

2023

SERBIAN GAMING INDUSTRY REPORT



Methodology

PUBLISHING
DATE

April 19, 2024

DATA
COLLECTION

SGA team

TOP-PERFORMERS
FINANCIAL ANALYSIS

PwC Serbia

DESIGN

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+ THANKS TO OUR FRIENDS
AND MEMBERS FROM
MAD HEAD GAMES

A detailed questionnaire consisting of 97 questions was sent out to all of our members directly. We estimate that the total number of respondents encapsulates 80% of our ecosystem. The data gathered was processed by professional data analysts.

The analysis regarding financial performance of gaming companies consists of data points for 21 company considered to be the largest in gaming sector with 17 one-on-one interviews that were conducted. Estimations regarding revenue are based on data gathered by PwC Serbia through interviews and data from Serbian Business Registry Agency that allowed for approximation of the revenues in the gaming industry. Stated numbers have the limitation related to the reliability of data obtained through interviews and not having the access to the financial data of the entire industry.

+

PwC Serbia PROVIDED SUPPORT FOR THE RESEARCH RELATED TO REVENUE WITHIN THIS REPORT. PwC Serbia DOES NOT ACCEPT ANY LIABILITY TO ANY PARTY FOR THE CONTENTS OF THE REPORT.



pwc

WITH THE EXPERT
SUPPORT OF PwC Serbia

Data

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CHAPTER 6

Introduction



**MIHAJLO
JOVANOVIĆ-DŽARIL**
CEO

DEAR MEMBERS,
STAKEHOLDERS,
AND
INTERESTED PARTIES,

It is my great pleasure and honor to present you the 2023 Serbian Gaming Industry Report.

When we started SGA six years ago creation of the comprehensive Report was one of the Association's first projects and it still remains one of the most important ones.

Why is the Report so important? When you play games it is easy to get lost in them, and the same goes for working on games. The focus, the passion, they can easily make you embrace tunnel vision and lose sight of the bigger picture. The goal of the report is to show us, and the world, the bigger picture of our industry in Serbia.

It gives substance to matter, brings things into perspective, and ultimately breaks down trends into numbers making it easier for us to understand them. Knowing them and understanding them allows us to talk about our industry with confidence and authority. The Report is the foundation and backbone for any important industry-wide action.

With this in mind, there are several things I would like to highlight in this year's Report.

Firstly, the gaming industry is still experiencing a winter I am not sure we braced ourselves for. If we are to survive and thrive we need to work with the future in mind and understand the plays we need to make for the win, and it's always better to make informed decisions. There is no doubt that gaming is the future and that the sky is the limit, and it's on us to remember that and find the best way to navigate these times of trouble as they are also times of opportunity.

Secondly, this year's Report for the first time includes data from the majority of companies that relocated their offices in the past two years. I won't spoil the surprise, but most of the growth comes from the fact that our country and industry had an unprecedented influx of talent and business.

This provides us with an incredible opportunity to speed up the process of our development.

However, since the growth wasn't organic we are presented with the challenge of integrating these new people and new businesses with our existing community. I personally believe that great things can emerge from this integration, and this will be one of the key topics for SGA.

Last year SGA celebrated its fifth anniversary, and we are now looking toward the next five years and trying to imagine how the Serbian gaming industry should

THE GOAL OF
THE REPORT IS TO
SHOW US, AND
THE WORLD, THE
BIGGER PICTURE
OF OUR INDUSTRY
IN SERBIA

look in the future. To give us direction, this year we have decided to formulate and adopt an official Strategy. Its aim is to enshrine the goals of our Association and serve as a guiding document for all our planning and activities, with the ultimate goal of increasing the chances for success of our teams and companies.

I would like to thank everyone who participated in the creation of this Report, to everyone working in the industry, dreaming of success, and making it possible for the Serbian gaming community and industry to thrive and continue going forward despite everything. Only together, united, we can tackle the challenges that lay ahead of us. Remember - our work is only beginning and I believe that great things are still ahead of us.

Sincerely,



DATA

STUDIOS

ECOSYSTEM

EDUCATION

EXPERT ARTICLES

We handpicked the most important numbers that marked 2023 for the Serbian gaming industry - dive in the report for a more detailed insight

YEAR AT A GLANCE

Coupled with the Trends page comparing data from 2017 to 2023, we offer a seven year overview of the growth and development of our ecosystem

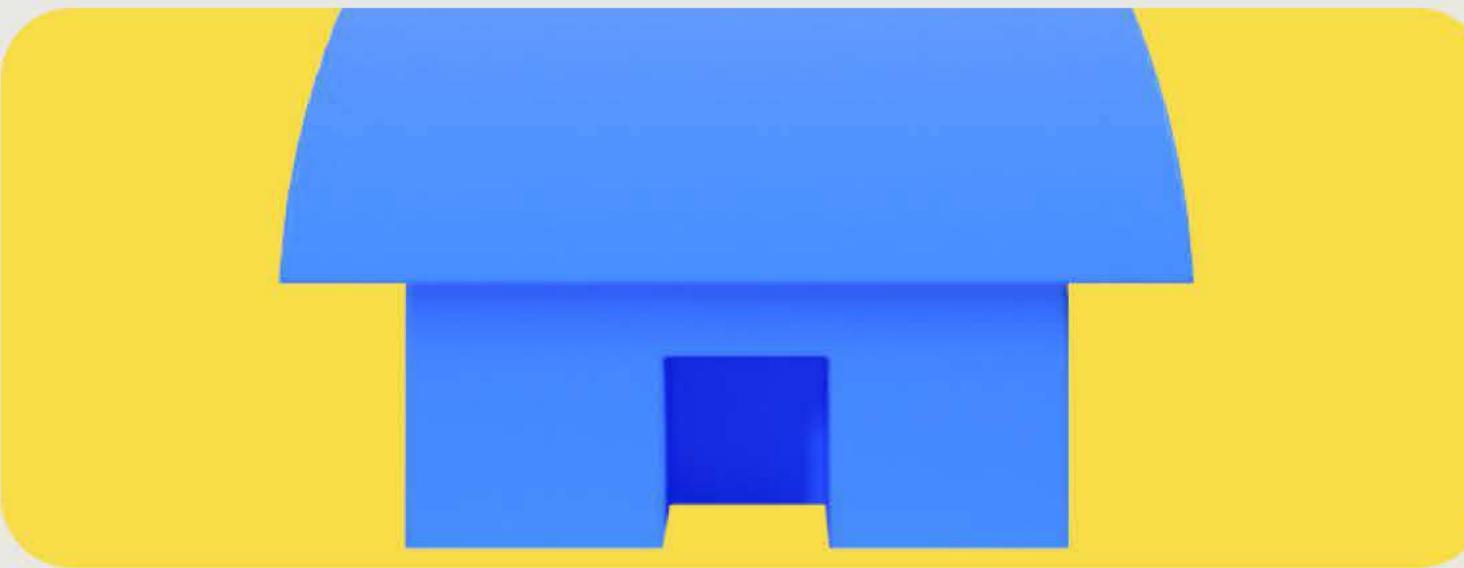
More than



175

Million euros in revenue

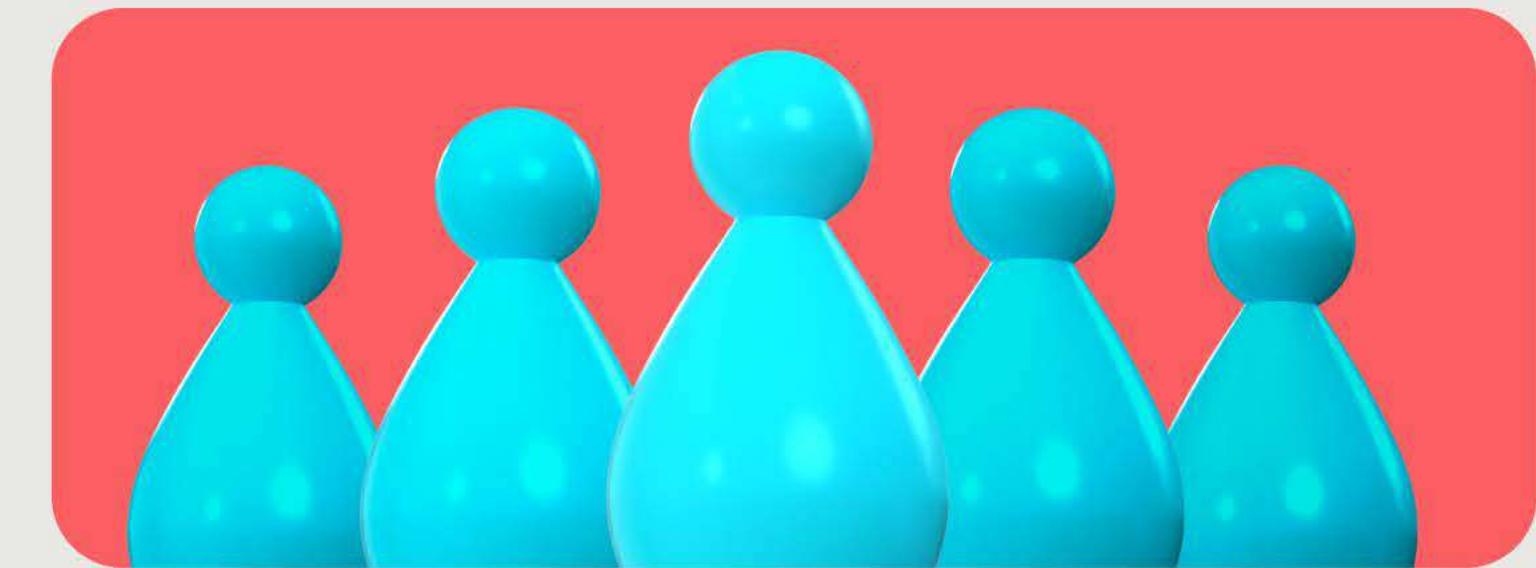
Estimated



150

Teams and companies

Estimated



4300

Professionals in the industry

Women Are



1/3

of all employees

1/2

of all leaders

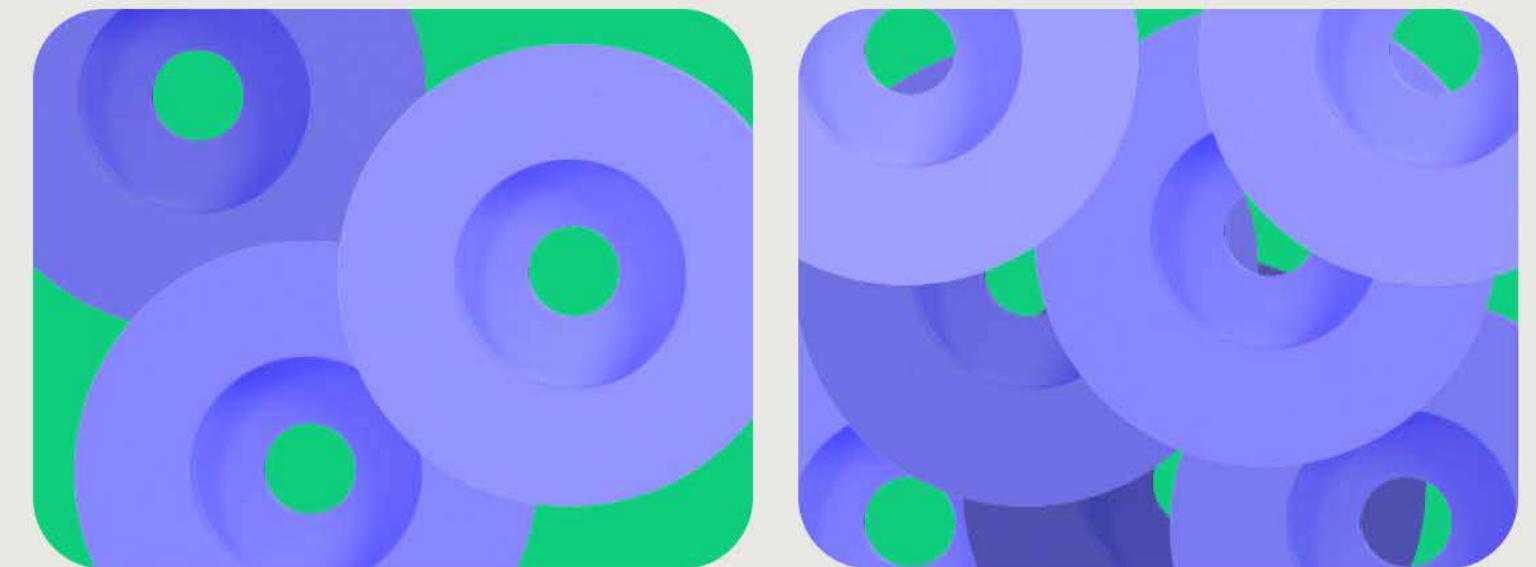
For The First Time



PC

is the primary revenue source

There were



30

games published

81

games in development



of companies plan to open foreign entities in the future



of companies have offices outside of Serbia as well

COMPANIES

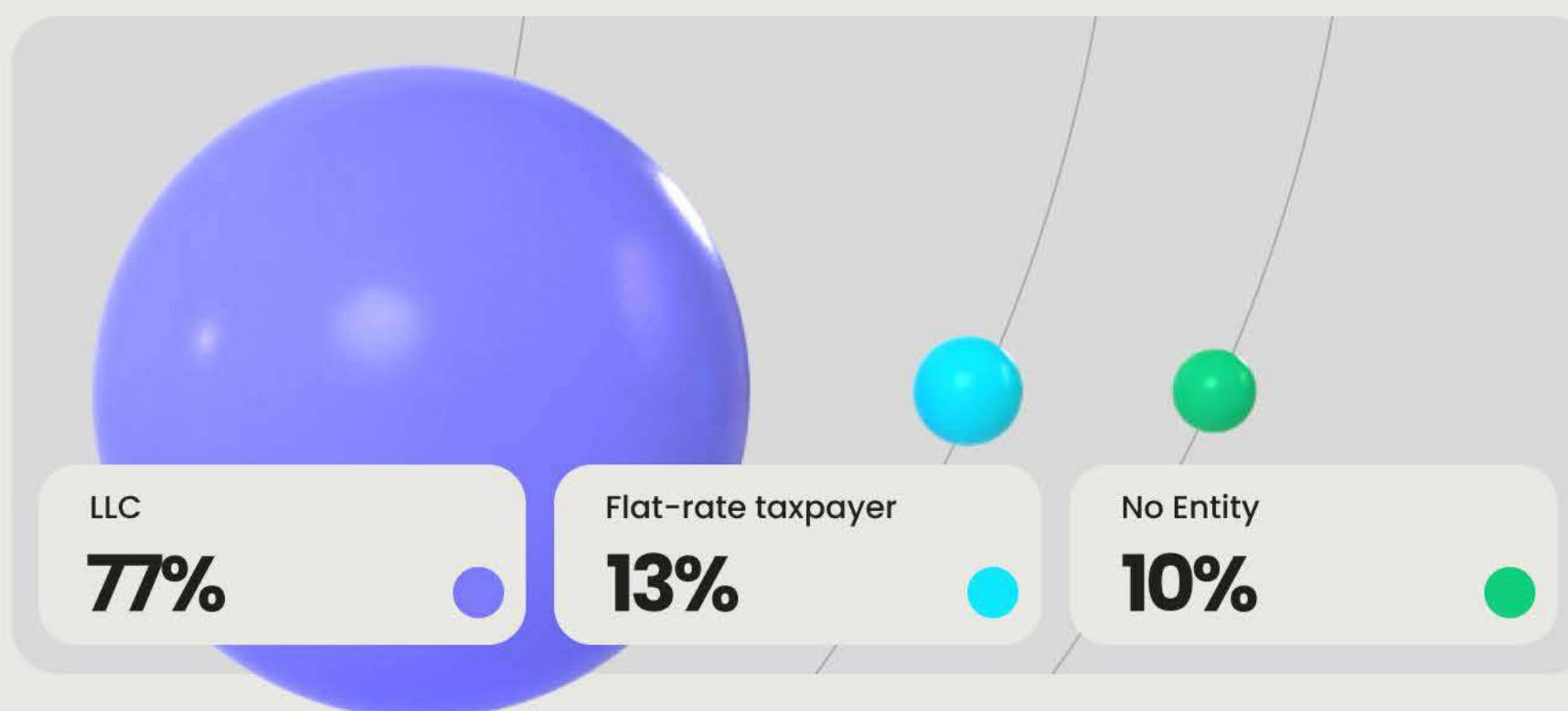


moved to bigger offices or opened up additional ones



Belgrade, Novi Sad and Nis remain the main dev hubs

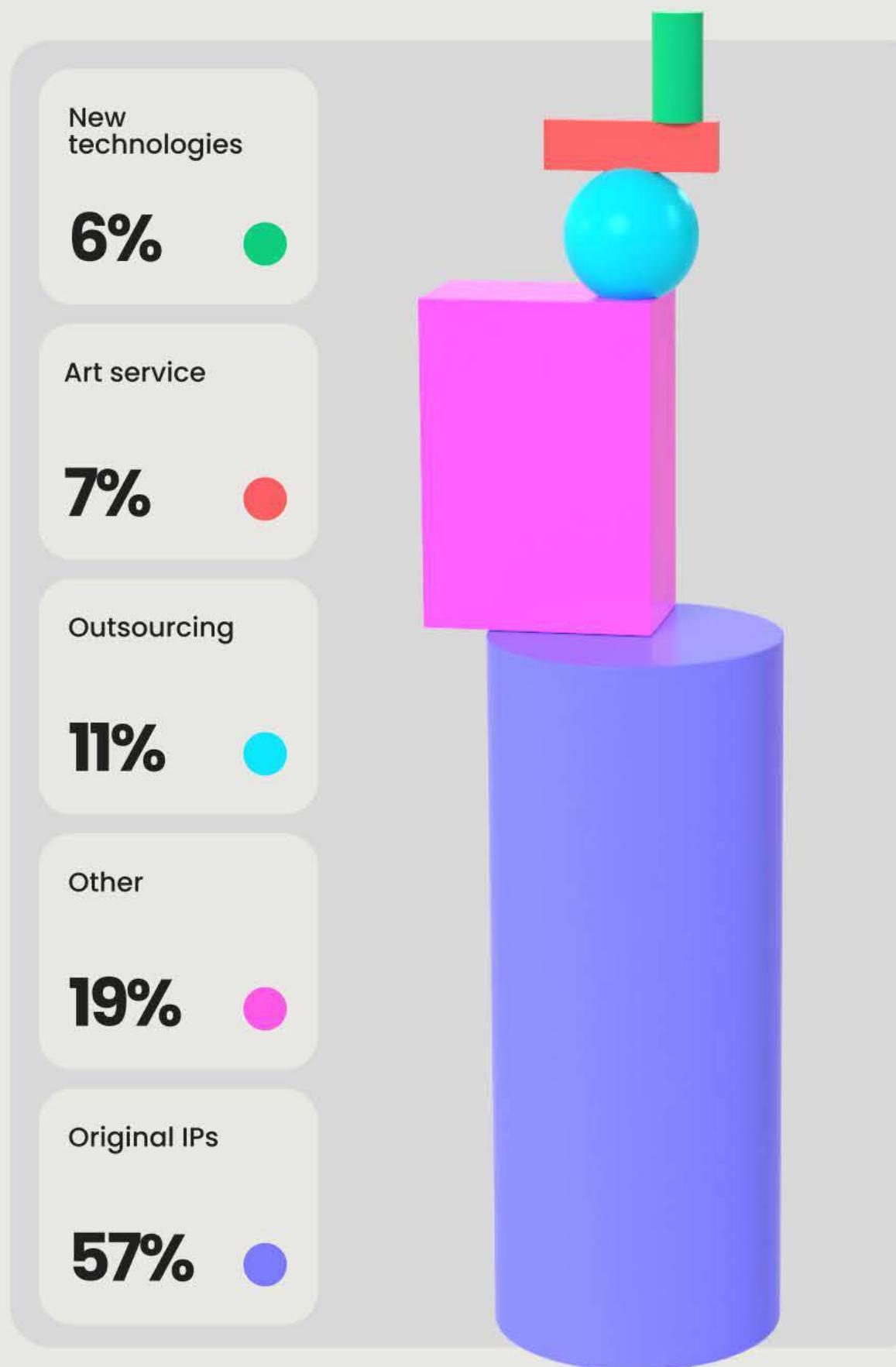
Business type entity



Estimated number of companies, studios and indie teams



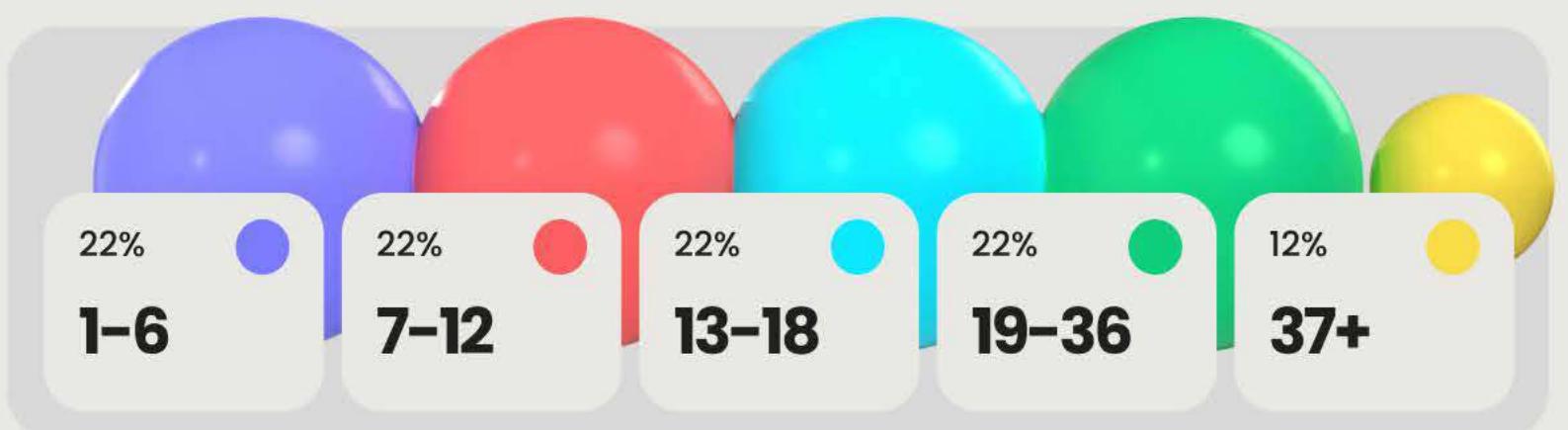
Company activity



Here is where our members are from



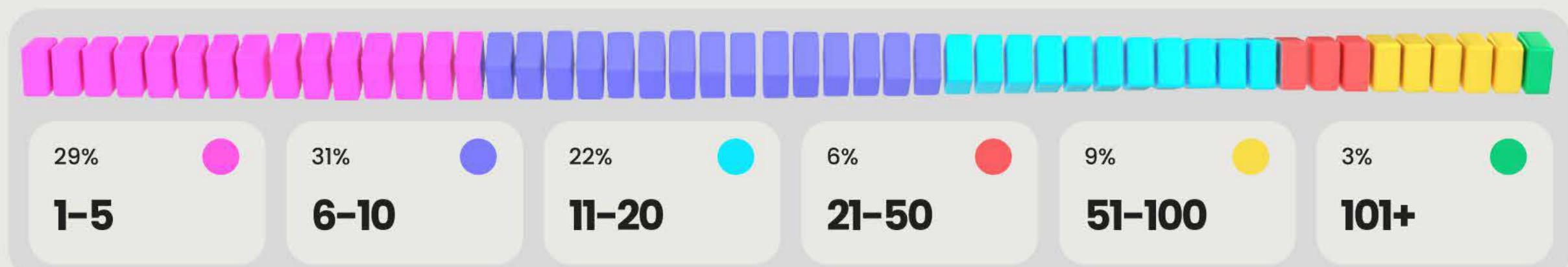
Average months spent in development



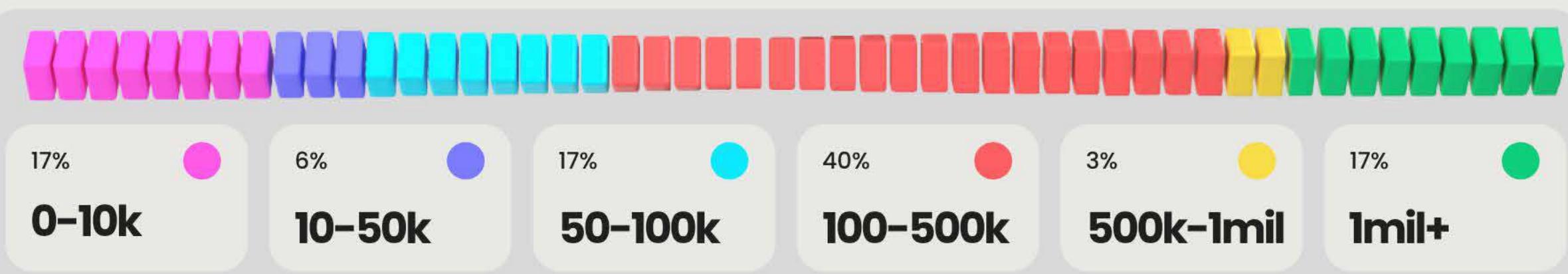
GAMES

We are happy to see only a slight decrease in the number of games being produced and published. The domination of mobile seems to be behind us - more and more teams have experience in core projects.

