

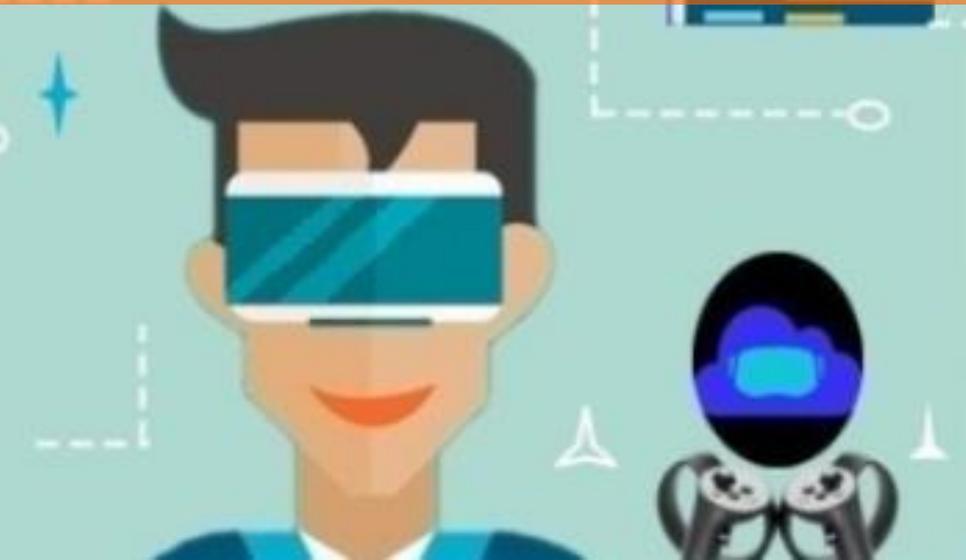
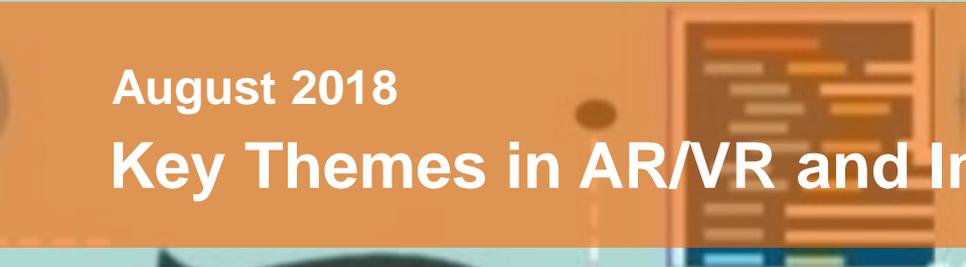


UPDATED

AR

August 2018

Key Themes in AR/VR and Image Management in Retail



We are pleased to present our 2018 AR/VR and Content Creation in Retail overview

- In the following slides, we have synthesized our views on the key themes in AR/VR and Content Creation
- ComCap is a premier boutique investment bank focused on the intersection of commerce and capital, with key focus on B2B SaaS, B2C ecommerce (DNVBs, beauty, health, and wellness), B2B services for retail technologies (IT and marketing services, in-store, fulfillment, logistics, call center, analytics, personalization), payments, mobile commerce and marketplaces
- Headquartered in San Francisco with an office in Singapore, our firm works with mid-cap public companies on buy-side initiatives and public and private growth companies on financing and strategic M&A
- In addition to being the only boutique focused on disruptive commerce models, we differentiate by:
 - Bringing bulge bracket techniques to emerging models;
 - A strong and uncommon buy-side/strategy practice;
 - Deep understanding of industry drivers and synergy analyses;
 - Deep relationships across the sector; and
 - Worldwide coverage with closed transactions in the United States, Japan, China, the ASEAN region, Western and Eastern Europe and Latin America
- If you'd like to connect with us over the phone and / or meet in person to be included in this report or to discuss your strategic initiatives, please contact us:



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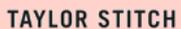
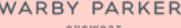
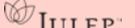
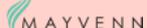
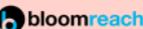
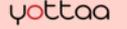
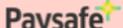
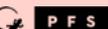
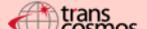
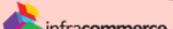
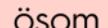
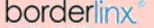
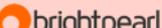


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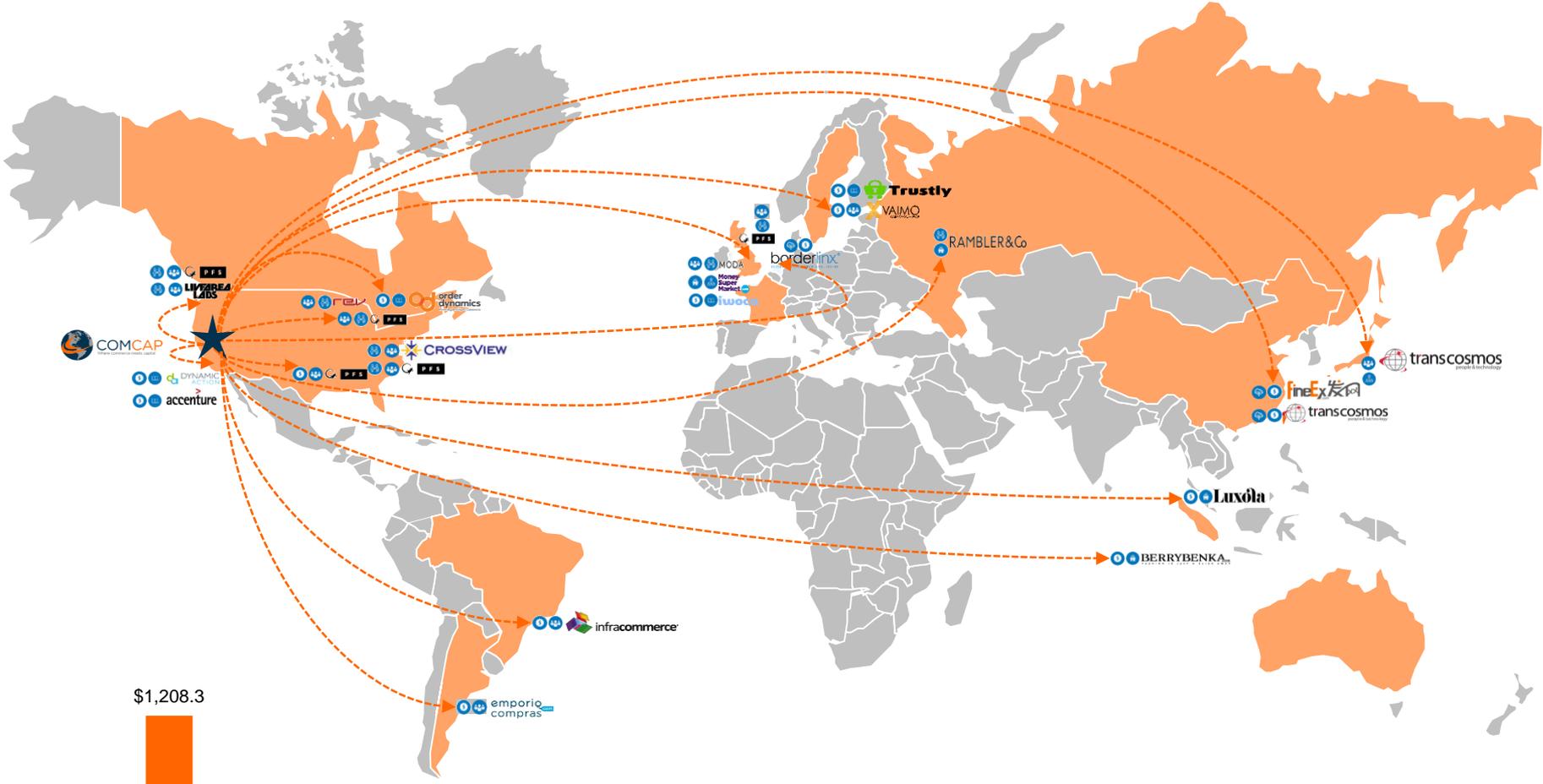


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ComCap's current thematic focus areas

Theme	Description	Select companies
Robotics	Robotics is getting integrated into various aspects of supply chain and retail	 
Personalization	Emerging players in the ecommerce personalization space	   
Digitally Native Vertical Brands (DNVBs)	D2C digitally native brands covering clothing, accessories, personal care, home and kitchen, furniture, and other consumer-focused products	   
Beauty, health and wellness	Universe of beauty companies, including product manufacturers, retailers, disruptors and new entrants	   
Analytics	Focus on disruptors in the analytics space focused on ecommerce, logistics, retail, predictive, payment, risk and marketing	  
Marketing suites	Emerging platforms in the digital marketing space	  
Mobile	Focused on mobile solution providers optimizing the mobile experience from desktop-to-mobile website conversions, targeted mobile marketing, to simplifying the mobile checkout experience	  
Fintech	Retail and commerce-related disruptors in the fintech universe. Current focus areas include payments, risk analytics, false declines and retail POS	  
Outsourcing and service providers	Companies that provide outsourcing and end-to-end ecommerce services, such as contact centers, platform, marketing, photo services, logistics, warehousing etc.	   
System Integrators	Focus on large SIs covering multiple platform as well as smaller SIs covering just one or a handful of platforms	 
Ecommerce SaaS	Emerging and disruptive SaaS businesses in the ecommerce sector	   
AR/VR and content creation	Emerging technologies with retail applications that allow retailers to offer a differentiated customer experience and build brand awareness and loyalty	  
Other (IoT, SMB, POS)	We are constantly evaluating new themes and evolving our focus. Other categories currently include logistics, shipping, IoT, and SMB	

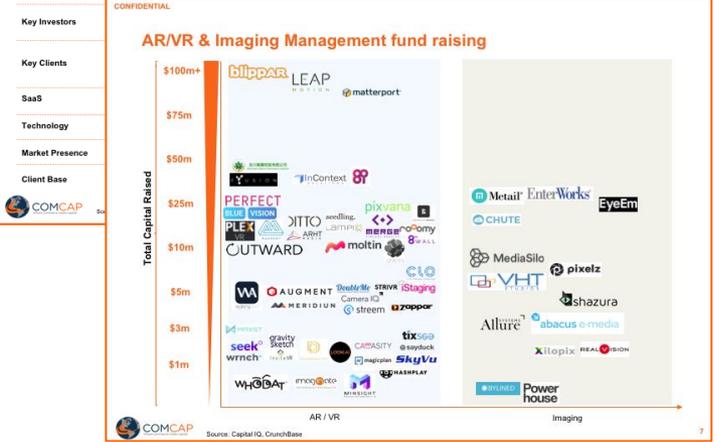
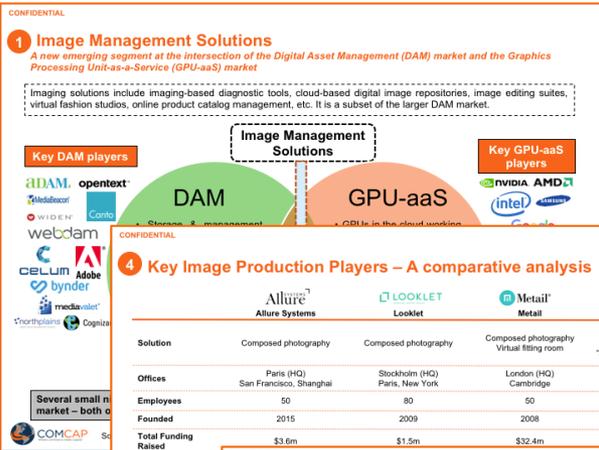
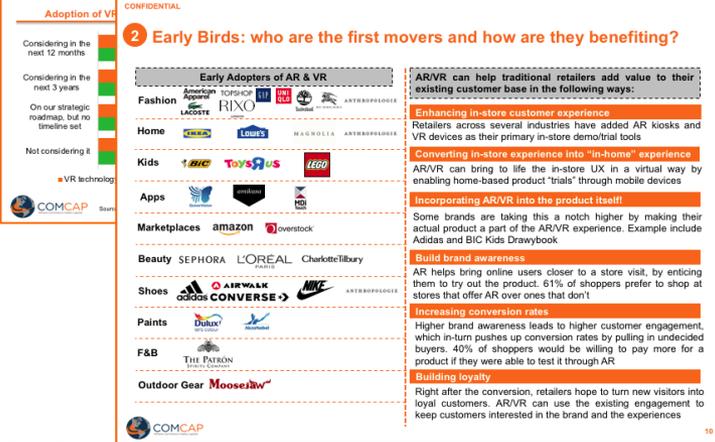
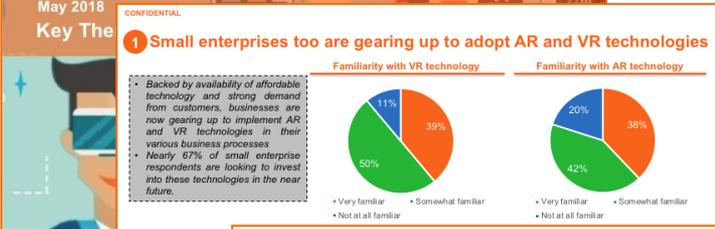
ComCap – Active in 14 countries, including 8 of the top 10 global ecommerce markets



