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2022-2023

REPORT

Global Entrepreneurship Monitor

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GEM Spain 2022/23 Report



**Entrepreneurship Observatory
of Spain**

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"The great GEM family"

After 23 years, it would seem unnecessary to explain why this report has become a fundamental tool for understanding the entrepreneurial and innovation ecosystem in our country.

Or why it is a vital point of reference for researchers, policy makers, entrepreneurs or anyone interested in business development. It is also well known that the *GEM Spain Report* analyses the entrepreneurial phenomenon, activity, characteristics and context with scientific rigour. It would be redundant to emphasize that its importance lies in the information it provides annually, giving a complete, detailed and up-to-date vision for designing effective policies and strategies to support and encourage entrepreneurship in this country.

However, it is worth remembering how it is done year after year. **In our country, the GEM report is developed by the Spanish Entrepreneurship Observatory through a network of 27 regional teams** representing the entire Spanish territory, without whose effort and commitment all this would be impossible.

I could tell you a lot about the values of this Network of human capital that I have the honour of leading; it is inevitable to highlight its disinterested **collaboration**, the maximum **commitment** of its members (some with more than 20 years at the forefront of the project) and their remarkable **effort and dedication** to maintain the support in their regions in each cycle. I would also like to acknowledge their outstanding **patience and perseverance** in reaching the

necessary agreements with their partners and gathering information from their experts. And, above all, I think it is important to highlight how, despite all the inconveniences they have to overcome, they always maintain their **enthusiasm and desire** to keep this project alive.

Finally, it is only fair to point out that **none of this would be possible if we had not met magnificent fellow travellers, who were able to see and understand the nature and value of our work and who became part of the great GEM family.**

At the national level, with the unconditional help and support of ENISA, as well as the collaboration of the MAPFRE Sustainable Finance Observatory and the Secretary of State for Digitalization and Artificial Intelligence; and at the regional level, there would not be enough space on this page to thank the support of the more than 100 sponsors and small collaborators we count on year after year to be able to carry this out.

Therefore, after so much effort and dedication, it **only remains for me to invite you to continue reading the new *GEM Spain 2022-2023 Report* and to share it with your network** of contacts and colleagues. I am sure you will find useful and interesting information in it, which will be of great help to you in your work, but please do not forget ALL THE PEOPLE who make it possible.

Ana Fernández Laviada
President of the Entrepreneurship Observatory of Spain

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"Educating for entrepreneurship"

The philosopher Celia Amorós used to say that "in order to politicize properly, one must conceptualize well" and that in order to make a phenomenon visible, give it a name, make it present in reality and work on it, one must "move from anecdote to category". For ENISA, there is no better conceptualization of the entrepreneurial phenomenon, or of any other subject, than that of data. And that is what the GEM Observatory knows a lot about, and very well. That is why we always support its professional and necessary work.

Once again this year, its study validates the reality of our country and how those who are the political subjects of entrepreneurial activity wake up every morning with the desire to contribute, not only to the business activity in which they believe but also to the direct social and human impact, something that we cannot ignore or forget.

The complex international geopolitical context, together with the profound transformation of the economic model, are also reflected in the in-depth analysis of the *GEM Spain 2022 Report*, with apparently contradictory conclusions that are a clear sign of the times of change that our society is going through. While there is a slight decline in the environmental conditions for entrepreneurship, entrepreneurial activity (TEA index) is increasing, exceeding the pre-pandemic level, and potential entrepreneurship is growing.

In addition, I would like to highlight two other realities that are shown in these pages. The first is that in Spain, we are starting up businesses at an older age, and the second is that the capacity for innovation,

digitalization and internationalization is linked to an increasingly higher level of education.

This level makes our entrepreneurs more resistant to closure, loyal to their staff and with a strong commitment to society and the environment, as well as demanding better environmental conditions for entrepreneurship.

With all this data, and returning to Amorós' words, I believe that we need to step on the accelerator at a strategic point: that of entrepreneurial education, because although attitudes and perceptions condition the behavior of entrepreneurs and are difficult to change in the short term, it is necessary to redirect them.

I am talking not only about arousing entrepreneurial education at school, but also about providing alternatives with government policies that support and promote entrepreneurship.

I believe, without a doubt, that thanks to the new Startup Law, the first in the history of our country to be built with the drive and involvement of all the pieces of the ecosystem puzzle, together with public and private money – available as never before –, not only entrepreneurship but also the transfer of knowledge will be stimulated, moving towards a better economic and productive model in Spain.

And in this respect, we will continue to be, or at least try to be, the best place to make the dreams of every person who wants to start a business in our territory come true.

José Bayón
CEO of ENISA



For more information, visit
[www.gem-spain.com/category/
cuadernos-de-divulgacion-cientifica/](http://www.gem-spain.com/category/cuadernos-de-divulgacion-cientifica/)



In the last few years, we experienced a global pandemic and an outbreak of conflict in Ukraine, both significant events that had and are still having enduring negative effects on our complex and diverse world economy. Throughout the volatility and uncertainty, entrepreneurs demonstrated why entrepreneurship is so important in the modern world. They help solve some of the most challenging problems the world has ever had to face; the resilience and ingenuity of entrepreneurs during the pandemic (also reflected in our GEM data) is a case in point. With problems such as supply chain breakdowns, increasing resource distribution issues and the impacts of climate change, we need critical-thinking, problem-solving entrepreneurs more than ever, entrepreneurs that are ready to positively change the world for the betterment of as many of us as possible.

Entrepreneurship helps elevate both developed and developing countries and grow their markets, allowing a better quality of life for more people. Therefore it is important in today's world for entrepreneurs to invest in our greatest needs. At GEM, we have learned that despite and sometimes because of the last few years of crisis, opportunities for entrepreneurs have nevertheless increased in an unprecedented manner. Never has it been easier to sell something. No longer do entrepreneurs have to own or rent a brick-and-mortar store. With the internet, entrepreneurs can sell products and services from anywhere and practically to anyone. Workers everywhere have patently demonstrated to their employers that working from home can be a viable option worth considering as a

means of increasing quality of life in the future. So it is heartening to observe in our GEM data that Spanish entrepreneurs at every level of society are busy grasping these opportunities. Spanish startup numbers have already increased to pre-pandemic levels, with mature and qualified entrepreneurs leading the foray and an increasingly level playing field for both men and women.

However, in the current rapidly changing competitive economic landscape, all countries, including Spain, will need as conducive a context as possible to enable entrepreneurs to contribute fully to their economies. This, in turn, will help countries operate more efficiently and add more value to the lives of their citizens. Our National Expert Survey (NES) reveals that – post-pandemic – more vigilance is necessary in Spain so that the resilience of businesses is long-lasting and promotes growth.

At the launch of the GEM 2022-23 Global Report this year, our GEM National Teams elected Professor Ana Fernández Laviada, Director of GEM Spain, to the governance body of GEM: the Global Entrepreneurship Research Association (GERA). The GERA Board warmly welcomes Ana's depth of experience with one of GEM's most ambitious National Teams, as well as her passionate interest in promoting entrepreneurship both in Spain and worldwide. Congratulations, Ana!

Aileen Ionescu-Somers, Ph.D
Executive Director, Global Entrepreneurship Monitor

*YOU are also part of the
entrepreneurial ecosystem*



What is the GEM (Global Entrepreneurship Monitor)?

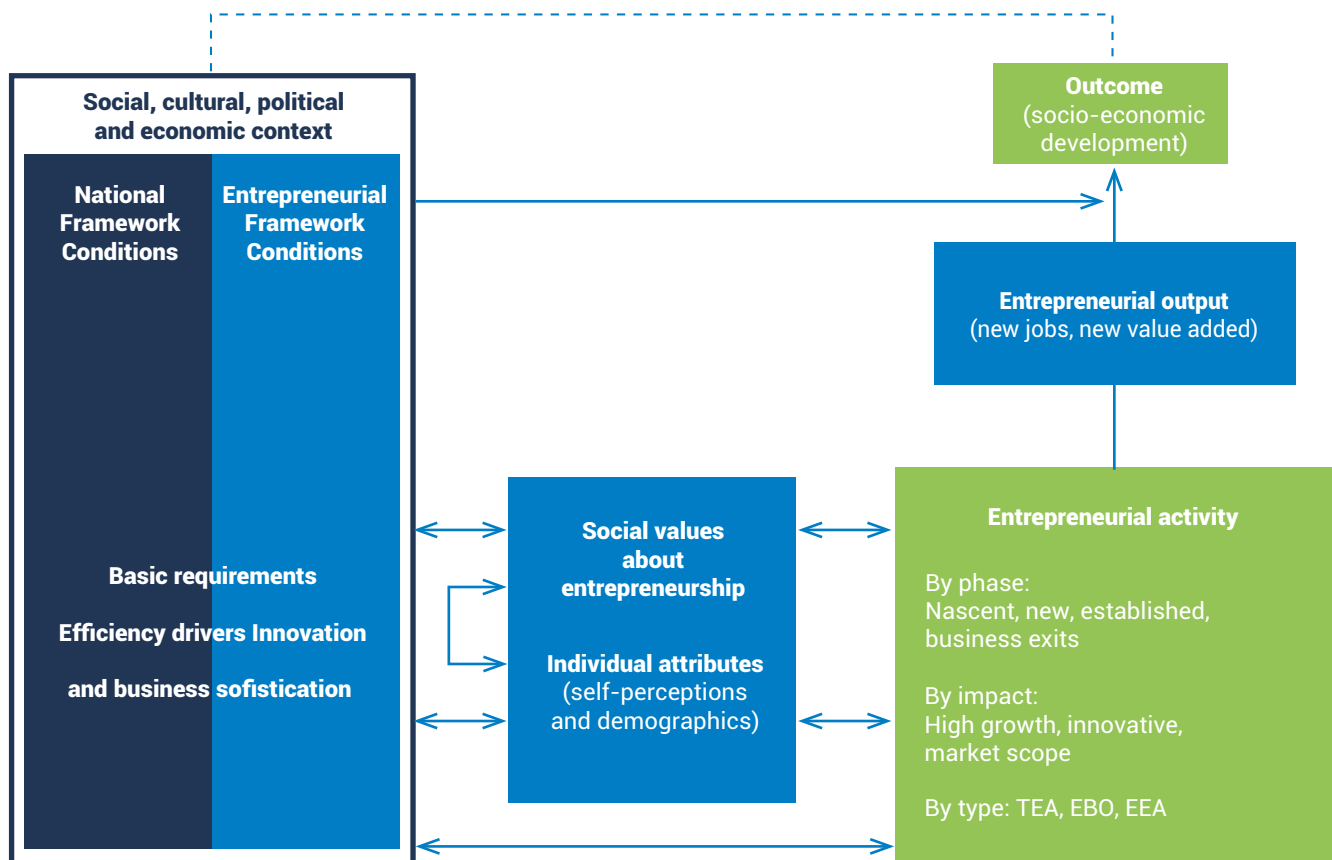
The GEM is an international observatory that analyzes the entrepreneurial phenomenon. Its activity began in 1999 thanks to the joint initiative of the *London Business School* and *Babson College*. For twenty-four years, annual reports have been published on the entrepreneurial phenomenon at international, national, regional and provincial levels. GEM researchers also produce annual reports on monographic topics of interest to economic and social agents. In the 2022 edition, the GEM report provides information on entrepreneurial activity analyzed in 49 participating

countries by polling more than 170,000 people, representing two-thirds of the world's population, and the assessment of the conditions of the entrepreneurial environment in 52 countries using panels of national and regional experts.

The reports produced by the Entrepreneurship Observatory (GEM Spain Network) are based on a theoretical framework of analysis of the entrepreneurial phenomenon common to all countries in the Global GEM network (see Figure 1).

Figure 1. Revised GEM Theoretical Framework

Source: Global GEM Report (2022)





Bleecker Technologies, s.l.



Names of entrepreneurs: Félix Jesús García Clemente, Pedro Enrique López de Teruel Alcolea and Alberto Ruiz García.

Business name: Bleecker Technologies, s.l. (<https://www.um.es/web/otri/investigadores/empresas-de-base-tecnologica/ebts-umu/bleecker-technologies>).

Business location: Murcia.

Launch year: 2019.

A brief description of what the company does: The activity focuses on the development of innovative artificial intelligence-based visual codes specially designed for use in logistics processes. Specifically, our integrated computer vision system facilitates the tracking and traceability of any item in an industrial environment through the use of cameras and novel visual tags, based on specially designed patterns for robust and accurate detection in adverse situations.

How did the idea arise?

The idea arose from previous collaborations of the research group with companies in the productive fabric of the Murcia region, especially those companies most interested in applying the latest innovations in the field of new technologies in general, and computer vision in particular.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

Absolutely! Continuous innovation and the development of new products and services are in our company's DNA. The emergence in the last year of all the advances in artificial intelligence in the specific field of computer vision is allowing us to introduce numerous services in addition to our original product.

How is the current economic situation affecting your business, and what measures are you taking?

Shortly after we started, COVID-19 caused the initial marketing prospects of our product to be quite affected. However, we were also able to reinforce our commitment to our product with continuous refinements, improvements, and functional additions, which in turn strongly increased the added value of the product, thus also broadening the range of potential customers.

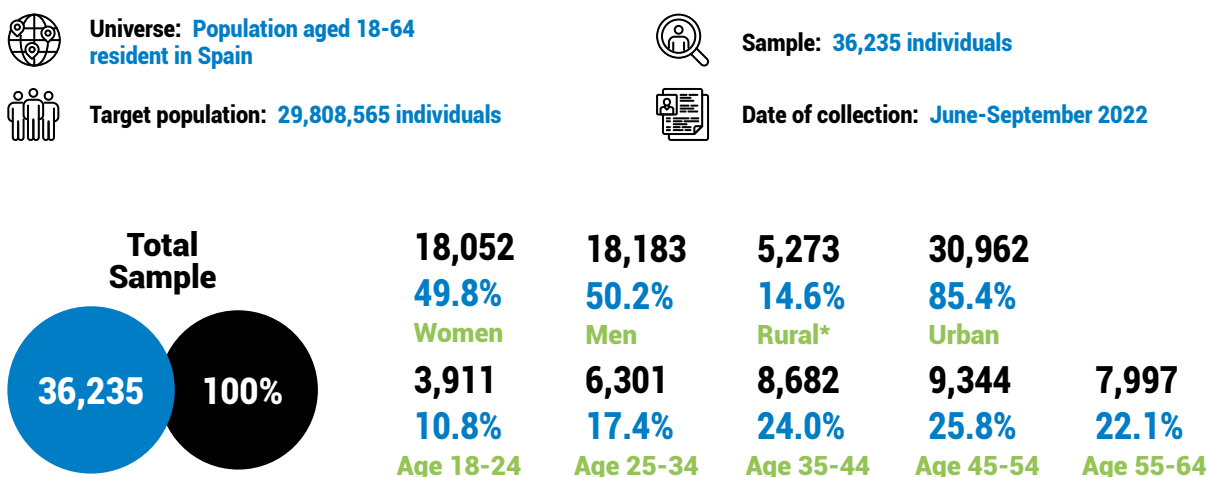
Something you would like to add

We are often asked about the keys to the success of our entrepreneurial venture. We would like to highlight three of them. Firstly, the confidence that it is possible to develop fully competitive products in the field of research. Secondly, the importance of having, from the beginning, a multidisciplinary team in which the initial scientific and technological developments are supported by professionals from other complementary and equally necessary fields. And, thirdly, the need to be constantly updated, never considering any product as completely finished, continuously innovating and adapting products to different market needs in order to cover an increasingly wide range of potential customers.

How do we obtain the data?

The GEM Observatory is based on three sources of information: A survey of the population aged 18-64, called APS (Adult Population Survey), a survey of experts in entrepreneurship, called NES (National Experts Survey) and a set of secondary sources of information (scientific articles, sectoral reports, international analyses) that allow for a more in-depth interpretation of the data obtained. The APS and NES surveys, based on the conceptual framework of the GEM Project are submitted to rigorous quality controls in terms of translation and fieldwork to ensure that the responses obtained in all participating countries are comparable.

Figure 2. Fact sheet of the APS in 2022



* Municipalities with less than 5,000 inhabitants

The information obtained from these sources, which complement each other, forms the basis for the results presented in the different sections of this report. The regional reports published annually by the member teams of the GEM Spain Network, as well as the global report and those of other countries, can be accessed and viewed in greater detail on the websites of the International GEM Consortium: <http://www.gemconsortium.org/> and the GEM Spain project: <http://www.gem-spain.com/>.

Resumen ejecutivo

La actividad emprendedora reciente (TEA) recupera el nivel de prepandemia y crece el emprendimiento potencial. Durante el año 2022 el 6% de la población española adulta está arrancando un nuevo proyecto de negocio de menos de tres años y medio de vida, un porcentaje similar al del año 2019, antes de la crisis sanitaria y la invasión de Ucrania. Y no solo eso. El porcentaje de personas con intención de emprender en los próximos tres años, un 9,4%, es el más alto desde 2012, lo que augura un crecimiento de la actividad emprendedora similar al vivido tras la crisis financiera de 2008. Ocho de cada diez personas inmersas en el proceso emprendedor consideran que tienen los conocimientos y habilidades para hacerlo. Más de la mitad conoce a personas que están emprendiendo, algo que puede ayudar a la hora de aprender de otras experiencias o identificar contactos de negocio. La vuelta a la normalidad, después de la crisis sanitaria de 2020, ha reducido ligeramente el miedo al fracaso, que sigue siendo mayor entre las mujeres. Sin embargo, en 2022 el 65% de los hombres y el 68% de las mujeres involucradas en el proceso emprendedor lo hacen sin percibir oportunidades claras de negocio.

Los expertos empeoran su valoración de las condiciones del entorno nacional para emprender. Los expertos sitúan a España en el último cuartil de países en relación al índice NECI (*National Entrepreneurial Context Index*), que evalúa la calidad del entorno para emprender. Esto supone un retroceso en relación al año 2021, y nos aleja de nuestros países de referencia europeos. Sin embargo, en el mapa de posicionamiento que relaciona el índice NECI y el Índice Global de Innovación (GII), España se posiciona en el cuadrante de países con peores condiciones de entorno para emprender, pero con un nivel medio de innovación, un posicionamiento similar al de Italia. Los expertos del panel nacional del GEM valoran al mismo nivel que sus ho-

mólogos europeos la existencia y acceso a las infraestructuras física y de servicios, así como la educación emprendedora, que valoran como las condiciones que más favorecen la actividad emprendedora en España. Sin embargo, su valoración del resto de condiciones para emprender es menor que la valoración media de los expertos europeos, y también es menor que la de los expertos de cada CC.AA. El que las condiciones del entorno se gestionen en un ámbito más local favorece que los programas y medidas sean percibidos como más eficaces.

La actividad emprendedora en España es menor pero más resistente que la de otros países, con las tasas de cierre más bajas de su grupo de referencia. Durante los años de pandemia (2020-2021) España se posicionó como uno de los países europeos en los que los emprendedores resistieron mejor el periodo de incertidumbre, manteniendo las empresas consolidadas y evitando el cierre de iniciativas emprendedoras. Sin embargo, durante el 2022 se aprecia una depuración de empresas en la fase de consolidación. El porcentaje de emprendedores a cargo de empresas consolidadas se reduce ligeramente respecto al año anterior, hasta alcanzar un 7%, un nivel igual al del 2014, y el abandono empresarial aumenta hasta un 2,5%. Sin embargo, la tasa de población que cierra definitivamente el negocio es de un 1,5%, lo que significa que algunas personas abandonan una actividad para emprender otra, mientras que otros emprendedores retoman la iniciativa anterior. Esto refleja una dinámica emprendedora saludable y con potencial de crecimiento. Las comunidades autónomas con mayor tamaño y concentración de población se afianzan como el entorno más favorable para emprender. A nivel europeo, España sigue a la cola de sus países de referencia en la tasa de emprendimiento reciente (TEA). Sin embargo, la tasa de cierre de empresas es la más baja de su grupo, consolidando a este país

como un entorno favorable para la supervivencia de las iniciativas emprendedoras.

Las motivaciones para emprender en España siguen siendo menos ambiciosas que en otros países y se han visto afectadas negativamente por los años de pandemia. En 2022, tres de cada cuatro emprendedores siguen afirmando que emprenden para ganarse la vida porque el trabajo escasea, aunque poco a poco aumenta el porcentaje de emprendedores que considera otros motivos como marcar una diferencia en el mundo o crear riqueza. Aunque los hombres siguen estando más motivados para crear riqueza a través de sus iniciativas emprendedoras que las mujeres, las emprendedoras mantienen la motivación de emprender para marcar una diferencia en el mundo, que no se ve reducida en los años de pandemia como en el caso de los hombres.

Emprenden personas con más edad y cualificación, de diferentes niveles de renta, mujeres y hombres por igual. En España emprendemos con más edad que en otros países. Y, lejos de cambiar, esta situación se hace más evidente a medida que pasan los años. En 2022 el 80% de los emprendedores recientes (TEA) tiene entre 25 y 54 años. Con el añadido de que el 75% de los emprendedores potenciales también está en el mismo rango de edad. Ya no se evidencian sin embargo diferencias entre hombres y mujeres. La evolución de las personas que emprenden más jóvenes (18-24) y mayores (55-64) acusó la crisis del 2008 claramente, con caídas drásticas de hasta un cincuenta por ciento. Sin embargo, los años de pandemia han afectado en mayor medida a los más jóvenes, sin que hayan podido recuperarse en 2022. Si no crece el número de los emprendedores potenciales jóvenes dispuestos a emprender efectivamente en el futuro, España seguirá manteniendo un perfil emprendedor envejecido con menos recorrido temporal que sus países de referencia.

Las mayores tasas de emprendimiento se producen en los niveles educativos superiores. En 2022, el 11% de las personas con estudios universitarios afirma que está pensando en emprender en los próximos tres años, un 9% lo está haciendo, y otro 9% está a cargo de empre-

sas consolidadas de más de tres años y medio de vida. Apenas se observan diferencias en el comportamiento emprendedor de hombres y mujeres en relación a su nivel educativo. Sin embargo, entre las personas que han superado un máster o un doctorado el porcentaje de mujeres emprendedoras es sensiblemente superior al de los hombres, especialmente en la etapa de emprendimiento reciente (TEA). Esto es un claro indicador de la vocación emprendedora de las mujeres de alta cualificación educativa en España. La percepción de tener conocimientos específicos para emprender también aumenta entre los emprendedores respecto al año anterior, reflejo del esfuerzo que han hecho las instituciones educativas de este país para ofrecer programas específicos de formación emprendedora en los últimos años.

En España emprenden personas con distinto nivel de riqueza, y ya no predominan los emprendedores con rentas superiores a la media. En 2022, al igual que en años anteriores, más de la mitad del capital de arranque de los proyectos emprendedores procede de sus ahorros personales, y la otra mitad se distribuye entre los préstamos concedidos por bancos e instituciones financieras (17%), ayudas de familiares (10%) y otras fuentes de financiación residual. En España, ni los *business angels* ni el *crowdfunding* se han afianzado todavía como fuentes de financiación habituales de los proyectos emprendedores, a pesar de que poco a poco aumenta el conocimiento financiero de las personas que emprenden. En 2022, los emprendedores han arrancado sus proyectos con menos capital que en años anteriores. Seis de cada diez proyectos de negocio han necesitado un capital semilla menor de 30.000 euros, lo que refleja la escasa envergadura de las iniciativas, aunque, al mismo tiempo, facilita su financiación.

El emprendimiento sigue centrándose en el sector de los servicios, y aumenta la actividad emprendedora que ofrece servicios a empresas. Siete de cada diez emprendedores inician su negocio en el sector de los servicios (al consumidor y a otras empresas), aunque en los últimos años ha crecido el porcentaje de los que lo hacen ofreciendo servicios a otras empresas, algo que fortalece el tejido empresarial

de nuestro país. En los últimos tres años se ha reducido el emprendimiento industrial, mientras que el emprendimiento en sector extractivo apenas alcanza un 5% del total de iniciativas. Una de cada dos mujeres emprende en el sector de servicios al consumidor, mientras que los hombres reparten sus iniciativas entre el sector servicios y el sector transformador.

Se reduce el carácter familiar de las iniciativas emprendedoras. A pesar de mantener la administración familiar, las iniciativas emprendedoras recientes (TEA) propiedad de la familia se reducen del 72% en 2021 al 69% en 2022. Durante este año las mujeres igualan a los hombres en porcentaje de iniciativas recientes (TEA) creadas con capital familiar. También en las iniciativas familiares se percibe un incremento notable de las que se crean en el sector de servicios a otras empresas en 2022, en comparación con el año anterior.

Se activa la contratación de empleados y se mantiene la plantilla, que sin embargo no crece a lo largo del proceso emprendedor. En 2022 cerca de la mitad de las iniciativas emprendedoras nacen con una plantilla de entre uno y cinco empleados. Tras un descenso de las contrataciones en 2019 y 2020, en los últimos dos años se ha incrementado el porcentaje de iniciativas emprendedoras que han contratado empleados, aunque las plantillas siguen siendo reducidas (de uno a cinco empleados). Sin embargo, no se percibe un aumento en el número de empleados a lo largo del proceso emprendedor, con un 88% de las empresas consolidadas que se mantienen como microempresas. Las mujeres son ligeramente más conservadoras que los hombres a la hora de contratar empleados, aunque en 2022 se ha igualado el porcentaje de hombres y mujeres (8%) con plantillas de entre seis y diecinueve empleados, y se ha reducido ligeramente la diferencia en iniciativas de más de veinte empleados. La mayoría de los emprendedores que contrataron en los últimos 12 meses apuestan por la estabilidad en sus contrataciones, incluso los emprendedores más recientes (TEA), a pesar del riesgo que esto supone al inicio de una nueva actividad empresarial. Los emprendedores siguen buscando un equipo reducido de empleados a

tiempo completo y con contrato indefinido para apoyar la supervivencia y el crecimiento de sus iniciativas emprendedoras en el futuro. Pero si bien la supervivencia es superior a la media de sus países de referencia, no se produce un crecimiento en el número de empleados a lo largo del proceso emprendedor.

Sube el nivel tecnológico de la actividad emprendedora. En los últimos tres años ha ido creciendo el nivel tecnológico de las iniciativas emprendedoras recientes (TEA) y consolidadas. Aunque todavía estamos lejos de tener un tejido emprendedor que se caracterice por su vocación tecnológica, una de cada diez iniciativas se califica como de nivel tecnológico medio o alto. En 2022 crece el porcentaje de iniciativas recientes (TEA) y consolidadas de nivel tecnológico alto, que mantienen un crecimiento sostenido desde 2020. Los hombres siguen liderando más iniciativas de nivel tecnológico medio-alto que las mujeres. Sin embargo, se percibe cómo, a medida que aumenta el rango de edad de los emprendedores, disminuye el nivel tecnológico de las iniciativas. El nivel educativo de los emprendedores sigue condicionando la orientación emprendedora de las iniciativas. Dos de cada diez emprendedores con un nivel educativo universitario (grado, máster, doctorado) califican sus iniciativas consolidadas como de nivel tecnológico medio-alto. En 2022 el sector de servicios a empresas (*business to business*) se consolida como nicho de iniciativas emprendedoras de nivel tecnológico medio-alto. Sin embargo, el carácter familiar parece ser un factor limitador de la orientación innovadora de las iniciativas recientes (TEA).

En 2022 se mantiene la diferencia en la capacidad innovadora de las iniciativas a lo largo del proceso emprendedor. El 27% de las iniciativas recientes (TEA) ofrecen nuevos productos al mercado, mientras el 26% utiliza nuevos procesos de negocio, un porcentaje que se reduce a la mitad en el caso de las iniciativas consolidadas. No hay diferencia en el carácter innovador de las iniciativas recientes (TEA) lideradas por mujeres y hombres, pero se sigue manteniendo en las iniciativas consolidadas. Cuatro de cada diez iniciativas recientes (TEA) lideradas por emprendedores jóvenes (entre 18 y 24 años), un

tercio de las lideradas por emprendedores con una titulación de máster y casi la mitad de las lideradas por emprendedores doctores están lanzando innovaciones en producto y/o procesos de negocio. La capacidad innovadora de las iniciativas recientes (TEA) se ha incrementado en todos los sectores productivos. Innovan más las iniciativas con mayor número de empleados, y las iniciativas no familiares, aunque este año una de cada cuatro iniciativas recientes (TEA) con una estructura de propiedad y/o administración familiar ofrece nuevos productos y procesos al mercado, un porcentaje que duplica el de las iniciativas consolidadas.

La digitalización de los procesos comerciales varía a lo largo del proceso emprendedor. La planificación y capacidad de reacción también varía en función de la edad y el nivel educativo de los emprendedores. La planificación de la comercialización digital previa a la pandemia ha sido más habitual entre las iniciativas emprendedoras consolidadas, especialmente en el sector de servicios a empresas y liderada por emprendedores con mayor nivel educativo y más edad. La adopción y mejora de tecnologías digitales como consecuencia de la pandemia ha sido mayor entre las iniciativas recientes lideradas por emprendedores más jóvenes. Son los jóvenes los más proclives a reaccionar ante situaciones imprevistas, pero son los mayores los más proclives a planificar con antelación.

Crece la capacidad de internacionalización de las iniciativas recientes (TEA), incluidas las lideradas por mujeres. En 2022 un 5% de las iniciativas recientes (TEA) puede calificarse de *born-global*, con un rango de exportaciones que supera el 75%. Las iniciativas consolidadas van incrementando poco a poco su capacidad de internacionalización, y es previsible que en los próximos años aumenten su orientación hacia mercados internacionales. A diferencia de años anteriores, las mujeres no son más reacias que los hombres a liderar proyectos orientados a mercados exteriores, lo que supone un incremento de la orientación internacional de las iniciativas emprendedoras lideradas por mujeres. El mayor porcentaje de iniciativas internacionales está liderado por emprendedores con edades comprendidas entre los 25 y los 34 años,

relativamente jóvenes, lo que puede garantizar la proyección internacional de las iniciativas en el tiempo. El nivel educativo condiciona no sólo el carácter innovador de las iniciativas emprendedoras, sino también su orientación internacional. Casi la mitad de las iniciativas recientes (TEA) lideradas por emprendedores con un título de doctor se orientaron a mercados internacionales, así como el 40% de las iniciativas consolidadas lideradas por emprendedores con título de máster, lo que refuerza la función de los estudios de posgrado a la hora de construir el perfil internacional del tejido emprendedor de este país. La orientación internacional de las iniciativas emprendedoras sigue siendo mayor en el sector servicios. Casi un tercio de las iniciativas que surgen en este ámbito se orientan a mercados exteriores. El carácter familiar de las iniciativas recientes (TEA) no condiciona su orientación internacional, ni en la estructura de propiedad ni en su administración directiva.

En 2022 aumenta la coherencia entre la orientación estratégica hacia la sostenibilidad de las iniciativas emprendedoras y su implantación efectiva a través de prácticas empresariales concretas. En 2022 uno de cada dos emprendedores afirma priorizar el impacto social y/o ambiental de sus iniciativas, y todavía son más los que consideran estos aspectos en su estrategia de negocio, tanto al inicio del proceso emprendedor como en la fase de consolidación. Las mujeres emprendedoras siguen siendo algo más proclives a priorizar el impacto social y medioambiental de sus iniciativas emprendedoras que los hombres, un comportamiento que también cambia en función de su CC.AA. de procedencia.

Como conclusión, durante el 2022, a pesar de percibir menos oportunidades que en años anteriores y tener miedo al fracaso, aumenta ligeramente la actividad emprendedora. En España emprendemos con más edad, y la capacidad de innovación, digitalización e internacionalización está ligada a un nivel educativo que cada vez es más alto. Los emprendedores en España son resistentes al cierre, fieles a su plantilla y comprometidos con la sociedad y el medioambiente, y demandan mejores condiciones del entorno para emprender.

Executive Summary

Total early-stage Entrepreneurial Activity (TEA) recovers to pre-pandemic levels and potential entrepreneurship grows. During 2022, 6% of Spanish adults were starting or running a new business that was less than three and a half years old, a percentage similar to that of 2019, before the health crisis and the Ukrainian invasion. And not only that. The percentage of people intending to start a business in the next three years, 9.4% of the adult population, is the highest since 2012, which augurs a growth in entrepreneurial activity similar to that experienced after the financial crisis of 2008. Eight out of ten adults involved in entrepreneurial processes are confident in their knowledge and skills. More than half know people who are also entrepreneurs, which can help them learn from other entrepreneurs' experiences or identify business contacts. The return to normality after the 2020 health crisis has slightly reduced the fear of failure, which remains higher among women. However, in 2022, 65% of men and 68% of women involved in the entrepreneurial process did so even without perceiving clear business opportunities.

Experts downgrade their assessment of the conditions of the national environment for entrepreneurship. Experts place Spain in the last quartile of countries in relation to the NECI (National Entrepreneurial Context Index), which evaluates the quality of the environment for entrepreneurship. This represents a setback in relation to previous years, and distances us from our European benchmark countries. However, in the positioning map that relates the NECI index and the Global Innovation Index (GII), Spain is located in the quadrant of countries with the worst environmental conditions for entrepreneurship but with an average level of innovation, a positioning similar to Italy. The experts on the national GEM panel rate the existence of and access to physical and

service infrastructures, as well as entrepreneurial education, at the same level as their European counterparts as the conditions most conducive to entrepreneurial activity in Spain. However, their assessment of the rest of the conditions for entrepreneurship is lower than the average evaluation of the European experts and also lower than that of the experts of each autonomous community. The fact that environmental conditions are managed at a more local level favors the perception that the programs and measures are more effective.

Entrepreneurial activity in Spain is lower but more resilient than in other countries, with the lowest closure rates in its benchmark group. During the pandemic years (2020-2021), Spain was positioned as one of the European countries in which entrepreneurs better withstood the period of uncertainty, maintaining their businesses and avoiding the closure of entrepreneurial initiatives. However, during 2022, a purge of businesses in the established phase could be identified. The percentage of established entrepreneurs decreased slightly compared to the previous year, reaching 7%, a level equal to that of 2014, and the business exit rate increased to 2.5%. However, the rate of entrepreneurs who exited the business and did not continue was 1.5%, which suggests that some people abandon one activity to undertake another while other entrepreneurs resume the previous initiative. This reflects a healthy entrepreneurial dynamic with growth potential. The autonomous communities with the greatest size and concentration of population are consolidating their position as the most favorable environment for entrepreneurship. At the European level, Spain continues to lag behind its benchmark countries in the rate of Total early-stage Entrepreneurial Activity (TEA). However, the rate of company closures is the lowest in its group, consolidating

Spain as a favorable environment for the survival of entrepreneurial initiatives.

Motivations for entrepreneurship in Spain remain less ambitious than in other countries and have been negatively affected by the pandemic years. In 2022, three in four entrepreneurs in Spain continued to say that they started a business to earn a living because jobs are scarce, although the percentage of entrepreneurs who consider other motives such as making a difference in the world or building great wealth is gradually increasing. Although men are still more motivated to build great wealth or very high incomes through their entrepreneurial initiatives than women, women entrepreneurs maintain the motivation of starting a business to make a difference in the world, which has not diminished in the pandemic years as it has for men.

Entrepreneurs are older and more qualified, with different income levels, women and men alike. In Spain, we typically start more businesses at an older age than in other countries. And, far from changing, this situation is becoming more evident as the years go by. In 2022, 80% of Total early-stage Entrepreneurial Activity (TEA) were between 25 and 54 years old, while 75% of potential entrepreneurs were also in the same age range.

However, there is no longer any difference between men and women. The evolution of younger (18-24) and older (55-64) entrepreneurs was clearly affected by the 2008 crisis, with drastic drops of up to fifty percent. However, the pandemic years have affected the youngest entrepreneurs to a greater extent, and they have not yet been able to recover in 2022. If the number of young potential entrepreneurs willing to start businesses does not grow in the future, Spain will continue to maintain an aging entrepreneurial profile with a shorter time horizon than its benchmark countries.

The highest rates of entrepreneurship occur at higher educational levels. In 2022, 11% of people with a university education said that they were thinking of starting a business in the next three years; 9% are already doing so; and another 9% are established entrepreneurs. There were hardly any differences in the entrepreneurial behavior of men and women in relation to their level of education. However, among people who have completed a master's degree or PhD, the percentage of women entrepreneurs was significantly higher than that of men, especially in the Total early-stage Entrepreneurial Activity (TEA). This is a clear indicator of the entrepreneurial vocation of women with high educational qualifications in Spain. Entrepre-



neurs' perception of having specific knowledge for entrepreneurship also increased compared to the previous year, reflecting the effort made in recent years by educational institutions in this country to offer specific entrepreneurial training programs.

In Spain, people with different levels of wealth are entrepreneurs. Entrepreneurs with above-average incomes no longer predominate. In 2022, as in previous years, more than half of the start-up capital of entrepreneurial projects came from personal savings, and rest was distributed between loans granted by banks and financial institutions (17%), support from family members (10%), and other sources of residual financing. In Spain, neither business angels nor crowdfunding have yet become established as the usual sources of financing for entrepreneurial projects, despite the fact that the financial knowledge of entrepreneurs is gradually increasing. In 2022, entrepreneurs started their projects with less capital than in previous years. Six out of ten business projects required seed capital of less than 30,000 euros, reflecting the small size of the initiatives, but at the same time facilitating their financing.

Entrepreneurship continues to focus on the services sector, although entrepreneurial activity offering services to companies is on the rise. Seven in ten entrepreneurs started their businesses in the services sector (to consumers (B2C) and to other companies (B2B)), although in recent years the percentage of new B2Bs has grown, which strengthens the business network of our country. In the last three years, industrial entrepreneurship has decreased, while entrepreneurship in the extractive sector barely reaches 5% of the total number of initiatives. One out of every two women entrepreneurs started their business in the consumer services sector, while men divided their initiatives between the service sector and the industrial one.

The family tradition of entrepreneurial initiatives decreases. Despite maintaining family management, Total early-stage Entrepreneurial Activity (TEA) owned by families decreased from 72% in 2021 to 69% in 2022. During this year, women equalled men in the percentage of recent initiatives (TEA) created with family capital. There is also a notable increase in family initiatives in the services sector in 2022 compared to the previous year.

Entrepreneurs hire and maintain fewer staff, and this does not grow throughout the entrepreneurial process, limiting the scale-up of established businesses. In 2022, about half of the entrepreneurial initiatives had a staff of between one and five em-

ployees. After a decline in hiring in 2019 and 2020, in the last two years there has been an increase in the percentage of entrepreneurial initiatives that have hired employees, although the typical staff remains small (one to five employees). However, there was no perceived increase in the number of employees throughout the entrepreneurial process, with 88% of established businesses remaining as microenterprises. Women are slightly more conservative than men when it comes to hiring employees, although in 2022 the percentage of men and women (8%) with a staff of between six and nineteen employees was similar, and the difference has narrowed slightly in initiatives with more than twenty employees. Most of the entrepreneurs who hired in the last 12 months are committed to stable numbers of staff, even the most Total early-stage Entrepreneurial Activity (TEA), despite the risk involved in starting a new business activity. The data suggests that entrepreneurs are still looking for a small team of full-time, permanent employees to support the survival and growth of their entrepreneurial initiatives in the future. But while survival is higher than the average for their benchmark countries, there is little scaling up of businesses throughout the entrepreneurial process.

The technological level of entrepreneurial activity is rising. In the last three years, the technological level of Total early-stage Entrepreneurial Activity (TEA) and established entrepreneurial initiatives has been increasing. Although we are still far from having an entrepreneurial network characterized by its technological vocation, one out of every ten new starts was classified as medium- or high-tech. In 2022, the percentage of TEA and established initiatives at the high-tech level increased, maintaining sustained growth since 2020. Men continue to lead more medium-high tech initiatives than women. However, as the age range of the entrepreneurs increases, the technological level of the initiatives decreases. The educational level of the entrepreneurs continues to condition the entrepreneurial orientation of the initiatives. One in five entrepreneurs with a university education (bachelor's, master's, or doctorate) qualify their consolidated initiatives as medium-high tech. In 2022, the B2B sector had established itself as a niche for medium-high tech entrepreneurial initiatives. However, their family nature seems to be a limiting factor in the innovative orientation of recent initiatives (TEA).