Average team size



Average budget for a game



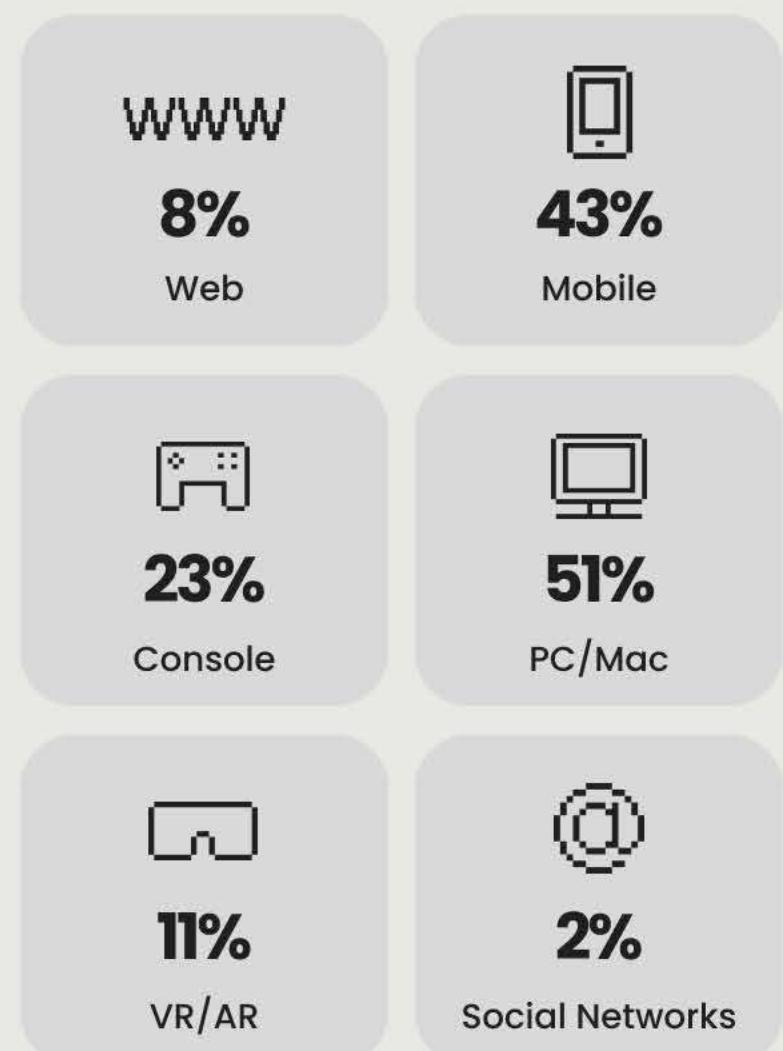
Summary

38 teams are currently developing 81 games

Most studios are currently developing 1 or 2 games

Serbian games have been downloaded/purchased more than 100 million times

Platform incidence



Top 3 genres

**ACTION
ADVENTURE
RPG**

Engines



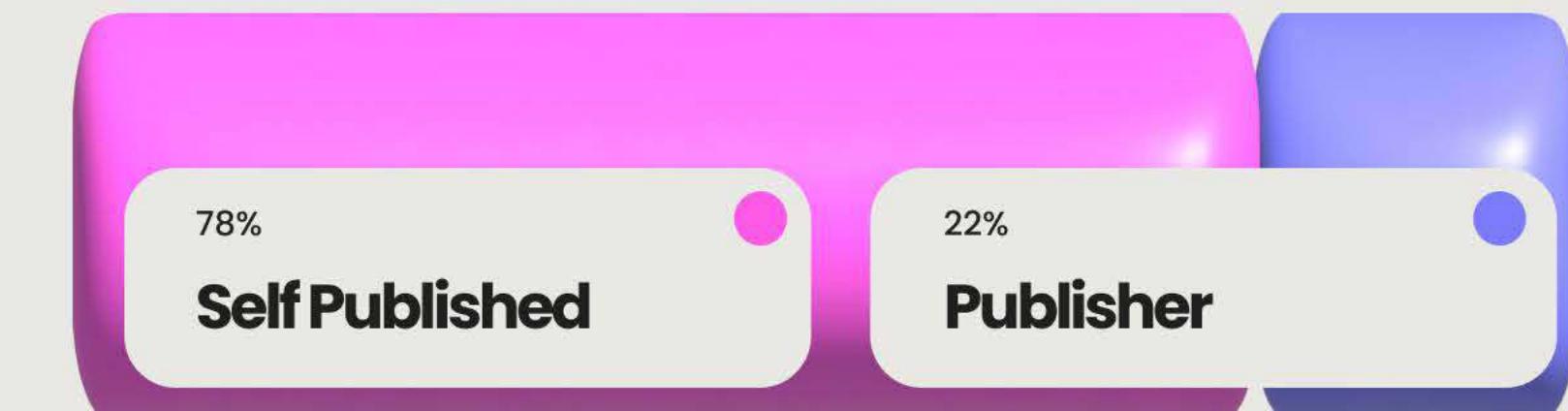
Games published

6 2430

Mobile games

Core games

Total





of respondents are optimistic or highly optimistic about the future of the industry



expect tailor-made tax relieves

ECOSYSTEM



only one respondent feels completely pessimistic about the future



respondents use R&D related tax incentives for employees





of respondents generate 75%-100% of revenue outside of Serbia



a record number of teams plan to apply for local and European funds

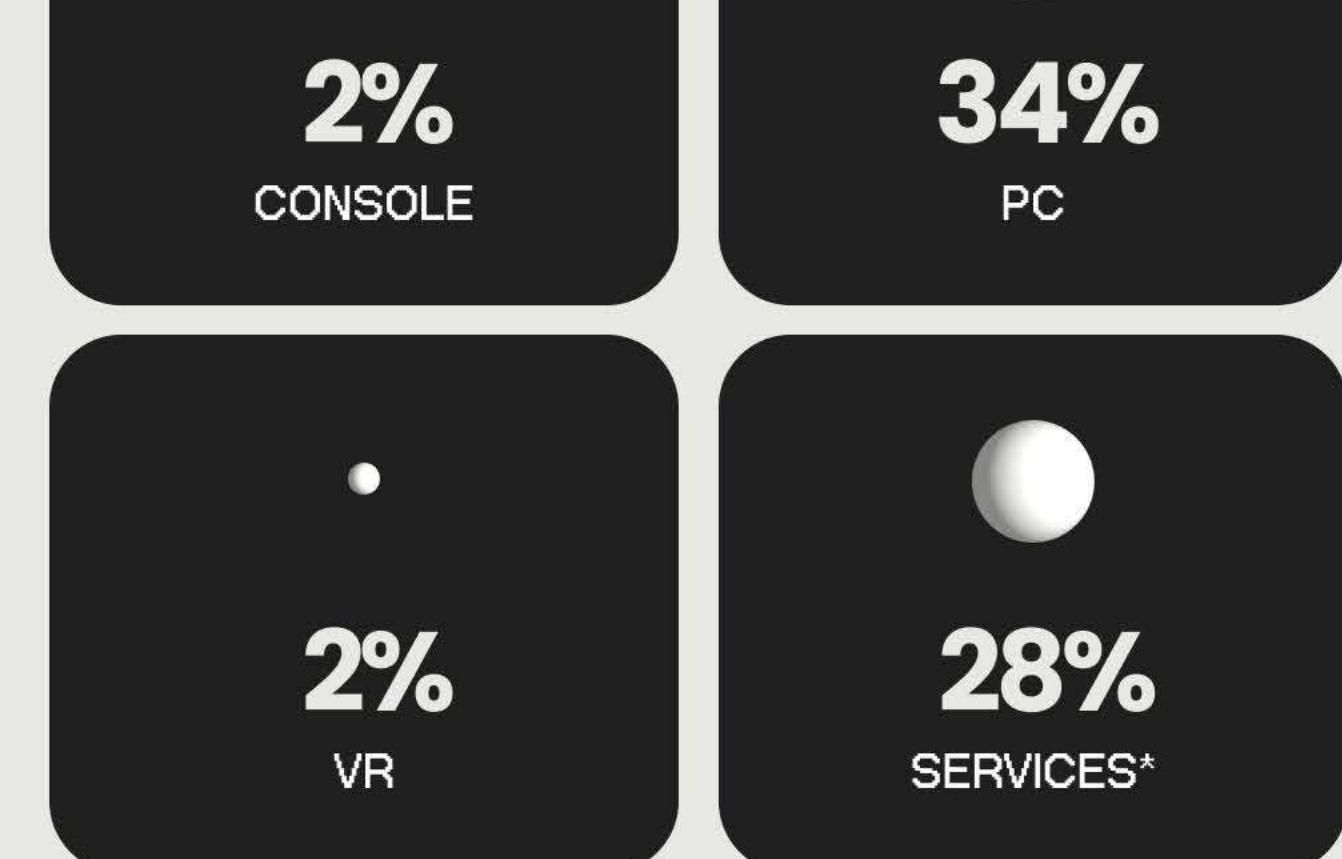
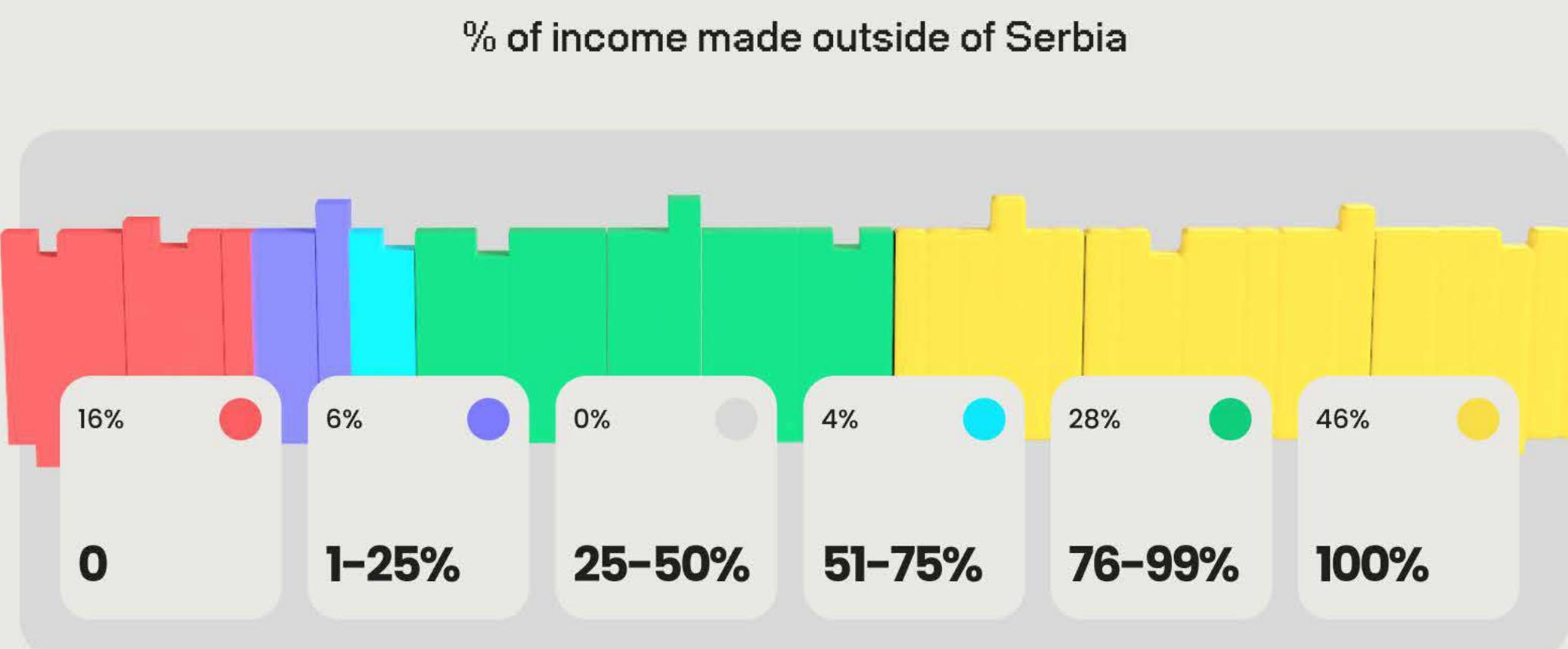
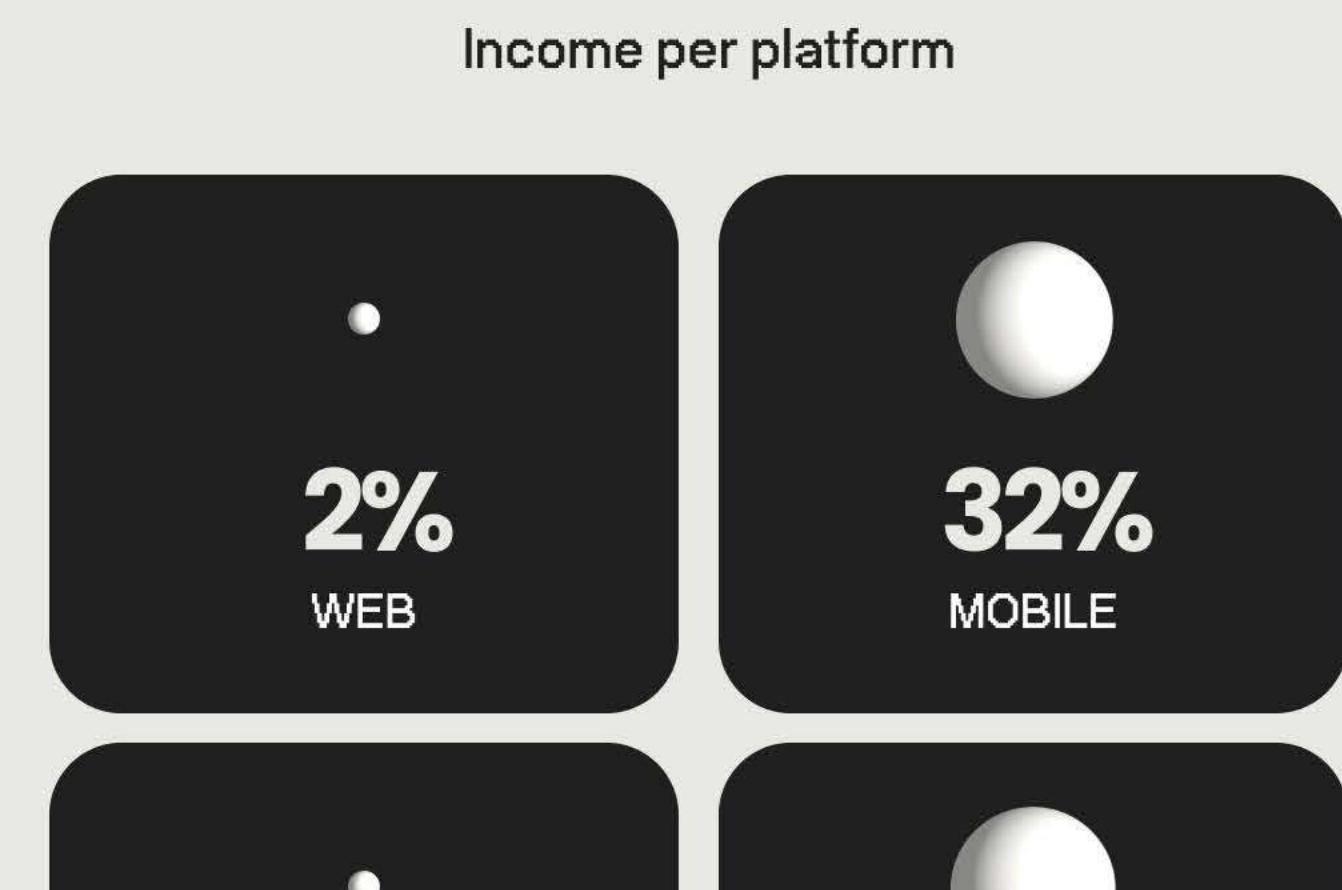
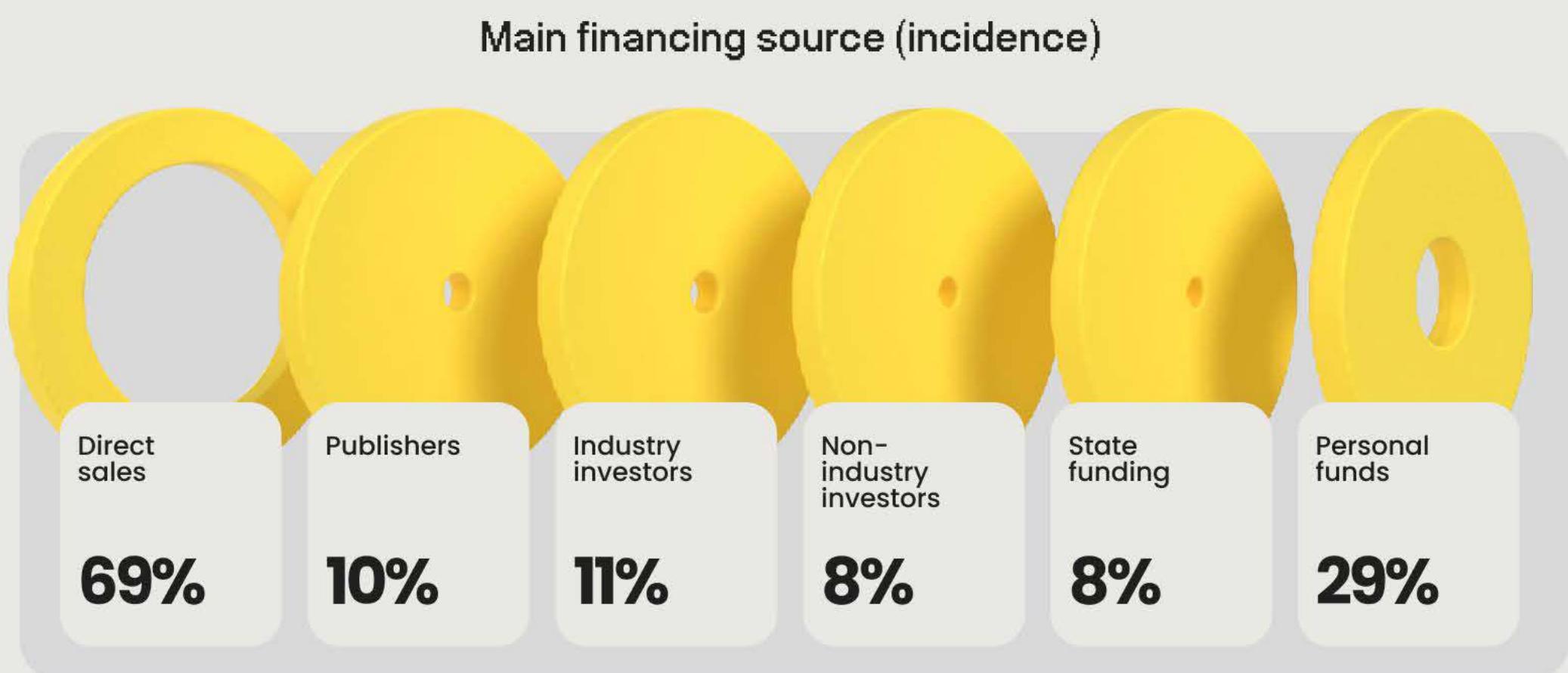
REVENUE

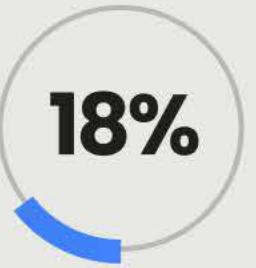


of respondents expect capital investments in 2024



the amount of money most of them would like to raise





18%

data suggests that the average revenue per employee grew 18% for gaming companies that managed to surpass the 40-employee threshold



15

most successful Serbian gaming companies generated over

175

million EUR in revenue.



The estimates show that

Large Companies

(those with more than 40 employees)

generate a significant percentage of the overall number.

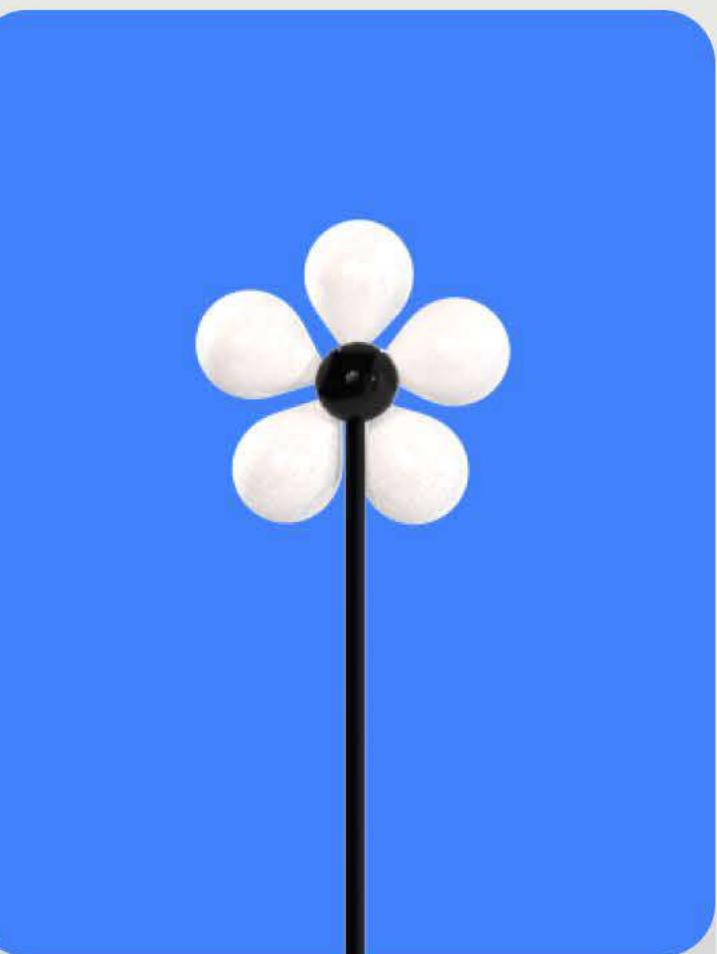
TOP PERFORMERS

For an in depth analysis of this segment, jump to an [expert article](#) provided by PwC Serbia's team of experts.



25%

of the product companies are subsidiaries of international companies, whose work is more similar to providing services, as their work can't be attributed to a specific product of the company



Revenue

increased by

17%

compared to the previous year.



Over

70%

of the above-mentioned revenue is generated by companies creating and selling a product, while the remaining

30%

is attributed to services in the gaming space.



Majority

of companies depend on a single mature product for a significant portion of their revenue.



Android



iOS

Market Share

In the mobile market, platforms are primarily split between Android and iOS.

Android usually claims a marginally larger market share, accounting for approximately 60% compared to iOS's 40%.

TALENT

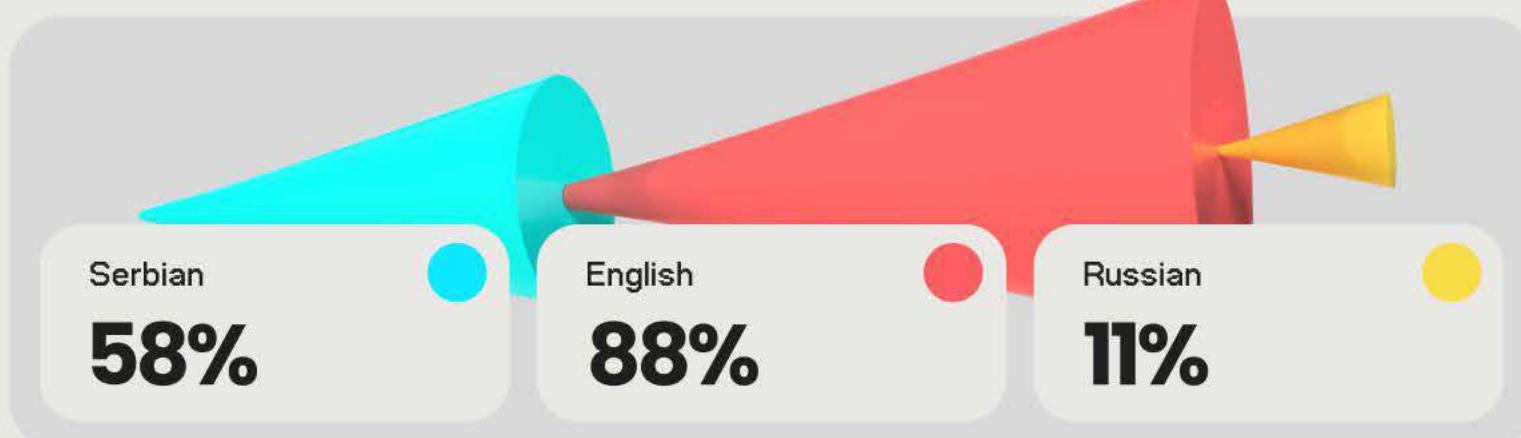
RU
relocated employees mostly come from Russia, Belarus and Croatia



of companies offer internships.
23% of these are paid

You might be surprised by some of the numbers here. We offered additional explanation and expanded the data we measure.

Mandatory language in the workplace



Estimated number of employees

4300

2023 brought an unprecedented YoY employee growth of 98%.

Deconstructing this change is simple – a huge number of gaming professionals and their families relocated to Serbia from Russia, Ukraine and Belarus. This, in turn, increased our membership. Studios with a long tradition and a global footprint, such as Wargaming, Sperasoft and Playrix now have their biggest global studios in Belgrade and Novi Sad.

This influx of knowledge and experience will definitely change our industry's landscape. Gaming industry has entered a tumultuous period, and building a strong community on the foundation of expertise and creativity will definitely help us overcome the challenges lying ahead. We now estimate that 4.300 gaming professionals are working in Serbia

Number of respondent employees

3419

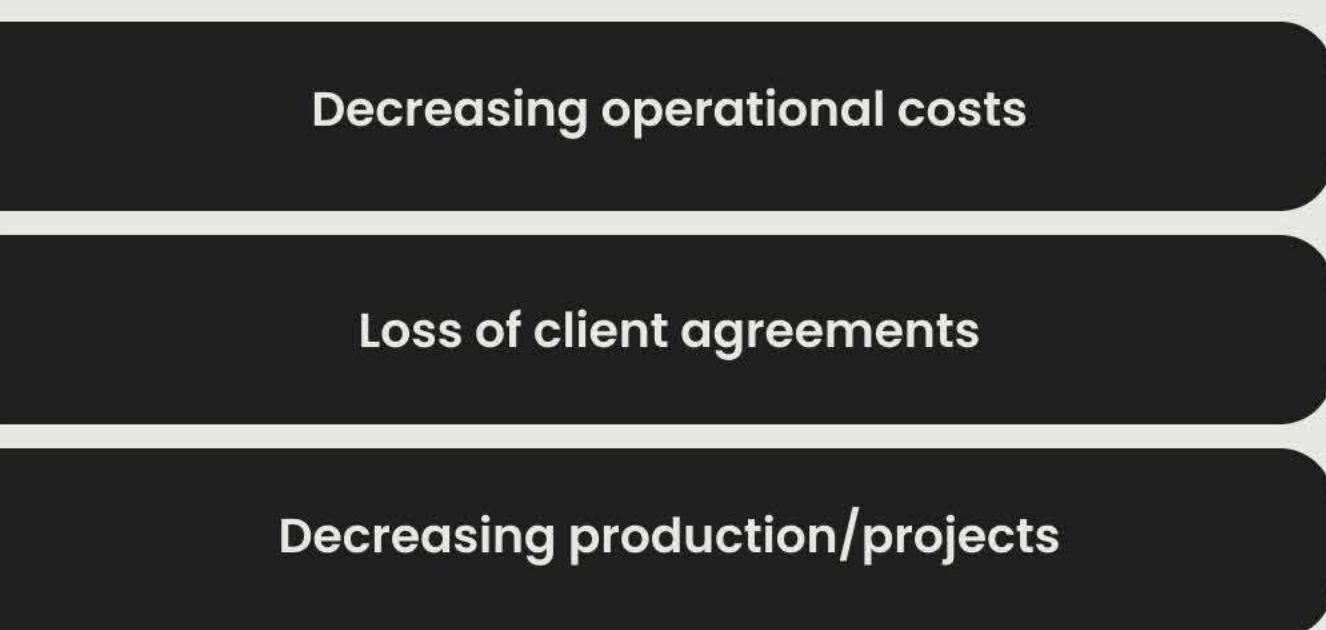
Top departments per No. of employees



Contract termination



Main reasons for optimising teams

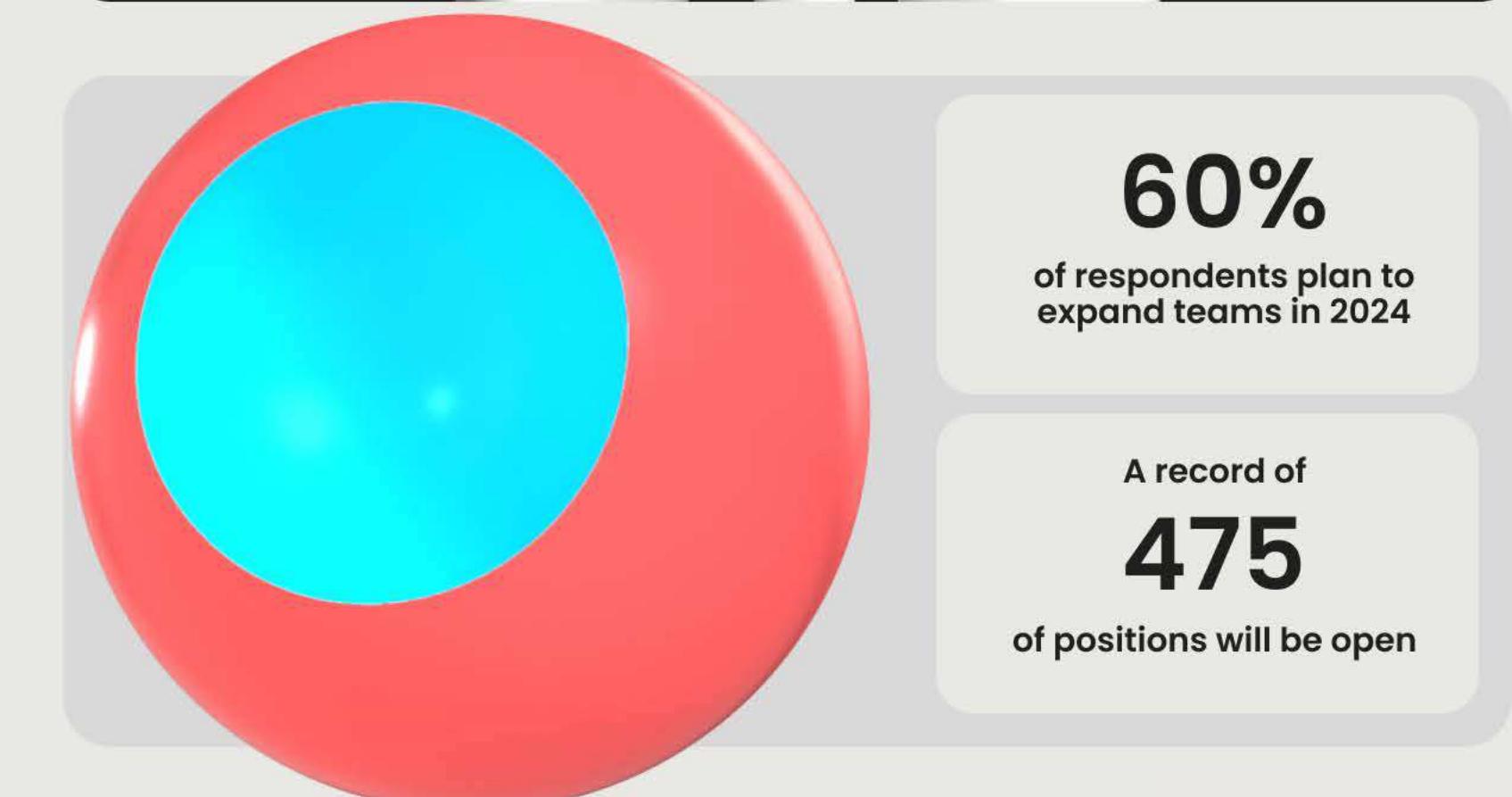


Foreign work force

Total number of foreign employees is **1632** which makes **48%** of the total employee number.