¹Source: [Content26 report](#)

ComCap's perspectives on AR/VR imaging in retail is shared with large number of financial and strategic investors

- ComCap's perspectives on various industries, including robotics in retail, is being shared with our large network of strategic and financial investors globally
- This facilitates a better understanding of sweet spots for these investors; and ultimately helps to better position a mandated client with selected players
- Unique disruptors are gaining additional global coverage via ComCap's reach

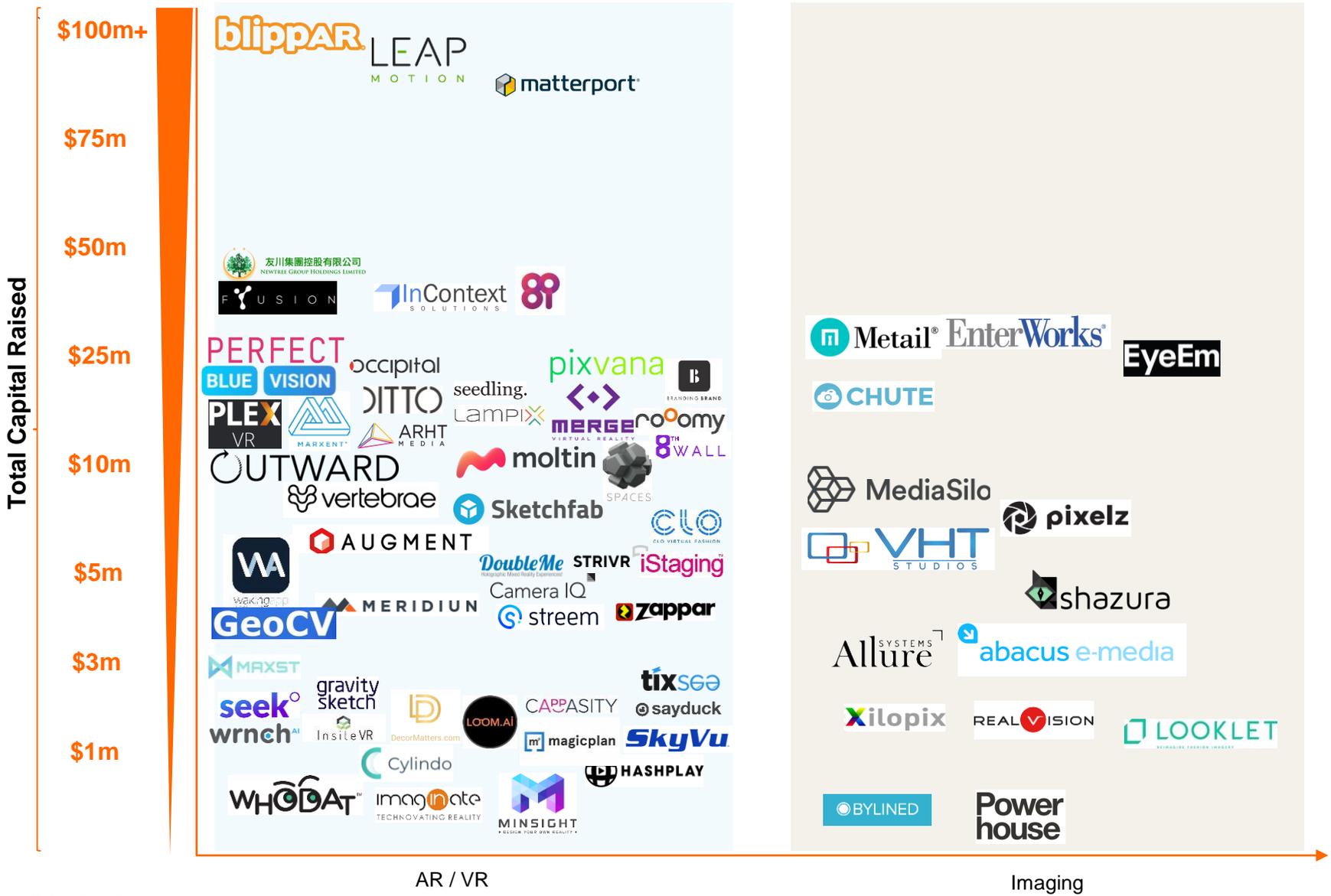


Executive Summary

We are pleased to present our views on the AR/VR and image management landscapes, doing so with the aim of helping increase transparency and communication between the companies themselves, as well as financial and strategic investors

- With thousands of stores closing, eCommerce sales growing, and eCommerce leaders such as Amazon and Alibaba gaining market share, traditional retailers are leveraging new technologies such as AR/VR and image management to remain competitive in today's fast-changing consumer market
- These new technologies are allowing retailers to create engaging content (customer experience) and informative content (bridge the disadvantage vs. offline retail):
 - Enhancing in-store customer experience
 - Converting in-store experience into “in-home” experience
 - Incorporating AR/VR into the product itself
 - Building brand awareness
 - Increasing conversion rates
 - Reduction of returns to the warehouse/shop
 - Building loyalty
- As a result, many disrupting startups have emerged in AR/VR and image management, representing attractive strategic and financial investment opportunities

AR/VR & Imaging Management fund raising



AR/VR in Retail – Key themes for 2018

1

How and Why have AR & VR evolved?

2

Early Birds: who are the first movers and how are they benefiting?

3

Industry size and estimates over next few years

4

Key industry drivers & trends

5

Key AR/VR Players – A comparative analysis

6

Key private placements in the industry

7

M&A precedent transactions

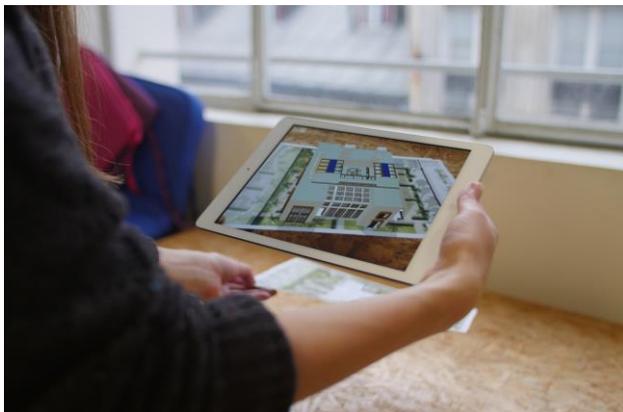
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Most Active Investors

1 Role of AR & VR in Retail

Retailers are looking for new ways to stand out and aid product discovery and customer experience in a crowding market – and AR & VR are helping them achieve exactly that

- Augmented reality (AR) layers computer-generated enhancements atop an existing reality in order to blend digital components into the real world and provide users the ability to interact with it through mobile devices and kiosks.
- *E.g.: Scores overlays on telecasted sports, pop out 3D emails, holograms and motion activated commands.*



- Virtual reality (VR) includes computer-generated simulations of a real life environment or situation. It immerses the user by making them feel like they are experiencing the simulated reality first-hand, primarily by stimulating their vision and hearing.
- *E.g.: Video and computer games, 3D movies, head mounted displays, flight training simulators, etc.*



There are two key ways in which immersive technologies such as AR and VR can enhance the retail experience

■ Product Discovery

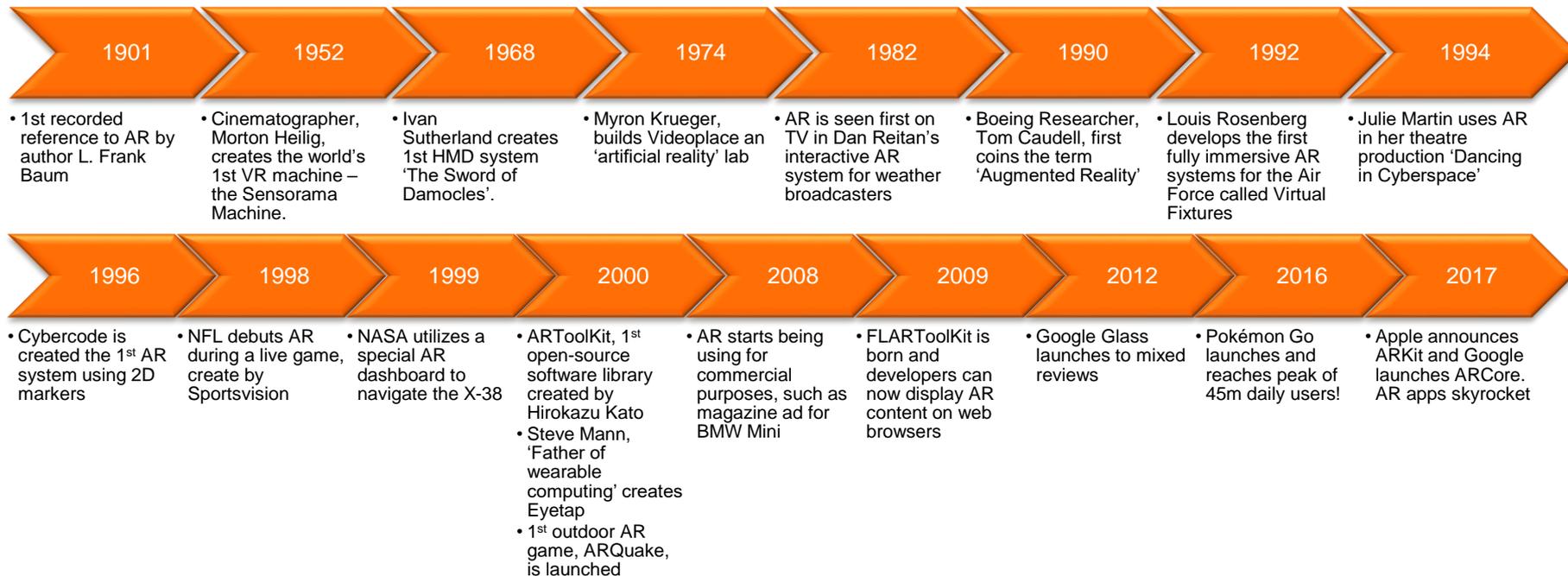
- *Younger users find it easier to interact with technology – enabled selling approaches*
- *Payment methods are getting digitized extremely rapidly especially in developing markets*
- *Personalization of shopping experience and product customizations are easier in a “virtualized” environment*

■ Brand Recall

- *Tech-enabled shopping adds the “wow factor” to the customer experience, establishing high positive brand image*
- *AR/VR combined with AI, and cloud-enabled data analytics allows brands to formulate more accurate and effective brand campaigns*

1 How and why have AR & VR evolved?

The long evolution of AR/VR over the past 100-odd years has now started to yield tangible results



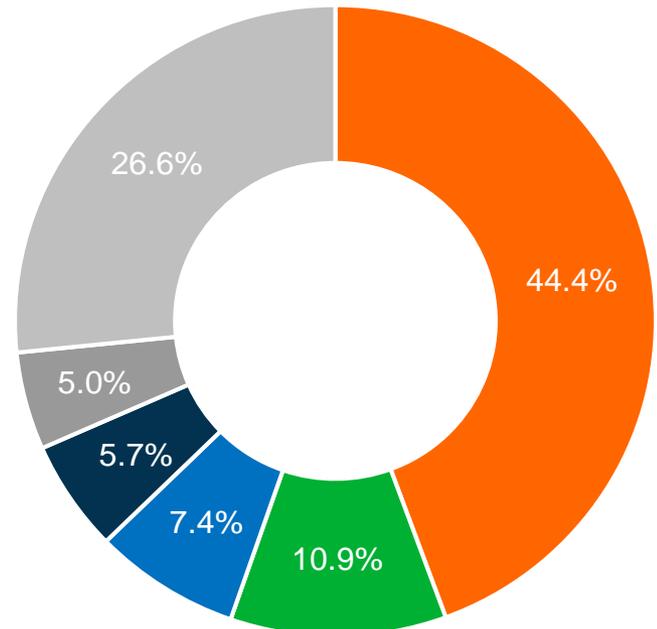
Why are AR/VR taking off so much only now?

