

# MindArk PE



## Initial take

2023-07-24

We initiate coverage of MindArk PE ("MindArk" or the "Company"), a Swedish entertainment company that has developed and operated the game Entropia Universe since 2003. The game is a so-called massively multiplayer online roleplaying game (MMORPG) and has a unique economic model, where players can buy and sell virtual goods and earn real money in the game.

### Long history

MindArk has a long history and has since the start in 2003 increased its turnover by a CAGR of just over 16.5%. Profitability has varied from year to year, but the company has shown positive results in most of the years since its founding.

### New game engine

MindArk is currently in the process of upgrading the game engine to Unreal Engine 5, which will provide players with a more realistic gaming experience with improved graphics, content, and performance. In addition, the company will be able to launch Entropia Universe on more platforms, such as mobile and game consoles. The upgrade requires investments that cost money.

### Reorganization

To maintain profitability in connection with the large costs of upgrading the game engine, the company has announced a major reorganization, where up to 40% of employees may be laid off while the company increases its focus on integrating AI into the business. If the measure is successful, our assessment is that the company is facing a significant improvement in profitability. Given the company's financial history, solid balance sheet and future growth opportunities, we believe there may be upside in the share going forward. In our main scenario where we applied a margin of safety of 45%, we see a potential upside in the share of just over 83% for 2025E.

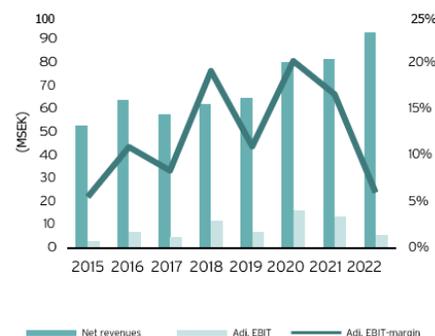
(MSEK)	2021	2022	2023E	2024E	2025E
<b>Net sales</b>	81,2	92,8	101,6	106,7	109,9
% y-o-y	1,2%	14,3%	9,5%	5,0%	3,0%
Capitalized work	16,1	26,5	24,8	15,9	15,9
Other income	9,6	5,4	5,0	5,0	5,0
<b>Total revenue</b>	107,0	124,6	131,4	127,6	130,8
P/S	1,4	1,2	1,1	1,0	1,0
<b>Total costs</b>	-85,6	-103,3	-112,8	-94,9	-96,6
% y-o-y	12,5%	20,6%	9,2%	-15,9%	1,8%
<b>Adj. EBIT*</b>	13,4	5,5	6,3	33,0	37,2
<i>Adj. EBIT margin</i>	16,6%	6,0%	6,2%	30,9%	33,9%
% y-o-y	-16,8%	-58,7%	14,3%	420,5%	12,7%
<i>EV/Adj. EBIT</i>	6,3	15,1	13,2	2,5	2,3

\*EBIT adjusted for net activations

### Facts

CEO	Henrik Nel Jerkrot
List	Spotlight
Ticker	MNDRK
Share price (SEK)	3,55
NOSH (M)	31,5
Market cap (MSEK)	111,9
Net cash (MSEK)	27,9
EV (MSEK)	84,0
Insider ownership	2,3%
Next report	2023-08-28

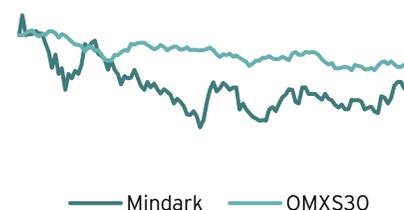
### Financial history



### Analyst

Jakob Fritz  
[jakob.fritz@kalqyl.se](mailto:jakob.fritz@kalqyl.se)

### Share price last 6 months



Share price %	1 m	3 m	Max
MindArk	-14,2	1,4	-28,7

## Key Insights



### Unique product

Entropia Universe has a unique economic model where players can earn real money in the game. This has created a loyal player base of players with a high purchasing power. In addition, there are high barriers to entry to create an MMORPG game, making it difficult for new players to challenge the game's position.



### Growth drivers

We believe that organic growth and sales of new deeds will contribute to increased sales in the short term, while the transition to Unreal Engine 5 and launch on the Epic Games Store will be long-term growth drivers. In addition, we see potential in Asia, and an option in new verticals.



### Improved profitability

If the company manages to maintain sales, the recently announced savings program will have a positive impact on profitability. This should result in significantly improved profitability and reinstated dividends.

"Entropia Universe is more than just a game, it's a virtual universe where all actions and decisions have consequences for your digital avatar - not only in social contexts but also financially, just like in real life."

- Henrik Nel Jerkrot, CEO MindArk

## Investment case

- Long history
- Strong balance sheet
- Loyal player base
- Unique product and market leader in its niche
- New graphics engine, new verticals, and megatrends growth drivers long-term
- Deed sales growth driver in the short term
- Cost savings should have a positive impact on profitability
- Goal to reintroduce dividends

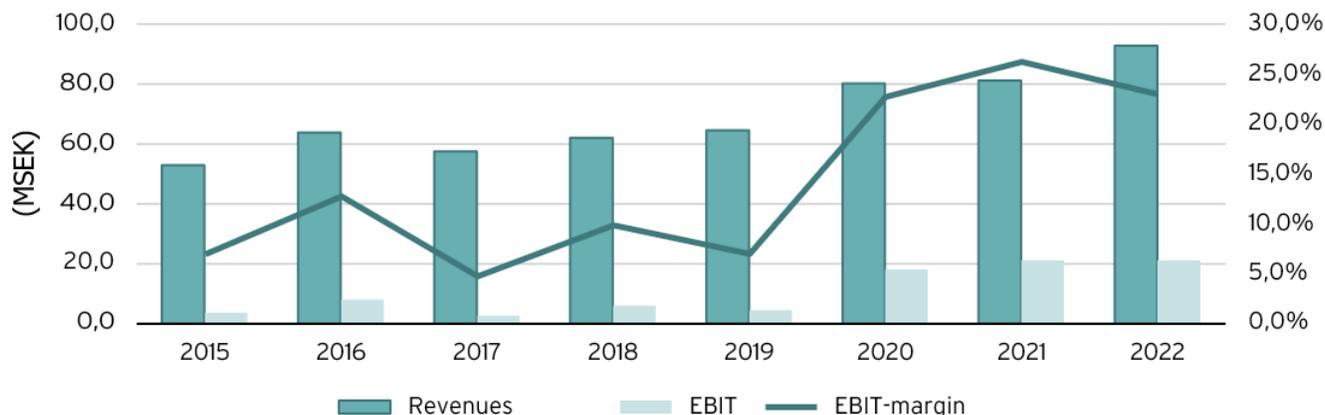
## History

MindArk has a long history, and the company developed a virtual universe with a completely proprietary virtual economy.