6.2

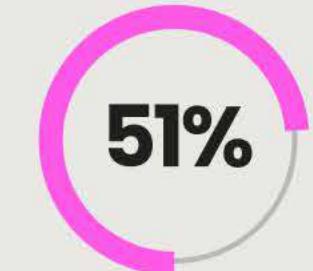
Average years with company



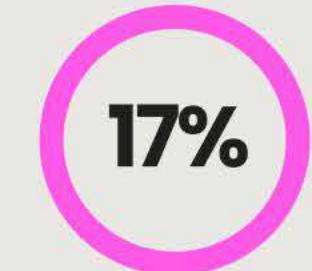
CULTURE



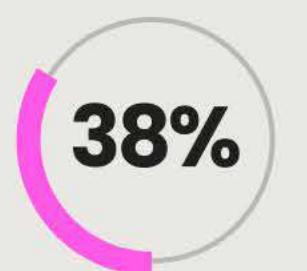
employees have an option to have company shares



employees received a pay raise



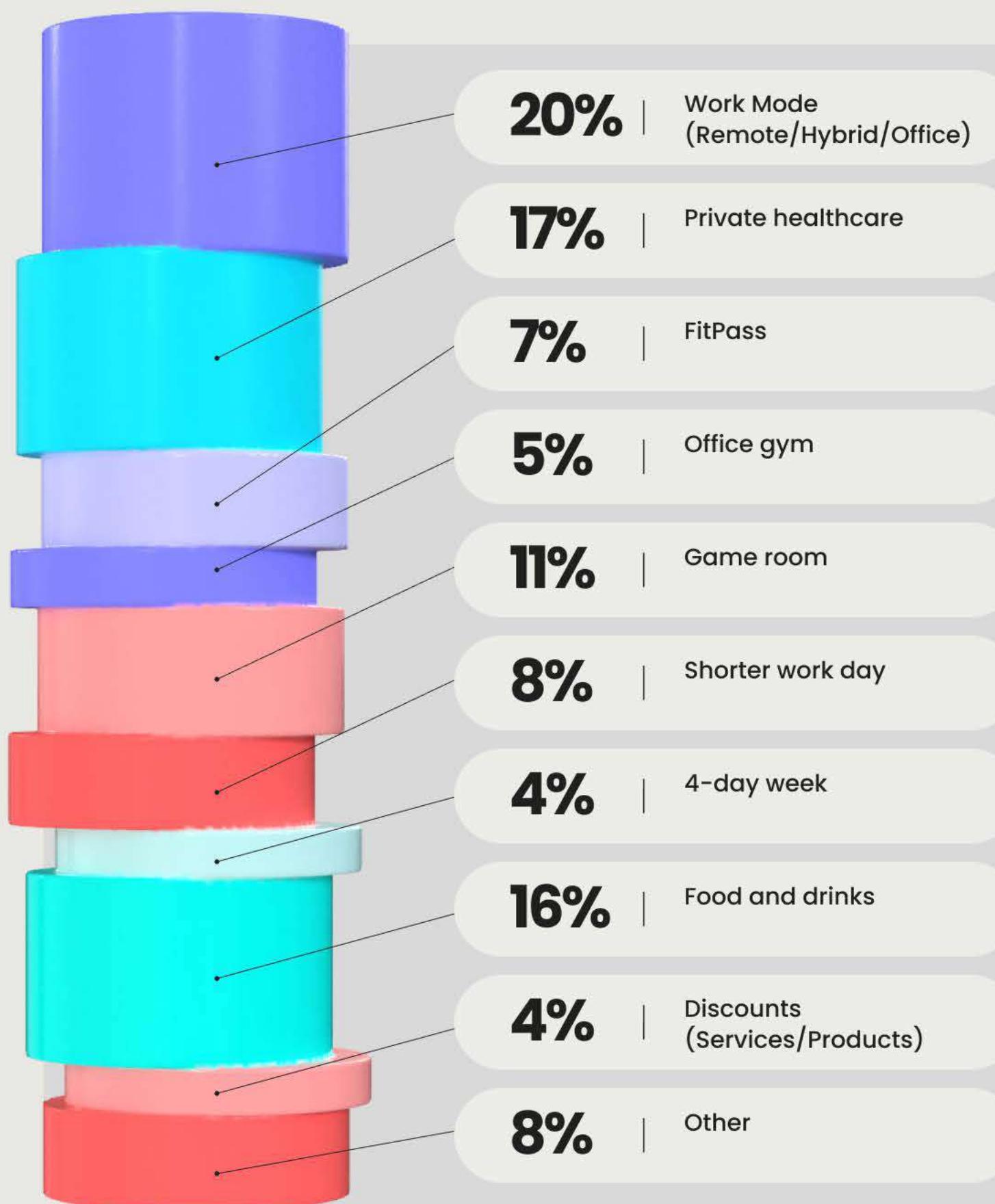
leadership positions



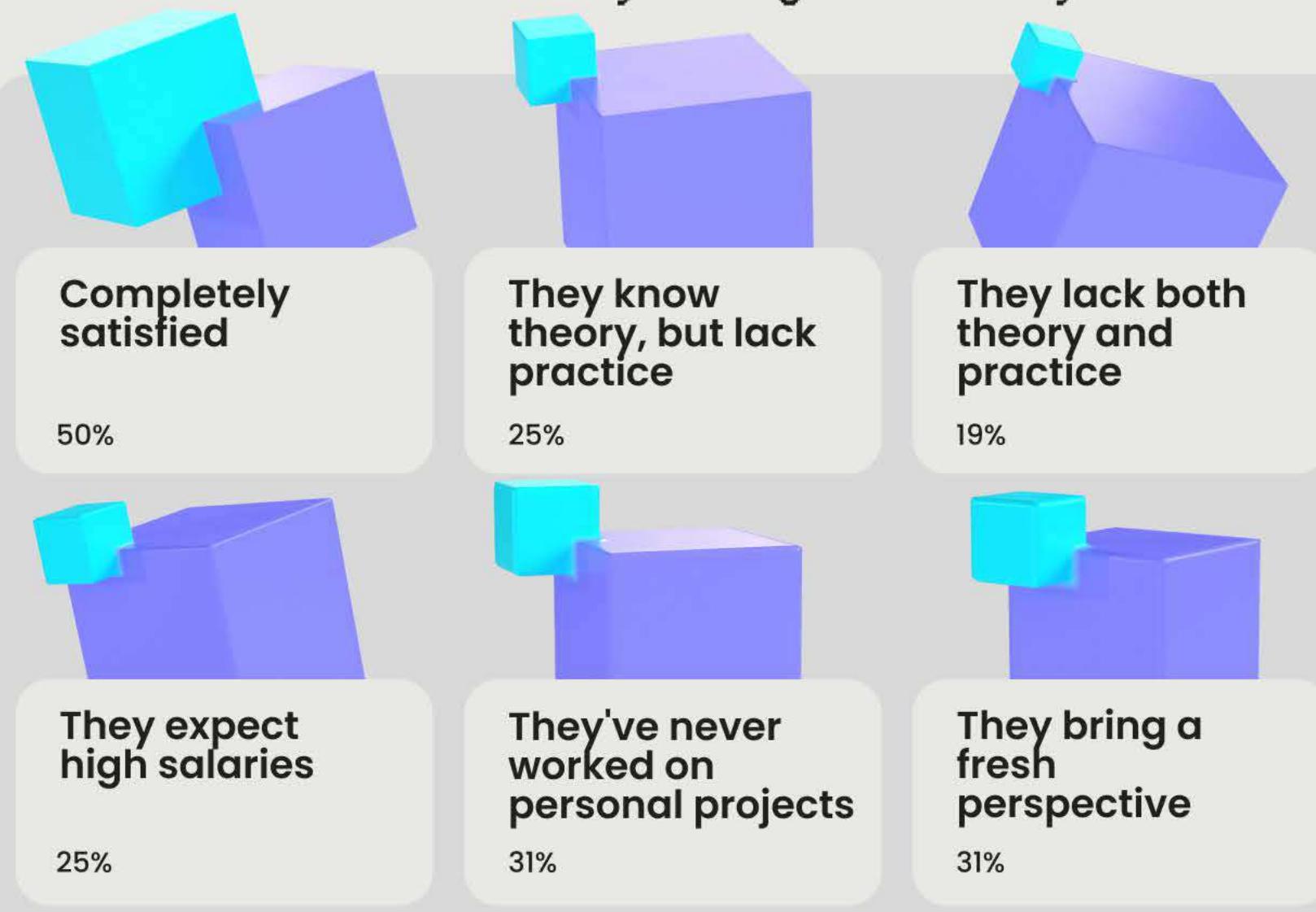
employed graduates

The work landscape of our gaming industry is changing. More benefits and work modes are available, and the workforce is as diverse as ever.

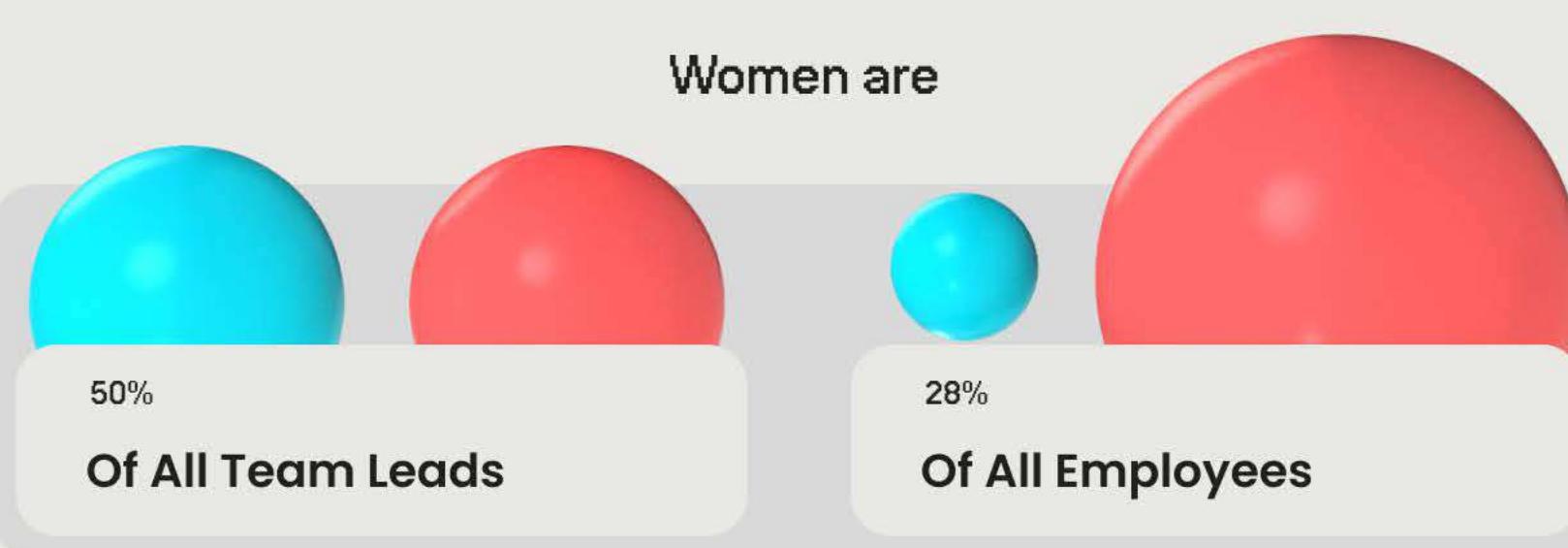
Most available benefits



What our members say about graduates they hire:



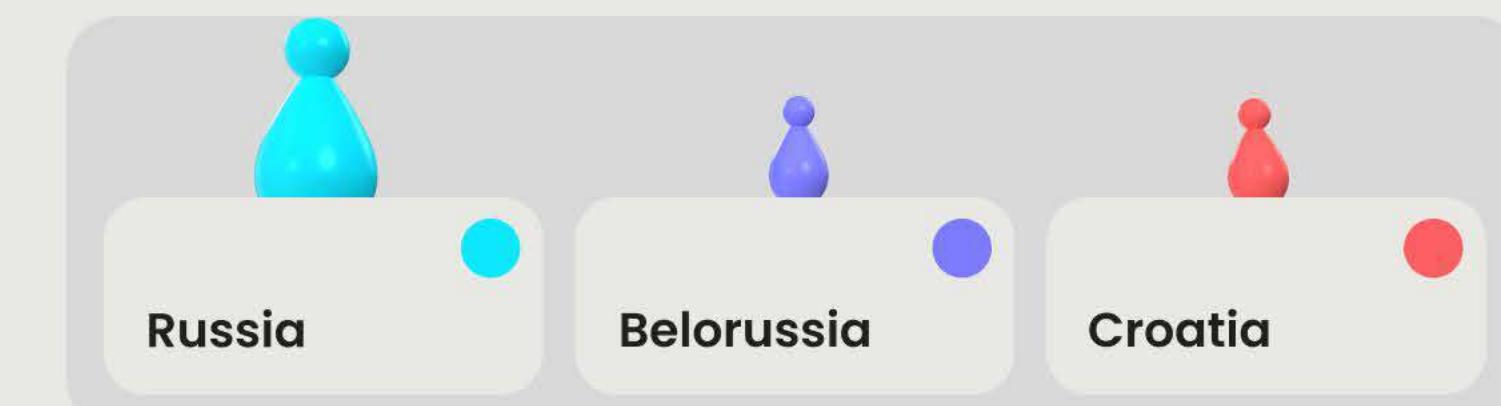
Women are



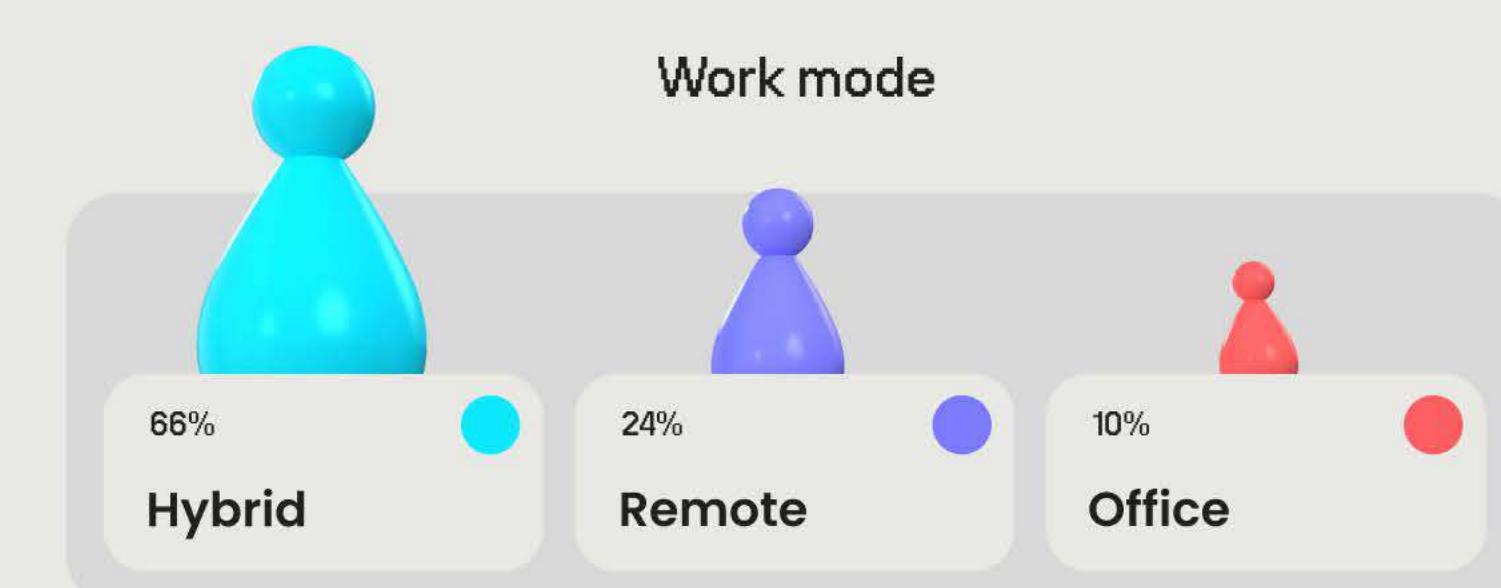
% of employees working remote, outside of Serbia



Foreign employees mostly come from



Work mode



100% + 100%

TRENDS

38 = 81

Number of employees doubled! This unprecedented growth was caused by a huge number of talent relocating from Russia, Ukraine and Belarus

After one of the most challenging years, we are happy to see that there are no drastic changes for the worse. There was even growth in some of the most important categories.

38 teams are currently developing 81 games, only slightly less than in 2022

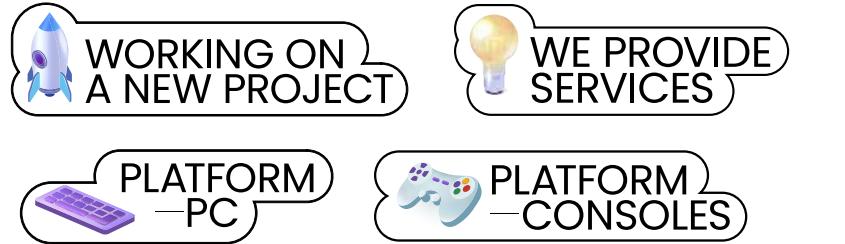
Year	Employees	Companies + teams + studios	Estimated total revenue in million EUR	Games published
2023	▲ 3419	▲ 150	▲ 175	▼ 30
2022	▲ 1744	▲ 140	▲ 150	▲ 51
2021	▲ 1548	▲ 130	▲ 125	▼ 35
2020	▲ 1431	▲ 120	▲ 120	▼ 41
2019	▲ 1325	▲ 100	▲ 80-120	▼ 46
2018	▲ 1281	▲ 60	▲ 80	▲ 70
2017	- n/a	- 30	- n/a	- 89



DATA

STUDIOS

3LATERAL



We create innovative technologies that digitize human appearance and motion at an unprecedented level of realism. As part of Epic Games' team developing the MetaHuman framework, we're dedicated to delivering best-in-class digital character services that harness the power of proven MetaHuman assets and production standards. Our end-to-end services are used in animation, film, and VFX to bring the highest-fidelity digital characters to life and push the frontiers of interactive storytelling.

3Lateral and Cubic Motion were acquired by Epic Games in 2019 and 2020 respectively. As a result, the digital asset pioneers at 3Lateral have joined forces with world-leading animation specialists Cubic Motion. Moving forward as one under the 3Lateral banner, our combined team has established a digital character powerhouse that brings together decades of expertise across dozens of successful AAA game development productions and contributing to some of the most iconic narrative-driven and character-centric AAA games in recent years like Death Stranding 2 (Kojima Productions), Avatar: Frontiers of Pandora (Ubisoft) and Spider-Man 2 (Insomniac Games).

We support the development of MetaHuman Creator and Animator technology that aims to fuel character creation and animation. These tools enable more than a million creators to tell stories with characters of a fidelity previously only achievable in the most advanced professional productions.



3LATERAL

TEAM OF 110+



FORTUNA ESPORTS

 OPEN FOR
MEDIA INQUIRIES

 WE PROVIDE
SERVICES

Fortuna Esports is the regional leader when it comes to esports. Their expertise spans across event organization, top-tier studio and video production, and seamless TV and online streaming services for prestigious international tournaments.

Setting a groundbreaking precedent, Fortuna was the first regional broadcaster to acquire rights for premium esports content, boasting partnerships with renowned entities such as Riot Games' LoL Esports tournament circuit, Dota 2's The International, and Valve's Counter Strike Majors.

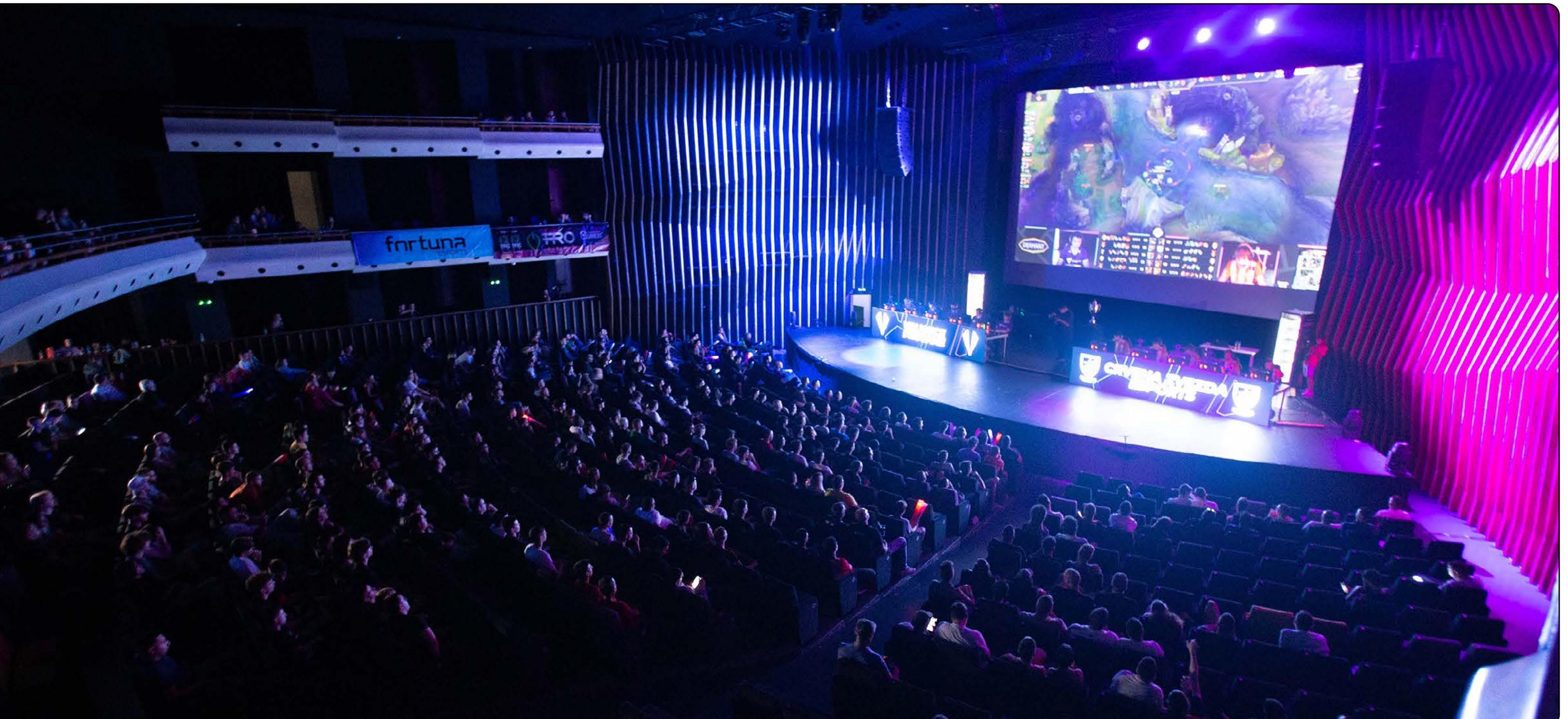
Beyond their commitment to premium esports coverage, Fortuna prides itself on a diverse portfolio that caters to local audiences, featuring captivating entertainment shows tailored to regional tastes. Their crown jewel, the Esports Balkan League (EBL), stands as the largest regional esports league, having distributed over 300,000 EUR in prizes to date.

EBL's legacy is further solidified by its inclusion of three prominent game titles—League of Legends, CS:GO, and Dota 2—and an exclusive partnership with Riot Games, affording regional teams a prestigious pathway to international tournaments in Europe. Most notably, EBL broadcasts command the attention of approximately 500,000 esports enthusiasts annually, underscoring its profound impact on the regional gaming landscape.

Since June 2019, Fortuna has expanded its reach with the inception of SK Esports, a cutting-edge 24/7 Sport Klub TV channel established in collaboration with United Media. SK Esports' comprehensive programming encompasses live coverage of the world's most prominent tournaments, gaming news updates, insightful game reviews, engaging streamer showcases, and captivating entertainment productions. Notably, our brand-new studio produces over 200 live broadcasts annually, offering viewers over 1,000 hours of captivating content each year.

TEAM OF 16

 fortuna
ESPORTS



NORDEUS

HIRING
NEW TALENTWORKING ON
A NEW PROJECT

2023 was another marquee year for Nordeus. While continuing to delight aspiring football managers around the world with its evergreen hit Top Eleven, Nordeus expanded its footprint in the mobile sports space even further with explorations into a new game category.

Top Eleven - Be a Football Manager celebrated its 13th anniversary, a rare feat for a mobile game, counting more than 300 million registered users and accompanied by amazing ambassadors - two football legends José Mourinho and Xabi Alonso.

Top Eleven gives managers the feeling of the touchline thanks to its immersive 3D live matches, which were supercharged this year as part of its 2024 release. After debuting in March 2022, the game's 3D engine has powered Top Eleven to new heights. Intent on expanding the Live Match feature's depth and excitement, Top Eleven 2024 offered players an enhanced Live Match experience with new animations, different camera angles, new hyper-realistic stadium experiences, night scenes, and dynamic crowds.

No one knows better than Nordeus about all the potential that the sports category on mobile provides, and with golf making up a sizable portion, Nordeus took a leap and added Golf Rival to its portfolio - a PvP golf game with 60 million registered players to date. Along with the game's founding team in Beijing, Nordeus is on a mission to make Golf Rival a "forever" game.

When they are not scoring goals on the football pitch or delivering the next big 3D update in Top Eleven, Nordeus is creating a better future for generations to come. In 2023, the Nordeus Foundation continued to help set children up for a future in the digital age by opening the 13th STEAME Makers lab in local high schools and kicking off the implementation of the Financial Literacy program in 50 high schools across the country in 2024.

TEAM OF 220



PLAYRIX.COM

WWW

PLAYRIX



HIRING
NEW TALENT



PLATFORM
MOBILE

Playrix, headquartered in Dublin, Ireland, is an international developer in the casual Free-to-Play (F2P) mobile gaming sector and the top game developer in the EMEA (Europe, Middle East, and Africa) region. Its portfolio includes titles such as Gardenscapes, Homescapes, Township, Fishdom, Fishdom Solitaire, Mystery Matters and Manor Matters, which have consistently ranked in the Top 50 Grossing Apps on both Google Play and the App Store. These games attract over 100 million monthly active users. Recently, Playrix has relocated hundreds of its employees, reinforcing Serbia as the location with the largest Playrix presence globally, where 470+ professionals are employed. At the heart of Playrix's operations is a commitment to quality, which serves as the core value and guiding principle for all team members. The company fosters a culture of team spirit, creativity, transparency, trust, and professional and personal development, emphasizing responsibility in every facet of its work.

TEAM OF 470+ IN SERBIA

playrix



WWW.PLAYSTUDIOS.COM

PLAYSTUDIOS EUROPE



HIRING
NEW TALENT



OPEN FOR
MEDIA INQUIRIES



PLATFORM
MOBILE



WORKING ON
A NEW PROJECT

PLAYSTUDIOS, Inc. is the creator of the groundbreaking playAWARDS loyalty platform, and a publisher and developer of 18 award-winning mobile games and 9 studios in USA, South East Asia, Middle East and Europe.

Playstudios Europe has opened its doors in Belgrade in 2021. We are working on the Pop! Slots, MGM Slots Live and on the Tetris® mobile game. We are a dynamic and young-minded environment, blooming with talented developers, creatives, quality assurance professionals and other leaders working together to change the face of social gaming!

We create games that surprise, delight and exceed expectations.

We all Play together and we all Play to win. We won't always be perfect, but we will always try - because that is our Way of Play!

TEAM OF 189



SPERASOFT A KEYWORDS STUDIO

LOOKING FOR
A PUBLISHEROPEN FOR
INVESTMENTSHIRING
NEW TALENTWORKING ON
A NEW PROJECTPLATFORM
PCPLATFORM
MOBILEPLATFORM
CONSOLESWE PROVIDE
SERVICESOPEN FOR
MEDIA INQUIRIES

Sperasoft is a leading international game development company (a contributor to such franchises as Halo, Battlefield, Assassin's Creed, Rainbow 6) headquartered in Burbank, CA.

We offer fully international development capabilities with comprehensive professional teams that are constructed with the best producers, engineers, designers, and artists in the gaming industry.

Sperasoft is a part of Keywords studios – international technical and creative services provider to the global video games industry and beyond.

Our partners and clients: Ubisoft, Microsoft, Warner Brothers, 343 Industries, Riot Games, Electronic Arts, Sony, BioWare, Blizzard Entertainment, and many others.

