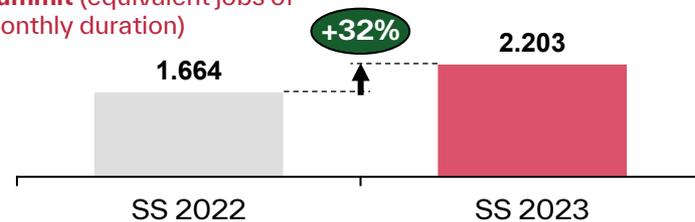
For every **million euros of expenditure and investment** made by South Summit, around **315 monthly equivalent jobs** will be generated directly, indirectly or induced.

500

For every **million euros spent by attendees**, around **500 monthly equivalent jobs** will be generated directly, indirectly or induced.

Comparison with South Summit 2022

Employment impact South Summit (equivalent jobs of monthly duration)



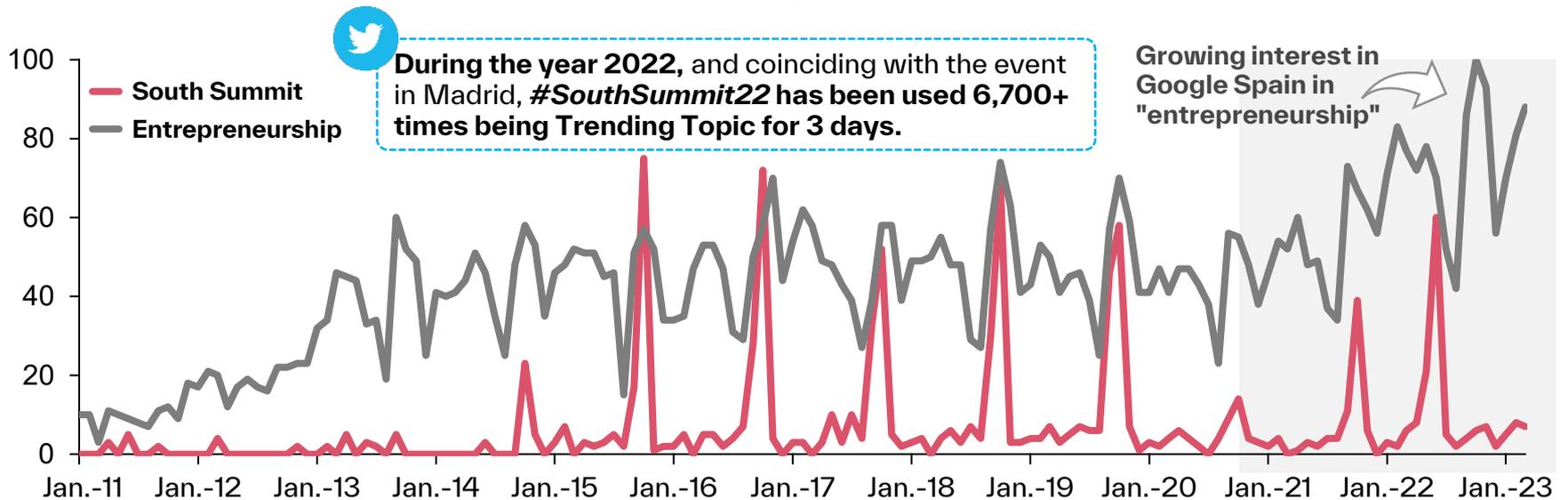
A woman in a light-colored suit and a man in a white shirt are sitting at a wooden table outdoors. The woman is on the left, looking towards the man on the right. They are both wearing lanyards with badges. On the table are two laptops, a water bottle, and a smartphone. The background shows other people and white umbrellas, suggesting an outdoor event or summit.

2.2. Impact on image and reputation

The meeting has a high media impact, which improves the image and reputation of the city and helps to position it as a reference in entrepreneurship



Relationship between the number of searches in Google Spain for "South Summit" and "entrepreneurship"⁽¹⁾



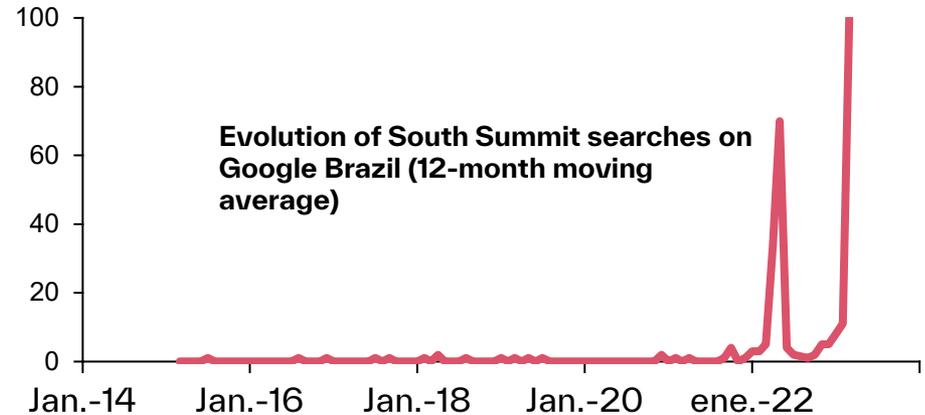
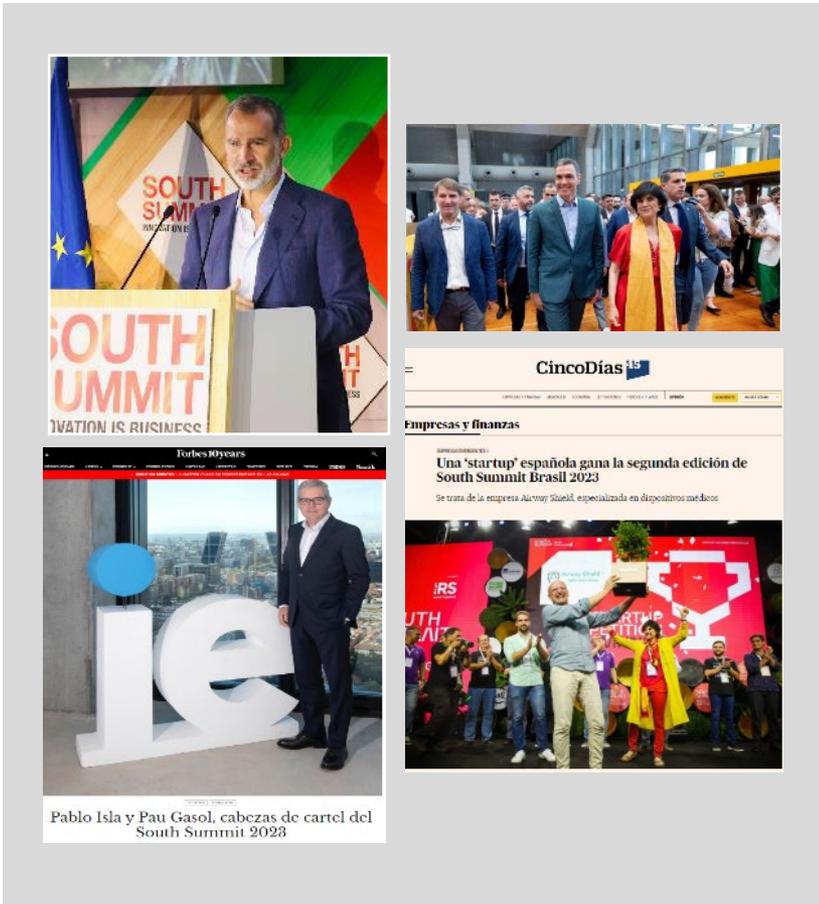
Source: South Summit and Google Trends

Note: (1) Numbers represent search interest relative to the highest point in the graph for a region in a given period, i.e. a value of 100 indicates the highest peak of popularity in Spain at the time represented.