The difference in the innovative capacity of the initiatives is maintained throughout the entrepreneurial process. 27% of Total early-stage Entrepreneurial Activity (TEA) offer new products to the

market, while 26% use new business processes, a percentage that is halved in the case of established initiatives. There is no difference in the innovative nature of Total early-stage Entrepreneurial Activity (TEA) led by women and men, but there is for established businesses. Four in ten Total early-stage Entrepreneurial Activity (TEA) led by young entrepreneurs (between 18 and 24 years old), one third of those led by entrepreneurs with a master's degree, and almost half of those led by PhD entrepreneurs are launching innovations in product and/or business processes. The innovative capacity of Total early-stage Entrepreneurial Activity (TEA) has increased in all productive sectors. Initiatives with a higher number of employees and non-family businesses innovate more, although this year one in four recent initiatives (TEA) with a family ownership and/or management structure offered new products and processes to the market, a percentage that doubles that of established businesses.

The strategy of digital marketing varies throughout the entrepreneurial process. Planning and responsiveness also vary depending on the age and educational level of the entrepreneurs. Pre-pandemic digital marketing planning has been more common among established entrepreneurs, especially in the B2B sector, and has been led by more educated and older entrepreneurs. The adoption and improvement of digital technologies as a consequence of the pandemic have been higher among early-stage initiatives led by younger entrepreneurs. It looks like younger people are more able to react to unforeseen situations, but older people are more likely to plan ahead.

The internationalization capacity of Total early-stage Entrepreneurial Activity (TEA), including those led by women, is growing. In 2022, 5% of Total early-stage Entrepreneurial Activity (TEA) could be classified as born-global, with an export range exceeding 75%. Established initiatives are gradually increasing their internationalization capacity, and it is foreseeable that in the next few years they will increase their international approach. Unlike in previous years, women are no more reluctant than men to lead international projects, which means an increase in the international orientation of entrepreneurial initiatives led by women. The highest percentage of international initiatives are led by entrepreneurs between 25 and 34 years of age, which is relatively young and can guarantee the international projection of the initiatives over time. Educational-level conditions reflect not only the innovative nature of entrepreneurial initiatives but also their international orientation. Almost half of the Total early-stage Entrepreneurial Activity (TEA) led



by entrepreneurs with a PhD had an international orientation, as did 40% of the established initiatives led by entrepreneurs with a master's degree, which reinforces the role of postgraduate studies in building the international profile of entrepreneurial initiatives. The international orientation continues to be greater in the services sector. Almost a third of the initiatives that arise in this area are focused on foreign markets. The family nature of Total early-stage Entrepreneurial Activity (TEA) does not condition their international orientation, neither in their ownership structure nor in their management.

In 2022, the coherence between the strategic orientation of entrepreneurial initiatives towards sustainability and their effective implementation through specific business practices increased. In 2022, one in two entrepreneurs claimed to prioritize the social and/or environmental impact of their initiatives, and even more of them considered these aspects in their business strategy, both at the beginning of the entrepreneurial process and in the established stage. Women entrepreneurs are still somewhat more likely to prioritize the social and environmental impacts of their entrepreneurial initiatives than men, a behavior that also changes depending on their region of origin.

In conclusion, despite perceiving fewer opportunities than in previous years and maintaining high levels of fear of failure, entrepreneurial activity grew slightly in 2022. In Spain, individuals typically start their businesses later than in other European economies, and the capacity for innovation, digitalization, and internationalization is linked to an increasingly high level of education. Entrepreneurs in Spain are resistant to closure, loyal to their staff, and committed to society and their local environment, and they strongly demand better conditions for entrepreneurship.

Table of Indicators

Perceptions of the adult population interviewed on entrepreneurial values, attitudes, skills, experiences and intentions	2021	2022
You know someone who started a business or became self-employed in the past 2 years	38.0%	41.0%
You perceive opportunities for entrepreneurship in the area in which you live in the next six months	30.0%	26.0%
You have the knowledge, skills and experience required to start a new business	50.0%	47.0%
You perceive that you would not start up a business for fear that it might fail	58.0%	58.0%
You perceive that starting a business in Spain is easy	38.0%	32.0%
You have stated your intention to start a business in the next three years	9.0%	9.4%
You have given up an activity to close it down or transfer it, or due to retirement	2.2%	2.5%
You have acted as a business angel	4.0%	4.4%
TEA: Percentage of adult population involved in entrepreneurial initiatives in the last 3.5 years	2021	2022
Total TEA	5.5%	6.0%
Women TEA (out of total women aged 18-64)	5.6%	5.9%
Men TEA (out of total men aged 18-64)	5.4%	6.0%
Established business: Percentage of adult population in initiatives over 3.5 years old	2021	2022
Total Established business	7.2%	7.0%
Total Established women companies (out of total women aged 18-64)	6.0%	6.5%
Total established men companies (out of total men aged 18-64)	8.3%	7.5%
TEA Distribution	2021	2022
Motivation		
TEA – to make a difference in the world	43%	39%
TEA – to build great wealth or very high income	38%	39%
TEA – to continue a family tradition	19%	21%
TEA – to earn a living because jobs are scarce	72%	71%
Sector		
TEA of the extractive or primary sector	3%	2%
TEA of the transforming sector	18%	13%
TEA of the business-oriented services	34%	38%
TEA of the consumer-oriented sector	44%	46%
Rural TEA	5%	5%
Size		
TEA with no employees	44%	42%
TEA of 1-5 employees	44%	48%
TEA of 6-19 employees	8%	8%
TEA with 20 or more employees	5%	3%

Technological level

TEA initiatives with low technological level

90%

90%

TEA initiatives with medium technological level

5%

5%

TEA initiatives with high technological level

5%

5%

Internationalization

TEA initiatives that export to some degree

30%

27%

Innovation

TEA product innovation

28%

27%

TEA process innovation

29%

26%

Growth

TEA initiatives with significant expansion expectations in the short term

13%

12%

Disability

TEA more than 33% disability

3%

4%

TEA less than 33% disability

11%

11%

Foreign TEA

10%

12%

EEA: Percentage of the Spanish population aged 18-64 involved in (intra) entrepreneurial initiatives

2021

2022

Population that has developed/led (intra)entrepreneurial initiatives in the last 3 years

2%

6%

Population currently developing and leading (intra)entrepreneurial initiatives

2%

2%

Experts' assessment of the conditions of the Spanish entrepreneurial ecosystem (Likert scale 1-10)

2021

2022

Existence of and access to physical and service infrastructure

6.8

6.4

Existence of and access to business and professional infrastructure

6.7

5.2

Post-school entrepreneurial education and training

6.1

5.1

Adequate government programs supporting entrepreneurship

6.3

4.2

Dynamic internal market

5.0

4.2

Easy access to funding for start-ups

4.8

3.9

Sufficient funding for entrepreneurs

4.9

3.8

R&D transfer

5.6

3.4

Social and cultural norms supporting entrepreneurship

5.2

3.3

Government policies that reduce bureaucracy and taxes on start-ups

5.1

3.3

Government policies that prioritize entrepreneurship

5.4

2.9

Entrepreneurial education and training at school

3.5

2.8

Recovery from the consequences of COVID-19

5.3

Perception of the social responsibility of new and growing enterprises

4.8

Perception of the economic performance of new and growing sustainable enterprises

4.4

Perception of the priority of environmental sustainability practices in new and growing enterprises

5.5

Perception of cultural support for sustainability practices in new and growing enterprises

5.3

Perception of the level of national government and regulatory priority for sustainability practices in new and growing enterprises

4.7

NECI (National Entrepreneurial Context Index)

5.4

4.0

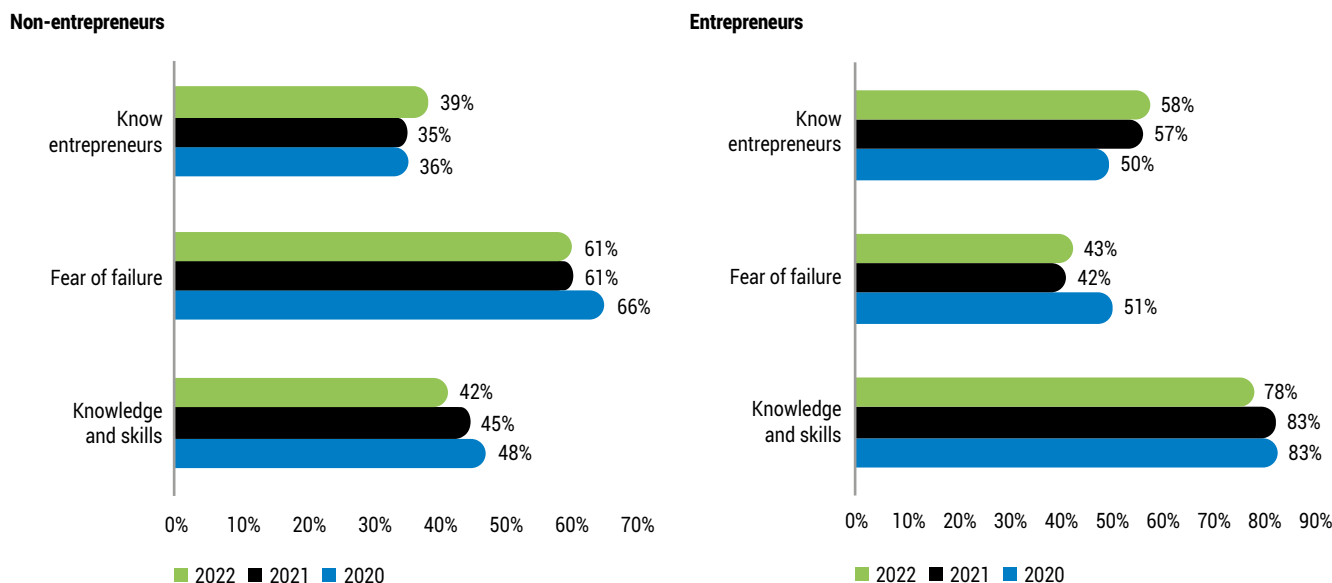
CHAPTER 1

Entrepreneurial context

1.1. What does the population perceive?

Figure 3. Perception of values and attitudes toward entrepreneurship

Source: GEM-Spain APS 2020-2022



In 2022, eight out of ten entrepreneurs believe they have the knowledge and skills to do so. More than half know people who are entrepreneurs, which can help when it comes to building alliances or learning from other experiences. The return to normality after the health crisis reduced the fear of failure in 2021, but this was not maintained in 2022. However, despite maintaining a conservative profile compared to other countries, entrepreneurs in Spain continue to stand out from the rest of the adult population because more of them consider themselves capable of doing so, have networks of contacts with entrepreneurs and are less afraid of failure.



Aitalas y Lago Sahechores



Names of entrepreneurs: Paula and Marcos Fernández Hernández.

Business name: Aitalas and Lago Sahechores (www.quesosabueloaitalas.es and www.lagosahechores.es).

Business location: Sahechores de Rueda (León).

Launch year: 2021 (restaurant, campsite and lake activities) and 2010 (artisan cheese dairy).

A brief description of what the company does: Our family has always had sheep and been involved in livestock farming and agriculture.

There were some years when the price of milk plummeted and we felt we had to look for an alternative. To process the raw material we had into an end product at a price we could set.

Ten years later, my brother and I decided to move back to our village with the hopes of creating a tourist destination from scratch. Our village had many resources and values to be exploited and that is how the idea of linking tourism, gastronomy and artisan products in our project came about.

What does being an entrepreneur mean to you?

Having the power to create something from scratch. Being able to create an experience or a product that makes other people happy.

It means contributing to the growth of my environment, providing employment, establishing a population and attracting wealth and opportunities for everyone. Other values that I have developed and which I consider essential are knowing how to listen and being empathetic, knowing that you have a responsibility to do well and thinking about others, both customers and colleagues.

How did the idea arise?

It arose out of a bit of stubbornness. We were tired of hearing that in the rest of Europe, villages had developed great tourist potential. And we said we were going to fight against the negative argument that nothing is being done here and villages are dying. We have a cheese factory, we have artisan products in the area, we have a lake, and we have beautiful surroundings. We are going to create that destination, and we are going to give them a motive to come to Sahechores.

We also said that if we don't do it, nobody is going to do it for us, and our dream is to see our village grow and have a life with options to continue to stay.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

Yes, I have always believed that the future of villages is to make the most of the advantages that their resources offer such as the transformation of raw materials into artisanal and quality foodstuffs, active or rural tourism, etc.

How is the current economic situation affecting your business, and what measures are you taking?

We are noticing that the average bill per diner is increasing a lot and we are trying to find menu options that are affordable for everyone.

Although in 2021, 41% of entrepreneurs perceived opportunities to do so, in 2022, pessimism returns, and this percentage falls to 33%. However, the perception of opportunities continues to differentiate entrepreneurs from the rest of the adult population. While in 2022, one in three entrepreneurs perceives opportunities for entrepreneurship, this proportion falls to one in four among the non-entrepreneurial population.

Figure 4. Perception of entrepreneurial opportunities

Source: GEM-Spain APS 2020-2022

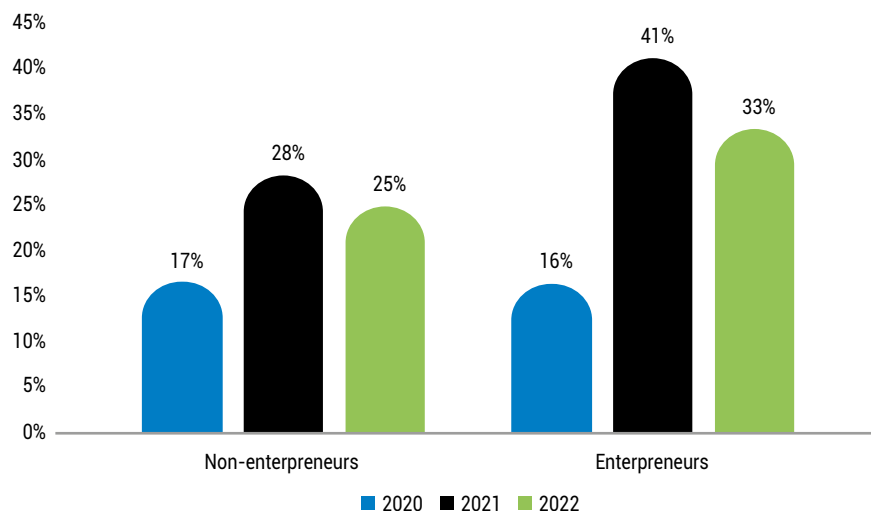
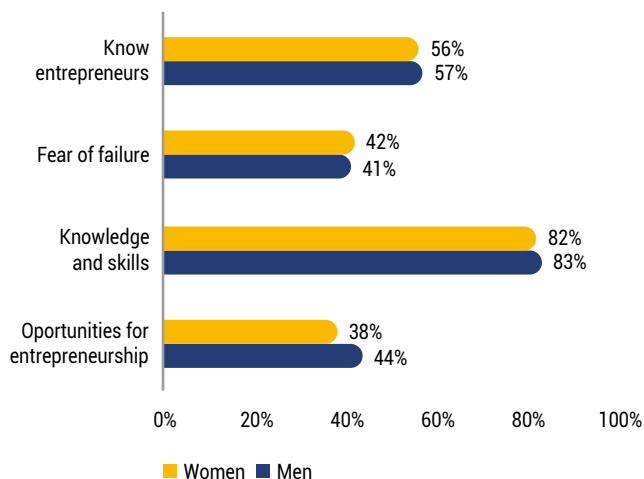


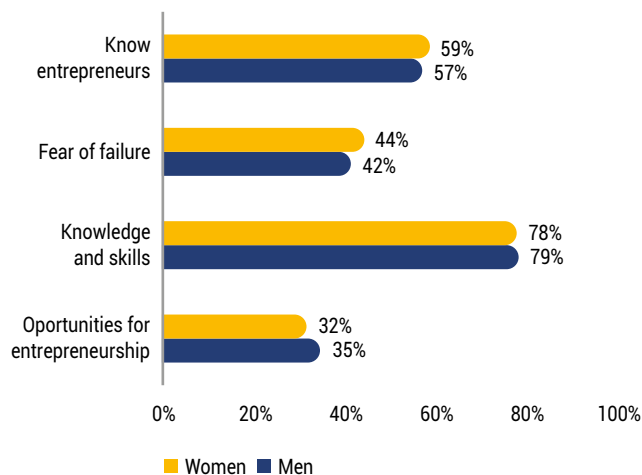
Figure 5. Perception of entrepreneurial values and attitudes by gender

Source: GEM-Spain APS 2021-2022

2021



2022



The evolution of perceptions of values and attitudes towards entrepreneurship between 2021 and 2022 is similar for women and men in each group, with a significant decrease in the perception of opportunities for men. In 2022, 44% of female entrepreneurs perceive fear of failure as an obstacle to entrepreneurship, compared to 42% of men, and only 32% of female start-ups think that there are opportunities for entrepreneurship in the coming months, compared to 35% of men. This means that 65% of men and 68% of women involved in the entrepreneurial process do so without perceiving clear business opportunities.



1.2. Are there differences between countries and regions in attitudes and perceptions of entrepreneurship?

Spain is diverse, and this is reflected in attitudes and assessments of entrepreneurship. During 2022, in Andalusia, the Balearic Islands and the Canary Islands, a higher percentage than the Spanish average perceives opportunities for entrepreneurship, considers that they have the knowledge and skills to do so, has reference models and considers that it is easy to start a business. However, there are also many people who do not start a business out of fear of failure. In contrast, Asturias and Castile and Leon have the lowest percentages of adults in Spain who consider that there are business opportunities, that entrepreneurship is a good career option or that there are frequent news items about successful entrepreneurs. The images below show the cultural diversity of this country, with a single common denominator: a high fear of failure when it comes to entrepreneurship.

Figure 6. Positioning of attitudes and values for entrepreneurship of the adult population by Autonomous Community
Source: GEM-Spain APS 2022

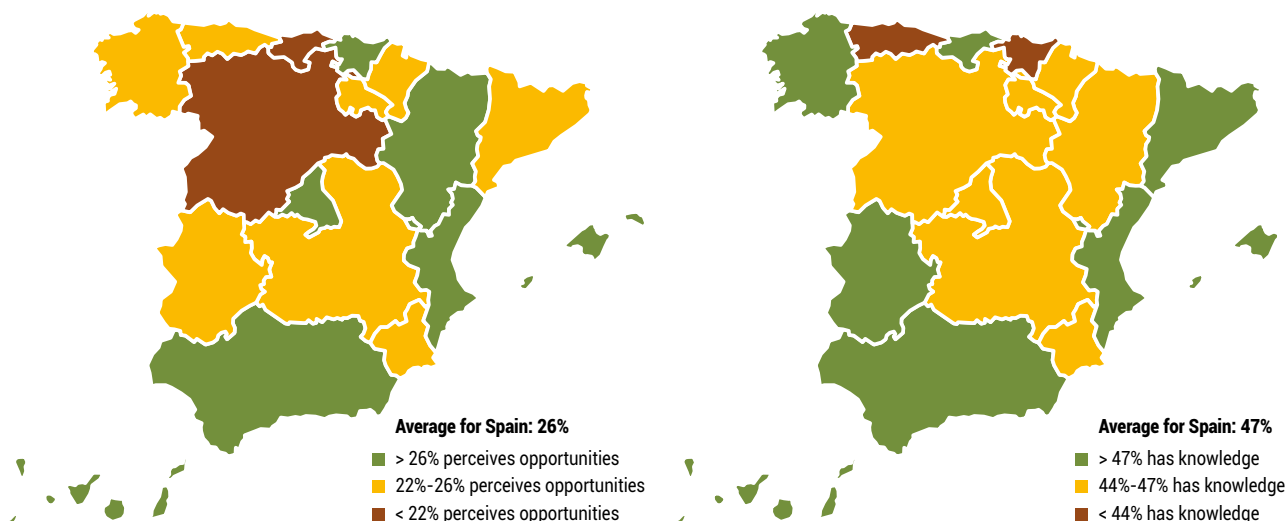


Figure 6. Positioning of attitudes and values for entrepreneurship of the adult population by Autonomous Community (cont.)

Source: GEM-Spain APS 2022

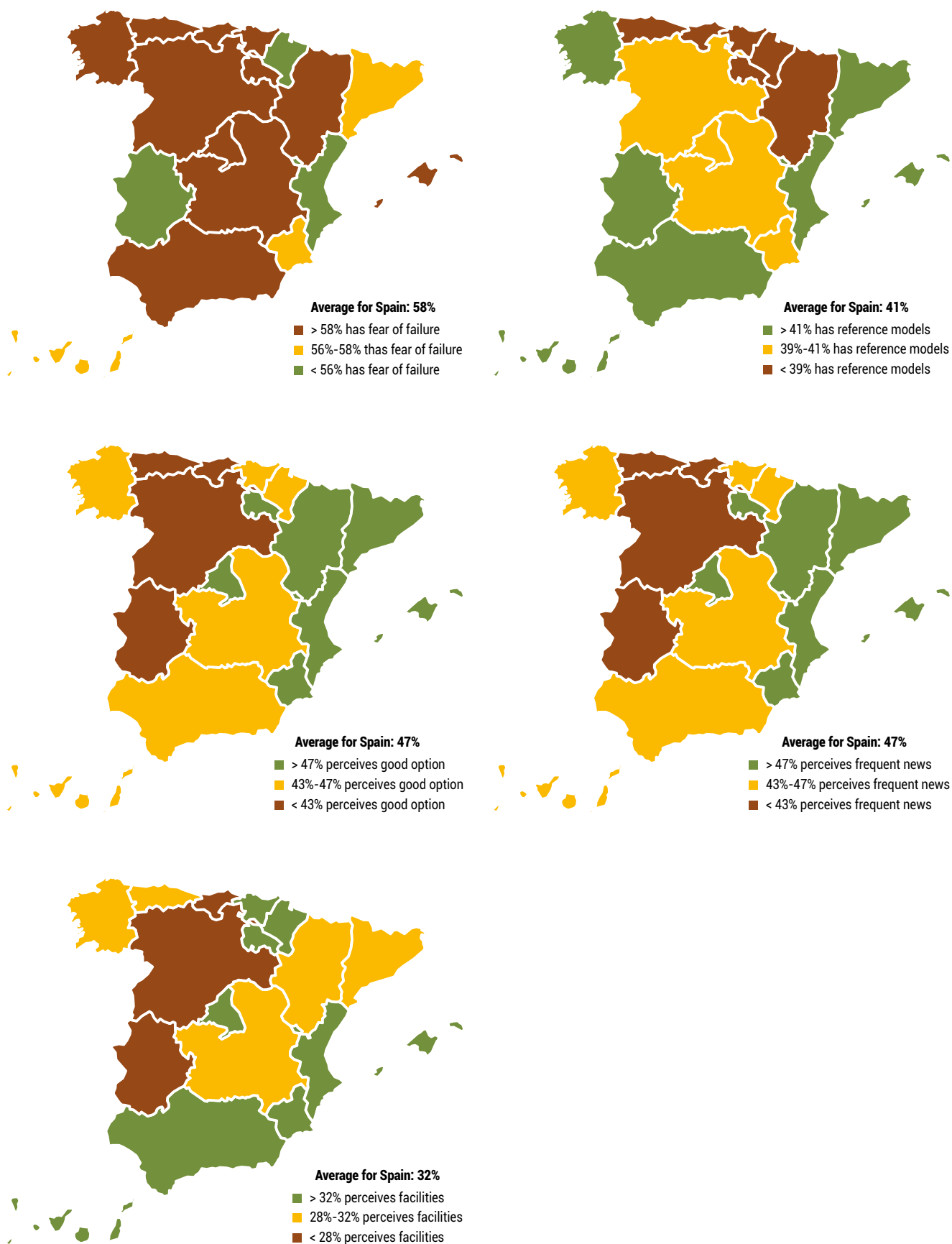
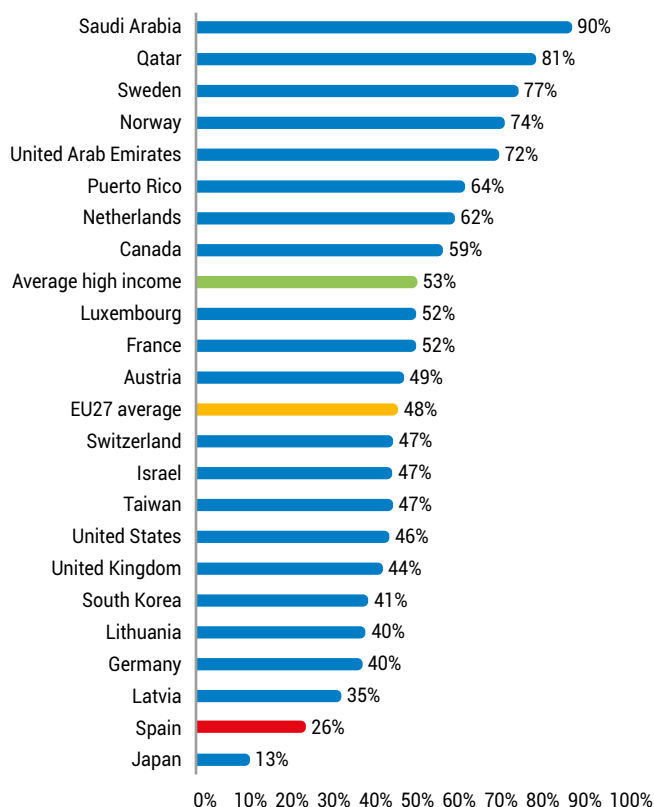


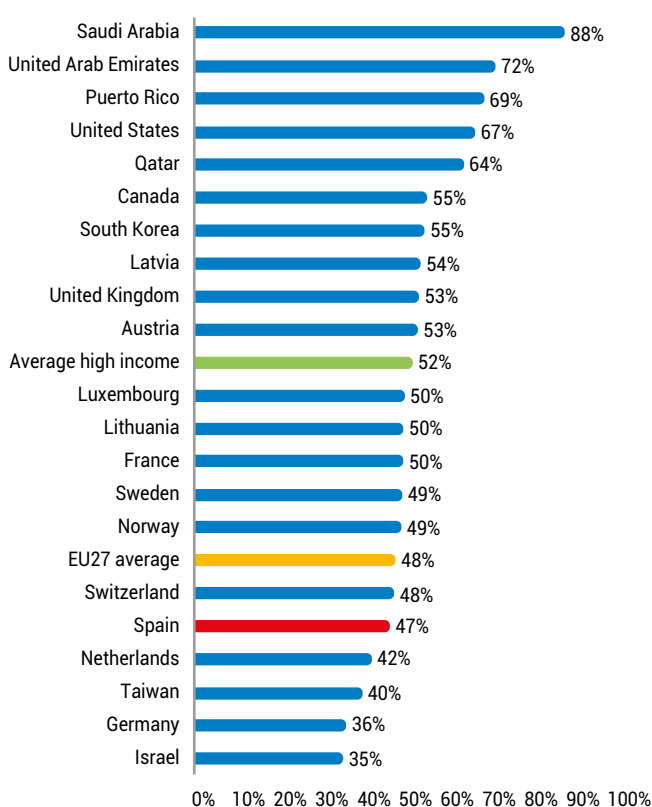
Figure 7. International positioning of attitudes and values for entrepreneurship in the adult population

Source: GEM-Spain APS 2022

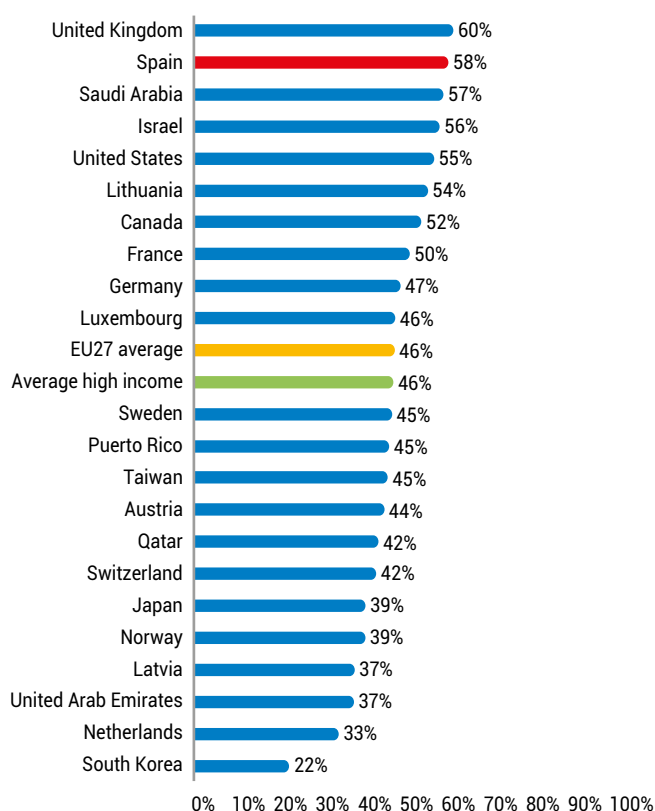
Relative perception of opportunities for entrepreneurship



Knowledge and skills to start a business



Fear of failure as an obstacle to entrepreneurship



Reference models for entrepreneurship

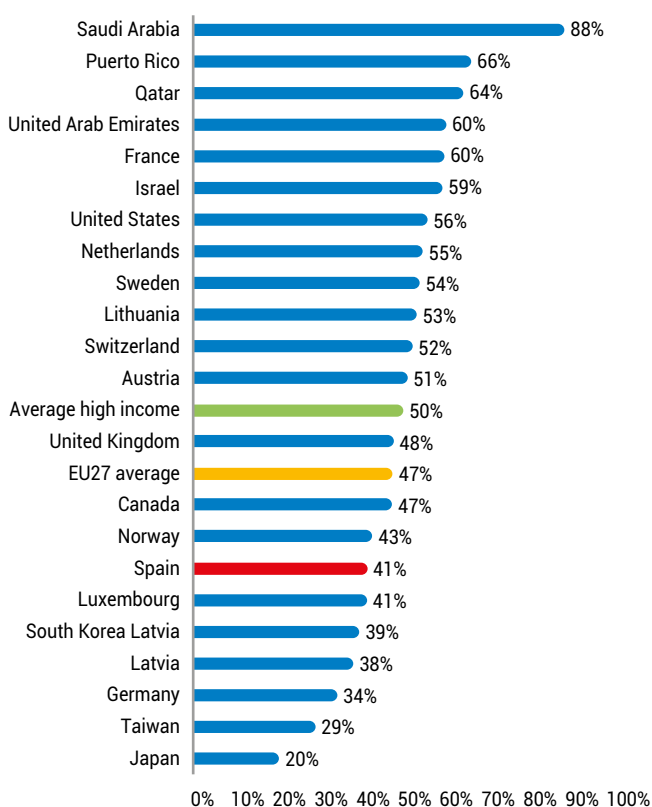
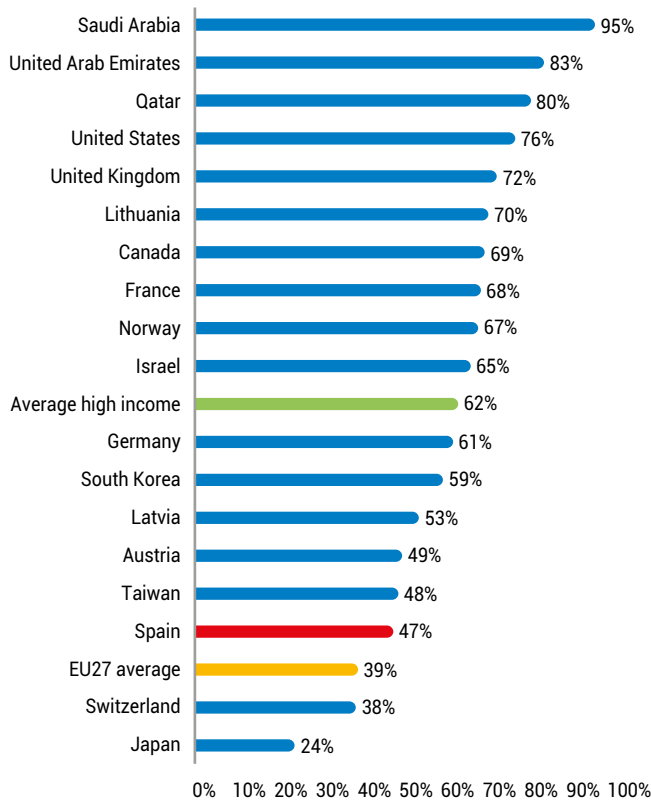


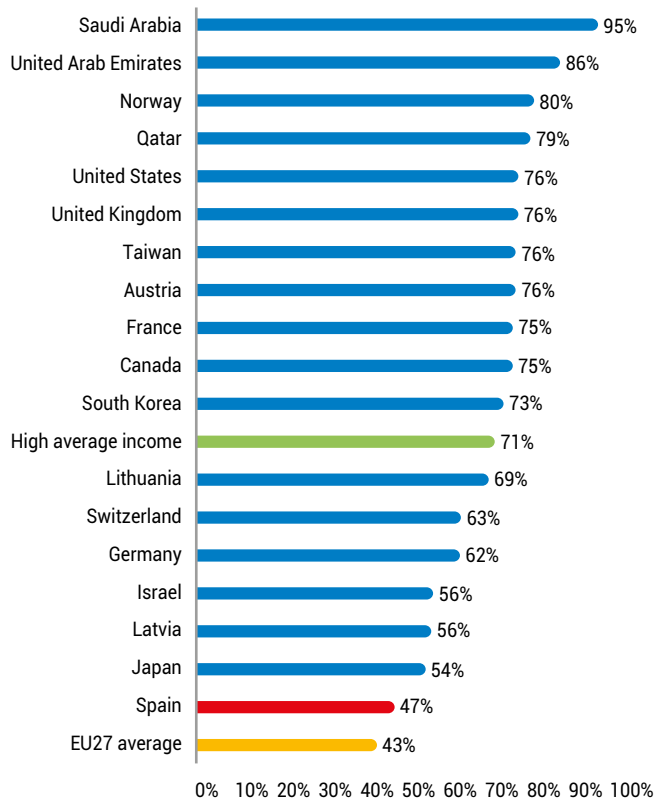
Figure 8. International positioning of attitudes and values for entrepreneurship in the adult population

Source: GEM-Spain APS 2022

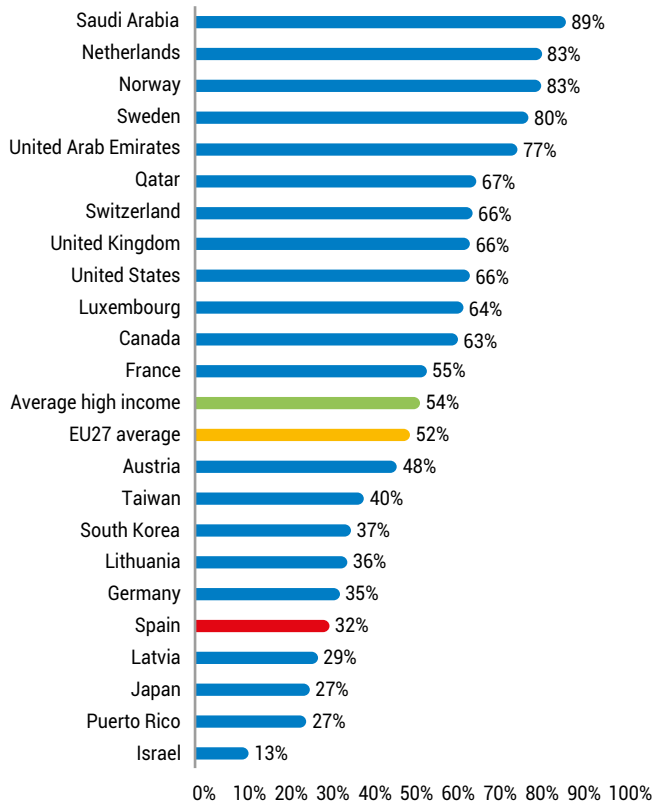
Entrepreneurship as a good career option



News about successful entrepreneurs



Ease to start a business



In relation to its benchmark countries (countries with a GDP above \$40,000), Spain ranks at the bottom of its group in terms of perception of opportunities for entrepreneurship and dissemination of news about successful entrepreneurs, while it is at the top in terms of fear of failure, something recurrent in previous years. It neither stands out in this group for the perception of having the knowledge and skills for entrepreneurship, a network of contacts with other entrepreneurs nor the consideration that entrepreneurship can be a good professional option with facilities for starting a business. However, we cannot forget that these perceptions may not correspond to the real conditions of the environment, as reflected in the cases of Israel, Germany or the United Kingdom. However, real or not, attitudes and perceptions determine individuals' behavior throughout the entrepreneurial process, and are difficult to change in the short term.



Ubyko Connectivity s.l.



Names of entrepreneurs: Asier Fraile, Jose Manuel Ripa, Diego Zúñiga, Hugo Fernández and Alejandro Navarro.

Business name: Ubyko Connectivity s.l. (<https://www.ubyko.com>).

Business location: Bilbao.

Launch year: 2020.

A brief description of what the company does: We are a company specializing in robotics and last mile automation. We have developed the first nano warehouse connected to an ATM for small commercial premises in the city center. A tool for a more sustainable smartcity by enabling more efficient logistics in the movement of goods while improving the pick-up and shopping service for citizens.

What does being an entrepreneur mean to you?

Contributing value to the progress of society and, on a personal level, venturing to build an idea that is based on values and a vision of the world and being able to share it with a team will be the necessary

leverage to exert the enormous force needed to survive and grow. Start-ups are like Rudyard Kipling's Mowgli. They are vulnerable in a jungle where you have to win over nature, which is the context and market in which you have to develop.

How did the idea arise?

When I was withdrawing money from a cash machine, I thought, what if it were that easy to withdraw money online, or if I could leave something in the cash machine for someone else to pick it up when it was convenient for them. Over time, as we developed the idea, we saw how, in European urban planning, there is a lot of wasted space within the city in empty retail premises and that this could be the key to solving the logistical problems faced by cities. We saw that the key lies more in logistics, which serves on the movement of goods and that by taking advantage of AI, it allows products to be stored close to the consumer even before the moment of purchase. This allows for logistics like in the past, when products were brought in groups to grocery stores and distributed from there.

It is essential not only to decarbonize UGD (urban goods distribution) vehicles, but also to reduce the number of these vehicles. This can only be achieved with AI and small urban warehouses of less than 100 m2. We are developing automated warehouses because it is the best way to optimize space and be able to have them open 24/7 to take advantage of night-time logistics and provide service to users at any time.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

Last year saw artificial intelligence emerge, which will gradually expand to different sectors, and logistics will be one of them. This will help the transformation of the last mile and we expect to be relevant with our technology.

How is the current economic situation affecting your business, and what measures are you taking?

In times of crisis, we are all affected by increased risk aversion, especially in our sector. Fortunately, the Innovation and Technology for Development Center has supported our R&D through its Neotec vehicle, which gives us a sense of security during the storm.