TEAM OF 280

IN SERBIA

S P E R A S O F T
A KEYWORDS STUDIO

TINYBUILD

TINYBUILD.COM

WWW

WORKING ON
A NEW PROJECT

PLATFORM
MOBILE

PLATFORM
PC

PLATFORM
CONSOLES

tinyBuild started as an indie game developer and morphed into a developer publisher you can't miss. Our dedication to creating long-term partnerships and elevating recognizable franchises has resulted in many successful collaborations with talented developers from all over the world. The company has released dozens of games, including Hello Neighbor, Graveyard Keeper, SpeedRunners, and more. Although headquartered in the Seattle Area, USA, the company has established a strong global presence with studios across the US, Netherlands, Latvia, and throughout Eastern Europe.

TEAM OF 300



WWW.UBISOFT.COM

WWW

UBISOFT BELGRADE



HIRING
NEW TALENT



OPEN FOR
MEDIA INQUIRIES



WORKING ON
A NEW PROJECT



PLATFORM
PC



PLATFORM
CONSOLES

Ubisoft Belgrade is not an ordinary gaming studio – we are a community of gaming enthusiasts and creatives, who share a passion for games and have the same goal – creating new worlds for all game lovers.

Ubisoft recognized the growing potential of the game dev community in Serbia and opened its studio in Belgrade in 2016. At the beginning, our studio consisted of 10 developers, and seven years later, Ubisoft Belgrade has a team of 150 employees.

However, as much as we grow, the relaxed atmosphere is still there. The best evidence is always full terraces at our studio, gaming corners and, of course, the ping-pong table. Beside programmers, our team also includes artists, designers, dev testers, producers and project coordinators, Ubisoft Belgrade is a group of people with different expertise and experience. We are not even all gamers. 😊 Nevertheless, the important individual contribution that each of us has to the studio is recognized.

Our studio has worked on some of the biggest Ubisoft titles:

STEEP THE CREW GHOST RECON WILDLANDS GHOST RECON BREAKPOINT
RIDERS REPUBLIC RAINBOW 6 EXTRACTION ASSASSIN'S CREED MIRAGE
SKULL & BONES ASSASSIN'S CREED NEXUS VR AVATAR: FRONTIERS OF PANDORA

and we are currently working on many exciting projects.

Ubisoft's 20,000 team members, working across more than 30 countries around the world, are bound by a common mission to enrich players' lives with original and memorable gaming experiences.

TEAM OF 150

UBISOFT
BELGRADE



WARGAMING.COM

WWW

WARGAMING



HIRING
NEW TALENT



WORKING ON
A NEW PROJECT



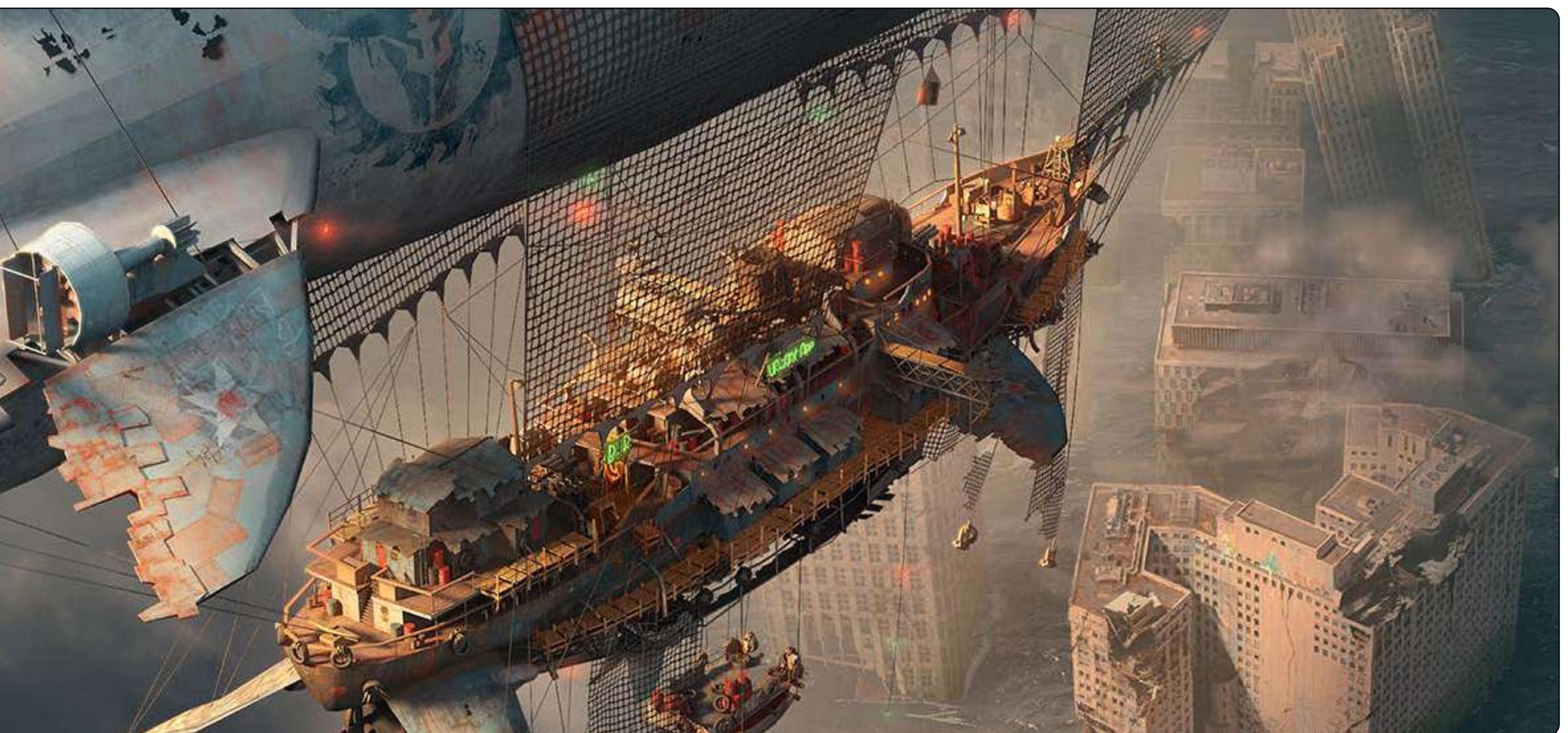
PLATFORM
MOBILE



PLATFORM
PC



PLATFORM
CONSOLES



Wargaming is a company with a rich history and a bright future. Founded in 1998, we have grown from a small team of passionate gamers into a global leader in the gaming industry. Our focus has always been on creating immersive and engaging experiences for our players of "World of Tanks" and "World of Warships" franchises, and we are constantly pushing the boundaries of what is possible in the world of gaming.

But our success is not just limited to our games. We are also committed to giving back to the community and making a positive impact on the world. We have established a number of initiatives to support education, technology, and the arts, and we are always looking for new ways to make a difference, in Serbia as well as globally.

TEAM OF 800+



WARGAMING

WWW.YBOGA.COM

WWW

YBOGA DOO



WORKING ON
A NEW PROJECT



PLATFORM
MOBILE



PLATFORM
PC



Founded in Belgrade in mid-2016, Yboga specializes in management simulation and strategy games. The studio developed a mobile title - Dream Hospital, which has amassed over 12 million downloads since its launch and maintains a loyal fan base.

Although small, the studio comprises expert individuals with extensive experience and knowledge in game development. Yboga Studio is dedicated to delivering outstanding gaming experiences and continuously seeks new ways to expand its reach and offer innovative gameplay. In addition to developing mobile games, the studio is actively exploring other segments of the gaming market.

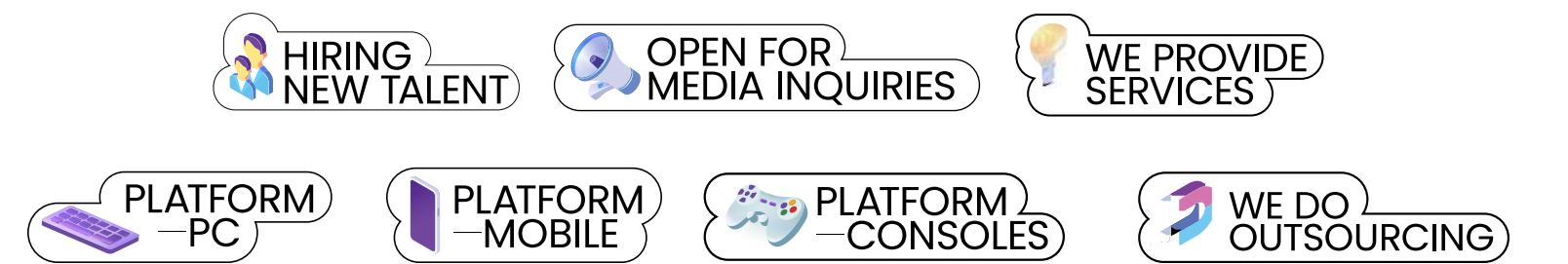
Yboga's long-term goal is to continue expanding and establish its name as one of the key players in the field of simulation and strategy games.



TEAM OF 7

yboga

ART BULLY PRODUCTIONS DOO



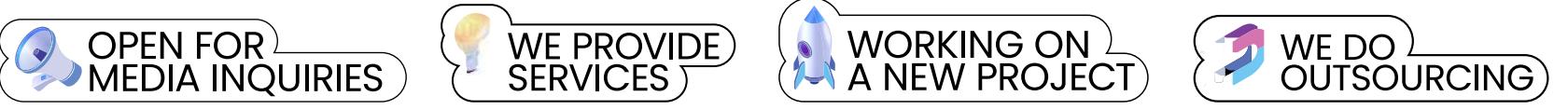
Art Bully Productions is comprised of experienced 3D art professionals located in Raleigh, North Carolina, Belgrade Serbia, and Mohali India. We are dedicated to developing and producing outstanding AAA-quality art for game developers of all sizes. Our 3d artists specialize in characters, creatures, weapons, vehicles, concept art, and complex prop assets. We also have experienced animators on our team who specialize in rigging, skinning, keyframe animation, and mocap cleanup.



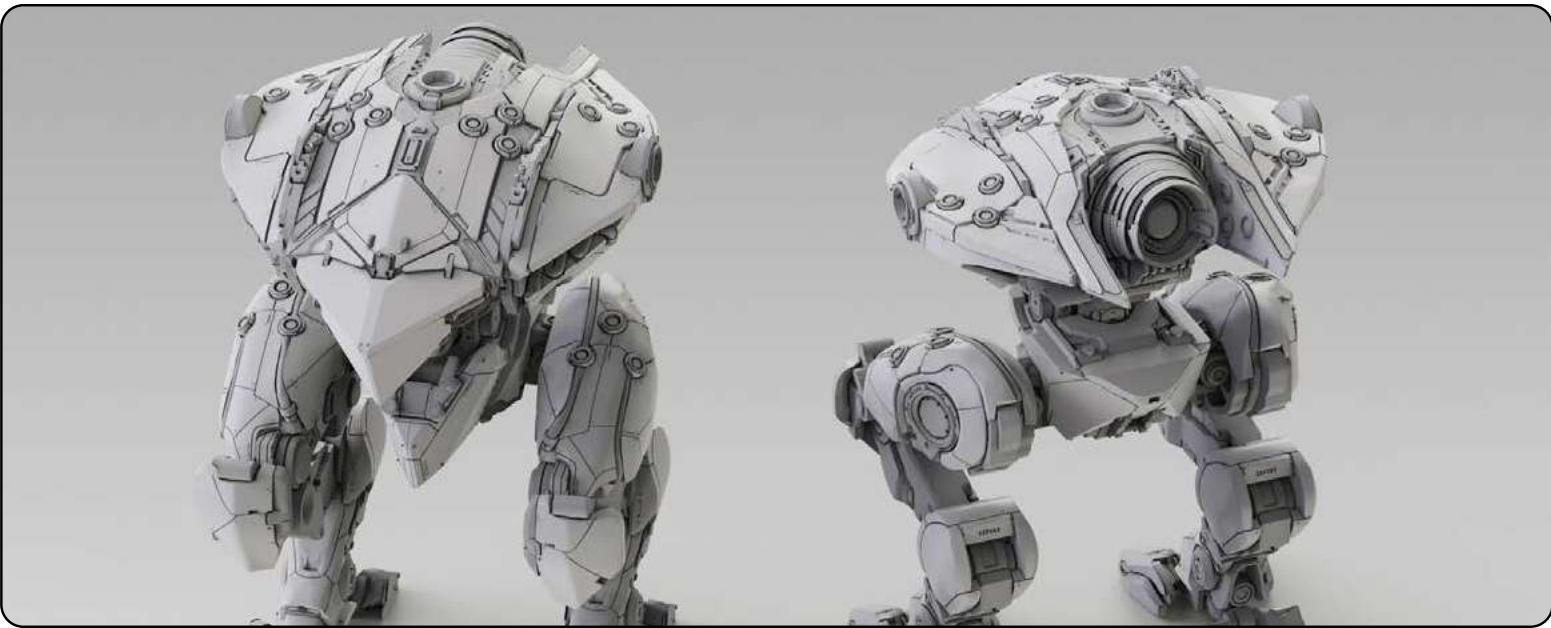
TEAM OF 80+



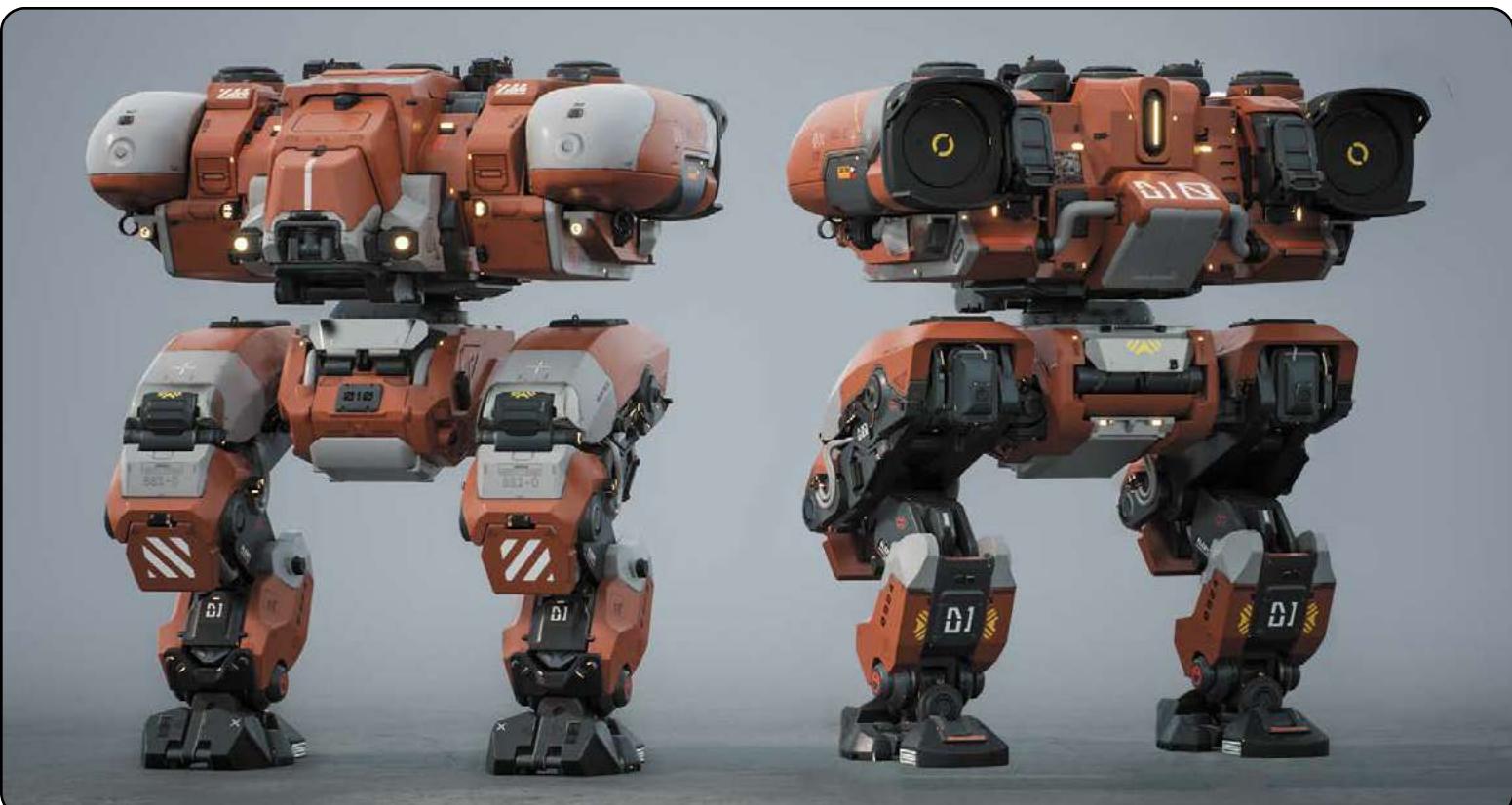
CODA ART STUDIO



External Art Development
Serbia-based team of 40+
artists specializing in game-ready model delivery.



TEAM OF 40

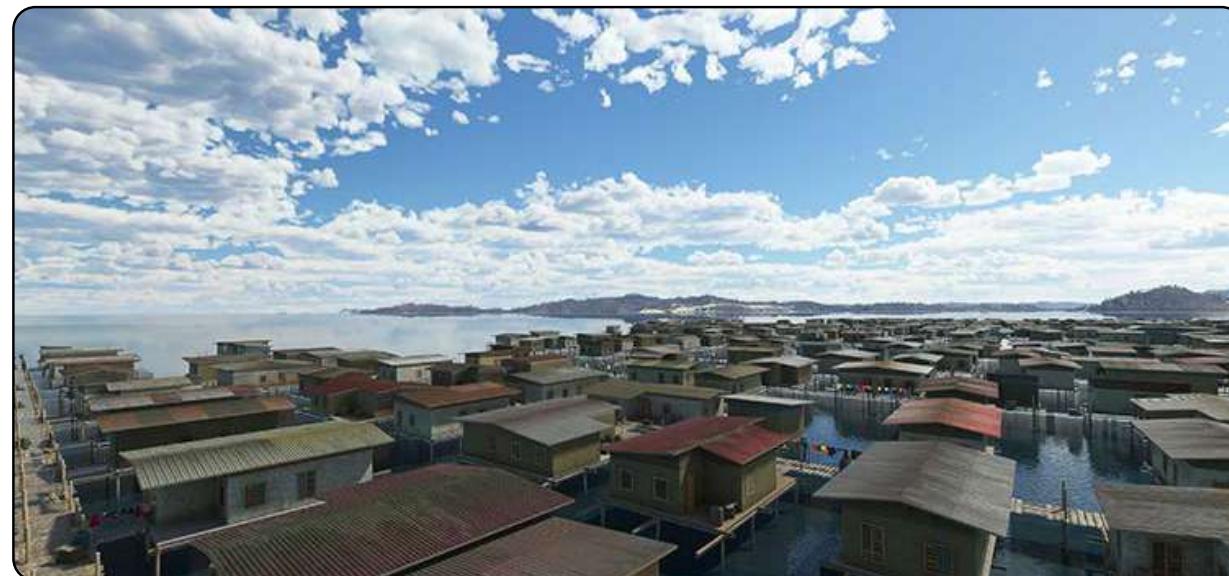


DREAMLINE ENTERTAINMENT

DOO NOVI SAD

LOOKING FOR
A PUBLISHEROPEN FOR
INVESTMENTSWE PROVIDE
SERVICESWORKING ON
A NEW PROJECTWE DO
OUTSOURCING

Dreamline Entertainment, situated in Novi Sad, Serbia, specializes in video game development and tailored outsourcing services. Our team specializes in 3D environment art and design, drawing heavily on architectural principles. We've contributed to renowned AAA titles, including 'Microsoft Flight Simulator 2020.' We also have several games in development, eager to share with the world. Apart from video games, we create architectural digital twins of airports, museums, factories and residential projects. These digital twins are intricately detailed and fully functional, ready for customers to experience and enjoy. Whether tailoring a solution for a client or building our own creative vision, our passion drives us to entertain, educate, and inspire players everywhere.



TEAM OF 9

DREAMLINE
ENTERTAINMENT

FLAT HILL GAMES

OPEN FOR
INVESTMENTSOPEN FOR
MEDIA INQUIRIESWORKING ON
A NEW PROJECTPLATFORM
PCPLATFORM
CONSOLES

Flat Hill Games is an indie game development studio, specializing in the fascinating world of virtual reality. Formed in June 2018 by professionals from the gaming industry, the studio's mission is to craft exceptional games specifically designed for VR platforms. The studio's first title, Clash of Chefs VR, was published on all major VR platforms with great success. Currently working on new VR projects.

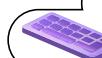


TEAM OF 9

FLAT HILL
GAMES


FOXY VOXEL

 OPEN FOR
MEDIA INQUIRIES

 PLATFORM
PC

Foxy Voxel is an independent game development studio founded in Novi Sad, Serbia, in 2019. The team consists of 9 seasoned game industry professionals that work on a medieval colony sim/city builder game for PC - Going Medieval. Set in alternate post-apocalyptic medieval Europe, players get to guide a group of survivors while they re-settle areas reclaimed by nature. Their goal will be to construct a multi-storey fortress in a land reclaimed by the wilderness, defend against raids and keep your villagers happy as the world will shape their personalities. Going Medieval was released as an Early Access title on June 1st, 2021, on Epic Game Store, Steam, and GOG, and to this day, managed to sell over 850 000 copies. Going Medieval continues to receive frequent updates every month while maintaining and expanding its community and keeping its Steam rating at "Very Positive"



TEAM OF 10



GAMEBIZ CONSULTING

 WE PROVIDE
SERVICES

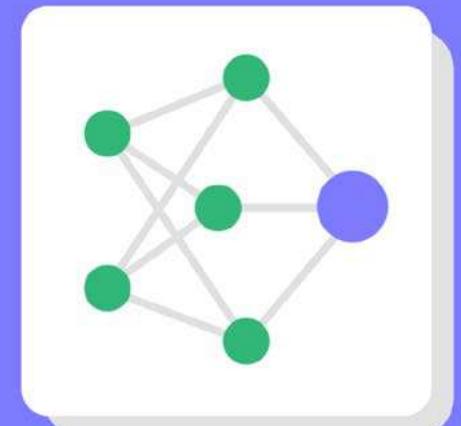
Founded in 2018, GameBiz Consulting is a renowned video game consulting company, managing \$250 million in revenue and partnering with over 80 studios globally.

Aside from business development and strategic guidance, they offer a personal touch in guiding studios operating in Serbia or looking to establish a presence here through the challenges they face.

The company provides tailored financial management to studios based in Serbia, focusing on operational efficiency, tax compliance, and securing grants and incentives.

Additionally, their expertise in user acquisition and ad monetization makes them a go-to partner for studios aiming to elevate their marketing and revenue strategies. At the heart of their success is a team committed to fostering growth, teamwork, and value-driven results.

**Empowering Your
Gaming Venture in
Serbia with Expert
Financial & Industry
Insight**



We Help You Grow And
Monetize Your Game



TEAM OF 12

LAV GAMES



Lav Games is a development and art oursource studio specializing in environment art for video games.

Currently working on two original IPs:

- Somber Echoes is a 2.5D side scrolling action-adventure built in Unreal Engine 5.
- Cactus Karts is a high-octane racing game with a twist of puzzles, all brought to life in Unreal Engine for Fortnite.

As an outsource studio, we provide end to end support, from concepts to optimization of the environments in Unreal Engine for various AAA and Indie studios.

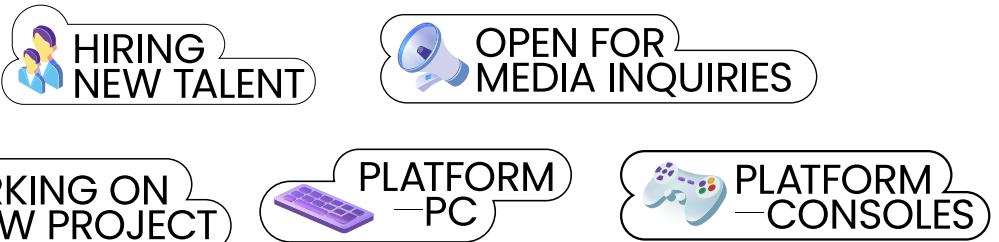


TEAM OF 18



LavGames

MAD HEAD GAMES



Mad Head Games is a studio with a pioneering pedigree of over twelve years and 67 games. Since 2020 they have been a part of Saber Interactive, working together on great IPs, sharing ideas, know-how, and technology. Developing games in Unreal Engine, they are strongly committed to raising the bar in all aspects of game development and becoming the leading AAA developer of action games for PC and consoles in the SEE region.

Operating from Belgrade, Novi Sad, and Sarajevo, and with dozens of Mad Heads working from UK, Spain, Germany, Belgium, etc. their team is constantly growing and evolving. They finished 2023 with 175 team members. Their motto is We create heroes and it goes for all that they do – from game development, learning and sharing knowledge to the unique culture nurtured across studios for over a decade.

Their latest title Scars Above, a challenging and immersive 3rd-person Sci-Fi shooter set in a mysterious alien world to explore, was released in February 2023. In 2024, Mad Head Games will be fully committed to working on 2 AA/AAA games based on famous franchises. While the details are not revealed yet, they are promising to push the boundaries of regional game development.



TEAM OF 175

MAD
HEAD
GAMES

ONYX STUDIO



Onyx Studio was founded in 2020 with a simple but ambitious goal of establishing ourselves as a premier co-development partner for the AA and AAA studios in the video games industry. Our method was simple: quality and transparency above everything else. Our results thus far are a true reflection of those guiding principles - as of 2024 Onyx Studio is a key co-development partner for the likes of DICE/EA, Microsoft, Activision, Epic Games and many more development studios, both big and small.

Headquartered in Singapore, our growth trajectory has seen us expand to Serbia and Malaysia with physical offices serving as creative hubs, as well as constantly increasing our network of international talent with robust work from home solutions. We've been working hard behind the scenes to introduce new service lines to our already comprehensive offerings, so stay tuned!

In addition, we introduced Onyx Academy in 2023, our robust solution for bringing talented individuals into the industry by using a tried and tested blend of craft knowledge and actual hands-on working practices. Courses are held by industry veterans and are currently limited to 3D Asset Art and Environment Art, but we already have a few new tracks on the horizon. It should be noted that Onyx Academy is completely FREE - no strings attached other than being accepted into the program. Students that complete the 6-month long curriculum have no obligations to Onyx Studio, though we may offer a permanent role with the company!

Over the course of 2024 we plan to increase our foothold in the engineering and feature development space with some of our biggest partners, as well as continue to give back to the community that gave so much to us and made us into the team we are today.

TEAM OF 47

ONYX
Studio


PLAYKOT



Playkot is a leading free-to-play (F2P) game development and publishing company headquartered in Cyprus, with a global team of 370 individuals across 25 countries. With over 15 years of experience, we've achieved a remarkable 70% game delivery success rate, amassing a player base of 57+ million users and engaging 3 million unique players monthly.

Our diverse portfolio ranges from casual to midcore games.

SuperCity, our renowned 13-year-old city-builder, remains a top-5 grossing title on Facebook.

Age of Magic, a turn-based RPG with fantastic graphics, achieved top-50 grossing status on the App Store in China in 2019.

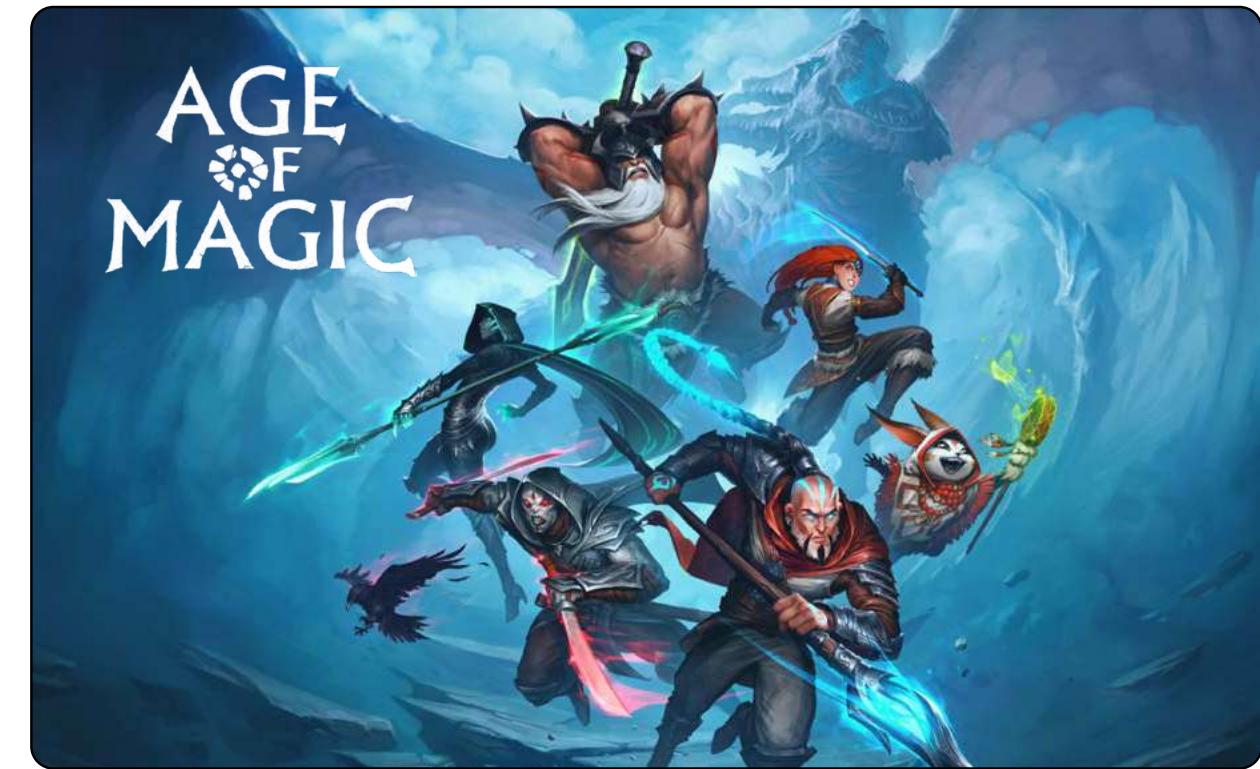
Additionally, Spring Valley reached 10 million downloads worldwide in its first 1.5 years and was launched in China in 2024.