1999	MindArk AB is founded, and the development of a virtual universe begins (Project Entropia).
2003	MindArk AB goes bankrupt and MindArk PE AB is formed. The virtual economy is operational from day one and it is possible to conduct both deposits and withdrawals.
2004	<ul style="list-style-type: none"> <li>• MindArk generates profit.</li> <li>• The world's first virtual property "Treasure Island" retails for \$26,500, bringing MindArk into the Guinness Book of World Records for the first time.</li> </ul>
2005	A user in Entropia acquires a virtual asteroid for \$100,000, surpassing the previous world record. The user profited from the investment in less than a year.
2006	<ul style="list-style-type: none"> <li>• Project Entropia is rebranded to the Entropia Universe.</li> <li>• MindArk introduces the Entropia Universe Cash Card, which allows users to withdraw funds from the game.</li> <li>• MindArk announces that Entropia Universe has passed 500,000 downloads.</li> </ul>
2007	MindArk introduces the world's first virtual banking licenses and auctions them for a total of \$404,000. Entropia was voted "Best Original Game" at the "Entertainment for all Expo" game fair.
2008	MindArk implements CryEngine2™ in the Entropia Universe. Rock band Motörhead announces that they will build a virtual arena on the upcoming planet, a "Rocktropia" in the Entropia Universe.
2009	The space station "Crystal Palace" is sold for \$ 330,000, which is a new world record for a virtual estate.
2010	The planet Rocktropia is launched into the Entropia Universe. A user sells a club in Entropia Universe to a consortium of users for \$635,000 USD.
2011	<ul style="list-style-type: none"> <li>• MindArk advertises the sale of "Calypso Land Deeds", a deed can be compared to shares in an estate for \$100 per deed. In total there are 60,000 deeds and each deed gives the holder a weekly income on the income of the Planet Calypso in the Entropia Universe.</li> <li>• The planet Arkadia is added into the Entropia Universe.</li> </ul>
2012	The planet Cyrene is added into the Entropia Universe.
2013	A property in Entropia Universe is being auctioned for \$150,000
2014	The Arabic-themed planet Toulan is launched in the Entropia Universe.
2017	<ul style="list-style-type: none"> <li>• MindArk is collaborating on a project to develop the next generation of 3D interfaces.</li> </ul>
2018	MindArk focuses on improving the user experience to keep old accounts and bring in new users.
2019	<ul style="list-style-type: none"> <li>• MindArk continues to focus on improved user experience.</li> </ul>
2020	<ul style="list-style-type: none"> <li>• MindArk continues with new investments in the core business Entropia Universe.</li> <li>• Covid-19 and improved user experiences result in that the user base is growing with both</li> <li>• New and old users finding their way back to the Entropia Universe.</li> </ul>
2021	MindArk signed a deal with Epic Games to integrate Unreal Engine 5 game engine into the Entropia Universe. This creates new opportunities for the Company and improved experiences for users.
2023	MindArk is directly listed on Spotlight Stock Market.

## Financial history

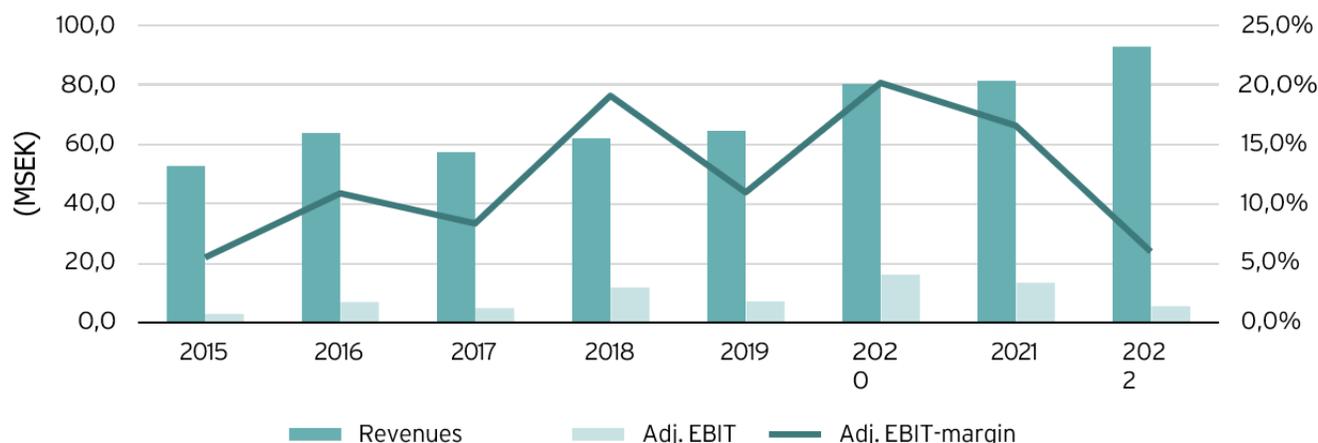
MindArk first generated profits in 2004. Below is the history from 2015-2022, where net sales increased from SEK 52.9 million to SEK 92.8 million, and EBIT from SEK 3.7 million to SEK 21.4 million.



In recent years, capitalized work on own account has increased significantly because of MindArk upgrading the game engine in Entropia Universe from CryEngine2 to Unreal Engine 5. Capitalized work relative to net sales has risen from 2.6% to 28.5% between 2015-2022.

(MSEK)	2015	2016	2017	2018	2019	2020	2021	2022
Net sales	52,9	63,8	57,5	62,1	64,6	80,3	81,2	92,8
Enabled work	1,4	2,1	3,9	7,8	8,8	11,6	16,1	26,5
Depreciation	-0,6	-0,9	-5,9	-13,5	-11,3	-9,5	-8,3	-10,7
Net activations	0,8	1,2	-2,1	-5,7	-2,5	2,1	7,9	15,8
Capitalized work/net sales	2,6%	3,3%	6,7%	12,5%	13,6%	14,5%	19,9%	28,5%

If we adjust EBIT for net activations (capitalized work minus depreciation), the financial performance look as follows. However, the adjustment does not consider the larger cost base the company has taken on in order to ensure future growth. We choose to present both to make it easier to assess the company's underlying profitability.



## Product

### Entropia Universe

MindArks product is the game Entropia Universe, which is a virtual universe where players create their own personal avatar. Set in a science fiction setting, the game mimics real life by having consequences for the player's avatar. Entropia Universe is more than a game and can be compared to a metaverse, where players can engage in social and economic interactions. The game is free-to-play and thus costs neither a one-time fee nor a monthly fee to play. MindArk has been developing and operating Entropia Universe for 20 years and the game has a loyal player base.

Entropia Universe is based on a virtual economy, a so-called Real Cash Economy (RCE), where digital assets such as raw materials, materials, land, and buildings have a calculated base value. Just like in real life, the players can engage in trading and buy or sell the digital assets. All trading takes place in the game's own currency, the Project Entropia Dollar (PED), which can be exchanged for fiat currencies. This allows players to earn real money playing, creating an additional incentive to play on top of the entertainment value. Entropia Universe is currently the only online game with a functioning monetary system that is not linked to a blockchain. Entropia Universe's long history and the link to USD has created a great deal of trust among players, and it would be challenging and time-consuming for a competitor to build up the same trust with players.

#### Examples of in-game activities:

- Hunting extraterrestrial creatures
- Collection and processing of resources through mining, construction, and hunting
- Trade in goods, services, and work together with other users
- Management of properties
- Investment in various financial instruments
- Explore alien environments
- Manufacture digital goods and materials
- Battle other players



### Objectives and prospects

Entropia Universe is based on a version of the older game engine CryEngine 2. Today, there are modern graphics engines that offer significantly improved graphics and performance, as well as a wider functionality and greater opportunities for development. MindArk has decided to upgrade its current game engine to the latest version of Unreal Engine 5. This upgrade of the game engine will bring several major benefits.

**Better graphics and content:** The graphics quality of the game will be greatly improved, and new game features will be added faster. The company believes that this will result in more users staying in the game, and that more users will be converted into active customers. It is important to point out that changing the game engine does not change the underlying game mechanics, which in our opinion is the main explanation for Entropia's loyal player base.

**Freeing up resources:** Since the company's current game engine CryEngine 2 is old, a lot of maintenance is required for the game to work properly. This means that many of MindArk's developers spend time and resources fixing technical issues instead of creating new content for users. The implementation of Unreal 5 will allow these developers to focus on creating new content for the game, which will increase the value of the product.

**New verticals:** Unreal Engine enables development for PC, but also for game consoles and mobile phones. This means that the company will be able to launch Entropia Universe on more platforms, which would enable a new target group and player base. However, our assessment is that such a commitment would be very resource-intensive, and that it will not happen soon after the transition to Unreal 5. However, we see it as an exciting option that may function as a future growth driver.