On an international level, South Summit is a showcase for the entrepreneurial and innovative ecosystem

Strong institutional presence with media impact

Interest in South Summit Brazil has grown exponentially in the last two years¹



175 different nationalities within the Startup Competition

80% of the Startups participating in the Startup Competition are international.



Source: South Summit and Google Trends

Note: (1) Numbers represent search interest relative to the highest point in the graph for a region in a given period, i.e. a value of 100 indicates the highest peak of popularity in Brazil at the time represented.

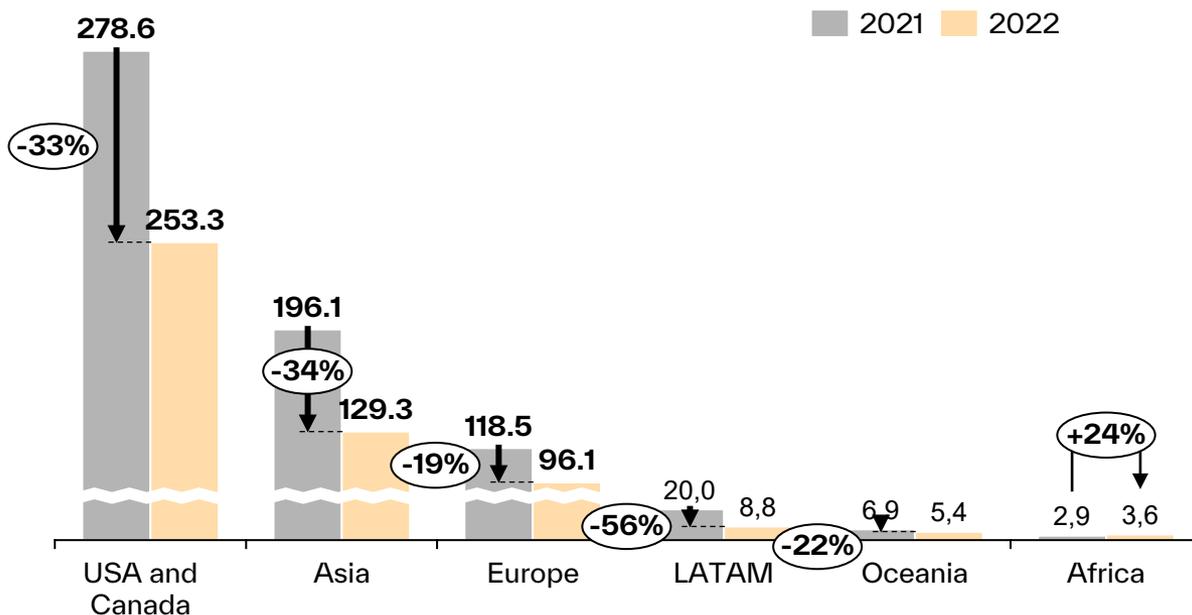
2.3. Impact on the entrepreneurial ecosystem



Global investment volume in startups will be reduced by around 30% by 2022 due to macroeconomic uncertainty stemming from inflation, rising interest rates and geopolitical conflicts.

In 2022, the total **volume of investments** made in startups worldwide fell by around **30%**. The national and international entrepreneurial ecosystem has been affected by the geopolitical situation, which has led to macroeconomic uncertainty.

Evolution of the volume of investment in startups in 2022 (\$billions)



Source: Dealroom and World Economic Forum (Data extracted on 19 April 2023).

The high **macroeconomic uncertainty of 2022** has posed major challenges for the global entrepreneurial ecosystem...



Inflation



Rise in interest rates



Geopolitical conflicts

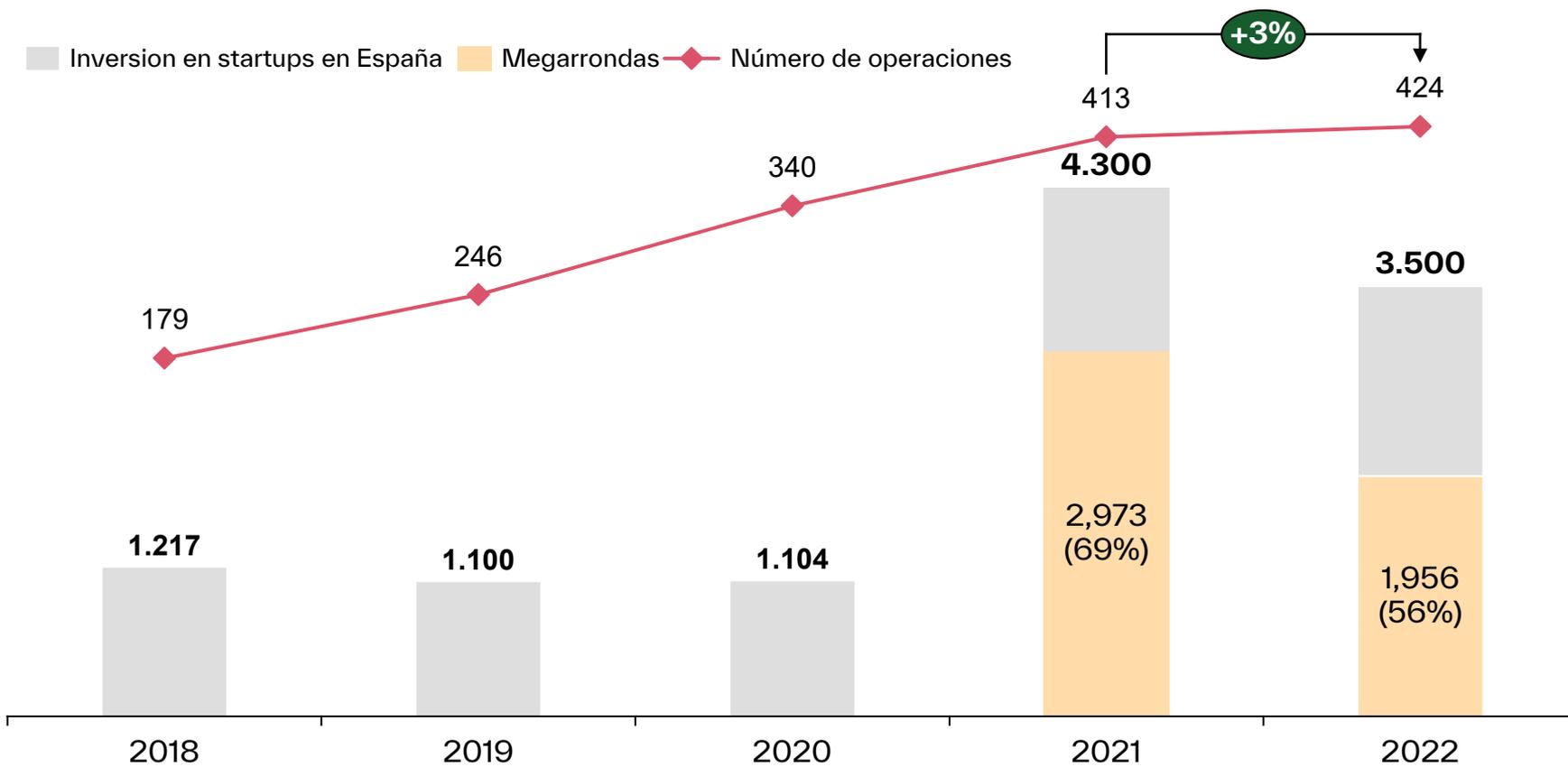


Bottlenecks in supply chains

with the **trigger for the collapse of Silicon Valley Bank in 2023**

In Spain, the number of deals recorded rose by 3% in 2022, although the volume of startup investments has been dampened by the lower number of mega-rounds (>€50 million)