In 2022, we launched a hub in Belgrade. Now, around 100 talented people in Serbia help us develop our new and current games.

At Playkot, our passion is making games that win hearts. We value mutual support and drive to achieve. We foster strong teams, encourage professional growth and taking ownership of our successes. These values help us shape a space open for game changers!

TEAM OF 370

playkot



BOHEMIAN PULP



Indie game development studio dedicated to creating games that offer deep, thoughtful narratives with innovative approach to choice-driven mechanics, aimed at players who appreciate every interaction.

TEAM OF 6



CENTROID SERBIA



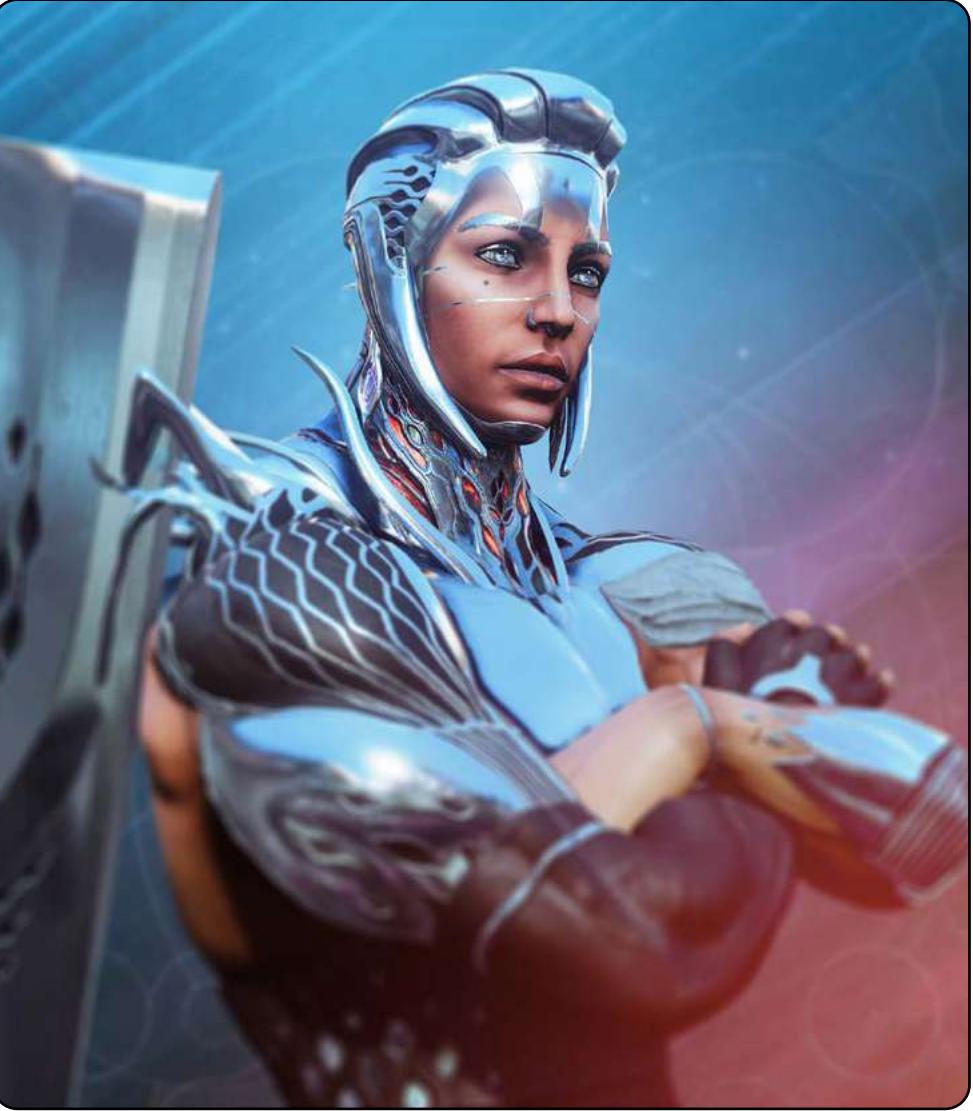
Centroid Serbia is a part of Centroid Motion Capture, the leading and largest Motion Capture studio in Europe, who have two studios based in London. Centroid Serbia is located in the heart of Belgrade and have been providing Motion Capture post-production services for almost two decades.

In addition to post-production, we offer the Xsens MoCap system and remote Motion Capture services. Our Belgrade team breathes life into any project, capturing body, face and performance data for high-quality results within any budget and at any location.

Some of our notable projects include Everywhere, Space Marine 2, Alan Wake 2, Warhammer: Age of Sigma -Realms of Ruin, Fort Solis, Deliver Us Mars, Control, Days Gone, Gears 5, and Need for Speed: Unbound, amongst many others!

Our mission is to offer a diverse array of top-quality services, accessible to all!

TEAM OF 13

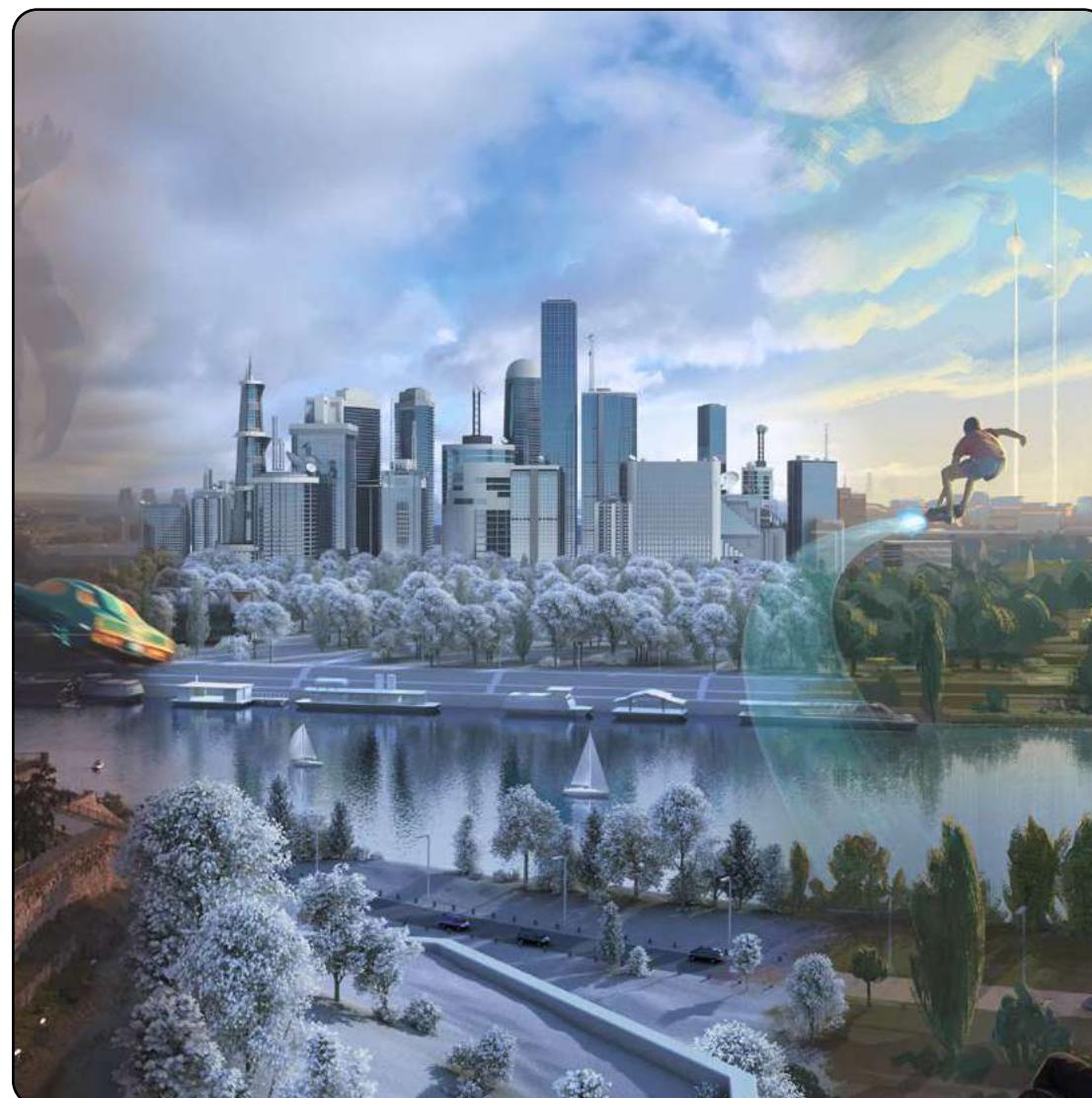


CRATER TRAINING CENTER



We are an educational center, talent incubator and career partner providing future and existing VFX, Gaming and CG professionals the necessary knowledge and support to achieve their goals and advance their careers. With practicing professionals and masters at their craft as course designers and instructors, we strive to give our students practical, applicable knowledge while helping them build connections within the industry and constantly working on new and better ways to play our part on their path to excellence. In our 10-year educational experience, we managed to educate more than 1000 people in fields of graphics design, motion graphics, vfx and gaming. Besides individual courses, we provide industry specific education programs, accredited by the Ministry of Education of Serbia.

TEAM OF 20



HORA GAMES



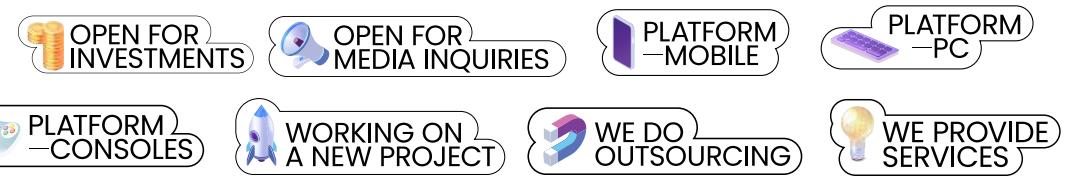
Pioneers of the play-and-earn genre with a focus on merging blockchain and gaming! We strive to bring a unique crypto gaming experience to your mobile device. With our first project, Crypto Idle Miner, we managed to bring closer the idea of earning while having fun to more than 1 000 000 players across the globe.

Currently, we are working on multiple interconnected projects within horaverse.xyz

TEAM OF 7



INGENIOUS STUDIOS



Ingenious Studios is a game development studio consisting of creative gamedesigners, artists, and developers. Our passion is to create immersive and entertaining games for a variety of platforms, including VR Games. We create our original concepts while also assisting our clients in realizing their vision. The Ingenious Studios team has considerable experience in Unity development, gameplay, game art, and design, and can approach any game production issue with creativity and professionalism. Whether you require a full-cycle game development service or a single game development position, we are eager to collaborate with you and create high-quality games that will fascinate your audience.

TEAM OF 17



INGENIOUS STUDIOS



MAMA PRODUCTION



Mama production is the experienced creative studio with a long list of satisfied clients. We love creating out-of-the-box ideas and making catchy ads to help our clients grab the audience and ultimately make all the viewers around the globe have fun while watching!

Mama is an instinct-driven creator and your creative partner. With a tender touch and warm eyes, you will feel safe with Mama. Share your goals and we'll create cost-effective videos at scale that will perform better than ever.

Mama will treat your project as its own, help it grow, and prepare it for the outside world.

TEAM OF 3–8



MAMA PRODUCTION

MATRYOSHKA



We are a developer and publisher of casual games, from Novi Sad. We strive to create high-quality, entertaining games that will delight a ton of players around the globe in the world's favorite genre—time management. Our bestseller is Cooking Craze with 50+ million downloads. In order to satisfy the appetite (pun intended here!) of those who enjoy running their own restaurant, we have created Royal Cooking. Always thirsty for adventure and open to new horizons, fresh ideas, and creative collabs.

TEAM OF 17

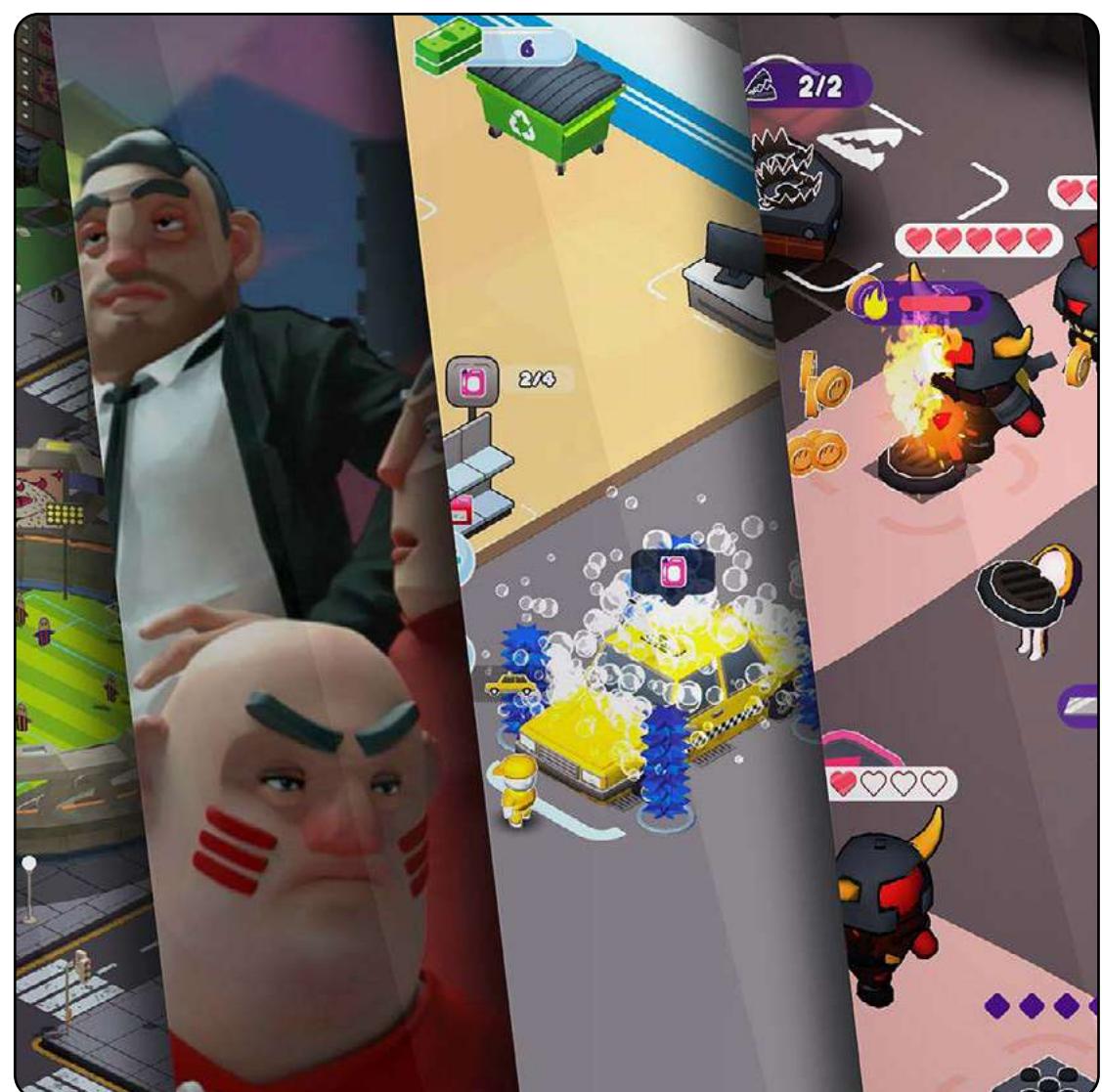


OOX LIMITED



Oox Limited was founded in 2021 and spent two years developing our first game, "Idle Hooligans." Following this release, we transitioned to creating hybrid casual games, and have since launched three titles. Additionally, we have developed our own affiliate marketing software for mobile games promotion, ideal for self-publishing studios.

TEAM OF 10

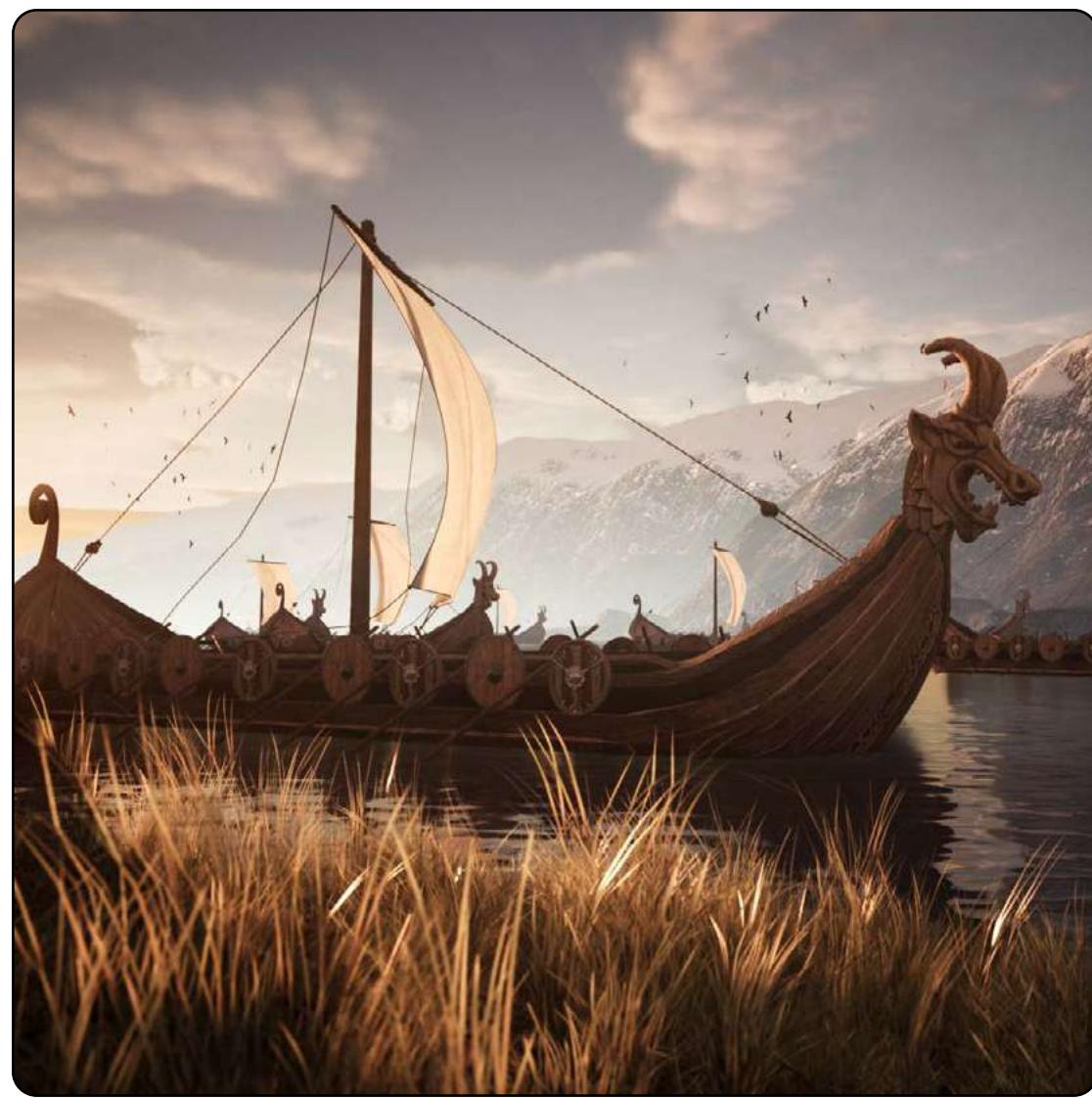


PACKDEV

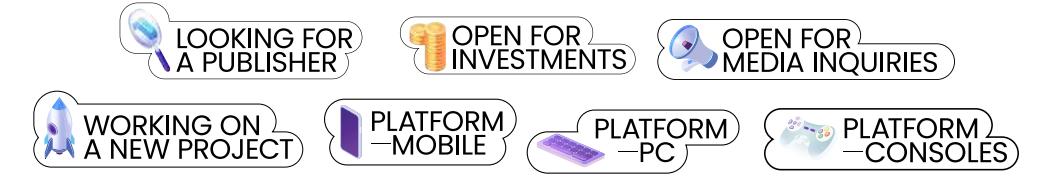


We're a fully functional game development and art outsourcing company providing full turnkey art development. We've created and published 3 video games on Steam, Google Play and Itch.io. These games span the PC, VR, and Mobile market. We also offer all of our digital assets on asset stores like the Unreal Engine Marketplace, Adobe Stock, Unity Asset store, CGTrader, Sketchfab.

TEAM OF 13

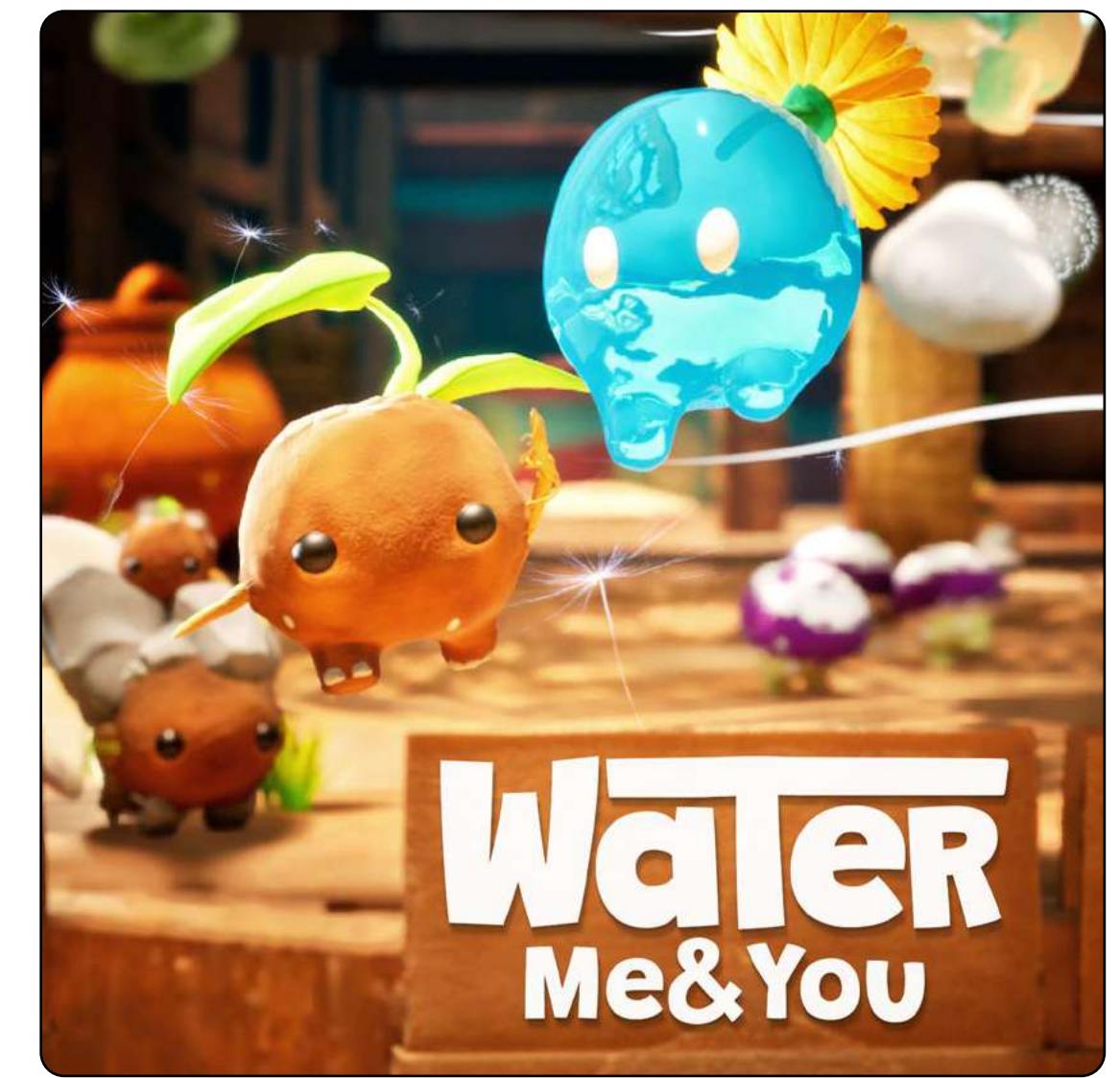


SHOSHA GAMES



Established in early 2022, our team embodies diverse talents, covering the entire production pipeline. Our journey stems from our shared upbringing. Crafting movies, designing card games, and composing music defined our formative years. As the video game industry blossomed, we found ourselves drawn to its boundless potential for storytelling and interactivity. Recognizing games as the quintessential medium to blend our passions, we strive to craft transformative experiences, inspiring change through innovation and technology.

TEAM OF 7



Walter Me & You

STUDIO BEDEM



Studio BEDEM, a team of five passionate video game enthusiasts, developers, and software wizards, is dedicated to crafting impactful, creative, and unique games. Covering the full game development spectrum, each member multi-tasks across 3D and 2D art, UI/UX design, game programming, and sound creation. Currently we are working on Swords & Hexes.

TEAM OF 5



SOZAP DOO



Sozap started out as a small, but passionate game studio counting 10 developers and designers. Today, that number has doubled, and its talented employees are split between two locations, in Nyköping, Sweden and in Niš, Serbia. With over 30 million total downloads, including 1 million active users its flagship product, Armed Heist, draws in every month, Sozap has established itself as a regional mobile games development powerhouse. In 2021, the company launched a new IP with Legends of Libra, a run and gun game appealing to a more casual audience. In 2021, following a successful IPO, Sozap went live on the Swedish NASDAQ stock market, becoming the first gaming company in Serbia to go public.

Sozap's raison d'être is simply to bring the highest quality digital entertainment to a wide and varied audience. To that end, it continues to strive for perfection in all its endeavors.

TEAM OF 15

SOZAP



TENDER TROUPE



Tender Troupe develops and publishes games for the growing adult free-to-play niche. It is known for its unique and memorable Western-based art style, endearing character design, and fast-paced, witty storylines. Their live games Booty Farm, Kink.inc, and Long Lost Lust are regularly visible on relevant top charts. They deliver highly visual live events weekly, making them some of the most content-rich titles available in the genre. Tender Troupe games are designed with a mature player in mind.

TEAM OF 14

TENDER
ADVENTURE

TESTRONIC



The Serbian studio of Testronic comprises around 200 individuals and is situated in Belgrade, in the building of Beogradjanka, spanning the 11th and 10th floors, offering a stunning 360-degree view of the city. As an outsourcing company, our primary focus is providing top-tier quality assurance services for established game publishers on well-known and loved game titles, targeting both PC and mobile platforms. In addition to our QA teams in Belgrade, we also house teams specializing in Localization Quality Assurance and Player Support outsourcing within our studio. These teams are actively engaged in upholding the highest quality standards across various business lines.

