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M&A market report 1H 2019

AR/VR

INTRODUCTION

Upbeat predictions on growth momentum

Since the last edition of Hampleton's market snapshot report, the AR/VR industry has continued to make great strides. Firstly, established companies have received increasing amounts of later-stage funding to accelerate the development of AR/VR technology in a variety of verticals and applications, ranging from retail to industrial manufacturing, and from healthcare to energy and power.

Secondly, all of these areas of application have recorded promising M&A activity, as later-stage AR/VR companies attract attention from various non-tech incumbents looking for ways to advance and transform their core business through AR/VR technology. Big tech companies have also shown interest in M&A activity as they seek to establish dominance in this promising market.

While market size and growth estimates vary, there is consensus that the next few years will deliver high growth in both AR and VR as supporting technologies such as 5G, AI and robotics continue to evolve.

The AR and VR markets are also expected to diverge. One the one hand, advancements in mobile AR and the development of smartphone-tethered smart glasses open up a plethora of enterprise use cases, for instance of AR in retail, e-commerce and healthcare. On the other hand, the use cases of VR are more limited to sectors such as entertainment, given the practical challenges of total immersion and the limited mobility of enterprise applications. As a result, the AR market is expected to see the most rapid growth and surpass the VR market in terms of size in the coming two to three years, as illustrated in the graph below.
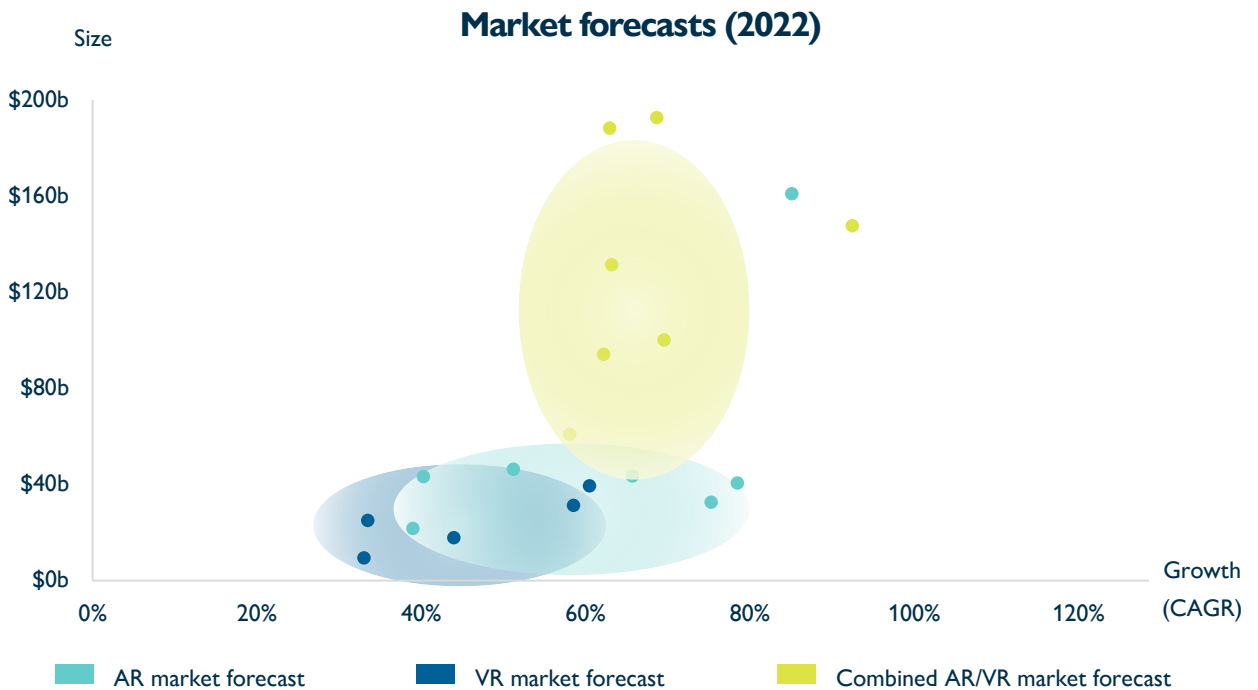
Market forecasts (2022)