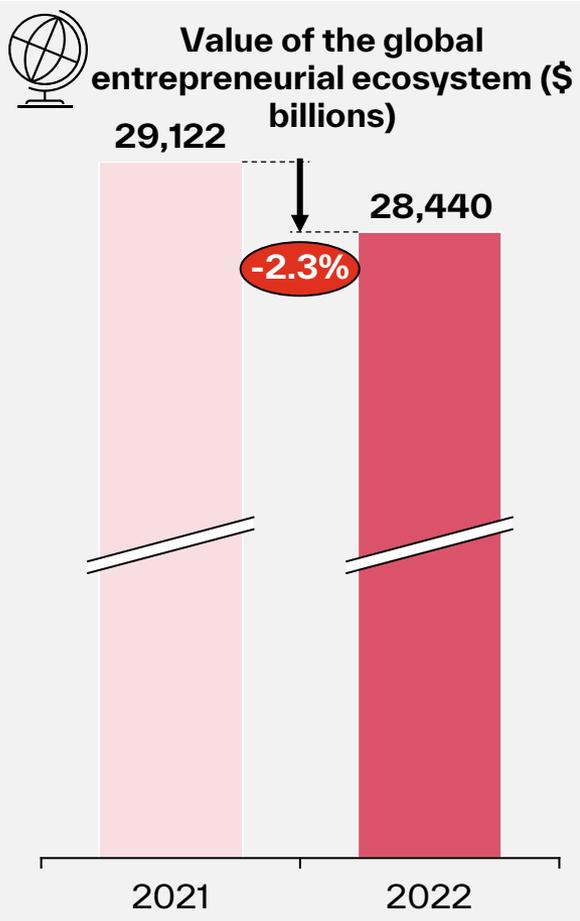
Evolution of the volume of investments in Spanish startups (€ millions) and number of deals



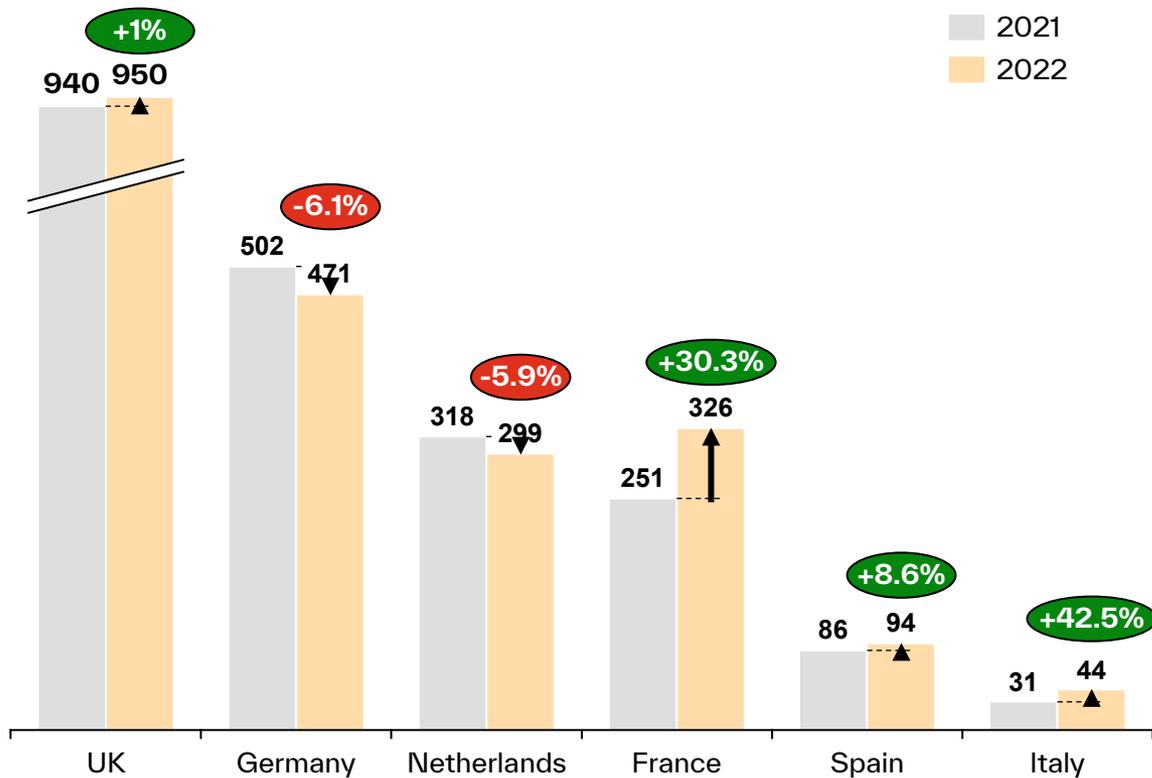
Source: South Summit and Fundación Innovación Bankinter

Note: Data in € collected directly from the report generated by the Bankinter Foundation of Innovation.

In addition to annual investment, the value of the global entrepreneurial ecosystem as a whole has decreased slightly by 2.3%, with mixed results at the European level.