TEAM OF 195


Testronic QA OUTSOURCING STUDIO

TRIPLETS ADVENTURE



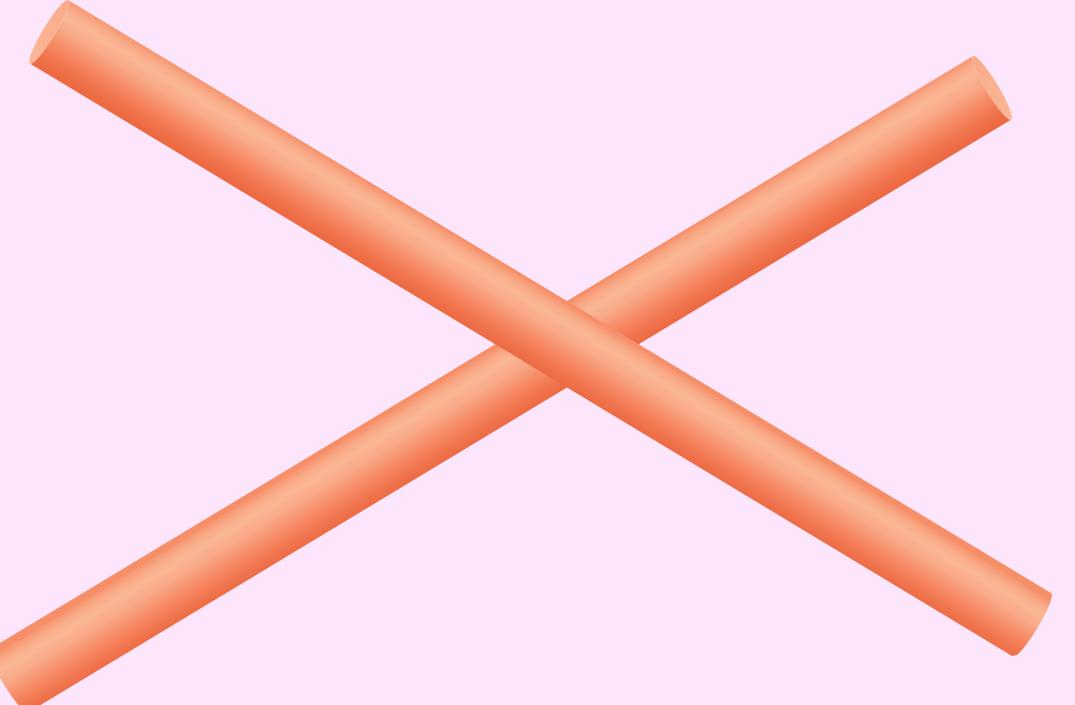
Triplets Adventures is developing edutainment 2D mobile games, approved by mom and fun for kids and strives to become the first point of contact with the mobile screens for kids aged 4 to 7!

The game is based on TA books written by an actual mom of triplets and follows the adventures of Rea, Dora and Teo. Each of the books represents different environments where kids learn and grow.

In January 2024 TA games has published their first game MemoRea on Google Play. The team is actively working on developing the main product game. Triplets Adventures game should give peace to the parents that care what kind of digital content their kids consume.

The studio is actively pitching for investments.

TEAM OF 4



WWW.NIKOLANIKITAJEREMIC.COM

WAVEFORM STUDIO

NIKOLA NIKITA JEREMIĆ



Nikola Nikita Jeremić is a highly acclaimed composer known for his exceptional work in the realm of video game music. With a diverse and innovative approach, Jeremić seamlessly integrates his musical training with cutting-edge electronic elements to craft immersive and memorable soundscapes. His portfolio spans collaborations with both AAA and Indie studios, showcasing his versatility and adaptability in meeting the unique demands of each project. His musical prowess has left an indelible mark on the gaming world, with his compositions prominently featured in renowned titles such as Destiny 2, Cyberpunk 2077, the Warhammer 40K franchise, and Aliens: Dark Descent.

TEAM OF 1



WEBMASTERGM.IZ.RS/MUSICBOX

WEBMASTERGM



Unlock the world of learning and creativity with Music Box Plus, the latest educational children's game crafted and released by WebmasterGM Studio!

TEAM OF 1

WebmasterGM

BRANISLAVGAGIC.COM

BRANISLAV GAGIĆ



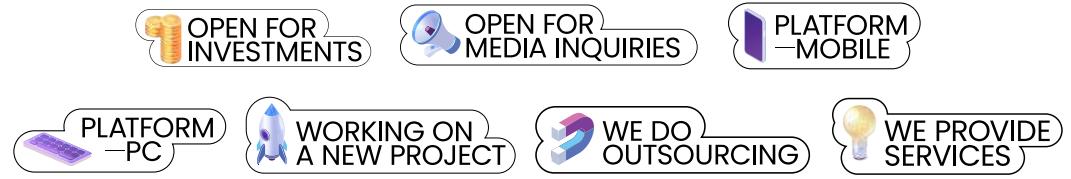
Branislav Gagić is a composer for video games and other media. He is passionate about taking his listeners on a musical journey, by creating tracks that inspire the imagination.



TEAM OF 1

STALPROJECTCOMPANY.WIXSITE.COM/STALPROJECTCOMPANY

STAL PROJECT



"Stal Project" company is small family start-up business with one lead member and only few remote co-working automotive and racing video games enthusiasts, with creative vision and mission to make "new innovative style" in automotive design, vehicle styling, modeling and very attractive integration with racing video game genres. Because of that company have mission to make new authentic 3D style in racing and rally video games, with special prepared car/vehicle models. The startup have separated creative departments for the development of "high-quality commercial 3D car models", simulating all the necessary working functions while imitating real-world driving vehicle models and integration with modern 3D game engine technology in order to obtain innovative 3D racing games and simulators as business specialization.

TEAM OF 3



INFINITYGAMES.TECH

INFINITY GAMES



Infinity Games is a web3 ecosystem for the game's interoperability with a flagship game, Infinity Heroes.

TEAM OF 16



WWW.DEXSOFT-GAMES.COM

DEXSOFT GAMES



Outsourcing game studio specialized in 3D and environment art for video games. Unreal Engine Marketplace and Unity Asset Store publisher.

TEAM OF 4



CAPSULE GAME STUDIO



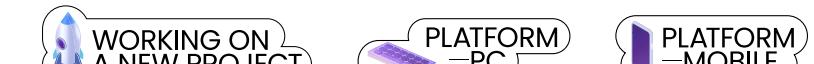
We are a team of enthusiastic young people. Our goal is to open a production studio to acquire commercial opportunities in the exponential growth of the technology we use. The fusion between art and technology will be our focal point, and the gaming industry is the best market for that kind of company. Our team is developing its first marketable project, an upgraded version of the game Ludo for Android and iOS mobile platforms and as a traditional board game.

TEAM OF 5



WWW.FACEBOOK.COM

AM-PM GAMES



Why AM-PM? Because every time is a great time for gaming. AM-PM above all values good gameplay, followed by originality and experimenting with various mechanics.

TEAM OF 6



WINDIEGAMES.COM



WINDIE GAMES

- LOOKING FOR A PUBLISHER
- OPEN FOR INVESTMENTS
- WORKING ON A NEW PROJECT
- PLATFORM PC
- WE DO OUTSOURCING

Windie is a small development studio based in Novi Sad, Serbia. The team was formed in 2023, and operates fully remotely.

We are currently working on our first project: a neo-noir open world, narrative game.

TEAM OF 7



FISHINGMANIACS.ADREAMATION.COM



ADREAMATION GAMES

- LOOKING FOR A PUBLISHER
- OPEN FOR INVESTMENTS
- WE PROVIDE SERVICES
- PLATFORM MOBILE
- PLATFORM PC
- WORKING ON A NEW PROJECT
- WE DO OUTSOURCING
- OPEN FOR MEDIA INQUIRIES

Making games that have that good old classical feel.

TEAM OF 5–10



WWW.KOOKABURE.COM



KOOKABURE

- LOOKING FOR A PUBLISHER
- OPEN FOR MEDIA INQUIRIES
- PLATFORM PC
- WORKING ON A NEW PROJECT

We're a small indie studio developing a big game. Combining elements of RPGs and puzzle games, we strive to offer a unique blend of strategic gameplay and engaging narrative.

TEAM OF 7



MATERRIYA.COM

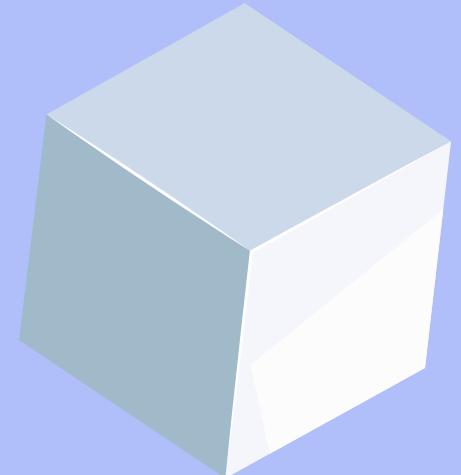
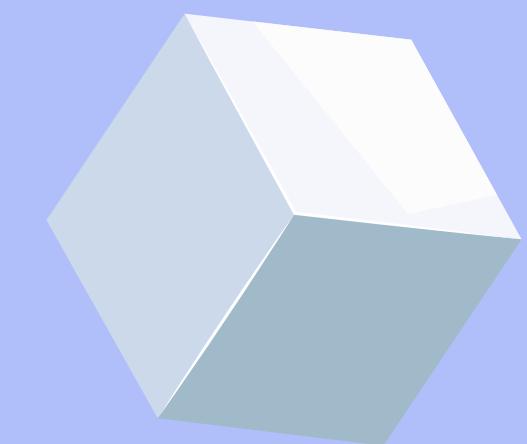


MATERRIYA TALENT DEVELOPMENT

- OPEN FOR INVESTMENTS
- OPEN FOR MEDIA INQUIRIES
- WORKING ON A NEW PROJECT
- WE PROVIDE SERVICES

Materriya is committed to helping creative businesses identify and solve challenges in recruitment and talent development and provides support in devising professional training and community building.

TEAM OF 5



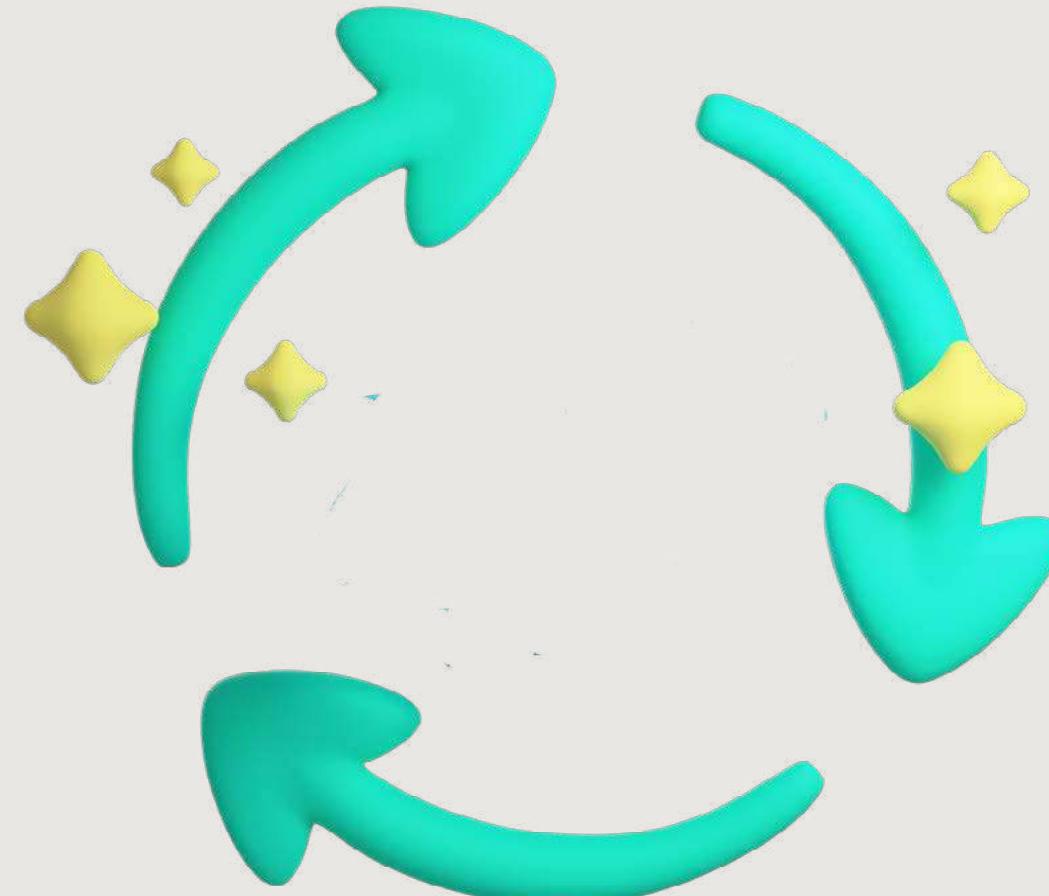


ECOSYSTEM

DATA

STUDIOS

ECOSYSTEM



The word ecosystem is becoming one of those buzzwords that we tend to bump into in the most unexpected fields. How can game development have something to do with the notion of an ecosystem? Well, if we look at the actual meaning of the word, it could not relate more to the foundations that the game development industry and community are built upon: an ecosystem is a community or group of living organisms that live in and interact with each other in a specific environment.

Over the last couple of years, we have witnessed many diverse developments within the Serbian ICT (information and communication technology) and CCI (cultural and creative industries) sectors. The game creation and development ecosystem somehow sits right in between the two. It benefits from but continues to contribute substantially on both fronts. The actors within the Serbian creative-tech sector are making a paced

NOT JUST BUILDING, BUT NURTURING AN ECOSYSTEM

but steady progress; our local industry cannot stay immune to the global trends and crisis, but in line with the resilient mindset of our professionals and entrepreneurs, will always look out for new opportunities, even when the times are not the easiest ones.

With a growing number of initiatives and support programs for young entrepreneurs, many new educational opportunities and an influx of peers from abroad who chose Serbia as the location from which to run their businesses or locate their studios, there are many ways to go for anyone wishing to get involved in this dynamic and inspiring industry. The overall framework is getting more consolidated, the talent is there, and the creativity and motivation are never lacking. The well-established companies, which we can only be proud of, have paved the way for the ones emerging in more recent years, and they all continue to selflessly share their experience, which is a unique perk of our industry. Both the wider economy and society are increasingly recognizing game development as an established and promising industry, spearheaded by success stories from the past decade or so.

The Serbian ecosystem continues to stay connected to our international peers, through presence at international events and participation in all relevant European networks, co-production and acceleration initiatives, while it also acts as a role model and honest partner for our colleagues from the region, some of which strive to take a similar path.

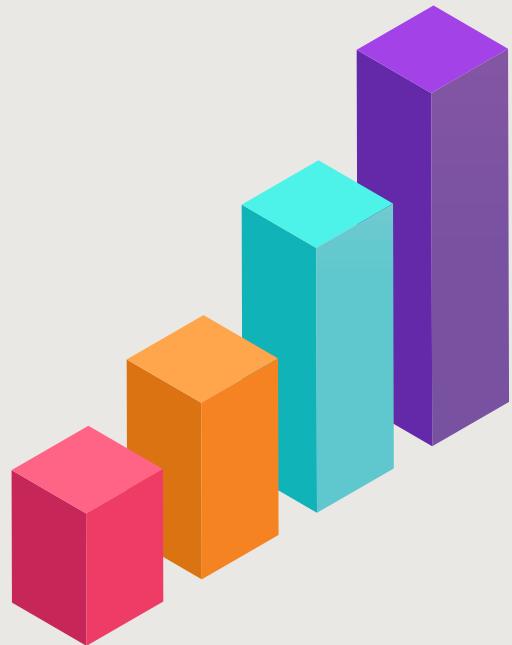
WE PLAN AHEAD

As both challenges and opportunities are many, at this point we need to think strategically, and ask ourselves some of the key questions: Where do we want to be in five years? What are our competitive advantages? Where are the strengths and where are the challenges? What should be the priorities in developing the ecosystem of game development in Serbia in the coming years? Can we arrive among the leaders of the European industry, and in which niches?

WITH A GROWING NUMBER OF INITIATIVES AND SUPPORT PROGRAMS FOR YOUNG ENTREPRENEURS, MANY NEW EDUCATIONAL OPPORTUNITIES AND AN INFLUX OF PEERS FROM ABROAD THERE ARE MANY WAYS TO GET INVOLVED IN THE INDUSTRY

What we should expect from ourselves, and what the long-term future of our game dev and creative-tech communities needs, is to build further upon the foundations that have been firmly set up, and to do it in a smart way. This is why this year, as far as the SGA is concerned, will also be dedicated to the development of a multi-year strategy of the development of the game dev ecosystem as a whole, and from its annual action plans which should bring tangible results that both developers, our future colleagues and other actors of the ecosystem can

Join us for the exciting ride, and be part of not just the present, but also of the future of game dev in Serbia and our region!



2023: THE YEAR OF GROWTH COUPLED WITH UNEXPECTED CHANGES

The 15 most successful Serbian gaming companies generate over 175 million EUR in revenue. The estimates show that large companies⁺ generate a significant percentage of the overall number. Data suggests that the average revenue per employee grew 18% for gaming companies that managed to surpass the 40-employee threshold.

In 2023, revenue increased by 17% compared to the previous year's top 15 companies. Still, this growth is mostly attributed to international companies, especially to the arrival of several new ones, who have moved a significant number of their employees to Serbia. On the other hand, the majority of domestically owned companies have experienced a decline in revenue.

Mobile gaming companies globally are facing challenges, and we see it in the Serbian market, as well. Even when their revenues are matched or exceeded compared to the previous year, the profit rates are dominantly lower. This is worrisome, as mobile is the priority platform for 45% of top-performing companies. The reason for this lies predominantly in two global trends – increased user acquisition costs, and lower customer spending.

⁺ LARGE COMPANIES IN THE GAMING SPACE ARE DEFINED AS THOSE WITH MORE THAN 40 EMPLOYEES.

Over 70% of the above-mentioned revenue is generated by companies creating and selling a product, while the remaining 30% is attributed to services in the gaming space. The majority of companies depend on a single mature product for a significant portion of their revenue. It is important to note that 25% of the product companies are subsidiaries of international companies, whose work is more similar to providing services, as their work can't be attributed to a specific product of the company.

The top-performing companies have in total increased the number of employees by 31%. This is twice as much as recorded last year, and is especially interesting since 20% of top performers had lay-offs last year. The employee growth rate was higher in smaller companies, standing at 43,75%, while in large ones it was 24,5%. When it comes to those who reduced their employee count, it is worth pointing out that the majority of them were domestically owned. To conclude, this total employee growth in the top performers can also be mainly attributed to new international studios entering the local market and bringing talent with them.

Among product creators, the mobile platform is the dominating one in both the absolute number of companies and revenue generated. In the mobile market, platforms are primarily split between Android and iOS. Android usually claims a marginally larger market share, accounting for approximately 60% compared to iOS's 40%.

When it comes to service companies, they are heavily dependent on their main client. This means there is a significant reliance on one client, with almost all companies heavily depending on a single client. The situation has not changed compared to last year – and last year, the majority of companies depended on one mature product/client for a significant portion of their revenue.

Companies that sell products often identify the United States as their primary revenue source, followed by the United Kingdom and Germany. Moreover, markets in Asia, such as China, followed by Japan and South Korea, are gaining significance in the Serbian gaming industry.

THE 15 MOST
SUCCESSFUL
SERBIAN GAMING
COMPANIES
GENERATED OVER
175 MILLION EUR IN
REVENUE IN 2023

METHODOLOGY

The analysis regarding performance of gaming companies consists of data points for 21 company considered to be the largest in gaming sector with 17 one-on-one interviews that were conducted. Estimations regarding revenue are based on data gathered by PwC Serbia through interviews and data from Serbian Business Registry Agency that allowed for approximation of the revenues in the gaming industry. Stated numbers have the limitation related to the reliability of data obtained through interviews and not having the access to the financial data of the entire industry.

PwC Serbia PROVIDED SUPPORT FOR THE RESEARCH RELATED TO REVENUE WITHIN THIS REPORT. PwC Serbia DOES NOT ACCEPT ANY LIABILITY TO ANY PARTY FOR THE CONTENTS OF THE REPORT.

!!

Through the Upgrade in Progress program, mentors adapted advice and strategies to our current needs, which strengthened our team at our early stage of development. Looking back, it came at the right time, and in the right way!

Đorđe Marković
Founder, Bohemian Pulp

The largest number of creative studios in the domain of gaming, cinematic post-production, or development of digital creative products are founded by creative people, often as an extension of their successful freelance activities, or out of a desire to venture into entrepreneurial waters after gaining sufficient experience under the auspices of larger and more developed companies.

These beginnings are always exciting and inspiring, and in the best scenarios, the number of clients and successful projects grows rapidly. "One man show" soon becomes a team of several people, and if things continue to develop, after just a few years the founders can have a team of 10 or even up to 30 people under them.

At that moment, numerous challenges appear that are more related to managerial and business processes and skills, work organization, planning, employment, legal regulation of business and the company itself, team culture and leadership, financial management and many other areas. Founders and art directors, whether they like it or not, become managers, and team leaders and take on previously unknown levels of responsibility and challenges, and they have less and less time left to work on projects and creative direction.

UPGRADE IN PROGRESS

PUSHING THE NEXT WAVE OF SERBIAN INDIES AND STUDIOS FORWARD

SOUNDS FAMILIAR?

It did to us, so this is exactly how **Upgrade in Progress**, a business mentoring program for Serbian game dev and creative-tech studios and SMEs came to life in 2023. The main goal was to provide them with professional support that would enable their further business development and push them to the "next level" of growth. Serbian creative studios and small and medium-sized enterprises with 5 to 30 employees were eligible to apply.

The goal was that through a tailored process they succeed in raising their business to the next level, to "tighten" their internal processes or introduce new ones. They might reflect on their needs for the first time, or realize how much the changes in internal processes would help the development of their company as a whole, and to eventually introduce them through this program.

SGA announced this special type of business mentoring program within the **Creative Tech Serbia** supercluster program. The program was realized in collaboration with **Nova Iskra**, who took over the business analysis of six SMEs that met the program criteria. Based on the analysis that was conducted through extensive inter-

views with (co)founders, the SMEs received mentoring and consulting support at the level of business development, in the period from March to June. The essential component of the program is that the six selected companies received support tailored to their specific needs, as jointly identified and prioritized together with Nova Iskra Studio.

Further expert support was provided by Karanović&Partners regional law firm, Gamebiz Consulting, ICT Hub as well as other individual experts relating to the fields of business development, financial planning, team culture and soft skills, community development, marketing strategy and other important areas.

It was our great pleasure to assist such fine and diverse teams as **Bohemian Pulp**, **Bunker VFX Studio**, **Hora Games**, **Phobos**, **Shosha Games** and **Digital Asset Tailors**!

We are eager to start the second cycle of this valuable program in 2024, in collaboration with the **European Bank for Reconstruction and Development**, and contribute to raising the next wave of globally successful game and service studios from Serbia.

!!

Through working with the teams on this program, we gained insights into the specific challenges and advantages when it comes to business development within the creative-tech domain. We approached each participant with the desire to understand their creative processes and then, through building mutual trust, move on to laying the foundations for a more stable development of their business strategies. The program helped us align the mentoring process with these specific challenges brought by the gaming industry.

Nana Radenković & Kristijan Šujević
Co-Founder, Nova Iskra

!!

Upgrade in Progress is an extremely promising program, as it enables companies to develop and improve their business through practical and tailored support that corresponds to the actual and momentary needs of the studios involved. It was our pleasure to participate and contribute to the development of our local ecosystem in this way!

Nikola Čavić
Founder @ Gamebiz Consulting



SERBIA: THE NEW FRONTIER OF EUROPEAN GAME DEV

For the first time ever, in 2023 Serbia was present at the world's biggest gaming fair with its national pavilion, shoulder to shoulder with our peers and associations from across Europe and the rest of the world

Gamescom needs no special introduction. It is the biggest consumer gaming fair on our planet, breaking its attendance records, both at the Cologne Messe and online, year after year. It is also the biggest business fair in our industry, with more than 30.000 visitors and over 2.000 exhibitors.

Serbian companies and devs were no strangers at Gamescom as well. But very few of them ever had an official presence or a booth and the business fair. Company delegations had visited, CEOs went for meeting marathons and some of the games produced in Serbia were showcased via their respective publishers in the past editions.

However, in 2023 SGA took a bold step to represent Serbia as a country where amazing original games are made, and from where exquisite service providers are working with the top tier global franchises and brands. We wanted to show our talent, and our capacity and that we do have a lot to offer on the global stage. For us as an association, Gamescom was a bugbear of sorts. How are we going to deal with it? Can we finance it? Do we have enough interested companies to join us for the

ride? And how the hell are we going to get rakija onto the fairgrounds for our "high spirits cocktail party"?

With the support of the **Serbian Chamber of Commerce**, which also took a leap of faith to support an industry it never collaborated with before, and the **European Bank for Reconstruction and Development** we managed to make the best out of it. Of course, it would have never been possible without our nine amazing exhibitors, who trusted us to guide them through what was for most of them the first official presence at the event: **Art Bully, Two Desperados, Digital Asset Tailors, Phobos, Onyx Studio, Shosha Games, Spring Onion Studio, Gamebiz Consulting and Fortuna Esports**.

We are especially happy about the fact that all of our exhibitors pointed out that in the context of opening new business opportunities, the presence at the fair was extremely successful. Over 200 meetings (!) were held by all of the exhibitors combined, while our informal cocktail party on the first day of the fair attracted many of our friends and peers for an introduction to the delight and power of artisan fruit-based spirits, a special sort of social lubricant which made the networking as smooth and enjoyable as it could be.

The key goal, and especially in the context of such a high-profile international performance, was to affirm and attract the attention of the global industry to

our talents, companies, games and the ecosystem at large. We highlighted three key qualities: **best talent / phenomenal service / original products**.

We chose a total design approach for the booth and the overall performance. The tagline **THE NEW FRONTIER OF EUROPEAN GAME DEV** highlighted Serbia as a new destination within the European landscape of video game developers. Besides a special landing page on our site, we prepared a 54-page brochure highlighting all of our fine exhibitors, as well as the Serbian game dev ecosystem at large, alongside a video reel showcasing the diverse and breathtaking cinematics produced by game devs

In the domestic media, the news about Serbia's appearance at the Gamescom fair resonated strongly. It was reported by all major media outlets, including the front page treatment in the longest-running daily newspaper Politika, as well as features on national television. We managed to reach more than 35.000 people through our combined coverage of the event on social media and spread the word about the amazing work our colleagues and friends are consistently delivering, across the entire world.

We are eager to come back in 2024 and showcase even more of the Serbian game dev-related amazingness! In the meantime...



Gamescom is the largest video game convention in Europe that attracts the biggest players from the world of computer, console, and mobile games every year. As such, it provides exceptional networking opportunities, as well as for realizing business opportunities. Participating as an exhibitor at the SGA booth certainly increased our visibility among the participants and genuinely increased the number of potential opportunities for us.

Božo Janković
Head of Ad Monetization
Gamebiz Consulting



HAVE A LOOK AT OUR GAMESCOM 2023 REEL!



KRISTINA-JAZINKA
NIKOLIC
HEAD OF
EXPERIMENTATION,
UNDP ACCELERATOR
LAB IN SERBIA

UNDP

HOW DO WOMEN IN STE(A)M DO IN SERBIA AND HOW THEY CAN DO BETTER

A RESEARCHER'S AND
EXPERIMENTER'S PERSPECTIVE

When my team from [UNDP ACCELERATOR LAB](#) in Serbia first started working on the topic of Women in [STE\(A\)M IN SERBIA](#), we were well aware that Serbia has a considerably larger proportion of women in this field, compared to European and global peers.

Nevertheless, we noticed that both in the wider STE(A)M fields and gaming, many women tend to stay on the bottom rungs of the industry, not progressing to managerial or owner levels. They make up only 17% of management, less than 10% of directors and only 2% of the industry seniors. We researched this phenomenon [QUANTITATIVELY \(BY GOING THROUGH LINKEDIN DATA\)](#), qualitatively and even by looking into the [BIASES OF GENERATIVE AI](#), which is surely changing the industry. We even compiled a whole report based on part of our [RESEARCH](#), as well as publications such as "[WOMEN IN SERBIA'S ICT SECTOR](#)".

Throughout our work we saw that women in STE(A)M in Serbia "fall through the cracks" due to the "leaky pipelines" (women dropping out before achieving seniority) or "broken rungs" (women facing disproportionate challenges when in leadership positions). However, our research was not there simply to focus on the problems (easy) but to find solutions (not easy).

Speaking to women in the STE(A)M fields, we realized that they face similar issues, which can be fixed with just a bit more understanding.

For instance, one thing that always popped out is **women being unwilling to participate in valuable company and industry events and publications (such as this one!)**, because they eat into the limited time they have to spend with their family, often caring for their loved ones. While they may be unwilling to state this to their employers, they told us, and we hope that you, the reader, will think about this when scheduling your events at more workable times.

