

Action Summary – 9 October 2023

Analyst Theodore R. O'Neill is initiating coverage of Virtualware S.A. with a Buy rating and a €10 price target.

- **We are initiating coverage of Virtualware S.A. with a Buy rating and a €10 price target.** Founded in 2004, MLVIR is a Virtual Reality and Immersive Technologies pioneer with over 500 projects in 33 countries and a lengthy list of Blue-Chip customers and institutional clients.
- **Pure play on a large and rapidly growing market.** The global virtual reality market size is expected to reach USD 435.36 billion by 2030, growing at a CAGR of 27.5% from 2023 to 2030, according to a new report by Grand View Research, Inc.
- **Penetrating aerospace, automotive, defense, energy, healthcare, industrial and transport verticals.** The increasing adoption of user immersion technology in industries, such as education, industrial training, and healthcare, among others, will drive market growth. It is currently fueled by training for roles like engineers, pilots, and healthcare workers. On October 3, 2023, it announced it had signed a seven figure multi-year contract with a U.S. based energy company.
- **Proven technology with protected IP.** The company has a long lead as a pioneer in this sector with a significant amount of intellectual property built up over the last two decades as well as a growing pattern portfolio.
- **Attractive Valuation.** Based on our discounted future earnings model, the value of all future earnings stands at €10/share. Compared to peers, at the current 2024 multiple of sales it is undervalued, and this supports our price target.
- Shares have been trading on the Euronext Access since April and expects to uplist to Euronext Growth

10/6 Closing price: €8.50	Market cap: €38.6 million	Multiple of book: 47x	Market Cap/2024 Sales: 5.6
Diluted shares outstanding: 4.5MM	Insider ownership: 89.37%	3-mo avg. daily trading volume: 400	Dividend/Yield: NA/NA

GAAP estimates (EPS in EUR – Revenue in EUR thousands)

Period	EPS	Revenue	Op Margin
1H22A	N/A	€1,484	
2H22A	N/A	€1,735	
FY22A	N/A	€3,219	0.88%
1H23A	€0.04	€2,148	
2H23E	€0.01	€2,600	
FY23E	€0.05	€4,748	6.14%
1H24E	€0.01	€3,150	
2H24E	€0.06	€3,800	
FY24E	€0.08	€6,950	5.98%
1H25E	€0.06	€4,500	
2H25E	€0.09	€5,100	
FY25E	€0.15	€9,600	7.96%

Numbers may not total due to rounding. See the full model at the end of this report.

Cash balance (in EUR thousands)

• 2022A	• €172
• 2023E	• €1,277
• 2024E	• €702
• 2025E	• €506

Debt (in EUR thousands)

• 2022A	• €1,197
• 2023E	• €1,000
• 2024E	• €1,000
• 2025E	• €1,000

Risks/Valuation

- Risks: emerging technology, potentially competitive markets, regulatory risk, technological risk, foreign currency exchange risk
- Our €10 price target is derived from our discounted future earnings model.

Company description: Virtualware S.A. develops industrial virtual reality platforms for the nuclear, medical, educational, and defense industries in Spain and internationally. Founded in 2004, it has become the European leader in immersive technology for industrial use over time. Its flagship product, VIROO, offers VR as a Service, making Virtual Reality accessible to companies of all sizes and sectors. Additionally, Virtualware S.A. is involved in Evolv, a manufacturer of immersive tech-based medical rehabilitation devices.

Figure 1 – Virtualware – Five Month Trading snapshot



Source: FactSet

Business Description

Virtualware (EPA: MLVIR), a pioneering European VR corporation, was founded in 2004 – long before the concept of the VR industry became mainstream. For nearly two decades, it has specialized in the development of immersive technologies, changing the way many companies tackle industrial challenges. In April 2023, Virtualware started trading on Euronext Access Paris under the ticker code MLVIR.

The Company focuses on practical virtual reality solutions that offer tangible benefits to industries, setting itself apart from general metaverse discussions. The company develops VR solutions tailored to address specific challenges: training workers in nuclear plants, aiding in the construction operations and maintenance of railway infrastructures, and medical applications.

Virtualware's technologies find application in a wide array of industries, including Energy, Automotive, Defense, Aerospace, Healthcare, Transportation, Manufacturing, and Education. These applications are broadly categorized as follows:

- **Training and Simulation:** Lifelike VR simulators are used to enhance workforce skills and performance.
- **Engineering and Prototyping:** The platform accelerates Product Lifecycle Management by helping decentralized teams collaborate more efficiently.
- **Marketing and Sales:** VIROO aids in expediting sales cycles by delivering compelling, immersive product experiences.
- **Research and Innovation:** The company provides customizable VR labs for groundbreaking research.
- **Education and Learning:** VIROO also facilitates virtual education, both in-person and remotely.

These applications showcase the potential and versatility of immersive technologies in real-world settings.

VIROO, the company's flagship product, was first launched in April 2019 at VRX Europe 2019, a leading immersive technologies event in Amsterdam (see Figure 2). The event focuses on immersive technologies in the B2B field and brought together more than 300