Legend: AR market forecast | VR market forecast | Combined AR/VR market forecast

Chart includes data points from Allied Market Research, BCC Research, Coherent Market Insights, Consultancy.UK, Digicap, Grand View Research, IDC, Market Research Future, Markets and Markets, Mordor Intelligence, Orbis Research, PS Market Research, Statista, Transparency Market Research, Zion Market Research
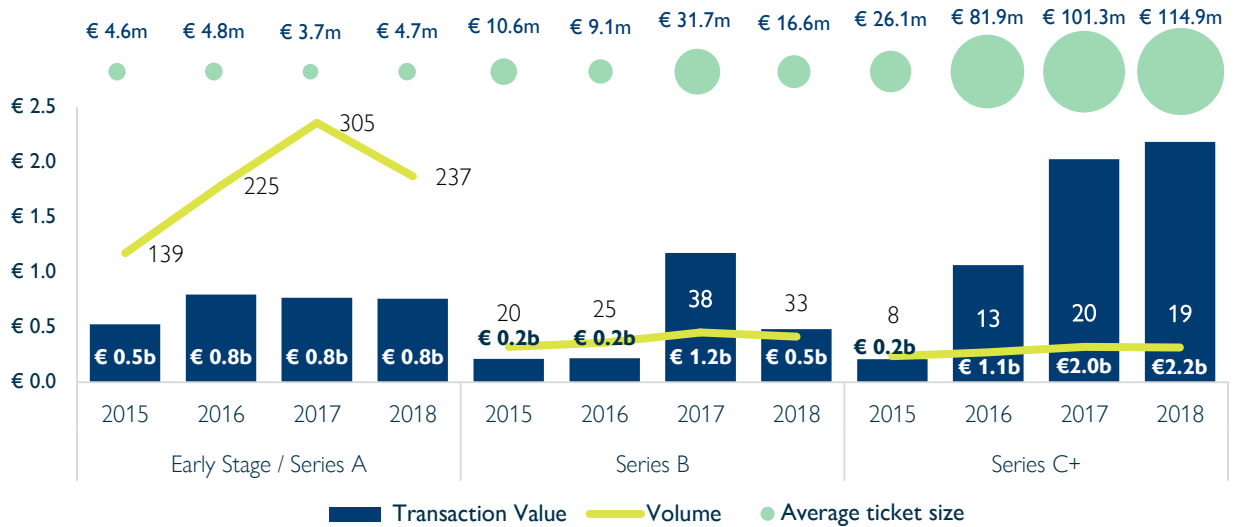
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FUNDRAISING LANDSCAPE

More later-stage funding hints at maturing industry

Over the past few years, total transaction value has experienced a rising trend, especially for Series B, C and onwards.. Given that transaction count has grown at a slower pace,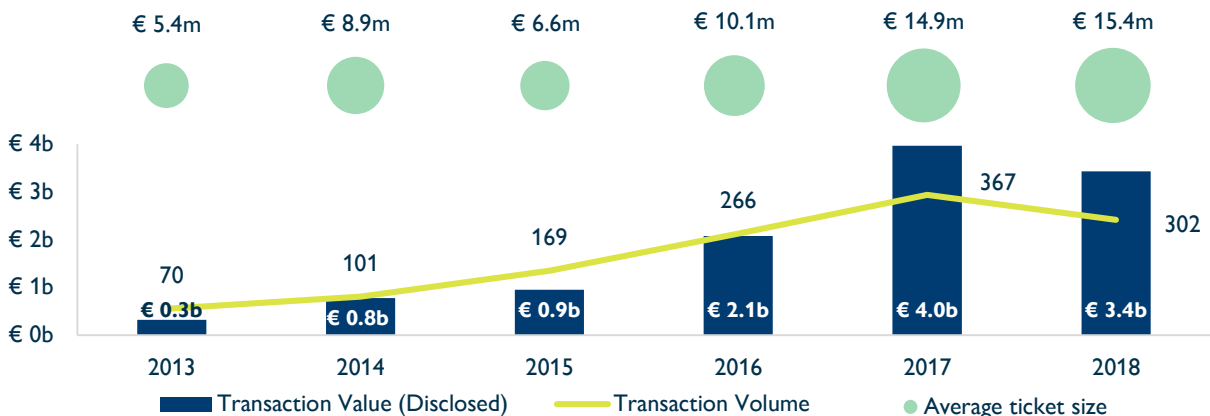 average ticket size for these rounds has grown significantly. Thriving investment in later-stage AR/VR companies, especially when compared to more steady investment in early-stage companies, indicates that the industry is gradually maturing.