**AR, VR, and AI technologies:** MindArk can take advantage of AI, VR, and AR technologies to improve its gameplay and platform. By using AI, they can create smarter and more interactive virtual characters as well as adapt the gaming experience to the players' behavior. Through VR, they can offer a better and more realistic gaming experience, while AR provides the ability to mix the virtual world with the real world. The company has recently announced an investment in AI, which we will discuss a little later in the analysis.

**Server architecture and stability:** As the company transitions to the new game engine, it enables a new and scalable server architecture. Unreal Engine 5 allows Entropia Universe to adapt more effectively to changes in active number of players. This means that the system can quickly and smoothly manage sudden and large inflows of new users as well as any future technological changes.

**Improved recruitment opportunities:** The implementation of Unreal Engine 5 can improve MindArk's recruitment capabilities by making them more attractive to potential candidates who want to work with a modern game engine.

## Player base

Entropia Universe has a broad user base ranging from 18 to 75 years old, and the average age is 33 years. The higher average age of the players means that the user base has strong financial resources and thus may spend more money in the game. Most users reside in North America and Western Europe, leading to high revenue per user. Since the game is based on a real-world economy, users must be at least 18 years old to play the game. Entropia Universe currently has over five million registered accounts<sup>20</sup>.

MindArk does not provide information on the number of active users or daily players. We have researched external sources to get an idea of this, and the information varies depending on the source. According to the website MMO Population, which analyzes player counts for various MMO games, Entropia Universe has about 104,000 players with over 2,000 daily active players<sup>23</sup>. On forums about Entropia Universe that we surveyed, a user suggests 3,600 daily active users.

We believe that the number of active and daily players is important information in order to make a well-informed investment decision. We would have liked this information to be reported quarterly or annually, so that player numbers and revenue per player could be assessed over time. This is information that was previously disclosed by MindArk, and we believe it is important information that the company should start to include in its reports.

## Business and revenue model

MindArk provides the game Entropia Universe which is a "free-to-play" game, which means that the game is completely free to download and play, and that it has no monthly fee. The revenue is instead generated from, among other things, microtransactions in the game's virtual economy. Transactions occur when players buy and sell as well as use items or features in the game<sup>20</sup>.

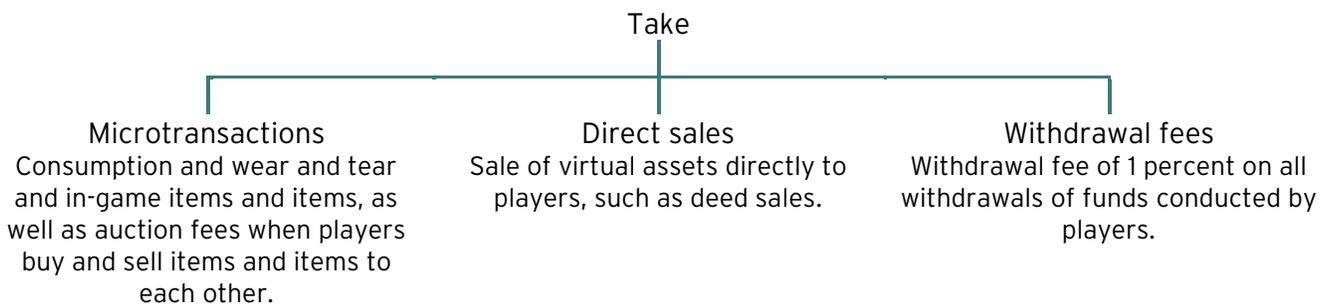
### PED (Project Entropia Dollar)

The currency used in-game in the Entropia Universe is Project Entropia Dollar (PED). Players use PED to purchase, for example, tools, clothing, and real estate in Entropia Universe. PED has a fixed exchange rate against the US dollar, where 1 USD equals 10 PED. The fixed exchange rate against the dollar means that virtual items bought and sold in the Entropia Universe also have a real value. This is because the PED can be exchanged for dollars or another currency of your choice whenever the user so wishes.

It all starts with players exchanging FIAT currency, such as USD or EUR, for Entropia Universe's own currency PED. When exchanging, the player receives a corresponding amount of PED in his in-game account, which can then be used to purchase various items in the game.

### Revenue model

Microtransactions arise from consumption and wear and tear (explanation below) of items and objects in the game as well as auction fees when players buy and sell items and objects to each other. Another source of revenue is direct sales, where virtual assets are sold. In addition to this, MindArk charges a 1 percent withdrawal fee on all withdrawals, but a minimum of USD 10. The minimum withdrawal amount is 1000 PED = 100 USD. Revenue from withdrawal fees has remained stable over time and is slightly increasing. The fact that players have the opportunity to earn in-game money in addition to the entertainment contributes to increased activity in the Entropia Universe and higher revenues for MindArk.



On average, each user earns \$1.3 per hour they spend in the Entropia Universe. This revenue per user has remained relatively stable over time with a small positive trend.

## Examples of revenue through consumption

Player 1 opens a user account for switching the PED to his so-called PED card



Player 1 has 100 PEDs on his PED card and buys a sword for 10 PEDs. A sword account is created with a value of 10 PED. The PED card has 90 PEDs + the 10 PEDs of the sword account. The total value of the account is still 100 PED.



Player 1 sells the sword to player 2 who is willing to pay a certain market price, such as 15 PED. Player 1 now has a total of 105 PEDs (90 PEDs + 15 PEDs), but no sword. Player 1 has thus earned 5 PEDs



Player 2 now has 15 PEDs less in his account but has a sword for which he has paid 15 PEDs which, according to the sword account, is still worth 10 PEDs. Player 2 has lost 5 PEDs but has a sword that he believes has a use value equivalent to 15 PED.



Player 2 uses the sword a few times, causing the sword to wear out. This reduces the value of the hosting account, and consumption (revenue) is registered in a microtransaction log. When the sword has almost no value left it can be repaired. The repair is paid for by the player and the cost is transferred from the user's PED account to the sword account in this example.

Players can thus earn PED by buying or appropriating virtual items cheaply and selling them at a higher price. Any PEDs earned by the player can then be exchanged into the fiat currency of their choice, which means that there is potential for players to earn money playing Entropia Universe. There are several examples like this in the game. Another type of consumption is that a player buys a car and use gasoline. Consumption then occurs because the gasoline has to be purchased with PED and the car wears when it is used, and it costs PED to repair it.

## Examples of revenue through direct sales

MindArk also generates revenue from direct sales or so-called "deed sales". Deeds are land rights and can be a part of a planet in Entropia Universe, for example. The deeds are sold to players in the Entropia Universe at auction and thus generate revenue for MindArk. The player holding the deed then receives periodic payouts in PED based on player activity on the associated property or area.

	2020	2021	2022
Deed sales of total revenue	2,3%	8,8%	No sales
Deed sales (MSEK)	2,2	9,4	No sales

In December 2021, 800,000 deeds were listed for sale for 10 PEDs each, and they were sold out in 22 minutes. In 2021, revenue from deed sales accounted for 8.8% of MindArks total revenue, up from 2.3% in 2020. In 2022, MindArk did not conduct any new deed sales, but the team plans to conduct one deed sale annually going forward.

### Geographical revenue distribution

In 2022, the majority of the company's revenue came from Europe (59%), followed by North America (29%), Asia (10%) and other (2%). It is relatively similar to what it looked like in 2021, with some minor changes. We like that the company's revenue base is diversified, which reduces the risk associated with a specific country or region.