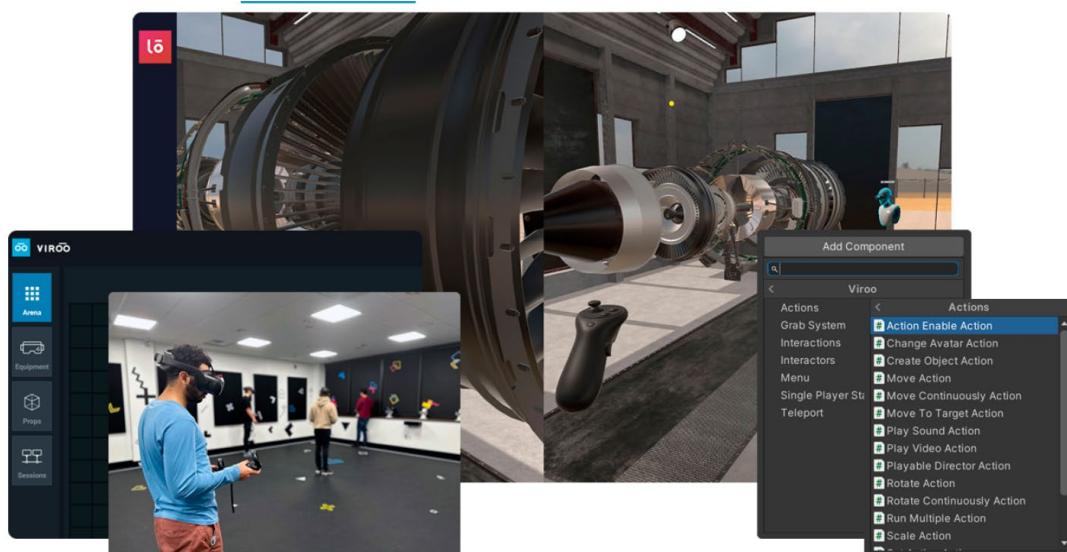
business representatives, including ABB, BASF, Bayer, Audi, and BMW among others. In the same year, VR Awards, the center of recognition and celebration for outstanding achievements in VR, awarded VIROO the 'VR Enterprise Solution of the Year'.

Virtualware's solution is an all-in-one package that includes both equipment and hardware. This hardware incorporates either Nmerso, an internal tracking technology supported by a 20-year U.S. patent, or third-party technology. Additionally, it offers a software package, VIROO, which simplifies content deployment. VIROO was developed as a multi-user immersive room solution aimed at addressing challenges faced by existing VR rooms, such as space restrictions, user limits, management issues, and expensive tracking systems. Distinguishing features of VIROO include:

- **Immersive VR Rooms:** VIROO can convert physical spaces into lifelike virtual scenarios, offering a platform for multiple users to interact in real-time within these environments.
- **Remote Collaboration:** The platform enables remote collaboration by allowing users to interact in a shared Virtual Reality environment from different locations. This feature is device-agnostic, supporting both large-scale VR rooms and single-user computers, with or without a VR headset. For example, it's possible to network remote rooms, enabling two groups in different physical locations to work together in the same virtual environment. This capability is particularly useful for teams that would otherwise need to travel for on-site work, such as fuel moving teams.
- **Low-Code VR Creation:** One of the standout capabilities of VIROO is its low-code VR Creation tool for Unity, enabling users to develop immersive content without requiring programming expertise.
- **Cloud-Based Scalability:** VIROO is designed to be cloud-compatible, with support for AWS and Azure platforms. This feature ensures easy accessibility and the capability for rapid scalability.
- **Device Compatibility:** VIROO is compatible with a range of VR headsets, including those from HTC Vive, PICO, and Meta. Additionally, it integrates with multi-projection systems like CAVEs or Domes.
- **Open Integration:** VIROO is not limited to proprietary hardware or software and allows for the integration of third-party devices and services. This makes it a flexible solution for a variety of use-cases and organizational needs.
- **Security and Compliance:** The platform is ISO 27001 certified, providing a level of assurance for data protection and security measures.

In May 2022, Virtualware released VIROO 2.0, the first version of their Virtual Reality as-a-Service (VRaaS) tool, which streamlines the creation of multi-user VR applications. It incorporates its technological development with a physical space, the VIROO® Room, which allows several teams to work at full scale in the same material and virtual area. The integrated technology incorporates a complete tracking system that provides high precision compared to other relative positioning systems, enabling numerous users to collaborate safely in the same physical space, regardless of its size.

Figure 2 – Virtualware - Enterprise VR deployment



Source: Company presentation

In July 2023, Virtualware released version 2.4 of VIROO, which introduced a feature that allows integrating virtual reality (VR) and mixed reality (MR) technologies into its sessions. This combination enables multiple users to connect from different locations and use different devices, enhancing platform interoperability. New features include:

- **Mixed Reality Integration and Headset Compatibility:** The updated platform can now integrate both Virtual Reality (VR) and Mixed Reality (MR) in its sessions, allowing users to connect from different locations and use a variety of devices, supporting HTC's Vive XR Elite and set to include PICO XR, Meta Quest 3, and the upcoming Apple Vision Pro.
- **VR CAVEs Integration:** VIROO has added compatibility with multi-projection systems, often referred to as CAVEs (Cave Automatic Virtual Environment). This system uses projection in a room-like space to create an immersive virtual environment.
- **Offline Configuration for VIROO Room:** Users can now deploy multi-user content in VIROO Room without an internet connection.

Virtualware seeks to establish VIROO as a standard in industry-oriented VR solutions across various sectors, making it available to both large and small enterprises through a subscription.

VIROO Room. Expanding upon its digital features, VIROO offers a physical counterpart known as the "VIROO Room" (see Figure 3). The VIROO room features an integrated tracking system, enabling multiple users to work in full-scale within the same physical space. This technology, called Nmerso, is patented under the number US11169596B2 by the United States Patent and Trademark Office. It also holds a patent from Spanish intellectual property authorities and has pending applications in the remaining 25 European Union countries, China, Canada, and Mexico (see Figure 4). This is a key advancement anticipated to become a standard in industry VR solutions. The tracking system deploys visible and infrared spectrum markers mounted on the ceiling, and users wear a device that detects these markers to render an accurate virtual reality experience based on their position and orientation. The utility of the VIROO Room extends to applications like enabling engineering teams to review full-scale prototypes in a virtual environment. To date, Virtualware has deployed 27 VIROO rooms around the world.

