

ARTILLRY INTELLIGENCE BRIEFING TECH GIANTS TACKLE AUGMENTED REALITY AUGUST 2017

AR to Explore





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Executive Summary

A lot can be learned about augmented reality's (AR) market opportunity by examining the moves of tech giants tackling it. And in the past six months alone, we've seen a flood of activity in various announcements and developer conferences – everyone from Google to Facebook.

To zero in on the biggest players making the most impactful moves, this report examines the AR positioning of Apple, Google, Facebook and Amazon – the so-called "Four Horsemen of Tech." Microsoft, though not on that list, is making considerable moves that we've included in this report.

Recognizing each of these giants' priorities and positioning can inform decisions about the market's trajectory, fill necessary gaps in the AR value chain and "skate to where the puck is going." This report is a foundation for such market analysis, sizing and opportunity-spotting.

There will continue to be rapid advancements in AR, meaning that ongoing examination will be necessary. In addition to daily coverage on ARtillry.co, this report is meant to give subscribers a base for that knowledge position.



Key Takeaways

- There are several factors causing multimedia capture and sharing to become a prevalent consumer use case: better camera optics, mobile broadband and millennial behavior.
- This is causing the smartphone camera to take over as the next app development platform. And that has natural synergies with AR (portability, viewfinder, graphical processing, etc.).
- We've seen proof of concept in several early and primitive examples of smartphone AR, such as Snapchat Selfie Lenses and Pokémon Go.
- Though they're not "true AR," these early mobile AR products have indicated the mass-market appeal for AR, and served as a "gateway drug."
- Most major tech giants have responded to that market validation with major AR investments... and each respective strategy mirrors the positioning and priorities of that company.
 - Google sees AR as a way to boost "visual search" and user engagement, towards supporting its core search business.
 - Amazon wants to get you to buy more stuff, using AR to qualify purchases and visualize product placement in home.
 - Facebook wants to boost multimedia sharing through AR lenses, supporting its core ad business and setting a foundation for an immersive media future.
 - Apple launched ARKit to breathe new life into waning iPhone sales and generally position its future hardware for continued dominance.
 - Microsoft will combine a vertically integrated hardware approach (Hololens) with its classic model of licensing mixed reality software to OEMs.
- Recognizing these giants' goals can inform decisions about the market's trajectory, filling necessary gaps in the AR value chain and "skate to where the puck is going."
 - For developers, the opportunity starts with AR app toolkits that these giants provide. Aligning platform capabilities and audience will be key success factors.
 - Startups can triangulate areas where greatest demand and valuations lie, especially if interested in market exits or partnerships with tech giants setting this course.
 - Non-developers and startups such as media companies, should watch the approaches and market shares of these tech giants to decide which platforms offer opportunities for audience extension, user engagement and monetization.



Introduction: Finding an Addressable Market

Smart glasses – the modality in which augmented reality is mostly envisioned – is several years from meaningful consumer adoption, due to factors like cost, size and cultural acceptance. The nearer term AR opportunity lies instead with the installed base of 2.6 billion global smartphones.

Smart glasses will see near-term adoption in the enterprise though. There, stylistic and cultural concerns don't exist. Enterprise buyers also have less price sensitivity to costly smart glasses, due to potential savings and streamlined operations in areas like manufacturing and assembly.

Back to consumer markets, recent moves by major tech giants support the assertion that smartphones will be the near-term vessel for AR. And Smartphone hardware advancements align with AR capability -- including optics, screen size, processing power and mobile broadband speeds.

There are also cultural factors, such as Millennials' affinity for sharing multimedia like Snaps. These social sharing use cases have been the initial proving grounds for widespread mobile AR acceptance. They've taken form in features like Snapchat Selfie Lenses or games like Pokémon Go.

Though these early versions of AR lack the dimensional mapping to classify them as "true AR," it doesn't matter: Their value lies in proof of concept for widespread market acceptance. That market validation has in turn signaled tech giants to invest heavily in mobile AR, as this report examines.

Part of that investment has been to advance "true AR." In recent moves by Google, Facebook, Apple and others, there's been deliberate emphasis on dimensionally accurate AR graphics. That science is known as simultaneous localization and mapping (SLAM), as explored in this report.

These foundational advancements have taken form in SDKs and toolsets for developers to carry us into AR's next phase. That period will be characterized by more advanced, utilitarian, varied (and monetizable) AR apps, compared to the relatively primitive forms of mobile AR we've seen to date.

With that backdrop, we examine the individual moves of five market-defining players in mobile AR: Facebook, Apple, Amazon, Google and Microsoft. We'll tackle them one by one.