Area	1 Jan - 31 Oct 2022	2021
Europe	59%	57%
North America	29%	29%
Asia	10%	11%
Other	2%	3%
<b>Completely</b>	<b>100%</b>	<b>100%</b>

### Currency exposure

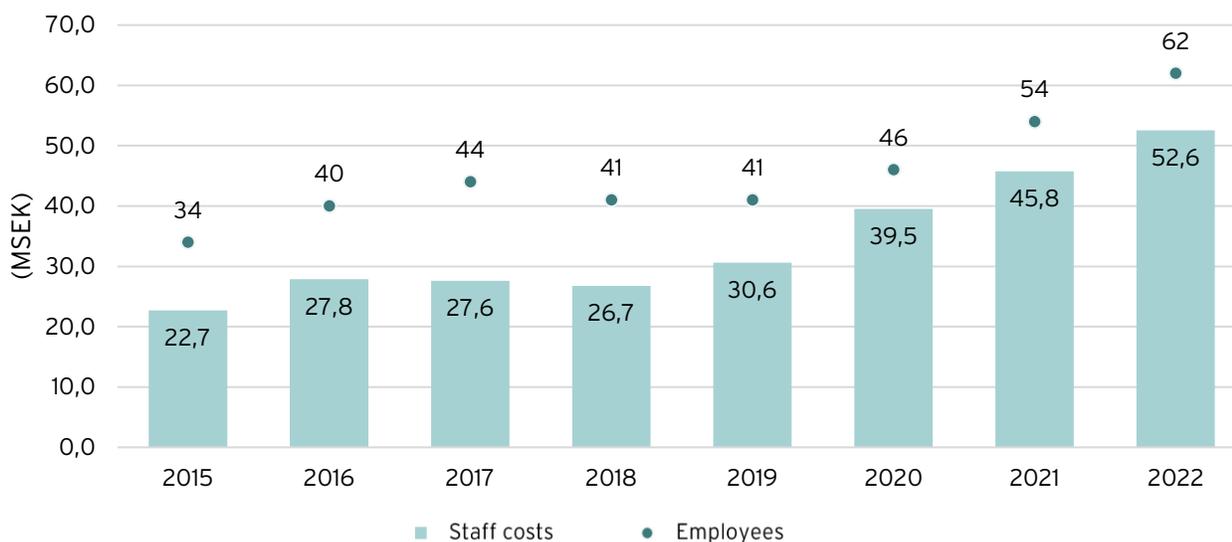
MindArk also has currency exposure as the company has revenues in different currencies. The company has most of its revenues in USD and most expenses in SEK. This currency exposure is associated with both potential benefits and risks. A stronger USD against SEK can contribute to increased revenues when these are converted into SEK. On the other hand, a weaker USD against SEK can lead to reduced revenues when converted to SEK. This can have a negative impact on earnings and profitability.

In addition, there is a currency effect in provisions for unused user funds. In 2022, SEK depreciated sharply against the USD, causing a negative currency adjustment of SEK 7.3 million. It is important to note that this currency adjustment does not affect the company's actual cash flow, as any withdrawals from users are paid with deposits in the same currency. However, it has a significant impact on the company's reported results<sup>18</sup>.

Currency	1 Jan - 31 Oct 2022	2021
USD	79,0%	79,2%
EUR	10,0%	10,0%
SEC	5,5%	5,1%
Other	5,5%	5,7%
<b>Completely</b>	<b>100%</b>	<b>100%</b>

## Costs

MindArks costs consist primarily of staff costs, but also other costs and depreciation. Previously, MindArk has remained stable at around 40-45 employees, but has increased its workforce in recent years. This is mainly because of the conversion to Unreal Engine 5, which has also led to increased costs for consulting services.



MindArk capitalizes development costs, which means that the costs are booked as revenues and depreciated over its expected lifespan. It gives a more accurate picture of the company's financial results and shows the value of the development work. Companies that have high development costs tend to capitalize these to distribute the costs over time and match them with the revenue from the developed product or service.

At the end of May 2023, MindArk announced a reorganization, which could result in up to 40 % of employees being laid off. This measure will reduce the number of employees and thus reduce personnel costs. The company will also implement cuts in other external costs, where consultants are included. The purpose of the reorganization is to create a more long-term sustainable cost structure, which will improve profitability and enable the reintroduction of dividends as soon as possible. The employees affected are mainly world creators and graphic artists, and the company claims that several of the positions can be replaced with AI technology<sup>19</sup>.

If the company makes cuts as communicated and succeeds in continuing to increase sales, this will have a very positive impact on the company's profitability and ability to generate free cash flows.

## Growth drivers

**New game engine:** Unreal Engine 5 enables the creation of more realistic environments and characters, resulting in significantly better graphics quality and improved player mechanics compared to before. Our assessment is that this will attract a new audience, mainly younger people who are used to and expect better graphics and modern gaming features. We also believe that the new game engine can increase the engagement of existing players by "bringing new life" to the game, which hopefully leads to increased activity. We see this as one of the biggest potential growth drivers going forward and believe that the upgrade is necessary. The investments will probably have a negative impact on cash flow in the short term but increase the potential for future cash flow generation. On the other hand, the reorganization should counteract that effect, but it is difficult to assess exactly what the net effect might be.

**Deed sales:** We believe new deed sales have the potential to be a significant growth driver for MindArk going forward. At the last sale, the deeds sold out quickly, indicating a high level of demand. In addition, the total sales amount increased significantly between 2020 and 2021. Given the high demand and the expected increase in the player base after the completion of Unreal Engine 5, we see a great potential to continue to increase total sales of deeds long-term, which may increase the company's earnings opportunities.

**Epic Games Store:** The Epic Games Store is the second largest gaming platform in the world after Steam. Epic Games has shown strong growth in recent years, both in terms of the range of games on the platform and the number of active users. In 2021, users at Epic Games spent around \$840M on the platform, which is a 20 % increase compared to 2020. Epic Games has also made significant investments in the new game engine Unreal Engine 5, with the number of Unreal Engine downloads up 40 % in 2021 compared to 2020. As of January 2022, Epic Games had 31.1 million active users and 194 million registered accounts<sup>2</sup>.

In 2021, MindArk entered into an agreement with Epic Games, which includes the possibility for MindArk to promote and offer Entropia Universe on the Epic Games Store. The collaboration will result in an increased focus on the development and operation of Entropia Universe instead of using resources on the old game engine. In our assessment, the agreement gives MindArk a chance to leverage Epic Games Store's large user base and popularity to expand the Entropia Universe and reach out to a wider player audience. We believe that the collaboration will enable an expansion of the player base, which can further lead to higher revenues in the future.

**New geographic markets:** MindArk sees great expansion opportunities in the Asia Pacific region, which has a huge potential user base. The growing middle class, increased purchasing power and the popularity of gaming give MindArk opportunities to offer its products to a wider audience. In addition, the area benefits from improved infrastructure, including faster internet connectivity, which enables improved online gaming experiences.

**AI:** We believe that the company's recently initiated investment in AI may act as a growth driver. MindArk has announced that they are carrying out a reorganization and initiating more AI initiatives to further increase efficiency within the company.

The integration of AI technology into the Entropia Universe, for example, can be used to include more written dialogue in the game or create more realistic environments. This would ultimately improve the user experience and could increase the engagement of the current player base, as well as attract new

players. This can contribute to an increase in in-game transactions, resulting in increased revenue for MindArk.

**Marketing:** MindArk has continuously collaborated with so-called "streamers" and other "gaming influencers" on platforms such as Twitch and YouTube. Part of the marketing strategy is to expand these collaborations in conjunction with the launch of Entropia Universe on Unreal Engine 5, where gaming influencers will be able to promote Entropia Universe to their dedicated followers through their channels. To complement the marketing, targeted text and banner campaigns are also carried out on advertising platforms such as Google AdWords.

In addition to investing in paid advertising on digital platforms, MindArk has plans to develop and improve the company's social media presence using creative organic content. The goal of being active on social media is to inform, entertain and engage the existing user base of the Entropia Universe, while striving to reach out to new potential users.

MindArk plans to expand the current affiliate program for existing users. An to develop tools for users to create their own events and content inside the Entropia Universe to increase activity among users.