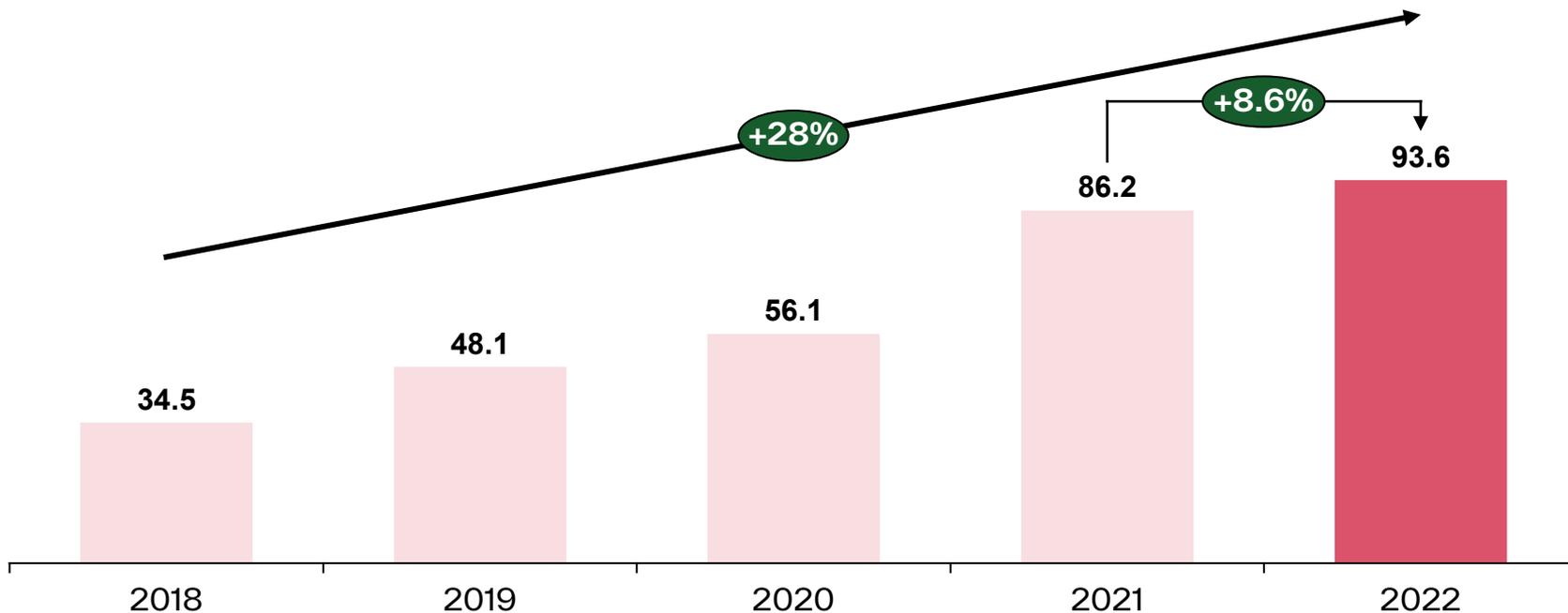
Value of the entrepreneurial ecosystem in some of the main European countries (\$ millions)



Source: South Summit, Dealroom (Data extracted on 19 April 2023).

Despite the general downturn in the global entrepreneurial ecosystem, Spain continues on its growth path, reaching an ecosystem value of more than \$93 billion by 2022.

Value of the Spanish entrepreneurial ecosystem (\$ billion)



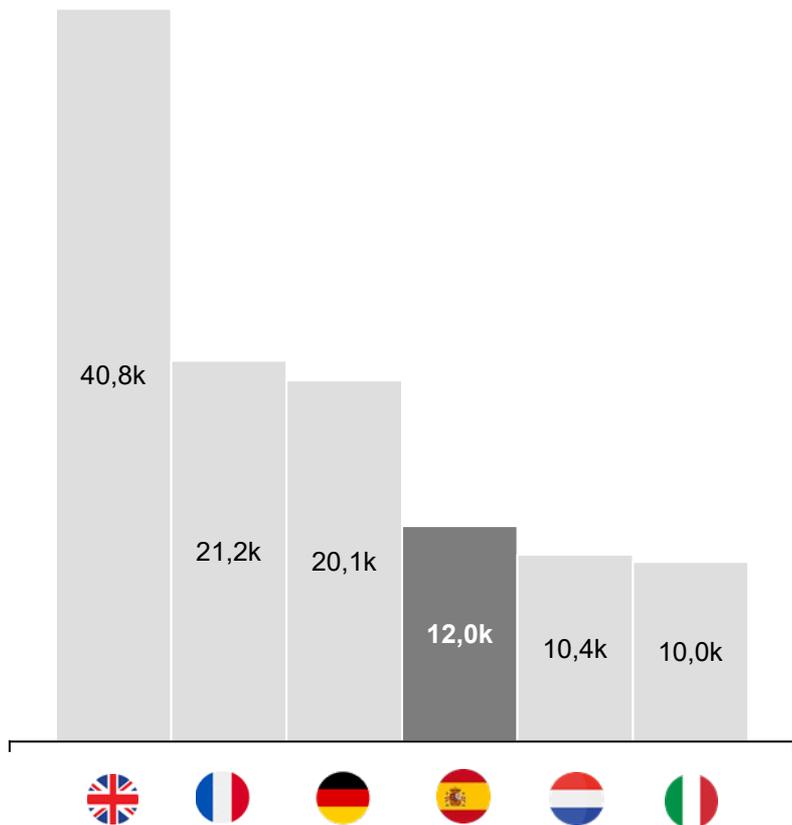
Data on the Spanish entrepreneurial ecosystem in 2022 (variation with respect to 2021 and absolute figure)¹

218 accelerators	109 incubators	12,041 startups	~160,000 jobs
+57% (139 accelerators)	+10% (99 incubators)	+8% (11,100 startups)	+14% (~140,000 jobs)

Source: South Summit, Dealroom (Data extracted on 19 April 2023).
 Note: (1) Comparison between data obtained in 2022 and data recorded in 2021.

Spain continues to be the 4th European country in terms of number of startups, behind only the UK, France and Germany