Part I: Google

Google has been making big moves in AR. Building from momentum with its Tango platform, the recent I/O conference spotlighted new ways to map building interiors (VPS), and use the smartphone camera to identify items in the real world (Google Lens).

The latter is a form of "visual search." This emerging area involves computer vision and machine learning to scan and identify physical objects. This could be a key technology for Google to boost search queries, its biggest source of revenue.

VPS-fueled Indoor mapping could meanwhile help Google measure/prove search marketing ROI by tracking consumers all the way to the cash register. Built on Tango, it applies depth sensing and area learning to map indoor spaces as a foundation for visual search and AR apps to come.

Pictures Worth a Thousand Words

The way VPS works is by applying computer vision via smartphone camera to scan interior spaces and form a point cloud. That unique digital fingerprint then becomes the basis for positional tracking, indoor navigation and overlaying practical information.

The go-to example is overlaying positional data for store shelves and the items they carry. As already pioneered by interior mapping companies like Aisle411, shoppers can then find obscure items in retail spaces, solving a common pain point.

"GPS can get you to the door, and then VPS can get you to the exact item that you're looking for," said Google's VR/AR lead Clay Bavor at I/O. "Imagine in the future your phone could just take you to that exact screwdriver and point it out to you on the shelf."

This is not necessarily a new message because Beacon proponents have been saying this for years. VPS is a superior technology, but its optical and sensory components have been cost prohibitive for smartphone integration. Moore's Law will change that over the next 1-2 years.

But it goes beyond the utility of finding things and saving people time, though the latter is a key success factors of any tech product. The real angle here is the ad attribution potential mentioned above, given that it tracks the "last mile" to the cash register.

There, the ties to Google's ad business are fairly clear. This is just the latest in its march to embolden a search marketing value proposition with a better ROI story. And it knows the way to do that is track the dollars where they're mostly spent: offline in physical retail spaces.





Image Source: Google

The New Search Box

At the I/O developer conference Google also introduced a new visual search technology called Google Lens. Like Tango and VPS, this is a computer vision technology that uses machine learning to identify visual content. It basically turns your camera into a search box.

Though the overt use case is organizing your Google Photos albums, the meatier implication is identifying physical items such as storefronts. An unfulfilled promise of Google Goggles, this will let you scan building exteriors with your phone's viewfinder to reveal identifying info.

This vision of AR is discussed a lot, but Google has the data backbone — a place database and Street View imagery — to actually pull it off. We often forget that local AR will need lots of geotagged content to be a meaningful and populated experience.

But the true goal for Google is boosting search volume, a primary driver of its core ad business. It's spent the last decade finding ways to counterbalance the decline of typed search queries on smartphones. Voice search has been one answer; Visual search will be another.

"A lot of the future of search is going to be about pictures instead of keywords," Pinterest CEO Ben Silberman said recently. The comment is clearly supportive of Pinterest's business, including its moves into visual search and object recognition. But it equally applies to Google.



The latest battle cry is "the camera is the new platform." Combined with investments in VR (Daydream) and AR (Tango), Google will put lots of muscle behind VPS and visual search to protect a \$48 billion search business. And anything Google is that motivated to drive is worth betting on.

Bonus Video

Click the link below for ARtillry commentary on Google's AR strategies

https://youtu.be/T8c1VDGd4s0

ARtillry Briefs, Episode 4: Will AR Save Search?





Part II: Amazon

Among tech giants making moves into AR, Amazon has probably been the least discussed in the tech media and analyst corps. Its AR moves have indeed been the quietest of the bunch, but potentially massive in terms of economic impact, due to the scale of its business.

Amazon's potential play with AR is also perhaps the least shrouded in mystery and road map speculation. AR has clear implications for supporting e-commerce and boosting Amazon's ability to sell things and improve margins — core organizational priorities.

Stepping back, one thing that's been clear in this series is the common reason — though differing paths — that tech giants enter AR. As discussed in the previous chapter, Google sees AR as a way to boost "visual search" and user engagement, towards supporting its core search business..

To that end, AR will boost Amazon's core business of selling you stuff. This could play out in a few ways, mostly orbiting the act of eCommerce. Visually-immersive customer experiences will be positioned to increase the probability of purchases and decrease the probability of returns.

Cash FLOW

At the most basic level, Amazon's forays into AR involve computer vision. Like Google, Pinterest and others, it's moving into visual search. As explored in the previous section, that involves searching for items using the smartphone camera instead of text queries.