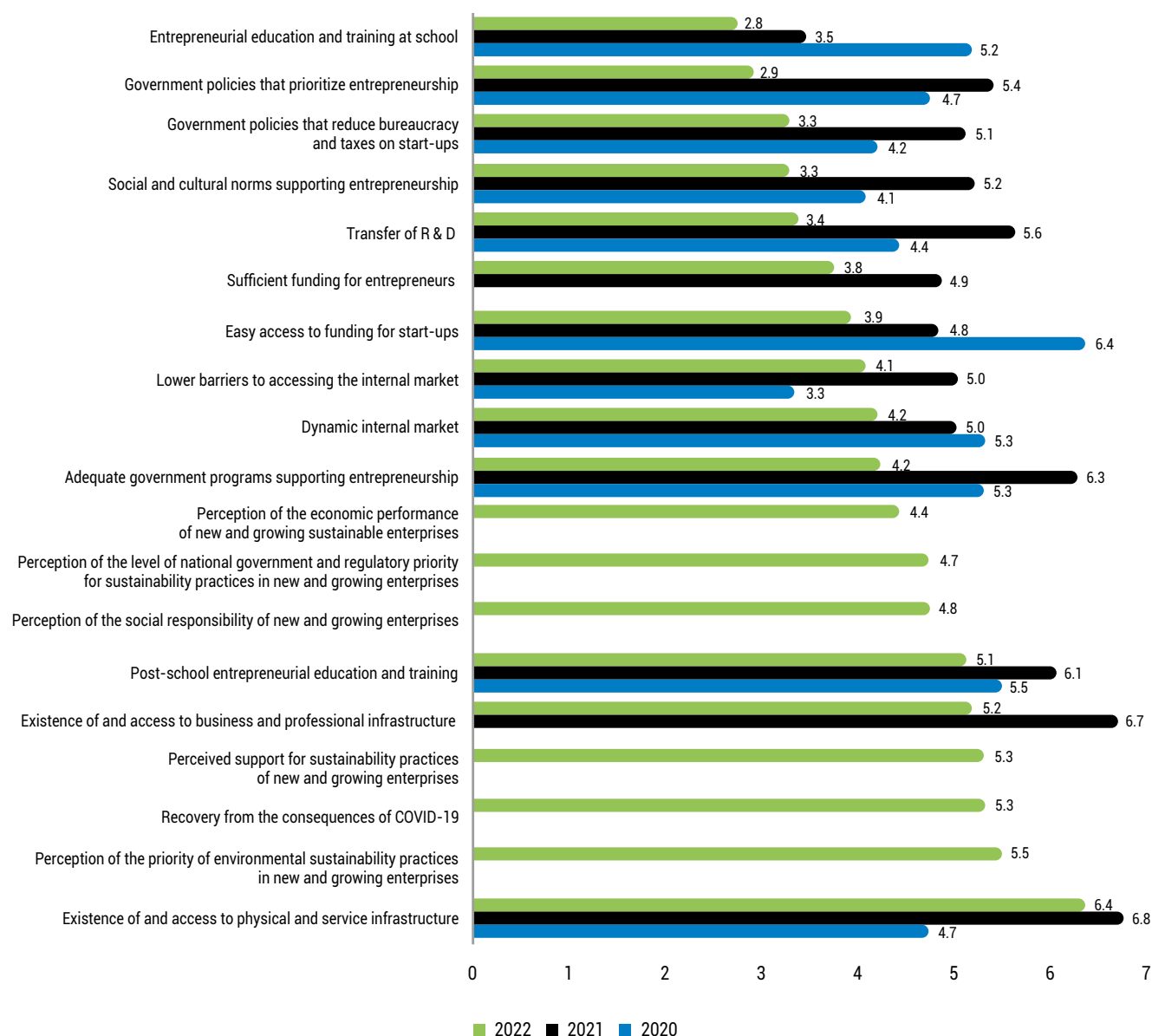
Something you would like to add

Entrepreneurship has shown us more than ever how much more needs to be done to bring our ecosystem closer to that of other countries.

1.3. What do experts perceive?

Figure 9. Evolution of the average assessment of the conditions of the entrepreneurial environment

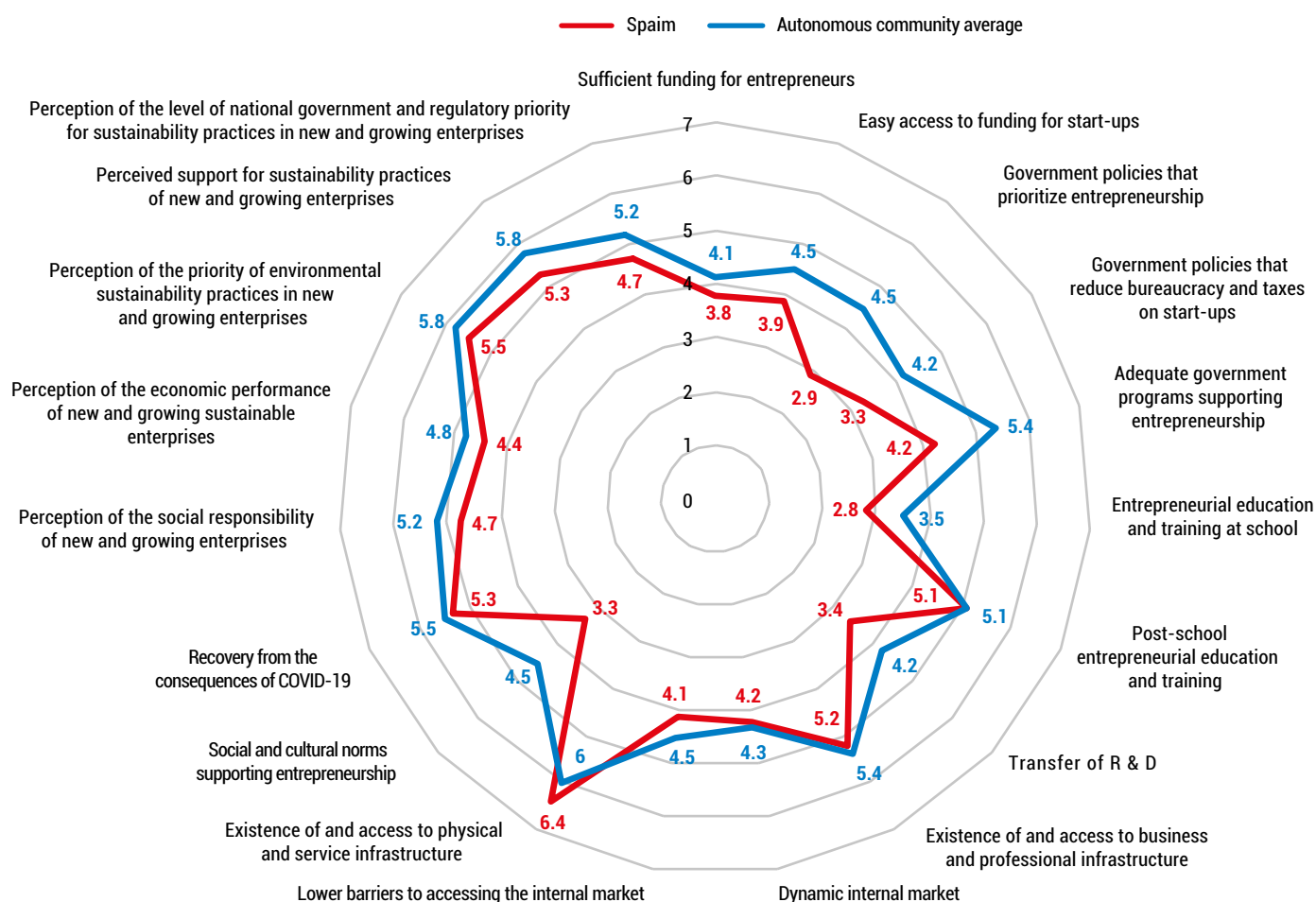
Source: GEM-Spain NES 2020-2022



In the last three years, the assessment made by experts on a 1 to 10 Likert scale (10 being the highest rating) of a list of conditions of the entrepreneurial environment reflects worse perceptions in the year 2022 for all conditions. The worst-rated aspects are entrepreneurial education at school as well as the existence of government programs supporting entrepreneurship and policies that reduce bureaucracy and taxes on start-ups. Neither is there any improvement in the promotion of social and cultural norms to support entrepreneurship, nor in the transfer of R&D between universities and businesses, nor in the existence of sufficient funding accessible to entrepreneurs. We expect the entry into force of the new legal framework to support entrepreneurial activity to improve this perception in the coming years.

Figure 10. Comparison of perceptions of the conditions for entrepreneurship. Spain versus Autonomous Communities

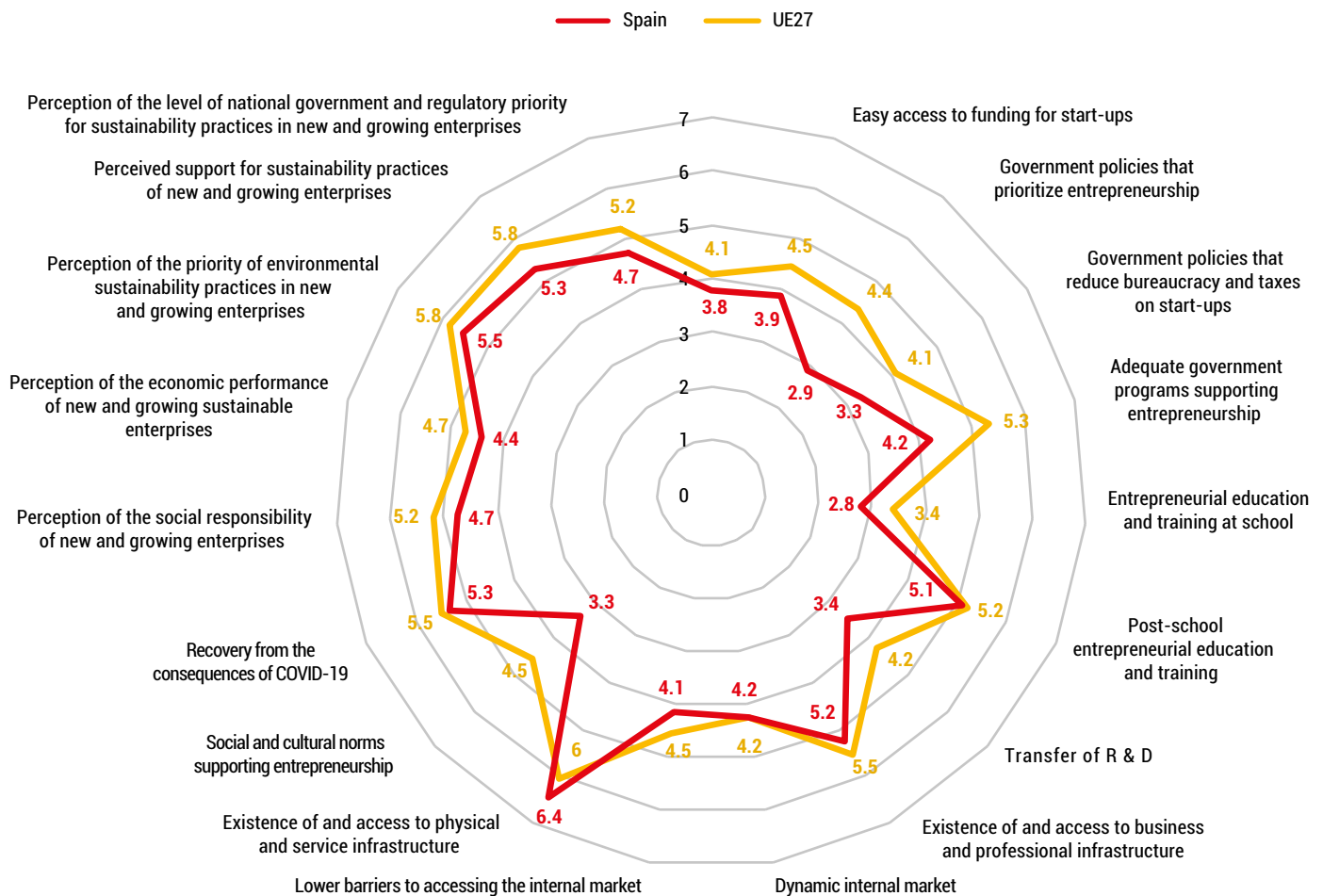
Source: GEM-Spain NES 2022



In 2022, the experts on the national panel rated the conditions of the environment for entrepreneurship worse than the average of experts on the 17 regional panels, except for the existence of and access to physical and service infrastructures. The fact that the environmental conditions are managed at a more local level seems to favor programs and measures that are perceived as more effective in stimulating entrepreneurial behavior in each Autonomous Community.

Figure 11. Comparison of perceptions of the conditions for entrepreneurship. Spain versus EU27

Source: GEM-Spain NES 2022



The comparison of the national panel experts with the average assessment of the European Union countries' experts reflects a similar situation to that identified in the comparison with the panels of the Autonomous Communities. The national experts rate the existence of and access to physical and service infrastructures, as well as entrepreneurial education as the most favorable conditions for entrepreneurship in Spain, somewhat higher than their European counterparts. However, their assessment of the rest of the environmental conditions for entrepreneurship is lower than the average of the European experts.

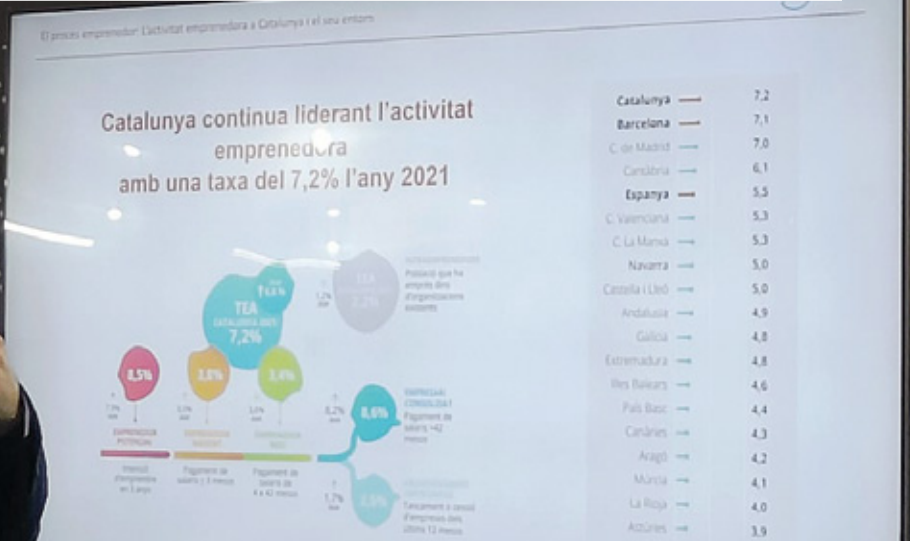
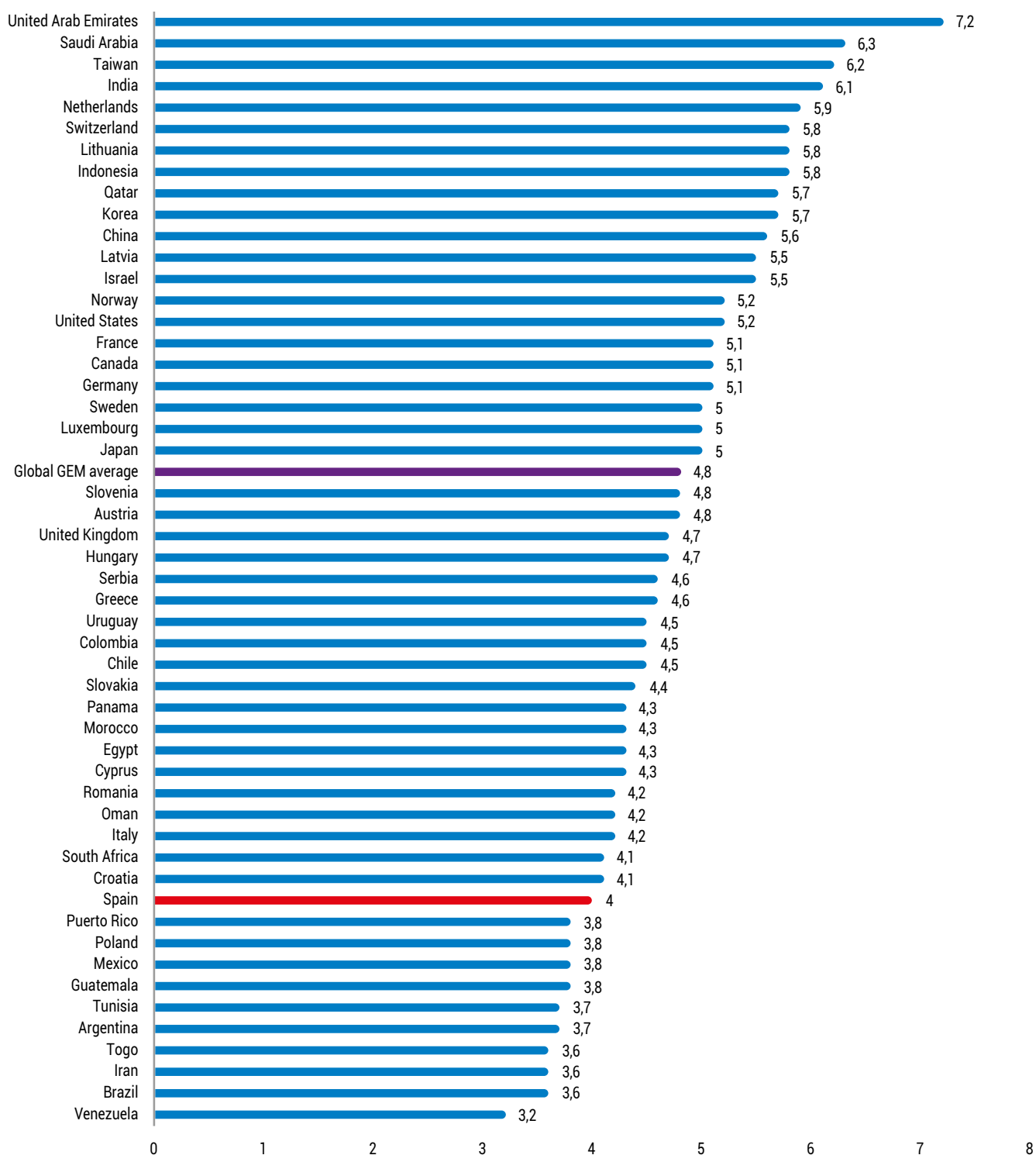


Figure 12. National Entrepreneurship Context Index (NECI)

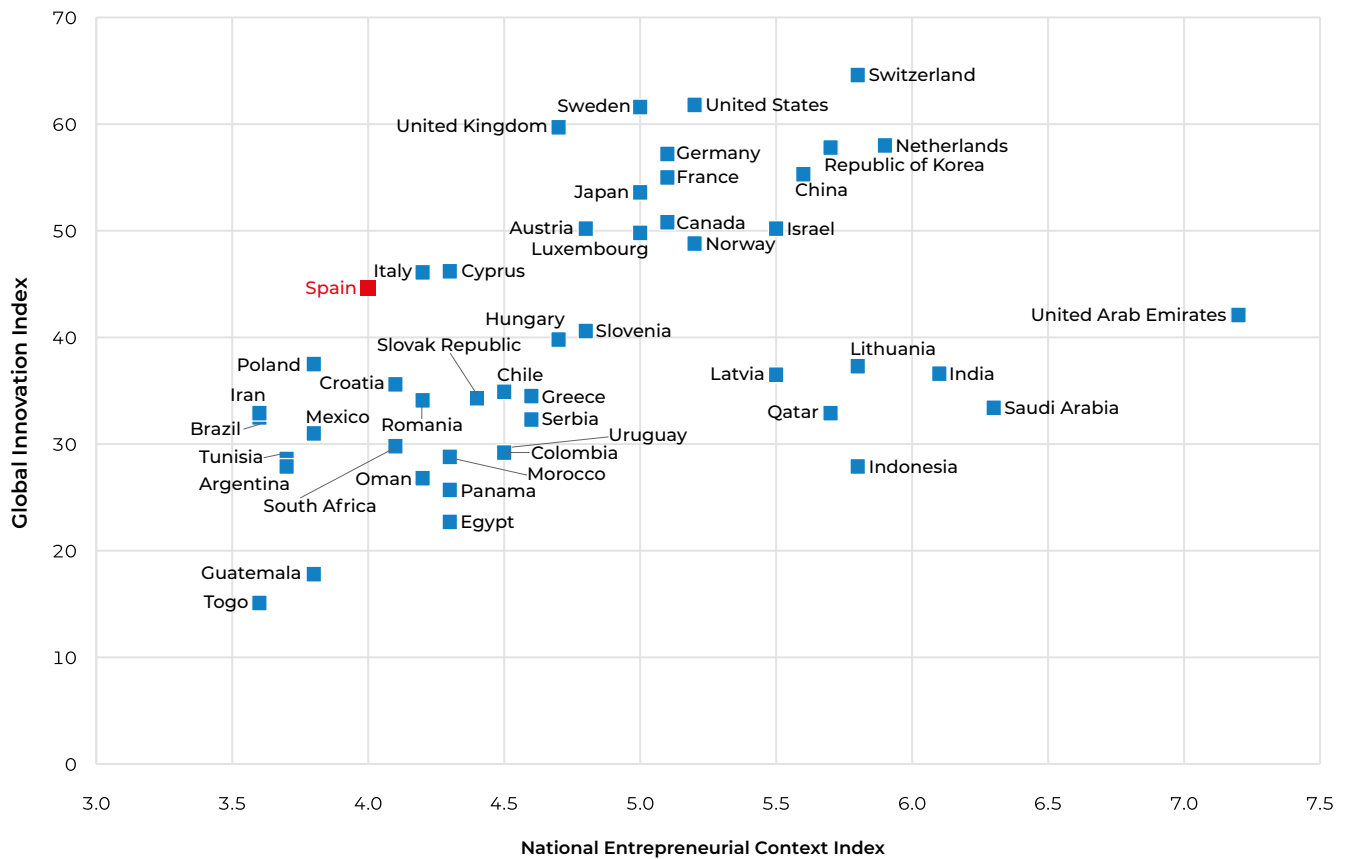
Source: GEM-Spain NES 2022



The experts rank Spain in the bottom quartile of countries in relation to the NECI (National Entrepreneurship Context Index), which evaluates the quality of the entrepreneurial environment. This represents a setback in relation to the year 2021, and distances us from our European benchmark countries.

Figure 13. National positioning in relation to the NECI and Global Innovation Index (GII)

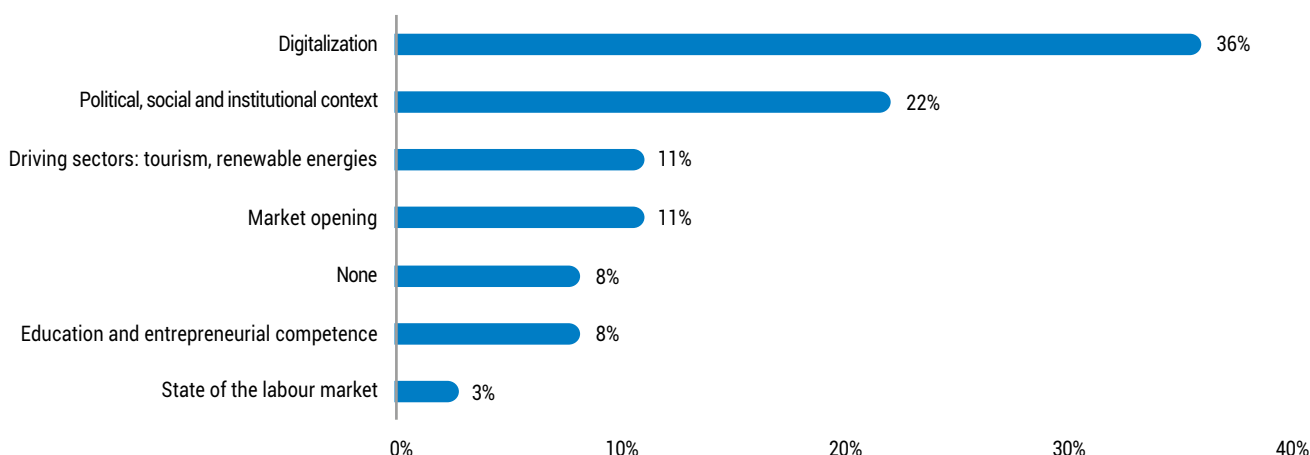
Source: GEM-Global Report 2022



This positioning map relates to the NECI and Global Innovation Index (GII). The latter was developed by the World Intellectual Property Office in 2007, which is calculated as the average of two sub-indices, one designed to measure innovation inputs, such as institutions, human capital and knowledge workers, and the other one to measure innovation outputs, such as scientific research and creative products and services. Spain is positioned in the quadrant of countries with the worst environmental conditions for entrepreneurship, but with an average level of innovation, a position similar to that of Italy, but still far behind other benchmark countries such as Sweden, Norway or the United Kingdom.

Figure 14. Entrepreneurship drivers according to experts

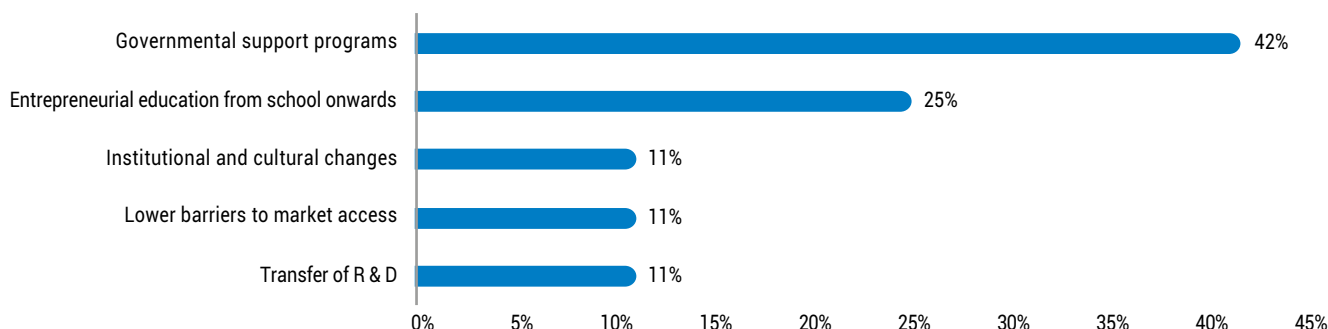
Source: GEM-Spain NES 2022



36% of the experts consulted identified digitalization as one of the key factors in boosting entrepreneurship in Spain. About 22% mentioned the political, social and institutional context as a differentiating element, stressing the need to speed up the administrative processes for incorporating and granting business licenses, effective support from institutions and greater social acceptance of entrepreneurship as a desirable professional option. The experts also identify two driving sectors for entrepreneurship, tourism and the renewable energy sector. Finally, they also highlight the need to promote greater market openness by reducing entry costs and making the labor market more flexible.

Figure 15. Experts' recommendations to improve the entrepreneurial context

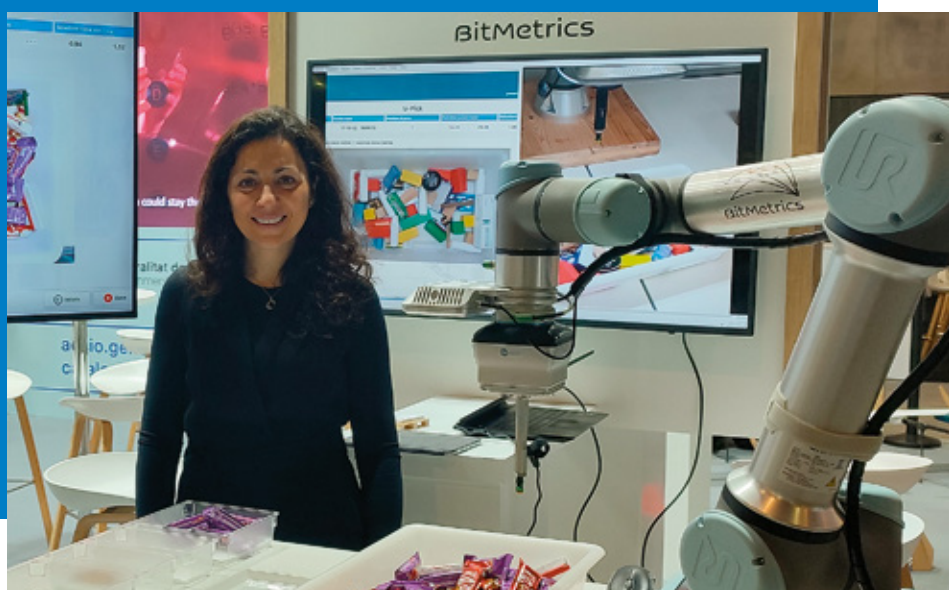
Source: GEM-Spain NES 2022



Experts' recommendations focus on a better definition of government programs that reduce the cost of entrepreneurship and on greater dissemination of entrepreneurial education from the school stage onwards. They also recommend not neglecting more far-reaching measures, such as stimulating institutional and cultural changes that promote entrepreneurship, lowering barriers to market access and mechanisms that allow for greater transfer of R&D from universities to start-ups.



BitMetrics



Names of entrepreneur: Mar Masulli.

Business name: BitMetrics (<http://www.bitmetrics.es/>).

Business location: Barcelona.

Launch year: 2017.

A brief description of what the company does: BitMetrics is a start-up expert in vision-based process automation through the integration of three technologies (Artificial Intelligence, Computer Vision and Robotics). With a strong R&D component, BitMetrics offers products that aim to democratize access to flexible and intelligent automation for companies of any size with a hardware agnostic value proposition.

What does being an entrepreneur mean to you?

Being an entrepreneur means being a resil-

ient person, with a great capability for effort and with an eye on the final goal to remain firm and focused, overcoming the challenges that arise. And most importantly, being an entrepreneur means enjoying the experience along the way.

How did the idea arise?

In our case, it arose from the complementarity of the founding partners, David Picado (CTO) and me. It was clear to us that we could bring differential value to the market and that it was time to offer solutions based on artificial intelligence.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

Our sector is at a turning point globally. In particular, there is an increasing interest in vision-guided robotic systems that enable the advancement of aspects such as autonomous navigation (both at the level of mobile platforms and drones), the proliferation of service robotics applications and, specifically in our case, providing robots with the ability to adapt in real time to changes that occur in the context in which they are operating based on visual inputs through AI.

How is the current economic situation affecting your business, and what measures are you taking?

BitMetrics is a start-up that has had to face different types of crises since its inception (political, pandemic, semiconductor crisis, etc.), so adapting and being flexible are two key attributes to be able to move forward. The measures we take are to be constantly on the lookout for technology and possibilities in order to make the most of them, while at the same time detecting threats that condition our survival as a company.

CHAPTER 2

The entrepreneurial process

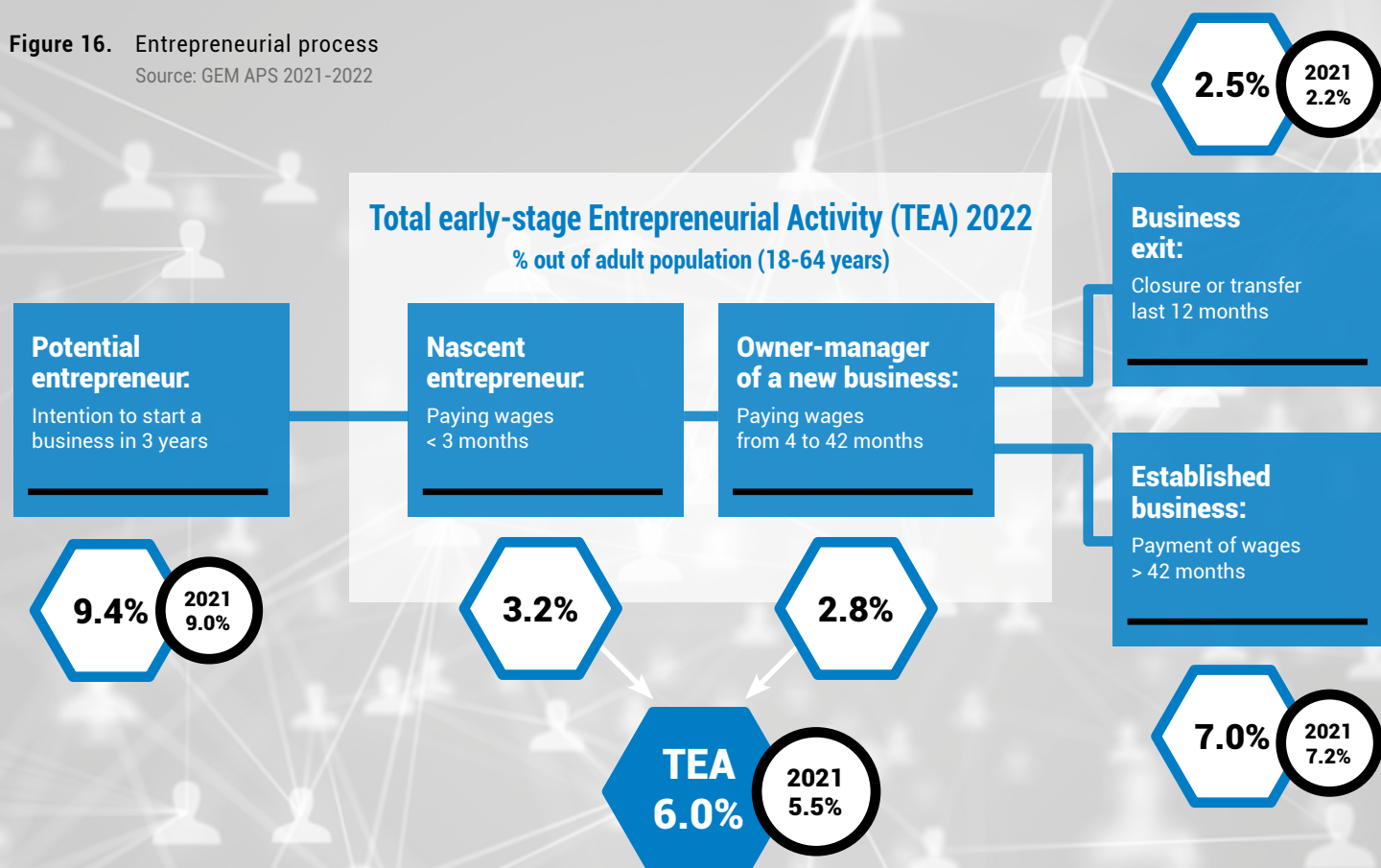
2.1. Entrepreneurial process indicators

Entrepreneurship is a process in which several stages are identified. Potential entrepreneurs are people with the intention to become entrepreneurs in the next three years. When the intention turns into actual entrepreneurial activity, entrepreneurs move from potential to nascent (have paid wages for three months or less) and new (have paid wages between 4 and 42 months). After three and a half years (42 months), entrepreneurial initiatives are considered to be established enterprises. The Global

Entrepreneurship Monitor (GEM) project calculates annually the percentage of the population involved in each of the phases of this process. The total entrepreneurial activity rate, known as Total early-stage Entrepreneurial Activity (TEA), which is the main GEM indicator, reflects the percentage of the adult population involved in the central phase of the entrepreneurial process (nascent and new entrepreneurship), where early-stage entrepreneurial initiatives are located.

Figure 16. Entrepreneurial process

Source: GEM APS 2021-2022





During 2022, potential and early-stage entrepreneurship continues to grow gradually, leaving behind the doubts generated during the period of uncertainty experienced in 2020 and 2021. 9.4% of the Spanish population is thinking of becoming an entrepreneur, and 6 out of every 100 individuals are starting up a new business. In the consolidation phase of the entrepreneurial process, the percentage of the population involved in established entrepreneurial initiatives (7%) is barely reduced with respect to 2021 (7.2%),

although business exit (2.5%) increased slightly with respect to the previous year (2.2%). This general perspective shows a healthy entrepreneurial process in which an increasing number of people with entrepreneurial intentions are becoming real entrepreneurs although the actual environment in which they carry out this activity to some extent eliminates those entrepreneurs that are less solvent. They are forced to abandon, and eventually the percentage of companies that become established over time is corrected.

Figure 17. Potential entrepreneurship, TEA and established business based on gender
Source: GEM APS 2021-2022

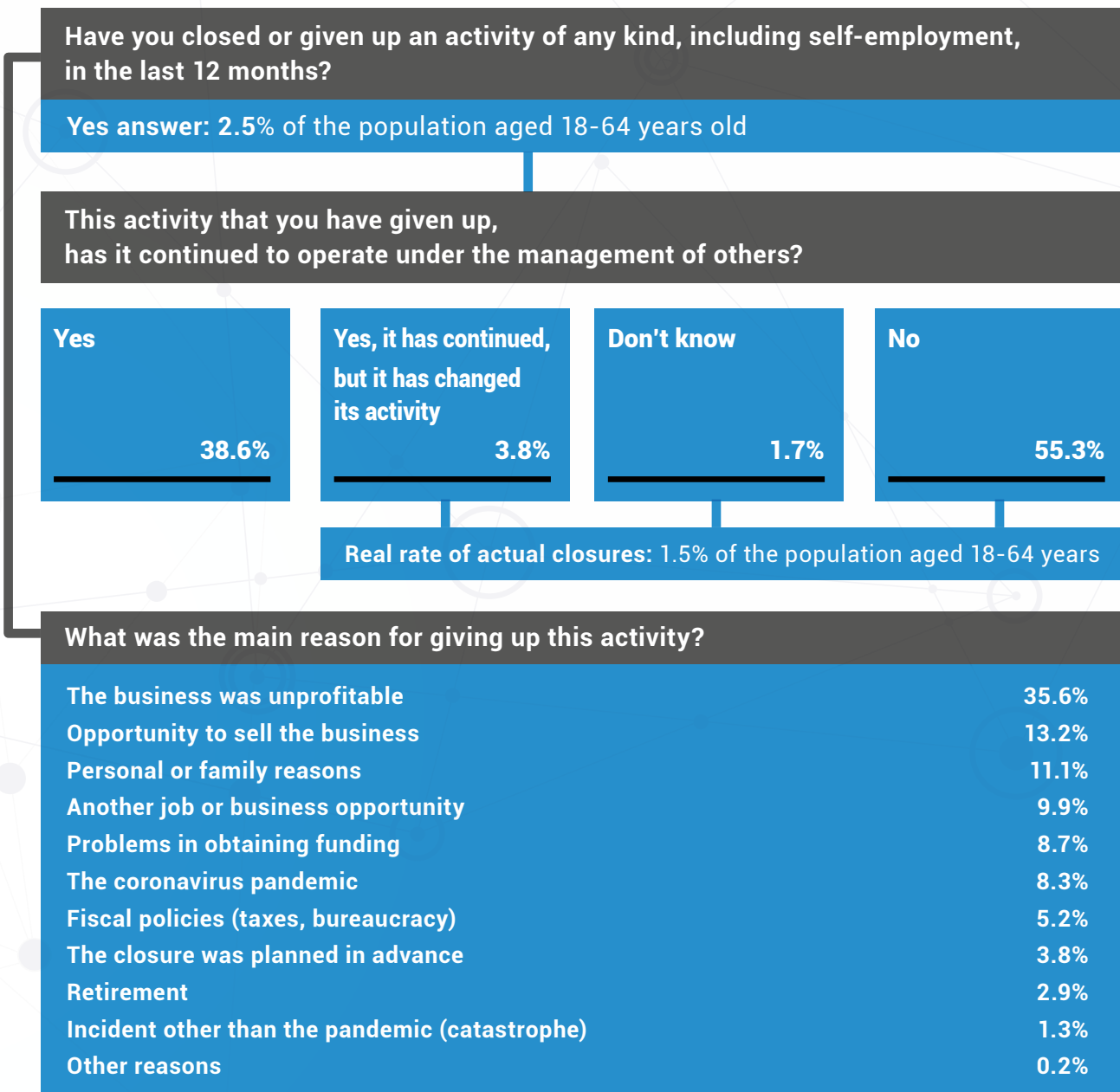
						
	Potential entrepreneur	TEA	Established business	Potential entrepreneur	TEA	Established business
2021	8.1%	5.6%	6.0%	9.9%	5.4%	8.3%
2022	8.8%	5.9%	6.5%	9.9%	6.0%	7.5%

In 2022, the percentage of women increases in all stages of the entrepreneurial process (potential entrepreneurship, TEA, established business). Particularly relevant is the increase of five tenths (from 6% to 6.5%) in the percentage of women who consolidate in the entrepreneurial process. However, although men maintain their entrepreneurial intention and increase their early-stage activity with respect to the previ-

ous year (from 5.4% to 6.0%), they reduce their participation in the consolidation phase of the initiatives (from 8.3% to 7.5%). Although the percentage of men in charge of established business remains higher than that of women (7.5% compared to 6.5%), there is a greater resilience of women to remain in the consolidation phase of the entrepreneurial process in 2022 compared to the previous year.