	Early Stage / Series A				Series B				Series C+			
Average ticket size	€ 4.6m	€ 4.8m	€ 3.7m	€ 4.7m	€ 10.6m	€ 9.1m	€ 31.7m	€ 16.6m	€ 26.1m	€ 81.9m	€ 101.3m	€ 114.9m
Volume	139	225	305	237	20	25	38	33	8	13	20	19
Transaction Value	€ 0.5b	€ 0.8b	€ 0.8b	€ 0.8b	€ 0.2b	€ 0.2b	€ 1.2b	€ 0.5b	€ 0.2b	€ 1.1b	€2.0b	€2.2b
Year	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018

Legend: Transaction Value — Volume — Average ticket size

Astronomical series B rounds in 2017

The year 2017 saw a spike in Series B funding – the result of three unusually large "supergiant" B rounds exceeding €100 million. London-based Improbable Worlds, whose operating system allows developers to build simulated worlds, completed the largest series B fundraise of the year when it raised €463 million from Softbank'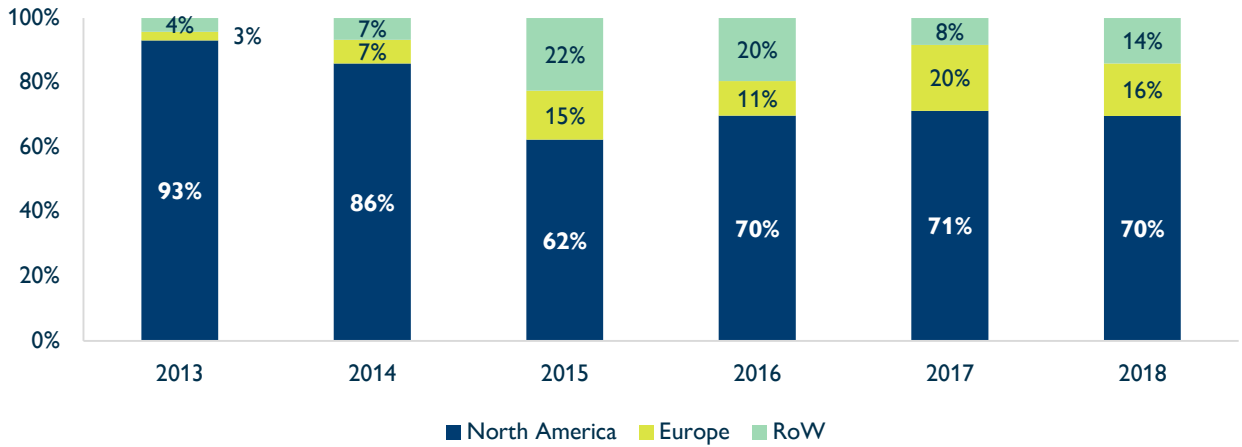s Vision Fund at a total valuation of around €1 billion. Meanwhile, Niantic, the developer of worldwide mobile AR gaming hit Pokémon Go, raised €167 million in its Series B round. The proceeds are being used to replicate the success of Pokémon Go with a new mobile AR game centered around the Harry Potter franchise, which is due to be released later this year.