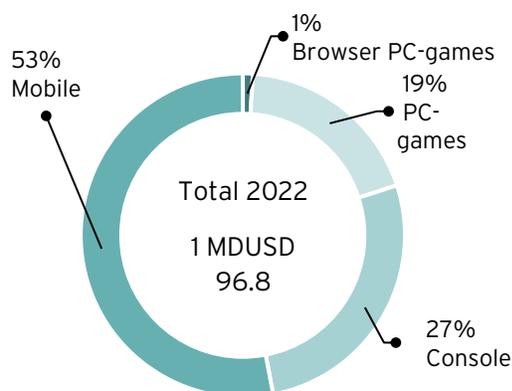
MindArk also focuses on interacting directly with its player base to keep players engaged. For example, the company is active on forums where the game is discussed, is present in a Discord channel dedicated to the game and participates in an annual Entropia LAN in Sweden. The company plans to increase its presence at gaming events with the launch of Unreal Engine 5.

## Market

The gaming market is the largest segment of the entertainment industry and has a higher turnover than the film and music industry combined<sup>8</sup>, and the global gaming market is predicted to grow strongly in the coming years. According to Newzoos Global Games Market Report 2022, it was estimated that the market reached 184.4 BUSD in 2022. The figures for the size of the global gaming market vary depending on the market analysis, but the consensus is that annual growth going forward will be strong and grow at a CAGR in the range of 9-13 percent going forward.

Firm	Period	CAGR
Mordor Intelligence <sup>1</sup>	2018-2028	8,9%
Grandview Research <sup>2</sup>	2022-2030	10,2%
Fortune Business Insights <sup>3</sup>	2021-2028	13,2%
IMARC <sup>4</sup>	2022-2028	9,1%
Market Research Future <sup>5</sup>	2021-2030	13,2%
GlobalData <sup>6</sup>	2023-2030	10,1%

### Segment distribution of global gaming revenue

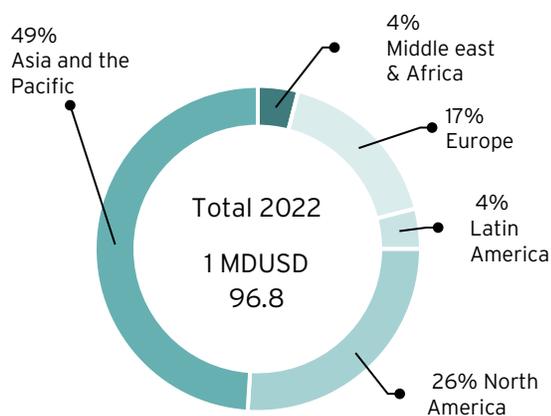


The largest segment is mobile games, which have shown strong growth in recent years. The number of players globally is now estimated at 3.2 billion people<sup>7</sup>, which represents about 40 percent of the world's population.

The largest number of players is found in Asia-Pacific (1.75 billion), followed by Middle East Africa (488 million), Europe (430 million), Latin America (315 million) and North America (219 million)<sup>7</sup>.

Source: Newzoo Global Games Market Report 2022

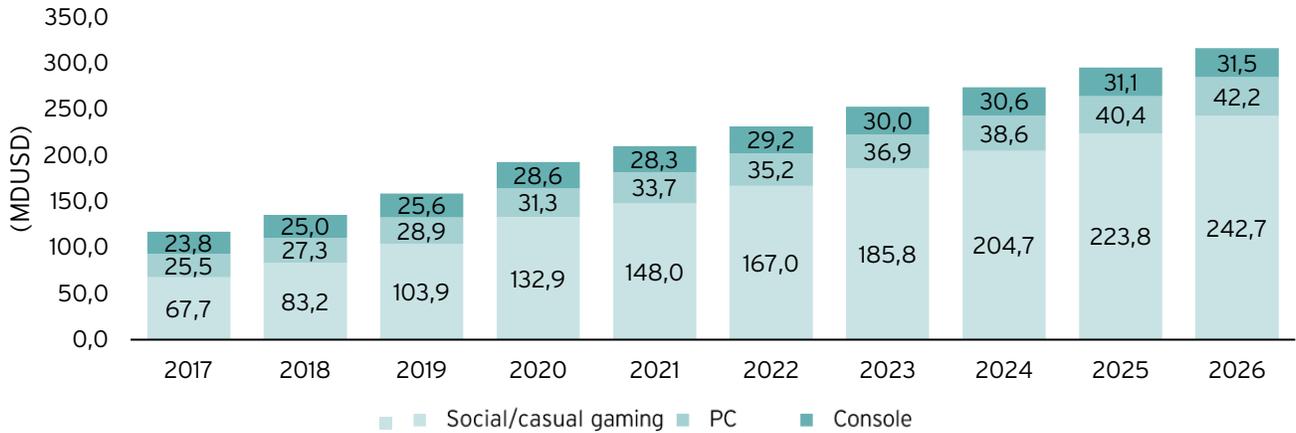
### Geographical distribution of global gaming revenue



Asia-Pacific is the single largest region, accounting for approximately 50% of global gaming revenue, which is also consistent with the distribution of players globally. The largest markets here are China, Japan, and South Korea. Even though the Middle East Africa has many players, they make up a small part of the gaming revenue. Players with strong purchasing power are found in North America and Europe, which make up a significantly larger share of gaming revenue.

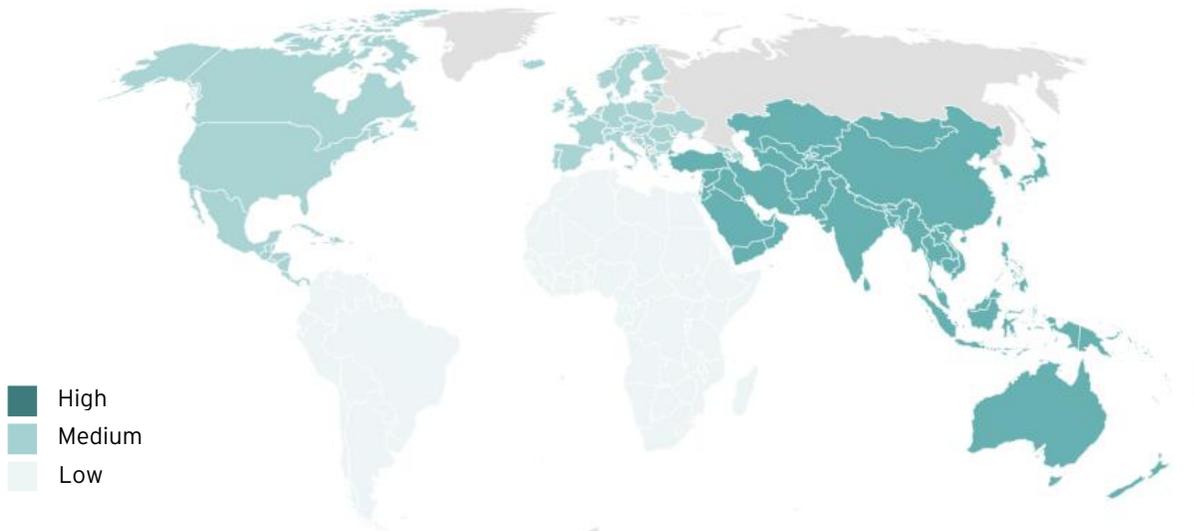
Source: Newzoo Global Games Market Report 2022

In a market analysis by PwC<sup>12</sup>, all segments of the gaming market are predicted to continue to grow in the future. The strongest growth is in the social/casual gaming segment, but revenues for PC games are estimated to grow from USD 35.2 billion in 2023 to USD 42.2 billion in 2026.