Number of startups in major European countries in 2022



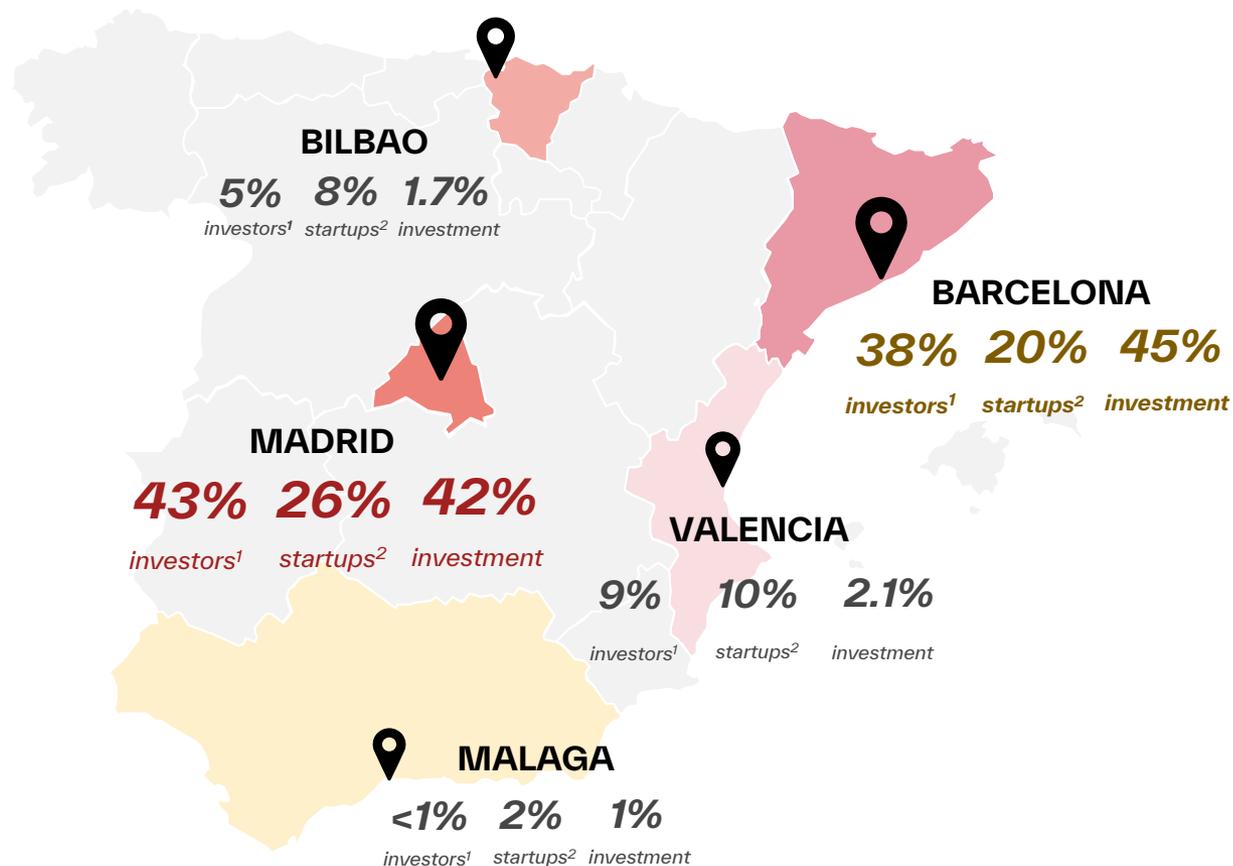
Investment volume growth 2012-2022



Source: Dealroom and South Summit (Data extracted on 19 April 2023).

Within Spain, Madrid and Barcelona continue to be the two main ecosystems, although new centres of talent attraction are increasingly emerging in cities such as Valencia, Bilbao and Malaga

National map of the main entrepreneurial ecosystems in 2022 (% of national total)



Source: Dealroom (number of startups and investors, data extracted on 19 April 2023) and Fundación Innovación Bankinter (investment).
 Note: (1) Data relating to investors refer to 2021. (2) Data at Autonomous Community level to obtain the % of start-ups for Madrid, Valencia and Bilbao. For Barcelona and Malaga they have been calculated taking the metropolitan areas as a reference.

Madrid continues to position itself as one of the main European hubs, with an ecosystem of around 2,500 startups employing some 37,000 people.

Highlights of Madrid's entrepreneurial ecosystem



4th European position in *number of exits* above €100 million in 2022¹



€1.28 billion raised by Madrid startups in 2022



5th European position in *number of VC investment rounds* in en 2022²



~2,500 startups in 2022



5th European position in *number of startups* in 2022³



167 international and 124 national investors en 2022⁴



37,000 jobs created by Madrid startups in 2022 (14.8 employees on average)

Fuente: Dealroom, Fundación Innovación Bankinter, Madrid Startup radar 2022 (Datos extraídos el 19 de abril de 2023)

Notas: (1) Startup Radar madri+d Investment Report 2022; (2) Startup Radar madri+d Investment Report 2022; (3) Startup Radar Madri+d Report 2022; (4) Startup Radar madri+d Investment Report 2022

Datos presentados en € recogidos directamente del informe generado por la Fundación Innovación Bankinter

The finalist startups of South Summit Madrid register a cumulative investment of more than \$10.17 billion.

	 No. of finalist startups (cumulative 2012-2022)		 Total investment received by the finalist startups (cumulative 2012-2022)	
	South Summit Madrid	Total events	South Summit Madrid	Total events
 Total	896	1,117	\$10.17 billion	\$10.61 billion
 Spain	534	559	\$7.69 billion	\$7.69 billion
 Madrid	253	260	\$3.86 billion	\$3.86 billion

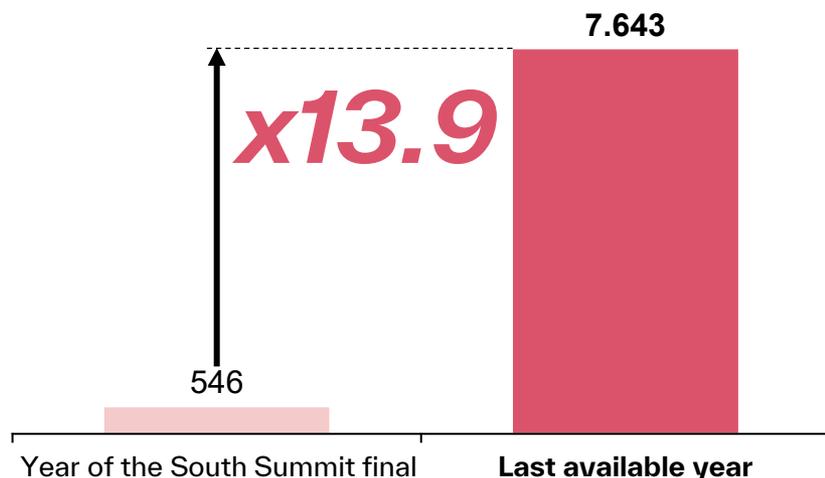


The total investment accumulated by Madrid startups accounts for around **75%** of the investment received by the finalist Spanish startups

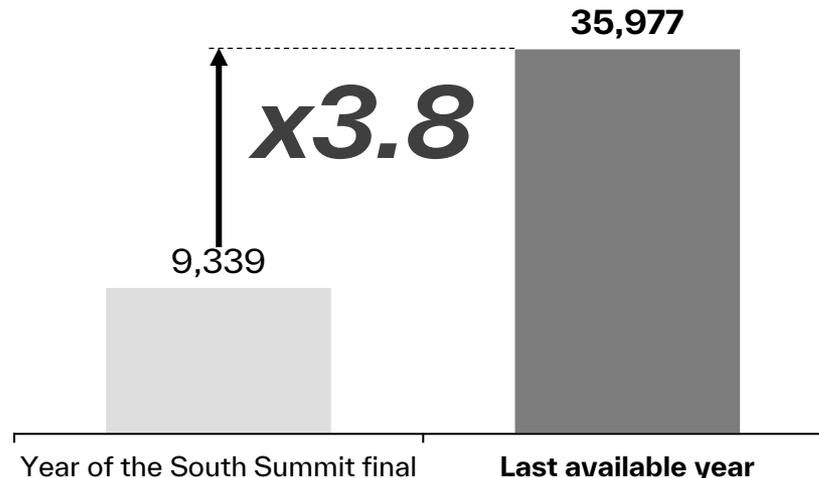
Source: South Summit

...helping consolidate the startups' business model and boost their growth

Evolution of the annual turnover of the Spanish startups finalists of South Summit from the year of their participation to the present (€ million)



Evolution of employment of Spanish startups finalists at South Summit from the year of their participation to the present day