	2013	2014	2015	2016	2017	2018
Average ticket size	€ 5.4m	€ 8.9m	€ 6.6m	€ 10.1m	€ 14.9m	€ 15.4m
Transaction Volume	70	101	169	266	367	302
Transaction Value (Disclosed)	€ 0.3b	€ 0.8b	€ 0.9b	€ 2.1b	€ 4.0b	€ 3.4b

Legend: Transaction Value (Disclosed) — Transaction Volume — Average ticket size

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FUNDRAISING LANDSCAPE

Geographical breakdown of AR/VR funding ($)

Legend: North America ■ Europe ■ RoW

Year	North America	Europe	RoW
2013	93%	3%	4%
2014	86%	7%	7%
2015	62%	15%	22%
2016	70%	11%	20%
2017	71%	20%	8%
2018	70%	16%	14%

16% of total AR/VR funding in 2018 flowed to European targets, while North American AR/VR companies received almost five times as much. Although this highlights the leading position of the US in the AR/VR space, European companies have snapped up a growing share of funding over time, averaging 15 per cent between 2015 and 2019, as opposed to only 3 per cent in 2013.

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# M&A OVERVIEW

Nascent M&A activity

M&A activity in the space has gained traction, with transaction volumes showing an upward trend and increasing from a total of only 11 in 2014 to a total of 26 in 2018. While the M&A market for AR/VR targets is still in its infancy compared to other technology sectors, developments in the fundraising market suggest that growing transaction volumes will retain momentum. Stable levels of early-stage funding will continue to fuel a consistent pipeline of AR/VR start-ups, growing amounts of funding for later-stage companies will help those start-ups grow beyond proof of concept and develop a real customer base, which will help attract potential acquirers.

As a result, although the figures currently show only steady growth, in the long-term we are likely to see an uptick in M&A transaction volume.
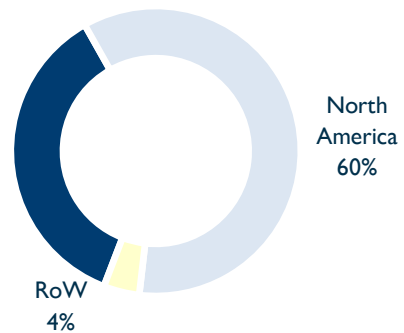
The buyer universe is diverse, and while large tech companies rank among the top buyers, many non-tech acquirers recently pursued AR/VR targets focused on their specific sector in attempts to gain an early mover advantage vis-à-vis their competitors. This report will examine these deals in detail, since, at this early stage, they provide insight into the rationale behind strategic tech and non-tech interest in AR/VR – even if their values are mostly undisclosed.

Transaction Volume 1H2019 run rate
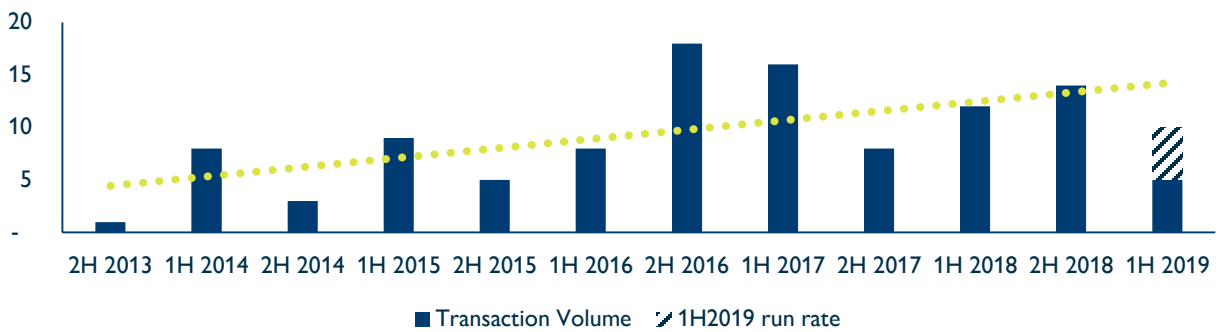
Headquarters of AR/VR targets

RoW 7%

North America 62%
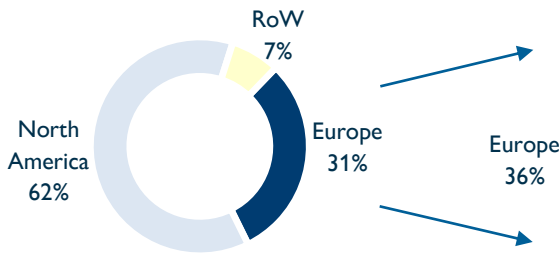
Europe 31%

Headquarters of acquirers of European targets

Europe 36%

North America 60%

RoW 4%

62% of AR/VR M&A targets originate from the US – that's twice as many as those originating from Europe. In addition, the majority of European AR/VR targets are acquired by American buyers. Although the industry is still young, North America is poised to establish a leading position in AR/VR if this trend continues.