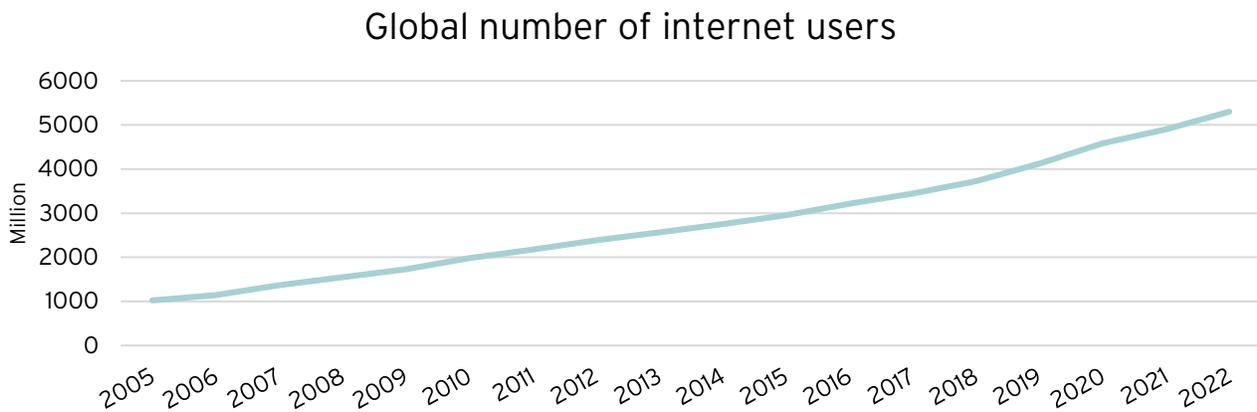
**MMO and MMORPG market**

The market for massive multiplayer online games (MMOs) is expected to grow at a CAGR of 9.6 percent between 2022 and 2027. The single largest segment within MMOs is MMORPG (massive online multiplayer role playing game), which is the segment to which Entropia Universe belongs. MMORPG is the segment of MMOs that is expected to grow the fastest<sup>9</sup>. The MMORPG market is expected to grow at a CAGR of 10.5 % between 2018-2028<sup>10</sup>. The largest market is Asia-Pacific and is also the market that is expected to contribute the most to growth<sup>9,10</sup>.



## Market trends

There are several megatrends driving the strong growth in the gaming market. First, the rapid development of technology has enabled games with more complex features and better graphics, resulting in a better gaming experience and increased value for the end consumer. Gaming with others online is driven by the internet becoming faster and more reliable. More and more people are also accessing the internet, and the number of internet users has grown steadily since 2005 with 5.3 billion estimated users in 2022.



Increased computer gaming is also driven by trends such as people getting a better standard of living and thus being able to afford to consume computer games. In 2021, for example, internet penetration in India was 45 % compared to 4 % in 2007<sup>6</sup>. In addition, people live longer, and can play a larger part of their lives. New technologies such as AR, VR, 5G and cloud gaming are also helping to increase the number of players globally<sup>10</sup>. Finally, computer gaming received a major boost during the Covid-19 pandemic, when many people sat at home and played during the restrictions.

There are several exciting trends in the gaming industry. One of these is the increasing popularity of online gaming, where people play together on the internet. This market is expected to grow faster than the single player market<sup>12</sup>. The reason for this is mainly the increasing internet penetration we discussed earlier. The F2P market is also growing in popularity and is expected to grow faster than the market as a whole, and now represents a significant part of the total global gaming market<sup>16</sup>.

We can see that game consumption per person has increased on the gaming market alongside the introduction of new features and technologies on game consoles. According to a survey, the average gaming consumption per person amounted to just over 76 USD per month and just over 58 000 USD over a gamer's lifetime. Meanwhile, just over 50 % of MMORPG players made a microtransaction in a game in 2021<sup>1</sup>.

Overall, MindArk operates in a market that is expected to show strong growth for many years to come. The market is driven by several megatrends such as increasing internet usage, technology development and an aging population. In addition, gaming on the internet is increasing and the F2P model is popular while the end consumer is willing to spend large sums on computer games. If MindArk can capitalize on a fraction of the total market, it could be very favorable for the company.

## Competitors

MindArk is unique in its segment with a three-dimensional virtual universe with a real cash economy. According to the company's assessment, Star Atlas is the game that resembles Entropia Universe the most. It is a SciFi-based MMO game with a play-to-earn model linked to Solana's blockchain technology. Despite this, MindArk believes that they have come further in their development than Star Atlas and see several obstacles that Star Atlas must overcome before they can be considered direct competitors.

Although MindArk has no direct competitors in its specific niche, their business can be compared to MMORPG games, where they compete with several major players such as the well-known game World of Warcraft from Activision Blizzard, Elder Scrolls Online from Microsoft-owned Bethesda, and other games with hundreds of millions of users.

Furthermore, we believe that it is possible to argue that MindArk also competes with other forms of entertainment, such as other computer games, movies and TV-series. In today's digital world, there are many different options and platforms to satisfy the entertainment needs of consumers. We have limited time and resources to devote to entertainment, which means that MindArk must surpass these competing options to attract and retain users.

Below we list the games we consider to be the company's biggest and or closest competitors.

<b>Game</b>	World of Warcraft
<b>Active players</b>	1.7 million (including WoW classic) <sup>22</sup>
<b>Business model</b>	Subscription



<b>Game</b>	Elder Scrolls Online
<b>Daily Active Players</b>	357 000 <sup>22</sup>
<b>Business model</b>	Buy to play



<b>Game</b>	Star Atlas
<b>Daily Active Players</b>	Unknown
<b>Business model</b>	Purchase of ships via Solana required



## Competitive advantages

**Unique product:** Entropia Universe's virtual economy and currency PED make the game unique. The PED has a fixed value against the USD, giving users the ability to deposit and withdraw real money. MindArk offers secure microtransactions and creates a platform where users can interact in real-time online.

In addition, users have the opportunity to earn money through monetized activities within the game. Content partners can contribute content creation to the universe and revenue is distributed based on user activity. Partners can range from individual users to larger companies building their own planets in the Entropia Universe. These "planetary partners" promote their created planets.

**Loyal player base:** Entropia Universe also has a loyal player base that further sets it apart from other players in the market. Many players have invested significant time and resources in the game, created virtual assets and established social ties within the gaming community. Over the years, MindArk has worked actively to maintain and strengthen the relationship with the players. They have listened to feedback, held events and offered opportunities for player interaction and participation in game development. This has helped build trust and loyalty among players, which in turn has created a stable and loyal player base for Entropia Universe.

**High barriers to entry:** Our assessment is that MindArk has a significant competitive advantage due to the high barriers to entry that exist in order to establish itself as a player in the gaming industry, especially in the company's specific niche. Developing and operating a successful virtual world like Entropia Universe requires significant resources, expertise, and technical skills. This makes it difficult for potential competitors to challenge MindArks position and create a similar virtual world with an established player base and credible finances.

## Financial position

Cash and cash equivalents including short-term investments amounted to SEK 37.1 million (SEK 41.6 million) at the end of Q1'23. Cash and bank balances amounted to SEK 27.9 million (SEK 32.8 million), and short-term investments in funds, debt securities and similar securities amounted to SEK 9.2 million (SEK 8.8 million). MindArk currently has no interest-bearing liabilities, which means that the company has a net cash position of SEK 27.9 million. We believe that the company's balance sheet is strong, which provides increased financial room for maneuver. It also means that the company can continue its operations even in the event of negative quarterly results without being dependent on external capital.

Financial position	
Cash and bank	SEK 27.9 million
Short-term investments	SEK 9.2 million
<b>Cash and cash equivalents including short-term investments</b>	<b>SEK 37.1 million</b>
Interest-bearing liabilities	0
<b>Net cash at the end of Q1'23</b>	<b>SEK 27.9 million</b>

In the section on risks, we will discuss unused user funds, which is a liability MindArk owes to its users that is included on the balance sheet. If users for some reason were to start doubting the company's ability to repay the deposited funds, it could theoretically lead to a "bank run" if many users want their funds at the same time.