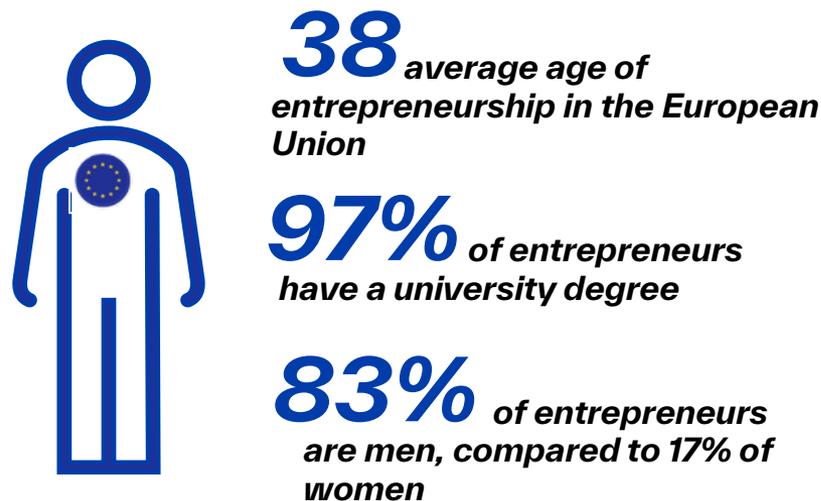
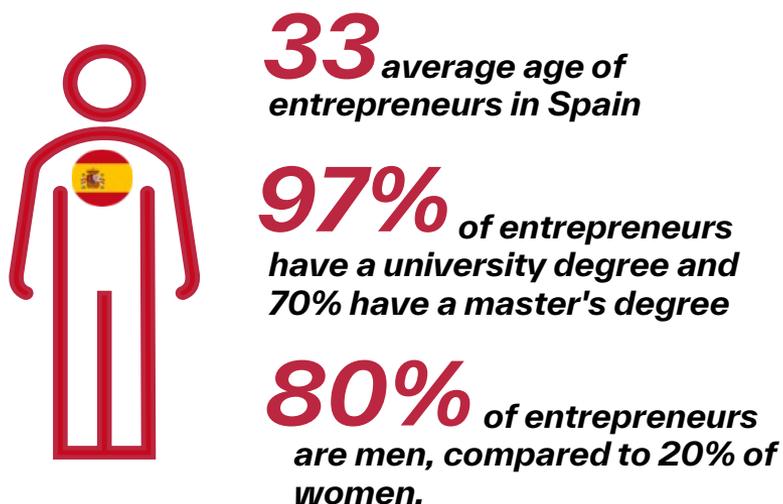
South Summit: a catalyst for startup growth

The finalist startups of the different editions of South Summit saw their turnover and employment increase from the moment they participated in the event. Thus, their turnover was multiplied by 13.9 times, reaching around €7.64 billion in turnover. In turn, employment grew 3.8 times since their participation in South Summit, reaching almost 36,000 jobs.

Source: PwC analysis based on South Summit and SABI.

Note: Estimates made for the total number of finalist Spanish startups based on actual turnover and employment data of the companies identified in SABI. Results for companies with available data have been extrapolated for the 596 finalist Spanish startups.

Additionally, South Summit has promoted entrepreneurship among young Spanish university students



62% of Spanish entrepreneurs in 2022 are serial entrepreneurs, 2% more than in 2021

Startups in Spain...

35% have mixed teams (men and women)

3 years of average duration in 2022, reflecting a mature ecosystem

69% have between 2 and 10 employees

Source: Mapa del emprendimiento de South Summit 2022; EU Startup Monitor 2018



2.4 Impact on open innovation

SOUTH SUMMIT
INNOVATION IS BUSINESS

endesa

SOUTH SUMMIT
INNOVATION IS BUSINESS

AstraZeneca

Google
for
Startups

SOUTH SUMMIT
INNOVATION IS BUSINESS

POWERED BY:

ie
UNIVERSITY

SOUTH SUMMIT
INNOVATION IS BUSINESS

ferrovial

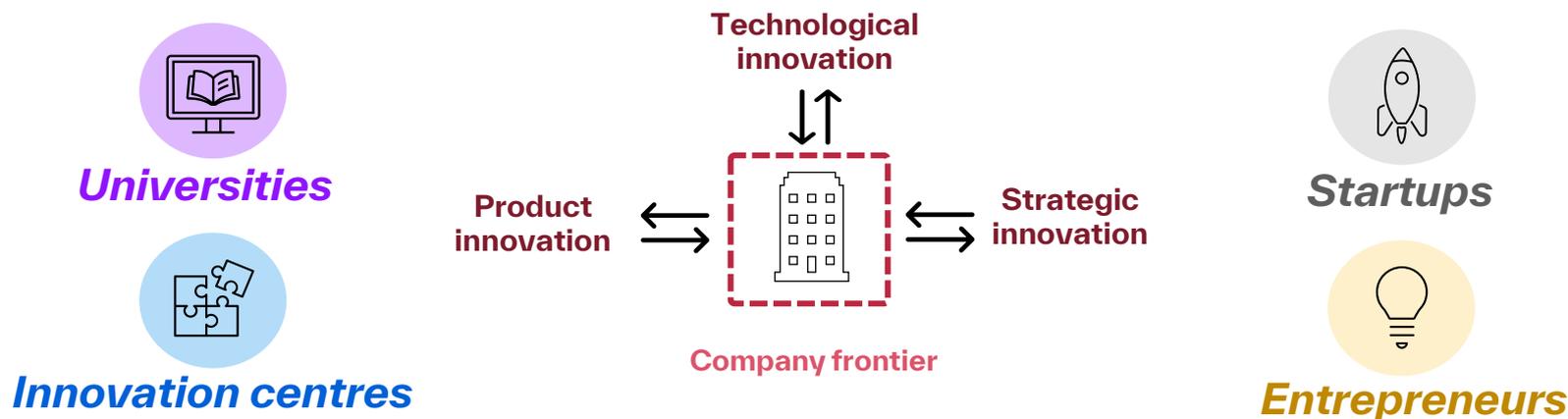
241 Rent verified homes from anywhere in the world

242

Since 2012, South Summit has begun a change of vision in companies regarding open innovation

What is open innovation?

Open innovation is the relational mechanism through which established organisations, whether public or private, expand and **accelerate their capacity to innovate through third parties** that are intensive in **R&D&I activities**. These are mainly **startups and R&D centres**.



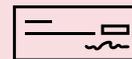
South Summit's platform has had an impact on its finalists



+32,000 startups



7 unicorns



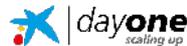
\$10.61 billion investment raised by its finalists

95% of Ibex-35 companies are committed to open innovation as a formula for collaboration with the other agents in the ecosystem