- Shoppers demand it
 - Nearly three in four consumers (69%) now expect retailers to launch an AR app within the next six months
 - AR has now become the most sought-after technology by consumers followed by VR and AI
- Physical stores losing market share to ecommerce
 - Projected – 91% (2016) to 84% (2021)
- Favourable technology infrastructure
 - Cloud, big data, lower data-cost, increased mobility
- Technology is easily available
 - Google's ARCore & Apple's ARKit have made AR/VR mainstream
- Several years of evolution has reached a commercially usable state
- Recent growth is propelled by casual/recreational apps
 - Snapchat, Pokémon Go, Ocular VR, Samsung Gear HMDs
- Rising investment in commercial applications
 - <\$3B in 2017, higher by 30% over 2016 (\$2.3B)

1 Retailing set to grab the 'Lion's share' of AR/VR spending by 2022

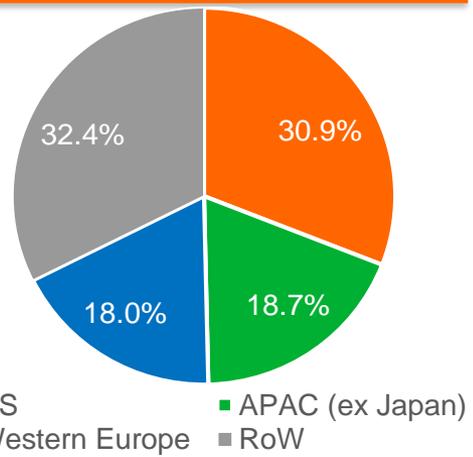
- In 2017, the consumer segment (AR/VR based headsets, games etc.), was the largest with over 44.0% revenue share, while retailing was just over 7.0% (~\$1.0 billion).
- **However, driven by a five-year CAGR (2017-2022) of 119.3%, retailing is expected become the top industry for AR/VR spending by 2022.**
- Industry use cases with largest investments in 2017 are **retailing (\$461.0 million)**, product development (\$267.0 million), and industrial maintenance (\$249.0 million).
- According to a survey by Adtaxi, 10% respondents have used an AR app for online shopping, 67% of whom would never again shop in-store if AR made it possible to do so.
- Another major driver for AR in Retailing would come from AR-devices used by retail store employees. By 2022, over 120,000 retail stores globally would use AR-devices.

AR/VR Spending By Industry (\$13.9B in 2017)



- Consumer
- Discrete Manufacturing
- Retail
- Personal & Consumer Services
- Process Manufacturing
- Others

AR/VR Spending By Region (2017)



By 2020, nearly 3.0% of e-commerce revenue is estimated to be generated because of augmented reality experiences. That equates to \$122.0 billion in revenue worldwide

AR/VR spending for 2017 was \$13.9 billion, up by 131% over 2016. For 2018, this is expected to jump by over 92% to reach ~\$27.0 billion. Going forward, growth is expected to accelerate and reach ~\$207.0 billion by 2022 clocking a 5-year CAGR of 71.6% between 2017-2022!



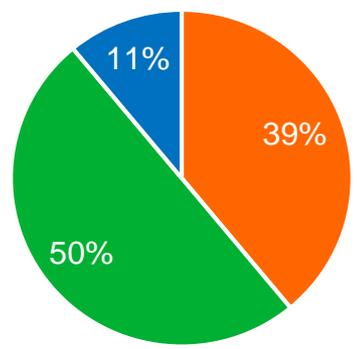
Notes:
 1. Source: IDC Worldwide Semi-annual Augmented and Virtual Reality Spending Guide, Adtaxi survey, and ABI Research
 2. Retail includes retail showcasing commonly referred to as Imaging in this report

1 Small enterprises too are gearing up to adopt AR and VR technologies

• Backed by availability of affordable technology and strong demand from customers, businesses are now gearing up to implement AR and VR technologies in their various business processes

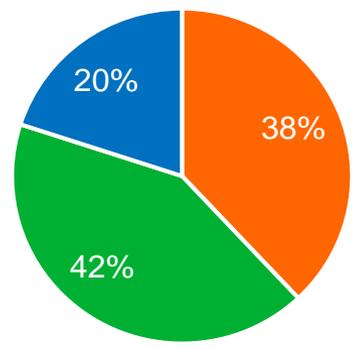
• Nearly 67% of small enterprise respondents are looking to invest into these technologies in the near future.

Familiarity with VR technology



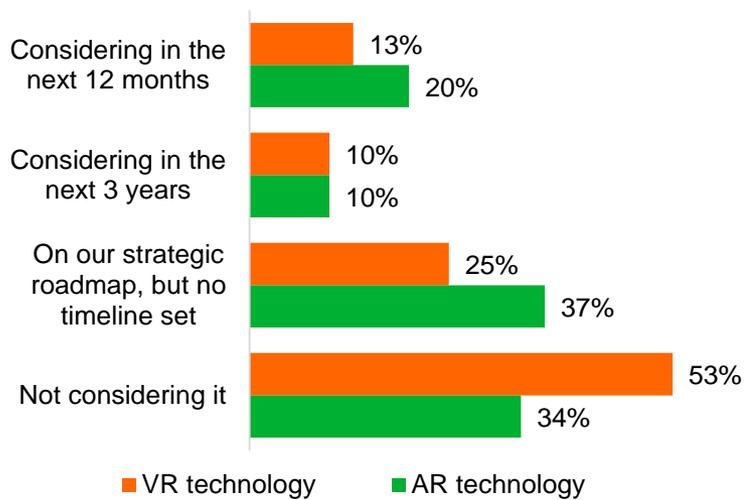
Very familiar Somewhat familiar Not at all familiar

Familiarity with AR technology

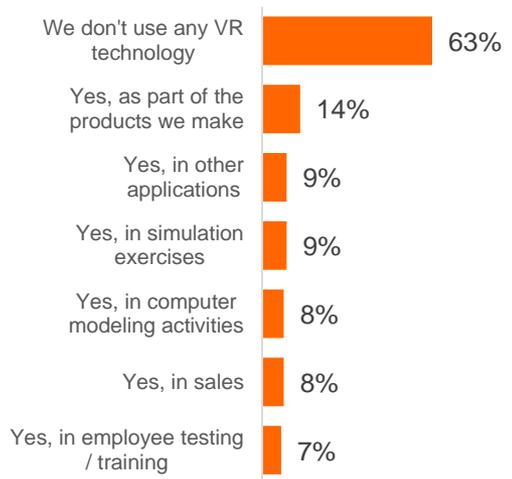


Very familiar Somewhat familiar Not at all familiar

Adoption of VR vs. AR technology



Use of VR



Use of AR



2 Early Birds: who are the first movers and how are they benefiting?

Early Adopters of AR & VR

Fashion	American Apparel LACOSTE	TOPSHOP LONDON RIXO	GAP UNI QLO	Timberland BURBERRY	ANTHROPOLOGIE
Home	IKEA	LOWE'S	MAGNOLIA	ANTHROPOLOGIE	
Kids	BIC	Toys R Us	LEGO		
Apps	QuiverVision	amikasa	MDi Touch		
Marketplaces	amazon	overstock			
Beauty	SEPHORA	L'ORÉAL PARIS	CharlotteTilbury		
Shoes	adidas	AIRWALK CONVERSE	NIKE	ANTHROPOLOGIE	
Paints	Dulux let's colour	AkzoNobel			
F&B	THE PATRÓN SPIRITS COMPANY				
Outdoor Gear	Moosejaw				

AR/VR can help traditional retailers add value to their existing customer base in the following ways:

Enhancing in-store customer experience

Retailers across several industries have added AR kiosks and VR devices as their primary in-store demo/trial tools

Converting in-store experience into "in-home" experience

AR/VR can bring to life the in-store UX in a virtual way by enabling home-based product "trials" through mobile devices

Incorporating AR/VR into the product itself!

Some brands are taking this a notch higher by making their actual product a part of the AR/VR experience. Example include Adidas and BIC Kids Drawybook

Build brand awareness

AR helps bring online users closer to a store visit, by enticing them to try out the product. 61% of shoppers prefer to shop at stores that offer AR over ones that don't

Increasing conversion rates

Higher brand awareness leads to higher customer engagement, which in-turn pushes up conversion rates by pulling in undecided buyers. 40% of shoppers would be willing to pay more for a product if they were able to test it through AR

Reducing returns to the warehouse / shop

AR allows customers to try out items remotely before buying

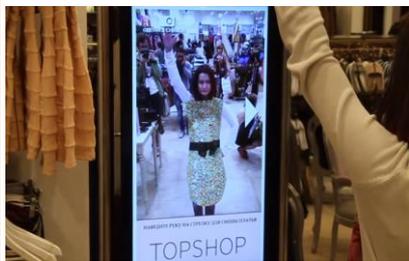
Building loyalty

Right after the conversion, retailers hope to turn new visitors into loyal customers. AR/VR can use the existing engagement to keep customers interested in the brand and the experiences

2 Early Birds – Few classic examples

Apparel Trials In-Store

- TopShop, an apparel retailer, introduced a virtual fitting room in collaboration with AR Door at its Moscow store in 2011.
- The virtual fitting room is built using AR and Microsoft Kinect.
- Customers select a garment off the rack without having to try it on physically. Customers see themselves onscreen with a 3D copy of the dress.
- Users can control the program by simple gestures pushing virtual buttons.
- The built-in camera tracks a person's body and superimposes over it a 3D model of the dress.



“Magic Mirror” on the Wall

- Cosmetics brand Charlotte Tilbury created the “magic mirror” using AR for their customers to try on “virtual make-up”.
- They partnered with AR provider Holition.
- Customers would visit the store and sit in front of the mirror. The mirror would then use AR to scan the image of their face.
- Shoppers would then see their face with 10 of the brand's iconic looks in under a minute, without physically wearing any makeup.
- A clever button was added to show how the ‘look’ will be seen night or day (dusk to dawn).



AR for kids!

- French writing instruments maker BIC introduced an interactive, AR-based activity book for kids aged 5-10 years.
- The BIC Kids DrawyBook is a regular activity book consisting of colouring and cutting activities.
- The coloured images and ‘cut and assembled’, when scanned using a free AR enabled mobile/tablet app, would “bring to life” the drawn characters and objects, with which the kids can interact in an audio-visual format.



IKEA leads with AR

- Swedish furniture maker IKEA has always led the way in incorporating technology into its products – wireless charging supporting furniture, smart lighting and home solutions, and as early as 2012, an AR app to bring its products “into” customers’ living rooms (virtually).
- In 2017, it released an updated AR app (IKEA place) made on Apple’s ARKit.
- The app allows buyers to try-out furniture pieces virtually (with 98% accuracy) at any location, upon scanning the location floor with the mobile camera.
- Users can experiment with various designs, colors, placements, and finally even buy the furniture on the app.

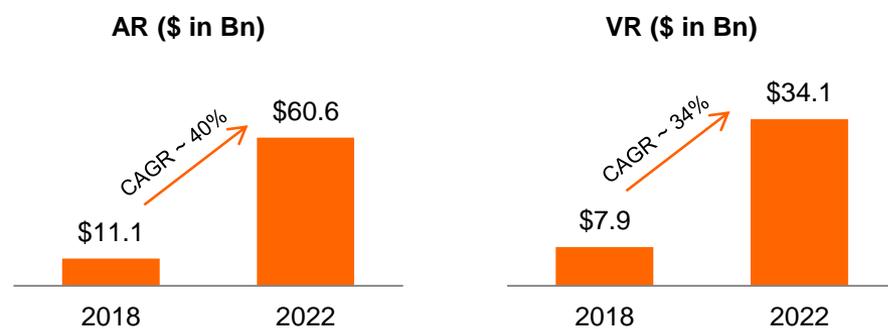


3 The AR & VR markets are expected to reach \$60.6bn and \$34.1bn by 2023 respectively

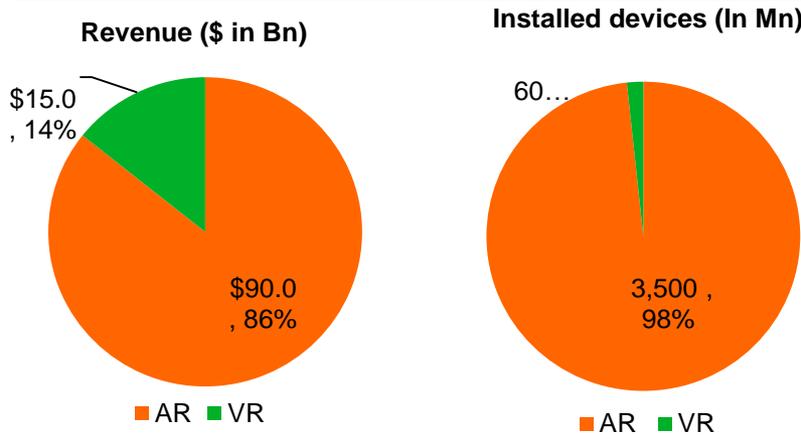
Technologies such as AI, AR, and VR are set to become the new norm in the customers' shopping experiences

- The global AR market is expected to grow from \$11.1bn in 2018 to \$60.6bn by 2023 – a CAGR of 40.3%, whereas the VR market is expected to grow from \$7.9bn to \$34.1bn, representing a CAGR of 34.0% during the same period.
- Major drivers of the AR market include increasing demand for AR in healthcare, retail and eCommerce and rising investments
- Major drivers of the VR market include the high penetration of HMDs in gaming and entertainment, huge investments in the VR market, advancement of technology and digitization, and availability of affordable VR devices
- While North America is currently the largest market, APAC is expected to deliver highest growth due to an increasing adoption of latest technologies
- Further, according to a GPSopper survey, consumers are interested in using virtual and augmented reality as part of the shopping experience as well
 - Half of the GPSopper respondents want to use AR to get additional information about a product, such as ingredients or the materials used, while 42% want to use VR to see where / how a product was made

Global AR & VR growth forecasts¹



Market size expected in 2022²



The vast difference in growth trajectory and respective market size can be attributed to AR's ubiquity and VR's niche focus

3

AR/VR will fulfill its full potential in the form of an ubiquitous “AR Cloud”

Several large tech companies are gearing up to take leadership in this new emerging “reality” as well

- Despite mass adoption of ARCore & ARKit, much of the UX on AR/VR apps is very personal, i.e. a group of people cannot simultaneously interact with the same app from the same or different locations, resulting in limited use cases
- “AR Cloud” could potential break this usage barrier by making AR available “anywhere, anytime”
- >50% of Google searches are now done locally. i.e. on the go via mobile. The ubiquitous smartphone, rapidly scaling hardware, and massively cheaper data, aided by AR-dev tech are together likely to spur demand for more “real” AR experiences.