Figure 3 – Virtualware - VIROO room



Source: Company presentation

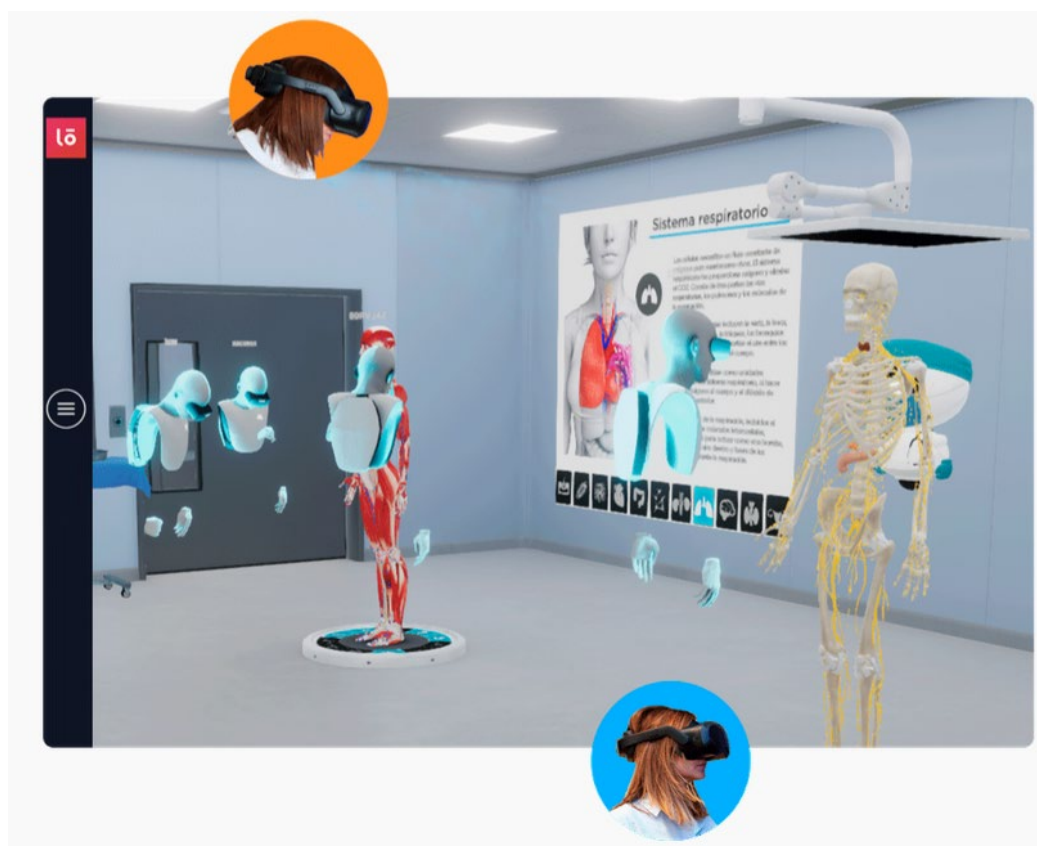
Figure 4 – Virtualware - Registered and pending patents of Virtualware.

Modality	Number code	Approval	Expiration	Location
National Patent	16624529 US	09/11/2021	09/05/2025	USA
European Patent	18827559 EP	In process	In process	European Patents Office
National Patent	3064672 CA	In process	In process	Canada
National Patent	201730883 ES	18/07/2018	31/07/2023	Spain
Patent	2018070435ES WO	In process	In process	World Intellectual Property Organisation
National Patent	201880043962.1 CN	In process	In process	China
National Patent	MX/A/2019/0148565	In process	In process	Mexico

Source: Virtualware

VIROO Studio. Operating alongside VIROO is “VIROO Studio” (see Figure 5), a toolset that facilitates the creation and publication of VR solutions that are ready for multi-user and remote collaboration. VIROO Studio integrates with Unity Engine Editor, a leading real-time 3D platform, and is designed to assist in content creation while standardizing the output across different departments within an organization.

Figure 5 – Virtualware - Applications in healthcare education.



Source: Company presentation

In addition to VIROO, Virtualware has further diversified its portfolio by creating or investing in companies that align with its broader focus:

- **Evolv Rehabilitation Technologies S.L.:** Virtualware owns an 84% majority stake in this medical device manufacturer, which specializes in rehabilitation solutions based on immersive technologies, offering a platform that makes therapy more engaging and accessible. Evolv's product, EvolvRehab, is a clinically validated platform that augments traditional therapy and is used internationally for a range of conditions including Stroke, Parkinson's, and Spinal cord injuries. Currently, EvolvRehab is being used in over 100 rehabilitation centers across 20 countries and can be applied in various settings from hospitals to patients' homes.
- **Hermeneus World S.L.:** Virtualware owns a 23% stake in Hermeneus, a company focused on digital transformation services, offering software solutions for local businesses. Hermeneus provides a comprehensive suite of digital transformation tools, including web development and marketplace solutions that facilitate the digitalization of key business processes.

Both companies align with Virtualware's broader focus on technological innovation.

Given its history and diversified activities, Virtualware intends to continue its focus on immersive technologies in the foreseeable future, with plans to expand the applications of its technologies to solve real-world problems across various sectors in the coming years.

Business Model & Revenue Streams

Virtualware's business approach centers on its VIROO technology, aiming for consistent revenue streams primarily through its subscription model. This revenue is based on the number of VIROO users and the revenue per user.

VIROO is offered to organizations on a pay-per-use basis. The key business lines include:

- **VIROO Platform (Subscription Model):** The VIROO platform operates on a subscription basis, offering annual and recurring payment options. Subscribers receive access to the platform, the Academy for training purposes, and the HelpDesk for user support and troubleshooting.
- **VIROO Platform Services (Deployment):** This service is designed for entities requiring the VIROO platform to be deployed within their own private cloud or corporate environment. It provides options for integrating the platform with a company's identity systems and for incorporating platform usage statistics into an existing Learning Management System (LMS).
- **VIROO Applications and Content (Custom Solutions):** This section caters to larger entities seeking custom content on the VIROO platform. Contracts can be custom designed for specific scopes or based on an annualized flat rate determined by development hours.
- **VIROO Room Services (Setup and Start-up):** This service offers the capability to deploy VR projects in larger rooms for group participation. The approach is backed by patents held in the USA and Europe.

