The video game sector

in Catalonia





#### The video game sector in Catalonia

#### **ACCIÓ**

Government of Catalonia (Generalitat de Catalunya)



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#### Execution

ACCIÓ Strategic and Competitive Intelligence Unit

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## The video game sector





#### Definition of the video game sector.

The video game sector consists of physically sold video games and digital video games. Physically sold video games include revenues associated with in-person purchases from retail shops or on-line shops in the form of CD, DVD or other solid storage media. Digital video games include revenues associated with sales of video games on digital platforms, which include additional downloadable content (DLC) and subscription services.

#### Video game production process

#### PRE-PRODUCTION



- Art: script, sound and graphics.
- Mechanical function.
- Initial programming.

#### **PRODUCTION**



- Code programming.
- Team: programmers, designers, musicians, initial tests.

#### POST-PRODUCTION



Bug detection and initial assessment:

- Alpha test: detection of significant bugs.
- Beta test: assessment prior to sale.

Source: ACCIÓ based on Statista





#### The video game sector worldwide (I)

- In 2021, the video game sector recorded a turnover of around \$175,800 M.
- These revenues are particularly geographically distributed among Asia-Pacific (50%), North America (24%) and Europe (18%).
- Growth over the coming years will be concentrated in Asia-Pacific, the
   Middle East and Africa, which will lead to a growth in mobile games.
- The turnover of the video game sector focuses on three areas: mobile phone + tablet (45%+ 7%), TV/console (28%) and computer (19%).
- Growth of the video game sector was affected by the pandemic, but mobile games continued to grow and recorded a year-on-year growth of 4.4% in 2020-2021, accounting for over half the global video game market.





Source: Global Games Market Report, Newzoo, 2021





#### The video game sector worldwide (II)

#### Top global markets 2020

Country	Revenues (millions of dollars)	Number of players (millions)			
China	46,010	685.48			
United States	40,540	191.12 75.62 33.01 46.12 37.66 38.08 20.98			
Japan	22,090				
South Korea	7,550				
Germany	5,870				
United Kingdom	5,310				
France	4,130				
Canada	3,690				
Italy	3,290	36.55			
Spain	2,330	29.73			

#### The top 25 video game companies worldwide (by revenues)



**40%** of the world's leading video game companies have a **presence in Catalonia.** 

Source: Newzoo, 2021





# The video game sector in Catalonia





#### Video games in Catalonia: a sector destined to grow

#### The Catalan ecosystem: competitive and innovative for video games

- Catalonia is the driving force of the Spanish video game ecosystem and represents 50% of its turnover.
- Barcelona is the **best tech city** in Europe that is not a capital city (*Tech Cities Index, Savills, 2019*).
- Barcelona is the **2nd city in Europe**, after London, with the **best tech ecosystem approach** (Financial Times, 2020).



#### On the global radar for investment into video games

- Catalonia is the region of the European Union with the highest number of projects carried out and investments received, and the 2nd in job creation.
- Famous companies such as Larian Studios, King or Scopely set up shop in Catalonia in 2021.

#### Hub of local and international talent in an environment of great creativity

- Barcelona is the 10th most attractive city in the world for digital experts (Decoding Digital Talent 2021. The Network. Boston Consulting Group).
- Barcelona is the **9th favourite city** in the world **for work by foreigners** (Decoding global talent, BCG, 2021).
- Barcelona is perceived as the 8th best city in the world in arts and entertainment (Resonance Consultancy, 2021).
- Barcelona is the **9th** most **cultural and creative** city in Europe (Cultural and Creative Cities Monitor, European Commission, 2019).





**Catalonia**Connects





#### The video game sector in Catalonia: figures



206

Active video game studies (2021)

• 27.4% of all video game studies in Spain.



**€552.5 M** (2020)

- 16.8% growth in relation to 2019.
- Catalonia is the driving force of the Spanish video game ecosystem and represents 50% of its turnover.



3,933

Direct employees (2020)

- **16.3**% growth in relation to 2019.
- 49% of total employment in the sector in Spain.