The “AR Cloud” potentially includes

- A persistent point cloud aligned with real world coordinates — a shared soft-copy of the world
- Ability to instantly localize (align the world’s soft-copy with the world itself) from anywhere and on multi devices
- Ability to place virtual content in the world’s soft-copy and interact with it in realtime, on-device and remotely

Some Recent “AR Cloud” Deals

Date	Company	Amount+Lead Investor/Acquirer	Type
Mar 2018	Blue Vision Media	\$14.5m (GV)	Financing
Mar 2018	Ubiquity6	\$10.3m (Indeex Ventures)	Financing
Mar 2018	6D.ai	Undisclosed (General Catalyst)	Financing
Dec 2014	13 th Lab AB	Oculus VR (Facebook)	Buyout
Dec 2016	Cimagine Media	Snap, Inc	Buyout
Jan 2016	FlyBy Media	Apple, Inc.	Buyout

- Shared spatial copy of the real world allows shared/multi-user AR experiences in the real world
- “AR cloud” could replace the ‘click on links’ ad-based internet economy by ‘click on (AR) bricks’, blockchain and crypto-currency based UGC economy.
- However, massive sharing of mobile usage data could pose high data privacy risks for users,



4 What the industry leading voices are saying

AR will absolutely revolutionize the e-commerce industry and has actually already started doing so. The possibilities are endless, but one big change will be the shift to "virtual showrooms. A consumer's in-store experience will get a boost as brick-and-mortar retailers are able to add an AR-powered store map to their app, allowing shoppers to find --and be led directly to -- any item in the store.

- Michael Quoc, Founder & CEO, ZipfWorks - an eCommerce incubator.

"40 years ago we had Pong; two rectangles and a dot. Now we have photorealistic 3D simulations with millions of people playing simultaneously, and it's getting better every year. Soon we'll have VR, AR. If you assume any rate of improvement at all, then the games will become indistinguishable from reality. "

- Elon Musk, Founder & CEO, Tesla and SpaceX

"I think gaming will drive the early adoption of VR. Just like we saw with PCs or with smartphones. Both for us and iOS, games have been a big part of it. But it starts there, then evolves into much broader use-cases. And we'll see the same in VR"

- Sundar Pichai, CEO, Google

"AR is the ultimate computer. It will take time. But, Eventually, augmented reality and virtual reality will come together, where a single device can have multiple settings, whether you want a full 360-degree immersive field of view or you want to be able to see the real world"

- Satya Nadella, CEO , Microsoft

"I'm incredibly excited by AR because I can see uses for it everywhere. I can see uses for it in education, in consumers, in entertainment, in sports. I can see it in every business that I know anything about. I also like the fact that it doesn't isolate. There are clearly some cool niche things for VR but it's not profound in my view. AR is profound."

- Tim Cook, CEO, Apple

"VR is unique in creating this sense of presence, like you're right there with another person or in another place. If you can't think of any way that your reality can't be better, then you're not thinking hard enough, "t's not about escaping reality, it's about making it better."

- Mark Zuckerberg, CEO, Facebook

5 Key AR/VR Players – A comparative analysis



Solution	AR content and distribution platform, connecting retailers and brands to display products in 3D AR on e-commerce and mobile commerce channels	The Company's TapPainter app creates image processing mobile and web applications for room interior visualization	Quiver produces both branded content and the technology to transform that content into personalized, immersive experiences	Provides AR SDK dev tool for smartphones, tablets, and digital eyewear
Employees	25	5	10	30
Years of operation	6	6	6	9
Total Funding Raised	\$8.6m	NA	\$1.6m	\$2.2m
Key Investors	Salesforce Ventures, Vinteor	NA	ICE Angels, Sparkbox Ventures, GD-1, B Dash Ventures,	Konica Minolta, Inc. (TSE:4902), GCP Gamma Capital, Beteiligungs
Key Clients		Its clients include interior designers and individuals remodeling their homes		
Key Facts	<ul style="list-style-type: none"> World's Largest B2B AR deployment with Coca-Cola Augment SDK used by 8 major retailers in North America and Europe 10,000 3D SKUs in retail content database Augment app has over 5 million downloads 	<ul style="list-style-type: none"> It offers API for B2B clients including features like wall detection, true color detection, multi-surface paint, custom shape, mobile device color calibration, & 3D sensor integration 	<ul style="list-style-type: none"> QuiverVision was formerly Puteko/colAR Mix and was founded in 2012 as a spin-off company of the Human Interface Technology Laboratory New Zealand (HIT Lab NZ) 	<ul style="list-style-type: none"> A large developer community (+100.000 registered developers) >1 billion installs powered by Wikitude Leading developer & editorial tools for AR applications

5 Key AR/VR Players: Augment

Company Overview

Founded: 2011

Status: Private

Employees: 25

HQ: Paris, France

Company Overview: Augment is a B2B SaaS augmented reality platform. Augment allows businesses to mix, match and snap together different augmented reality blocks to build their augmented solution.

Its augmented reality platform allows the client to visualize products in 3D in real environment and in real-time through tablet or smartphone.

The company serves customers in architecture and construction, consumer packaged goods, interior design, display and packaging, education, medical, communication, art, and entertainment industries.

The company is headquartered in Paris and has a commercial office in Atlanta.

Key Facts

- Augment SDK is used by major retailers in North America and Europe, including Best Buy Canada, Fnac, Cdiscount
- Augment provides retailers with a cloud-based catalog of over 10,000 3D SKUs, syndicated with leading global brands such as Microsoft, HP or Electrolux
- Augment field sales solution is the most widely used for POS placement in the CPG / FMCG vertical with clients including Coca-Cola, Unilever and Colgate
- Augment platform has 90,000 registered 3D designers and over 100K monthly active users
- Augment app has over 5 million downloads

ROI

- Augment SDK : +/- 20 +80% conversion in eCommerce
- Augment field sales solution : +27% in-store sales in CPG

Management Team (only CXO)

Jean-Francois Chianetta, Co-founder and CEO: Jean started his career as a Software Engineer at Coventor. He is also co-Organizer of AR Paris, an event taking place in Paris with the purpose to create an ecosystem around Augmented Reality in France.

Mickael Jordan, Co-founder & COO: Mickael previously worked as Marketing Manager of Netvizio Israel, a startup specialized in connected TV apps. He's also the founder of citizensup.com, an online dashboard of government data, winner of a French government contest.

Stéphane Garagnani, Chief Technology Officer: Stéphane previously worked as Lead App Developer at AugmenteDev. He started programming with C/C++ during his free time at college and with Java as part of his Master's Degree classes.

Augment SDK Video



Augment - Increase online sales with augmented reality

Augment Field Sales Solution Video



How Colgate drives in-store sales with Augment

Financing Summary

Date	Round Type	Amount	Investors
Nov 2017	Convertible loan	€1M	Vinteor
Jul 2017	Bridge	€1M	Multiple Angel investors
Jan 2017	Grant	€1.2M	European Commission, European Innovation
Mar 2016	Series A	\$3M	Salesforce Ventures
Apr 2014	Seed	\$1.5M	Multiple Angel investors

5 Key AR/VR Players: MDi Touch



Company Overview

Founded: 2012 **Status:** Private
Employees: 1-10 **HQ:** Fremont, CA

Company Overview: MDi Touch is a developer of image processing mobile and Web applications for room interior visualization.

The company's target customers include interior designers, architects and those decorating their home, such as new home buyers.

As a sole founder Mark Lichman led the company through a seed investment round as Head of Product and CEO to revenue generation.

This included initial product definition, rapid prototyping through multiple feedback rounds using lean methodologies and running the development as technical product and project manager (i.e. managing both the requirements and the resources) and customer acquisition.

Key Facts

- MDi Touch is a mobile app that focuses on mobile and web computer vision applications and several APIs available for use in interior room digital imaging
- TapPainter now let's you connect with a national network of highly qualified, and well reviewed, interior and exterior painting professionals to get your painting project done fast!
- TapPainter has lots of color fan decks to choose from. Benjamin Moore, Behr, California Paints, Dunn Edwards, Dutch Boy, Sherwin Williams, Kelly Moore and many others are among them.
- With TapPainter user can enter a color code from a paint swatch, choose a color from selected paint brand or mix its own custom color which can be converted to a closest available paint color in a brand.

Management Team

Mark Lichman, Founder and CEO: Mark is a product and technical minded entrepreneur seeking to create beautiful, advanced, and simple software tools. Currently, he is also Product Manager at DigiSight Technologies, Inc. Previously, he was working as a consultant at LeanTaaS.

Nathan Williams, Physicist / Developer: Nathan is also working as a Adjunct Professor at Cogswell Poly technical College and Santa Clara University. Prior to this, he was an Assistant Professor at Willamette University.

Stéphane Garagnani, Chief Technology Officer: Stéphane previously worked as Lead App Developer at AugmenteDev. He started programming with C/C++ during his free time at college and with Java as part of his Master's Degree classes.

App Description

- Simply snap a picture of your wall. Tap on the wall you want to recolor. TapPainter is designed to automatically find the wall for you, and avoid painting over objects on or near the wall.
- Choose from thousands of real paint colors! Choose colors using our intuitive color wheel, choose a color from any color fan deck available in TapPainter or, simply enter the color code from a paint swatch.
- Your wall will now be digitally painted! Tap on the paint roller to apply the selected color. In just a few seconds you will see a near real image with preserved lighting conditions, shadows, and objects.



5 Key AR/VR Players: QuiverVision

Company Overview

Founded: 2012

Status: Private

Employees: 2-10

HQ: Tokyo, Japan

Company Overview: QuiverVision is an augmented reality research company that produces both branded content and the technology to transform that content into personalized, immersive experiences.

QuiverVision is a great app for children. They can draw and play with their drawings in augmented reality. The navigational design of the app is quite straightforward and simple.

The app was formerly Puteko/colAR Mix and was founded in 2012 as a spin-off company of the Human Interface Technology Laboratory New Zealand (HIT Lab NZ).

The company has grown substantially and now has a stable presence in NZ, the US and Asia. The app is available for free on iTunes, the Apple App Store, and the Google Play store.

Management Team

Nils Reardon, CEO: Nils is a solicitor by profession. Previously, he was working as a solicitor at Tompkins Wake. While working at Tompkins Wake he advised and assisted on a wide array of commercial property and finance transactions.

Julian Looser, Chief Technology Officer: Julian is a software Engineer with a strong research background in virtual and augmented reality. He is also director at Driedfrog Limited. Previously worked as a Software Engineer at Human Interface Technology Lab, New Zealand.

Shunsuke Fukuden, CG Director: Shunsuke, being a 3d modeling and animation artist, is an expert in 3d modeling, rigging, animation, rendering and composition. Previously, he worked as a 3d artist at HitLab NZ. During 2005 to 2008, he was director at Lapiz.

Key Facts

- Originally launched as colAR Mix in 2013, it was the first application of its kind and has become a firm favorite worldwide with over 2.5M downloads.
- Quiver app is a very innovative application supporting both learning and fun in a less usual yet highly interesting way. In 2014, colAR Mix won the AWE "Auggie Award" for best mobile AR app.
- Through continued development and client relationships, QuiverVision aims to re-draw the boundaries of the AR entertainment marketplace, connecting the physical and digital worlds in new and innovative ways.
- The company also has another app called Quiver Education which is focused on educational content.