While each of these segments is anticipated to grow with the expanding role of VR in business settings, the company's primary focus remains on the subscription model of the VIROO platform due to its potential for consistent revenue.

Industry Overview

Virtual reality (VR) is a rapidly growing technology that enables users to experience a three-dimensional environment in the real world. This immersive experience is created by VR technology through software and gadgets, such as VR headsets, glasses or gloves, and bodysuits. The global virtual reality market size is expected to reach USD 435.36¹ billion by 2030, growing at a CAGR of 27.5% from 2023 to 2030, according to a new report by Grand View Research, Inc (see Figure 6). The increasing adoption of user immersion technology in industries, such as education, industrial training, and healthcare, among others, is expected to drive market growth. In addition, internet penetration in the form of high-speed 5G networks has positively impacted the adoption of Virtual Reality (VR) technology due to fast and low-latency internet connections.

The VR industry is still in its early stages but is growing rapidly with a wide range of applications. It has already had a notable impact on gaming and entertainment and is expanding into other sectors, including training for roles like engineers, pilots, and healthcare workers. This expansion is fueling the market's growth. Industries such as healthcare, workforce training, and manufacturing are particularly poised for disruption by VR. Current applications include surgical training simulations and immersive educational experiences, which are contributing to the technology's global economic impact.

VR is also becoming common in diverse industries like automotive and healthcare due to its operational advantages. In automotive, for example, engineers can test designs at an early stage, reducing production costs. Companies like BMW are using mixed reality in their vehicle development processes. Additionally, VR exposure therapy is gaining traction in mental health treatment, and travel companies are offering virtual tours to prospective tourists. The technology allows for early identification and correction of errors, thereby saving time and money.

¹ <https://www.grandviewresearch.com/press-release/global-virtual-reality-vr-market>

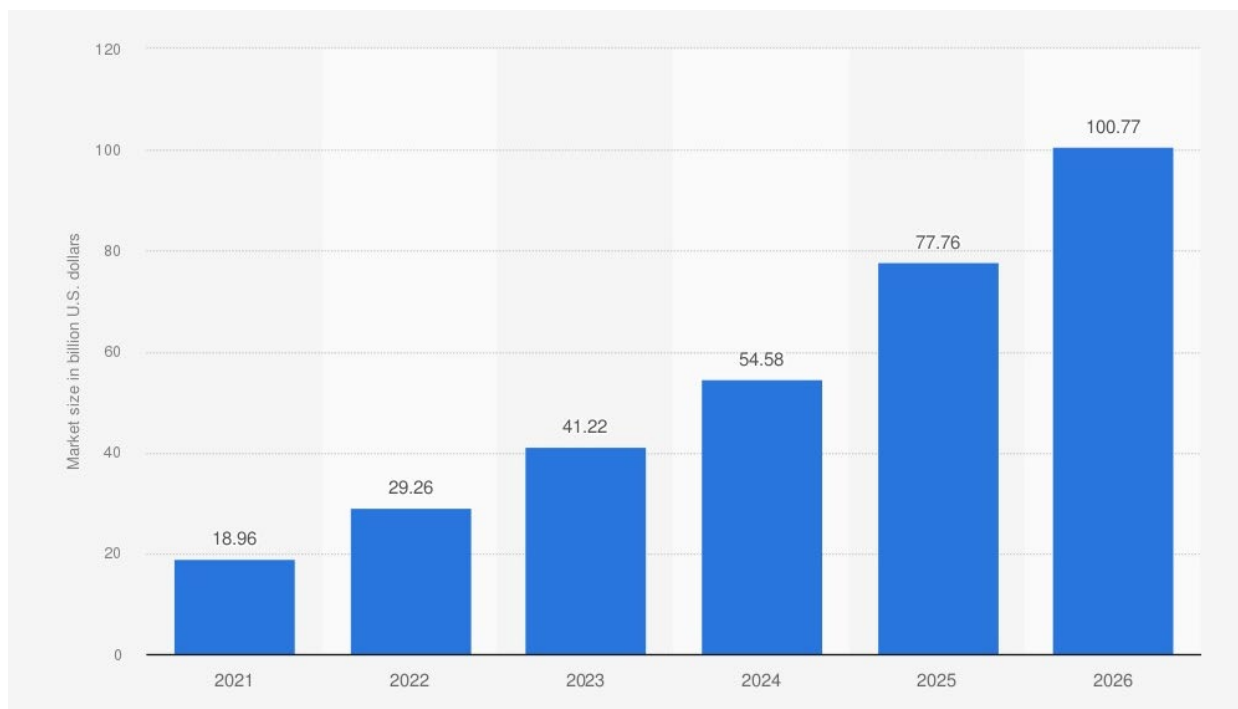
Real estate agencies are also increasingly using VR for property tours to boost the likelihood of sales. Moreover, the entertainment and sports sectors have seen significant gains from VR technology, with an uptick in applications like location-based entertainment and gaming. In September 2022, Shanghai Disney Resort (NYSE: DIS, NR) added a VR experience to its Disneytown complex, indicating growing popularity in the entertainment sector.

In addition, VR technology has enabled e-commerce companies to let users shop virtually. This technology creates an interactive environment and helps improve the overall shopping experience for users. The demand for virtual reality in the education sector is also growing as teachers can conduct interactive academic sessions on VR-based online platforms to facilitate better collaboration.