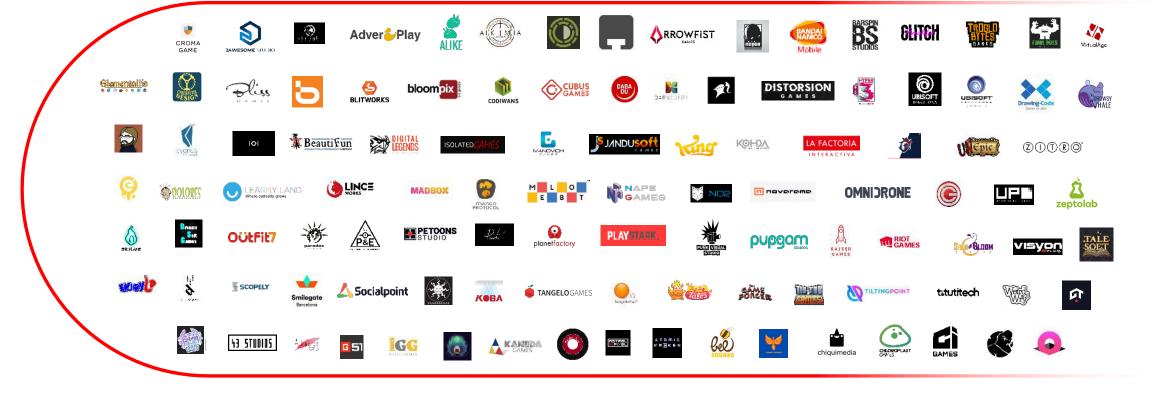






#### Main Video games companies in Catalonia (I)

#### Companies, video game developers and studios in Catalonia







Source: ACCIÓ based on Orbis

#### Main video games companies in Catalonia (II)

There are **56 startups related to the video game sector** in Catalonia, an increase of 44% compared to 2018.

	2018	<b>V</b> ar% 18/19	2019	Var% 19/20	2020	Var% 20/21	2021	Var% 21/22	2022
Startups	39	15 %	45	9 %	49	0 %	49	14 %	56



**Game Troopers** develops and publishes video games on the Microsoft Store and Steam. It has published over 20 games on these two platforms. Its game **OverkillVR** received an award from Valve in 2017.



Red Helmet Experience develops interactive video games played in group in its own circuits, where it offers an immersive experience. It currently has three circuits at its two physical stores.

Barcelona, 1st hub of startups in Southern Europe (EU-Startups, 2020)









#### Catalonia, an internationally recognised tech hub

Barcelona is the 2nd city in Europe, after London, with the best tech ecosystem approach (Financial Times, 2020)

**1st tech city in Europe** that is not a capital city (*Tech Cities, Savills Index, 2019*)

Barcelona is the **2nd most technological city in Southern Europe** (*Tech cities of the future, fDi intelligence, 2021*)

25 of the 50 most innovative companies in the world are present in Catalonia (BCG, 2021)

Barcelona is the **7th city in Europe** in terms of **capital invested in tech companies** 

(The State of European Tech, Atomico, 2021)











#### An innovative ecosystem at the service of the video game sector

Universities specialising in video games



Clusters/associations/institutions related to video games



International trade fairs and congresses related to video games











#### Projects headed by Catalan tech centres related to video games



Innovative tech solutions for the design, implementation and validation of <u>serious games</u> and <u>gamification</u>. Vocational training, detection, rehabilitation, and education. One example is <u>Virtual Perfusionist</u>, a serious game of surgical operations developed by the Polytechnic University of Catalonia and the Hospital Clínic of Barcelona.



The <u>Sim4Nexus</u> project is a <u>video game</u> (a <u>serious game</u>) in the form of an on-line <u>simulator</u> that enables users to understand the results of <u>environmental management</u> policies from a cross-cutting approach and on different levels.



<u>GameTools</u> develops games to test internal representation systems of companies to provide testers that show the **viability** of the methods developed.



**MED GAIMS** is an experimental **tourism** project that seeks to promote and improve experiences through **gamification**.



Researchers from the IBEC have developed a **virtual reality**-based system for rehabilitating patients with Broca's aphasia. **RGSa** has been proven to **improve** communicative frequency and effectiveness in **daily life**.



<u>Digital games</u> for the **elderly** are a new type of **game** able to reinforce and tap into the strengths of the elderly as individuals and players, **reducing loneliness**, encouraging socialisation, and improving physical and psychosocial **well-being** in the elderly.



**EduGame4City:** the project consists of the design and gamified implementation for 3D visualisation with **virtual and augmented reality** of real cases in the city of Barcelona, such as the "superblocks". It also studies the improvement of motivational, spatial, social and user skills.