App Images



5 Key AR/VR Players: Wikitude



Company Overview

Founded: 2009

Status: Private

Employees: 11-50

HQ: Salzburg, Austria

Company Overview: Wikitude GmbH is a leading mobile augmented reality (AR) technology provider for smartphones, tablets and digital eyewear.

Wikitude GmbH provides augmented reality (AR) technology for smartphones, tablets, and digital eyewear. The company serves enterprises, brands, agencies, and developers, as well as Fortune 100 companies across various industries worldwide. The flagship product Wikitude is the "Wikitude World Browser" which is an Augmented Reality browser for geospatial content.

The company is based in Salzburg, Austria with additional offices in Korneuburg, Austria; and San Francisco, California.

Key Facts

- The company offers the following:
 - Wikitude SDK tools** to develop AR apps for Android, iOS, smartphone, tablet, and smart glasses; cloud based image recognition solutions; and
 - Wikitude Studio Editor**, a solution that enables users to create AR experiences for magazines, newspapers, business cards, billboards, and catalogues, as well as add 3D models, videos and transparent videos, images, and social media sharing buttons.
- The Wikitude SDK is an integral part of more than 20,000 apps run by both small enterprises as well as many Fortune 100 companies across multiple industries.
- With about 100,000 registered developer accounts, Wikitude has grown to be the world's leading independent AR platform.

Management Team

Philipp Breuss-Schneeweis, CVO and Founder: After working for various companies including KPMG Consulting and Sony DADC he founded Wikitude GmbH (previously Mobilizy GmbH), a software startup specializing in Augmented Reality software for smartphones.

Martin Herdina, CEO: Martin is a successful serial entrepreneur with deep experience in the internet and telecom industries. Before joining Wikitude, Martin successfully built-up and sold fatfoogoo, a leading game payment company, to Digital River Inc. (DRIV). Previous to founding fatfoogoo in 2006.

Philipp Nagele, Chief Technology Officer: Prior to joining Wikitude, Philipp worked at VeriSign Inc. in Boston, USA and T-Mobile Austria as Product and Innovation Manager. He received his M.Sc. in Computer System Engineering from University of Halmstad, Sweden.

Financing Summary

Date	Round Type	Amount	Investors
Sep 2016	Seed	€500K	Tecnet Equity, i5invest Gamma Capital Partners
Oct 2010	Seed	N/A	N/A

5 AR finds diverse applications across the Retail segment

OUTWARD

PERFECT

Solution	Imaging solutions for the home furnishing industry. It offers a measurement and rendering technology that enables the production of creative content suitable for digital and print applications. The company offers its technology as online and mobile services, as well as provides related software.	Perfect Corp. is a leading developer of online beauty and make-up apps – YouCam Makeup, YouCam Perfect, YouCam Nails, YouCam Fun, and YouCam Shop. Perfect Corp. is transforming the way women discover, try, buy and share beauty by bringing it to life through AR technology.
HQ	San Jose, CA	San Jose, CA
Employees	125	92
Years of operation	6	4
Total Funding Raised	\$11.5m before being acquired by Williams Sonoma for \$112.0m in Dec 2017	\$25.0m
Key Investors	Merus Capital	China Creation Ventures, Yuanta Asia Investment Limited, Extol Capital, LLC, CyberLink Corp. (TSEC:5203)
Key Clients		<ul style="list-style-type: none"> Over 600 million global downloads as of April 2018 Brand partnerships with over 150 top global beauty brands.
Key Facts	<ul style="list-style-type: none"> Since inception in 2012, the Company operated in the stealth mode until it announced its Visual Merchandising Platform for Retailers in Jan 2017. Some of its clients have experienced a revenue jump of over 30% upon deploying Outward’s solution. 	<ul style="list-style-type: none"> The Company’s apps account for over 1 billion beauty trials every month, and over 30 million selfies a day. YouCam Makeup and YouCam Perfect apps were named in "Editors' Choice" by Google Play in Feb 18 Its YouCam Makeup app was named the “Best in Beauty” app for 2015 by Examiner.com

- AR has emerged as a strong enabling technology in the retailing space and helped retailers to significantly improve CX.
- However, when combined with AI, it has the potential to substantially expand the reach of retailers and brands, especially those who are sitting on / can generate large droves of data.
- By combining Big Data, AI Analytics and AR, larger brands can easily create consumer facing apps which can directly sell to consumers without any / minimal intervention by the sales teams, thereby greatly cutting S&M expenditure.*

6 Key private placements in the industry

Company	Country	Description	Round Details	Investors
		Mobile app for visual marketing based on AR, computer vision, and image-recognition	Mar 2016 Series D: \$54.0m	Khazanah Nasional Berhad
		Manufactures and develops motion-control hardware and software for VR and AR	Jul 2017 Series C: \$50.0m	Highland Capital Partners; J.P. Morgan Asset Management, Inc.; Founders Fund; SOSV; Andreessen Horowitz LLC
		Platform to create cloud-based 3D and VR models of real-world spaces	Jun 2015 Series C: \$30.0m	DCM Ventures; GIC Special Investments Pte. Ltd.; QUALCOMM Ventures; Lux Capital Management; Felicis Ventures
		Develops 3D animations, AR tech applications, and e-learning web applications	Aug 2017 PIPE: \$25.6m	NA
		Develops VR, AR, and mixed reality solutions for entertainment & sporting events, and classroom education	Dec 2017 Series A: \$15.3m	SAIF Partners; GSR Ventures Management Co. Ltd.; Alibaba Group Holding Limited
		Provides mixed and virtual reality solutions for retail optimization needs	Sep 2016 Growth: \$15.2m	Beringea LLC; Intel Capital; Plymouth Growth Partners; Hyde Park Venture Partners
		Develops AR and VR applications to be used in stores and e-commerce	Apr 2016 Series B \$10.0m	Stage 1 Ventures, LLC; Detroit Venture Partners, LLC
		eCommerce platform & APIs for building an online store and a mobile app & VR retail experience	Feb 2018 Series A: \$8.0m	Connect Ventures; Frontline Ventures; Underscore.VC
		Engages in the creation, transmission, and delivery of digital human holograms worldwide	Dec 2017 PIPE: \$6.0m	NA
		Platform to create cloud-based 3D and VR models of real-world spaces	Aug 2017 Growth: \$5.0m	Ericsson AB

7 AR/VR M&A activity

Company	Industry	Description	Acquirers	Valuation	Date
 Valtech SE	IT Consulting	Omni-channel, experience-driven digital commerce agency	SiegCo SA	Implied EV: \$352m EV/LTM Revenue: 1.6x EV/LTM EBITDA: 25.5x	Jan 2017
 Outward, Inc.	Application Software	Imaging solutions for the home furnishing industry	Williams-Sonoma, Inc.	Implied EV: \$112.0m EV/LTM Revenue: NA EV/LTM EBITDA: NA	Nov 2017
 DECORADO Marketplace Ltda.	Internet Software and Services	Operates a 3D modeling creation platform catering to furniture retailers	CreativeDrive	Implied EV: \$100.0m EV/LTM Revenue: NA EV/LTM EBITDA: NA	Mar 2018
 Spatialand Inc.	Application Software	Software tools that creators transform existing content into immersive	Store No. 8 (Walmart)	NA	Feb 2018
 Clusta Limited	Advertising	Multi-channel interactive ideas agency including AR	Krow Communications Limited	NA	Jul 2013
 Mackevision Medien Design MACKEVISION	Movies and Entertainment	Designs and produces CGI services for broadcasters	Accenture Plc	NA	Jan 2018
Living 3D Holdings	Application Software	Development of ecommerce platforms, mobile games, and VR applications	Hong Kong Cryptocurrency Exchange Ltd	NA	Dec 2017
Momentum Momentum Software	Application Software	Develops VR solutions for athletes, retail, hospitality, and gaming companies	Softvision, LLC	NA	May 2017
VR Outlet & Web Organic Food	Internet and Direct Marketing Retail	Operates a VR e-commerce platform and online organic food store	My Mobi Services	N/A	May 2017
 Cimagine Media	Internet Software and Services	SaaS based AR platform for retailers & brands	Snap Inc.	NA	Dec 2016

8 Most active investors in retail AR/VR space

Financial investors actively funding retail AR/VR ventures

Investor	Fund Overview	Representative Investments
 ROTHENBERG VENTURES	HQ: San Francisco, CA Founded: 2012, Funds raised: \$50.0mn # of retail AR/VR investments: 5	 GeoCV 2 rounds  WHITE RAVEN  retinad   SPECTRAVR } 1 round each
 Combinator	HQ: Mountain View, CA Founded: 2005, Funds raised: \$10.3mn # of retail AR/VR investments: 3	 LOOM.AI  InsiteVR  molting } 1 round each
 FRONTLINE VENTURES	HQ: London, UK Founded: 2012, Funds raised: €100.0mn # of retail AR/VR investments: 2	 molting } 2 rounds
Merus Capital.	HQ: Palo Alto, CA Founded: 2008, Funds raised: \$195.0mn # of relevant investments: 1	 OUTWARD } 2 rounds
 ND	HQ: Fuzhou, Jiangxi, China Founded: 1999, Funds raised: \$20.0mn # of retail AR/VR investments: 2	 ARHT MEDIA } 2 rounds
 PLYMOUTH GROWTH PARTNERS	HQ: Ann Arbor, MI Founded: 2003, Funds raised: \$140.7mn # of retail AR/VR investments: 2	 InContext SOLUTIONS } 2 rounds
 KHAZANAH NASIONAL	HQ: Kuala Lumpur, Malaysia Founded: 1993, Funds raised: \$1.1bn # of retail AR/VR investments: 1	 blippAR 1 round
SAIFPartners®	HQ: Hong Kong, China Founded: 2010, Funds raised: \$700.0mn # of retail AR/VR investments: 1	 PLEX VR 1 round
 HIGHLAND CAPITAL PARTNERS	HQ: Palo Alto, CA Founded: 1988, Funds raised: \$3.0bn+ # of retail AR/VR investments: 1	 LEAP MOTION 1 round
 dcm ventures	HQ: Menlo Park, CA Founded: 1996, Funds raised: \$3.2bn # of retail AR/VR investments: 1	 matterport 1 round

Imagery Industry – An Overview

1

Imagery Industry Composition

2

Industry Overview – Graphics Processing Unit-as-a-Service (GPU-aaS) Market

3

Industry Overview – Digital Asset Management (DAM) Market

4

Key Image Production Players – A comparative analysis

5

Key private placements in the industry

6

M&A precedent transactions

7

Most Active Investors

1 Imagery Industry Overview

Description

Key Players

Management Systems: Digital Asset Management (DAM)

- Storage & management of data for future reference and access via the cloud
- Examples: Asset & Metadata Archiving, Video Management, Web Content Management, Creative Tool Integration, Lifecycle & Rights Management



Physical Infrastructure: Graphics Processing Unit-as-a-Service (GPU-aaS)

- GPUs in the cloud working in conjunction with a server's CPU to accelerate application and processing performance for several large, parallel tasks
- Examples: CAD, CAM, Simulation (AR/VR), Imaging, Digital Video, Modelling and Animation



Content Creation

- Technology-based solutions for content image creation and personalisation
- Use of hardware and software to create garment images for clothing retailers