## Risks

### Unspent user funds

Since MindArk has committed to repurchase PED for dollars, there is a large debt to users corresponding to the entire money supply in the game, which at the end of 2022 was SEK 142.6 MSEK. The company includes some of this as liability on the balance sheet, and historical withdrawal patterns show that users on average withdraw between 27 - 35 % of deposited funds. MindArk therefore estimates that the real debt is 33% of unused user funds, which at the end of Q1'23 was SEK 47.4 million. If many users request their remaining PEDs, there is a risk that the company will lack the liquidity to pay players. This happened in 2011, which led to delays in payments. The Company has no legal obligation to pay out user funds, but not doing so would probably have a very negative impact on the brand and loyalty of users. We believe that the likelihood of this happening is low, but that the consequences would be great.



Low

### Reorganization

The reorganization may lead to a significant improvement in profitability, but we believe that there are risks in laying off such a large part of the staff. The company's plan is for AI technology to be gradually implemented to replace the employees who are being let go. The company has not specified exactly how the transition will proceed, which is something we would have liked to know. If the reorganization does not go according to plan, it could lead to problems for the company and possible re-employment of staff, which would be time-consuming and costly.



Medium

### The transition to Unreal Engine

The transition to Unreal Engine is, in our view, a great opportunity, but is associated with several risks. The conversion requires significant resources both in terms of money and time, and there is a risk that it will require more resources and be more expensive than expected. There is also a risk that the company's users will be dissatisfied with the changes. We therefore believe that it is important that the company is responsive and listens to feedback from the current players to ensure that they are satisfied with the changes.



Medium

### AML/KYC

Money laundering is a way of introducing money from crime into the financial system and transforming it so that it appears to be legally acquired. Criminals could, in theory, deposit money in the game, wager it, and then withdraw it again, being able to claim that they are earned in the game. The computer game industry has fewer regulations in place to counteract money laundering compared to, for example, banks or gambling companies<sup>25</sup>. However, regulations can change quickly, and we believe that it is of the utmost importance that the company works actively to prevent money laundering in the game. The company has routines in place for this, and Gunilla Krogh is responsible for customer knowledge and counteracting money laundering at the company.



Medium

### Currency risk

The company has most of its revenues in USD and expenses are mainly paid in SEK. USD is trading at historically high levels against SEK, and should the USD weaken going forward, this could lead to higher costs and reduced revenues for the company.



Low

## Board of Directors



### **Björn Dierks, Chairman of the Board**

Björn has experience from the construction sector and from the real estate industry. For the past ten years he has worked with Property Development as well as the development and sale of agricultural products.

Holding: 92 820 shares



### **Leif Evander Andersson, Board member**

Leif has previous experience as a real estate agent and has founded several businesses, including Gbgfast AB.

Holding: 0 shares



### **Klas Moreau, Board member**

Between 2012 and 2018, Klas was CTO and later CEO of MindArk. He has previously held various senior positions at Ericsson AB. Today, Klas is CEO of ZeroPoint Technologies, a company specialized in innovative semiconductor technology. He is also Chairman of the Board of Acconomy AB.

Holding: 423 486 shares



### **Linus Norén, Board member**

Linus is an entrepreneur and works as a safety consultant in traffic environments.

Holding: 0 shares

## Management



### **Henrik Nel Jerkrot, CEO**

Henrik studied Management and Economics of Innovation at Chalmers University of Technology and has worked at MindArk since 2016.

Holding: 27 500 shares



### **Gunilla Krogh, CFO**

Gunilla holds a Master in Economics from the University of Gothenburg, and has worked at MindArk since 2007. She is also responsible for money laundering routines at the company.

Holdings: 4 152 shares

## Ownership

Outstanding shares	Share price	Market capitalization
31 524 625	3,55 SEK	111.9 MSEK
Number of shareholders	Insider ownership	Free float
733	2,3%	47%

The largest owner of MindArk is Tetiana Karunna, who is a relative of MindArks founder Jan Welter Timkrans, who transferred the shares to her in 2019. In second place we find the Bothén family, followed by Futur Pension who manage pension money.

Owner	Value (SEK)	Capital	Votes
1. Tetiana Karunna	36 520 000	34,89%	34,89%
2. The Bothén family	18 043 687	17,24%	17,24%
3. Futur Pension	6 635 555	6,34%	6,34%
4. Six Sis	5 180 757	4,95%	4,95%
5. Nordic Tender Holdings	3 652 695	3,49%	3,49%
6. Bank of NY Mellon/Fam. Customs	2 114 167	2,02%	2,02%
7. Megetgod Invest APS	2 093 235	2,0%	2,0%
8. MindArk Group's profit-sharing foundation	1 978 107	1,89%	1,89%
9. The Crown Book	1 475 731	1,41%	1,41%
10. Lars Hammarström	1 318 738	1,26%	1,26%

### Insider ownership

Insiders own a total of 547 958 shares in the company, corresponding to 1.7% of the capital and votes. Four out of seven insiders on the board and management own shares in the company<sup>10</sup>. We like the fact that the majority of insiders own shares as this creates incentives to focus on long-term and sustainable business which is in the interest of all shareholders. At the same time, we would have liked to see a higher insider ownership, which would have indicated that the company's key employees strongly believe in the company's future potential. However, it is important to point out that insider ownership should always be put in relation to the individuals' personal financial situation, and we know nothing about that.

### Outstanding option programs

The company has an outstanding warrant program consisting of a maximum of 7 881 156 warrants. Each warrant entitles the holder to subscribe for 0.2 new shares for SEK 15 per share between 15 May 2025 - 15 June 2025. Upon full subscription of the option program, the dilution effect will be 4.8%<sup>21</sup>. Since the subscription price is higher than our justified value for 2025E, we have not chosen to include the option program in the valuation section.

## Current situation and outlook

MindArk is in an interesting phase where the company is putting significant resources into implementing Unreal Engine 5. This is a time-consuming and costly process that will probably have a negative impact on cash flow in the coming quarters. On the other hand, the company has announced a cost-saving program that will lead to lower personnel costs. This is expected to have a positive impact on cash flows, and the company has also communicated plans to resume paying dividends as soon as possible, which we see as a sign of strength. However, the question is how quickly these measures can be implemented and what net effect will be.

We also believe that there are risks associated with the company's reorganization, where up to 40 % of employees may be laid off at the same time as the company increases its focus on integrating AI into the business. There are several tasks in game development where it should be possible for AI to replace human labor, such as generating terrain on one of Entropias planets or writing and voicing dialogue for non-playable characters. On the other hand, commercial AI technology is still relatively new, and we have yet to see convincing examples where AI has been able to replace human development on a large scale in the gaming industry. There is a risk that the company will get rid of employees, replace the development work with AI but then discover that it does not work as expected. This could lead to being forced to rehire developers with no prior experience of Entropia Universe. This would be both time-consuming and costly.

In the longer term, we believe the company is well positioned for growth. MindArk is the market leader in its specific niche within MMORPGs and has a very loyal player base with high purchasing power. We believe that the implementation of Unreal Engine, the sale of new deeds and the launch on the Epic Games Store, along with other measures, will attract new players while maintaining the trust of the existing player base. However, it is important that MindArk is mindful not to scare the current player base by implementing too big changes.

In addition to the mentioned growth drivers, the company also benefits from strong megatrends such as increased interest in computer games, improved internet connectivity and rapid technological development in areas such as graphics quality, AI, AR and VR. Our overall assessment is therefore that MindArk is well positioned to continue to deliver profitable growth for many years to come.