Figure 18. Entrepreneurial activity exit in Spain in 2022

Source: GEM APS 2022

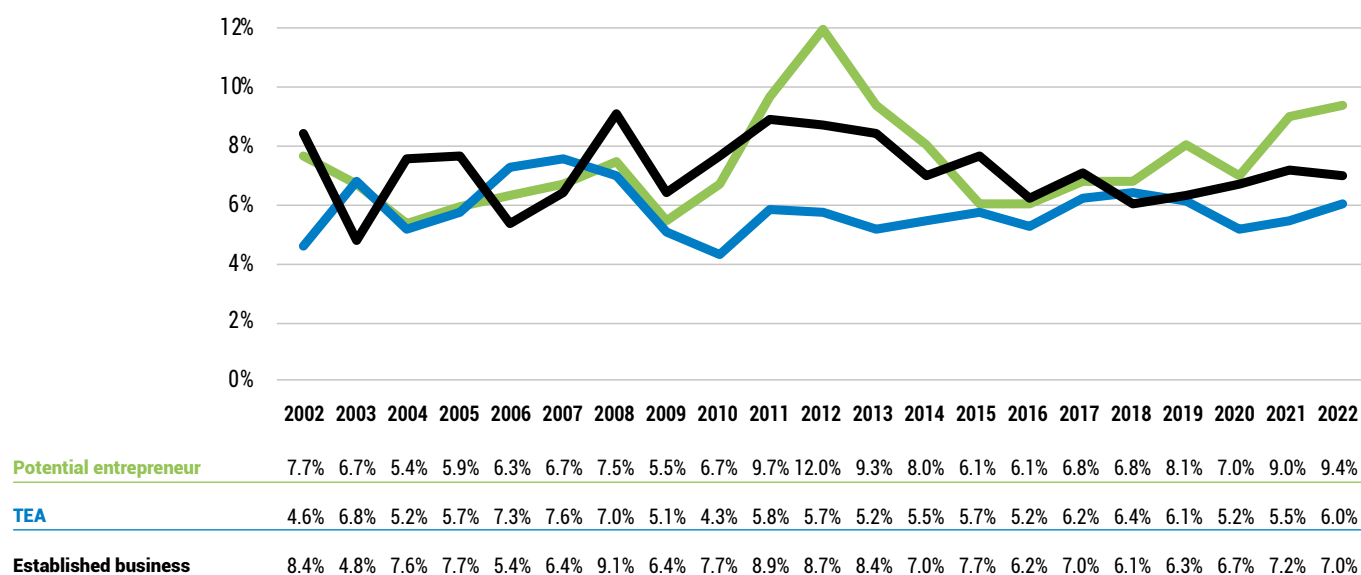


Although 2.5% of the population abandoned their entrepreneurial activity in 2022, only 1.5% permanently closed their business, which means that some people abandon one activity to take up another activity, while other entrepreneurs take up the previous initiative again. This is shown in the reasons for leaving. Although 35.6% of those who quit do so because the business is not profitable, 13.2% of those who quit do so when they have an opportunity to sell the business, which means that the activity continues in other hands. The increase in the importance of personal or family reasons (11.1%) and the opportunity to find another job or start another business (9.9%) compared to the previous year also reflect the relevance of the reasons linked to the entrepreneur when explaining the exit from entrepreneurial activity. Problems in obtaining funding (8.7%), as well as the tax burden or barriers to entry caused by bureaucracy (5.2%) continue to be recurring reasons. However, the effect of the coronavirus pandemic is less important than in previous years as a cause for abandonment, which is to be expected. Planned closures (3.8%) and retirements (2.9%) account for fewer reasons for leaving.

2.2. Dynamics of entrepreneurial activity

Figure 19. Evolution of entrepreneurial initiatives by stage of the entrepreneurial process

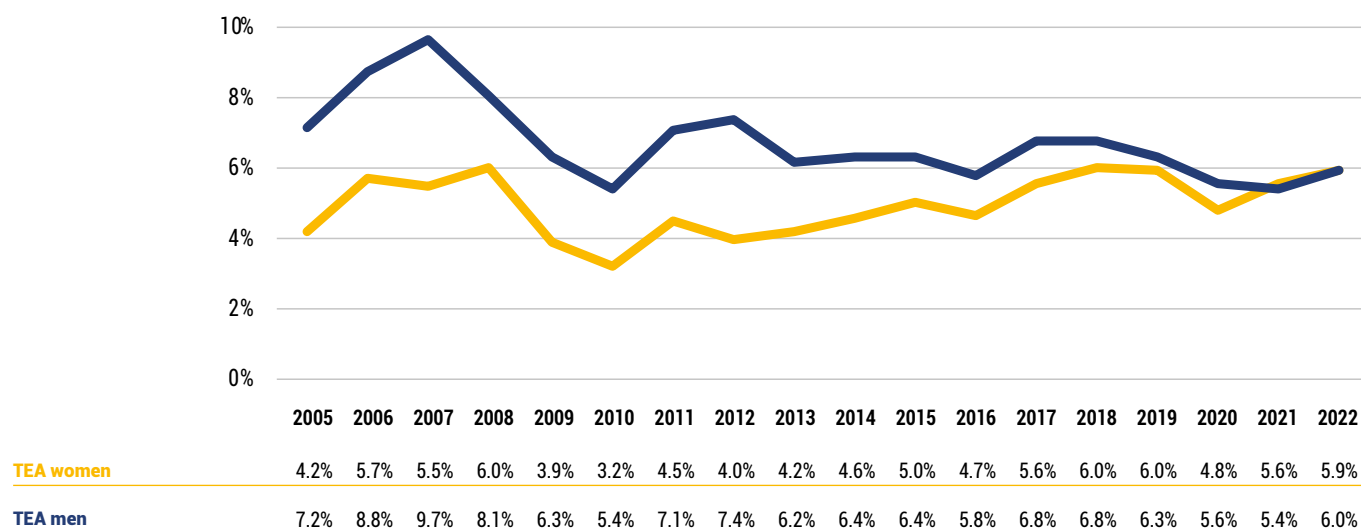
Source: GEM APS 2002-2022



The temporal evolution of the main indicators of the entrepreneurial process over the last eighteen years shows a greater variability of potential entrepreneurship, conditioned by the population's expectations, in relation to the behavior of entrepreneurs in their early-stage and consolidated phase. The health crisis in 2020 and 2021 did not have such a strong impact as the financial crisis of 2008. Since 2021 onwards, the upward trend in potential and Total early-stage Entrepreneurial Activity (TEA) has been recovered, and the percentage of established business has been stabilized.

Figure 20. Evolution of the TEA rate of men and women during the period 2005-2022

Source: GEM APS 2005-2022

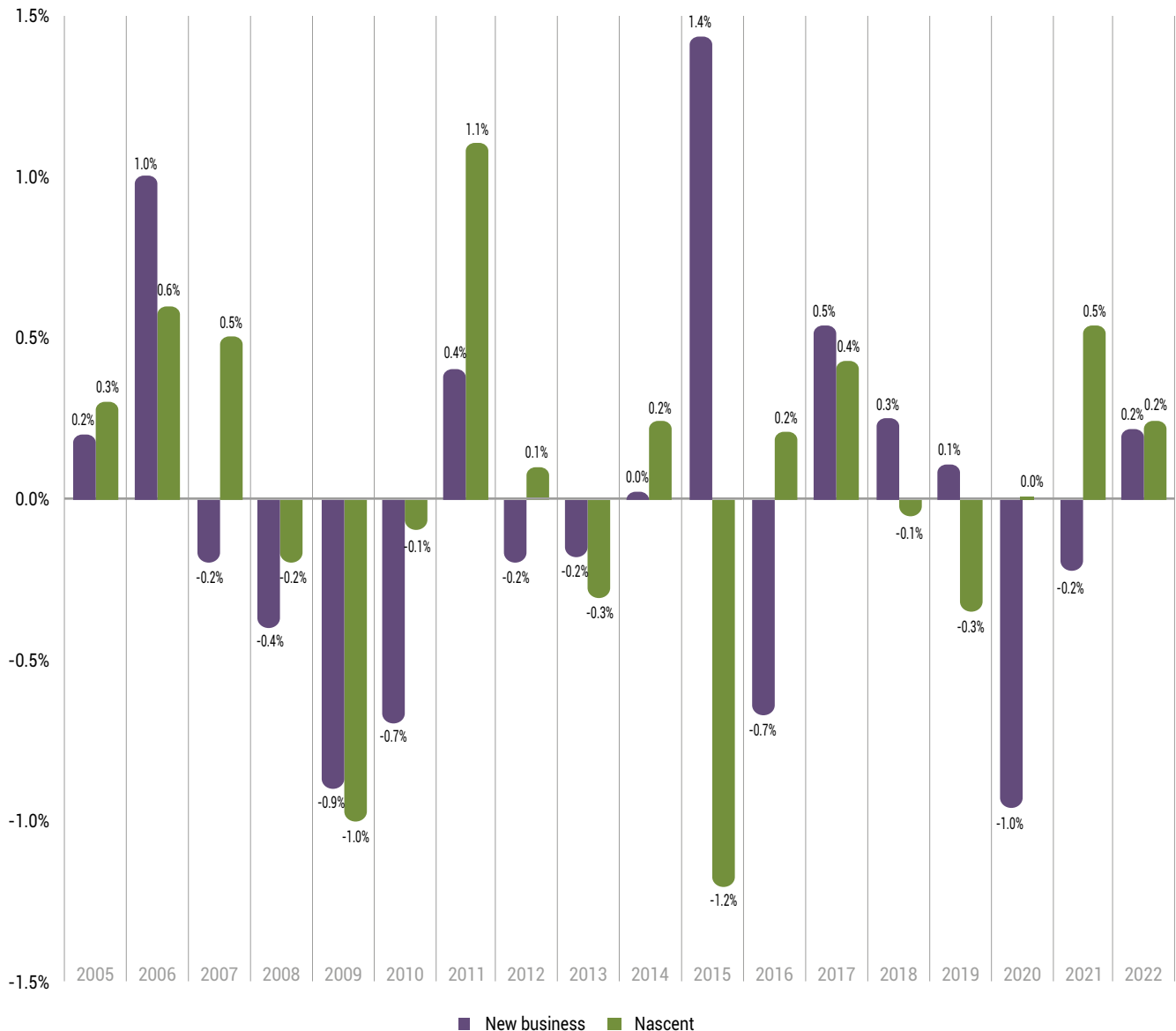


Over the last few years, men and women have reacted similarly to the conditions created in the different economic cycles, although with a slight delay by women, who seem to wait a bit longer to take advantage of the opportunities that arise after the crises. However, since 2012, the sustained growth in the TEA

rate of women has been bringing the percentage of entrepreneurship of both genders closer together. Already since 2021, we can state that men and women are equally entrepreneurial, and this percentage in 2022 amounts to 6% of the population.

Figure 21. Growth and decrease rates of the TEA index (nascent and new business)

Source: GEM APS 2005-2022



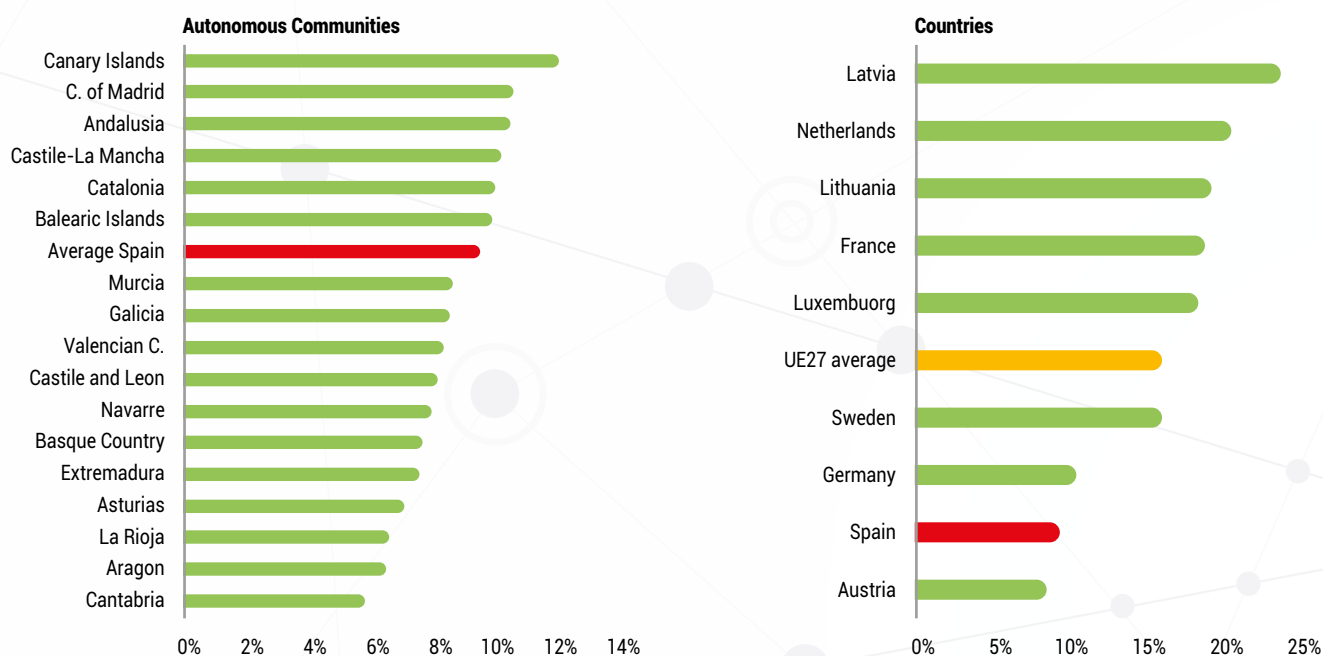
The evolution of nascent initiatives (those less than three months old) and new initiatives (three months to three and a half years old) over the last eighteen years shows the effect of crises on the rate of Total early-stage Entrepreneurial Activity (TEA). During the 2008 financial crisis, nascent and new initiatives declined and were slow to recover. In contrast, the evolution of these initiatives in the last three years shows a more favorable performance than in previous crises, especially in the recovery of nascent initiatives, which indicates an increase in confidence in entrepreneurship, and is reflected in the fact that a greater number of potential entrepreneurs have become real entrepreneurs in recent years.

2.3. International and regional perspectives on attitudes and evaluations of entrepreneurship

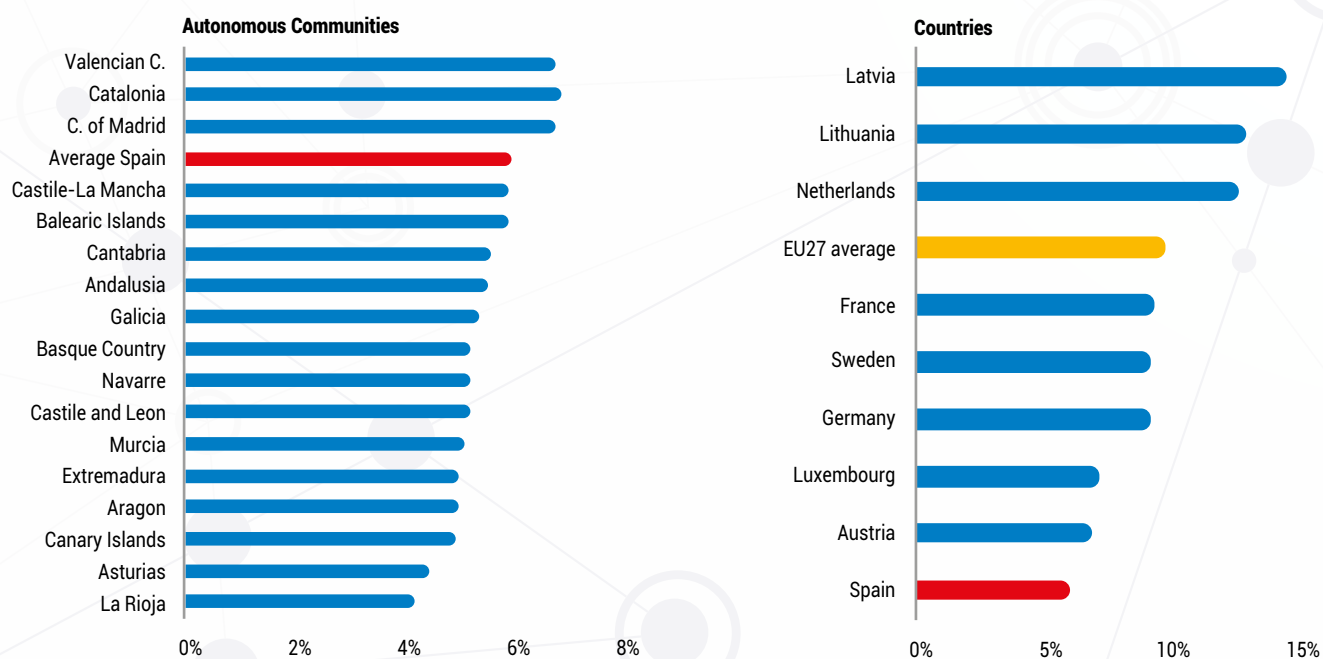
Figure 22. Positioning of Spain at international level and in relation to the Autonomous Communities

Source: GEM APS 2022

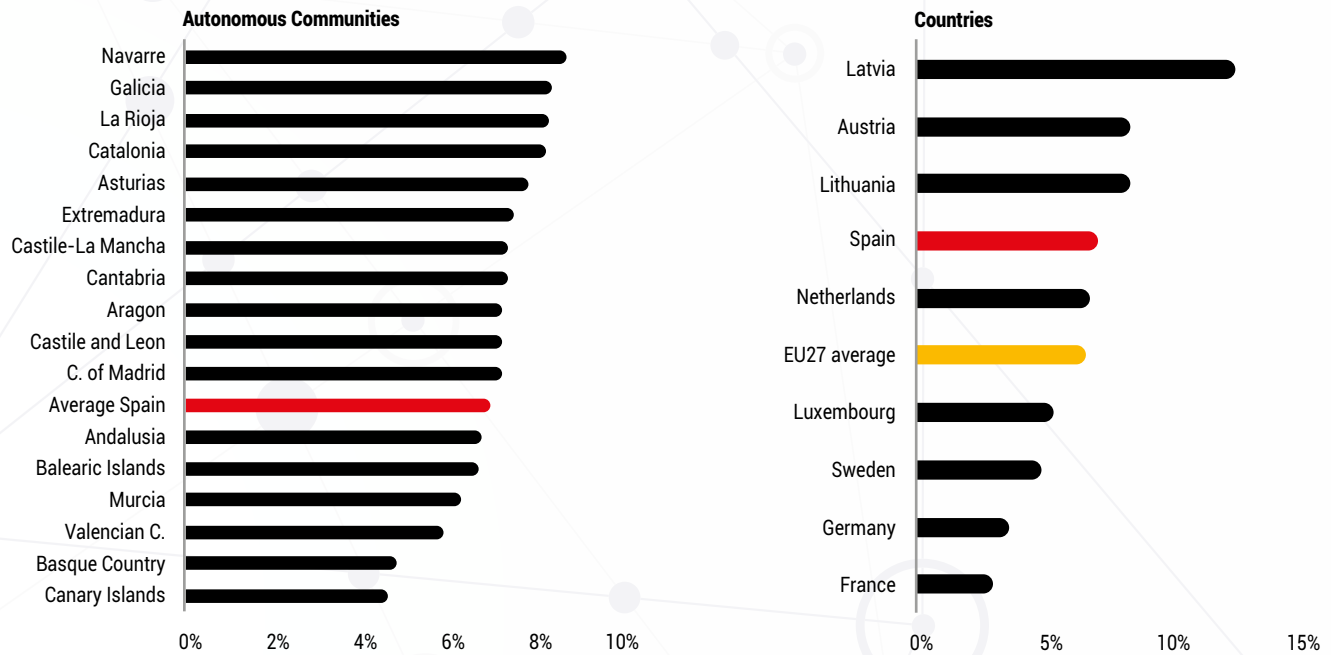
Potential entrepreneur



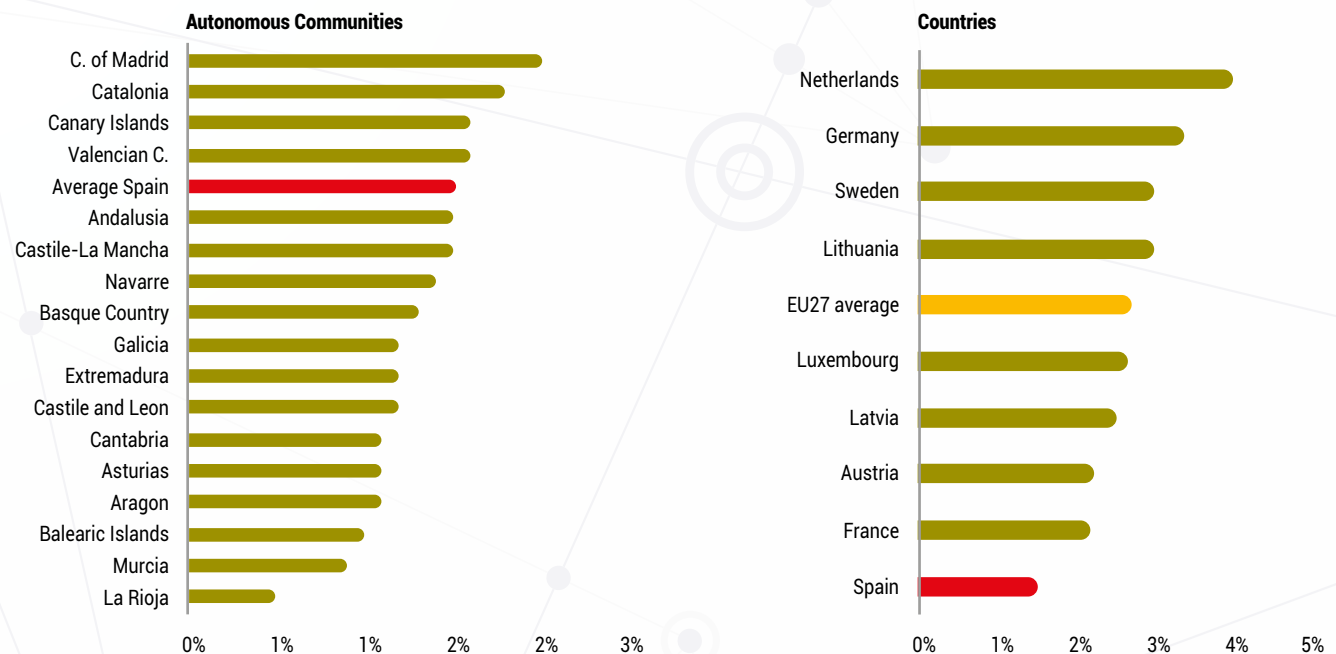
TEA



Established business



Closures



Catalonia and the Community of Madrid exceed the Spanish average as environments capable of generating expectations for entrepreneurship and serving as a location for Total early-stage Entrepreneurial Activity (TEA), as well as established business, although they are also, together with the Canary Islands, the Autonomous Regions with a higher rate of closures than the national average. The Canary Islands, Andalusia, Castile-La Mancha and the Balearic Islands also exceed the Spanish average in the rate of potential entrepreneurs (9.4%). However, it is the Valencian Community that has the highest TEA rate, and only Castile-La Mancha is above the Spanish average (7%) in the rate of established business. On the other hand, Cantabria, Aragon, La Rioja and Asturias have the lowest rates of potential and TEA, although they maintain a higher rate of established business than the Spanish average. These data show the advantage of regions with a larger size and a higher concentration of urban populations when it comes to generating entrepreneurial expectations and providing favorable conditions for making them a reality.

At the international level, in 2022, Spain continued to be an environment that protects its established

business to a greater extent than the average of European Union countries (6.6%), in relation to its benchmark group of high-income countries (over \$40,000) and it has the lowest closure rates of entrepreneurial initiatives of its benchmark countries. However, Spain ranks second to last in the generation of early-stage entrepreneurs and last in the TEA rate.

In conclusion, in 2022, the slightly increasing trend of potential and Total early-stage Entrepreneurial Activity (TEA) in Spain continued, and the percentage of established businesses will be stabilized. The growth of nascent initiatives (less than three months old) during this year confirms the recovery of confidence in entrepreneurship. The Autonomous Communities with the largest and most concentrated populations are consolidating their position as the most favorable environment for entrepreneurship. Despite continuing to fall behind its benchmark countries in the European Union in terms of the rate of Total early-stage Entrepreneurial Activity (TEA), Spain is consolidating its position as the country with the lowest rate of closure of entrepreneurial initiatives, well below its benchmark countries.





Innogando s.l.



Names of entrepreneur: Elio López García.

Business name: Innogando s.l.
(<https://innogando.com/gl/home-gl/>).

Business location: Lugo.

Launch year: 2020.

A brief description of what the company does: We are developing a smartwatch for cows that can identify what the animal is doing and sends alerts of what it is doing, so that the farmer can manage his farm better and improve the quality of life of his animals.

What does being an entrepreneur mean to you?

It is a way of life. A back-and-forth of emotions that makes it fun and makes you live it very intensely.

How did the idea arise?

It arose out of necessity, as I am a livestock farmer, and I saw every day that technologies had not reached today's livestock farming in a useful way.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

Many opportunities are arising, especially because of the increasing environmental pressure on a sector that is not to blame, and needs to prove it even more.

How is the current economic situation affecting your business, and what measures are you taking?

So far, it is not affecting it, but it is true that the future holds very complex economic challenges in a sector where profits are low and capital intensity is very high.



CHAPTER 3

Profile of the entrepreneurial person

3.1. Motivation

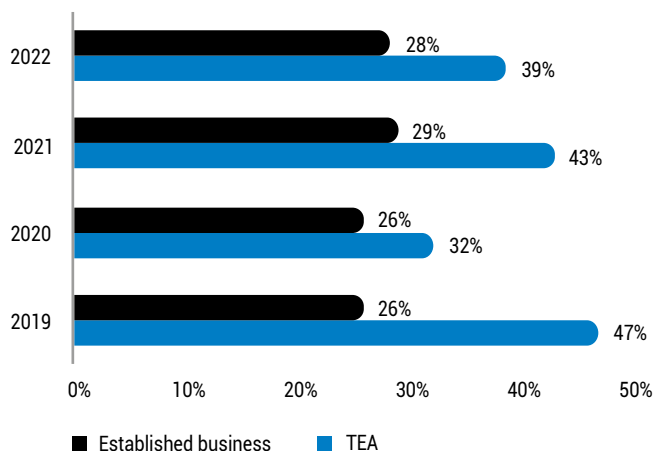
Entrepreneurs, especially those in charge of established initiatives, have slowly regained the ambition they lost due to the uncertainty caused by the health crisis. In 2022, 39% of Total early-stage Entrepreneurial Activity (TEA) were entrepreneurs who wanted to make a difference in the world and/or build wealth or a very high income. 28% of entrepreneurs responsible for established initiatives are doing so to make a difference in the world, which is the highest percentage in the last four years, and 28% are also motivated to build wealth or a very high income at levels close to 2019.

The health crisis drastically reduced the ambition of early-stage entrepreneurs' motivations in 2020, related to making a difference in the world, creating wealth, or having a very high income. In 2021, this ambition is regained, especially the motive of making a difference in the world, which is reported by 43% of entrepreneurs. In the last three years, there has also been a generational shift in motivation. Early-stage entrepreneurs are more ambitious than those running established business.

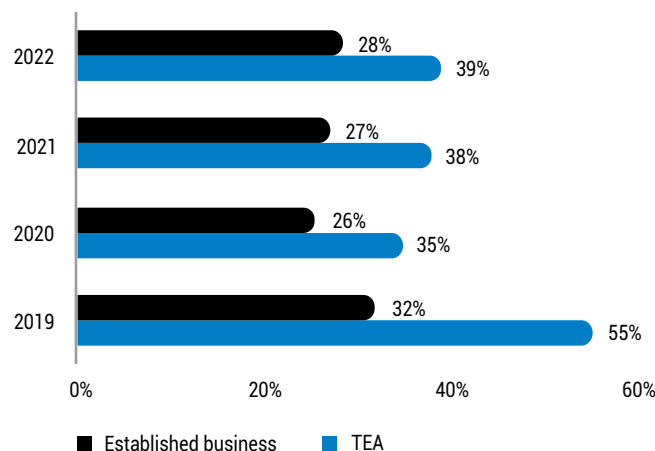


Figure 23. Entrepreneurial motivations
Source: GEM APS 2019-2022

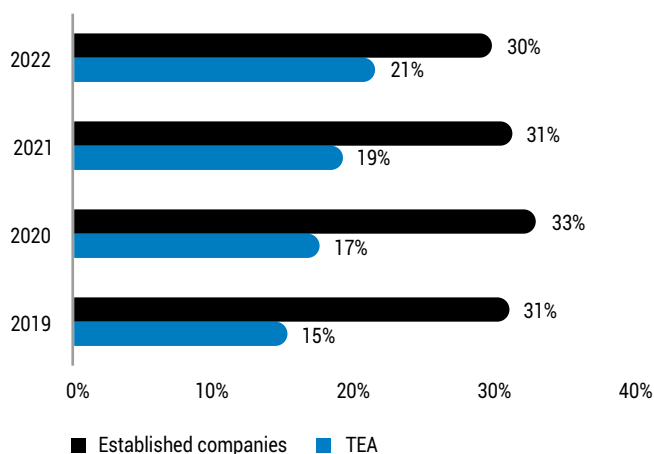
To make a difference in the world



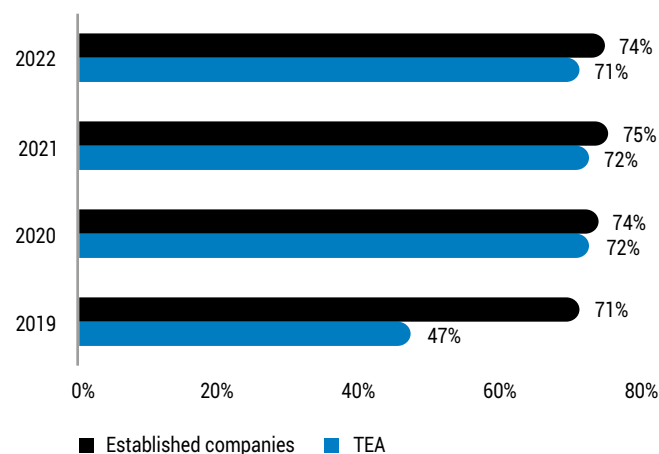
To build great wealth or a very high income



To continue a family tradition



To earn a living because jobs are scarce



In 2022, more than 70% of Total early-stage Entrepreneurial Activity (TEA) still considered that they started a business to earn a living because there was a shortage of work. This motivation has been present among entrepreneurs running established initiatives for as long as there have been records, but in 2019, less than half of Total early-stage Entrepreneurial Activity (TEA) considered it to be one of their motivations.

During these three years, entrepreneurship has once again gained relevance as a self-employment alternative in Spain, while continuing a family tradition remains one of the reasons for entrepreneurship for 21% of Total early-stage Entrepreneurial Activity (TEA) and 30% of entrepreneurs running established initiatives.

Table 1. Motivations by gender

Source: GEM APS 2019-2022

To make a difference in the world

	Woman		Man	
	TEA	Established business	TEA	Established business
2019	44%	27%	50%	25%
2020	30%	25%	34%	27%
2021	44%	31%	42%	27%
2022	43%	29%	36%	28%

To build great wealth or a very high income

	Woman		Man	
	TEA	Established business	TEA	Established business
2019	49%	30%	61%	34%
2020	28%	24%	41%	27%
2021	32%	24%	45%	30%
2022	36%	26%	42%	31%

To continue a family tradition

	Woman		Man	
	TEA	Established business	TEA	Established business
2019	14%	30%	16%	32%
2020	18%	32%	17%	33%
2021	18%	31%	21%	31%
2022	19%	29%	23%	30%

To earn a living because jobs are scarce

	Woman		Man	
	TEA	Established business	TEA	Established business
2019	51%	74%	43%	69%
2020	74%	72%	71%	74%
2021	73%	75%	71%	75%
2022	72%	74%	69%	74%

In the last three years, the ambition of motivations has differentiated men and women. The percentage of male entrepreneurs seeking to build wealth or a very high income has always been higher than their male counterparts in Spain. The pandemic years have affected this percentage, which fell in the case of early-stage male entrepreneurs (TEA) from 61% in 2019 to 42% in 2022, while in the case of early-stage female entrepreneurs (TEA), it fell from 49% in 2019 to 36% in 2022. However, women remain motivated to start a business in order to make a difference in the world, which only drops by one percentage point for early-stage female entrepreneurs (TEA) between 2019 and 2022. In contrast, while in 2019 one out of every two men expressed this motivation to start a business, in 2022 only one out of every three did so, which is a lower percentage than that of women.

In the case of established initiatives, the previous trend is maintained, although in lower percentages

in both cases, which shows greater ambition by the more experienced entrepreneurs.

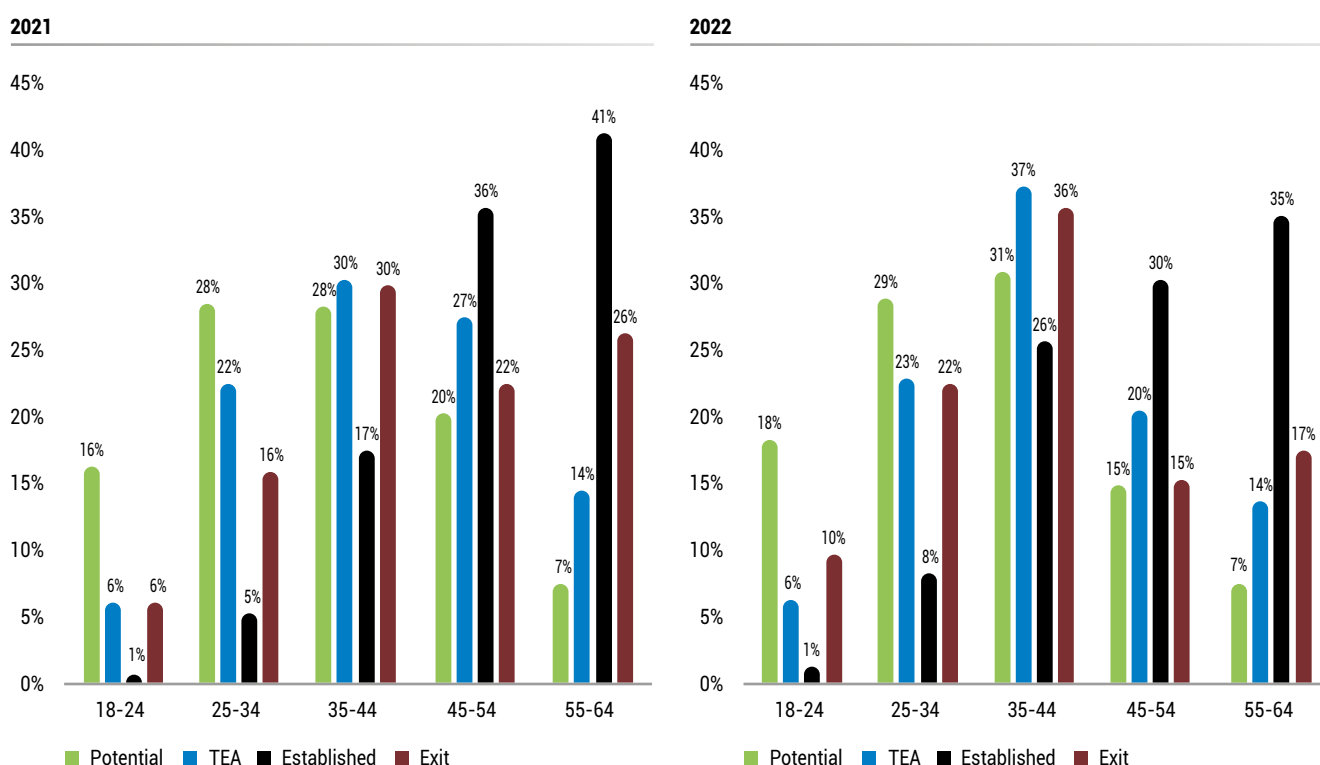
Despite considering more ambitious motives, both social and economic, in 2022 more than 70% of entrepreneurs considered that they were starting up to earn a living because jobs were scarce. This motivation for self-employment due to a lack of alternatives had decreased among Total early-stage Entrepreneurial Activity (TEA) in 2019, but it is once again the reason most repeated by the vast majority of entrepreneurs over the last three years, with no major differences between men and women.

Family tradition increases slightly as a motivation for entrepreneurship among Total early-stage Entrepreneurial Activity (TEA), and remains at about 30% in the case of established initiatives, with no difference between men and women.

3.2. Age

Figure 24. Distribution of entrepreneurs by age in 2021 and 2022

Source: GEM APS 2021-2022



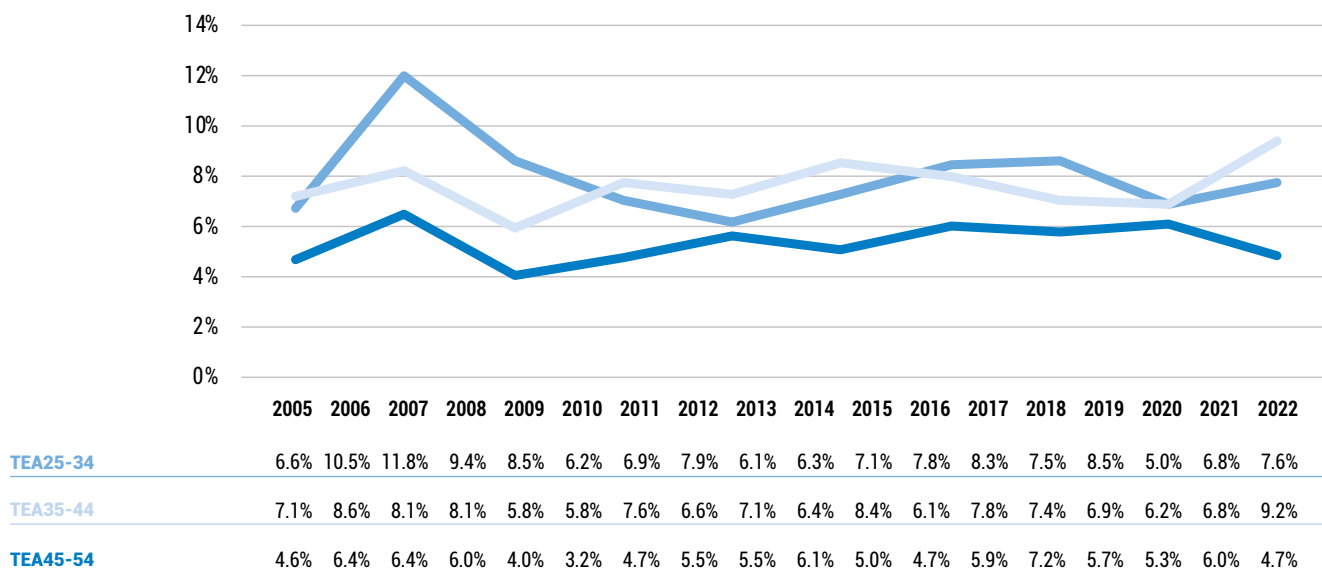
In Spain, we are starting up later than in other countries and, far from changing, this situation is becoming more evident as the years go by. In 2022, 80% of Total early-stage Entrepreneurial Activity (TEA) were aged between 25 and 54. In addition, 75% of potential entrepreneurs were also in the same age range, which ensures an older entrepreneurial profile in Spain than in our neighboring countries in the coming years and a consequent aging of entrepreneurs running established initiatives, most of them between 55 and 64 years of age.

The highest percentage of drop-outs from entrepreneurial initiatives occurs between the ages of 35 and 44, rising from 30% in 2021 to 36% in 2022. As the age of entrepreneurs increases, the percentage of drop-outs decreases, as do the employment alternatives.



Figure 25. TEA index evolution by intermediate age brackets

Source: GEM APS 2005-2022



The age distribution of Total early-stage Entrepreneurial Activity (TEA) aged 25-54 years shows an increasing trend in the percentage of entrepreneurs aged 25-44 years since 2020. By 2022, the percentage of Total early-stage Entrepreneurial Activity (TEA) aged between 45 and 54 had decreased by more than one percentage point, implying that there was a slight rejuvenation of entrepreneurs in the middle age group.



El Flamenco como camino a la libertad



Name of entrepreneur: Natalia Palomo Pérez.

Business name: El Flamenco como camino a la libertad (<https://flamencoach.com>).

Business location: Rota (Cádiz).

Launch year: 2022.

A brief description of what the company does: Our company offers self-knowledge and training through live flamenco in all its disciplines: singing, dancing, guitar playing and public speaking. In a show lasting an hour and a quarter, we work on the 8 essential areas that any mature human being needs to know and deal with in order to be emotionally free.

What does being an entrepreneur mean to you?

It means finding solutions and introducing proposals into society that can contribute to improving the quality of life of the population, using the traditional (flamenco) and innovative (self-knowledge, coaching and technology) resources available.

How did the idea arise?

In 2020, I published a book called *Camino a la libertad* (Path to freedom), where I set out the information, in my opinion, necessary for any human being to be able to live with emotional freedom and balance. As Flamenco has always been a genre that I have been involved in and that has inspired me so much in life (philosophically speaking), I did a couple of presentations of the book combining live flamenco and reading parts of the book. I realized that people were following us and repeating the presentations. From there came the idea of working in depth on this proposal: "Flamenco as a path to freedom".