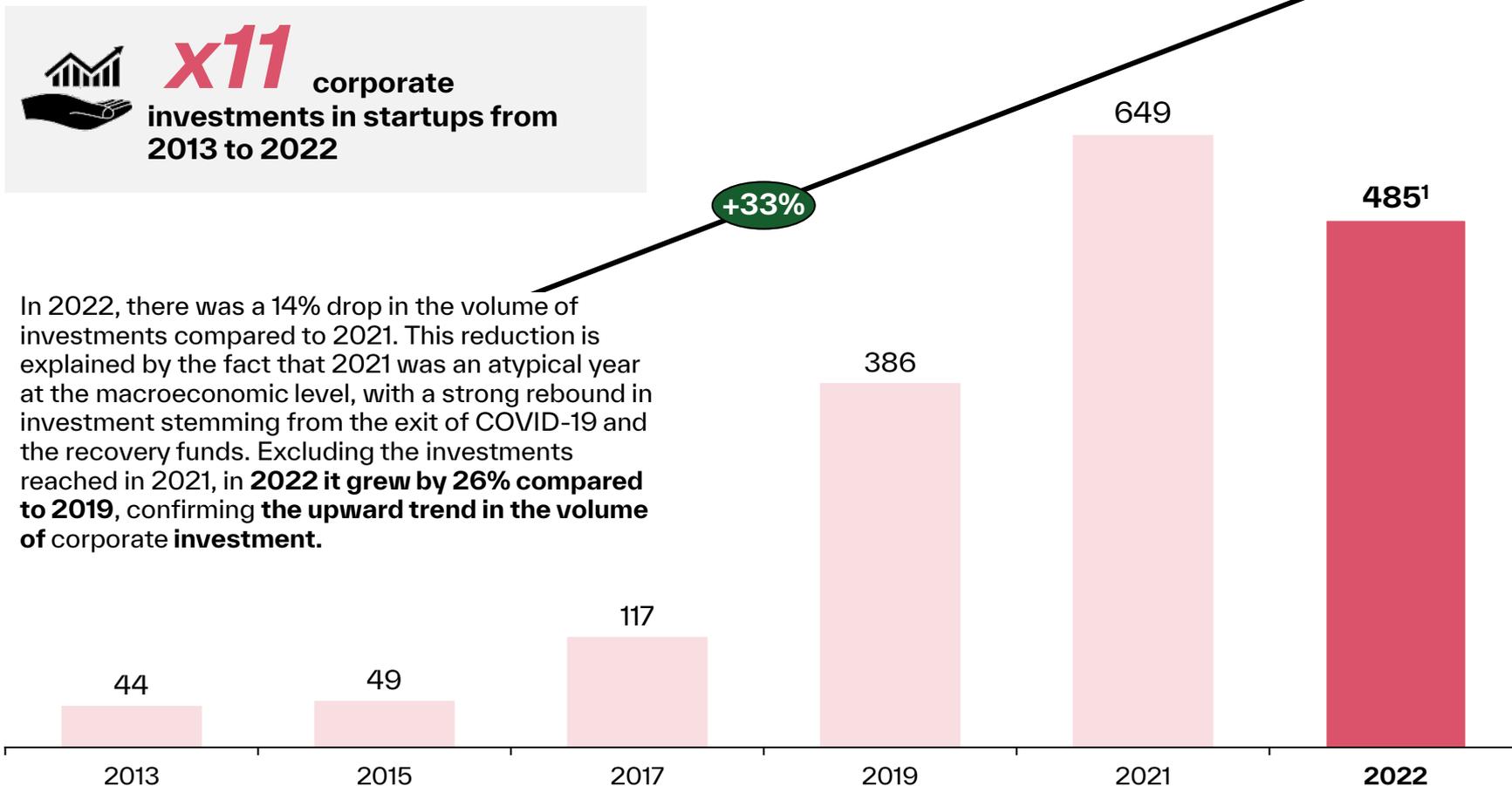
Over the last few years, Spain's largest companies have joined the open innovation phenomenon. Currently, **95% of IBEX35 companies already have platforms where they can collaborate and obtain innovation from outside their organisations. South Summit has acted as a strategic platform** where these companies have come to exchange knowledge and obtain innovations from entrepreneurs and startups.

Open innovation in IBEX-35 companies



Although it is not the only factor linked to open innovation, corporate investment in Spanish startups has increased 11-fold since 2013, with a slight reduction in 2022 due to the macroeconomic context

Evolution of the volume of annual corporate investment in Spanish startups (€ million)



In 2022, there was a 14% drop in the volume of investments compared to 2021. This reduction is explained by the fact that 2021 was an atypical year at the macroeconomic level, with a strong rebound in investment stemming from the exit of COVID-19 and the recovery funds. Excluding the investments reached in 2021, in **2022 it grew by 26% compared to 2019, confirming the upward trend in the volume of corporate investment.**

Source: Bankinter Foundation of Innovation

Note: (1) Investment Trends in Spain 2022

Data presented in € collected directly from the report generated by the Bankinter Foundation of Innovation.

Globalisation and growth opportunities

3



Interest in South Summit is global: 80% de las startups participantes en la *Startup Competition* are international

International origins of the South Summit Startup Competition finalists



Towards a global platform

80% of the startups presented are already international...



>> *Growth prospects*

+5 percentage points for **international participation**

+10 percentage points of **scaleups¹**

Impact on **new sectors**

Introduction of **new domains**

Source: South Summit, IEBS

Note: (1) Those companies that started their activity as startups but with the intention of expanding into new markets, customers and improving their products (IEBS).

The second edition of South Summit Brazil took place in March 2023, with very positive results.

South Summit Brasil 2023 Highlights

1 **When?** 29th - 31st of March
Where? Porto Alegre, Brasil



2 More than **22,000 attendees** registered for the second edition of South Summit Brazil



3 More than **3,000 startups** and **100 investment** funds participated.



4 More than **900 speakers** and **700 media** from all over the world will be present.



SOUTH SUMMIT BRAZIL
PORTO ALEGRE



Some of the startups finalists

Winner

Airway Shield



Most innovative



Best startup



Most sustainable



Most scalable



Source: South Summit

TODAY 2030: South Summit is committed to a sustainable economy...

**SOUTH
SUMMIT**

Tema de la edición 2023: propone firmemente los **objetivos de la agenda 2030**, con una reducción del 55% de las emisiones de gases de efecto invernadero. **South Summit** propone un viaje al futuro para aprender de todas las innovaciones que debemos aplicar para alcanzar los objetivos propuestos.

To achieve these objectives...



Promote **sustainability** as an **innovation opportunity** for the **entrepreneurial ecosystem** and for startups.



Identify **market trends** and potential business **opportunities related to zero-emission** economies



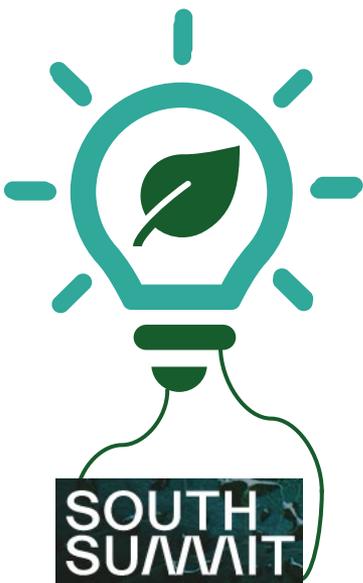
Organisation of **events** and conferences to boost **sustainable innovation**



To become a framework for the **design and production of sustainable events**, with the lowest environmental impact.

Source: South Summit

... betting on a green entrepreneurial ecosystem as an antidote to the climate crisis



From the inside...

Since 2021, South Summit looks to the future and has focused on the green economy where entrepreneurs can play a key role. To this end, the great platform that has grown so much in 10 years is now of great use to inspire the next generation of startups and companies in the face of the change we need.



...making the most of opportunities

Every crisis brings an opportunity, and with the transition to a global zero-emission economy, companies and institutions are investing heavily in products, systems, solutions and services that accelerate and enable the green transition.



...that drive innovation

The relevance of this economic and social challenge is that it opens a window of opportunity for entrepreneurs to innovate, both in terms of inspiration (searching for solutions) and funding (raising resources). The entrepreneurial ecosystem driven by the South Summit meetings helps startups to come up with innovative solutions to achieve climate goals.



Building a Sustainable South Summit

Together

With different milestones already achieved to date, the platform and its meetings have become a benchmark in terms of sustainability.

Sustainable encounters in...