More VR headsets are hitting the market, including Meta Quest 3 (NASDAQ: META, NR) and Apple Vision Pro (NASDAQ: AAPL, NR). Standard VR systems use VR headsets or multi-projected environments to generate realistic sensations that simulate a user's physical presence in a virtual environment. VR headsets consist of a head-mounted display (HMD), a wraparound headset that does not allow light or images from the real world to interfere with the virtual one. Notable VR headset suppliers include Pico, Sony (NYSE: SONY, NR), and Meta. In June 2023, Mark Zuckerberg announced Meta's next-generation VR and mixed-reality headset, the Meta Quest 3. At its Worldwide Developers Conference in June 2023, Apple announced its debut product in the immersive space, the Apple Vision Pro. This growing competition in the VR headset market is driving innovation and bringing down prices, making VR more accessible to consumers. This is expected to fuel further growth in the market in the coming years.

Demand for VR and AR is projected to grow significantly due to increased adoption across business and consumer segments, the development of innovative applications, and declining hardware costs. Statista supports this growth outlook, projecting the global extended reality (XR) market, which includes augmented reality (AR), virtual reality (VR), and mixed reality (MR), to reach over \$100 billion by 2026.

Figure 6 – Virtualware - Extended reality (XR) market size worldwide from 2021 to 2026 (in USD billions)



Source: Statista

North America is anticipated to hold a significant share in the market by 2030 owing to the dominance of technology companies in the region. Technology penetration in the region and the availability of new VR products are expected to boost the region's growth further. Moreover, the emergence of various start-ups related to virtual reality (VR) is expected to help create growth opportunities for the market.

The global virtual reality market, as segmented by Grand View Research, is categorized based on various factors:

- Device: Head-Mounted Display (HMD), Gesture-Tracking Device (GTD), Projectors & Display Wall (PDW)
- Technology: Semi & Fully Immersive, Non-immersive
- Component: Hardware, Software
- Application: Aerospace & Defense, Consumer, Commercial, Enterprise, Healthcare, Others
- Region: North America, Europe, Asia Pacific, South America, Middle East & Africa

In the device category, gesture tracking devices (GTD) are projected to see the fastest growth with a CAGR of approximately 15% in the coming years, driven by the rising trend of gesture tracing for improved immersion. When it comes to technology, the semi & fully immersive segments dominated with over 80% revenue share, thanks to their ability to offer lifelike experiences that mirror real-world situations. As for components, the demand for VR applications in gaming and entertainment is pushing the software segment to potentially grow at the highest CAGR, exceeding 15%. Lastly, in 2022, the Asia Pacific region led the market, capturing around 40% of the total revenue, a result of its strong VR manufacturing base and proactive government initiatives promoting advanced technologies.

Major Players in the VR Market include:

- Alphabet Inc. (Google): Known for its contributions to VR with platforms like Daydream and tools like Google VR SDK.
- Meta Platforms Inc. (formerly Facebook): Responsible for Oculus VR, one of the pioneering brands in consumer VR.
- HTC Corporation: Renowned for its Vive VR headsets, a staple in both consumer and enterprise VR.
- Microsoft Corporation: Developers of the mixed reality headset, HoloLens.
- Samsung Electronics Co., Ltd.: Makers of the Gear VR in collaboration with Oculus.
- Sony: Renowned for their PlayStation VR headset designed for the PlayStation gaming console.

The competitive landscape of the global market indicates a highly fragmented market, consisting of many private companies and incubators operating under larger corporations like HTC and Samsung. Virtualware focuses on enterprise VR. Key Players in the VR Market related to Virtualware include:

- VRgineers: Based in the Czech Republic, they make VR headsets for enterprise use with high resolution and a wide field of view.
- Varjo: A Finnish company that makes VR headsets with high resolution, a wide field of view, and eye tracking.
- Immersion: A US company that develops haptic technology for VR and AR.
- Haption: Based in France, they make haptic gloves for VR and AR.
- Manus VR: A Belgian company that produces hand-tracking gloves for VR and AR.
- Xsens: Located in the Netherlands, they create motion tracking systems for VR and AR.
- Vicon: A UK company that also produces motion tracking systems for VR and AR.
- OptiTrack: A US-based company that develops motion tracking systems for VR and AR.
- VRLogic: A German company offering VR, AR, and 3D solutions. They've recently partnered with Virtualware for VR CAVEs with VIROO 3.
- HP Inc.: An American IT company with a focus on VR. They work with Virtualware on solutions for education and industry.

Overall, the VR market is set for substantial growth across multiple sectors, driven by technological innovation, a decline in hardware costs, and increased adoption. The competitive landscape in VR is dynamic and constantly evolving. As technology continues to mature and new applications emerge, we can expect to see even more innovation and competition in the coming years.

Investment Thesis

Proven VR technology with protected IP

To date, Virtualware has served over 500 clients across 33 countries. Their client list includes GE Hitachi, Petronas, Iberdrola, Repsol, ArcelorMittal, Danone, Johnson & Johnson, Bayer, and Merck. They have also collaborated with entities such as Guardian Glass, Biogen, Alstom, Land Rover Jaguar, Faurecia, and Suez. Institutions like ADIF, the Spanish Ministry of Defense, King's College London, and the Kessler Foundation have engaged with Virtualware for technology solutions (see Figure 7).

Figure 7 – Virtualware – Sample Project Clients



Source: Company presentation



GE Hitachi and Virtualware VR Collaboration

GE Hitachi and Virtualware have implemented training tools for nuclear power plant operators (see Figure 8). Using Virtualware's VIROO platform, the collaboration provides simulations for tasks like maintenance, refueling, and fuel movement operations, which involve a simulator connected to a virtual setup. This training addresses the complex nature of fuel movement, aiming to enhance skills, prioritize safety, and reduce operational costs and risks. Additionally, GE Hitachi Nuclear Energy employs the VIROO platform beyond training, specifically to strengthen design decisions and process improvements in the development and deployment of small modular reactors, which are disrupting the nuclear industry due to lower construction and operating costs.