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

Yes, I do, because, on the one hand, self-knowledge can be one of the most demanded fields in our society. However, not everyone can or wants to go to therapy. Presenting a cultural and enriching alternative seems to me to be a market niche with great potential.

Another great opportunity is to digitalize and market this project so that it is scalable and, at the same time, can reach any part of the world.

How is the current economic situation affecting your business, and what measures are you taking?

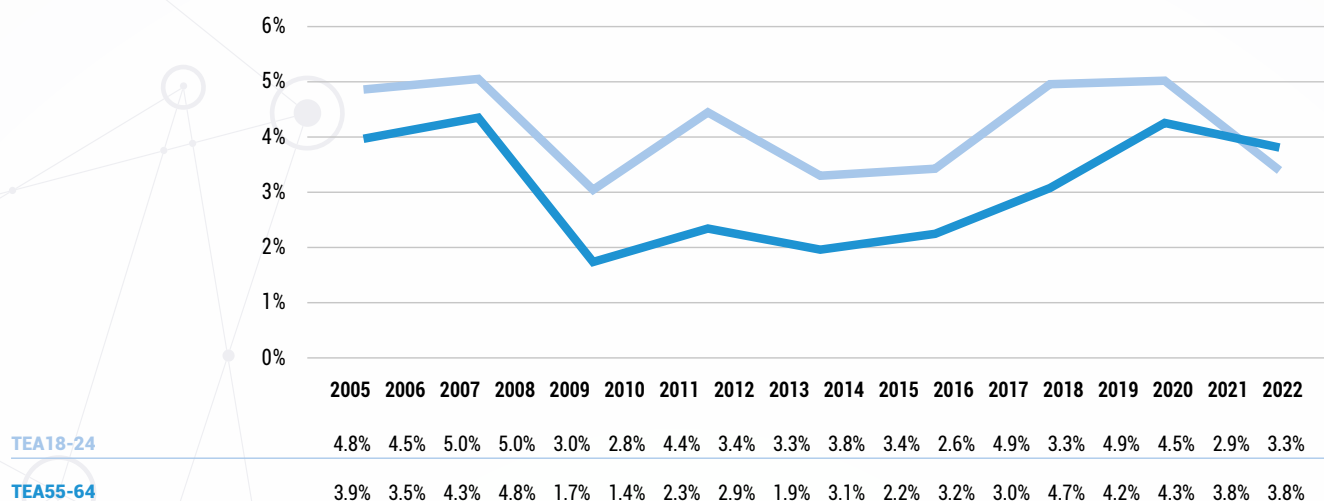
It is affecting it positively, as we combine leisure and self-knowledge at an accessible price at a time when not everyone can afford a therapist. Even so, we are taking measures to improve accessibility and visibility for the public by creating a lot of digital content on networks at zero cost.

Something you would like to add

I feel that without organizations such as the Chair of Entrepreneurship at the University of Cadiz, I could not have acquired the knowledge, the open-mindedness and the professionalization of this project for its projection. In my opinion, organizations like these are essential, and in my specific case, they have set the course for my project.

Figure 26. TEA index evolution by extreme age brackets

Source: GEM APS 2005-2022



The evolution of younger (18-24) and older (55-64) entrepreneurs was clearly affected by the 2008 crisis, with drastic falls of up to fifty percent. However, the pandemic years hit the youngest entrepreneurs hardest, and they were unable to recover in 2022. Without an increase in the number of young potential entrepreneurs willing to become entrepreneurs in the future, Spain will continue to have an entrepreneurial profile with a shorter time horizon than its benchmark countries.

Figure 27. Age distribution of Total early-stage Entrepreneurial Activity (TEA) by gender

Source: GEM APS 2021-2022

	Men		Women	
	2021	2022	2021	2022
18-24	5%	11%	6%	11%
25-34	27%	18%	18%	18%
35-44	31%	24%	29%	24%
45-54	27%	26%	28%	26%
55-64	10%	22%	19%	21%

Except for a slight difference in the age range between 55 and 64, the distribution of entrepreneurs by age is identical between men and women in 2022, which reinforces the existence of an entrepreneurial profile in Spain, which, regardless of whether they are men or women is on average between 25 and 54 years of age.

3.3. Education

Table 2. Entrepreneurship rate by educational level in 2022

Source: GEM-Spain APS 2022

Education		Potential entrepreneur	TEA	Established business
Primary	Total	5%	3%	6%
	Total	9%	5%	6%
Secondary	Secondary	10%	5%	6%
	Vocational training	9%	5%	6%
	Total	11%	9%	9%
University	Bachelor	10%	8%	10%
	Master	14%	11%	8%
	PhD	10%	11%	8%

In 2022, 11% of university graduates say they are thinking of starting a business in the next three years, 9% are already doing so, and another 9% are running established business that have been in business for over three and a half years. Among university graduates with a Master's degree, 14% are potential entrepreneurs, and 11% are Total early-stage Entrepreneurial Activity (TEA), a percentage similar to that of university graduates with a PhD. These rates of entrepreneurship exceed those of entrepreneurs with a lower level of education, and consolidate the growth of entrepreneurial vocations in the population with higher educational qualifications.

Table 3. Distribution of entrepreneurship rates by entrepreneurs' education and gender

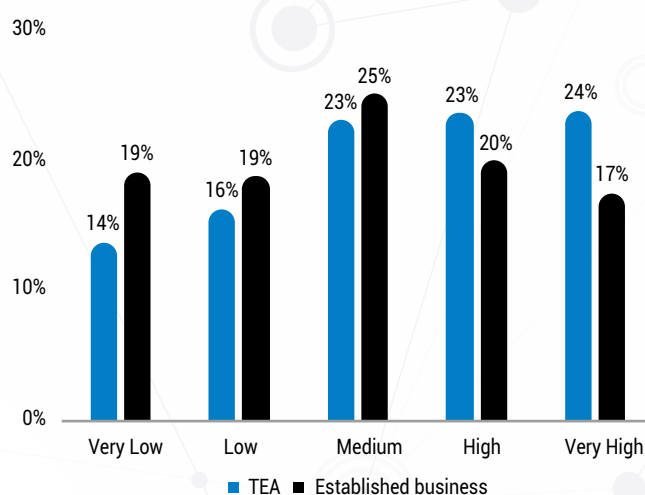
Source: GEM-Spain APS 2022

							
		Potential entrepreneur	TEA	Established business	Potential entrepreneur	TEA	Established business
Primary	Total	4%	3%	5%	7%	3%	7%
	Total	9%	5%	6%	10%	5%	7%
Secondary	Secondary	10%	4%	5%	11%	5%	6%
	Vocational training	9%	5%	6%	9%	5%	7%
	Total	11%	9%	8%	12%	9%	9%
University	Bachelor	9%	7%	9%	10%	9%	11%
	Master	15%	13%	7%	14%	9%	8%
	PhD	12%	14%	8%	9%	9%	7%

During this year, there were hardly any differences in the entrepreneurial behavior of men and women regarding their educational level. At the university or higher level (Master's, PhD), the percentage of potential entrepreneurs (12%) and of established business run by men (9%) is slightly higher than that of women, as in the rest of the educational levels. However, among people who have completed a Master's degree or PhD, the percentage of women entrepreneurs is significantly higher than that of men, especially in the Total early-stage Entrepreneurial Activity (TEA). This is a clear indicator of the entrepreneurial vocation of highly qualified women in Spain.

Figure 28. Level of specific training related to starting a business

Source: GEM-Spain APS 2022



Specific qualifications for entrepreneurship are increasing among entrepreneurs compared to the previous year. In 2022, one in two Total early-stage Entrepreneurial Activity (TEA) said they had a medium-high level of specific training to start a business. However, to a lesser extent, this perception also increases among entrepreneurs running established businesses.

Men and women have similar levels of specific training for entrepreneurship. Nearly 50% of early-stage entrepreneurs consider that they have a high level. In the case of current entrepreneurs, it is close to 50%.

Table 4. Level of gender-specific training for entrepreneurship

Source: GEM-Spain APS 2022

	Men		Women	
	TEA	Established business	TEA	Established business
High Level	48%	37%	46%	37%
Medium Level	22%	24%	24%	26%
Low Level	30%	38%	30%	37%

In conclusion, in 2022 in Spain, entrepreneurs considered that they were mainly starting up to earn a living because jobs were scarce, although they were gradually regaining the ambition they lost due to the uncertainty of the years of the health crisis. They were starting up at an older age than in other countries, mostly between 25 and 54 years of age, and one in three entrepreneurs gave up their initia-

tive between 35 and 44 years of age. The rate of entrepreneurship among the population with a higher educational level was increasing, especially among women. The specific qualifications for entrepreneurship were also increasing compared to the previous year, indicating a greater focus on entrepreneurial training by educational institutions.

CHAPTER 4

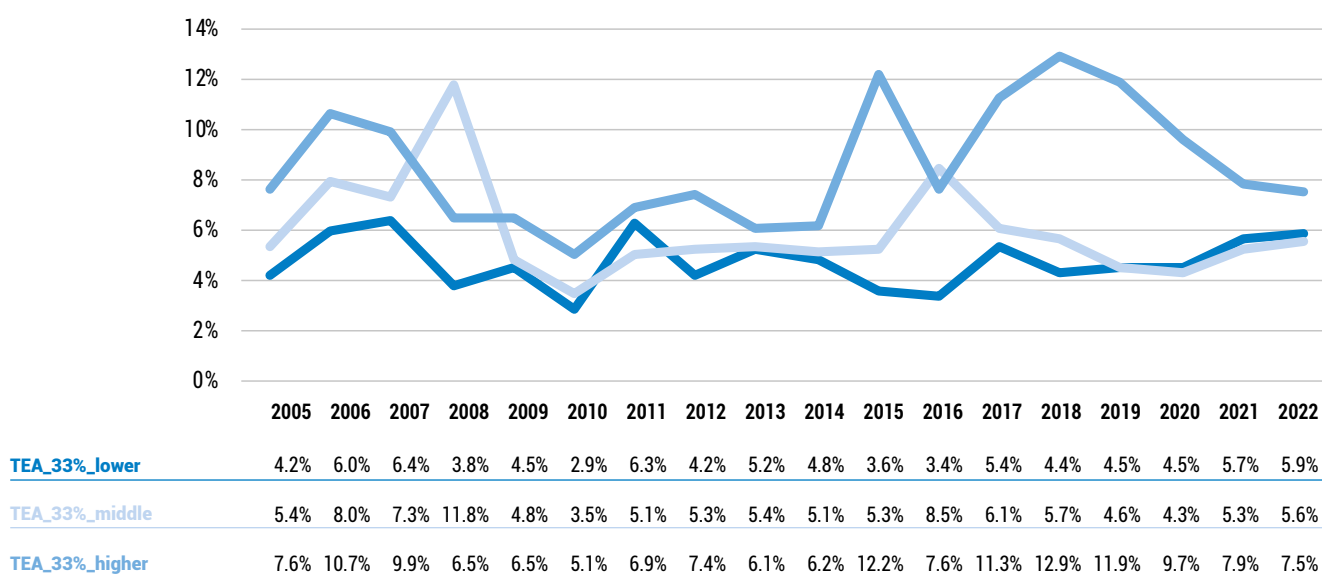
Characteristics of entrepreneurial initiatives

4.1. Income level of entrepreneurs and sources of funding

Income level of entrepreneurs

Figure 29. Evolution of the TEA rate by income level in Spain during the period 2005-2022

Source: GEM-Spain APS 2005-2022



In the last eighteen years, the percentage of entrepreneurs starting their businesses with a higher than average income has increased, especially in periods with better economic conditions. However, since 2018, there has been a trend towards a more balanced distribution of the income level of Total early-stage Entrepreneurial Activity (TEA), a trend that has continued throughout 2022.



Sanifit Therapeutics



Name of entrepreneur: Joan Perelló Bestard.

Business name: Sanifit Therapeutics, a company of the CSL group (<https://www.sanifit.com>).

Business location: Palma de Mallorca.

Launch year: 2004.

A brief description of what the company does: Development of drugs for the treatment of diseases related to the calcification of the cardiovascular system. The main product, SNF472, is in clinical phase 3 for the treatment of calciphylaxis, a rare disease affecting about 30,000 people worldwide for which there is no approved drug and which has a life expectancy of about 6 months since being diagnosed. The company was acquired by CSL Vifor in 2022.

What does being an entrepreneur mean to you?

Entrepreneurship is a constant problem-solving exercise where you must constantly learn to meet the challenges of everyday life.

How did the idea arise?

Sanifit was created as a spin-off based on a long history of academic research by the University of the Balearic Islands. There are about 40 diseases related to pathological calcifications and most of them still have no authorized drug for their treatment. Sanifit was born with the vocation of providing a solution to these medical needs.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

Of course, and not only in the last year, but in the last 3-5 years. Sanifit emerged at a time when there was no tradition or ecosystem in the field of biotechnology

in Spain. The development of pharmaceuticals requires long periods of time and high financial investments; making progress in research requires specialized investors and professionals with the specific expertise required.

How is the current economic situation affecting your business, and what measures are you taking?

Although there are always elements of the global economy that are cross-cutting for any type of company, the biopharmaceutical sector has been characterized by being more acyclic and less affected by economic crises. Being part of a large and stable pharmaceutical group, our activity is dictated more by scientific results than by macroeconomics.

Something you would like to add

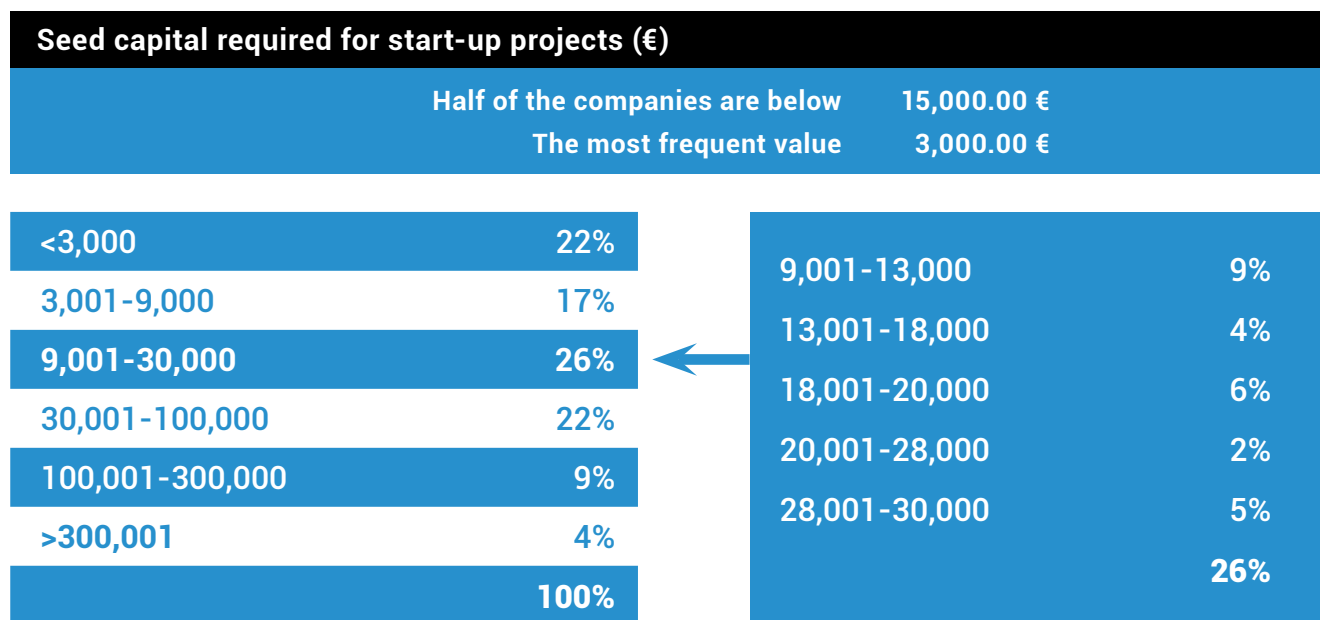
From 2004 to the present, the sector has matured significantly and Sanifit has been an active part of this evolution, leading the largest capitalization rounds in the history of the sector and the largest acquisition of a biotech in the country, providing an adequate return to the ecosystem, including its workers, investors and the university from which it emerged, and allowing the research that has been developed to be closer to patients suffering from currently untreated diseases.



How much capital do they need to start a business?

Figure 30. Seed capital for start-ups in Spain in 2022

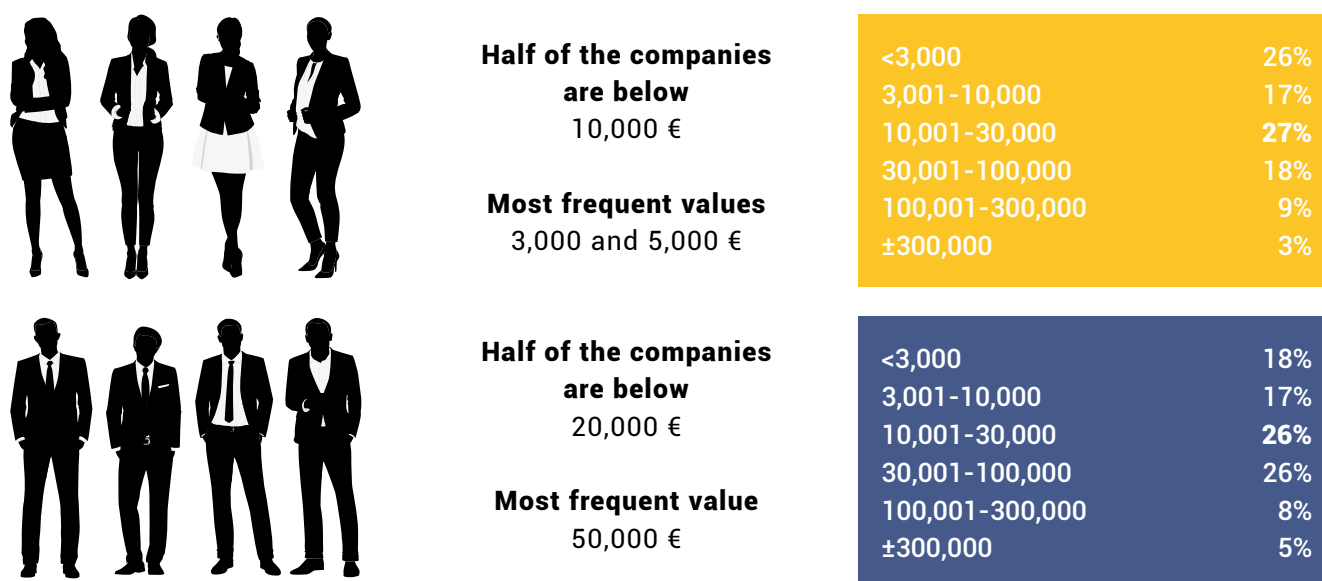
Source: GEM-Spain APS 2022



In 2022, entrepreneurs started their projects with less capital than in previous years. Six in ten business projects launched in 2022 required seed capital of less than €30,000, and the most frequent seed capital was €3,000, indicating the small size of the initiatives while at the same time facilitating their financing.

Figure 31. Differences in seed capital between men and women

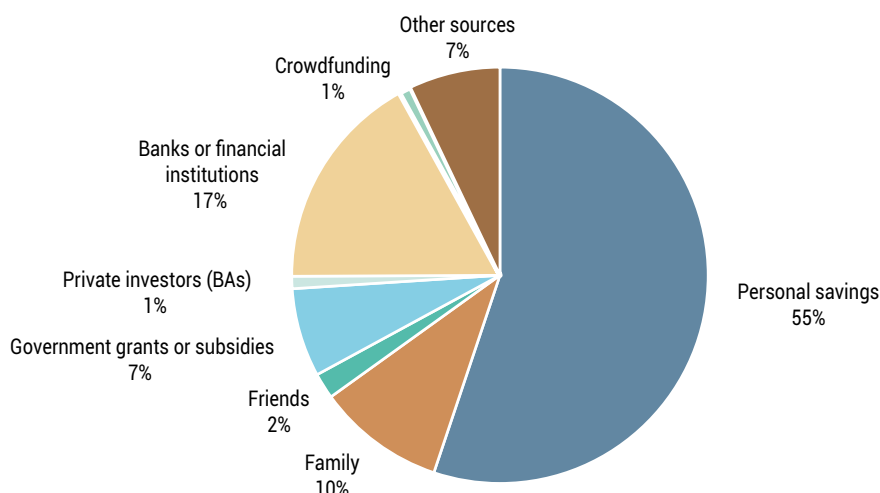
Source: GEM-Spain APS 2022



The difference between men and women in the amount of seed capital used to start their businesses shows a higher ambition for male-led initiatives. While the most frequent seed capital for male-led initiatives is €50,000, for women, the most frequent start-up capital is between €3,000 and €5,000.

Figure 32. Average distribution of seed capital sources in Spain in 2022

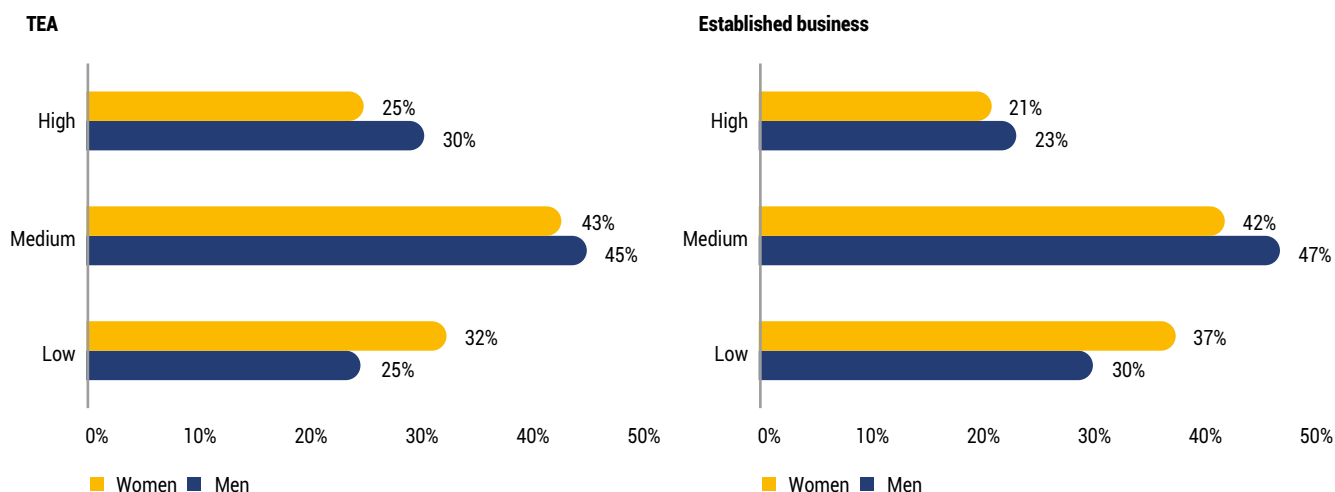
Source: GEM-Spain APS 2022



In 2022, as in previous years, more than half of the start-up capital of entrepreneurial projects came from personal savings on average. The other half is distributed among loans granted by banks and financial institutions (17%), help from family (10%) and other sources of residual financing. In Spain, neither private investors (business angels, BAs) nor crowdfunding have become established as usual sources of funding for entrepreneurial projects.

Figure 33. Level of financial knowledge throughout the entrepreneurial process in 2022

Source: GEM-Spain APS 2022



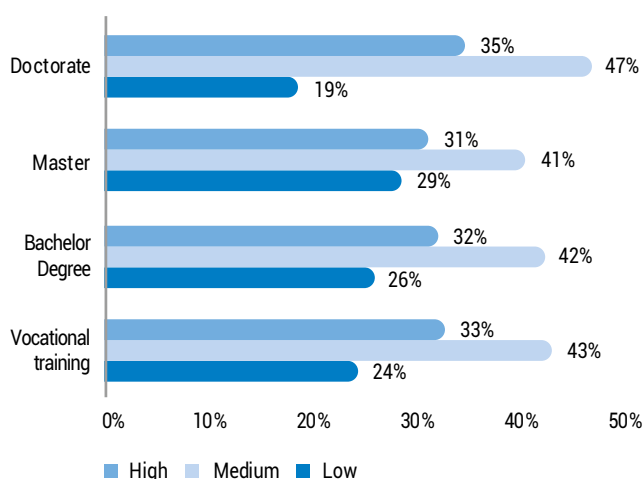
Entrepreneurs' financial knowledge is gradually increasing. In 2022, two out of every three entrepreneurs claimed to have medium-high knowledge of the sources of funding available to finance their project, both in the early stage (TEA) and in the consolidated stage of the entrepreneurial process. However, women continue to show a lower level of financial knowledge than men, both at the time of starting up and in subsequent phases.



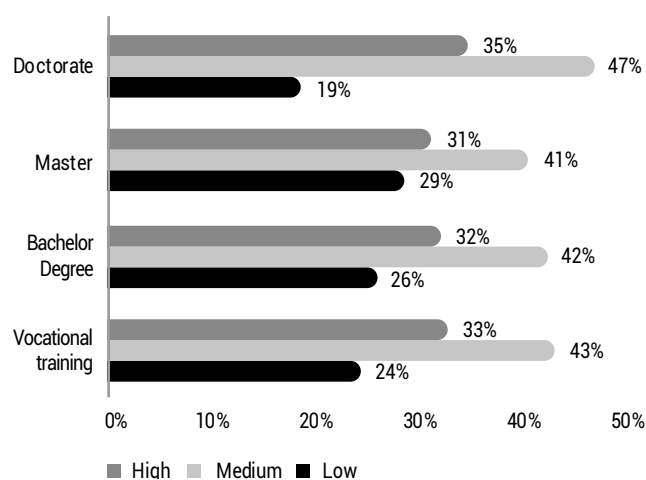
Figure 34. Financial knowledge and education

Source: GEM-Spain APS 2022

TEA



Established business



The level of entrepreneurs' financial knowledge increases with every successive year. The higher the level of education, the greater entrepreneurs' knowledge of the most appropriate sources of funding for their entrepreneurial initiatives, both among early-stage entrepreneurs and among those in charge of established businesses.

Table 5. Financial knowledge and educational level

Source: GEM-Spain APS 2022

	TEA			Established business		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
Low	37%	26%	26%	46%	34%	24%
Medium	44%	47%	42%	43%	45%	45%
High	19%	27%	32%	11%	21%	31%



AlgaEnergy



Name of entrepreneur: Augusto Rodríguez-Villa Matons.

Business name: AlgaEnergy (<http://www.algaenergy.es/>).

Business location: Madrid.

Launch year: 2007 (founded) and 2014 (commercialization).

A brief description of what the company does: A biotechnology company specializing in the development and production of disruptive and efficient products based on photo-synthetic micro-organisms (microalgae) for the agricultural sector. World leader in its sector, with four million customers served by its 10 international subsidiaries and over a hundred approved distributors. Received more than 30 major public awards.

What does being an entrepreneur mean to you?

It means a way of understanding life that is certainly not boring at all and very risky because, with the need to have a certain visionary capacity and no less an aptitude for persuading the incredulous that it is necessary to join the project, it is a question of providing the means to bring to reality an idea about something that did not exist and with which it is intended to generate novelty, well-being and wealth. In our case, with our groundbreaking products, we are improving the quality of life of millions of customers and we are doing so through environmentally friendly processes.

How did the idea arise?

As happens so often, by chance. I had previously launched business projects in very different sectors that generated around four thousand jobs – and two of them were among the 150 larg-

est companies in the country. I had no connection with microalgae biotechnology, but the more I got to know it, the more I fell in love with this science, so I decided to highlight the enormous knowledge that was available at university level in Spain in this field of science, even though in 2007 nobody saw that this knowledge could be used in any other way than academia.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

Our sector is endless in terms of opportunities and the development potential we have shown so far is only the tip of the iceberg. We are confident that in the course of the next few years, the "driver business" activity in an unknown sector that we have been practicing for all these years will pay off and benefit the global population and the planet.

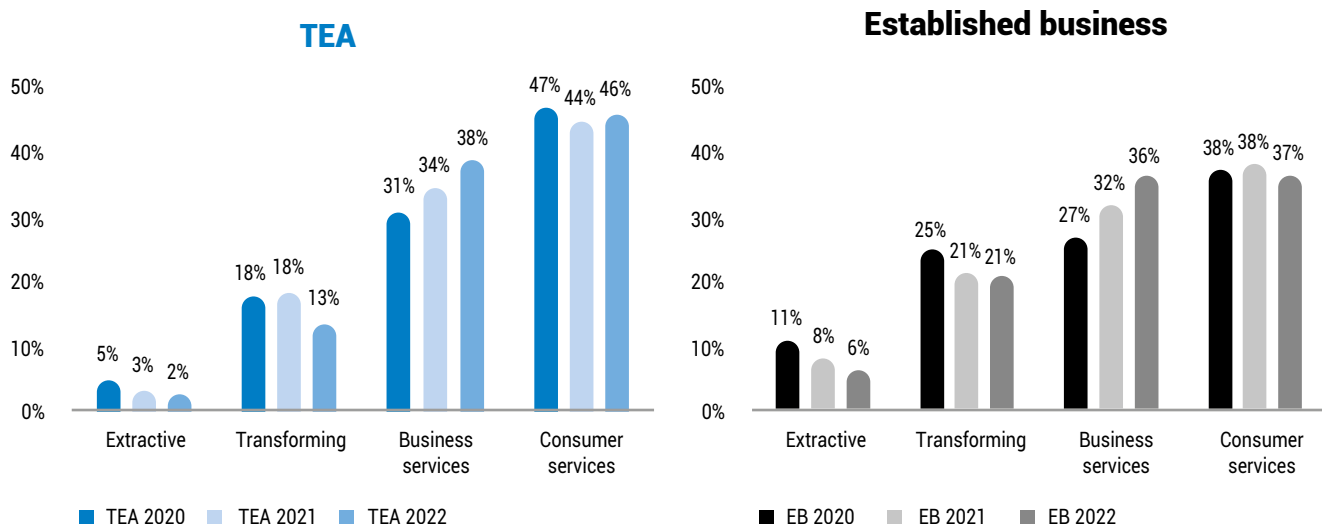
How is the current economic situation affecting your business, and what measures are you taking?

A number of factors – both exogenous and endogenous – have led us to enter into an alliance with the multinational DE SANGOSSE, which is one of the major global players in the supply of biological products for agriculture, with 27 production plants, penetration in 60 markets, and investing 9% of its turnover in R&D (this year more than 420 million euros). We have fully identified with this group in such substantial aspects as vision, mission and values, and together we are starting a new and attractive stage, in which synergies will have to play a special role and, consequently, the objectives set are much more ambitious. With this alliance, we therefore aim to ensure that our disruptive products reach the highest possible level of penetration, for the benefit of the direct consumer and society in general.

4.2. Sector of activity

Figure 35. Distribution of entrepreneurial initiatives by activity sector

Source: GEM-Spain APS 2020-2022



Eight out of every ten entrepreneurs start their businesses in the services sector (to consumers and other companies), although in recent years the percentage of those who do so by offering services to other com-

panies has increased, which strengthens the country's business network. However, entrepreneurship in the industrial sector is decreasing, while entrepreneurship in the extractive sector is now residual.

Table 6. Distribution of entrepreneurs by sector of activity according to gender

Source: GEM APS 2021-2022

				
	2021	2022	2021	2022
Consumer services	52%	53%	37%	38%
Business services	31%	35%	37%	42%
Transforming	13%	9%	23%	18%
Extractive	4%	3%	3%	2%

In 2022, the increase in entrepreneurial initiatives in the business services sector compensated for the reduction in the transforming sector. Women continue to be the majority of entrepreneurs in the con-

sumer services sector, while men divide their initiatives between the business and consumer services sector and the transforming sector.

4.3. Family tradition

Table 7. Family tradition of entrepreneurial initiatives

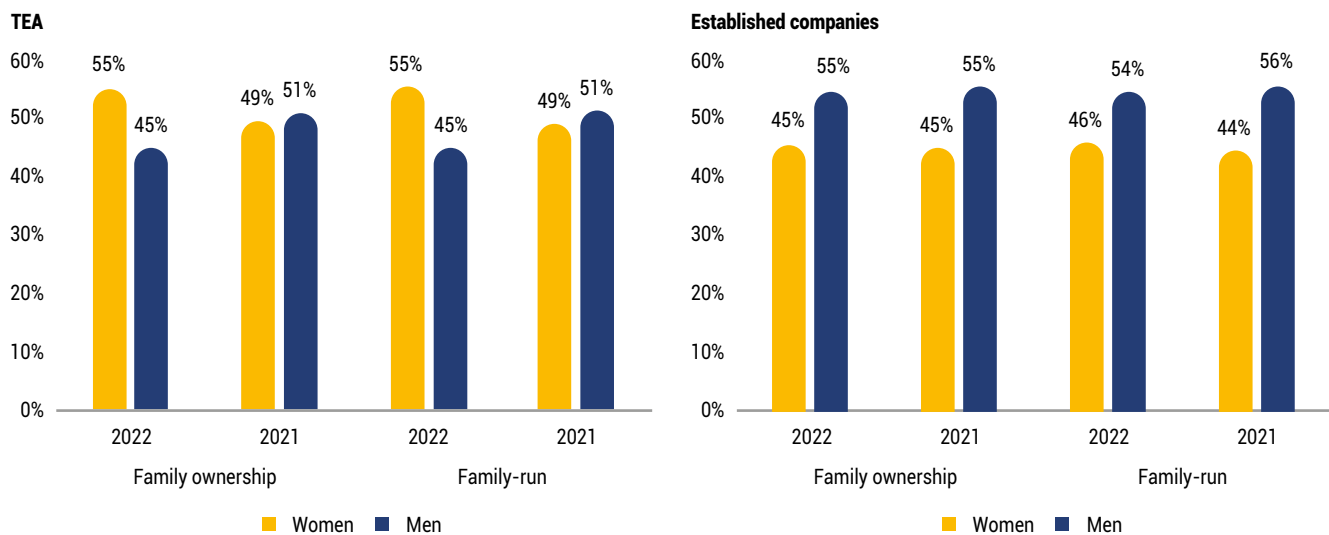
Source: GEM-Spain APS 2021-2022

	Family ownership		Family-run	
	TEA	Established business	TEA	Established business
2021	72%	86%	76%	89%
2022	69%	85%	76%	85%

As shown in the previous year, the family tradition of entrepreneurial initiatives is gradually decreasing. Despite maintaining family-run businesses, Total early-stage Entrepreneurial Activity (TEA) owned by the family are decreasing from 72% in 2021 to 69% in 2022.

Figure 36. Family tradition of entrepreneurial initiatives by gender

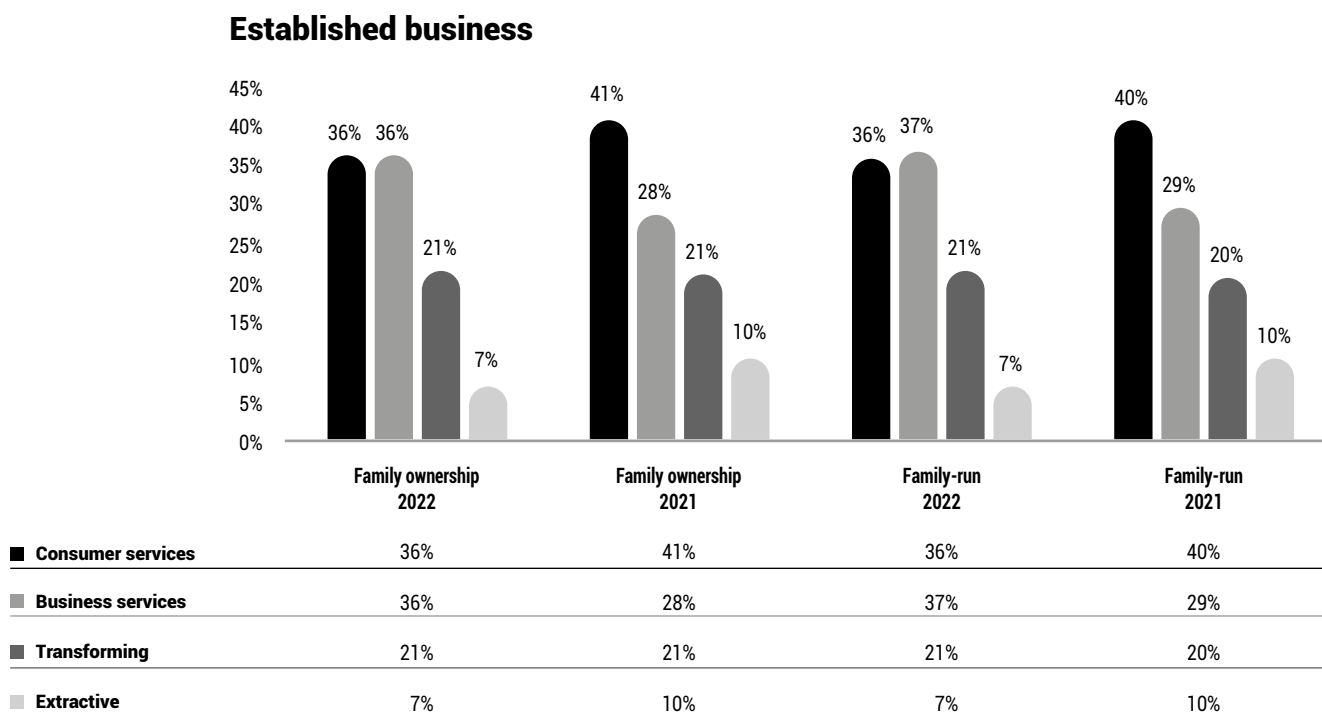
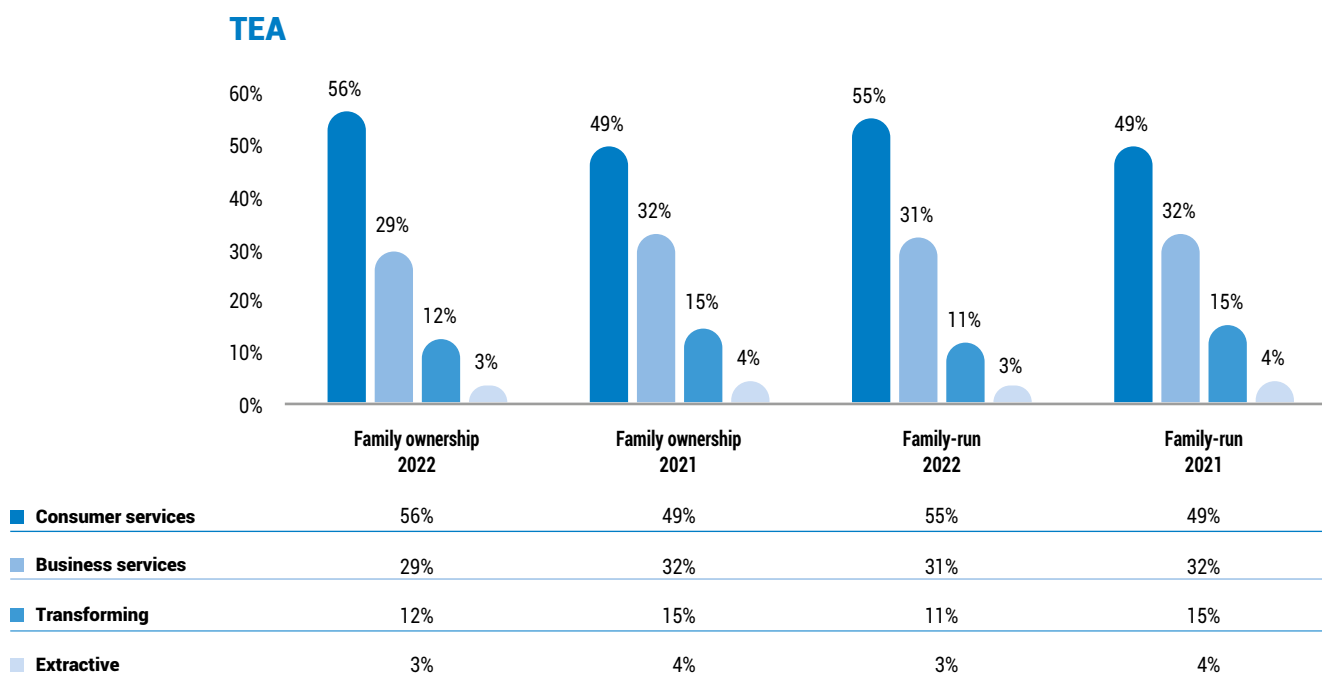
Source: GEM-Spain APS 2021-2022



Unlike the previous year, in 2022, the percentage of female entrepreneurs involved in family-owned early-stage ventures (TEA) increases and exceeds that of men, but remains lower in established business. In the case of Total early-stage Entrepreneurial Activity (TEA), the percentage of men involved in the ownership and running of family-owned businesses is 6% lower than in the previous year.