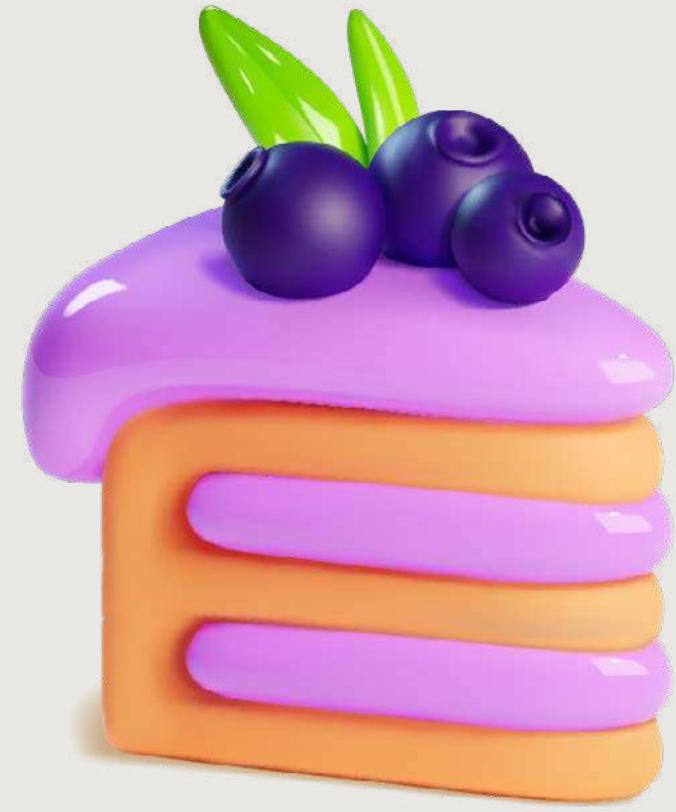


We also noticed that women tend to be reluctant to "stretch" towards positions and even careers that they are more than able to fulfill, as they underestimate their capabilities. They often **lack role models in similar positions or even honest explanations of what jobs and careers entail to offer their abilities**. Our findings highlight the importance of role models in fostering female

participation in STE(A)M fields, as seen in countries like [RUSSIA AND FINLAND](#).

Thirdly and unsurprisingly, there is a lot to be said about institutional culture. Companies and institutions which have a more diverse and inclusive culture find it easier to attract more diverse and higher-quality talent. While this may seem like a tired trope, our research bears it out – in some companies, almost all women feel good, and in others, almost all women feel like they don't belong.

Finally, make sure you can access this type of feedback. One way is to use resources such as our [WOMEN IN STEM IN SERBIA PAGE](#), but also, create forums within your organization where you can hear women's experiences. Listening and resolving problems that I heard about first-hand, are certainly the most motivating part of my job.





WORKSHOPS + LECTURES + PANELS

We strongly believe that diverse and inclusive teams and companies result in a better product, a stronger ecosystem, and an industry that is more creative and resilient.

That is why one of our main goals is to foster a safe space for everyone and put the right tools and the right mindset into the hands of all girls wanting to be a part of creative industries. We do this every year through our SGA Empowers initiative.

SGA*

EMPOWERS

START AND EMPOWER YOUR GAMING CAREER!



SGA*





MILAN ĐORĐEVIĆ
PROJECT MANAGER
CREATIVE EUROPE



FROM PIXELS TO IMMERSION: MEDIA SUPPORT TO VIDEO GAMES

The MEDIA Sub-program of Creative Europe promotes competitiveness, scalability, cooperation, innovation, and sustainability in the European audiovisual sector. It aims to nurture talent, enhance skills, stimulate cross-border collaboration, and encourage innovation in creating and producing European audiovisual works.

Since 2014, Serbia's involvement in Creative Europe has been successful in various areas. Over 16 million euros in funding have been secured, placing Serbia among the top nine participating countries out of over 40. However, Serbia has yet to succeed significantly in video games and immersive content calls, with Codemacy Studio and Eipix Entertainment as the only beneficiaries.

Video games and immersive content are crucial in the media landscape, offering opportunities to increase the competitiveness of European producers and improve their capacity to reach global audiences. The support provided aims to boost the European video games industry and enhance the competitiveness of

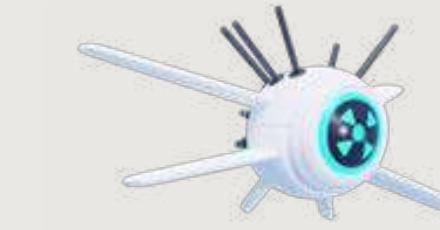
companies creating interactive, immersive content in both European and international markets. The open call framework has improved significantly in recent years, including an increased co-financing rate from 50% to 60%, a higher maximum EU grant of up to 200,000 EUR, and expanded opportunities such as applying with a consortium and submitting multiple applications under the same call.

The video game industry has experienced significant growth globally, with the emergence of immersive technologies like virtual reality (VR) and augmented reality (AR) making a profound impact on the media and entertainment sector. This growth has caught the attention of the European Parliament, as evidenced by the "Resolution on esports and video games" in 2022, recognising the innovation potential of video games. The European Council's conclusions from 2022-2023

further emphasise the need to stimulate enterprises in AI and VR/AR, support financing for SMEs and startups in the gaming sector, and enhance the cultural and creative aspects of the European video games sector.

EU statistics highlight the widespread engagement with video games, with every other EU citizen playing them in some form. **The industry generated EUR 179 billion in revenues in 2022, with a significant portion coming from mobile games. Europe is home to 5000 video game companies employing over 74,000 people.** The technologies and skills from video games are also being utilised in other sectors, such as film production, training, health, and defence, showcasing their versatility and impact. Immersive content, including XR experiences, is poised to revolutionise media markets, with games serving as gateways to virtual worlds.

However, despite the market's growth and diversification of business models, Europe faces challenges such as limited representation among top global companies and a predominance of small to mid-sized developers with heavy reliance on self-financing. The con-



CREATIVE EUROPE

Co-funded by
the European Union Creative
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MEDIA

MEDIA
Desk Srbija

THE VIDEO GAME INDUSTRY HAS EXPERIENCED SIGNIFICANT GROWTH GLOBALLY, WITH THE EMERGENCE OF IMMERSIVE TECHNOLOGIES LIKE VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR) MAKING A PROFOUND IMPACT ON THE MEDIA AND ENTERTAINMENT SECTOR

tinent also needs to catch up in XR content revenues, which are raising concerns about competitiveness and strategic autonomy.

In response, support through the Creative Europe program is available for developing interactive narrative storytelling concepts and prototypes with original content and gameplay, aiming to foster innovation and commercial success in global markets for video game and immersive content producers.

WHAT TO EXPECT IN 2024

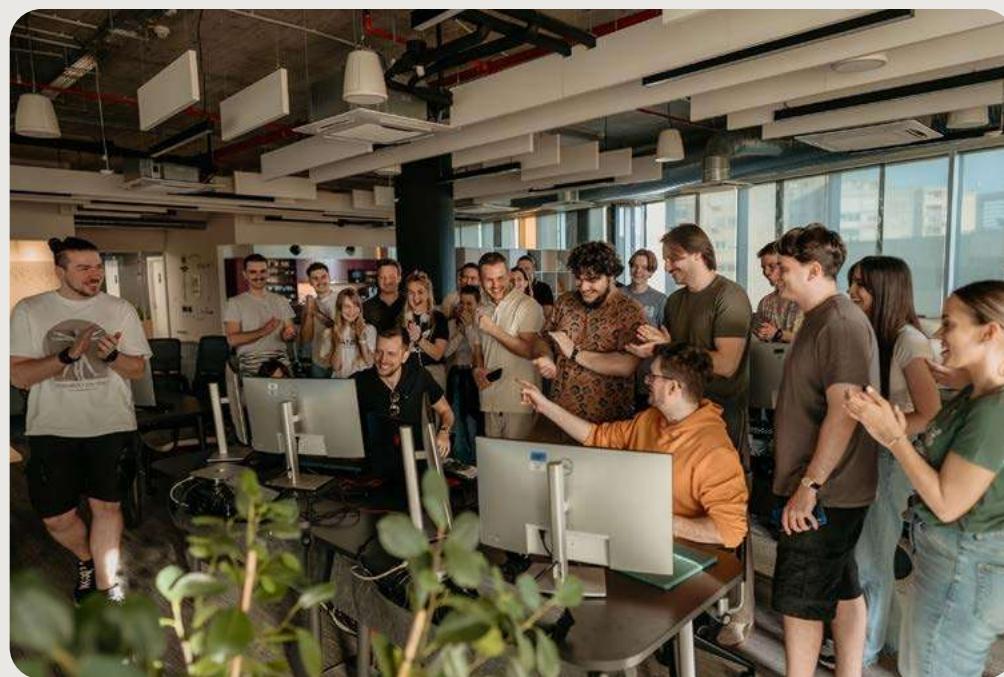


By opening a community hub in Novi Sad in early 2023, we wanted to reach out to creators, researchers, and educators and strengthen the creative community in the region. After nine successfully completed programs, eight public gatherings, 128 participants enrolled, and a handful of new acquaintances, Epic Games Novi Sad continues to organize free training and events.

Through various educational programs, we have met some of the most talented creators in the region and gotten acquainted with a generation of enthusiastic, hard-working people who are just entering the creative industry. Each program was followed by a public event from the Community Summit series, where we showcased the latest community projects and other industry news.

In total, 127 original projects were created in our hub last year – 80 of them being brand new Fortnite islands developed at the Fortnite Creative Fundamentals and Unreal Editor for Fortnite: Game Crafting programs. Various short films and other astounding visual experiences arose from three Unreal Fellowships, dedicated to experienced professionals in computer graphics. Thanks to these programs, we have pushed the knowledge of seasoned experts even further and are honored to include 48 regional creators in the global Fellowship community.

At Epic Games Novi Sad, we welcome all creative people willing to roll up their sleeves and dedicate a few weeks to their project, learning and developing new skills in the field of 3D computer graphics.



FORTHCOMING ACTIVITIES IN 2024

With a solid foundation and full year of experience, we now continue down the same path, yet constantly adding new activities to the mix. We opened the year with an invitation to the next cohort of the [UNREAL FELLOWSHIP: STORYTELLING](#), our staple program where participants create their original cinematics with real-time technology and are provided with professional motion capture sessions to hone their directorial skills.

A big chunk of 2024 will center around Fortnite and its creative features that help our youth participants build their portfolios, learn about game development processes, and become part of the global Fortnite community. [THE FORTNITE CREATIVE FUNDAMENTALS](#) summer training for novices in game development returns in July, while Unreal Editor for Fortnite will be explored through two distinctive curriculums. [GAME CRAFTING](#), a



slightly more demanding program focusing on game and experience design principles in the eponymous tool, will occur once every semester.

On the other hand, experienced CG professionals will use Unreal Editor for Fortnite as a primary tool at [WORLD BUILDING FELLOWSHIP](#), which will help them apply the techniques of creating authentic environments in video games to other media.

In the fall, we are launching the first regional [Unreal Fellowship: Animation](#), which lasts three weeks, with the open call scheduled for the summer.

In addition to educational content, we are organizing six Community Summit gatherings, several game jams, and seminars for professionals and educators.

To keep up to date with all further announcements about our programs and events, follow our [EPIC GAMES NOVI SAD](#) ArtStation page, and 3Lateral profiles on [LINKEDIN](#), [FACEBOOK](#), and [INSTAGRAM](#).



SORA AND LEGAL CONSIDERATIONS

OpenAI, revered for its cutting-edge technology and leadership in the field of AI, unveiled "Sora", a groundbreaking text-to-video generator, just a while ago. This innovative tool is capable of crafting videos of up to 60 seconds in duration, driven by written prompts and powered by generative AI. Sora's debut marks a monumental leap forward in the landscape of AI-driven content creation, ushering us into a realm poised for the advent of Artificial General Intelligence (AGI). However, alongside Sora's remarkable array of user benefits, it also brings forth a set of intellectual property, privacy and data protection concerns.



DATA PROTECTION AND PRIVACY

Sora will enable the creation of videos, which could lead to mass production of synthetic content like deepfakes. OpenAI is reiterating that it wants to put some safety guardrails in place before making it public, but Sora already brings advanced issues regarding rights in likeness and voice (which Sora will not initially have but will probably be available to users at some point in the future). The technology also raises ethical questions, particularly around the creation of deepfake videos or misleading content. Sora's users will not be able to generate videos showing extreme violence, sexual content, hateful imagery or celebrity likenesses, and there are also plans to combat misinformation by including metadata in Sora videos that indicate they were generated by AI; however, it is still unclear in which manner this should be regulated. We expect that the EU AI Act will come into play with transparency obligations for the providers of generative AI systems and impose watermark or other labelling obligations for systems which, like Sora, create synthetic content.

IP ISSUES

IP issues surrounding Sora remain ambiguous, primarily due to the absence of established legal precedents in this industry. That said, Sora is not exempt from the typical IP-related challenges encountered by all AI technologies — Sora also undergoes training on expansive datasets, often scraped from the internet at large which introduces considerable legal uncertainty regarding whether the content employed in AI training, as well as the resulting outputs, result in the infringement of IP rights. Given Sora's capability to generate lifelike video content and even simulate entire video games, there exists a tangible risk of inadvertently producing materials that infringe upon earlier copyrights. OpenAI is already facing several proceedings on account of IP infringement, including lawsuits alleging copyright infringement and other intellectual property issues, such as those initiated by the New York Times, the Authors Guild, Raw Story Media, Intercept Media and others.

These questions are not much different from those we have already been asking over the past year and a half. However, with Sora we might see a more voluminous infringement of other IP materials that were not seriously utilised in earlier AI models, such as photographs, trademarks and designs. Bits and parts of Sora-created materials made publicly available

SORA WILL ENABLE THE CREATION OF VIDEOS, WHICH COULD LEAD TO MASS PRODUCTION OF SYNTHETIC CONTENT LIKE DEEPFAKES. OPENAI IS REITERATING THAT IT WANTS TO PUT SOME SAFETY GUARDRAILS IN PLACE BEFORE MAKING IT PUBLIC, BUT SORA ALREADY BRINGS ADVANCED ISSUES REGARDING RIGHTS IN LIKENESS AND VOICE

seem to indicate that Sora heavily relies on the use of trademarks and designs (for products, scenery shops, etc. Photographers may contend that segments of Sora-generated videos encroach upon their rights. While OpenAI has not divulged the precise origins of the data used to train Sora, it has disclosed its utilisation of publicly available videos licensed from copyright holders and anticipated to address these concerns through licensing agreements or alternative contractual arrangements with intellectual property rights holders.



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MLADEN VLAŠIĆ
INDUSTRY HEAD,
GAMING & APPS
AT GOOGLE

THIS IS OUR THIRD YEAR
OF PARTNERING WITH
THE FTW! CONFERENCE
THROUGH OUR
GLOBALLY RECOGNIZED
GOOGLE APPHUB AND
GAMECAMP INITIATIVES

GOOGLE

FINDING THE RIGHT PARTNER IN A FAST-CHANGING ENVIRONMENT

The Serbian gaming scene is a positive outlier and a lighthouse example of how smaller, emerging markets can achieve strong success with global impact. While sometimes wrongly perceived as a one-hit-wonder market due to the unprecedented success of Nordeus (a household name globally with the Top Eleven IP), Serbia is now definitively recognized as a full-blown, successful ecosystem with global influence in one of today's most dynamic industries. Scratching just a bit below the surface reveals a myriad of successful gaming companies based in Serbia that are part of global behemoths such as Embracer, Take Two, Ubisoft, Playrix etc.

Traditionally strong universities in Computer Science have laid the foundations for successful game development. Crossing it with the entrepreneurial spirit of young individuals who grew up immersed in the digital world and guided by the inspiration of the global successes of Nordeus, Mad Head Games and Eipix, have brought Serbia from only 30 gaming companies in 2017 to more than 140 entities as part of the gaming ecosystem.

At Google, we are strongly invested in gaming industry development and a proud part of the gaming ecosystem. When looking at how to bring Google technology to every corner of the world to empower entrepreneurs to nurture their ideas into products and scale globally, we often search for a suitable partner with whom we share the same values and can create benefits for the ecosystem. And SGA is the perfect match.

This is our third year of partnering with the FTW! conference through our globally recognized Google AppHub and GameCamp initiatives. In short, AppHub is a platform that brings together all relevant cross-functional gaming stakeholders from Google into one place to present the latest solutions for the gaming and apps industry, from game development to launch and global distribution. On the other hand, the Game Camp initiative is a CEE-wide community of gaming companies that exchange knowledge and best practices, fueling regional expertise and development.

We have grown together with FTW! and consider ourselves a trusted partner with today the biggest regional gaming conference that gathers more than 500 relevant ecosystem stakeholders from over 15+

countries across Europe. Having such a strong community at one place enables us to establish new partnerships with regional developers and strengthen the existing ones, bringing the relationship and elevating our joint endeavors.

This is a pivotal moment in the gaming industry. After years of unprecedented growth, the industry is facing macroeconomic headwinds and privacy policy changes that are slowing growth. On the other hand, with the dawn of Gen AI, the way gaming is doing business is changing in all aspects. From development, content writing, and design to the way that IPs are being promoted and distributed. With so many big changes happening at the same time, uncertainty is growing which influences the availability of the investment capital to fuel the next wave of gaming growth.

Considering these factors, it's more important than ever to get together with the relevant stakeholders and open all relevant topics. Having a strong partner such as SGA enables exactly that: a platform where the key opinion formers can hear about the latest developments in technology and trends in the industry and deploy the knowledge to propel themselves forward.

STAKEHOLDER & B2B CONFERENCE

FOR THE WIN!

NEW MEETING → POINT
*OF THE  EUROPEAN
GAME DEV COMMUNITY

BELGRADE
SERBIA

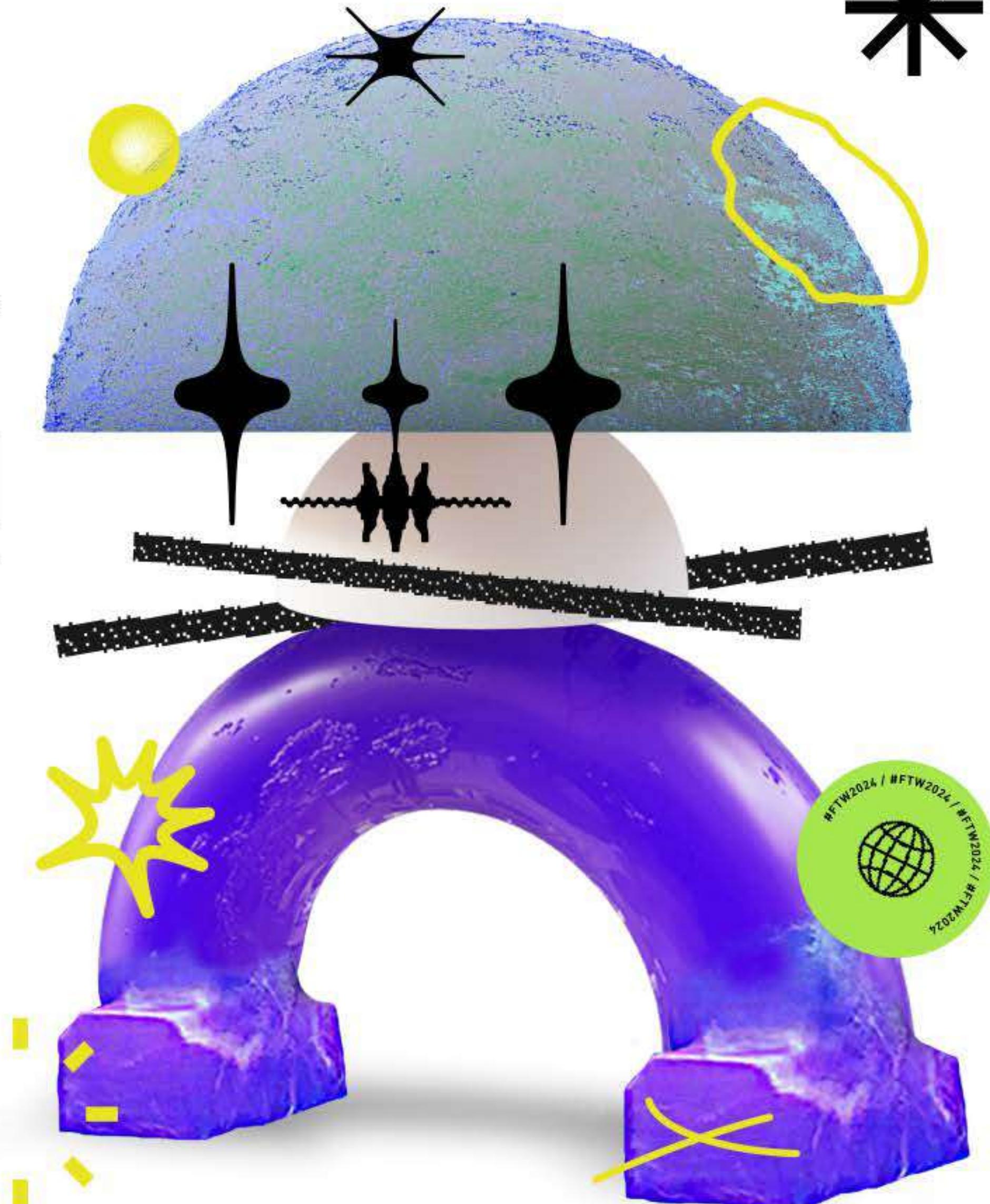
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KARANOVIĆ &
PARTNERS

KARANOVIĆ & PARTNERS



MAJOR CORPORATIONS
ARE WORKING TO
ENSURE THEY CAN USE
AI-GENERATED CONTENT
WITHOUT COPYRIGHT
RESTRICTIONS AND
THE REGULATORS ARE
TRYING TO BALANCE THE
INTERESTS AT STAKE

AI: ROUND THREE

INTRODUCTION

Two major developments are shaping the landscape of AI today: content licensing and government intervention.

LICENSING

In licensing – consent from sources like the New York Times, X (formerly Twitter), Reddit, Quora, podcasts, and YouTube transcripts are particularly sought after.

Issues in the other direction arise as well: regarding the legal and legitimate use of AI-generated content. Major corporations are working to ensure they can use AI-generated content without copyright restrictions and the regulators are trying to balance the interests at stake. Major image repositories and owners of video materials have been preparing to litigate for some time, likely in hope that litigation pressure will land them a licensing deal.

In turn, major gen-AI providers have started to offer indemnity to their users for the use of AI generated content. As usual, “some restrictions apply”, so make sure you are well informed about the legitimate and illegitimate use scenarios and steps you can and should take to avoid any IP related risks.

Microsoft's recent update to its terms introduces a pivotal change with the Copilot Copyright Commitment, designed to fortify your creative endeavors in the gaming world. This initiative, encompassing GitHub Copilot, Bing Chat, and now Azure OpenAI Service, offers a robust defense against copyright infringement claims tied to AI-generated content.

If you integrate AI-generated snippets into your game and face copyright claims, this commitment can shield you from legal risks, protecting against lawsuits over content produced by Microsoft's AI, including code, text, and imagery. Microsoft pledges to stand by you, managing legal defenses and any financial repercussions from lawsuits.

The catch? Protection is yours as long as you adhere to Microsoft's guidelines and use the AI's content filters. It's about using AI responsibly.

EU AI ACT

EU enacted the world's first AI Act. It has an impact on developers in many aspects:

1. **RED FLAGS (COMPLETELY BANNED GAMES)**
AI that poses real-world risks or undermines democratic values is out of bounds. Imagine AI that could, say, enable in-game surveillance or deploy manipulative practices that have significant negative consequences for minors – these are no-gos.
2. **HIGH-RISK ZONE**
If your game's AI is processing biometric data or has the power to significantly affect player's real-world lives or rights, it's in the high-risk category. Virtual reality games that make you learn how to shoot from a rifle could fall here. If your game falls in this zone, you may be obliged to commit to a series of assessments and reporting to the EU authorities.

3. **ON THE RADAR (LIMITED RISK)**
For AI that recommends in-game purchases or influences player decisions, transparency is key. Ensure players know when they're dealing with AI, understanding its role and logic.

4. **SAFE ZONE (LOW OR MINIMAL RISK)**
The bread and butter of game AI, like enhancing gameplay, and designing levels, most in-game AI, like NPCs or environment generation typically falls here. This applies also to your hidden objects games. While the regulatory hurdles are lower, striving for ethical AI practices will keep your game on the players' good side.

The clock's ticking. While there's some breathing room until the rules fully kick in, keeping detailed records on your AI's inner workings is a smart move. And remember, by the end of 2024, non-compliance could hit your wallet hard, with fines soaring up to €35 million.



EDUCATION

DATA

STUDIOS

ECOSYSTEM

EDUCATION



PERSPECTIVES ON GAME DEV EDUCATION IN SERBIA

Opportunities for game dev related education in Serbia were few and far between just a couple of years ago. Rare university programs and pioneering training centers were scattered on a mostly uninhabited map. Nowadays, however, any young person interested in pursuing a career in game dev, wishing to start their own project or studio, or to advance their respective skills, can choose from an array of available programs, formats and relevant areas of interest.

The offering is getting broader and deeper from year to year, and 2023 was no exception in that sense. While all of the university programs we are already gotten used to are continuing to receive a large number of applications (such as the Faculty of Dramatic Arts or Metropolitan University in Belgrade, or the Academy of Arts in Novi Sad), some are cautiously entering the field by adding game-related courses into their Digital Arts master program, as was the case with Faculty of Media and Communications.

MASTER 4.0

Speaking of MA courses, Master 4.0 is enrolling its third generation in 2024, while both the Academy of Arts in Novi Sad and the Faculty of Dramatic Arts in Belgrade are planning to extend their existing BA study courses in Game Design and Visual Effects, Animation and Game Art, respectively, into new MA programs in the near future. Master 4.0 also conducted a successful streak of industry internships in collaboration with Ubisoft Belgrade, and SGA will be committed to supporting further communication and direct collaborations between the industry and academia. This comes as especially important in relation to fields and departments that are currently not represented, such as business-related programs, to name just one of them.

DIVERSE PROGRAMS

Moving further forward across various faculties, SAE Institute keeps offering relevant programs and you will come across their alumni at various local, but also international studios. The Faculty of Computing is facilitating an engaged, bottom-up game dev section run by its students, while the Metropolitan University continues to take part in the Global Game Jam activities from year to year.

SOMETHING TO BE PROUD ABOUT

EPIC GAMES NOVI SAD

Speaking of which, and last but by no means least, the introduction of Epic Games Community Lab fellowship programs and regular community meetups in Novi Sad is a major step forward. While pushing the entire Serbian creative game dev community to the next level and providing direct access to the latest technologies, leading industry mentors and the vast international network of Epic Games' global fellowship programs, it also bolsters Novi Sad as the key hub for the development of creative technology in this part of Europe, probably presenting us with just a sneak peak of what will be possible once the announced Epic Games' campus in Novi Sad opens its doors.

These are actually the first ever Epic's physical, in-person fellowship programs which are run regularly at Science-Technology Park Novi Sad, supported by the Materryia talent development team and focusing on various fields such as storytelling, world-building, animation or the creative potentials of Unreal Editor for Fortnite. The current and future pioneers of Serbian CG, VFX, game dev, animation or immersive design have a new meeting point in which they can learn, explore, innovate and keep pushing Serbia farther onto the map of the most relevant creative-tech communities in Europe.

THERE IS MORE AND MORE TO BE PROUD OF WITH EACH NEW YEAR! BE SURE TO FOLLOW SGA CHANNELS TO FIND OUT ABOUT OUR OWN NUMEROUS EVENTS AND PROGRAMS, ALONGSIDE ALL RELEVANT LEARNING AND TALENT DEVELOPMENT OPPORTUNITIES ACROSS THE GROWING SERBIAN ECOSYSTEM.



THE SHIFT2GAMES PROJECT, WHICH HAS BEEN COOKING FOR A WHILE ON THE SGA STOVE, FINALLY SAW THE LIGHT OF DAY HALFWAY INTO 2023

The gaming and creative-tech industries are some of the fastest-developing fields, both globally and in our local and regional contexts. There is a huge demand for both young talent and more experienced professionals, and the aim of this platform, is to support the development of the available talent pool in the best possible way - by addressing students and high-schoolers, our future colleagues and professionals, as well as their parents who still need to find out more about our industry, and get reassured about how "serious" and prosperous working in game development may be. Because it is!

But it does not stop there. Young and more experienced professionals already active in other relevant industries can also be the beneficiaries of this platform, and use it to find their own sweet spot in a career shift towards game development and creative tech.

We are also addressing all of the young, and the more experienced professionals who are interested in professionally stepping into this industry, as well as those

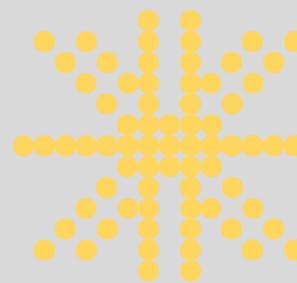
who are already professionally active, but would like to SHIFT towards gaming and creative-tech.