The project is to form part of the project coordinate with UPC GAME4CITY and its main goal is to **improve** the **architectural education** and skills of students.

Source: ACCIÓ





#### Excellent location for foreign investment (I)

#### Data on FDI projects 2017-2021

20

FDI projects

**400** % (2012-2016)

118

Investment (€M)

**4** 97 % (2012-2016)

891

Jobs created

**▲** 100 % (2012-2016)

64,5 %

of FDI projects in Spain

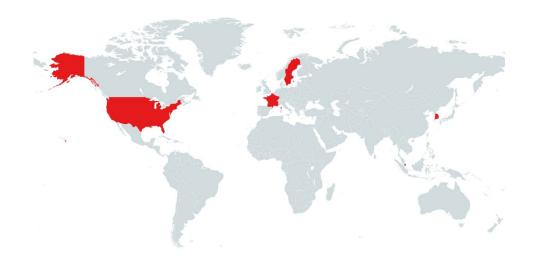
**75,6** %

of total investment in Spain

69,7 %

of the total jobs created in Spain

Top 5 countries of origin of investments









5. Singapore





4. South Korea

Source: ACCIÓ based on fDi Markets





#### Excellent location for foreign investment (II)

- Catalonia is the region of the European
   Union with the highest number of
   projects carried out and investments
   received, and the 2nd in job creation.
- Foreign direct investment in the video game sector in Catalonia corresponds to 13.2% of the projects, 11.5% of the jobs created and 12.2% of investment in the EU.



Source: ACCIÓ based on fDi Markets





FDI in the regions of the Euopean Union, by number of projects (2017-2021).

9th
Sweden

6th
Lithuania
North-Rhine Westphalia





1st CATALONIA





#### Major international companies choose Barcelona

#### Ubisoft, developing AAA video games from Barcelona

The French company Ubisoft is a global benchmark in the video game sector. The firm opened a studio in 1998 in Barcelona and has since participated in several extremely successful games, such as Assassin's Creed and Rainbow Six.

More information

### South Korean company Smilegate opens its first international studio in Barcelona to design triple-A video games

From this new centre, where the company has already hired 35 workers, it will centralise its growth in the western market with the aim of being "a successful Triple-A Open World Video Game Studio".

More information

#### CI Games opens video game development studio in Barcelona

CI Games CEO Marek Tyminsky said Barcelona has an "increasingly consolidated digital, technological and gaming ecosystem" and was "very pleased to be part of it". "We're here to stay," he says.

More information

## The video game company King opens new headquarters in Barcelona with 600 employees and the capacity to increase the workforce by 10%

The British video game company King has opened its new headquarters in Barcelona to consolidate the city as one of the brand's main development HQs in Europe.

More information

## Japanese group BANDAI NAMCO to establish a new company dedicated to the development of mobile games in Barcelona

Specialising in the creation and commercialisation of video games, BANDAI NAMCO will centralise the western development and marketing of mobile entertainment products at the Catalan capital.

More information

## Javier Ferreira, Scopely: "We wanted to create a European hub for our global expansion efforts and Barcelona was the perfect fit"

Scopely is an interactive entertainment company and mobile games publisher headquartered in Los Angeles (USA) and with operations in Barcelona. The company has a diverse portfolio of original franchises, including the award-winning Star Trek<sup>TM</sup> Fleet Command and Looney Tunes<sup>TM</sup> World of Mayhem and has received the support of Catalonia Trade &Investment.

More information





Source: ACCIÓ

#### Barcelona, a very powerful digital hub in video games

Barcelona is a priority destination for major international companies seeking to create tech and digital hubs.

Companies that have installed new innovation hubs in video games, mobile and internet (2018-2021)













eDreams ODIGEO

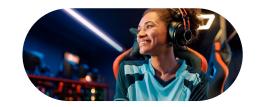
As home to Mobile World Congress and already a global benchmark in mobile games, video game and e-sports companies choose Barcelona and tap into the opportunities of the existing hub to invest in AAA studios in Barcelona-Catalonia.