## Valuation

Key stats			
Number of shares	31 524 625	Market capitalization (MSEK)	111.9
New number of shares	0	Net cash (MSEK)	27,9
Total number of shares	31 524 625	Enterprise value (MSEK)	84,0
Share price (SEK)	3,55		

Rolling 12 months			
Net sales	97.5 MSEK	P/S	1,1
EBIT	20.8 MSEK	EV/EBIT	3,6
Profit	MSEK 8.8	P/E	12.7
FCF	<i>Neg</i>	P/FCF	<i>Neg</i>

Source: Börldata

Historical average				
	P/S	EV/EBIT	P/E	P/FCF
Average 3 years	1,1	3,4	12,2	<i>Neg</i>

Source: Börldata

Ratios				
Gross margin	EBITDA margin	EBIT margin	Profit margin	
88,8%	33,0%	21,4%	9,0%	
OPCF margin	FCF margin	ROE	ROIC	
<i>Neg</i>	<i>Neg</i>	11,6%	8,3%	

Source: Börldata

There are several publicly traded companies that work with the development and distribution of computer games. In this case, the comparison group is quite irrelevant because we believe that there is no listed player that is similar enough to MindArk to draw significant conclusions. Judging by the compilation, MindArk seems to be undervalued compared to other peers, but it's important to note that MindArk has a shorter history as a publicly traded company and has one PC game.

Company	P/E	P/E, average 5 years	Oms. growth, average 5 years	Profit growth, average 5 years	Profit margin
Embracer	6,0	101,3	55,6%	48,2%	11,8%
Paradox Interactive	40,0	45,9	11,9%	13,4%	33,5%
United Global 7	<i>Neg</i>	<i>Neg</i>	107,2%	<i>Neg</i>	<i>Neg</i>
Starbreeze	<i>Neg</i>	<i>Neg</i>	<i>Neg</i>	14,6%	<i>Neg</i>
Remedy	<i>Neg</i>	13,7	20,5%	<i>Neg</i>	<i>Neg</i>
Activision Blizzard	33,8	31,2	1,7%	<i>Neg</i>	22,8%
CD Project	37,9	72,2	20,2%	24,9%	38,2%
Ubisoft	<i>Neg</i>	26,2	4,0%	<i>Neg</i>	<i>Neg</i>
Take-Two	<i>Neg</i>	23,8	24,4%	<i>Neg</i>	<i>Neg</i>
MindArk	12.7	-	10,0%	<i>Neg</i>	9,0%

## Estimates

<i>(MSEK)</i>	2021	2022	2023E	2024E	2025E
Net sales	81,2	92,8	101,6	106,7	109,9
% y-o-y	1,2%	14,3%	9,5%	5,0%	3,0%
Capitalized work	16,1	26,5	24,8	15,9	15,9
Other income	9,6	5,4	5,0	5,0	5,0
<b>Total revenue</b>	<b>107,0</b>	<b>124,6</b>	<b>131,4</b>	<b>127,6</b>	<b>130,8</b>
<i>P/S</i>	<i>1,4</i>	<i>1,2</i>	<i>1,1</i>	<i>1,0</i>	<i>1,0</i>
<b>Total costs</b>	<b>-85,6</b>	<b>-103,3</b>	<b>-112,8</b>	<b>-94,9</b>	<b>-96,6</b>
% y-o-y	12,5%	20,6%	9,2%	-15,9%	1,8%
<b>EBIT</b>	<b>21,3</b>	<b>21,4</b>	<b>17,2</b>	<b>32,7</b>	<b>34,2</b>
<i>EBIT margin</i>	<i>26,3%</i>	<i>23,0%</i>	<i>16,9%</i>	<i>30,6%</i>	<i>31,1%</i>
% y-o-y	16,8%	0,1%	-19,5%	90,1%	4,6%
<i>EV/EBIT</i>	<i>3,9</i>	<i>3,9</i>	<i>4,9</i>	<i>2,6</i>	<i>2,5</i>
<b>Adjusted EBIT*</b>	<b>13,4</b>	<b>5,5</b>	<b>6,3</b>	<b>33,0</b>	<b>37,2</b>
<i>Adj. EBIT margin</i>	<i>16,6%</i>	<i>6,0%</i>	<i>6,2%</i>	<i>30,9%</i>	<i>33,9%</i>
% y-o-y	-16,8%	-58,7%	14,3%	420,5%	12,7%
<i>Adj. EV/EBIT</i>	<i>6,3</i>	<i>15,1</i>	<i>13,2</i>	<i>2,5</i>	<i>2,3</i>

*\*EBIT adjusted for net activations*

In our main scenario, we expect the company to increase sales by 9.5% in 2023. Based on what has been communicated about the reorganization, we have assumed that personnel costs for 2023 will be at approximately the same level as in 2022. Layoffs take time to implement, and we expect that the company will need to compensate some of the employees who are laid off. After 2023, we expect cost savings to start to show in the figures, and we have projected a 40% y-o-y reduction in personnel costs in 2024. Furthermore, we have anticipated an annual salary increase of 4% for the employees. Provided that the company manages to maintain sales at current levels or increase them, this will have a large positive effect on profitability, resulting in the company's EBIT margin rising sharply.

We expect capitalized work to peak in 2022 and will decline as staff are laid off. We have expected that the company's depreciation will gradually increase as additional work is capitalized.

We expect there to be deed sales for 5 million annually for the next 3 years. This may be a conservative estimate given the company's history, but we have chosen to be cautious in our assumptions.

If possible, we prefer to value companies on profit. In MindArks case, we have instead chosen to value the company on EBIT, as the company's profit is affected by currency fluctuations. The company has most of its revenues in USD and expenses in SEK, which means that the company is positively affected when USD strengthens against SEK. On the other hand, the company makes provisions for unused user funds, which have a negative impact on the company's earnings when the USD strengthens against SEK (even if it does not affect cash flow). With these two variables in mind, we believe that it will be clearer and more predictable to value the company on EBIT rather than profit.

Furthermore, we have chosen to adjust EBIT for net activations (capitalizations minus depreciation), as we believe that this measure provides a fairer picture of the company's underlying capacity to earn money.

We have then applied a multiple for the expected adjusted EBIT that we believe is reasonable. In MindArks case, we have chosen to value the company at 10 times adjusted EBIT. We believe this is reasonable given the company's long history, unique position in its niche, the growth opportunities we see ahead of us, but also the risks we have identified.

Valuation				
	Multiple	Adj. EBIT 2025E	Market Cap (MSEK)	Share price (SEK)
<b>2025E</b>	10	37,2	372,1	11,8
<i>Margin of safety (45%)</i>	<i>10</i>	<i>20,5</i>	<i>204,7</i>	<i>6,5</i>

Below is the potential return for 2025E if MindArk develops like our estimates.

Potential return						
	Main scenario			Margin of safety (45%)		
	Factor	Percent	CAGR	Factor	Percent	CAGR
<b>2025E</b>	3,32	232,5%	49,3%	1,83	82,9%	22,3%

Below is a sensitivity analysis that shows how the potential return develops given different applied multiples.

Sensitivity analysis						
	Main scenario 2025E			Safety margin (45%)		
Adj. EBITx	Market capitalization (MSEK)	Share price (SEK)	Change %	Market capitalization (MSEK)	Share price (SEK)	Change %
8	297,7	9,4	166,0%	163,7	5,2	46,3%
9	334,9	10,6	199,2%	184,2	5,8	64,6%
<b>10</b>	<b>372,1</b>	<b>11,8</b>	<b>232,5%</b>	<b>204,7</b>	<b>6,5</b>	<b>82,9%</b>
11	409,3	13,0	265,7%	225,1	7,1	101,2%
12	446,5	14,2	299,0%	245,6	7,8	119,4%
13	483,7	15,3	332,2%	266,0	8,4	137,7%

If MindArk develops according to our estimates, we see an upside of 82.9% for 2025E after an applied safety margin of 45 %.

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### Conflict of interest

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Jakob Fritz owns shares in the analyzed company



The analysis is a commissioned