Figure 8 – Virtualware - GE Hitachi BWR Fuel Movement Simulator



Source: Company presentation



Partnership with ADIF for VR-based Railway Training

ADIF, a leading European railway infrastructure manager, collaborated with Virtualware to develop virtual reality (VR) training simulators for railway infrastructure, construction, and maintenance operations (see Figure 9). Their objective was to update their training methods using VR technology. The VIROO platform enabled ADIF to enhance its training processes, aiming to decrease costs, risks, and training duration. This system focused on improving the learning experience and performance of trainees in realistic VR settings. Furthermore, a specialized room facilitated connections between ADIF's facility and other VIROO hubs globally, supporting both on-site and remote training initiatives (see Figure 9).

Figure 9 – Virtualware - VR training simulators for Adif



Source: Company presentation



Partnership with the Spanish Military Health School

Virtualware and the Spanish Military Health School introduced a VR solution for medical training at the 2022 NATO Modelling & Simulation Group Symposium. The training focused on equipping army units with skills in medical protocols for chemical, biological, radiological, and nuclear scenarios. In addition, the VR platform allowed teams to evaluate and enhance their leadership, teamwork, communication, and decision-making skills under high-stress situations. NATO utilizes Modelling and Simulation for training, mission planning, decision support, and acquisition.

In October 2023, Virtualware showcased VIROO's VR training capabilities at NATO's CA2X2 Forum in Rome, Italy. This annual event brings together military users, industry, and academia to discuss modeling and simulation topics. It focuses on the potential of commercial technologies for defense applications. NATO utilizes Modelling and Simulation for training, mission planning, decision support, and acquisition.

Recognition and Awards

European Seal of e-Excellence Platinum Award (2009, 2010): Europe-wide award given by the European Multimedia Forum (EMF) to ICT and digital media companies for innovative digital products and services.

School 2.0 Seal of Excellence (2011): An accolade from the Spanish Ministry of Education recognizing products and services that promote ICT use in classrooms to enhance education quality.

Medical Device Manufacturer Certificate (2014): Virtualware attained certification from The Spanish Agency for Medicines and Medical Devices (AEMPS) to certify Class 1 software Medical Applications per EU regulations.

ASPID Pharmaceutical and Healthcare Awards (2016, 2017): Organized by PMFarma, these awards celebrate excellence in pharmaceutical advertising in Spain and Latin America. Virtualware's EM One Hand application earned recognition in the patient software, e-health, and telemedicine categories.

VR Enterprise Solution of the Year Award (2019): Presented by The Academy of International Extended Reality (AIXR) at the VR Awards, Virtualware was recognized for its Immersive Room solution designed for organizational needs.

LAVAL Virtual Awards (2020): Virtualware was a finalist in the VR/AR for Safety and Improvement of Work Environment category at Laval Virtual, a significant VR/AR exhibition in Europe.

Innovative VR company of the year 2021 (2021): At the VR Awards, Virtualware's patented VIROO platform was highlighted for setting a new standard in VR content creation and deployment.

E-nnova Health Award (2022): Recognized for leveraging new technologies to enhance systems.

ISO 27001 Certification (2022): Virtualware achieved ISO 27001 accreditation for upholding privacy and security standards.

Brandon Hall Group Excellence in Technology Gold award (2022): Awarded for excellence in the "Best Advance in Augmented and Virtual Reality" category, celebrating technological innovations in Human Capital Management.

Unity Government and Aerospace Creator Award (2022): Unity recognized Virtualware's SIMUR VR training simulator for its effectiveness in medical training protocols for army units.

Partners and Alliances

Virtualware has collaborated with international entities including NATO (as a working group member), the European Space Agency (as a member), the VRAR Association, the Society for Simulation in Healthcare, and the National Center of Simulation. In the technology sector, they have associations with Microsoft (as a Business Partner), Siemens (as a JT Open Framework member), Amazon (as an Amazon Web Services Partner), Pico, Vive, Meta, HP, and Unity (serving on the government advisory board), among others (see Figure 10).

Figure 10 - Virtualware - Strategic Partnerships



Valuation and Price Target

Valuation Methodology

We believe MLVR is undervalued, and we support that belief with two valuation techniques. To determine our price target, we use a discounted future earnings model, which we then compare its valuation relative to peers. The following valuation techniques are being used:

- 1) The discounted value of all future earnings was used for our price target (see Figure 11)
- 2) Valuation relative to peers (see Figure 12)

Discounted Future Earnings – Basis for Price Target

Our 12-month price target of €10.29 is based on a discounted earnings model. For valuation purposes, we sum up all future earnings and discount them by 9%. We assume the company grows rapidly until 2029 before growth eventually slows to GDP. Our valuation model is shown in Figure 11 below. Note, this model understates future new products and growth through acquisitions and probably understates the tax benefits, but offsetting that, the earnings never have a down year. The implied share price is €10.28 which we round to €10.

Figure 11 - Virtualware - Price Target Calculation

Implied Value of Future Discounted Earnings:			€ 10.28
Year 0 is 2023			
Year	Forecast EPS	Discounted EPS	
0	€ 0.05	€ 0.05	
1	€ 0.08	€ 0.07	
2	€ 0.15	€ 0.12	
3	€ 0.30	€ 0.23	
4	€ 0.50	€ 0.35	
5	€ 0.70	€ 0.44	
Terminal Value			€ 9.02

Source: Litchfield Hills Research LLC

Valuation Relative to Peers

Figure 12 is a summary of our MLVR peer comparison. The average Market Cap/Sales for 2024 is ~4.34x and ranges from a low of 1.06 to a high of 8.57x and we would argue the shares should trade at the high end of the range. At the current price, its 2024 Market Cap to sales is 5.61, which is below the 75th percentile. At our € 10.00 price target, its 2024 market cap to sales would be 6.47x and below the 75th percentile. This broadly confirms our view that, along with our discounted earnings model, the shares are undervalued.