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TRANSACTION HIGHLIGHTS

Alibaba forays into AR

Following its three-year partnership and an $18 million funding round in 2016, in March 2019 Israel-based Infinity AR was fully acquired by Alibaba. The move cements Israel's position as a major R&D centre for the Chinese e-commerce giant. With its wealth of expertise in consumer-facing tech, Alibaba is well positioned to lead the revolution of AR in e-commerce using Infinity AR's platform, which allows developers to transform any device into a powerful and versatile content augmentation platform.
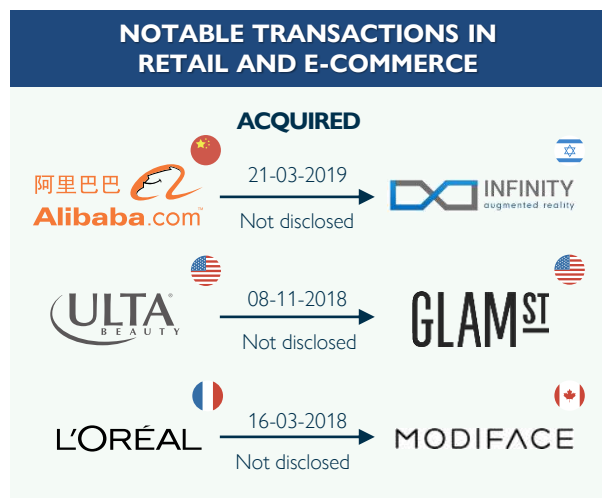
Strong appetite for AR targets from cosmetics companies

Given the power of cosmetics to augment reality in their own right, it's not hard to imagine why the cosmetics world has set its eyes on AR technology. The potential of virtual make-up has translated into M&A activity, with interest in AR targets coming from both cosmetics developers and retailers.

First, in March 2018, L'Oreal acquired Modiface, which offers beauty try-on simulations on live video with photo-realistic make-up, hair colour and hair style simulation. Then, in November 2018, Ulta Beauty, one of

the largest beauty retailers in the US, followed suit when it acquired GlamST, a provider of 3D virtual make-up technology that allows users to try on makeup via mobile, online and in-store.

These transactions not only illustrate the new opportunities for retailers to engage with customers across both on and offline channels through AR/VR, but they also highlight the rationale for non-tech acquirers to lay their hands on the AR/VR space. Early adopters get a head start while AR/VR is not yet fully mainstream.

NOTABLE TRANSACTIONS IN RETAIL AND E-COMMERCE

ACQUIRED	
阿里巴巴 Alibaba.com	21-03-2019 → INFINITY augmented reality
	Not disclosed
ULTA BEAUTY	08-11-2018 → GLAMST
	Not disclosed
L'ORÉAL	16-03-2018 → MODIFACE
	Not disclosed

Advertising AR leader Blippar relaunches

Following a tumultuous end of 2018, during which the AR start-up with a former valuation of more than £1 billion went into administration after running out of funding, in 2019 Candy Capital – one of Blippar's previous investors – acquired the brand, its IP assets and its key employees to relaunch the company.

After reportedly investing too heavily in R&D projects that diverged too far from its core AR business without delivering returns, Blippar is said to return to its roots. It provides mobile image capture and recognition technology that enables mobile device users to take

pictures of advertisements and products and receive additional information from the web.