Triple A and e-sports companies installed in Catalonia















#### The importance of mergers and acquisitions in the sector is growing

Mergers and acquisitions of Catalan video game companies in 2021 and 2022:







#### Catalonia, hub of attraction for young professionals, researchers and video game developers

Barcelona is the 9th favourite city in the world for work by foreigners (Decoding Global Talent, Onsite and Virtual, BCG, 2021)

Catalonia is the 8th region in Europe with the largest digital human capital (DESI, 2019)

Barcelona, 5th city in Europe in terms of the number of creative jobs (Cultural and Creative Cities Monitor, 2020)

Barcelona is the **7th most attractive city in Europe** for **students** (QS Best Student Cities, 2019)

"To create a high quality video game you need talent, and this talent can be found in Barcelona"



#### Cost of living

In comparison with other **major European cities**, Barcelona has a very **attractive cost of living**. (fDi Benchmark, 2022)

Barcelona has very **competitive** labour costs and **top class professionals** from around the world. (fDi Benchmark, 2022)

Barcelona is the **7th most attractive** city in terms of the price of **offices** (\$250/week) and **coworking spaces** (\$380/month). (Tech Cities in Motion, 2019)



Barcelona - 61.1



Berlin - 68.94



Paris - 84.35



London – 85.62

(City cost of living index, Numbeo, 2022)

#### Quality of life

Barcelona, **3rd** best city in the world in terms of **quality of life**. (Global Power City Index, Institute for Urban Strategies The Mori Memorial Foundation, 2021)

Barcelona, **4th** city in the world in quality of life in **tech lifestyle**. (*Tech cities*, *Savills*, *2020*)

Spain is the **healthiest country in the world**. (Healthiest country index, Bloomberg, 2019)

Sea, mountains, cuisine
And a unique cultural,
artistic and architectural heritage in the



world

Source: ACCIÓ and fDi Benchmark





#### A leading educational system in the field of video games

The Catalan university system is noteworthy for its capacity to attract local and international talent.

Talent from Catalan schools of animation and special effects is having a major impact on the global video game sector.

Bachelor's degrees related to video games in Catalonia



Multimedia: apps and video games



- O Development of Video games
- O Digital Art for Video games
- O Production of Music and Sound for the Entertainment Industry





**Design and Development** of Video games



- O Design and Production of Video games
- Computer Management and Information Systems and Video game Design and Production
- O Design and production of video games and audiovisual media



**Design and Development** of video games



Multimedia Engineering (Major in Video games)















7 COURSES

















Source: ACCIÓ based on university websites

#### Catalonia has a wide range of studies in video games (I)

#### Degrees in video game development and production



**ENTI** Interactive Digital Content



**EENTi** Artistic Creation for Video Games



Music and Sound Production for the Entertainment Industry



Video game design and development



Design, Animation and Digital Art



Multimedia



Video Game Design and Development



Video Game Design and Production



Computer Engineering and Video Game Design and Production



**UVIC** Multimedia. Applications and Video Games



aSalle Multimedia Engineering – Major in Video Games



Liniversitat de Lieida Escola Politicarica Superior Digital Design and Creative Technologies





Game, gamification and technology applied to education



Music and sound for entertainment experiences



Animation & Digital Arts for AAA Video Games



Advanced Programming for AAA Video Games



Videogames: Design, Creation and Programming

aSalle Advanced Video Game Development

Animation and visual effects



Video Game Design and Programming



3D Art, Animation and Visual Effects for Video Games and Cinema



3D Content creation for Animation, Games and visual Effects



Houdini for VFX





#### Catalonia has a wide range of studies in video games (II)

#### Higher level training cycle in video game creation



CFGS in 3D animations, games and interactive environments



CFGS Development of multiplatform applications – Profile video games and digital leisure



CFGS 3D Animations, Games and Interactive Environments (UVIC)



Higher level training cycle in 3D Animations, games and interactive environments



TRAINING CYCLE DAM-VIOD



CFGS Videogames and Digital Environments



CFGS in 3D Animations, Games and Interactive Environments + HND in Video Game Design and Development



HND in creative media production & videogames development – Course on 3D animation and professional computer graphics



CFGS of Plastic Arts and Design in Animation. Profile video games and virtual environments



Animation CFGS. Profile Videogames and Virtual Environments (Escola d'Art de Vic)





#### Courses on video games

Specialization in Digital Illustration and Concept Art

Specialization in Visual Effects (VFX)