Figure 37. Family tradition of entrepreneurship by sector in 2022

Source: GEM-Spain APS 2021-2022



The sectoral distribution of family initiatives is no different from the rest of entrepreneurial initiatives. The number of family initiatives in the business services sector in 2022 also increased significantly compared to the previous year.



Komvida Kombucha s.l.



Name of entrepreneur: Nuria Morales Álvarez.

Business name: Komvida Kombucha s.l.
(www.komvida.com).

Business location: Fregenal de la Sierra (Badajoz).

Launch year: 2017.

A brief description of what the company does: Komvida Kombucha is a company engaged in the production and distribution of organic, artisanal and unpasteurized kombucha. From Fregenal de la Sierra (Badajoz), it sends its kombucha throughout Spain and parts of Europe.

What does being an entrepreneur mean to you?

Giving body and soul to a project. In entrepreneurship, you don't distinguish your personal life from your professional life. In a way, your company is an extension of yourself... and vice versa.

How did the idea arise?

The idea came about on a trip. It was Bea, my partner, who tried kombucha in California for the first time while she was traveling around the world. I remember when she called me to tell me that it was the most amazing product she had ever tasted. The next step was to bring it to Spain through our own formula.

In your sector, do you perceive that in the last year new oppor-

tunities for entrepreneurship or business expansion have arisen? Which ones? Where?

Actually, our product is part of an emerging market. In this context, the opportunities are very broad. We aim for more and more people to get to know and try Komvida in Spain, in Europe and, why not, all over the world.

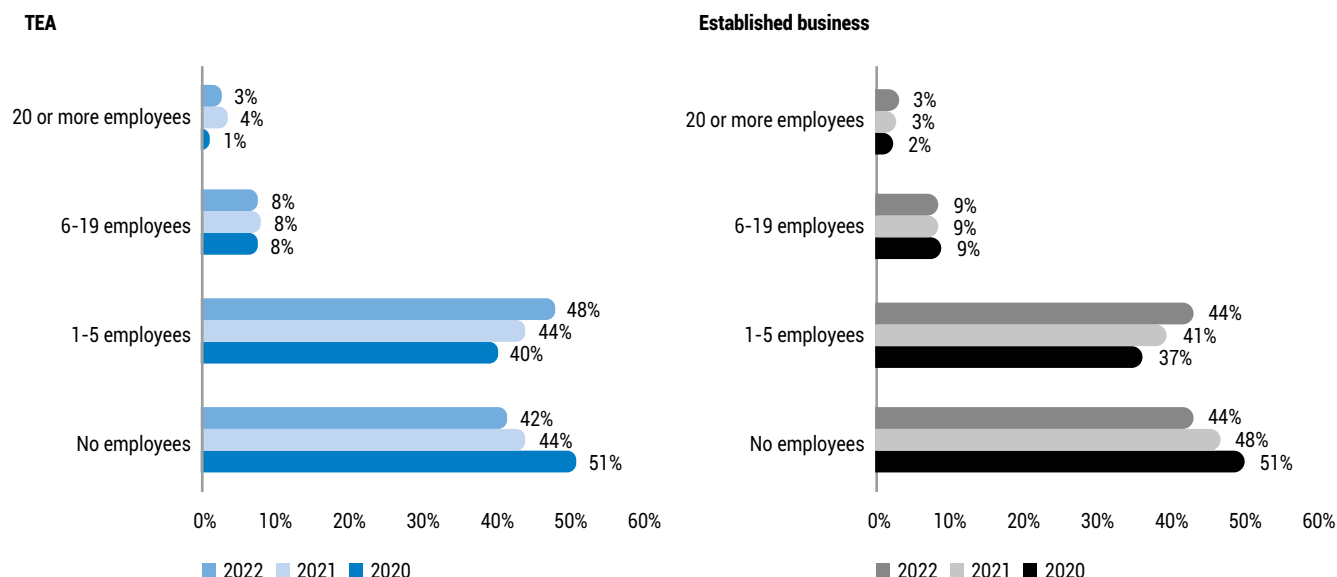
How is the current economic situation affecting your business, and what measures are you taking?

The current situation is definitely affecting us. The price of raw materials affects us and, although it is always the last measure, we have had to increase the price of our products to guarantee the sustainability of our project.

4.4. Size

Figure 38. Size of entrepreneurial initiatives by number of employees

Source: GEM-Spain APS 2020-2022



In 2022, nearly half of entrepreneurial initiatives started with a workforce of between one and five employees. In the last three years, the growth of these initiatives has compensated for the reduction in initiatives without employees, which fell from 51% in 2020 to 42% in 2022. However, there is no perceived increase in the number of employees throughout the entrepreneurial process. 88% of established business remain with five or fewer employees, and no change in this trend is foreseen.

Table 8. Size of entrepreneurial initiatives by entrepreneur's gender

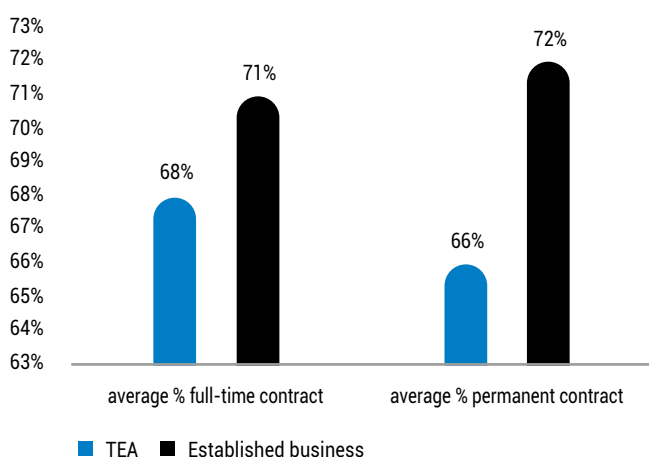
Source: GEM-Spain APS 2021-2022

				
	2021	2022	2021	2022
No employees	47%	45%	42%	39%
1-5 employees	47%	46%	41%	49%
6-19 employees	5%	8%	12%	8%
20 or more employees	1%	2%	6%	4%

The majority of entrepreneurial initiatives are microenterprises, both in the first years of the entrepreneurial process and in the consolidation phase. Women are slightly more conservative than men when it comes to recruiting, although in 2022, the percentage of men and women (8%) became equal, with a workforce of between six and nineteen employees, and the difference was reduced slightly in initiatives with more than twenty employees.

Figure 39. Characteristics of employment created in the last 12 months

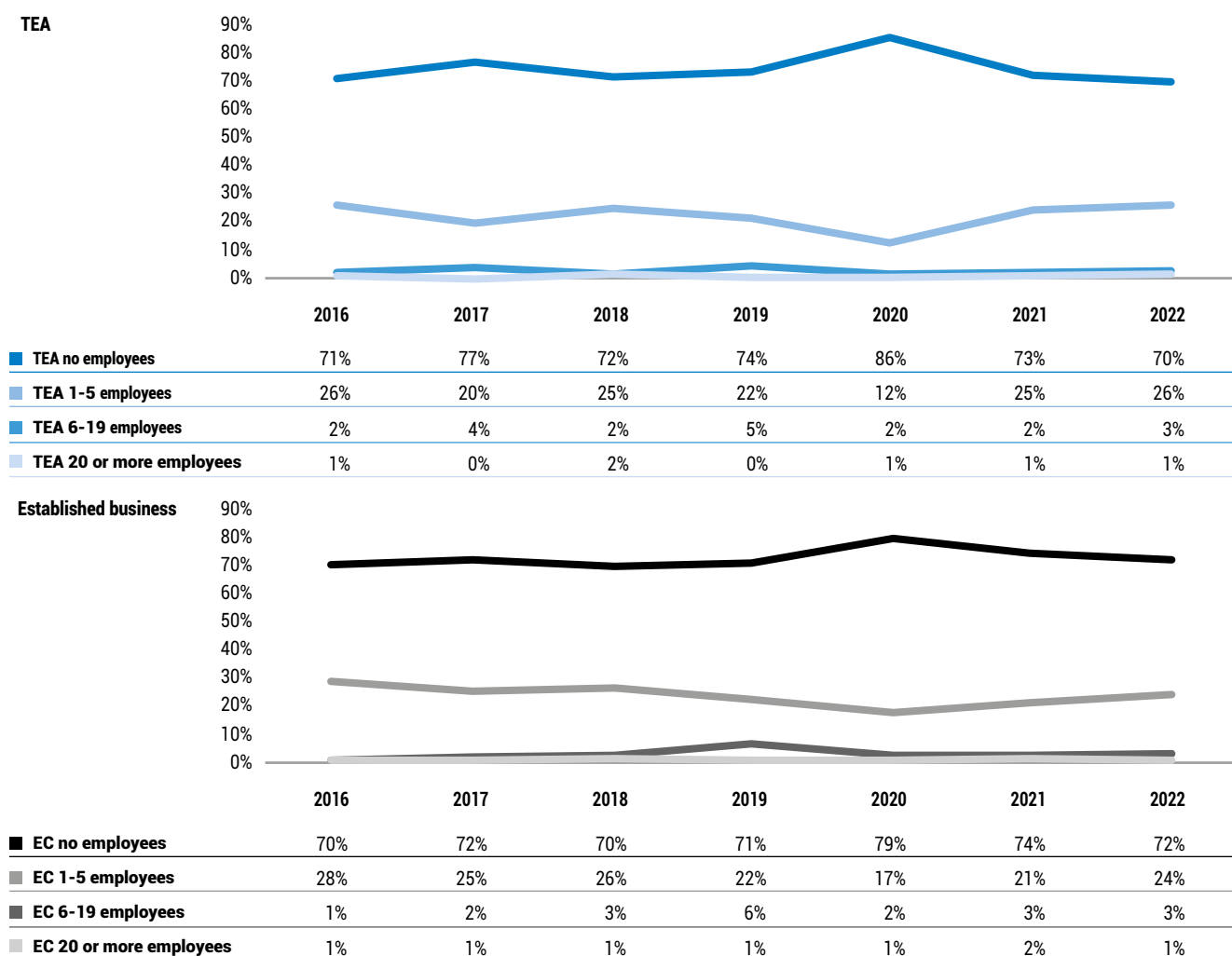
Source: GEM-Spain APS 2022



Despite the fact that about half of the entrepreneurial initiatives have a staff of between one and five employees, most of the entrepreneurs who hired in the last 12 months opted for stability in their contracts, even the most recent entrepreneurs (TEA), despite the risk involved in this decision during the start-up of a new business activity. The data seem to indicate that entrepreneurs are still looking for a strong team of full-time employees with permanent contracts to support the survival and growth of their entrepreneurial initiatives. Throughout the entrepreneurial process, the survival of entrepreneurial initiatives is higher than the average for the benchmark countries. However, there is no significant growth in the number of new contracts.

Figure 40. Evolution of employment contracts

Source: GEM-Spain APS 2016-2022

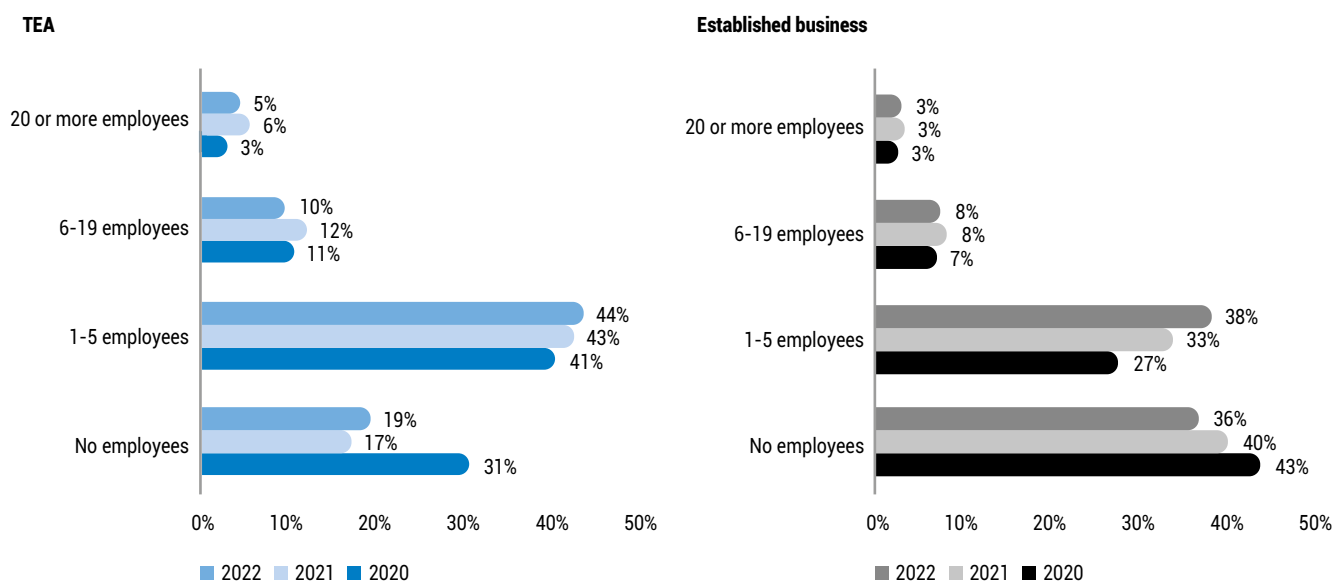


After a decline in recruitment in 2019 and 2020, the last two years have seen an increase in the percentage of early-stage (TEA) and established initiatives hiring employees, although staff numbers remain small (one to five employees).

4.5. Growth expectations

Figure 41. Expectations for job creation for the next 5 years

Source: GEM-Spain APS 2020-2022

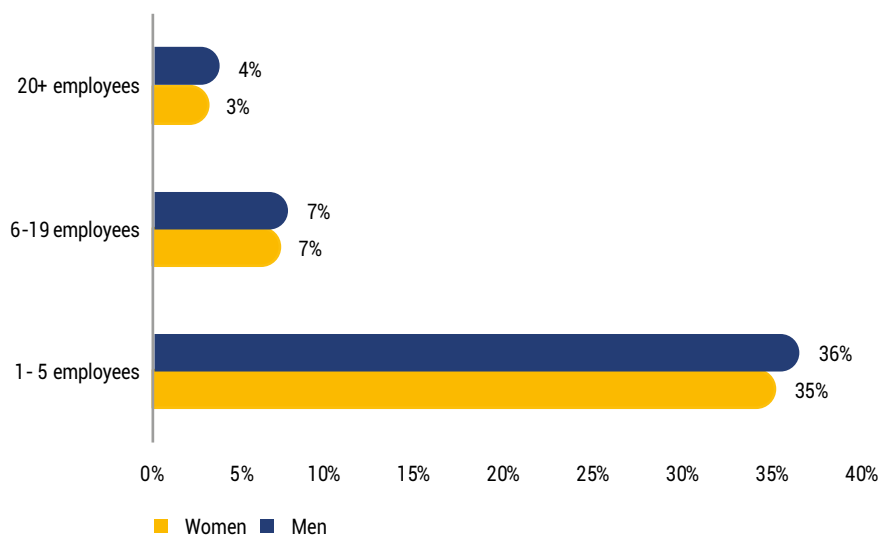


The job creation expectations of entrepreneurs have been growing gradually over the last three years. 44% of Total early-stage Entrepreneurial Activity (TEA) and 38% of those running established busi-

ness expect to hire one to five employees in the next five years. However, no increase in the percentage of entrepreneurs with greater hiring ambitions is perceived, which is still below 10%.

Figure 42. Job creation expectations by gender

Source: GEM-Spain APS 2022



In 2022, one in three entrepreneurs planned to hire an employee in the next five years, although women continue to have slightly more conservative expectations of job creation than men, especially in the case of hiring more than 20 employees in the next five years.



Strategos BioTech s.l.



Names of entrepreneurs: Yeray Brito Casillas and Ana M. Wagner.

Business name: Strategos BioTech s.l.
(<https://strategosbiotech.com/>).

Business location: Gran Canaria.

Launch year: 2021.

A brief description of what the company does: It is a spin-off company of the University of Las Palmas de Gran Canaria that was created to transfer products with biological activity from aloe vera. In addition, Strategos offers research services to other technological entities.

What does being an entrepreneur mean to you?

In our context as a spin-off company, being an entrepreneur means a commitment to society, a commitment to the direct transfer of academic results to the end user.

How did the idea arise?

We understood that the observations that took shape during our research could be transferred.

Initial transfer agreements could not be completed for different reasons and finally, the alternative of entrepreneurship was the next step we took naturally. Commitment to society and perseverance in our desire to actually transfer made the decision easy.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

The perception is that general interest in biotech companies is increasing and that more investors are deciding to invest in them. The new legal framework seems to encourage at least more contact with entrepreneurs.

How is the current economic situation affecting your business, and what measures are you taking?

The increase in supply costs and the shortage of some materials are obvious. Faced with this, one can only foresee sharpening one's wits and assuming the new deadlines as best as possible.

4.6. Innovative orientation

In the last three years, the technological level of early-stage (TEA) and established initiatives has been growing. Although we are still far from having an entrepreneurial fabric that is characterized by its technological vocation, one in ten initiatives is classified as being of medium or high technological level. In 2022, the percentage of early-stage (TEA) and established initiatives with a high technological level increased and has been growing steadily since 2020.

Figure 43. Evolution of the technological level of initiatives

Source: GEM-Spain APS 2020-2022

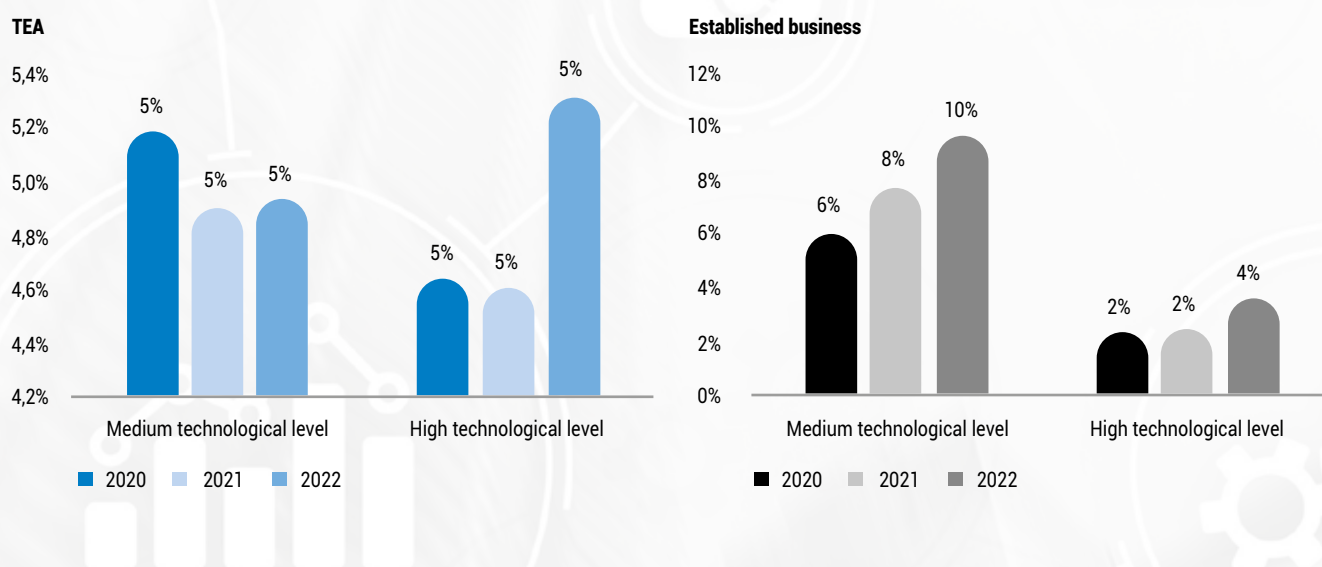
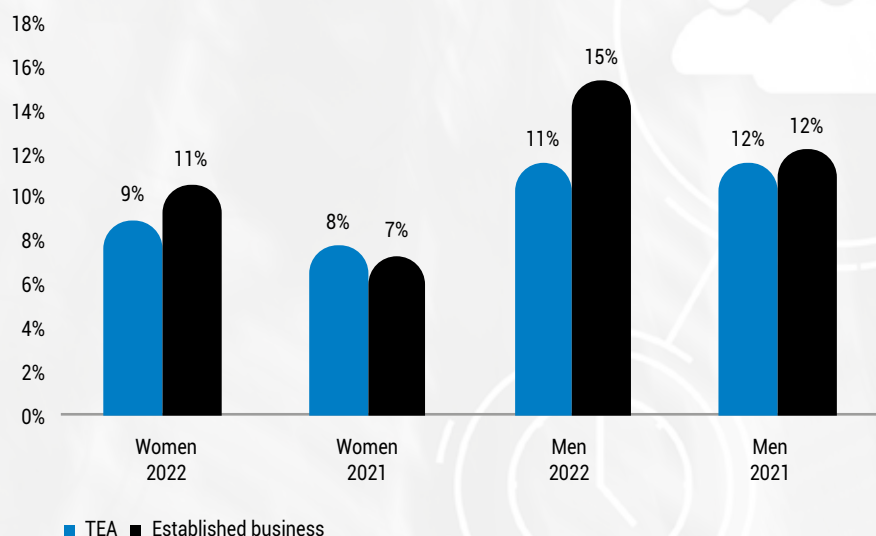


Figure 44. Technological level by gender

Source: GEM-Spain APS 2021-2022

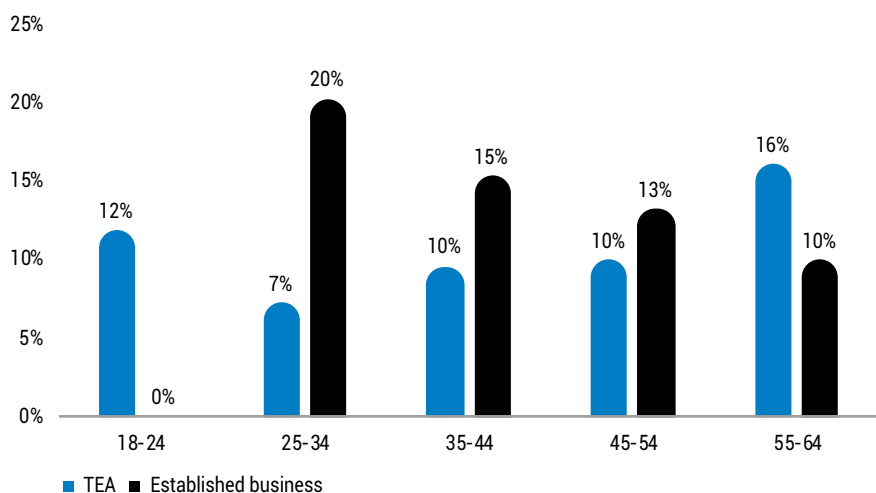


Men continue to lead more initiatives of a medium-high technological level than women, who are gradually refocusing on increasing the technological level of their projects. In both cases, the number of established initiatives of a technological nature increased significantly in 2022, which seems to be the trend for the future.



Figure 45. Technological level by age

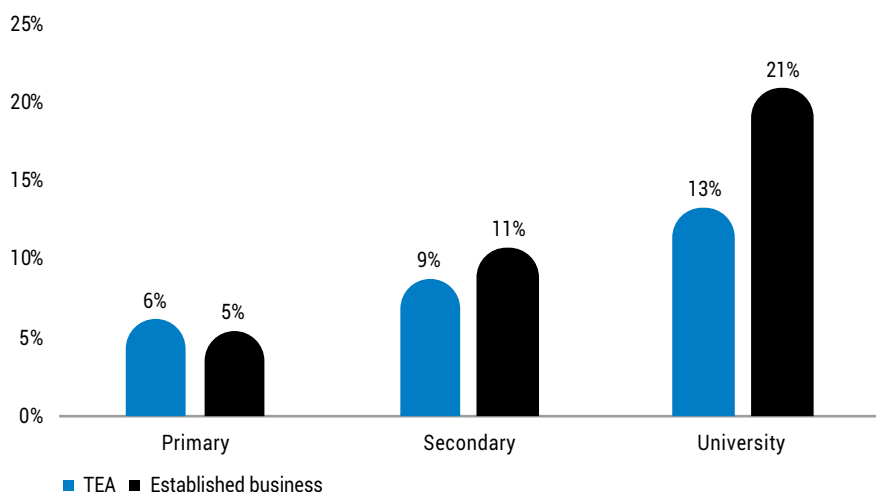
Source: GEM-Spain APS 2022



The highest percentage of established initiatives with a medium-high technological level are led by entrepreneurs aged between 25 and 30. As the age range of entrepreneurs increases, the technological level of these initiatives decreases. The technological level of Total early-stage Entrepreneurial Activity (TEA) remains below that of established initiatives, except in the case of the youngest (18-24 years) and oldest (55-64 years) entrepreneurs.

Figure 46. Technological level by educational level

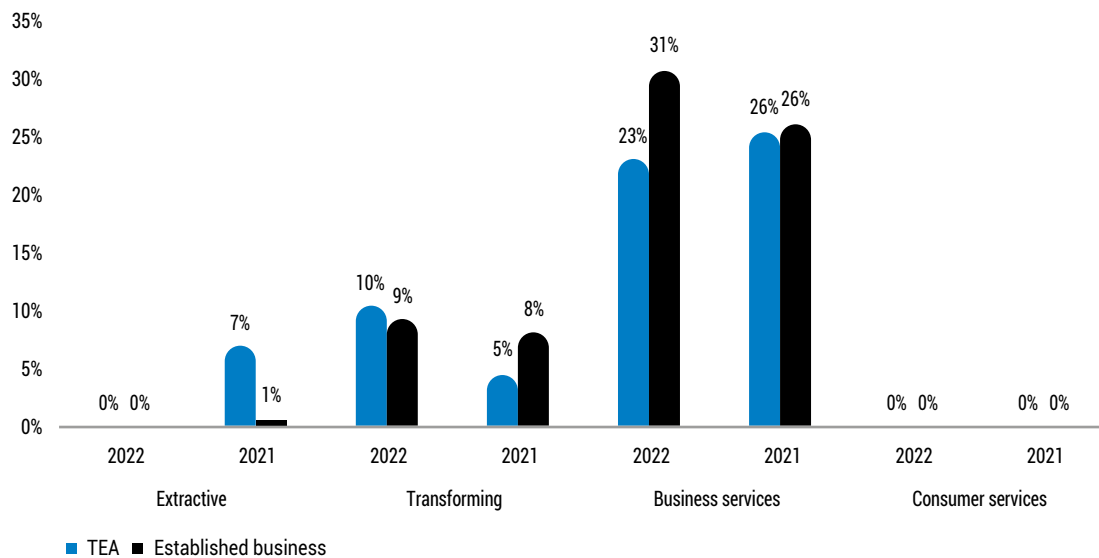
Source: GEM-Spain APS 2022



The educational level of entrepreneurs influences the technological orientation of their initiatives, especially in the case of established ones. Two out of every ten entrepreneurs with university education (bachelor's, master's degree, PhD) classify their established initiatives as having a medium-high technological level. This percentage is somewhat lower (13%) in the case of Total early-stage Entrepreneurial Activity (TEA), but in both cases it exceeds the percentages of entrepreneurs with a lower educational level and technological orientation.

Figure 47. Technological level by sector

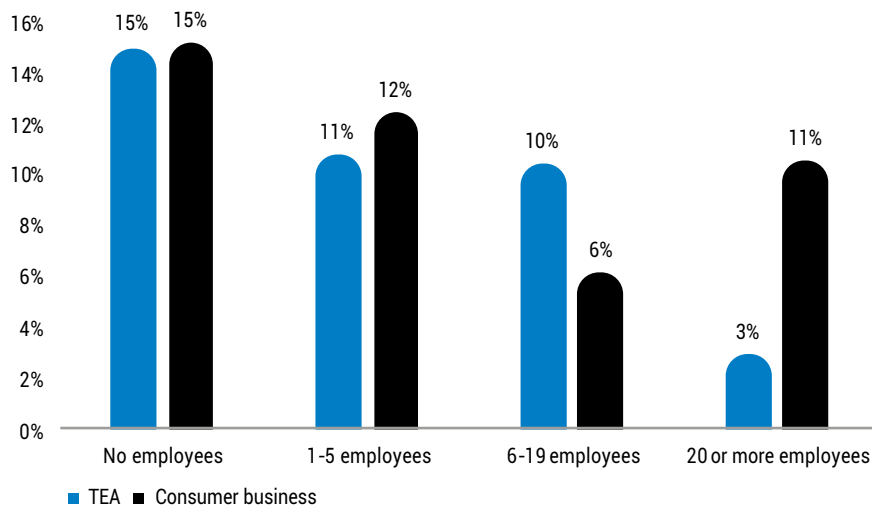
Source: GEM-Spain APS 2021-2022



The technological orientation of entrepreneurial initiatives is concentrated in the business services and transforming sectors. In 2022, the percentage of early-stage (TEA) and established initiatives of business services classified as medium-high technological level increased significantly. In contrast, the extractive and consumer services sectors are still absent as niches for technology-oriented entrepreneurial initiatives.

Figure 48. Technological level by size

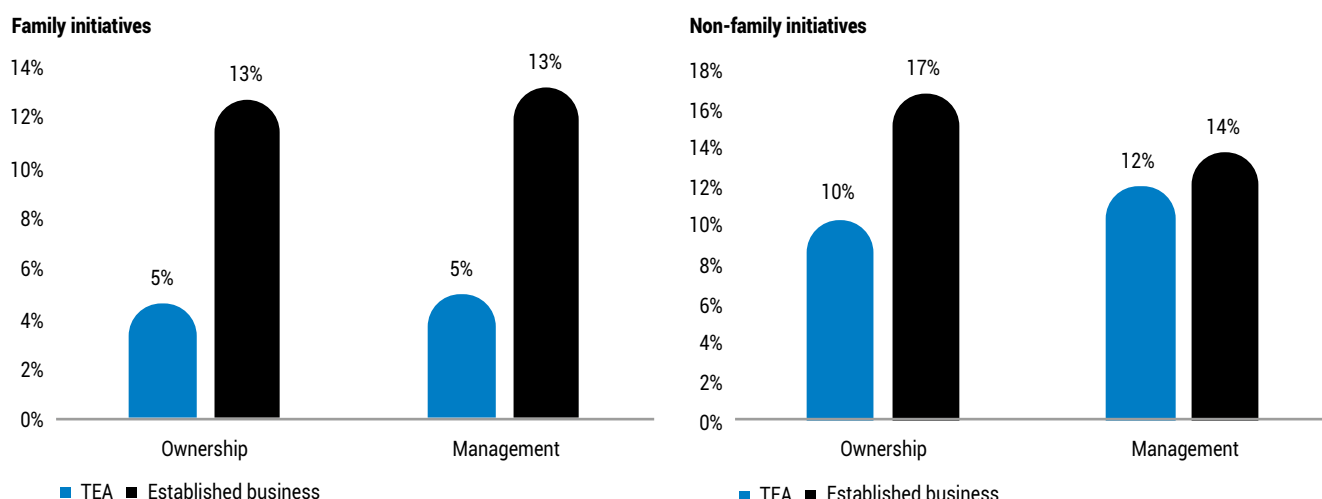
Source: GEM-Spain APS 2022



The number of employees does not seem to be a criterion that determines the technological level of entrepreneurial initiatives.

Figure 49. Technological level according to the family nature of the initiatives

Source: GEM-Spain APS 2022

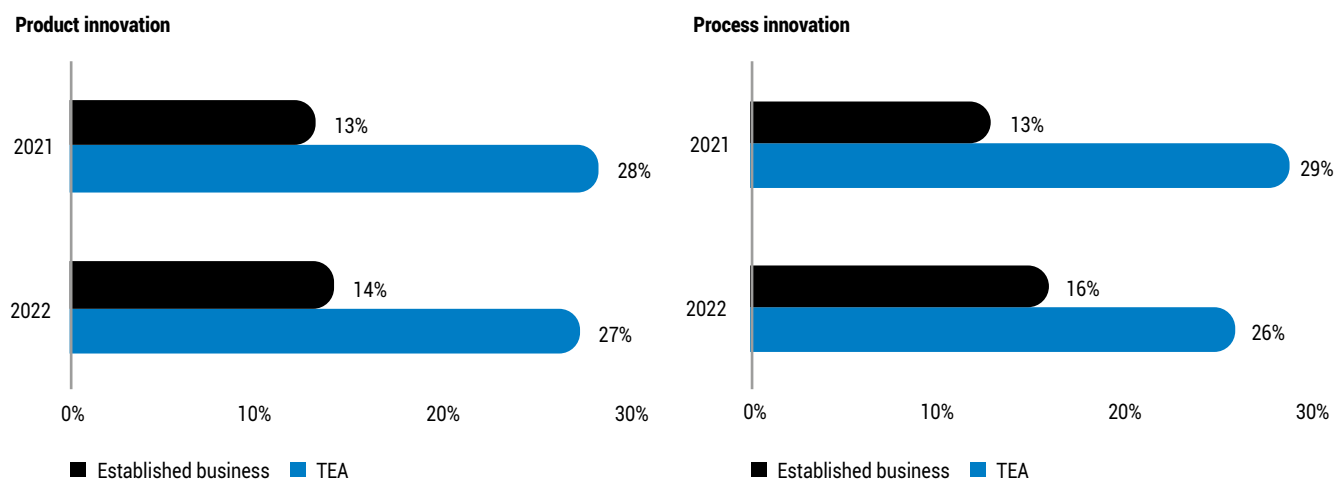


In 2022, entrepreneurial initiatives of a family nature (based on ownership and/or management) are rated as less technological than non-family initiatives, especially those of recent creation (TEA). The family nature seems to be a limiting factor for initiatives with a medium-high technological level.

4.7. Product and process innovation

Figure 50. Evolution of product and process innovation

Source: GEM-Spain APS 2021-2022



In 2022, the difference in the innovative capacity of early-stage (TEA) and established initiatives from the previous year is maintained. 27% of Total early-stage Entrepreneurial Activity (TEA) offer new products to the market, while 26% use new business processes. It is foreseeable that the percentage of innovative established initiatives will increase over the coming year, as a result of the evolution of entrepreneurs through the entrepreneurial process.



Voicemod



Name of entrepreneur: Jaime Bosch Criado.

Business name: Voicemod (www.voicemod.com).

Business location: Valencia.

Launch year: 2014.

A brief description of what the company does: Voicemod is the leader in real-time voice modification software with artificial intelligence and a soundboard. The company's technology offers over 100 voice options, pitch shifting, sound enhancement and a wide range of fantasy, funny, spooky and musical voices. With over 40 million users, Voicemod is a popular choice among gamers, streamers, content creators and those who simply want to boost their voice online and sound the way they want to be heard. The software is available free of charge, with a paid PRO version that unlocks additional features and content. Voicemod is based in Valencia, Spain, with offices in the US and Asia.

What does being an entrepreneur mean to you?

Being an entrepreneur means constantly living outside your comfort zone, every day you face new challenges and have to make decisions in an agile way. Entrepreneurship is to fail a lot, get up and try again. In this way, you are constantly learning and evolving.

How did the idea arise?

Voicemod was founded by three siblings who had already been working together for a few years. In one of our previous companies we got our hands on the first iPhone, around 2009, and we saw the device as an interesting opportunity to develop new software and decided to start a new project to learn how to develop software for this device. To choose the theme of the software we decided to combine our passions: technology and music, and so the first version of Voicemod came out in 2010.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

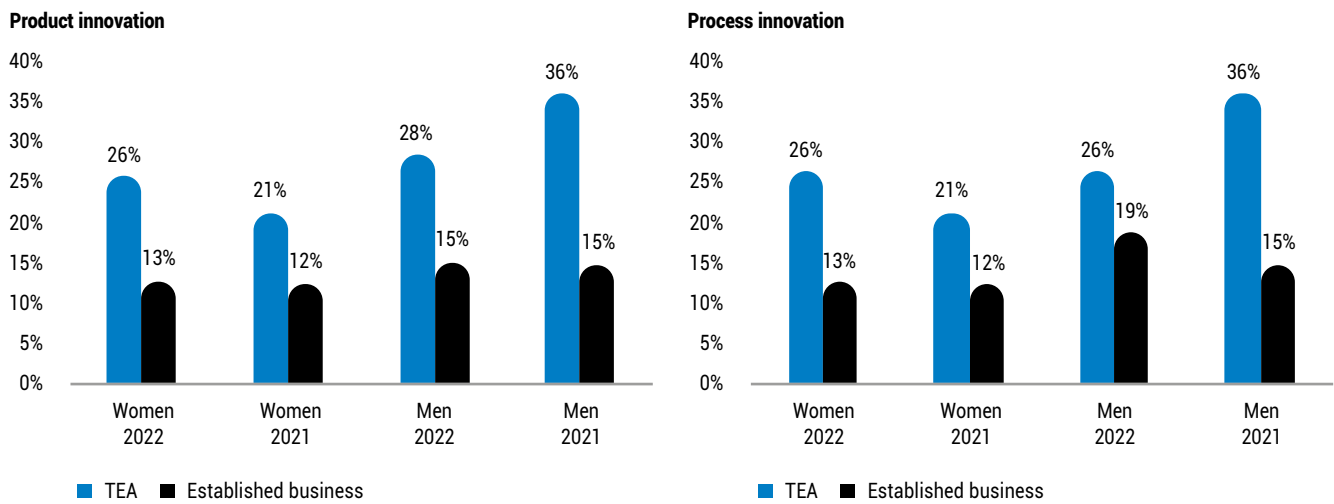
The artificial intelligence boom in late 2022 and early 2023 is increasing our business opportunities but also our competition. It is a very interesting time when everything is moving very fast. Voicemod is developing and implementing the latest technology on the market to maintain its leading position in the industry.

How is the current economic situation affecting your business, and what measures are you taking?

The economic situation is noticeable, as people have less purchasing power to spend on digital entertainment and this ultimately affects businesses like ours. Our measures are to offer a better value proposition with a better product experience, so that our solutions continue to attract millions of people every month.

Figure 51. Product and process innovation by gender

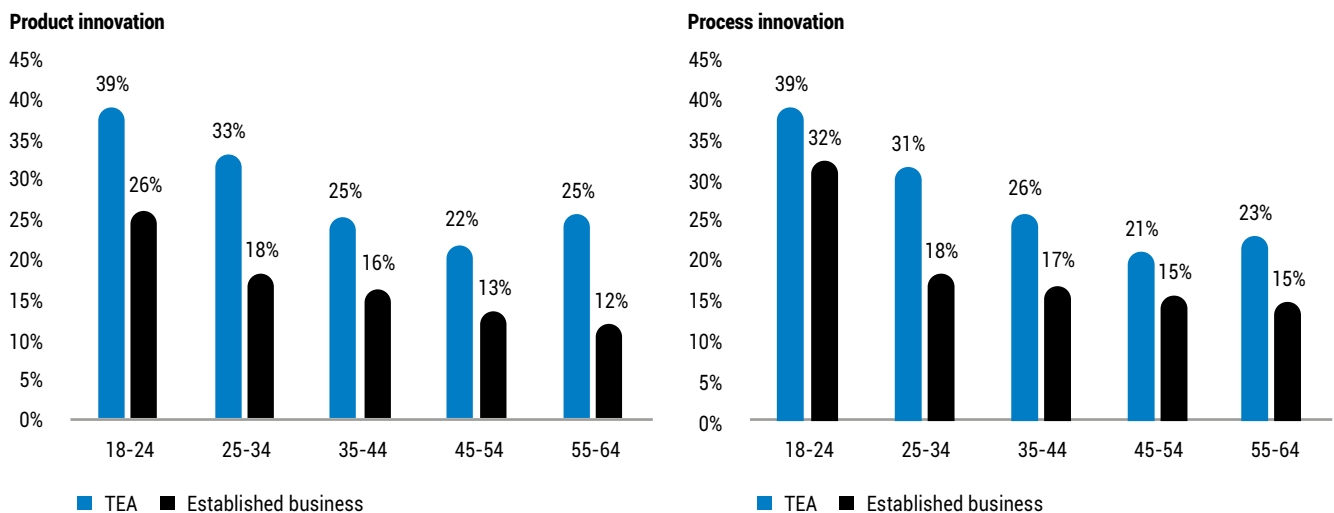
Source: GEM-Spain APS 2021-2022



In 2022, 26% of Total early-stage Entrepreneurial Activity (TEA) run by women innovated in product and/or business processes, thus equaling the percentage of Total early-stage Entrepreneurial Activity (TEA) run by men. However, in the case of established initiatives, the level of innovation is lower and the percentage of men running these initiatives is higher.