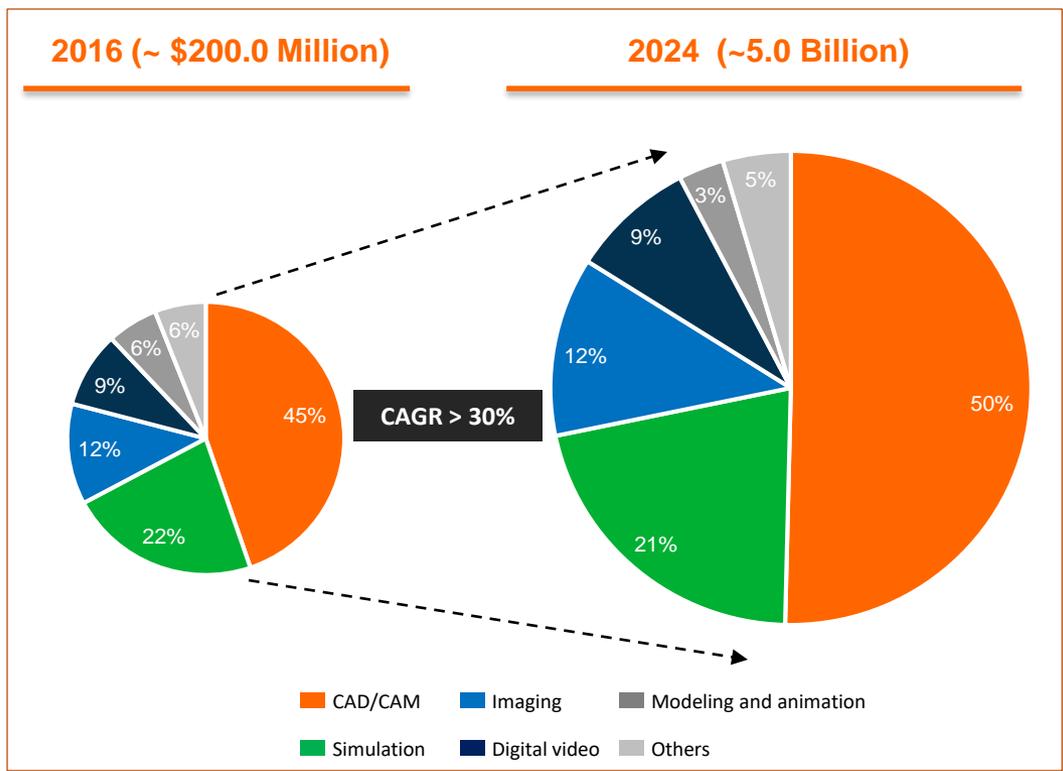
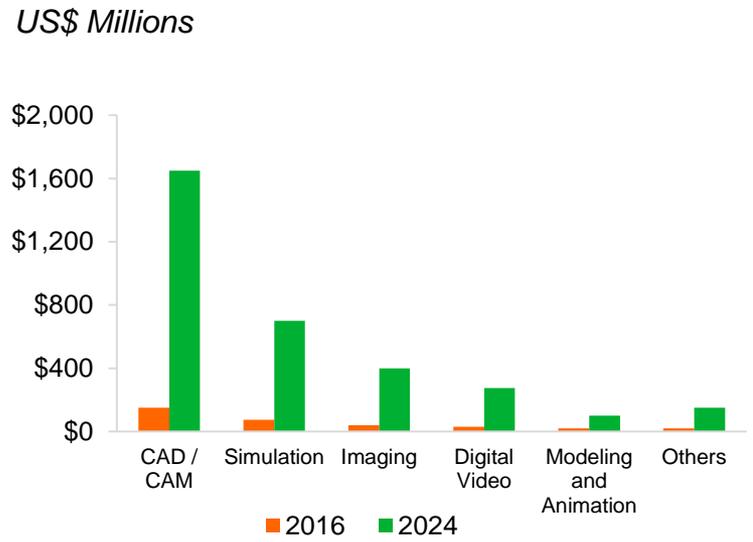


2 The GPU-aaS market is expected to reach \$5.0bn by 2024¹

Rapidly evolving electronics, AR, VR, AI are expected to propel the GPU-aaS market strongly forward

- The GPU as a service industry helps in delivering enhanced images, including optical effects, seamless motion, and intricate shapes at a faster pace.
- The market is poised to surpass \$5.0 billion by 2024, growing at a CAGR of nearly 30% between 2017 and 2024.
- The double digit growth is expected owing to constant changes in graphic games, AR, VR, and AI. Changing megatrends in the electronics and IoT space are expected to create new opportunities in the industry owing to huge investment and the need to develop new software graphics design. On the other hand the inability to integrate GPU hardware with cloud and managed services could restrain growth.
- The Imaging segment currently forms approximately 12% of the market, and this metric is expected to remain constant even in 2024 and reach close to \$600.0 million.

GPU as a service market size, by application, 2016 & 2024



Notes:
 1. Estimates by Global Market Insights
 2. Chart data is based on estimates gathered from secondary research

3 The DAM Market estimated to be worth \$5.7bn by 2022

Significant increase in use of digital assets across industries and higher spending on digital marketing to drive growth

Key emerging trends in the DAM Market going forward

Artificial Intelligence and Machine Learning

AI is the next level of automation over adoption DAM, and it is expected to become ubiquitous across verticals and processes.

Automation

Backed by AI, the DAM software would learn from the data and patterns of usage over time, and be able to pull more appropriate assets from the system.

Content atomization

The key advantage DAM offers is reusability of content. Further break-down of content into unique mini-portions (atomization) will further boost reusability and maximize DAM ROI

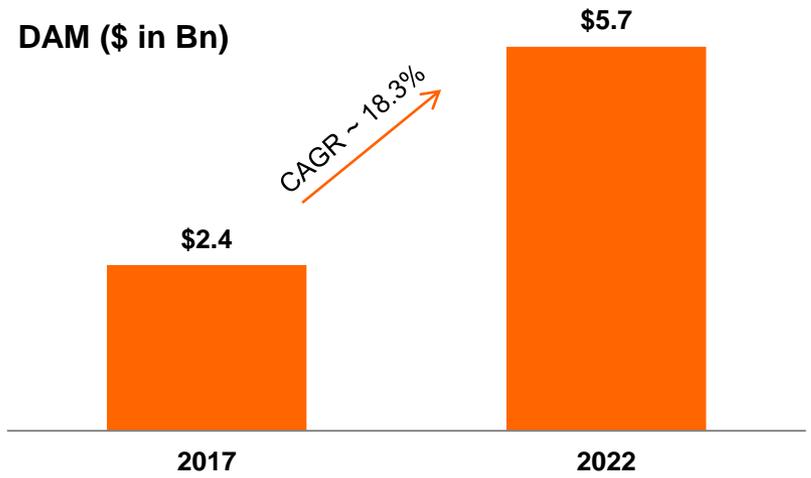
Metadata Management

AI can now predict associations between digital assets, which allows the DAM system to suggest options for metadata, automatically allowing organizations more precision and control over searching and cataloging digit asset libraries.

Blockchain

Experts foresee Blockchain playing a key part in the DAM function as it allows digital assets to be distributed but not copied via a distributed log, thus maintaining data integrity and enhancing security.

Global DAM Market growth¹



Key Drivers	Inhibitors
<ul style="list-style-type: none"> ✓ Increasing use of digital assets ✓ Rising usage of digital marketing strategies ✓ Need to reduce labor costs & improve efficiencies ✓ Rapid migration to cloud ✓ Declining data costs ✓ Faster broadband speeds 	<ul style="list-style-type: none"> ✗ High cost of DAM software and implementation ✗ Security concerns over data stored in the cloud

STRONG UNDERLYING GROWTH TRENDS IN THE DAM AND GPU-aaS MARKETS WILL PROVE TO BE EFFECTIVE CATALYSTS FOR THE IMAGE MANAGEMENT COMPANIES TO THRIVE, ESPECIALLY IN THE RETAIL SEGMENT!

4 Key Image Production Players – A comparative analysis

	 Allure Systems	 Looklet	 Metal	 StyleShoots	 Fyusion	
Solution	Composed photography	Composed photography	Composed photography Virtual fitting room	Ghost Mannequins “All-in-one” photos	Camera agnostic 3-D image processing and photo-sharing tech	
Offices	Paris (HQ) SF, Shanghai	Stockholm (HQ) Paris, New York	London (HQ) Cambridge	Haarlem (HQ) London	San Francisco, CA	
Employees	50	80	50	20	50	
Founded	2015	2009	2008	2011	2013	
Total Funding	\$3.6m	\$1.5m	\$32.4m	NA	\$38.4m	
Key Investors	Calao Finance, CapHorn Invest	Vente-privee	TAL Apparel, Microsoft Accelerator London, New World PE	NA	2020 Ventures, NEA; NTT Docomo, Presence Capital; Gionee	
Key Clients	  showroomprive.com BrandAlley La Redoute	  vente-privee Best Secret BERGDORF GOODMAN HUDSON'S BAY	 	  	 	   
SaaS	●	●	●	●	●	
Technology	🕒	●	🕒	🕒	●	
Market Presence	🕒	●	🕒	🕒	🕒	
Client Base	🕒	●	🕒	🕒	🕒	

4 Key Image Production Players: Allure Systems

Company Overview

Founded: 2017 **Status:** Private
Employees: 51-100 **HQ:** Paris, France

Company Overview: Allure Systems provides solutions for fashion image production for E-retailers.

Allure Systems combines proprietary hardware with advanced virtualization techniques and image processing technology, to create stunning on-figure garment images for clothing retailers. Each final image is a composite of a virtualized model and a garment photograph, and is indistinguishable from a single, real image.

With augmented reality and 3D destined to deliver initiatives such as improved experience, better image search and personalization, Allure Systems imagery also future-proofs user s' image assets. Even Allure Systems studio can deliver 3D/AR-ready content for incorporation into future projects.

Key Facts

- Allure Systems uses proprietary patented algorithms and studio technologies to replace fashion models, photographs and photo retouchers.
- Multiple Allure Systems studios can be deployed anywhere in the world you choose.
- By using a different virtualised model image with a garment photograph, it's also easy to create new, perfect product images for different territories or different customer groups, without the need for additional shoots.
- Allure Systems is the leader in scalable solutions for fashion image production.
- E-retailers benefits with lower costs of visual production, increased productivity and higher quality.

Management Team

Gabrielle Chou, Co-founder: & CEO Gabrielle is a repeat entrepreneur. In 2000, she started ChinaLOOP, a technology empowered Marketing service company, that she sold 4 years later to ACXIOM (NASDAQ: ACXM). She later became part of Acxiom Leadership team till 2010. She then left to create MOOD BY ME, a one-to-one fashion brands, that she sold to City Heart in early 2014.

Jeremy Chamoux, Co-founder & Chief Technical Officer: With his 10+ years of experience in computer vision and image processing, Jeremy is in charge of the R&D department as Chief Technical Officer.

Fanny Forgeau: Fanny is an experienced Chief Operating Officer with a demonstrated history of working in the Internet industry. Previously she was Chief Operating Officer of Linkfluence – a leading Social Data Intelligence company. Prior to that, she was Directrice Conseil at Limelight Consulting.

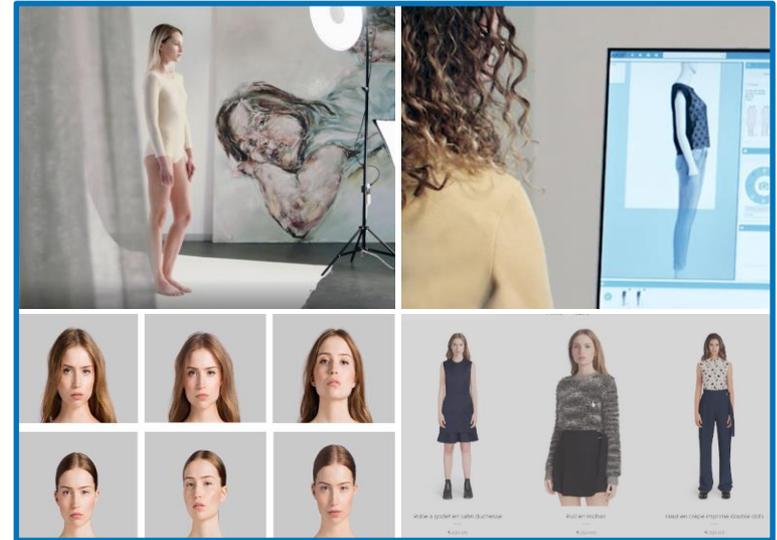
Financing Summary

Date	Round Type	Amount	Investors
Sep 2017	Seed	€3M	CapHorn Invest, Calao Finance

4 Allure Systems: Technology Overview

Allure Systems focuses on proprietary hardware, advanced virtualisation and computer vision technologies to create on-figure garment images for clothing retailers.

- **3D / augmented reality-ready:** every final image is a composite of a virtualized model and a garment photograph
- **Global consistency and quality required:** only stylists and garments are required to create new product images, transforming productivity and rewriting the clients cost-per-image calculations
- **Enhance and personalize customer experiences:** processing time of a composite image is few hours, reducing the time-to-site by potentially days
- **Reduce product photography costs:** allows the deployment of multiple studios across the World, linked to the same Product Information Management system



Key Features

- **Virtualised model portfolio:** virtualised model with complete hair makeup and facial expressions
- **Allure System Studio:** comprised of proprietary hardware including camera & lightning which is ideally closed to the clients garment to maximise their availability
- **Mannequins:** supplies different combination of male, female and plus-size mannequins in different poses to showcase clients different garments
- **Allure System SaaS:** client controls the number of the images he takes and the angle the from which he takes them as well as the framing. Each image is accompanied with appropriate tags and information is delivered back to the client's product information management system

4

Allure Systems – Case Study: Showroomprivé

Challenges

- Find the perfect models to deliver brand appropriate intimate garment images and reduce time-to-site delays and costs
- As a flash sales specialist, Showroomprivé's photography studios must shoot a wide range of fashion items every day
- The different sizing associated with the brands sold by Showroomprivé also makes it challenging to find models that can wear different items

Solution

- Allure Systems' solution makes it possible to meet all the brands expectations with virtualized models
- The models are both perfect in body measurements, skin tones and expressions and can adapt to different brand size requirements
- Each image created by the Allure Systems solution can be published without the need for additional photo retouching and is processed with appropriate tags and information, further speeding up the process
- The studios provide total flexibility, high throughput and consistent images, reducing time-to-site and image production costs

Key Results and Implementation

- Showroomprivé has two studios of the company to shoot 100% of their intimate garments
- The two Allure studios boast the capacity to receive any product, shoot and upload the images online within 36 hours
- While only one stylist is needed to operate any Allure Systems studio, Showroomprivé has chosen to train several to do so, in order to be able to handle any volume rapidly

4 Key Image Production Players: Fyusion

Company Overview

Founded: 2013

Status: Private

Employees: 50

HQ: San Francisco, CA

Company Overview: Fyusion, Inc. designs and develops a 3-D image processing technology and photo-sharing application for users of iOS and Android mobile devices.