Specialization in 3D Texturation with Substance Painter

Specialization in 3D Modeling with ZBrush

Specialization in 3D Animation

Specialization in procedural modeling with Houdini

Summer Intensive Courses: animation, illustration, programming or design

cscolajoso Digital character sculpting for video games and cinema

🏿 🐧 😘 Animation, Specialization Acting 2D and 3D

Source: ACCIÓ

#### Catalonia has a wide range of studies in video games (III)

#### MOOC en videojocs (massive online open course)

**UMB** Video games: what are we talking about?

**UMB** Video game design

**UMB** 3D art and animation in video games

**UMB** Graphics engines in video games: game engine

**UMB** Gameplay in video games

Pixel Art for Video Games

Low Poly Art For Video Games

MICHIGAN STATE Concept Art for Video Games

Game Design and Development Specialization

Calarts Introduction to Game Design

Calarts Story and Narrative Development for Video Games

CALARTS World Design for Video Games

Calarts Character Design for Video Games

**unity** Unity Certified 3D Artist Specialization



University of Colorado C# Programming for Unity Game Development Specialization Boulder



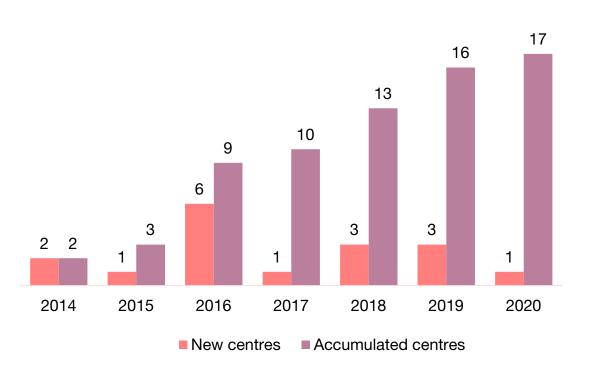




#### Barcelona also leads the way in coding bootcamp training and in digital training underway

40% of all Spanish centres offering **bootcamps are located in Barcelona**. Most of the bootcamps in Barcelona are **newly created** (82% were established in the past 5 years).

Centres offering bootcamps in Barcelona per year of creation









Source: ACCIÓ, based on the report "Digital Talent Overview 2021" by Barcelona Digital Talent and "The best Barcelona coding bootcamps of 2022" by Course Report

#### Barcelona provides support to talented people in situations of vulnerability

The BCN Inclusive Coding Programme is a public-private collaboration that provides support to talented people in situations of vulnerability at all stages of the process until their training begins as a digital professional. Four lines of action have therefore been identified to ensure that future digital talent have all the resources and tools to join the job market.

#### **Objectives**

- Hire 10,000 digital professionals in the next 10 years to combat the digital divide.
- Reduce social exclusion
- Promote digital training
- Promote social responsibility
- Generate vocations for digital professions



#### Recruitment

Connection with the Red Cross of Catalonia network and community to identify people eligible to receive digital training



#### **Training Guidance**

Promotion of an external mentoring programme made up of several social entities to advise people on the technical and transversal skills that they have to develop.



#### **Digital Training**

Training centres and social organizations in Catalonia such as MigraCode Barcelona (migrants and refugees), Factoria F5 (women and long-term unemployed), Fundación Esplai (young people, migrants and people in situations of vulnerability) and Barcelona Activa. These centres already have quality digital training programmes aimed at students in vulnerable situations. This is where students are trained.







#### **Access to Jobs**

Organization of a recruitment day for companies and talent with the aim of connecting digital profiles with technology companies and facilitating people's insertion into the labour market.

Once the person has been hired, they are assigned an internal

been hired, they are assigned an internal mentor to ensure the success of the insertion

process MOBILE WORLD CAPITAL BARCELONA

Source: ACCIÓ, based on the report Barcelona Inclusive Coding 2022 by Barcelona Digital Talent.







#### Trained students are being interviewed by the best digital companies.



3 training centres



2 public administrations and one large social entity



320 people trained in **full stack development** 



24 signatory companies



13 companies interviewing candidates using the speed dating method



**€700,000/year** (€4,000 in training per student + management fees)

#### 24 companies are committed to the project



Adevinta















basetis































Source: ACCIÓ, based on the report Barcelona Inclusive Coding 2022 by Barcelona Digital Talent.

# Trends in the video game sector





#### Trends in the video game sector (I)

#### Gamification

**Gamification** is the application of game design elements and gaming principles in contexts that do not belong to this field to implement the latest methods, tools and solutions into business. The **pharma or medical industry**, which are extremely powerful in Catalonia, could adopt these innovations for training or work experience purposes.