Figure 52. Product and process innovation by age

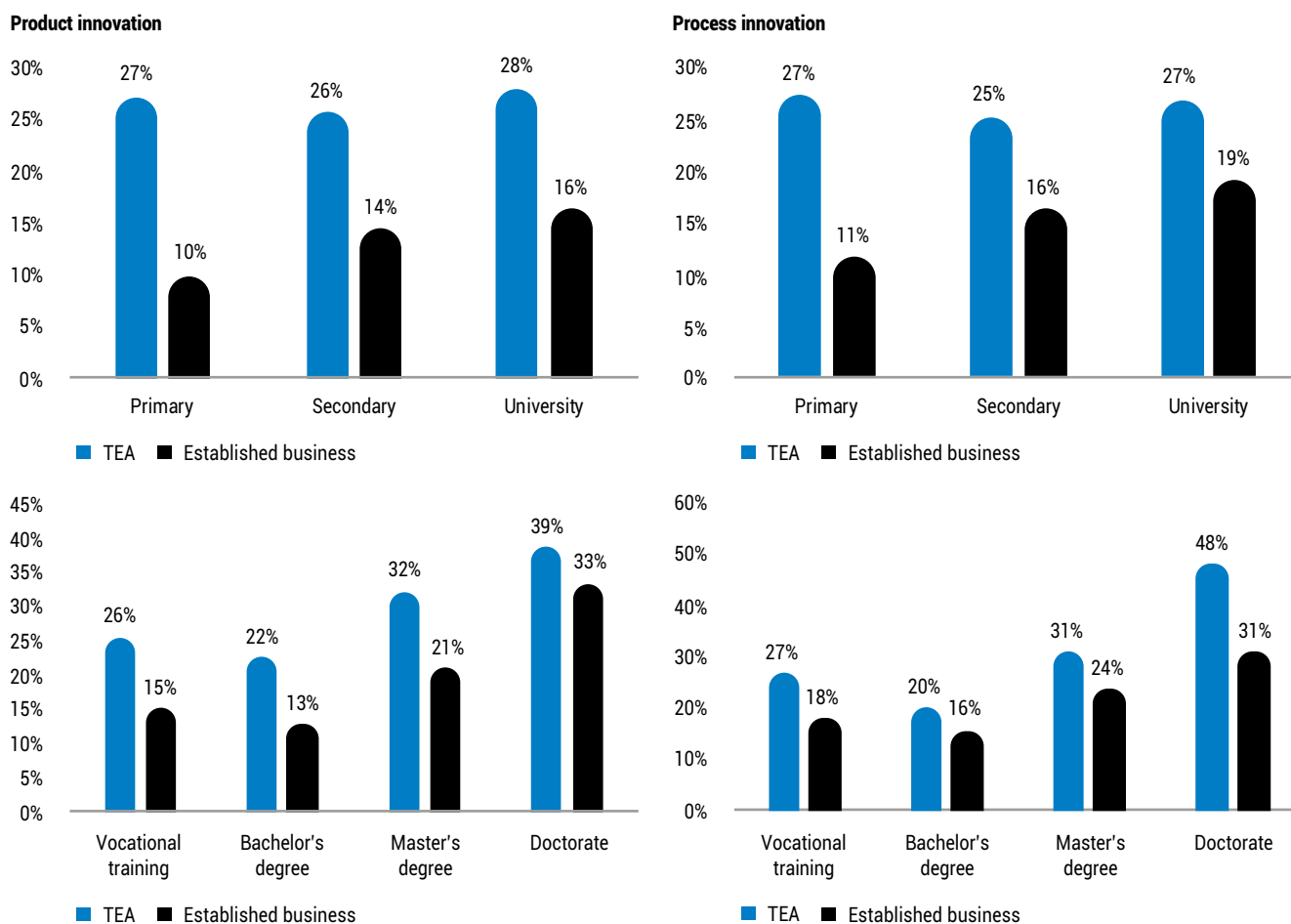
Source: GEM-Spain APS 2022



Four out of every ten Total early-stage Entrepreneurial Activity (TEA) led by young entrepreneurs (between 18 and 24 years old) innovate in terms of product and/or business processes. This percentage decreases as the age of the entrepreneurs and initiatives increases.

Figure 53. Product and process innovation by educational level

Source: GEM-Spain APS 2022

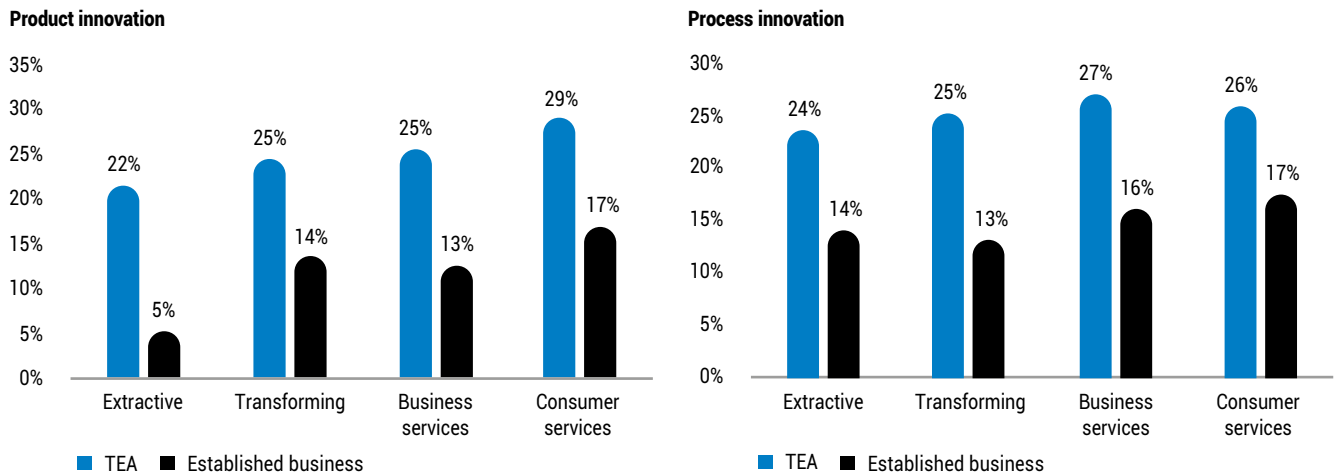


Although the percentage of entrepreneurial initiatives that innovate in product and/or business processes is similar among entrepreneurs at different educational levels (primary, secondary, university), the breakdown between higher levels of education shows significant differences in the innovative capacity of initiatives led by entrepreneurs with master's and doctoral degrees. One third of Total early-stage Entrepreneurial Activity (TEA) led by entrepreneurs with a master's degree and almost half of PhD entrepreneurs are launching product and/or business process innovations in 2022.



Figure 54. Product and process innovation by sector

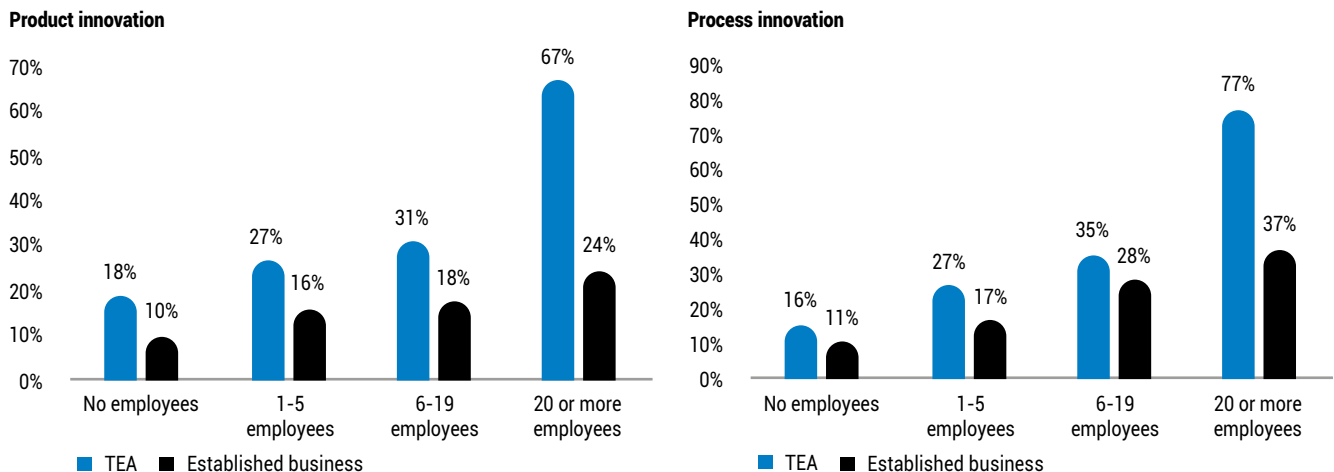
Source: GEM-Spain APS 2022



Although the classification of initiatives as medium-high technology is focused on the business services and transforming sectors, in 2022 more than 20% of Total early-stage Entrepreneurial Activity (TEA) innovate in product and/or process in all productive sectors, a percentage that almost doubles the percentage of established initiatives, and enables us to foresee a significant increase in innovation in the country's entrepreneurial fabric.

Figure 55. Product and process innovation by size

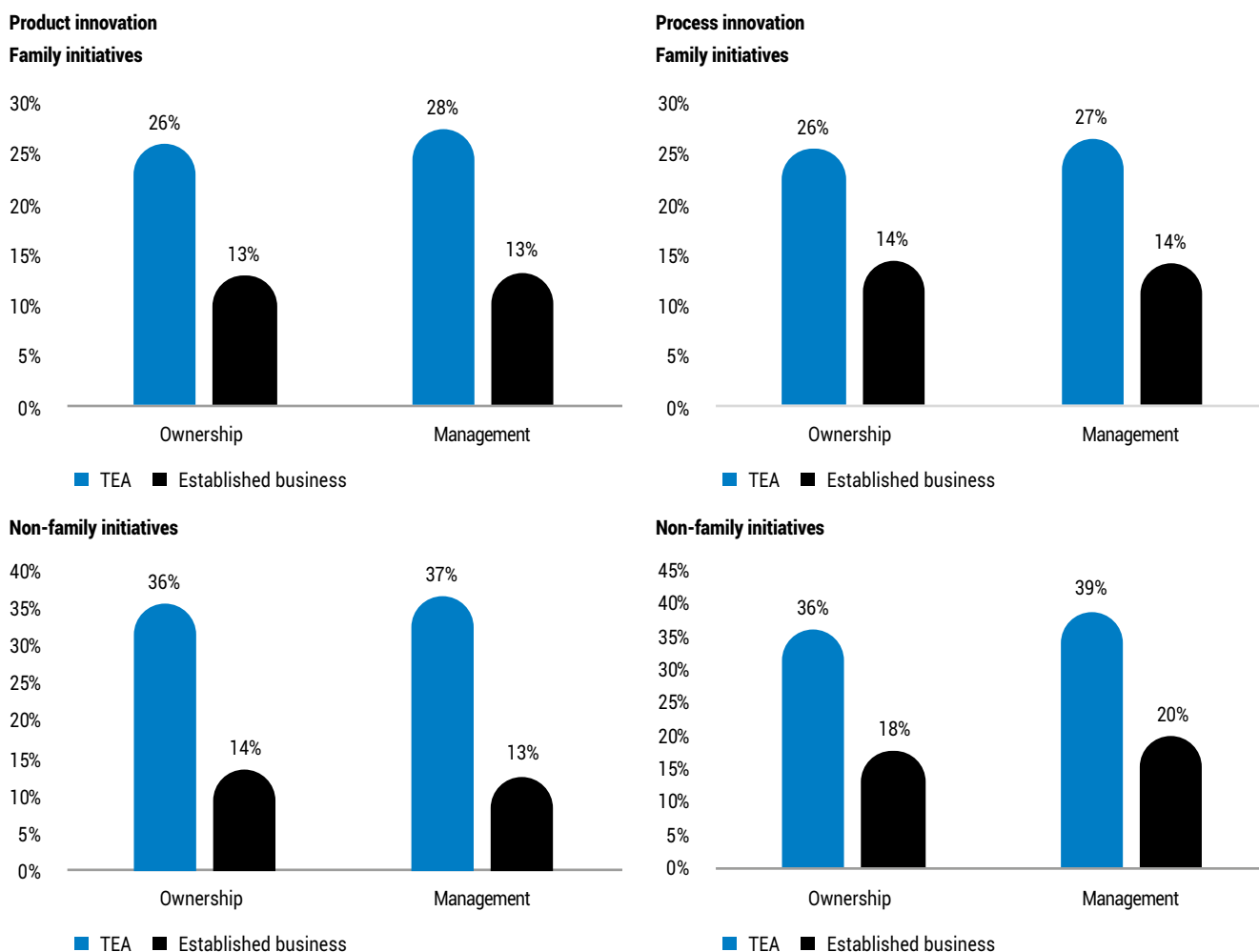
Source: GEM-Spain APS 2022



Entrepreneurial initiatives that innovate in product and/or process are those with the largest number of employees. 67% of Total early-stage Entrepreneurial Activity (TEA) with over 20 employees offer new products to the market, and 77% develop new business processes. The size of the staff and the innovative behavior of the entrepreneurial initiatives seem to be directly related, especially in the case of Total early-stage Entrepreneurial Activity (TEA).

Figure 56. Product and process innovation by family nature of the initiatives

Source: GEM-Spain APS 2022

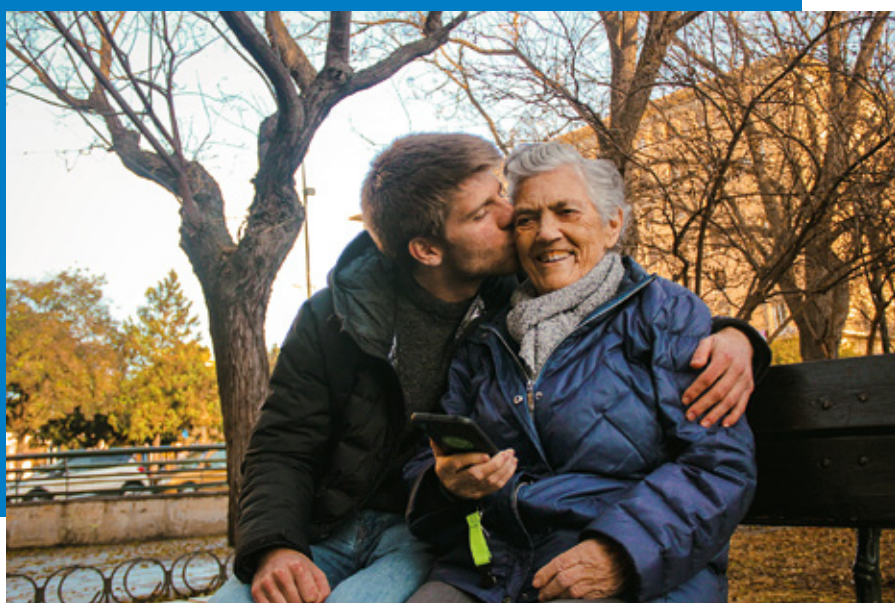


While family ownership seems to be a limiting factor for medium-high tech entrepreneurial initiatives, it is not so much a limiting factor when it comes to product and process innovation. In 2022, more than 25% of Total early-stage Entrepreneurial Activity (TEA) with a family ownership and/or management structures offered new products and processes to the market, a percentage that is still lower than that of non-family initiatives but double that of established initiatives.





Maximiliana



Name of entrepreneur: Jorge Terreu Serrano.

Business name: Maximiliana
(<https://maximiliana.es/>).

Business location: Zaragoza.

Launch year: 2020.

A brief description of what the company does:

Maximiliana is a smartphone for the elderly. It works by itself. Its autonomy makes it very easy and simple to use. You don't need to have any technological knowledge.

What does being an entrepreneur mean to you?

For me, it represents the opportunity to challenge yourself with the goal of helping other people. From the conceptualization of the idea to its materialization, it is an exciting journey, full of good and bad moments that force you to do your best and enable you to get to know yourself better.

How did the idea arise?

It arose from a real need: communication between a grandmother and her grandson, and also with the aim of breaking the technological gap.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

Within the sector, there is still scope for entrepreneurship, especially if it is based on innovation. For example, IoT technology can be used in the sector with hardly any competition, not to mention the possibility of internationalizing our products, which opens the doors to an even broader market.

How is the current economic situation affecting your business, and what measures are you taking?

The economic situation has increased the price sensitivity of our target market as well as all our costs. To overcome this, we are tightening our profit margins as much as possible so that we can continue to offer a quality service at a fair price.

Something you would like to add

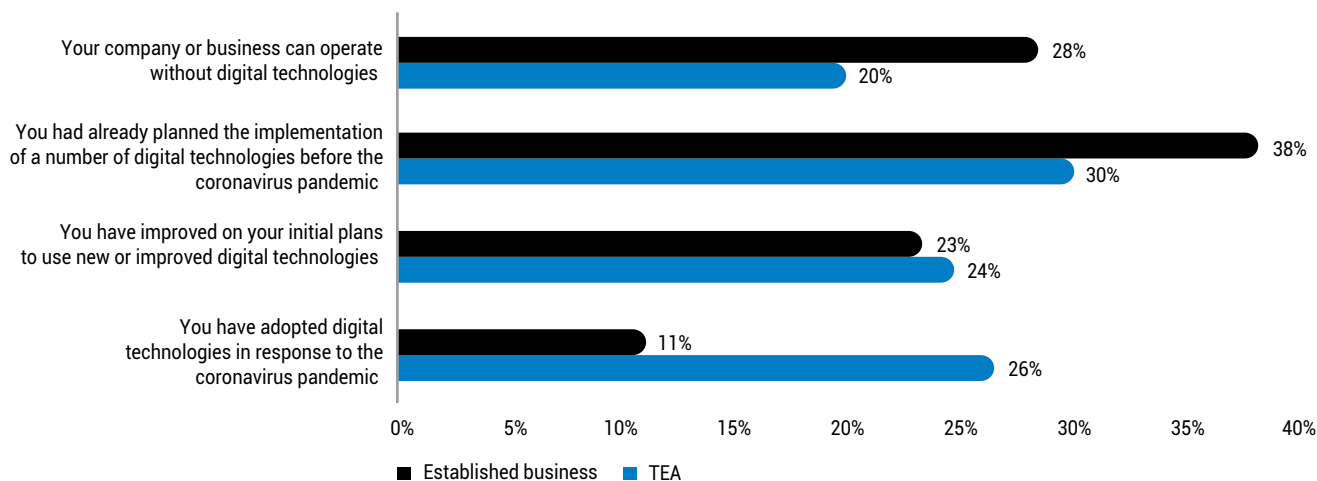
We feel very privileged to be part of the Spanish entrepreneurial network and to be able to give our best every day to bring technology to the elderly.

4.8. Digitalization

4.8.1. Adoption of digital technologies and the health crisis

Figure 57. Characteristics of Total early-stage Entrepreneurial Activity (TEA) by digitalization

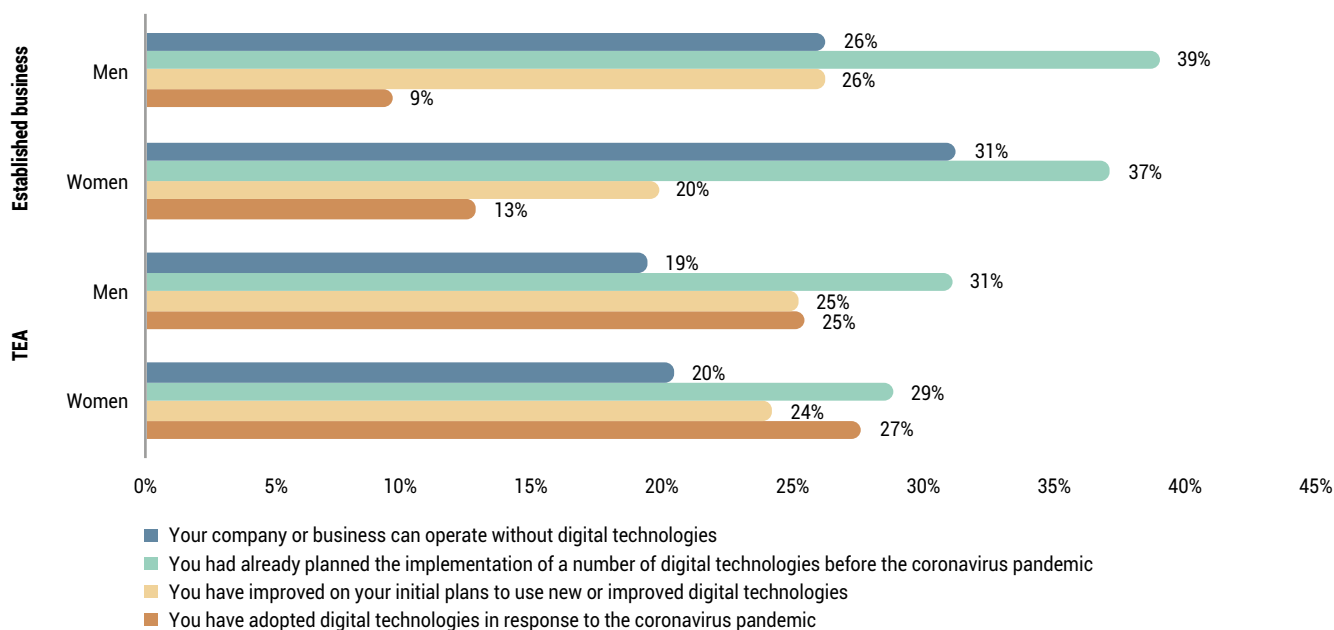
Source: GEM-Spain APS 2022



Although 38% of entrepreneurs in charge of established initiatives had already planned their digitalization regardless of the pandemic, 28% still considered that their business could run without digital technologies. The coronavirus pandemic has led 11% of these initiatives to adopt new technologies and 23% to improve their initial digitalization plans. In the case of Total early-stage Entrepreneurial Activity (TEA), digitalization as a result of the pandemic has been more significant, both in terms of the percentage of new adoptions (26%) and the percentage of improved digitalization plans (24%). 30% had already planned ahead, although 20% still believe that their company can operate without digital technologies.

Figure 58. Characteristics of entrepreneurial initiatives by gender

Source: GEM-Spain APS 2022



Women are still slightly behind men when it comes to planning and improving the digitalization plans of their early-stage (TEA) and established initiatives. However, the rate of adoption of digital technologies in response to the pandemic is higher than that of men, which is evidence of a behavioral change for the future.



Figure 59. Characteristics of entrepreneurial initiatives by educational level
Source: GEM-Spain APS 2022

Digital technologies have been adopted in response to the coronavirus pandemic

- **TEA** 23% with primary education, 29% with secondary education, 26% with university level
- **Established business** 11% with primary education, 11% with secondary education, 10% with university level



Initial plans to use new or improved digital technologies have improved

- **TEA** 24% with primary education, 24% with secondary education, 25% with university level
- **Established business** 19% with primary education, 23% with secondary education, 27% with university level



Implementing a number of digital technologies had already been planned before the pandemic

- **TEA** 25% with primary education, 18% with secondary education, 18% with university level
- **Established business** 34% with primary education, 37% with secondary education, 42% with university level



Your company or business can operate without digital technologies

- **TEA** 26% with primary education, 17% with secondary education, 12% with university level
- **Established business** 37% with primary education, 30% with secondary education, 21% with university level



As in the case of innovative capacity, entrepreneurs' level of education determines the digital orientation of their entrepreneurial initiatives. Entrepreneurs with a university degree are the ones who most anticipated the implementation of digital technologies in their established business and who have most improved their plans as a result of the pandemic. They are also the least likely to consider that their business could operate without digital technologies.

Figure 60. Characteristics of entrepreneurial initiatives by age in 2022

Source: GEM-Spain APS 2022

Have adopted digital technologies in response to the coronavirus pandemic	Improved initial plans to use new or enhanced digital technologies	Had already planned to implement a number of digital technologies before the coronavirus pandemic	Their company or business can operate without digital technologies
TEA	TEA	TEA	TEA
• 33% aged 18-34 • 31% aged 35-44 • 16% aged 45-64	• 23% aged 18-34 • 22% aged 35-44 • 28% aged 45-64	• 27% aged 18-34 • 29% aged 35-44 • 33% aged 45-64	• 17% aged 18-34 • 18% aged 35-44 • 24% aged 45-64
Established business	Established business	Established business	Established business
• 18% aged 18-34 • 14% aged 35-44 • 9% aged 45-64	• 20% aged 18-34 • 24% aged 35-44 • 23% aged 45-64	• 35% aged 18-34 • 35% aged 35-44 • 39% aged 45-64	• 28% aged 18-34 • 27% aged 35-44 • 29% aged 45-64

One in three Total early-stage Entrepreneurial Activity (TEA) aged 18-34 has digitalized their business in response to the challenges of the pandemic. However, one in three Total early-stage Entrepreneurial Activity (TEA) and almost one in four entrepreneurs aged 45-64 and running established businesses had already planned to go digital before the pandemic. Younger people are more likely to react to unforeseen situations, but older people are more likely to plan ahead.

Table 9. Characteristics of the entrepreneurial initiatives by sector

Source: GEM-Spain APS 2022

	Extractive		Transforming		Business services		Consumer services	
	TEA	Established business	TEA	Established business	TEA	Established business	TEA	Established business
You have adopted digital technologies in response to the coronavirus pandemic	9%	7%	21%	9%	24%	9%	31%	13%
You have improved on your initial plans to use new or enhanced digital technologies	13%	15%	28%	20%	27%	28%	22%	21%
You had already planned the implementation of a number of digital technologies before the coronavirus pandemic	38%	25%	28%	39%	32%	44%	28%	33%
Your company or business can operate without digital technologies	40%	52%	24%	32%	18%	18%	19%	32%

Adopting and upgrading digital technologies as a result of the pandemic has mainly occurred in the services and transforming sectors. Pre-planning for digitalization also predominates in the services sectors, especially in the business services and transforming sectors in the consolidation phase of the entrepreneurial process. In the extractive sector, a certain polarity can be observed. While 38% of Total early-stage Entrepreneurial Activity (TEA) and 25% of entrepreneurs in charge of established initiatives claim to have planned digitalization in advance, 40% of Total early-stage Entrepreneurial Activity (TEA) and 52% of entrepreneurs running established initiatives claim that their company can operate without digital technologies.



SpectralGeo



Name of entrepreneur: Carlos Tarragona Pérez.

Business name: SpectralGeo (<https://www.spectralgeo.es/>).

Business location: Logroño (La Rioja).

Launch year: 2016.

A brief description of what the company does: Development of vision and artificial intelligence systems for increasing efficiency in the agricultural and environmental sectors.

What does being an entrepreneur mean to you?

Being an entrepreneur means using a great deal of creativity and effort to turn a brilliant vision or idea into a business. To do so, it is essential to be aware that, in order to be successful, it is necessary to take a lot of risks and devote plenty of time to be able to face the constant challenges that entrepreneurship involves.

How did the idea arise?

The members of the company's board of directors had experience in technological projects related to the field of agriculture. With the emergence of new satellite data sources and the advancement of sensor technology and its processing with artificial intelligence techniques, we saw an opportunity to offer a precision agriculture product that would allow companies in the agri-food sector to increase the profitability of their farms.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

In the data science sector, a large number of opportunities are arising, especially in the agricultural sector, where the rules of the game are constantly changing, with products that can no longer be used, disproportionately high input costs, and most importantly, changing weather conditions.

How is the current economic situation affecting your business, and what measures are you taking?

The current situation is not affecting us in terms of turnover. However, it is affecting our liquidity, as we have been experiencing significant delays in invoicing since the middle of 2022. We have opted to take out financing that will allow us to have peace of mind in terms of cash flow.

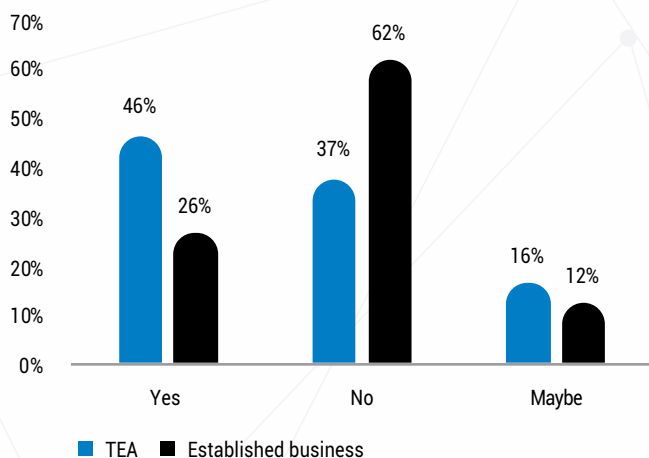
Something you would like to add

I would like to add that beyond the results, there are two things we are very proud of. On the one hand, the fact that we are participating in the transformation of the agricultural sector at different levels, from large agri-food companies to the small farmer, through associations. On the other hand, in job creation, with special emphasis on generating quality jobs.

4.8.2. Expectations for adopting digital technologies

Figure 61. Expectations for adopting digital technologies in the entrepreneurial process

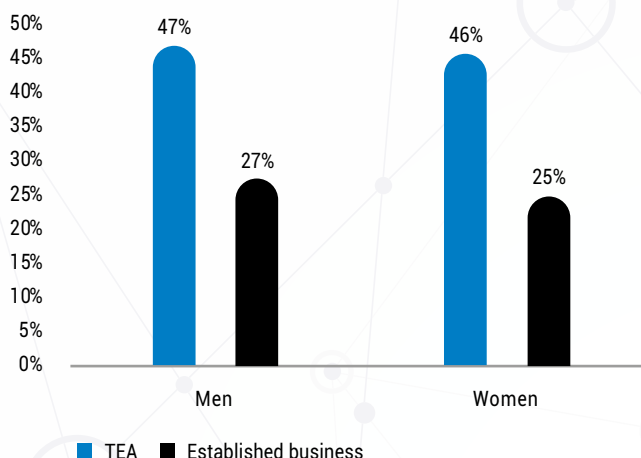
Source: GEM-Spain APS 2022



In 2022, almost half of Total early-stage Entrepreneurial Activity (TEA) expected to use digital technologies to sell their products in the next six months, in contrast to the low percentage of entrepreneurs running established businesses (26%) with the same expectations. Digital marketing is being promoted by Total early-stage Entrepreneurial Activity (TEA), while most established businesses are giving up on it.

Figure 62. Expectations for adopting digital technologies by gender

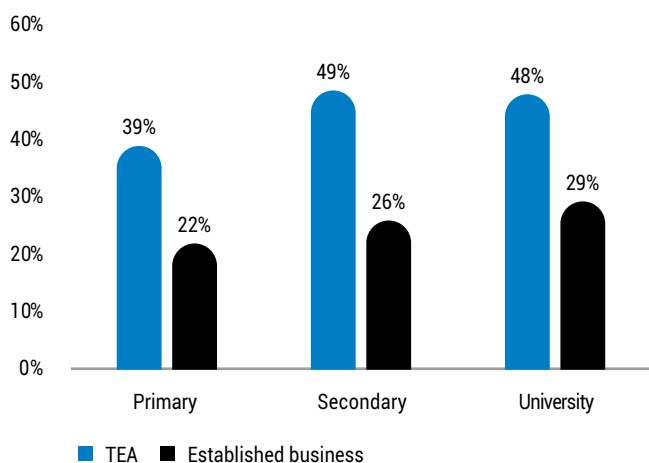
Source: GEM-Spain APS 2022



There are hardly any differences in expectations for digitalizing the marketing process between men and women. This seems to be a decision that one out of every two entrepreneurs makes when their entrepreneurial initiative is still recent, especially as a result of the pandemic.

Figure 63. Expectations for adopting digital technologies by the entrepreneur's educational level

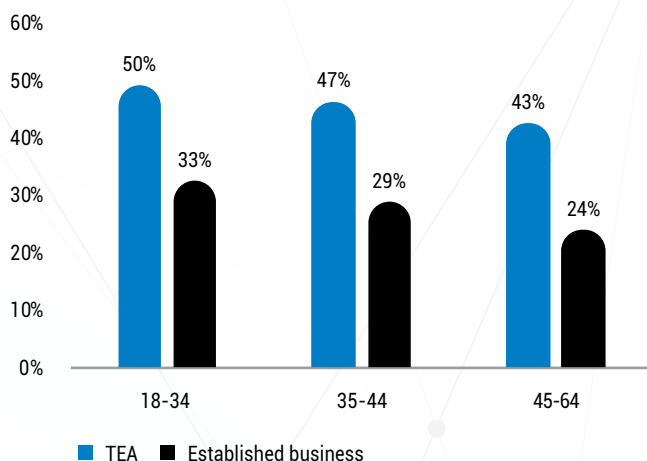
Source: GEM-Spain APS 2022



Expectations for adopting digital technologies also increase according to the educational level of entrepreneurs. Among Total early-stage Entrepreneurial Activity (TEA), the percentage of those who expect to adopt digital technologies increases from 39% among those with primary studies to 48% among those with university studies. In the case of entrepreneurs running established initiatives, the trend is similar, although less noticeable than in the case of Total early-stage Entrepreneurial Activity (TEA).

Figure 64. Expectations for adopting digital technologies by the entrepreneur's age

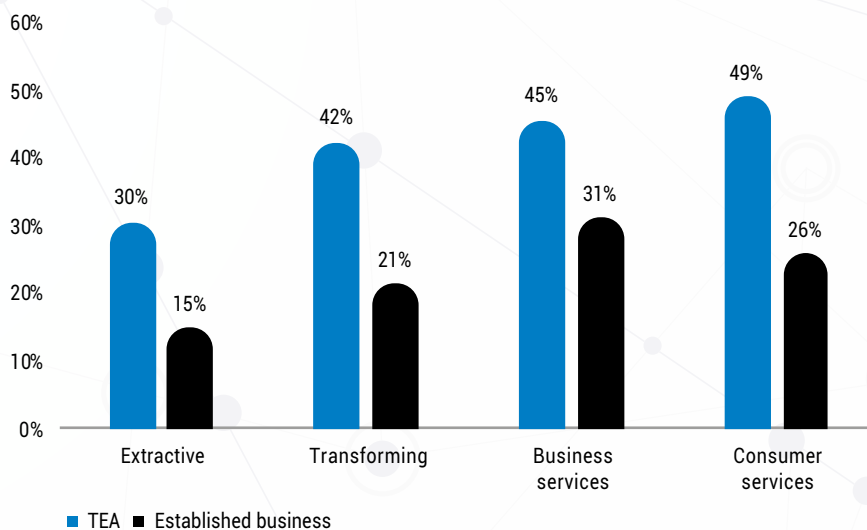
Source: GEM-Spain APS 2022



The need to adopt digital technologies is most evident among younger entrepreneurs, especially those involved in Total early-stage Entrepreneurial Activity (TEA). In the case of those who are already working in established businesses, the percentage of those who expect to digitalize their initiatives in the future decreases as their age increases. 59% of Total early-stage Entrepreneurial Activity (TEA) aged between 18 and 24 expect to digitalize their businesses, and 45% of those with established businesses in the same age range.

Figure 65. Expectations for adopting digital technologies by sector of entrepreneurial initiatives

Source: GEM-Spain APS 2022

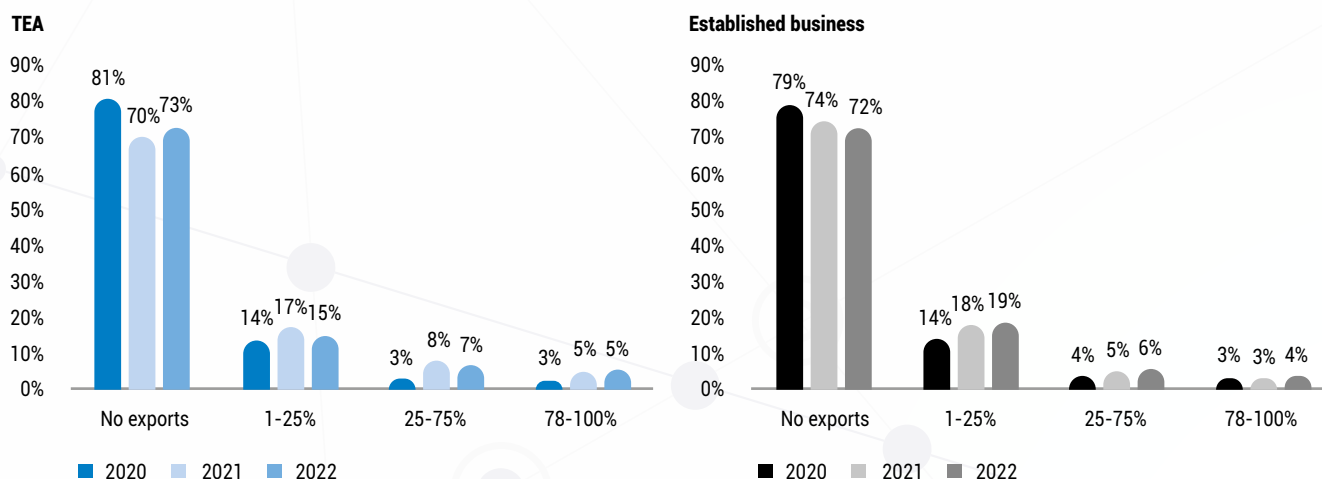


In 2022, expectations for adopting digital technology were particularly relevant for entrepreneurship in the services and transforming sectors. Almost half of Total early-stage Entrepreneurial Activity (TEA) in these sectors expect to digitalize the marketing of their products. In the case of established business, the highest proportion of entrepreneurs with expectations for digitalizing their sales processes are in the business services sector, already considered as the current niche of medium-high tech entrepreneurship.

4.9. International orientation

Figure 66. Evolution of international orientation

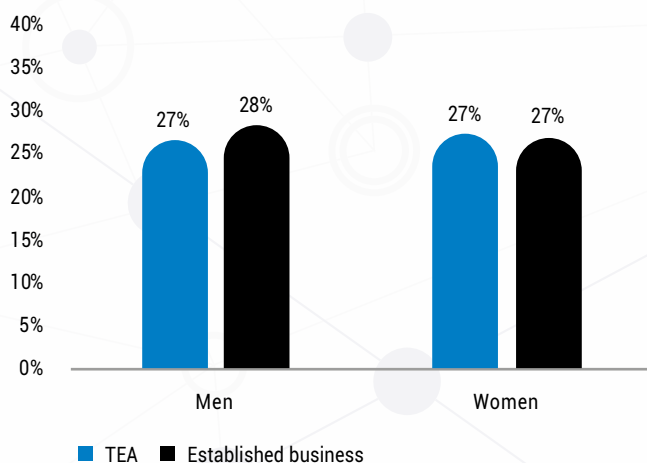
Source: GEM-Spain APS 2020-2022



In the last three years, Spanish entrepreneurial initiatives have hardly changed their domestic orientation. In 2022, 5% of Total early-stage Entrepreneurial Activity (TEA) can be classified as born-global, with a range of exports exceeding 75%. Established initiatives are gradually increasing their capacity for internationalization, and it is foreseeable that in the coming years they will increase their orientation towards foreign markets.