Figure 12 – Virtualware – Valuation of Peers

FactSet Ticker	Company Name	Closing Price USD	Market Cap USD \$MM	EV USD \$MM	LTM Sales USD \$MM	Market Cap / LTM Sales	2024 Consensus Market Cap / Sales
ESI-FR	ESI Group SA	\$158.50	963	872	141	6.81	6.62
MTTR-US	Matterport, Inc. Class A	\$2.21	666	214	157	4.25	3.67
EMAN-US	eMagin Corporation	\$1.98	165	181	28	5.98	5.20
VUZI-US	Vuzix Corporation	\$3.60	228	180	15	14.99	8.57
KOPN-US	Kopin Corporation	\$1.19	136	108	45	3.01	2.82
TOBII-SE	Tobii AB	\$1.23	131	105	75	1.74	1.45
IMMR-US	Immersion Corporation	\$6.74	217	64	37	5.84	7.24
VRAR-US	Glimpse Group, Inc.	\$1.56	23	17	13	1.70	1.06
EXR-GB	Engage XR Holdings PLC	\$0.04	18	5	4	4.22	2.41
Average						5.39	4.34
High						14.99	8.57
Low						1.70	1.06
25th Percentile						2.38	1.93
75th Percentile						5.98	6.62

Source: Litchfield Hills Research LLC and FactSet

Financial Projections and Guidance

The company does not provide guidance. We have sought to make our estimates conservative, but it is hard to model a rapidly changing market as the company continues to execute its expansion plans into new markets and with new customers. We assume there will be some share growth though share compensation and we expect there will be demand for working capital as the company grows and we have factored that into our balance sheet and cash flow calculations.

Management

Unai Extremo – Founder and Chief Executive Officer (CEO)

Founder and CEO of Virtualware since 2003, he oversees strategy, marketing, sales, and reports to shareholders. Concurrently, he has been the CEO of Evolv Rehabilitation Technologies (84% owned by MLVIR) since 2018, managing its strategy, fundraising, and institutional relationships. Earlier, he led the 3D department at Software Bizkaia Solutions (2002-2003) and taught software development at Deusto University (2001-2002).

Sergio Barrera, Founder and Chief Technology Officer (CTO)

Founder and CTO of Virtualware since 2003, Sergio specializes in visualization and user interaction technologies. As CTO, he oversees software and hardware advancements and manages strategic projects. Previously, he taught Operating Systems at the University of Wales (2007-2008) and was a Lead Programmer at Software Bizkaia Solutions (2001-2003), where he developed a real time 3D engine for a Virtual Reality Platform.

Asier Extremo, Chief Financial Officer (CFO) and Chief Operation Officer (COO)

Previously: At Ecomat, served as Manager, overseeing company strategy, modernization, and business planning. At GEA, progressed from Production Planner to Industrial Manager, managing teams of up to 80 and turnovers reaching 50 M€. Also introduced continuous improvement systems and was a member of the board of directors.

David Moreno, Chief Marketing Officer (CMO)

David has been with Virtualware since 2006, starting as Creative Director where he was responsible for application aesthetics and usability. He then led the Education Business Unit (2010-2012) focusing on the education sector's commercial opportunities. As the Business Development Director for Spain and Mexico (2012-2014), he integrated revenue-related functions and managed key accounts. Currently, as CMO (2014-Present), David drives global revenue strategies, supporting commercial directors across multiple countries.

Figure 13 – Virtualware – Income Statement EUR €

	H1A	H2A	FY2022A	H1A	H2E	FY2023E	H1E	H2E	FY2024E	H1E	H2E	FY2025E
Business Total Revenue	1,484,378	1,734,997	3,219,375	2,148,018	2,600,000	4,748,018	3,150,000	3,800,000	6,950,000	4,500,000	5,100,000	9,600,000
Changes in inventories of finished goods and WIP	(28,243)	(151,089)	(179,332)	181,698	100,000	281,698	10,000	10,000	20,000	10,000	10,000	20,000
Work carried out by the company for its assets	313,984	324,922	638,906	241,174	185,000	426,174	180,000	150,000	330,000	10,000	150,000	160,000
Costs of Goods Sold	(422,299)	(346,243)	(768,542)	(452,601)	(540,000)	(992,601)	(661,500)	(798,000)	(1,459,500)	(945,000)	(1,071,000)	(2,016,000)
Gross Profit	1,347,820	1,562,587	2,910,407	2,118,289	2,345,000	4,463,289	2,678,500	3,162,000	5,840,500	3,575,000	4,189,000	7,764,000
<i>Gross Profit Margin %</i>	<i>91%</i>	<i>90%</i>	<i>90%</i>	<i>99%</i>	<i>90%</i>	<i>94%</i>	<i>85%</i>	<i>83%</i>	<i>84%</i>	<i>79%</i>	<i>82%</i>	<i>81%</i>
Other Operating Revenues	153,202	388,635	541,837	181,220	220,000	401,220	265,000	310,000	575,000	380,000	420,000	800,000
Personnel Expenses	(1,164,799)	(1,281,117)	(2,445,916)	(1,445,304)	(1,750,000)	(3,195,304)	(2,000,000)	(2,200,000)	(4,200,000)	(2,600,000)	(3,000,000)	(5,600,000)
Other Operating Expenses	(375,240)	(344,912)	(720,152)	(508,479)	(615,000)	(1,123,479)	(700,000)	(800,000)	(1,500,000)	(900,000)	(1,000,000)	(1,900,000)
Fixed Assets Depreciation and Amortization	(144,173)	(155,027)	(299,200)	(126,852)	(150,000)	(276,852)	(150,000)	(150,000)	(300,000)	(150,000)	(150,000)	(300,000)
Grants to non-financial assets and others allocation	59,533	-	59,533	21,605	20,000	41,605	-	-	-	-	-	-
Impairment gains/losses on disposal of NCA	-	-	-	(19,079)	-	(19,079)	-	-	-	-	-	-
Other Results	-	(18,324)	(18,324)	-	-	-	-	-	-	-	-	-
Operating Income	(123,657)	151,842	28,185	221,400	70,000	291,400	93,500	322,000	415,500	305,000	459,000	764,000
<i>Operating Margin %</i>	<i>-8.33%</i>	<i>8.75%</i>	<i>0.88%</i>	<i>10.31%</i>	<i>2.69%</i>	<i>6.14%</i>	<i>2.97%</i>	<i>8.47%</i>	<i>5.98%</i>	<i>6.78%</i>	<i>9.00%</i>	<i>7.96%</i>
Financial revenues/(expenses)	(83,082)	(32,916)	(115,998)	(24,386)	(30,000)	(54,386)	(30,000)	(30,000)	(60,000)	(30,000)	(30,000)	(60,000)
Income Before Tax	(206,739)	118,926	(87,813)	197,014	40,000	237,014	63,500	292,000	355,500	275,000	429,000	704,000
Income Tax	-	525,933	525,933	-	-	-	-	-	-	-	-	-
Net Income	(206,739)	644,859	438,120	197,014	40,000	237,014	63,500	292,000	355,500	275,000	429,000	704,000
<i>Net Margin %</i>	<i>-13.93%</i>	<i>37.17%</i>	<i>13.61%</i>	<i>9.17%</i>	<i>1.54%</i>	<i>4.99%</i>	<i>2.02%</i>	<i>7.68%</i>	<i>5.12%</i>	<i>6.11%</i>	<i>8.41%</i>	<i>7.33%</i>
EPS	(€ 0.05)	€ 0.14	€ 0.10	€ 0.04	€ 0.01	€ 0.05	€ 0.01	€ 0.06	€ 0.08	€ 0.06	€ 0.09	€ 0.15
Number of shares	4,542,000	4,542,000	4,542,000	4,542,000	4,542,000	4,542,000	4,600,000	4,700,000	4,700,000	4,800,000	4,800,000	4,800,000