Blippar may have had a bumpy ride, but its rise from the ashes demonstrates that the applications of AR/VR technology in digital marketing range far beyond immersive ads.
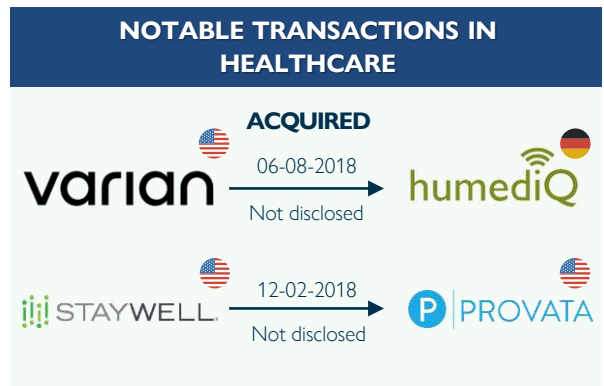
NOTABLE TRANSACTIONS IN DIGITAL MARKETING

ACQUIRED	
CANDY CAPITAL	23-01-2019 → blippar
	Not disclosed

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Healthcare acquirers move into AR

The potential of AR technology and motion tracking to enhance the accuracy of high-precision tasks holds promise in various sectors. Varian's acquisition of humediQ illustrates that healthcare is no exception: the provider of medical device hardware and software for radiotherapy expanded its portfolio when it bought humediQ and its surface-guided radiation therapy workflow management solution for oncology providers. humediQ's solution includes cameras for correct patient positioning and motion monitoring to ensure safety, quality and efficiency.

As technology revolutionises the way we deliver healthcare and tackles mounting healthcare costs through solutions such as e-health, AR/VR technology is also finding its way into mental health treatments. This development was one of the drivers of Staywell's

acquisition of Provata, a provider of health management SaaS that includes preventive mental health care. The solution combines VR-enabled guided meditations with physiological monitoring to track outcomes. StayWell, which has been part of healthcare giant Merck since 2016, will integrate Provata into the programmes that it offers to employers and healthcare providers to improve health and business results.

NOTABLE TRANSACTIONS IN HEALTHCARE

ACQUIRED

varian → humediQ
06-08-2018
Not disclosed

STAYWELL → PROVATA
12-02-2018
Not disclosed

Smart glasses set to transform manufacturing

Enterprise applications of smart glasses are expected to drive the AR market. Against this backdrop, Washington-based Upskill has been ahead of the curve with its Skylight platform, which allows manufacturers to develop AR applications and deploy them across their entire workforce through smart glasses as well as other devices.

The acquisition of video collaboration expert Pristine helped Upskill further develop this offering, adding sophisticated "see what I see" streaming capabilities to the platform, to help users connect to remote experts by means of wearables.

Actionable manufacturing insights through AR

Manufacturers are looking to AR to reduce manufacturing costs, for instance by detecting errors as early as possible in the production, construction or design process.

This drove FARO's acquisition of MWF, whose technology enables large, complex 3D design (CAD) data to be visualised on tablets and compared to real world conditions. The acquisition added to FARO's existing AR solutions for manufacturers, which comprise guidance and positioning technology, as well as an immersive and interactive simulated 3D environments for product designers.

NOTABLE TRANSACTIONS IN MANUFACTURING

ACQUIRED

UP◆SKILL → PRISTINE
09-05-2017
Not disclosed

FARO → MWF TECHNO LOGY It's a mobile world.
12-12-2016
Not disclosed

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TRANSACTION HIGHLIGHTS

3D simulation – a double-edged sword for EDF

Since it is currently in the process of dismantling nine of its French nuclear sites, EDF had a clear rationale for the acquisition of OREKA: its new subsidiary offers technology that makes dismantling of nuclear assets simpler, quicker and safer for workers by means of immersive virtual representations of entire decommissioning projects. On a broader scale, the acquisition gives the group an edge as a player in the global market for decommissioning operations.

The acquisition highlights the potential of AR/VR technology in the energy sector, and will surely not be limited to nuclear energy, but rather extend to fields such as oil and gas.