The project consists of three main modules: the online informational-educational platform, a TV format, and a series of events.. Altogether, they aim to provide more information to young women and men about career possibilities, provide more insights on what it looks like to work in gaming teams and companies and link them with the main players and potential employers in the gaming industry. This initiative should indirectly result in a better match between employers/employees' expectations ultimately leading to more productive job opportunities.

The online platform (currently available in Serbian only) describes and demystifies professions in the gaming industry and also helps young people prepare for them, thus constantly expanding our talent pool. The core of the website is the "professions" page, bringing together detailed information on as many as 50 jobs in gaming, divided across departments and with lots of practical advice on how to prepare for an interview or where to gain experience and which tools to learn, alongside plenty of links to external resources. All of the job profiles were vetted by HR teams of our member companies, so nothing was left to chance.

SHIFT2GAMES

THE GO-TO PLATFORM TO GET TO KNOW GAMING JOBS, AND HOW TO LAND ONE!



Additional content is published on the platform on a regular basis: interviews with industry professionals, explanatory videos, news section, information about newly opened positions, expert articles with a focus on industry jobs, as well as announcements of workshops, matchmaking events, relevant conferences and job fairs. The platform is also connected to the **SGA Jobs** board, becoming a one-stop shop for those interested in getting professionally involved in the Serbian gaming industry. With 60.000 visits without any major PR campaign for the platform in the first year, we feel that we have just scratched the surface and that we will reach many more of our future colleagues.

But in the style of a transmedia platform, **Shift2Games TV show** managed to reach more than 30.000 unique viewers via our collaboration with the leading Serbian esports media **Fortuna Esports**. The first "season" was aired on cable in September 2023, while all of the episodes are also available on SGA's YouTube channel as a dedicated playlist. This unique show aims to reach young people who are passionate about (playing) games but might not be aware that there are genuine career opportunities inside the sector. And an esports channel is definitely the right place to reach them!

Finally, **reskilling workshops** and **Career Day events** we regularly organize (across Serbia - in Belgrade,

Novi Sad and Niš) aim to save onboarding time to both companies and the new employees, who will already have relevant insights into how working in the environment of the game development industry looks like. In the absence of employment events specifically focused on creative/digital skills we bring together companies and connect them directly with students and young professionals through job fairs, workshops and targeted pre-qualification courses. Inspirational lectures, portfolio reviews and the HR corner attracted more than 1.000 youngsters at the three all-afternoon events we held so far.

All of this would not have been possible without the genuine support of a multitude of partners and supporters, as well as the amazing Serbian gaming companies and professionals who are always open to sharing their experiences and insights. Thank you!

As with any of our initiatives, we always look where to go next, and S2G is no exception. In the Fall of 2024, we will be launching the **online platform in three more languages**, including the English version which will be available to anyone interested in gaming careers, no matter where they are in the world. We will also conduct **reskilling courses** for women and ladies with an arts & humanities background in collaboration with UNDP Serbia, as well as other initiatives focusing on more specific job profiles.

If you are not part of the story yet, shift to games and join us for the ride!

SHIFT2GAMES



2D Art 3D Art Tech Art Programming Audio Game Testing Game Design Marketing Production Business

The go-to place to explore game dev professions, career opportunities & to find your own sweet spot career in gaming!

Intended for students, young professionals, high schoolers and all those thinking about taking a professional path in game development.

A project by

With the support from



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Online platform



TV show



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Workshops



& much more to come!



SPAWNING NEW VERSIONS!

in English & all Western Balkan languages.

OCTOBER 01.2024

SHIFT2GAMES.COM

PLAYING NARRATIVES - IDEAS TO GAMES

HOW WE MAKE PASSIONATE TALENTS!



One of the many things that separates the gaming industry from all others is the percentage of people who want to join it simply because games are their favorite childhood memory, adult hobby, or forever passion. This creates an unprecedented level of dedication to a project or a team, and that's why gaming communities and ecosystems are one of the most supportive environments for young talents.

That is why the Serbian Games Association team decided to create a special program (our longest ever!) dedicated to introducing young creatives to gaming. We choose the best among young 2D and 3D artists, creative writers, sound designers, music composers, and animators. In short: around six diverse teams create a fully developed game concept in eight months, and in the process, get introduced to professionals from the industry through studio visits, workshops, and lectures.

In four cohorts so far, we've had the immense pleasure of getting to know incredible young people, almost 130 of them! Even though it was not our initial goal with the project, more than half of them are employed in the industry or run their own indie teams, and we couldn't be more proud.

Each year, we pay special attention to nurturing diverse teams; almost half of the participants are young, creative women. In addition to this, each edition of Playing Narratives has a theme that makes a game more than just a game. This year, the topic is "The Climate Challenge." We are teaming up with the Center for the Promotion of Science (CPN) from Belgrade and its "Climateurope2" international project, coordinated by the Barcelona Supercomputing Center.

This year's program wouldn't be possible without the support of the RECONOMY project, as well as dedicated industry partners – the company 3Lateral as part of Epic Games, and the program partner, the Center for the Promotion of Science (CPN). In addition to them, the project also involves the Goethe-Institut and the French Institute in Serbia, as well as the EU Info Center.

[WATCH SOME
OF THE GAME
PITCHES FROM
THE PREVIOUS
PLAYING
NARRATIVE
CYCLES HERE!](#)



GAMING-RELATED EDUCATION IN SERBIA



AKADEMIJA UMETNOSTI
NOVI SAD



ART BULLY
TRAINING CENTER



БЕОГРАДСКА
ПОЛИТЕХНИКА



CRATER
TRAINING CENTER



FAKULTET DRAMSKIH
UMETNOSTI BEOGRADU



FAKULTET
PRIMENJENIH
UMETNOSTI



FAKULTET
SAVREMENIH
UMETNOSTI



FAKULTET TEHNIČKIH
NAUKA NOVI SAD



MASTER 4.0

MASTER 4.0



БАПУСС
БАРДИЛСКИ АСАСТИЧКИ ПРОФЕСИЈИ И УМЕНОСТИ
СУДОВСТВО СУДА

ОДСЕК ЗА УМЕНОСТ
И ДИЗАЈН БАПУСС



PRIRODNO-MATEMATIČKI
FAKULTET KRAGUJEVAC



SAE INSTITUT



SINGIDUNUM UNIVERZITET
- FAKULTET ZA MEDIJE I
КОМУНИКАЦИЈЕ



УНИВЕРЗИТЕТ
МЕТРОПОЛИТАН,
ФАКУЛЕТ
ИНФОРМАЦИОНИХ
ТЕХНОЛОГИЈА, ФАКУЛЕТ
ДИГИТАЛНИХ УМЕНОСТИ



УНИВЕРЗИТЕТ У НИШУ,
ЕЛЕКТРОНСКИ ФАКУЛЕТ



РАЧУНАРСКИ ФАКУЛЕТ



EXPERT
ARTICLES

DATA

STUDIOS

ECOSYSTEM

EDUCATION

EXPERT ARTICLES



PREDRAG PALIBRK
PLAYSTUDIOS
EUROPE

PLAYSTUDIOS EUROPE

TO BUILD OR NOT TO BUILD: SHOULD YOU DEVELOP YOUR OWN GAME ENGINE?

When developing a game, one of the most important decisions developers must make is whether to use an existing game engine or tackle the monumental task of creating their own.. So, before diving into the pros and cons, let's first define **what is a game engine?**

Simply put, a game engine is a software framework that allows you to develop video games. It provides functionalities such as rendering, input handling, audio, physics and various other systems. Now, a game engine is not just what you see in an editor. The editor is just a set of tools on top of the engine that provide a nice graphical interface for its diverse functionalities. It allows game developers to focus more on the game design and art aspects of the game, rather than programming each step of the process.

COMMERCIALLY AVAILABLE GAME ENGINES

The landscape of available game engines is varied, offering something for everyone. Unity and Unreal Engine are currently the major players in the industry.

For developing a visually stunning 3D game, Unreal is the go-to choice, even for large gaming studios.

On the other hand, if you're developing a mobile game, whether 2D or 3D, Unity stands as the titan in this space.

As an honorable mention following the major two, Godot is currently making significant strides in the industry to become a viable engine for both 2D and 3D games. While it's still far from Unity and Unreal, a lot of people opt for it for small indie and personal projects.

USING THIRD-PARTY GAME ENGINES

Using a commercial game engine offers a comprehensive suite of development tools which are regularly updated to follow new industry standards and trends. These engines come packed with features that help both novice and experienced developers, enabling them to create sophisticated games that can run on multiple platforms – from PCs and consoles to mobile devices – without the need of maintaining a complex code base for a game engine.

Furthermore, the most popular commercial engines are well documented and have huge active communities which create tutorials and other helpful content to support developers. Additionally, many of these engines feature asset stores where developers can access a wide range of assets and plugins to enhance their projects.

This ecosystem not only accelerates development, but also enables smaller dev teams to create higher production level games.

BUILDING YOUR CUSTOM GAME ENGINE

On the other hand, developing your own game engine provides complete control over the entire development process, allowing for more customization and optimization than what a commercial game engine might offer. It also allows you to tailor the engine specifically to the needs of your game, without the bloat that comes with a fully-fledged commercial engine. Having your own engine also means you completely own the underlying technology of your game, and if it achieves commercial success, you don't owe anything to anyone.

Building a game engine is also an amazing learning experience, offering a deeper knowledge and understanding of the inner workings of a game.

But, this path has its challenges as well. Creating a game engine – unsurprisingly – requires a lot of time and effort. Depending on the games you want to create, it might not only require knowledge of programming, computer graphics, and math – but also a good understanding of physics.

DEVELOPING YOUR OWN GAME ENGINE PROVIDES COMPLETE CONTROL OVER THE ENTIRE DEVELOPMENT PROCESS, ALLOWING FOR MORE CUSTOMIZATION AND OPTIMIZATION THAN WHAT A COMMERCIAL GAME ENGINE MIGHT OFFER

CONCLUSION

In the end, as is often the case with challenging questions, the answer is "It depends". If your goal is to develop a specific game where you can quickly iterate and (hopefully) quickly bring it to an online store, then using a commercial game engine is the obvious choice. However, If you care more about control, ownership of your entire game and you don't shy away from a challenge, then developing your own engine is a path to consider.

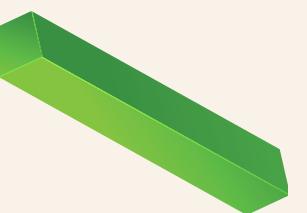




ALEKSA ŠURLAN
HEAD OF CONTENT
FORTUNA ESPORTS

FORTUNA ESPORTS

TALENT TEAMS AT THE HEART OF ESPORT



IN TOUCH WITH EVERYTHING

Being part of the talent team signifies integral involvement within your company. As the face of the show, you must comprehend the workings and limitations of the production team, possess organizational prowess, and maintain open lines of communication while actively participating in every facet of the show's preparation. You maintain direct contact with all project collaborators, necessitating an understanding of their physical and mental stressors.

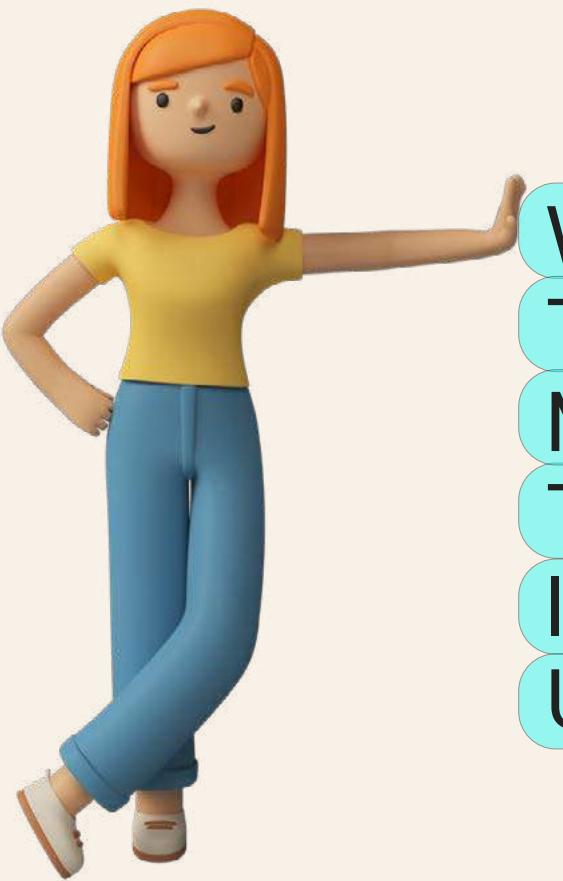
Furthermore, there are the players, the epicenter of esports. Though they are the focal point of the audience's attention, they often overlook their role in captivating viewers. It falls upon you to motivate them, encourage content creation, facilitate interviews, and engage with fans. While some thrive in this role, others may struggle, and it becomes your responsibility to guide them, emphasizing that stellar performance is crucial but not the sole aspect of their duty. You share in their triumphs and empathize with their defeats, supporting them even as their careers diverge from your league, all while maintaining impartiality.

Establishing robust working relationships with all involved parties distinguishes between a good and a GREAT host.

WE ARE READY

Do you recall that sensation from your school days, when you're waiting to begin a test you've diligently studied for? It is not anxiety, but rather a thrilling anticipation, confident in your preparation yet still eager for validation, poised to demonstrate your mastery.

Such is the sensation of working in esports as talent, while the production team counts down: 3..2..1. You've meticulously prepared in advance, familiar with the show's agenda, poised to discuss your passion with like-minded individuals. While outcomes often diverge from plans, solid preparation allows for seamless adjustments, imperceptible to the audience. When spontaneous improvisation exceeds expectations, it stands as one of the job's most gratifying aspects.



CHANGE IS NATURAL

Working in esports as talent has its drawbacks. Maintaining a stable talent team is crucial; it can either elevate or undermine a show. This challenge is particularly pronounced at the lower, regional level, compounded by the fact that esports often constitutes a part-time endeavor for most hosts and commentators in the regional scene. Over the past few years, I've witnessed numerous individuals enter and exit the scene, typically driven by ambitions and financial considerations. Many individuals fail to prioritize esports commentary, instead focusing on personal projects or non-esports-related work. Consequently, finding suitable replacements often involves recruiting individuals who require time to acclimate to their new roles.

WORKING IN ESPORTS AS TALENT HAS ITS DRAWBACKS. MAINTAINING A STABLE TALENT TEAM IS CRUCIAL; IT CAN EITHER ELEVATE OR UNDERMINE A SHOW

However, there are silver linings. Embracing this dynamic environment facilitates the formation of new friendships. Moreover, on occasion, the return of a former colleague offers access to a diverse pool of talents, enriching the show's content and dynamics.

Finally, I must emphasize that this career path isn't suited to everyone. It can be bewildering and exhausting at times, to say the least. However, for those who immerse themselves in it, they may find it to be one of the most fulfilling and gratifying professions imaginable. As the saying goes, "When you do what you love, you'll never work a day in your life."

ARTIFICIAL GAME

I



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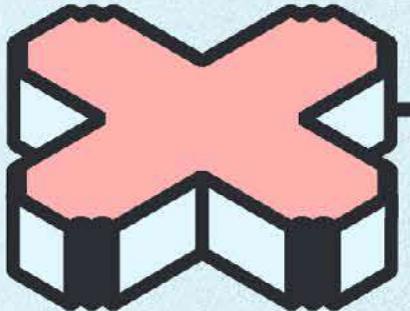
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SGA



ЕТНОГРАФСКИ ИНСТИТУТ САНУ

0



+





MLADEN DULANOVIĆ

VP OF STRATEGY
AND GROWTH
NORDEUS

NORDEUS

NORDEUS: BEYOND FOOTBALL

WHAT IS THE NEXT BIG THING FOR
NORDEUS? TIME TO TEE OFF!



2023 IN REVIEW

Let's take a quick look at the fun of 2023 before we head into 2024.

In 2023, Nordeus and Top Eleven celebrated their 13th anniversary - a rare feat in the mobile games industry. Our flagship title counts more than 300 million registered users, and an amazing ambassador - football legend José Mourinho.

Our team has done amazing things with Top Eleven in the past year, such as introducing the highly anticipated Season in Review feature, and a new challenge type - Proving Grounds. Live events and amusing mini-games were key to keeping our players engaged throughout the 28-day Top Eleven season, and we introduced several throughout the year. The new era of Top Eleven started in 2022 when we introduced our most requested community feature - 3D live matches, and we took them to the next level with the 2024 release. Top Eleven 2024 offered players an enhanced Live Match experience with new animations, different camera angles, new hyper-realistic stadium experiences, night scenes, and dynamic crowds.

With all that we've learned with Top Eleven over the years, while keeping it a leader in the category, we asked ourselves how we could help other games reach new



heights even after years on the market. That is exactly our mission with Golf Rival, which we recently added to the Nordeus portfolio, as part of the Zynga label.

This project gives us the opportunity to expand our expertise and apply our knowledge of running live mobile sports titles successfully to Golf Rival and make it a "forever franchise" game, capable of providing an evergreen and fun experience for players everywhere for years to come.

WHAT IS NEXT?

Golf Rival is a PvP golf game that has been around for 6 years and has reached amazing milestones (e.g. more than 60 million registered users) and celebrated success from its beginnings in Beijing.

Creating forever franchises is not an easy job. We've explored a lot over the years, prototyping many different concepts, building epic worlds and unlocking incredible free kicks through Heroic and Golden Boot - all of which helped push us forward.

Keeping all of this in mind, we are approaching Golf Rival holistically - helping with knowledge sharing and driving the strategy in every area of game development, from user research to engineering, live ops, product management, game design and marketing.

To maximize the collaboration and knowledge sharing between Belgrade and Beijing, we have formed a Golf Rival team here in our Nordeus Belgrade office.

2023 was a whirlwind as we stepped onto the first tee on Golf Rival with enthusiasm and excitement, and we're already seeing results. We focused on expanding the player experience with new features and live ops events that have driven lots of engagement in-game. We have optimized the flow and made important changes to the structure to drive long-term success. And of course, we've established new ways of working and sharing knowledge with our colleagues in Beijing to bring all of our strengths to the forefront of our collaboration.

With the fast delivery and focused work from the Beijing team combined with the high-quality output we bring to our games in Belgrade, we are confident that Golf Rival will reach new heights in 2024.

While we strive to level up experiences for Top Eleven players, we are determined to repeat this success with Golf Rival and new games.

2024 is going to be an exciting year, and we cannot wait to share our successes and learnings with all of you in the next SGA yearly report.



MARKO TULIĆ
ASSOCIATE LEVEL
DESIGN DIRECTOR
UBISOFT BELGRADE

UBISOFT

HOW WE TRAINED ASSASSINS ON NEXUS VR



ASSASSIN'S
CREED
NEXUS
VR

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UBISOFT

as a full mission that connects to the game's narrative. It was more of a separate Animus experience, solely focused on teaching the basics like locomotion, grabbing objects, climbing, and so on. I was inspired by great games with invisible tutorial levels such as Half-Life games, Dishonored, and Portal. The directors liked my suggestion, and so it became an infiltration mission.

This was my first encounter with rational level design. Not that my previous work in level design was irrational, but I learned about this method that finely balances the player's learning curve with the game's progression, ensuring a coherent and engaging experience from the outset. Essentially, we wanted to make sure that we taught players how to walk before we showed them how to run.

Having this knowledge helped us structure our level in a way that provides the smoothest experience for the player. They would seamlessly learn mechanics as they progress through the game. As expected, there were numerous iterations on the layout and overall structure of the mission.

One significant moment was the addition of the courtyard space, the mission's first exterior area. It came a bit later in development and helped us highlight that the game was not just about rooms and corridors, but also included open natural spaces. It also served as a sandbox space where players get to apply what they have learned so far and complete the challenge ahead in a manner they see fitting, and our level needed that. We also wanted to emphasize the vastness of subsequent levels by including several vistas of Venice throughout the level, opening the tutorial mission with a view towards busy canals of Venice.

Working on AC Nexus was a unique and extraordinary experience that transformed my perspective as both player and designer, allowing me to explore new ways of shaping gaming experiences that I had not considered before. I look forward to contributing to future innovative projects like Nexus.



INVALUABLE EDUCATIONAL RESOURCE ON ALL THINGS GAME DEV

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SUCCESSFUL EXTRACTION: LET'S FIND THE PERFECT LOOP



A KEY
COMPONENT
OF THIS
LOOP IS THE
BALANCE
BETWEEN
EXCITEMENT
AND RISK

Creating a successful extraction shooter game involves a delicate balance of various elements, each contributing to the overall experience. While solid shooting, combat, and movement mechanics are crucial, they are just the beginning. Other factors such as stunning visuals, immersive sound design, and unique world-building are equally important in today's gaming landscape. However, one often overlooked aspect of such games is the core gameplay loop.

An engaging gameplay loop is characterized by its ability to create unique situations from the moment players land in a raid to their extraction. It involves providing players with objectives and rewards that incen-

tivize them to enter raids repeatedly. A key component of this loop is the balance between excitement and risk, where successful players are rewarded for their efforts. This balance should be tied to players' knowledge and skill, increasing their chances of success over time.

Developers must also consider players' agency and decision-making, both within raids and in the lobby. Choices such as selecting gear, determining raid objectives, and deciding on PvP or PvE focus contribute to the overall experience. By offering players different pursuits and approaches, developers can enhance replayability and keep the game fresh.

Weapons, location designs, and character abilities play crucial roles in shaping the gameplay experience. While weapons are a staple feature, unique character abilities can serve as a game-changer and a unique selling point for the game. Millions of players choose extraction shooters based on the perfect mix of these elements that align with their preferences and play-styles.

Games like Hunt: Showdown and Escape From Tarkov demonstrate how different approaches to the gameplay loop can lead to varied player experiences and retention factors. Each game offers unique mechanics, objectives, and atmospheres that appeal to different audiences.

Upcoming extraction FPS, Shrapnel, on which Sperasoft Belgrade working closely with Neon Machine, aims to bring innovation to the genre with its blend of cyberpunk, neoncore, and military futurism. Leveraging the latest features of Unreal Engine 5, the game promises stunning visuals and immersive gameplay. With a focus on believable combat mechanics and impactful player choices, Shrapnel introduces the Sigma abilities system, turning raids into character-based tactical FPS experiences.

By incorporating player-driven decisions and powerful abilities, Shrapnel aims to redefine the extraction shooter genre and provide players with a dynamic and engaging gameplay loop. While the game is still in development, the collaboration between Sperasoft and Neon Machine holds promise for a unique and memorable gaming experience.





MARKO GARDJAN
FOUNDER
YBOGA

YBOGA

DO MORE WITH LESS



GENERALIST TEAM MEMBERS VS. SPECIALISTS

LEARNING FROM MISTAKES CAN BE COSTLY, ESPECIALLY IF NO LESSONS ARE DERIVED FROM THESE ERRORS. IT'S CRUCIAL TO LEARN AND AVOID REPEATING THE SAME MISTAKES. OFTEN, WE'RE TEMPTED TO REPEAT AN ACTION, BUT REMEMBERING PAST LESSONS HELPS US DECIDE AGAINST IT AND MOVE FORWARD.

Our philosophy centers on maintaining a smaller team composed of highly experienced members well-versed in their fields. This approach helps us minimize bureaucracy and overhead, allowing us to concentrate on development and delivery more efficiently.

TOOLS AND METHODOLOGIES

(SCRUM, AGILE, OR FRANKENSTEIN)

Despite our focus on reducing bureaucracy and overhead, we are far from being disorganized. We adhere to the agile-scrum methodology, with Jira as our primary tool, complemented by Confluence. We enforce a rule that every game component must be documented on its own Confluence page, ensuring organization and clarity to avoid chaos. This organization minimizes misunderstandings, as everyone is usually clear on the location of all materials. Figma also plays a crucial role in aligning graphic elements with text, ensuring everything is organized and understandable.

TRUST AND AUTONOMY

We prioritize discussing every aspect as a team and then committing to the decisions made, even if not everyone is initially in agreement. Embracing a "disagree and commit" philosophy, we foster an environment where team members feel free to share their ideas, fostering trust and a sense of investment in the project. In terms of autonomy, each member has complete freedom in their domain, particularly regarding execution and decision-making.

BOTTLENECKS TO LOOK OUT FOR

The primary challenge we face is aligning the pace of design and development. Efficiency in production requires everything to be well-organized and defined, necessitating thorough prototyping and testing to ensure we're on the right track. A mismatch between the speed of design and development can lead to bottlenecks, with the development team sometimes waiting on the design team for final specifications.

IS LEARNING AS YOU GO/BY MISTAKE EXPENSIVE?

Learning from mistakes can be costly, especially if no lessons are derived from these errors. It's crucial to learn and avoid repeating the same mistakes. Often, we're tempted to repeat an action, but remembering past lessons helps us decide against it and move forward.

EDUCATION - HOW DO TEAMMATES UPGRADE?

Hands-on experience has proven to be the most effective form of education, albeit the most expensive. Our longevity in the field is a testament to the valuable "education" we've acquired over time. The challenges we've faced and overcome have been instrumental in our development and growth.



**All-day event
bringing together
the local & the global,
the current & the future
Unreal Engine community!**

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DATE!

**October 24th
Belgrade, Serbia**
mts Dvorana

SGA



unrealday.com

coming in June!



**Calling on all teams
working with UE or UEFN!**

Serbia | Croatia | Slovenia
Bulgaria | Albania | Romania
Bosnia & Herzegovina
Montenegro | North Macedonia

SAVE
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DATE!

**October 7th - 20th
Two weeks of Epic
game creation**

METAHUMAN COMES TO UEFN

The integration of MetaHuman into UEFN provides creators and developers with powerful and intuitive tools to bring high-fidelity non-playable characters into their Fortnite islands. MetaHumans can be imported into UEFN directly from MetaHuman Creator. Mesh to MetaHuman and MetaHuman Animator have also been fully integrated into UEFN, providing the same familiar workflows that the MetaHuman plugin enables in Unreal Engine.

With MetaHuman Animator, anyone working with UEFN can quickly and intuitively create digital humans with realistic facial animations for use as NPCs. Using just an iPhone and a PC, you can capture an actor's performance and turn it into high-fidelity facial animation for your MetaHuman in minutes. You can also import any MetaHumans you've already created for Unreal Engine projects into UEFN, reusing previously made animation or custom assets to quickly leverage your existing content.

It's even possible to apply animation created using MetaHuman Animator to the Fortnite characters available in UEFN, as the rig these characters use conforms to the MetaHuman Facial Description Standard. It's not just Fortnite creators who will benefit, however—the integration of MetaHuman into UEFN also offers a boost to developers working in Unreal Engine.

To bring MetaHumans into UEFN, we reduced the size of a MetaHuman asset. That was necessary to fit them comfortably within the memory budget of a Fortnite island and for them to perform on any device that can run Fortnite without trading off on quality. Many of these improvements will be making their way to Unreal

Engine, providing a performance uptick to Unreal devs working with MetaHuman.

At the Game Developers Conference (GDC) 2024, we announced a new way for you to clothe your MetaHumans with custom dynamic clothing. This is thanks to a new Marvelous Designer and CLO integration that has been created as a result of collaboration between Epic Games and CLO Virtual Fashion, the products' makers. Marvelous Designer is built on the foundation of taking traditional clothing production concepts and applying them to 3D cloth modeling.

The Marvelous Designer integration with Unreal Engine empowers artists to streamline their creative processes by enabling anyone to master cloth modeling—regardless of sculpting skill level—as well as providing fast and accurate cloth simulation. This integration will debut with Unreal Engine 5.4 and provides more possibilities for clothing your MetaHumans. It includes a new USD export option for your garments, including geometry, materials, and the necessary data for simulation setup.

MetaHuman bodies will also be available within Marvelous Designer, enabling you to preview how your outfit will appear on a MetaHuman before exporting your garments to Unreal Engine. The [TALISMAN DEMO](#) shows how MetaHumans, dynamic clothing, and a high-fidelity environment can totally change the look and feel of a Fortnite island, and gives a sense of how creators can use MetaHuman to bring believable human characters into realistic environments in UEFN.





DATA

STUDIOS

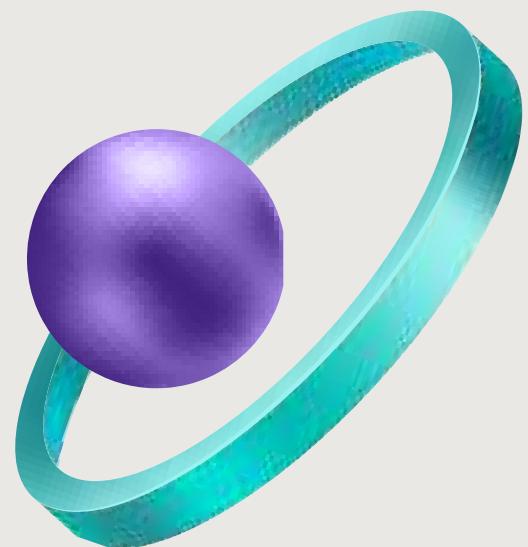
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EDUCATION

EXPERT ARTICLES

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