Source: Company reports and Litchfield Hills Research LLC

Figure 14 – Virtualware – Balance Sheet EUR €

	FY2021A	FY2022A	FY2023E	FY2024E	FY2025E
Cash and Equivalents	502,144	172,164	1,276,721	702,221	506,221
Accruals	2,578	1,815	2,000	2,000	2,000
Short-term financial investments	283,434	398,726	400,000	400,000	400,000
Short-term investments in group companies and associat	21,610	-	-	-	-
Account Receivables and others	2,757,026	1,203,148	1,200,000	1,300,000	1,500,000
Inventories	210,241	136,780	150,000	150,000	150,000
Current Assets	3,777,033	1,912,633	3,028,721	2,554,221	2,558,221
Assets by deferred tax	1,592,634	2,120,730	1,900,000	1,600,000	870,000
Long-term financial investments	130,867	64,367	60,000	60,000	60,000
Long-term investments in group companies and associat	-	35,297	35,297	35,297	35,297
Property, plant and equipment	89,014	92,621	92,621	92,621	92,621
Intangible Assets	989,234	1,410,187	1,500,000	1,600,000	2,000,000
Non-Current Assets	2,801,749	3,723,202	2,557,918	3,387,918	4,087,918
Total Assets	6,578,782	5,635,835	5,586,639	5,942,139	6,646,139
Short Term Accruals		508,181	500,000	500,000	500,000
Account Payables and others	2,850,411	1,392,269	1,400,000	1,400,000	1,400,000
Short Term Debt	1,502,618	1,040,207	1,000,000	1,000,000	1,000,000
Current Liabilities	4,353,029	2,940,657	2,900,000	2,900,000	2,900,000
Long Term Accruals		664,201	650,000	650,000	650,000
Liabilities by deferred tax	16,645	8,639	-	-	-
Long Term Debt	1,720,704	1,196,719	1,000,000	1,000,000	1,000,000
Non Current Liabilities	1,737,349	1,869,559	1,650,000	1,650,000	1,650,000
Share Capital	409,402	799,625	1,036,639	1,392,139	2,096,139
Capital	158,970	158,970	158,970	158,970	158,970
Reserves and Retained earnings	250,432	640,655	877,669	1,233,169	1,937,169
Grants, donations and legacies received	67,254	35,227	-	-	-
External partners	11,748	(9,233)	-	-	-
Dividend Distributed -					
Equity	488,404	825,619	1,036,639	1,392,139	2,096,139
Total Equity And Liabilities	6,578,782	5,635,835	5,586,639	5,942,139	6,646,139

Source: Company reports and Litchfield Hills Research LLC

Figure 15 – Virtualware – Cash Flow EUR €

	<u>FY2022A</u>	<u>FY2023E</u>	<u>FY2024E</u>	<u>FY2025E</u>
Net income/(loss)	438,120	237,014	355,500	704,000
Accruals	763	(185)	-	-
Short-term financial investments	(115,292)	(1,274)	-	-
Short-term investments in group companies and associat	21,610	-	-	-
Account Receivables and others	1,553,878	3,148	(100,000)	(200,000)
Inventories	73,461	(13,220)	-	-
Assets by deferred tax	(528,096)	1,250,730	(730,000)	(300,000)
Long-term financial investments	66,500	4,367	-	-
Long-term investments in group companies and associat	(35,297)	-	-	-
Property, plant and equipment	(3,607)	-	-	-
Intangible Assets	(420,953)	(89,813)	(100,000)	(400,000)
Short Term Accruals	508,181	(8,181)	-	-
Account Payables and others	(1,458,142)	7,731	-	-
Short Term Debt	(462,411)	(40,207)	-	-
Long Term Accruals	664,201	(14,201)	-	-
Liabilities by deferred tax	(8,006)	(8,639)	-	-
Long Term Debt	(523,985)	(196,719)	-	-
Capital	-	-	-	-
Reserves	(47,897)	-	-	-
Grants, donations and legacies received	(32,027)	(35,227)	-	-
External partners	(20,981)	9,233	-	-
Dividend Distributed -	-	-	-	-
Total Cash Flow	(329,980)	1,104,557	(574,500)	(196,000)

Source: Litchfield Hills Research LLC

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