Fyusion applies 3D computer vision and machine learning expertise to make intelligent spatial photographs. Immersive, interactive photorealistic 3D images viewable on any mobile, desktop, VR or AR device are captured using only a smartphone, or any other camera.

The Company's solution creates value to its clients by eliminating the need for professional photographers and equipment, as well as by reducing 3D image processing time to < 2 minutes.

Management Team

Radu Rusu, Co-founder & CEO: Radu is also a CEO at Open Perception, a non-profit for promoting AR/VR open source tech. Previously he was a Research Scientist at Willow Garage. He holds a Ph.D. in Computer Science from Technische Universität München.

George Haber, COO: George is a Successful Serial Entrepreneur, Marketing Guru, Strategist, with a proven track record, from envisioning, implementing, guiding and managing High Tech Companies from StartUp up to M&A or IPO.

Stefan Holzer, Co-founder & CTO: Prior to co-founding Fyusion, Stefan was a Visiting Researcher at Willow Garage and Microsoft Research. He holds a Ph.D. and M.Sc. in Computer Science from Technische Universität München.

Key Facts

- Fyusion's product portfolio consists of solutions for 3D 360° car imaging and 3D 360° e-commerce imaging. All images are AR, VR, and MR ready.
- The Company currently serves over 112 million active monthly users and powers over 106 million active monthly tilts.
- Its core technology is protected by over 50 registered patents.
- It was among the top 5 companies chosen from over 200 applicants at the Store No. 8 INNOV8 v-commerce gala organized by Walmart in October 2017.
- The Company has developed specialized solutions for the automotive segment through which it has won orders on OEM distribution of over 100 million devices.

Financing Summary

Date	Round Type	Amount	Investors
Feb 2017	Series B	\$22.00	2020 Ventures, NEA; NTT Docomo, Presence Capital; Gionee
Mar 2015	Series B	\$13.00	NEA, UTEC
May 2014	Series A	\$3.35	NEA, UTEC

4 Fyusion: Technology Features & Overview

Fyusion's solutions are based on proprietary technology protected by over 50 patents. The solution consists of a mobile app / SDK which can capture and process 3D images from any mobile device / camera.

Any reality-ready:

- ✓ All Fyusion images (Fyuses) are ready for use in any reality – AR, VR or MR

Fast & Camera agnostic:

- ✓ The app allows image capture by any mobile or digital camera, which can directly be rendered for any reality in under two minutes, using AI, computer 3D vision and machine learning.
- ✓ The technology combines various sensors like camera data, accelerometer, gyroscope, magnetometer, location, and sound to create photo-realistic smart images.

Developer-free integration:

- ✓ Post image capture from any camera, images can be integrated into mobile/AR apps or web pages without any need for technical expertise.

Reduce product photography costs:

- ✓ Allows to deploy multiple studios across the World, linked to the same Product Information Management system

Freemium pricing model:

- ✓ The Company's entry level products (Fyuse app, Developer and Viewer SDKs) are completely free, with custom pricing offered for enterprise clients.

Major Products

✓ 3D 360° Car Imaging

- Image capture up to 4K quality with any smartphone
- Easy image & background editing and rendering
- Image tagging with external links.



✓ 3D 360° E-Commerce Catalogs

- Optimized e-commerce image capture with any smartphone.
- Turn-table and table top modes
- Easy editing and instant uploads.



✓ Fyuse Mobile App

- The Fyuse iOS and Android app allows anyone with a smartphone to capture and view 3D images, and share them with the Fyuse and other social networks, for free.

4 Key Image Production Players: Looklet

Company Overview

Founded: 2009 **Status:** Private
Employees: 80 **HQ:** Stockholm, Sweden

Company Overview: Looklet is a B2B technology-based turn-key solutions for fashion retailers for content creation and personalization of their online catalogs on virtual models.

The Company combines high-quality dynamic images with proprietary hardware to create a simple and scalable process, industrializing image and content production for the new world of fast online fashion.

Looklet serves several clients in the fashion retail industry.

The Company is headquartered in Stockholm (Sweden), and has offices in Paris (France) and New York (US).

Current investors include Vente-Privee.

Key Facts

- Looklet offers an in-house virtual photo studio for fashion retailers.
- Its solution is a turn-key technology solution comprising of proprietary hardware and cloud-based software.
- The Company’s solution has re-defined the way in which fashion retailers conduct their photoshoots to populate their online catalogs,
- The Company’s solution comes ready with a large base image library consisting of images divided into four categories – models & faces, body variations, crops & ghost images, and angles & backgrounds.
- Users can create umpteen ‘catalog ready’ images from this library using all possible permutations and combinations.

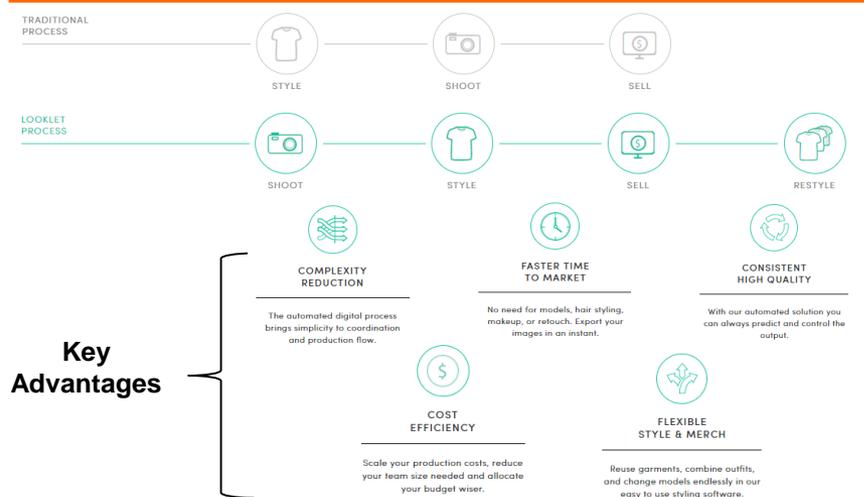
Management Team (only CXO)

Jannis Koehn, Co-founder and CEO: Jannis previously served as a project leader at The Boston Consulting Group (BCG). He holds the degree of MPA - Public Administration from Harvard University.

Robert Ahlborg, Co-founder and CPO: Robert is co-founder at Looklet. He is working in the role of Chief Product Officer.

Javier Ubillos, CTO: Javier previously served as VP of Engineering, head of product & platform at MagineTV. Prior, he served as Technical Product owner - Operational Monitoring at Spotify. He is also founder of MSL Technologies AB.

Solution



4 Composed photography is the next technology wave in eCommerce fashion imagery

Three Approaches in Fashion Imagery



Ghost / Still



CGI / 3D



**Next Technology:
Composed
Photography**

4 New opportunities from composed photography

Personalization: Customized images drive conversion and AOV

Distributed Photography
Brands & retailers trade image & components to shorten time-to-market



Model Variation



Occasion



Work & Play



Trends



RETAILERS

BRANDS

Today

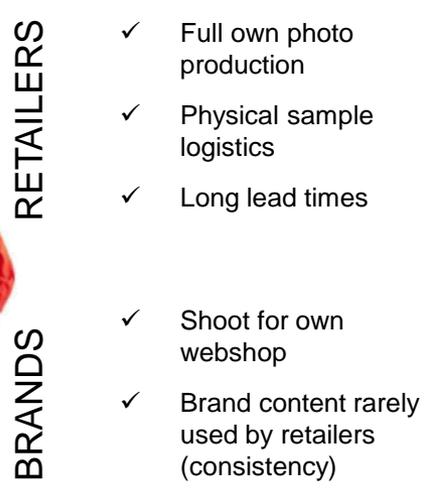
- ✓ Full own photo production
- ✓ Physical sample logistics
- ✓ Long lead times

Tomorrow

- ✓ Styling software only
- ✓ Receive digital samples before physical merch
- ✓ Items online before in stock

- ✓ Shoot for own webshop
- ✓ Brand content rarely used by retailers (consistency)

- ✓ Shoot for all webshops
- ✓ Faster online than competing brands



Composed Photography enables faster value chains by separating (physical) shooting and (digital) styling



Accessory Option



Regional Customisation

4 Looklet turnkey content creation



Reimagine Fashion Imagery

Look Creator Studio

Look Creator Demo

Looklet is a turnkey system for fashion eCom photo production

- ✓ For retailers and brands
- ✓ In-house production (or serviced)
- ✓ Model + Ghost
- ✓ Capturing equipment + Styling software
- ✓ Cost-efficient, scalable & fast process
- ✓ Consistent photorealistic quality
- ✓ Flexible restyling



4 Key Image Production Players: Metail

Company Overview

Founded: 2008

Status: Private

Employees: 60

HQ: London, UK

Company Overview: Metail is a virtual fitting room service for fashion retailers that allows customers to create a 3D photo-realistic model of themselves from just two uploaded photos, in only a few minutes.

Customers can then try on clothes, see how they fit and create and share their looks. Once a customer has made their model, they can login to their Metail profile with any partner retailer using the service.

Metail can change the way people view body image and clothing by empowering users to dress for their own personal shape rather than for the projection of the 'ideal' form. Wherever there is a social or transactional experience involving the body, Metail wants the customer to be able to access their profile. These enhanced experiences will not just be online but also in shops, on mobiles and tablets and on TV.

Key Facts

- Metail's patented technology captures two unique datasets at scale: human body size and shape, and 3D garment digitisation, which powers Metail's ability to make the world your wardrobe.
- Working across the UK, Europe, Asia and Australia, Metail has proven that 'try-ons' improve user engagement by 3x and lifts sales by 30%.
- Metail's largest investor is clothing manufacturing giant TAL.

Management Team

Tom Adeyoola, Founder and CEO: Tom spent more than ten years in various senior strategy and product development roles helping start-ups to devise and implement new business models and products. His career has spanned new media from Sportal to 3 and most recently Inspired Gaming Group where he served as Head of Gaming.

Kelvin Au, Managing Director: Kelvin is responsible for finance and operations, investor relations, and Asia business and client development. Prior to Metail, Kelvin was an investor at DFJ (Draper Esprit). Before joining DFJ, Kelvin worked at Credit Suisse and HSBC.

Sarah Walter, Chief Creative Officer: Sarah went straight from Central St.Martins to Vogue where she indulged her love of imagery alongside the best in the industry. Sarah became Fashion Editor at Harper's Bazaar followed by Fashion Director at Marie Claire. In 2000, she joined New Look as Head of Fashion Communications.

Financing Summary

Date	Round Type	Amount	Investors
Jul, 2017	Series B	£10M	TAL Apparel
Jun, 2017	Non equity Assistance	---	Microsoft Accelerator London
Oct, 2014	Series B	\$12M	TAL Apparel
Dec, 2013	Series A	£2.6M	New World Private Equity
Mar, 2011	Angel Round	N/A	NUMA (Le Camping)

4

Key Image Production Players: StyleShoots

Company Overview

Founded: 2012

Status: Private

Employees: 11-50

HQ: Haarlem, Netherlands

Company Overview: Styleshoots is a technology company that builds innovative imaging solutions for the world of fashion e-commerce.

It was founded to simplify one of the most critical parts of fashion e-commerce - product photography. It designs and manufactures iPad controlled all-in-one machines for fashion product and model photography.

Styleshoots s' patented 'all-in-one' content creation machines are used by hundreds of brands around the world to take millions of pro-quality product photos every year. The machines help customers do this by focusing on speed, sleek user-centric design, and removing all the technical hassle involved in photography

Key Facts

- StyleShoots is a super easy-to-use photo machine of choice for fashion companies which magically removes the background.
- In 2011 StyleShoots Horizontal launched. It was the first machine in the world to combine a whole product photography studio in one.
- To further improve on the digital presentation of fashion, in 2014 StyleShoots Vertical launched- another 'all-in-one' photo machine. Vertical is designed to be used with modular mannequins to instantly get hollow man style packshots with almost no post-production needed.
- In 2017, to tackle the final hurdle of fashion eCommerce content: live model photography, StyleShoots Live launched. It is the world's first robotic photo and video studio.
- Fashion brands and online retailers around the world use StyleShoots as their in-house photo equipment.