#### Virtual and augmented reality

Virtual and augmented reality are technology based on the creation of an immersive environment that complements real-life visits with computer-generated sensory-based input, such as images or sound. Spain is the country with the highest percentage of consumers with the intention to purchase, and Barcelona has the most powerful ecosystem in video games, tech centres, and important international congresses.

#### Blockchain

The video game industry uses non-replaceable digital assets such as non-fungible tokens or NFTs (cryptography-based digital assets) to turn the play to earn model into reality, where players are rewarded for playing.

In Catalonia in 2020, there were 76 companies dealing in *Blockchain* (117% increase in relation to 2018). Overall, Blockchain in Catalonia generates 400 jobs and a turnover of 9.46 million euros.

#### Serious Games

**Serious games** are a new way of **learning** and **entertainment** applied in companies and public institutions to **simulate situations**. Most recent data indicates a significant growth (19.2% **between 2017 and 2023**) due to its **cross-cutting nature** and application (financial services, marketing, education or construction). Catalonia has a **major ecosystem** devoted to *Serious Games*, with events such as the Serious Games Camp, specialist training at the University of Barcelona School of New Technologies or video game development companies such as VRMax and ViOD Games Studios.

#### Metaverse

Younger generations have one foot in the metaverse via gaming and social media. The metaverse is the universe of virtual worlds that are all interconnected. The younger generations are especially attracted by video games, and classify them as their favourite form of entertainment (they have an emotional value for many, helping them relax, stay connected with others, and express their own identity).

In 2022, Catalonia created its own metaverse promoted by the Generalitat and the Barcelona Chamber of Commerce through the Blockchain Centre of Catalonia (CBCat), CatVers, to become the benchmark virtual space for the Catalan society.

Source: ACCIÓ based on PwC Entertainment and Media Outlook 2018-2022, DEV, 2019, White paper on the development of video games, Global Cloud Gaming Market 2019 2024, MarketsandMarkets and Global Games Market Report, Newzoo, 2019. Deloitte: Younger generations have one foot in the metaverse via gaming and social media 2022.





#### Trends in the video game sector (II)

#### Cloud Gaming

**Cloud gaming** is a new form of organising the running, playing and distribution of video games via a central server that processes the game and streams the images to a wide range of machinery that only requires an internet connection. **A 59% growth in TCAC is expected by 2024.** Barcelona has one of the fastest internet connections, important tech centres, and competitive operating costs.

#### Game Porting

**Game porting** is a term used when a video game designed to be run on a platform is converted to be run on a different platform. Barcelona has a wide range of very well prepared software developers at a competitive cost, a powerful video game ecosystem, related tech centres dedicated to the video game industry, and top class international trade fairs.

#### e-Sports

e-Sports are competitive, professional games in an organised format in which a clear distinction is made between players and teams that compete under the same conditions. In Spain, it is expected to increase at a CAGR of 27.1% (forecast of €16.2 M) by 2022. Barcelona has already hosted international e-Sports competitions and has TV channels and professional clubs.

#### Talent

The specialist training of the necessary professional profiles for the video game sector will remain a future trend. Continuing to attract international talent will also be key for future talent. The Catalan video game sector is one of the strongest in Europe, thanks to one of the main assets of Catalonia, **the most avant-garde talent and creativity.** 

#### Financing

One of the main challenges of Catalan and Spanish companies in the sector is financing. This financing is linked to different times in the lives of companies: to be able to start their initial projects, to maintain daily operations, and to be able to tackle new projects. The need for access to specific funds from sectors that are familiar with the needs of video game companies is also a challenge for companies that must currently look for these investors abroad.

Source: ACCIÓ based on PwC Entertainment and Media Outlook 2018-2022, DEV, 2019, White paper on the development of video games, Global Cloud Gaming Market 2019 2024, MarketsandMarkets and Global Games Market Report, Newzoo, 2019. Deloitte: Younger generations have one foot in the metaverse via gaming and social media 2022.





#### International business opportunities in the video game sector

### WORLD



6 opportunities related to the video game sector



Denmark and video games: a new wave of success.



Digital content, metaverse.



The gaming boom in Finland.



Main destination of audiovisual and video game production companies.



India, interested in video games, electric and connected vehicles and 5G.



Kenya and ICT: Silicon Savannah.



Source: World map of international business opportunities, 2022





## Thank you!

Passeig de Gràcia, 129 08008 Barcelona

accio.gencat.cat catalonia.com