NOTABLE TRANSACTIONS IN ENERGY

edF → **OREKA**
ACQUIRED
26-06-2018
Not disclosed

Visualising returns for developers

The power of AR and 3D to solve complex architectural and infrastructural design challenges has not gone unnoticed by engineering services firms. In March 2018, Australian firm Aurecon acquired Studio Magnified, an AR-based digital building and architectural design services provider. The acquisition will help Aurecon assist owners and investors to better visualise how infrastructure assets will perform in advance of being built.

NOTABLE TRANSACTIONS IN INFRASTRUCTURE AND REAL ESTATE

aurecon → **M**
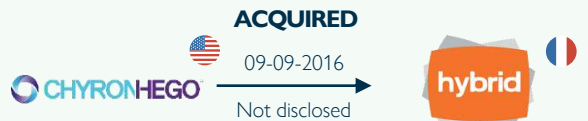ACQUIRED
06-03-2018
Not disclosed
Studio Magnified

Evolution of broadcasting opens AR opportunities

As the transition to all-IP broadcasting infrastructure continues, broadcasters are moving to software-based workflows. As a provider of broadcast graphics creation, playout, and real-time data visualisation products and services for live TV production, ChyronHego acquired Hybrid in a move to capitalise on this trend and boost its broadcasting software offering.

Hybrid's virtual studio tracking solutions provide real-time, precise camera motion within 2D or 3D computer-generated backgrounds. The company also allows broadcasters to enrich their presentations with 3D objects and animations that accurately follow the motion of the camera.

The addition of Hybrid to ChyronHego's portfolio clears the way for further incorporation of AR technology into live TV production.

NOTABLE TRANSACTIONS IN ENTERTAINMENT

CHYRONHEGO → **hybrid**
ACQUIRED
09-09-2016
Not disclosed

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Tech giants flex their muscles

The big tech companies rank among the most prolific acquirers in the space, with Apple, Facebook (through Oculus VR) and Google (Alphabet) topping the chart. Facebook has relied heavily on acquisitions to develop Oculus VR into the leader it is today (particularly since the recent release of the Oculus Quest), completing a total of nine add-ons since acquiring the platform in 2014. Apple has recently boosted its AR/VR hardware capabilities through three acquisitions, even though hardware is traditionally one of its core strengths.

Amazon notably absent

In spite of the vast potential of AR/VR technology in retail, Amazon has no record of AR/VR transactions. Instead, it has integrated AR/VR tools into its AWS cloud offering, allowing developers to create and run AR/VR applications without specialised programming or 3D graphics expertise. Meanwhile, Chinese rival Alibaba has not stood idle, completing the acquisition of Israeli software provider Infinity AR in Q1 2019.

66

Number of active acquirers
over the past 30 months

7

Number of acquirers that
made >1 acquisition

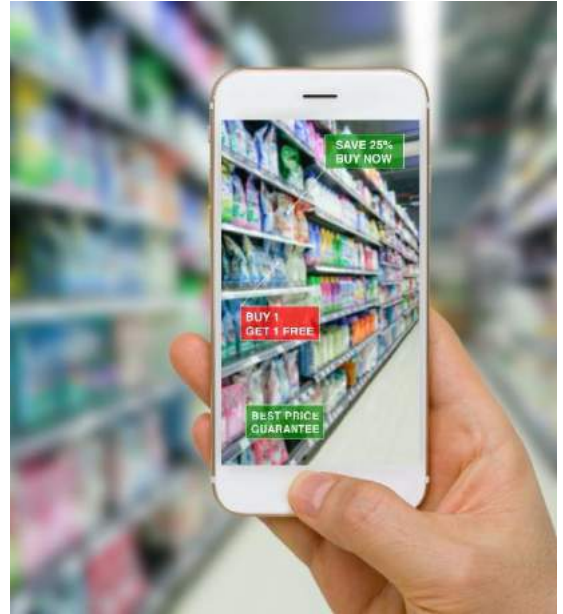| Acquirer	Acquisitions in 30 months	Most recent acquisitions
Apple	4	**Akonia Holographics** smart glasses displays, components and services **Vrvana** mixed reality headset **SensoMotoric Instruments** sensor-based eye tracking systems
THE GLIMPSE GROUP A VR/AR Company	4	**Early Adopter** AR-based marketing software and services **Kreatar** augmented reality presentation software assets **LocateAR** geolocation AR software and software development assets
oculus	3	**The Eye Tribe** sensor-based eye tracking systems **InfiniLED** ILED display devices for electronic and wearable device OEMs **Two Big Ears** VR audio software and SDKs
Alphabet	3	**Lytro** 3D VR image capture software and cameras **Owlchemy Labs** virtual reality-based online video games **Eyefluence** sensor-based eye tracking systems
Snap Inc.	2	**Cimagine** mobile augmented reality software **Drop Messages (IP assets)** augmented reality location mobile application
DIGITALDOMAIN	2	**3Glasses** virtual reality headsets **Digital Funk Machine** video game and VR content development
PLANAR	2	**Eyevis** display manufacturer, incl. intelligent videowall management software **NaturalPoint Inc.** body tracking systems and software
AppSwarm	2	**Shooterboy Entertainment** VR mobile video game asset **Into the VR World** VR online retailer