Management Team

Maurits Teunissen, Owner: Maurits is also owner of Visual Retailing, In early 90's he founder of RunTime BV a succesful software company operating in the apparel market. RunTime BV became undisputed market leader in Europe and was acquired by Canadian GEAC in 2000.

Rogier van den Heuvel, Chief Commercial Officer: Rogier has proven leadership in building and leading multicultural International teams. Previously, he was Vice President Benelux & Nordics at mGage, a Vivial Company. He also worked as Blogger @ Adformatie - Mobilemarketing.nl at Adfo Groep.

Gerwin De Haan, Chief Technology Officer: Gerwin works on innovative software products and hardware devices for the fashion industry. As an assistant professor at Delft University of Technology he did research in the field of Computer Graphics and Data Visualization.

Customers



5 Key private placements in Image Management

Company	Country	Description	Round Details	Investors
 Metail®		Virtual fitting room service for fashion retailers	Jul 2017, <i>Series B</i> : \$12.9m Oct 2014, <i>Series B</i> : \$12.0m	TAL Apparel Limited
 MediaSilo		SaaS-based DAM for retail branding, including image management	Feb 2017 <i>Venture</i> : \$7.0m	Schooner Capital LLC
 Metail®		Virtual fitting room service for fashion retailers	Dec 2013 <i>Series A</i> : \$4.2m	New World Private Equity Partners LLP
 Allure ^{SYSTEMS}		Software solutions for content image creation and personalization on fashion models	Sep 2017 <i>Seed</i> : \$3.6m	Calao Finance; CapHorn Invest - Société de Gestion
 abacus e-media		Provides CMS and DAM solutions	Aug 2013 <i>Venture</i> : \$3.5m	Business Growth Fund plc
 shazura		Provides AI based digital imaging and image search solutions	May 2017 <i>Series A</i> : \$2.6m	NA
 MediaSilo		SaaS-based DAM for retail branding, including image management	Jan 2013 <i>Series A</i> : \$2.3m	Schooner Capital LLC
 Xilopix		SaaS based DAM software	Oct 2013 <i>Venture</i> : \$1.4m	NA

6 Image Management M&A activity

Company	Industry	Description	Acquirers	Valuation	Date
 Merisel, Inc.	Commercial Printing	Visual communications and digital brand imaging solutions	Saints Capital; Saints Capital Granite, L.P.	Implied EV: \$50.3m EV/LTM Revenue: 0.5x EV/LTM EBITDA: NA	Jun 2013
 Venda, Inc	Internet Software and Services	Cloud-based digital commerce solutions including Image Management	NetSuite Inc.	Implied EV: \$50.3m EV/LTM Revenue: NA EV/LTM EBITDA: NA	Jul 2014
 Xilopix SAS	Internet Software and Services	SaaS based DAM software	Qwant SAS	NA	Nov 2017
 The Data Council, Inc.	Internet Software and Services	Product imaging solutions for organic goods retailers	Advantage Solutions Inc.	NA	Aug 2017
 Chuckwalla, Inc.	Application Software	Enterprise DAM software including imaging solutions	NetXposure, Inc.	N/A	Aug 2017
 Data Supplies, Inc.	Advertising	Marketing solutions including DAM and imaging solutions	SmartSource LLC	NA	Dec 2016
 EnterWorks Acquisition, Inc.	Application Software	3D VR, AR solutions for e-Commerce companies in India	PropTiger Realty Pvt. Ltd	N/A	Aug 2016
 MHC Associates, Inc.	Internet Software and Services	Operates multi-platform sports and social gaming networks	MoboVivo Inc. and PokerVision Media Inc.	N/A	Aug 2016
 Looklet	Composed Photography	B2B technology-based turn-key solutions for fashion retailers for content creation and personalization	Vente-Privée	N/A	2014
 Where commerce meets capital					

Source: Capital IQ, Crunchbase

7 Most active investors in retail Image Management

European Funds appear more active in this space

Investor	Fund Overview	Representative Investments
	HQ: Kowloon, HK Founded: 1947, Funds raised: NA # of relevant investments: 2	 } 2 rounds
	HQ: Boston, MA Founded: 1971, Funds raised: NA # of relevant investments: 2	 } 2 rounds
	HQ: Miami, FL Founded: 1988, Funds raised: NA # of relevant investments: 1	 1 round
	HQ: London, UK Founded: NA, Funds raised: NA # of relevant investments: 1	 1 round
	HQ: Paris, France Founded: 2010, Funds raised: NA # of relevant investments: 1	 1 round
	HQ: Birmingham, UK Founded: 2011, Funds raised: \$908.5mn # of relevant investments: 1	 1 round
	HQ: Lorraine, France Founded: 1983, Funds raised: \$73.2mn # of relevant investments: 1	 1 round

Appendix

AR/VR in Retail – Precedent M&A Transactions

Closed Date	Target	Acquirer	Implied EV	Implied EV/LTM Revenue
4-Jan-17	Valtech SE	SiegCo SA	\$340	1.6x
16-Nov-17	Outward Inc.	Williams-Sonoma, Inc.	\$112	NA
15-Mar-18	DECORADO Marketplace Ltda.	CreativeDrive	\$100	NA
5-Feb-18	Spatialand Inc.	Store No. 8 (Walmart)	NA	NA
11-Jul-13	Clusta Limited	Krow Communications Limited	NA	NA
10-Jan-18	Mackevision Medien Design GmbH Stuttgart	Accenture plc	NA	NA
6-Dec-17	Living 3D Holdings Inc., Prior to Reverse Merger with Hong Kong Cryptocurrency Exchange Limited	Hong Kong Cryptocurrency Exchange Limited (nka:Living 3D Holdings, Inc.)	NA	NA
23-May-17	Momentum Software Inc.	Softvision, LLC	NA	NA
13-May-17	VR Outlet and Web Organic Food	My Mobi Services	NA	NA
31-Dec-16	Cimagine Media Ltd.	Snap Inc.	NA	NA
20-Sep-16	Kid Neon Images	Deloitte Touche Tohmatsu Australia, Investment	NA	NA
11-Aug-16	Shulin Automation Pvt. Ltd.	PropTiger Realty Pvt Ltd	NA	NA
5-Aug-16	Network Life Sciences Inc. (nka:e-Play Digital Inc., prior to reverse merger with MoboVivo Inc. and PokerVision Media Inc.)	MoboVivo Inc. and PokerVision Media Inc. (nka:ePlay Digital Inc.)	NA	NA
4-Dec-15	Living 3D Holdings Inc., Prior to Reverse Merger with Hong Kong Cryptocurrency Exchange Limited	NA	NA	NA
4-Dec-15	Mode-In-Motion	ShopInvest	NA	NA
24-Apr-15	Reality Boost, Inc.	ShopLive, LLC	NA	NA

AR/VR in Retail – Private Placements (1 of 2)

Date	Target	Buyer	Deal Size
Mar-16	Blippar.Com Limited	Khazanah Nasional Berhad	\$54.0
Jul-17	Leap Motion, Inc.	Highland Capital Partners; J.P. Morgan Asset Management, Inc.; Founders Fund; SOSV; Andreessen Horowitz LLC	\$50.0
Jun-15	Matterport, Inc.	DCM Ventures; GIC Special Investments Pte. Ltd.; QUALCOMM Ventures; Lux Capital Management; Felicis Ventures	\$30.0
Aug-17	Newtree Group Holdings Limited	NA	\$25.6
Dec-17	Plex-VR Digital Technology (Shanghai) Co., Ltd.	SAIF Partners; GSR Ventures Management Co. Ltd.; Alibaba Group Holding Limited	\$15.3
Sep-16	InContext Solutions, Inc.	Beringea LLC; Intel Capital; Plymouth Growth Partners; Hyde Park Venture Partners	\$15.2
Apr-16	Marxent Labs LLC	Stage 1 Ventures, LLC; Detroit Venture Partners, LLC	\$10.0
Feb-18	Moltin Limited	Connect Ventures; Frontline Ventures; Underscore.VC	\$8.0
May-15	Outward Inc.	NA	\$6.5
Dec-17	ARHT Media Inc.	NA	\$5.9
Sep-16	Outward Inc.	Merus Capital	\$5.0
Aug-17	Matterport, Inc.	Ericsson AB	\$5.0
Dec-15	InContext Solutions, Inc.	Plymouth Growth Partners; Plymouth Venture Partners III, L.P.	\$4.7
Nov-15	WakingApp LTD.	Inimiti Capital Partners; Youzu Interactive Co. Ltd	\$4.3
Feb-16	ARHT Media Inc.	NetDragon Websoft Inc. (nka:NetDragon Websoft Holdings Limited)	\$3.8
Mar-16	Augment SAS	Salesforce Ventures	\$3.0
Sep-15	Moltin Limited	Y Combinator Management LLC; Frontline Ventures; FundersClub Inc., Investment Arm; TIM Ventures	\$2.5
Feb-16	wrnch Inc.	TandemLaunch Inc.; Aligo Innovation; Radical Ventures LLC; gr0k technologies	\$1.8
Aug-16	vrban, Inc.	Y Combinator Management LLC; CyberAgent Ventures, Inc.; Rothenberg Ventures (nka:Frontier Tech Ventures); GREE VR Capital, LLC; GFR Fund	\$1.5
Jan-17	ARHT Media Inc.	NetDragon Websoft Holdings Limited	\$1.5
Dec-16	LoomAi, Inc.	Y Combinator Management LLC; Danhua Capital; Presence Capital; Anorak Ventures Inc.	\$1.4

AR/VR in Retail – Private Placements (2 of 2)

Date	Target	Buyer	Deal Size
Dec-15	ARHT Media Inc.	NA	\$1.2
Jul-15	ARHT Media Inc.	NA	\$1.2
Sep-17	Cappasity Inc.	NA	\$0.8
Dec-15	Cappasity Inc.	NA	\$0.7
Apr-17	Whodat Tech Private Limited	Ideaspring Capital; Ideaspring Capital	\$0.6
Feb-17	Imagine Software Labs Pvt Ltd	SRI Capital; SRI Capital	\$0.5
Jun-17	Opuscope SAS	NA	\$0.4
Mean			\$9.3
Median			\$4.0

Image Management in Retail – Precedent M&A Transactions

Closed Date	Target	Acquirer	Implied EV	Implied EV/LTM Revenue	Implied Enterprise Value/LTM EBITDA
17-Jul-14	Venda, Inc.	NetSuite Inc.	\$50.3	NA	NA
21-Jun-13	Merisel, Inc.	Saints Capital; Saints Capital Granite, L.P.	\$26.7	0.5x	NM
16-Nov-17	Xilopix SAS	Qwant SAS	NA	NA	NA
16-Aug-17	The Data Council, Inc.	Advantage Solutions Inc.	NA	NA	NA
10-Aug-17	Chuckwalla, Inc.	NetXposure, Inc.	NA	NA	NA
20-Jan-16	Data Supplies, Inc.	SmartSource LLC	NA	NA	NA
19-Mar-15	EnterWorks Acquisition, Inc.	Black Dragon Capital, LLC	NA	NA	NA
1-Nov-14	MHC Associates, Inc.	Safeguard Business Systems, Inc.	NA	NA	NA
Mean			\$38.5	0.5x	NA
Median			\$38.5	0.5x	NA

Note: Deals closed between January 1, 2013 to April 30, 2018, All values are in \$m, except multiples
Source: Capital IQ, Crunchbase, ComCap Analysis

Image Management in Retail – Private Placements

Date	Target	Buyer	Deal Size
9-Jul-17	Metail Limited	TAL Apparel Limited	\$12.9
16-Oct-14	Metail Limited	TAL Apparel Limited	\$12.0
9-Feb-17	MediaSilo, Inc.	Schooner Capital LLC	\$7.0
16-Dec-13	Metail Limited	New World Private Equity Partners LLP	\$4.2
27-Aug-15	The Data Council, Inc.	NA	\$3.8
5-Sep-17	Allure Systems SAS	Calao Finance; CapHorn Invest - Société de Gestion	\$3.6
13-Aug-13	Abacus Software Limited	Business Growth Fund plc	\$3.5
19-May-17	Shazura	NA	\$2.6
23-Jan-13	MediaSilo, Inc.	Schooner Capital LLC	\$2.3
10-Oct-13	Xilopix SAS	FLC - ILP - Sadepar Gestion	\$1.4
15-Jun-15	Shazura	NA	\$1.3
10-Dec-13	Shazura	NA	\$0.8

Mean	\$4.6
Median	\$3.5