Figure 67. International orientation by gender

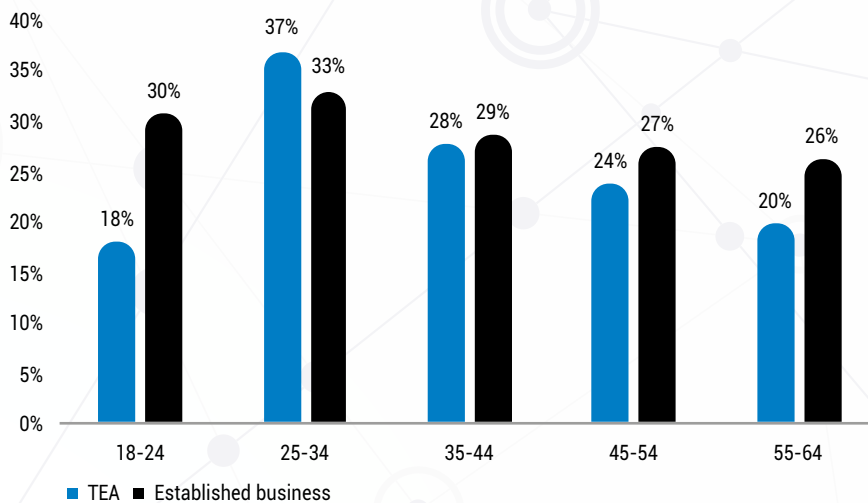
Source: GEM-Spain APS 2022



Unlike previous years, women are no longer more reluctant than men to lead projects with an international orientation. Neither are there any differences observed throughout the entrepreneurial process, consolidating an increase in the international orientation of entrepreneurial initiatives led by women.

Figure 68. International orientation by age

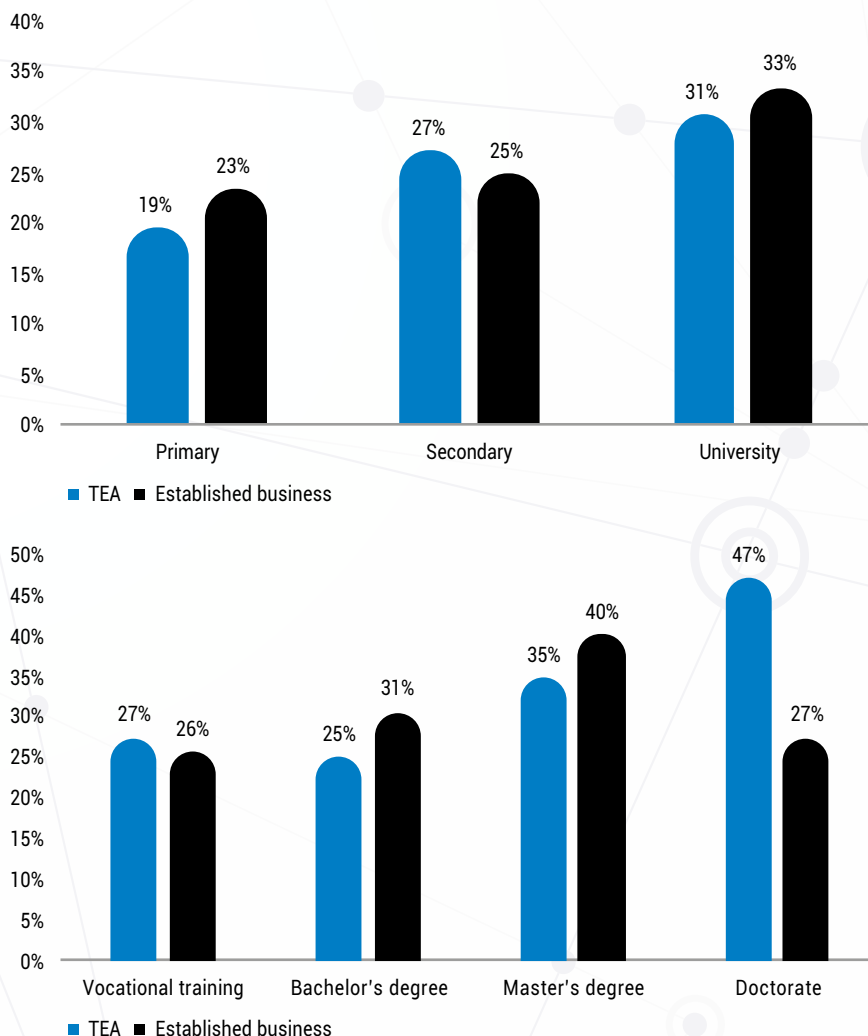
Source: GEM-Spain APS 2022



Without major differences, the highest percentage of international initiatives were led by entrepreneurs aged between 25 and 34, who are relatively young. This can guarantee the international projection of these initiatives over time.

Figure 69. International orientation by educational level

Source: GEM-Spain APS 2022



The level of education affects not only the innovative nature of entrepreneurial initiatives, but also their international orientation. In 2022, 31% of Total early-stage Entrepreneurial Activity (TEA) and 33% of established initiatives led by university-level entrepreneurs had some level of export.

Almost half of the Total early-stage Entrepreneurial Activity (TEA) led by entrepreneurs with a Doctorate degree were focused on international markets, as well as 40% of the established initiatives led by entrepreneurs with a Master's degree. These figures consolidate the relevant role of postgraduate studies when it comes to building the international profile of the entrepreneurial fabric of this country.



PixelsHub s.l.



Name of entrepreneur: Susana Pascual Madrigal.

Business name: PixelsHub s.l. (<https://pixels-hub.com/>).

Business location: Gijón (Asturias).

Launch year: 2013.

A brief description of what the company does: Development of B2B solutions for the optimization of products, processes and business models through the use of 3D models and advanced visualization platforms such as virtual and augmented reality.

What does being an entrepreneur mean to you?

Being an entrepreneur means having the freedom to set your own goals, as well as the responsibility to achieve them. It is also a constant struggle between light and darkness, where resilience plays a fundamental role.

How did the idea arise?

By chance, like everything good in life. It came about as a result of working in a research group at the University of Oviedo,

which, like almost everyone else, had a lot of knowledge but was unable to commercialize it. This is how PixelsHub was born in 2013.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen?

Which ones? Where?

After two dreadful and frightening years in terms of investment in technologies as new as ours, we have noticed a growing interest not only in the technology itself to be applied to clients but also in investing in this type of business. Business expansion currently involves making the leap from large companies, those that are larger in size and have a greater capacity to be a little ahead in the implementation of technology, to SMEs.

How is the current economic situation affecting your business, and what measures are you taking?

The current economic situation is anything but certain; we are living in the doldrums after the passing of COVID, which was catastrophic, despite the successive crises we have been experiencing (Russia, energy...). On the other hand, we also have the eternal promise of the Next Generation funds, which seem to be moving a lot of initiatives at the institutional level, although the reality is that bureaucracy is playing too much of a leading role for these funds to be effective. At least for SMEs and micro-SMEs.

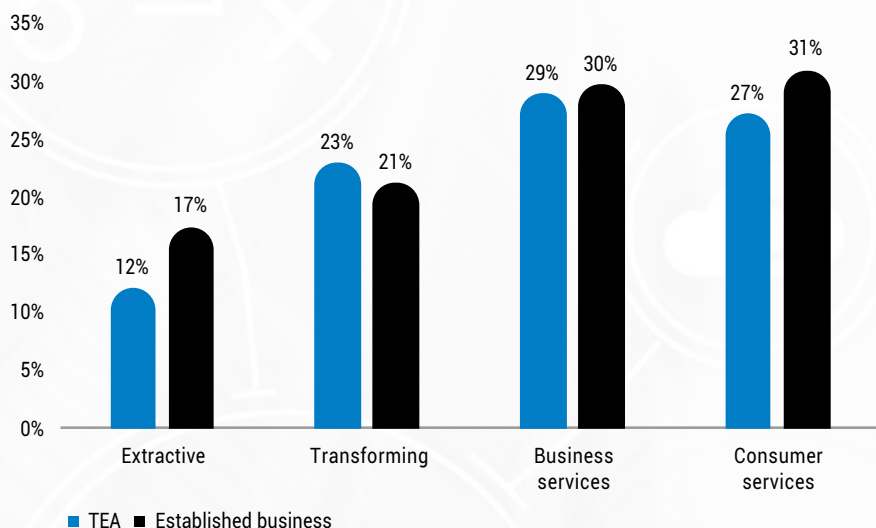
The measures we are taking are aimed at building up as strong a client portfolio as possible, as well as diversifying into the health and education sectors.

Something you would like to add

Entrepreneurship is an uncertain career of guaranteed work and highly variable success, almost a headlong rush without looking back. If you manage to deal with the complexity and have a strong resistance to all the uncertainty that is intrinsically linked to any entrepreneurial initiative, then you will understand entrepreneurship as we do, as a constant adventure full of new horizons to explore. Nobody said it was easy. But neither is it boring.

Figure 70. International orientation by sector

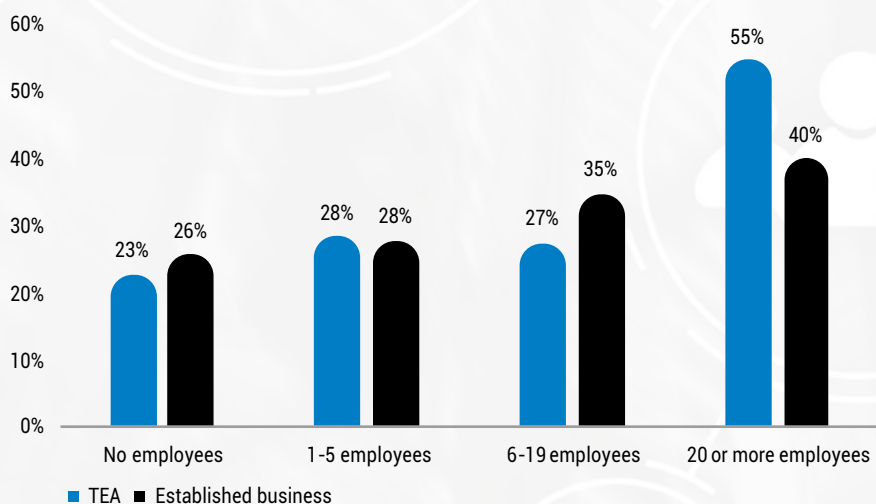
Source: GEM-Spain APS 2022



The international orientation of entrepreneurship remains strongest in the services sector, both in business and consumer services. Almost one third of the initiatives in this field are oriented towards foreign markets. In 2022, one in five initiatives (TEA) in the transforming sector was internationally oriented, while the percentage of international initiatives in the extractive sector was residual.

Figure 71. International orientation by size

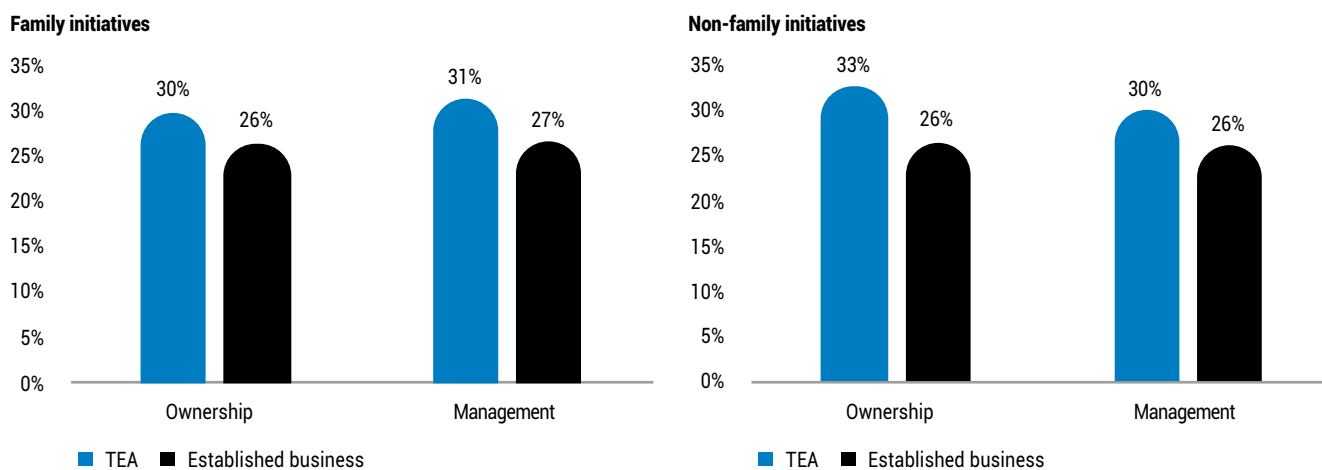
Source: GEM-Spain APS 2022



As with innovation capacity, international orientation becomes more frequent as the size of initiatives increases. In 2022, more than half of Total early-stage Entrepreneurial Activity (TEA) and 40% of established ones with more than 20 employees were oriented towards international markets. In contrast to innovation capacity, international orientation is maintained and even increases throughout the entrepreneurial process.



Figure 72. International orientation by family nature of the initiatives
Source: GEM-Spain APS 2022

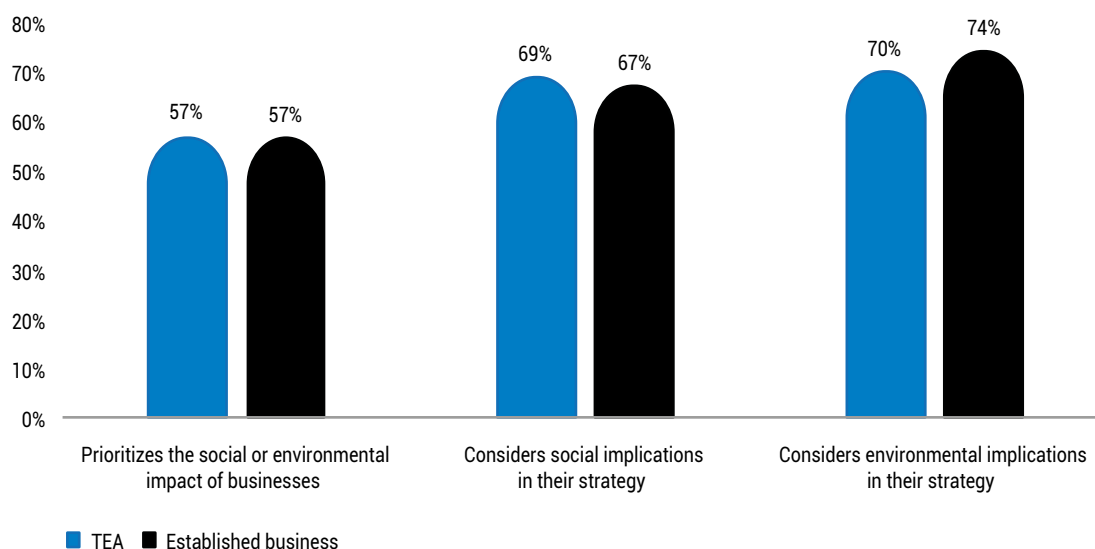


The family nature of Total early-stage Entrepreneurial Activity (TEA) does not condition their international orientation, neither in their ownership structure nor in their management.

4.10. Orientation towards sustainability

Figure 73. Orientation towards sustainability in entrepreneurial initiatives

Source: GEM-Spain APS 2022

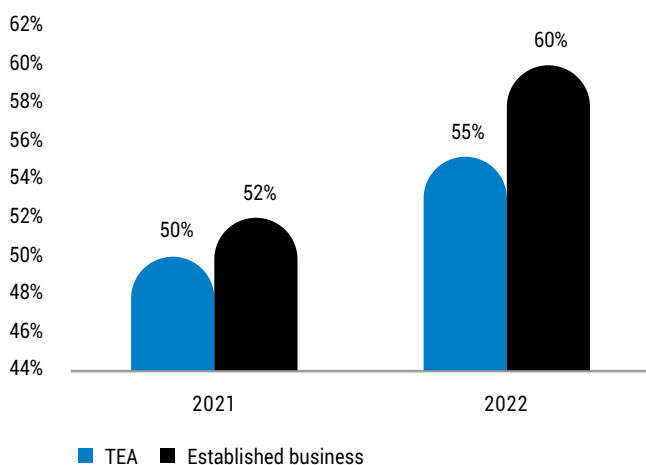


In 2022, one in two entrepreneurs claimed to prioritize the social and/or environmental impact of their initiatives, and even more were considering these

aspects in their business strategy, both at the start of the entrepreneurial process and in the consolidation phase.

Figure 74. Environmental sustainability practice

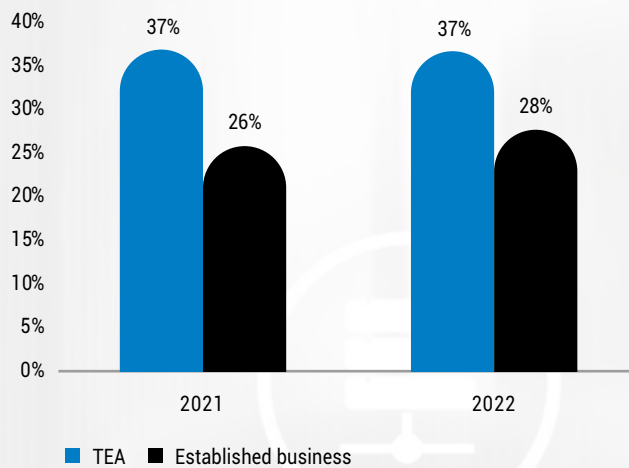
Source: GEM-Spain APS 2021-2022



In 2022, the alignment between the strategic orientation towards sustainability of entrepreneurial initiatives and their effective implementation through environmentally sound business practices increased, both among Total early-stage Entrepreneurial Activity (TEA) and established businesses.

Figure 75. Social sustainability practice

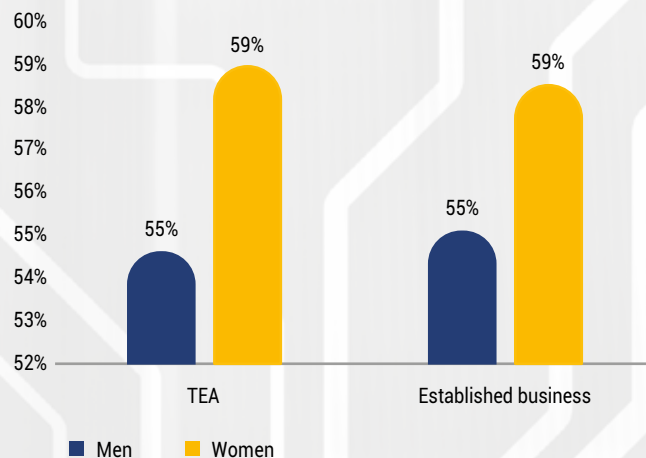
Source: GEM-Spain APS 2021-2022



Unlike the case of environmental protection practices, there is quite a difference between the percentage of entrepreneurs who said that they orient their strategy and prioritize the social impact of their initiatives and the percentage of those who are able to identify specific practices for protecting social impact, probably due to the difficulty of classifying this type of action.

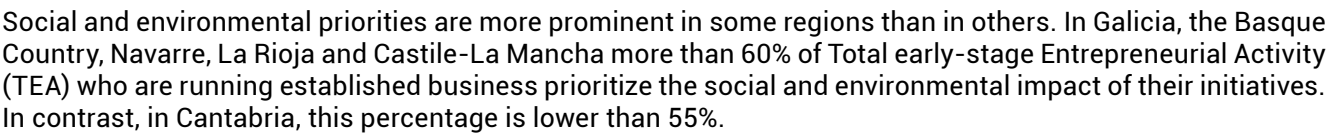
Figure 76. Social and environmental priority in entrepreneurial initiatives by gender

Source: GEM-Spain APS 2022



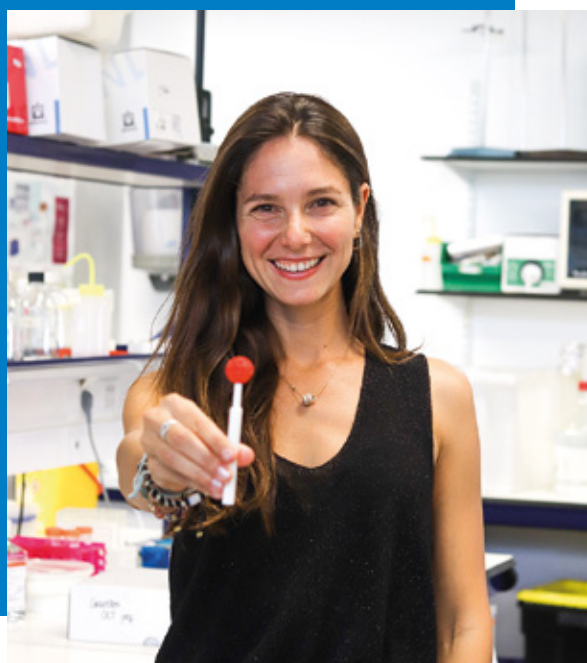
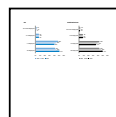
Women entrepreneurs are still somewhat more likely to prioritize the social and environmental impact of their entrepreneurial initiatives than men, and this priority is not lost throughout the entrepreneurial process. One in two entrepreneurs, men or women, said that they prioritize the social and/or environmental impact of their initiatives, which shows that start-ups are increasingly analyzing the social and environmental impact of their activity.

Source: GEM-Spain APS 2022





The Smart Lollipop



Name of entrepreneur: Diana Ballart Cerdán.

Business name: The Smart Lollipop (www.thesmartlollipop.com).

Business location: Girona.

Launch year: 2017 (idea) and 2020 (establishment).

A brief description of what the company does: The Smart Lollipop is a medical device in the form of a lollipop-shaped candy that diagnoses diseases through a saliva sample and digitizes the response to an online platform. The aim is to replace the classic blood test as long as we can diagnose the disease through salivary fluid.

What does being an entrepreneur mean to you?

For me, creating a Limited Company is a fantastic tool for creating an impact on society. The company makes it possible to contribute value to society from the moment it is created, generating jobs, female leadership and the construction of products that bring significant changes and improvements to people or the planet.

How did the idea arise?

In 2017, I was studying a Master's degree in innovation and business development at the UdG (University of Girona). With three other classmates from the Master's degree, we entered a technology competition, the iFest Dream BIG Challenge by Pau Gasol, organized by Catalunya Emprèn, in which we were given

a challenge and had to solve it using the Design Thinking methodology. In the competition, there were 7000 participants, more than 300 teams, and we were the winners. The prize was an acceleration with Imagine Creativity Center traveling through Barcelona, Paris and London, ending at the 4YFN of the MWC. In 2018, we did the acceleration, and from that moment on, I decided to take the project forward. The first step was to look for co-founding partners to create this dream with me, and I met Lorena Toda (life science industry) and Roger García (pediatrician). We started to work together, we started research and in 2020 we created the Limited Company.

In your sector, do you perceive that in the last year new opportunities for entrepreneurship or business expansion have arisen? Which ones? Where?

The HealthTech sector is booming with an annual growth rate of 16.5%, with Covid-19 being one of the factors that boosted the creation of start-ups in this field. The medical sector is peculiarly traditional, but it is precisely start-ups that are driving change, giving rise to new products, especially digital ones, or the creation of companies that come from the transfer of technology from universities. Entrepreneurship in health based in Catalonia is becoming increasingly easier because cities are increasingly committed to making us visible and offering us resources that allow us to grow faster, validate the technology and reach the market as quickly as possible, even though it is an area in which timescales are longer compared to other sectors. Without a doubt, we are experiencing a good time for entrepreneurship in health and technology.

How is the current economic situation affecting your business, and what measures are you taking?

The increase in the price of products or services is an additional expense for a start-up that is still in the development phase without having gone to market.

APPENDIX

Glossary

The rate of entrepreneurs with nascent enterprises is calculated as the percentage of the adult population (aged 18-64) in each country/region, owners or co-owner founders of start-ups with a life of less than 3 months, i.e. whose wage payment period does not exceed 3 months.

The rate of entrepreneurs with new enterprises represents the percentage of the adult population (aged 18-64) in each country/region/city, founding owners or co-owners of those enterprises whose entrepreneurial activity has involved the payment of wages for a period between 3 and 42 months.

TEA (Total Early Stage Entrepreneurial Activity) or rate of entrepreneurs with early-stage enterprises (nascent and new) is calculated as the percentage of the adult population (aged 18-64) in each country/region/city, founding owners or co-owners of start-ups that have persisted in the market for a period between 0 and 42 months (3.5 years). This indicator brings together the two previous concepts, and therefore, in order to carry out its final calculation, any duplications that may occur in terms of those adults who are involved at the same time in the two types of enterprises (Nascent and New) are eliminated.

EEA (Employee Entrepreneurial Activity) is calculated as the percentage of the adult population (aged 18-64) in each country/region/city, employed by existing organizations, which in the last three years have been actively involved in leading the development of new products/services, and/or in the creation of new enterprises under the umbrella of their employer (spin-offs/spin-outs/start-ups).

The rate of entrepreneurs with established business represents the percentage of the adult population (aged 18-64) in each country/region/city, founders of companies, whose activity has involved the payment of wages for a period of more than 42 months.

The variable business **exit** reflects the percentage of the adult population (aged 18-64) in each country/region/city who reported having closed or transferred a business in the last 12 months.

The **Intrapreneurship** rate reflects the creation of enterprises by other existing enterprises.

Business angels are considered to be those persons who have invested in other businesses in the last 3 years, outside these businesses and without using a contractual or institutional mechanism (stock market investments, investment funds, etc. are excluded).

National Entrepreneurship Context Index (NE-CI): set of indicators of the national entrepreneurship context.

Rural TEA: percentage of the adult population (18-64 years) involved in an entrepreneurial initiative of less than 3.5 years in municipalities with less than 5,000 inhabitants.

Disability TEA: percentage of the adult population (18-64 years old) involved in an entrepreneurial initiative of less than 3.5 years with more than 33% disability.

Foreign TEA: percentage of the adult population (18-64 years old) of foreign origin involved in an entrepreneurial initiative of less than 3.5 years.

Benchmarking*

Table 10. International positioning of Spain according to the perception of opportunities, knowledge and skills for entrepreneurship

Source: GEM Global APS 2022

	Attitudes							
	Perception of opportunities	Knowledge and skills for entrepreneurship	Fear of failure as an obstacle to entrepreneurship	Reference models	Starting a business as a good career option	Entrepreneurship provides social & economic status	Media and entrepreneurship	Ease of starting a business
Average low income	66.4	70.6	43.7	58.0	75.9	82.2	72.0	52.5
Brazil	67.9	69.2	51.0	75.8	–	–	–	46.8
Guatemala	68.3	77.5	42.3	71.5	94.4	80.8	65.0	47.8
Egypt	63.7	62.8	43.4	32.9	71.2	78.3	75.9	67.7
India	75.5	78.1	51.2	47.4	82.5	90.5	84.6	78.0
Morocco	62.5	63.3	46.9	51.6	80.4	85.6	70.4	36.5
Iran	51.3	54.2	41.5	64.1	53.0	89.3	53.8	23.7
Colombia	53.4	66.6	38.5	63.8	56.2	61.6	62.2	41.4
Indonesia	87.2	75.5	35.3	71.4	76.3	83.7	85.1	72.2
Tunisia	61.8	78.6	41.0	66.6	80.7	83.7	62.3	44.7
Togo	77.2	87.5	38.7	58.9	85.1	88.4	77.7	54.3
South Africa	61.3	63.7	51.3	33.6	79.8	79.8	82.8	63.9
Average middle income	50.6	59.6	51.4	55.1	67.6	71.1	67.1	45.1
Oman	75.7	57.6	34.5	58.5	75.1	76.2	74.6	56.5
Serbia	37.8	66.1	56.5	54.6	74.9	81.4	76.8	32.7
Mexico	56.4	67.1	42.2	47.7	60.0	60.2	62.7	46.3
Hungary	27.2	36.8	43.5	47.9	64.0	63.2	64.1	47.4
Croatia	60.0	73.6	52.2	66.5	63.0	54.8	67.1	34.0
Panama	53.4	76.7	45.9	48.0	67.0	69.3	70.7	54.2
Slovakia	29.4	42.9	52.7	59.3	50.6	64.5	51.8	20.4
Uruguay	58.2	69.1	48.6	61.3	61.7	66.7	66.3	38.7
Chile	50.5	70.1	50.2	68.6	79.8	65.4	71.8	51.1
Cyprus	26.8	52.7	56.3	82.4	77.3	71.7	67.4	48.4
Poland	72.3	47.8	57.5	46.7	41.9	63.8	38.0	79.4
Slovenia	55.0	62.8	48.9	53.5	72.6	88.6	85.2	67.7
Greece	36.4	53.8	60.6	28.5	72.0	72.0	56.5	31.9
China	56.5	54.4	62.7	56.3	72.1	84.4	82.9	25.9
Romania	63.8	62.7	58.1	46.2	81.7	84.6	71.2	42.5

* The list of tables with the main indicators of the complete entrepreneurial process by region will be published once the regional reports have been presented to the public.

Attitudes								
	Perception of opportunities	Knowledge and skills for entrepreneurship	Fear of failure as an obstacle to entrepreneurship	Reference models	Starting a business as a good career option	Entrepreneurship provides social & economic status	Media and entrepreneurship	Easy to start a business
Average high income	52.6	51.9	45.8	49.9	51.1	61.6	57.9	53.9
EU27 average	48.1	47.9	46.1	47.4	38.7	43.3	42.7	51.5
Spain	26.0	46.5	58.5	41.3	47.0	55.4	46.9	32.2
Germany	39.5	36.2	47.4	34.2	61.2	79.8	62.4	34.6
Saudi Arabia	89.5	88.1	57.3	88.2	94.9	96.7	95.0	88.7
Canada	58.8	55.4	52.3	47.3	68.7	79.7	74.8	63.0
Qatar	81.0	64.1	42.4	64.2	79.6	88.1	79.1	67.3
South Korea	41.0	54.8	22.0	39.5	58.9	90.1	72.7	37.4
United Arab Emirates	72.2	71.7	36.7	60.1	82.8	87.0	86.1	77.2
The Netherlands	61.6	42.2	33.3	54.5	–	–	–	82.9
United States of America	46.0	66.8	55.1	55.6	75.9	79.9	76.3	65.8
Israel	46.8	35.4	56.5	59.2	65.3	81.3	56.1	12.9
Latvia	34.6	53.9	36.9	38.0	53.2	58.1	55.6	29.4
Luxembourg	52.4	50.0	46.3	41.3	–	–	–	64.2
Norway	73.6	49.2	39.3	42.6	67.2	88.5	79.9	82.8
United Kingdom	44.4	53.5	59.6	47.6	71.7	82.5	76.2	65.9
Sweden	76.7	49.4	45.5	53.8	–	–	–	79.8
Switzerland	47.0	47.6	41.9	52.1	38.3	74.1	62.7	66.5
France	52.4	49.8	49.6	59.7	67.8	55.4	74.9	55.4
Japan	12.7	14.9	39.4	20.4	23.8	60.4	54.2	27.5
Lithuania	40.4	49.8	53.7	53.1	69.6	62.8	69.2	36.5
Taiwan	46.8	39.9	44.5	29.0	48.3	58.0	75.7	40.5
Puerto Rico	64.1	68.9	44.9	66.0	–	–	–	26.7
Austria	49.5	53.2	43.7	50.9	49.2	78.1	75.6	48.4

Table 11. Percentage of potential entrepreneurs, Total early-stage Entrepreneurial Activity (TEA), established business, exits, closures and continued business activity in 2022. International comparison

Source: GEM Global APS 2022

Entrepreneurial activity								
	Potential entrepreneur	Nascent entrepreneur	New business	TEA	Established business	Business exit	Closures	Continues
Average low income	38.0	12.6	7.2	15.8	8.1	8.0	5.9	2.1
Brazil	51.8	13.6	12.6	20.0	10.4	13.0	9.8	3.3
Guatemala	47.3	17.6	15.5	29.4	11.5	7.2	5.3	1.9
Egypt	48.3	4.1	3.7	6.6	2.6	9.8	7.9	2.0
India	22.2	11.7	3.9	11.5	9.0	6.3	3.1	3.1
Morocco	36.4	2.4	2.2	4.2	4.1	4.3	3.7	0.5
Iran	33.2	15.6	8.4	16.4	10.8	7.4	6.2	1.1
Colombia	26.4	24.9	11.1	28.0	5.1	6.4	5.4	1.0
Indonesia	35.9	10.0	4.7	8.1	5.7	10.5	6.2	4.2
Tunisia	53.4	16.4	5.3	17.1	10.0	8.8	6.7	2.1
Togo	52.5	15.6	9.3	24.1	18.0	9.7	6.6	3.1
South Africa	10.1	6.2	2.6	8.5	1.8	4.9	3.9	1.0
Average medium income	24.1	11.4	4.8	12.5	6.3	5.4	4.0	1.4
Oman	47.2	12.6	4.4	11.7	4.1	11.2	9.2	2.0
Serbia	18.6	10.4	2.1	10.5	2.9	3.7	1.8	1.9
Mexico	24.2	12.5	4.4	12.9	1.6	9.5	7.5	2.0
Hungary	11.1	6.4	4.3	9.9	6.9	1.9	1.5	0.3
Croatia	26.4	13.7	3.9	13.2	3.4	3.6	2.0	1.6
Panama	60.1	20.6	11.8	27.9	5.8	11.1	8.3	2.8
Slovakia	13.1	10.9	3.7	10.7	6.6	5.3	3.6	1.7
Uruguay	39.1	26.0	8.6	26.3	6.4	9.8	7.3	2.4
Chile	48.2	24.4	8.9	27.0	7.3	7.6	6.0	1.6
Cyprus	21.1	6.3	3.9	8.3	5.7	4.1	2.8	1.2
Poland	3.2	1.3	0.8	1.6	9.8	3.7	2.7	1.1
Slovenia	17.2	4.8	3.6	8.0	8.1	2.5	1.9	0.6
Greece	9.5	4.2	2.0	4.9	13.3	2.0	1.6	0.5
China	9.7	6.6	4.5	6.0	3.2	3.4	2.1	1.3
Romania	13.5	10.1	4.6	8.3	8.6	1.6	1.0	0.6

Entrepreneurial activity								
	Potential entrepreneur	Nascent entrepreneur	New business	TEA	Established business	Business exit	Closures	Continues
Average high income	21.7	10.2	4.8	11.8	7.0	5.4	3.3	2.1
EU27 average	16.0	7.6	3.8	9.6	6.6	4.1	2.7	1.4
Spain	9.4	3.2	2.9	6.0	7.0	2.5	1.5	1.0
Germany	10.3	8.4	4.2	9.1	3.6	5.2	3.4	1.8
Saudi Arabia	36.3	16.8	10.4	19.2	9.7	11.5	5.9	5.7
Canada	20.1	15.6	7.8	16.5	6.2	8.2	5.4	2.8
Qatar	44.9	9.7	4.1	10.7	3.9	9.1	6.6	2.5
South Korea	34.2	12.4	3.2	11.9	19.9	3.5	2.4	1.1
United Arab Emirates	55.9	24.0	11.5	25.5	4.5	14.6	6.8	7.8
The Netherlands	20.4	8.3	5.9	12.5	6.8	5.6	4.0	1.6
United States of America	22.5	18.0	7.9	19.2	9.2	9.1	5.2	3.9
Israel	16.2	8.0	3.7	8.7	3.5	3.7	2.6	1.1
Latvia	23.5	11.1	5.6	14.2	12.3	3.9	2.6	1.3
Luxembourg	18.4	8.5	2.6	7.0	5.3	4.5	2.7	1.8
Norway	7.0	4.1	1.9	6.5	5.6	1.6	1.2	0.4
United Kingdom	13.0	10.0	5.0	12.9	6.8	2.8	2.0	0.7
Sweden	16.0	6.5	2.5	9.1	4.8	4.1	3.0	1.0
Switzerland	14.2	6.0	2.3	7.4	8.2	2.2	1.3	1.0
France	18.8	8.1	2.2	9.2	2.9	3.6	2.2	1.4
Japan	9.3	5.8	2.7	6.4	6.3	2.0	1.1	0.9
Lithuania	19.1	8.7	5.9	12.7	8.3	4.2	3.0	1.2
Taiwan	16.8	3.4	3.7	5.6	9.0	1.9	1.0	1.0
Puerto Rico	33.7	19.0	5.5	20.0	5.6	3.6	2.5	1.1
Austria	8.5	6.1	2.4	6.8	8.3	3.7	2.3	1.4

Table 12. Percentage of Total early-stage Entrepreneurial Activity (TEA) by sector, size and technological level.
International comparison
Source: GEM Global APS 2022

	Sectoral distribution				Expectations		Innovative orientation
	Extractive	Transforming	Business services	Consumer services	More than 5 employees in the next 5 years	Over 25% of customers abroad	Medium-high tech level
Average low income	6.8	20.3	8.6	64.3	27.5	5.9	2.3
Brazil	2.3	20.5	19.8	57.4	36.9	2.1	4.6
Guatemala	2.8	14.0	5.4	77.9	32.3	6.2	0.7
Egypt	17.4	27.5	7.4	47.8	30.5	2.3	2.1
India	7.6	20.8	4.8	66.8	18.5	2.1	0.4
Morocco	2.1	14.5	11.8	71.7	29.4	4.0	4.0
Iran	5.3	20.9	17.5	56.3	37.2	3.2	7.5
Colombia	0.6	18.5	8.2	72.8	30.4	5.0	3.0
Indonesia	2.7	7.1	2.3	87.9	18.0	3.3	0.0
Tunisia	15.5	25.1	6.9	52.5	23.7	6.4	1.4
Togo	13.7	33.7	3.3	49.4	19.8	9.1	1.1
South Africa	4.5	20.3	7.9	67.3	25.6	21.3	0.5
Average medium income	5.0	23.0	19.3	52.7	26.1	10.8	6.2
Oman	2.8	18.8	14.4	64.0	16.0	7.4	5.9
Serbia	7.3	30.7	13.6	48.5	12.7	7.9	6.4
Mexico	2.7	17.2	5.3	74.9	28.5	4.3	1.9
Hungary	6.6	27.8	26.6	39.1	22.7	11.1	7.2
Croatia	11.2	23.3	32.7	32.8	28.7	25.1	11.8
Panama	5.5	16.3	11.5	66.7	46.4	3.6	1.8
Slovakia	2.3	27.4	22.6	47.7	8.6	14.0	3.4
Uruguay	4.9	22.3	16.1	56.7	27.3	4.4	4.9
Chile	4.4	25.3	16.9	53.5	32.7	0.5	5.0
Cyprus	2.9	15.2	27.1	54.8	39.4	21.7	6.5
Poland	5.5	30.7	19.5	44.3	19.8	3.7	5.0
Slovenia	2.5	30.5	35.7	31.3	17.3	24.0	17.6
Greece	9.0	24.0	17.4	49.6	31.0	19.1	5.4
China	1.5	14.8	8.5	75.2	30.1	1.1	4.1
Romania	6.3	21.0	21.2	51.5	30.9	13.7	6.5

	Sectoral distribution				Expectations		Innovative orientation
	Extractive	Transforming	Business services	Consumer services	More than 5 employees in the next 5 years	Over 25% of customers abroad	Medium-high tech level
Average high income	3.2	17.5	29.3	50.0	31.1	16.5	6.9
EU27 average	4.4	18.4	32.2	45.0	24.6	20.6	8.5
Spain	2.5	13.4	38.5	45.6	14.3	12.0	10.2
Germany	1.6	16.9	29.9	51.6	17.2	22.0	3.0
Saudi Arabia	1.2	5.4	4.2	89.2	40.7	5.2	1.7
Canada	1.9	21.3	33.8	43.0	23.7	21.3	5.6
Qatar	0.3	31.5	27.5	40.7	65.1	11.5	5.2
South Korea	2.1	27.4	15.4	55.1	39.5	4.7	8.8
United Arab Emirates	1.8	14.4	19.5	64.3	79.5	35.6	3.9
The Netherlands	1.1	18.3	30.8	49.8	24.2	22.4	8.2
United States of America	3.8	26.5	22.3	47.4	28.3	16.5	5.5
Israel	0.6	11.9	42.7	44.7	24.2	19.5	9.2
Latvia	6.9	28.0	28.5	36.6	27.6	25.2	14.2
Luxembourg	2.9	7.6	40.3	49.2	43.2	29.4	5.4
Norway	14.5	15.6	38.7	31.2	25.9	11.0	4.8
United Kingdom	0.0	15.5	34.0	50.5	21.2	13.0	7.2
Sweden	6.1	19.8	33.1	41.0	15.6	19.4	9.5
Switzerland	0.9	8.3	38.4	52.4	15.5	14.8	9.9
France	3.5	20.3	33.9	42.3	28.9	13.6	9.7
Japan	0.8	5.9	41.7	51.6	21.6	6.7	9.3
Lithuania	10.1	27.7	20.0	42.2	30.9	18.5	7.2
Taiwan	0.0	20.3	13.6	66.2	43.9	8.6	2.7
Puerto Rico	2.3	15.4	22.4	60.0	34.4	9.5	2.5
Austria	5.1	14.0	34.7	46.2	19.1	22.9	8.6

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