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DISCLOSED TRANSACTIONS

In the nascent M&A market for AR/VR, disclosed transactions are few and far between. While it is too early to discern overall valuation trends for the sector, individual transactions provide insight into conditions in the market.

As software-oriented targets typically see higher valuations than hardware-oriented targets, transactions such as TDK's acquisition of InvenSense, a provider of motion sensors for applications such as alignment of head motion with content displayed on head-mounted displays, saw a lower EV/S multiple.

Since AR/VR technology blends software and hardware together, transactions focusing on different parts of the AR/VR ecosystem may see different valuations.

Disclosed transactions on record

⬧TDK 🔴	**21-12-2016** → $1.3b (€1.2b); 3.5x EV/S	*InvenSense* 🇺🇸
roper 🇺🇸	**18-03-2019** → $545m (€487.9m) – 8.4x EV/S – 36.3x EV/EBITDA	**FOUNDRY.** 🇬🇧
PLANAR 🇺🇸	**08-11-2016** → $125m (€111.9m)	*NaturalPoint* 🇺🇸
WILLIAMS-SONOMA, INC. 🇺🇸	**16-11-2017** → $112m (€100.3m)	OUTWARD 🇺🇸
Aol. 🇺🇸	**20-04-2016** → $18m (€16.1m) – 9.0x EV/S	RYOT 🇺🇸
Microsoft 🇺🇸	**03-10-2017** → est. $12m (€10.7m) – 12.0x EV/S	△ AltspaceVR 🇺🇸
Elecosoft 🇬🇧	**06-11-2018** → $3.9m (€3.5m) – 13.7x EV/EBITDA	activeonline 🇩🇪

All dollar amounts were converted to EUR based on the USD to EUR exchange rate available on xe.com as at 28/05/2019.

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CONCLUSION & CONTACTS

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AR/VR remains a vibrant and exciting field – both in terms of market and technical developments.

With the release of Facebook's Oculus Quest, hopes are that consumer VR will make a leap forward as the Quest is considered to be the first "consumer VR MVP [*minimum viable product*]" by some.

Additionally, we are seeing companies work heavily on enabling end users to produce content for AR/VR, offering new ways to bring real life assets into virtual environments, or to produce entirely new virtual worlds.

On the enterprise side, use cases are maturing as VR/AR converges with other top technologies. Examples include an AI-powered virtual concierge in the hospitality industry, or interactive virtual worlds powered by real-word sensor data generated through IoT.

All this highly justifies an optimistic view of the VR/AR sector, and we expect that the market will continue to grow strongly.

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Hampleton Partners is at the forefront of international Mergers and Acquisitions advisory for companies with technology at their core.

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With offices in London, Frankfurt and San Francisco, Hampleton offers a global perspective with sector expertise in: Automotive Tech, IoT, AI, FinTech, High-Tech Industrials, Cybersecurity, VR/AR, HealthTech, Digital Marketing, Enterprise Software, IT Services, SaaS & Cloud and E-commerce.

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- Healthtech
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