South Summit wins **Greener Event Award 2021** in the improvers category



Energy savings: Reducing the use of diesel electric generators by storing energy in batteries during off-peak hours.



Recycling: Delivery of ecological badges made of recycled paper with seeds.



Construction: Stands and structures built with sustainable materials and/or from previous South Summit editions.



Water and food: Availability of drinking fountains and delivery of ecological bottles for proper hydration during the meeting and reduction of the use of plastics.



Decoration: Use of decoration from recycled materials and natural plants.



And more: South Summit rewards with green elements, minimises colour printing, etc.



With a view to the 2023 meeting in Madrid, South Summit is committed to tackling different areas on the road to a zero-emissions economy

2030 is a critical turning point on the road to a zero-emission economy

ClimaTech

Using **technology** and **innovation** to develop decarbonisation solutions and achieve sustainability goals.sustainability.

Nurturing Economy

Consider **nature** as an **innovation model** for society to rethink how to achieve the NetZero economy.

Data & Digitisation

Ensuring **transparency, ethics and security** as key for using data

Innovation & Ecosystem

Interacting to innovate with all actors in the ecosystem, creating opportunities and investing in the future that the next generations deserve.

Future of Money

Understanding the **decentralisation** of the **trust model** generated by digitalisation.

Industry 5.0

Building the infrastructure that will sustain the NetZero economy in a **smart** and **sustainable** way.

Humanity

To reflect on the **development of society**, taking into account the economic, political and cultural aspects through a vision of sustainability.

Energy Transition

Delivering **sustainable** and **affordable energy** for all through **clean energy** that accelerates **decentralisation** and industry **decarbonisation**.

Agritech & Food

To ensure the **sustainability of the** industry's value chain **ecosystem** to ensure the nutrition of future generations.

Health

Democratising the health system through digitisation and decentralisation, always prioritising **patient's wellbeing** and **supporting the health professional**.

SportTech

To bet on a sector with a great capacity to influence society and its main pillars: education and culture.

SpaceTech

Connecting with an innovation-intensive sector with great potential to support other industries.

Note: (1) "Gigacorn" is a company that has managed to reduce CO2 emissions by 1GT/year while being commercially viable. (2) "Internet of Things" refers to the collective network of connected devices.

A large audience is seated in a modern lecture hall. The ceiling features a grid of lights, and the audience is diverse in age and appearance. Some individuals are looking towards the front, while others are looking down at their phones. The overall atmosphere is that of a professional or academic event.

Methodological annex

Methodological annex: The input-output model (1/2)

The impacts on economic activity and employment in Madrid generated as a result of the organisation and holding of the meeting are calculated on the basis of the *input-output model*, constructed using data from the Regional Accounts of the Community of Madrid.

Input-output models are a standard and widely used technique for quantifying the economic impact of economic activities and infrastructure investments. They are based on the *Leontief* production model, in which the production requirements of an economy are equal to the intermediate demand for goods and services by the productive sectors plus the final demand, as shown in the following expression.

$$X = AX + y$$

where X is a column vector representing the production needs of each sector of the economy (a total of 66 in the Regional Accounts of the Community of Madrid), y is a column vector representing the final demand of each sector, and A is a matrix (66 rows x 66 columns), called technical coefficients, which by rows indicates for each specific sector the percentage of its production that is destined to each of the remaining sectors of the economy, and by columns also indicates for each sector the weight of its production of the goods and services that it demands from each of the remaining sectors of the economy. The above expression can also be seen as follows.

$$\begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ \dots \\ X_{66} \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & a_{13} & \dots & a_{166} \\ a_{21} & a_{22} & a_{23} & \dots & a_{266} \\ a_{31} & a_{32} & a_{33} & \dots & a_{366} \\ \dots & & & & \\ a_{661} & & & & a_{662} \\ a_{663} & \dots & & & a_{666} \end{bmatrix} \times \begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ \dots \\ X_{66} \end{bmatrix} + \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ \dots \\ y_{66} \end{bmatrix}$$

where, e.g., X_1 is the production needs of sector 1, y_1 is the final demand of this same sector, and a_{11} , a_{12} , a_{13} , ..., a_{166} are the percentages of sector 1's output going to, respectively, sectors 1, 2, 3, ..., 66, while a_{11} , a_{21} , a_{31} ..., a_{66} are the weights on sector 1's output of the goods and services demanded, respectively, from sectors 1, 2, 3, ..., 66.

Methodological annex: The input-output model (2/2)

Rearranging the above expression, the production needs of an economy (X) can be calculated from the final demand (y) that it has to meet as follows.

$$X = (I-A)^{-1} y$$

Where $(I-A)^{-1}$ is the inverse *Leontief* matrix or production multiplier matrix used to calculate impacts.

The production multiplier matrix used in our analysis has been calculated from data published by the National Statistics Institute of the Community of Madrid. This matrix allows us to determine, for each euro disbursed or invested in the different sectors of the Regional Accounts (i.e. for each euro of final demand), the impact in terms of gross production (i.e. production needs).

From the matrix of production multipliers we proceed to calculate the employment multipliers. To do this, using data from the National Institute of Statistics of the Community of Madrid, the direct employment coefficients (ratio between number of employees and production) are first calculated for each sector. The employment multipliers are subsequently derived by multiplying the matrix of production multipliers by a column vector with the direct employment coefficients calculated for each sector.

The multipliers for the calculation of the induced effects are obtained from information on: (i) the weight of household income (compensation of employees) on the output of each of the sectors concerned, (ii) the distribution of household consumption by sector, and (iii) the marginal propensity to consume estimated for the Spanish economy (0.643).

Methodological annex: Estimated costs of attendees

Given the lack of specific information on the expenditure made by those attending the meeting, the data on average tourist expenditure and the breakdown of this expenditure by concept published by the Statistics Institute of the Community of Madrid and the INE have been used as an approximation. More specifically, for those attending the event, the average expenditure of tourists from the rest of Spain and foreigners visiting the Region of Madrid was used as a reference.

These average expenditure figures have been additionally adjusted for the specific case of South Summit, in order to reflect only those expenses that would have an impact on Madrid and that would not have been incurred if the meeting had not taken place. Furthermore, in order to avoid duplication in the estimated impacts, expenses incurred by attendees on tickets to the meeting have not been taken into account.

These figures have been adjusted independently according to the origin of the attendees, as detailed below:

- Attendees from Spain (except the Community of Madrid) and from outside Spain.
 - It has been assumed that 50% of the expenditure on transport was incurred in Madrid and the remaining 50% in the respective places of origin, with the exception of air and sea transport where 75% has been assumed.
 - Expenditure in travel agencies of foreign tourists has not been included as it has been assumed that it was made in the place of origin.
- Attendees from the Community of Madrid.
 - In order to take into account only those additional expenses, i.e. those that have been incurred exclusively for attending the meeting and which would not have been incurred in the absence of the meeting, in the case of residents in Madrid, only the expenditure incurred on transport to and from the festival site (mainly taxi and petrol in the case of those using their own vehicle) has been taken into account. These figures have been estimated on the basis of average petrol prices and taxi journeys from the venue to different points in Madrid (€50 for a return taxi journey with 2 people).

In order to estimate the impacts, all average expenditure data have been further adjusted by eliminating the corresponding VAT, depending on each category of expenditure.



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