For Amazon, the benefits of visual search are clear: to increase the volume and quality of product searches by making it easier for users to search. This builds from the decade-old FLOW app. Meant to query a database of book covers, it lets users snap a pic to search Amazon.

But with advancements in computer vision and object recognition, the proposition is now to search for a broader range of products in Amazon's vast catalogue. The idea is to find exact matches for products, but also suggest similar or complimentary products... as Amazon has always done.

Beyond using the smartphone camera to search and discover products, AR will take the next step in *qualifying* products. That will involve virtually placing furniture, appliances and electronics in one's home to make sure they fit. "Fit' can mean both style and size.

"We've been working with Amazon to bring their shopping experience to [Google] Tango," Lenovo's Carter Agar told ARtillry recently. "For big ticket purchases, historically you would try to visualize what it would look like in your home. Maybe you went to the store and took pictures. Amazon thinks a lot of that can be simplified through allowing consumers to visualize that product."



There are other places Amazon is applying this principle, such as the Echo Look. Meant to snap mirror-length pictures of users, it's a play towards virtually fitting, overlaying, and suggesting apparel. And the endgame, as it often is with Amazon's hardware products, is driving orders.



Image Source: Amazon

Returns on Investment

But it's not just about orders. Amazon's model in general is based on razor-thin margins executed at massive scale. That makes maintaining and improving margins an organizational obsession. And to that end, AR can help with a key piece of the puzzle: returns.

One of the biggest margin-depleting factors facing Amazon is large-order shipping and returns. That's driven it to work with Google Tango and Lenovo in the ways suggested above, to help consumers visualize furniture placement for a more informed (and less return-prone) purchase.

The first place it has applied this principle is flat screen TVs — the biggest culprit of costly returns. As discussed in our fireside chat with Lenovo (video below), this has been Amazon's biggest driver for pushing Tango-powered virtual TV fittings. And it's seeing positive results.

"From Amazon's perspective, they can improve conversions significantly," said Agar. "And one of the big issues that Amazon encounters is returns for big products like TVs because they don't fit or they don't look right. So anything they can do to reduce the return rate is potentially huge cost savings."



Bigger and Better

In fairness, Amazon isn't the only company taking this image-based approach. Wayfair and IKEA have launched AR features that let shoppers visualize furniture placement. And Pinterest lets users take pictures of products to search for similar items.

But Amazon doesn't need to be first out of the gate with the nascent technology, it just needs to be bigger and better. It inherently has the "bigger" part covered. As for better, we believe it's working on visual search tech that will surpass eCommerce competitors.

Its work in machine learning and AI for voice (Alexa) positions it well in this race. Those parallel efforts indicate Amazon's interest in using alternate forms of search to increase the levels of interaction — and ultimately order volume — from online buyers.

Regardless of which AR angle Amazon pursues and puts the most muscle behind, it will incorporate computer vision and object recognition in some way to bring it to the next level of its business. In other words, selling you more stuff.

Companion Video

Click the link below for ARtillry Interview with Lenovo on Amazon's AR strategies

https://youtu.be/JM1epRtOt9o?t=19m47s





Part III: Facebook

Facebook jumpstarted the current wave of VR/AR excitement by acquiring Occulus in 2014. We say "current" because a few waves preceded it; and the question asked by VR veterans continues to be "is it for real this time?"

At the recent F8 conference, Mark Zuckerberg — seeing the hurdles and time required for VR consumer ubiquity — warned the industry to temper its expectations on when that day will come. Oculus Chief Scientist Michael Abrash echoed that message later the same day.

That cautionary messaging built up to Facebook's biggest theme of the event – and arguably biggest move of the year: Its new AR focus. Though VR will drive Facebook's long-term ability to own the hardware (Oculus) where future social interaction happens, AR will be a key stepping stone.





Cover Your Installed Bases

With its AR strategy, Facebook has acknowledged that mobile is where the near-term opportunity lies. Though its Oculus acquisition lets it own the consumer touch point -- as it failed to do with smartphones – a mobile approach lets it build on a larger base of current addressable hardware.

Today's hardware penetration figures support this: A global installed base of 2.6 billion smartphones represents nearer-term scale. The smartphone also has a viewfinder, a lens and lots of graphical processing power, making it a technically-capable platform on which to build AR apps.

Bringing that all together, Facebook will refocus on mobile AR to occupy the gap before ubiquitous and headset-based Social VR arrives. But that's not all mobile AR will accomplish for Facebook. It will have a key role in supporting another function: its core advertising business.

Stepping back, Facebook's core revenue source is advertising. And it has built that business rather quickly by innovating with "native" advertising. That essentially means that ads are merged in elegant ways with the scrolling mobile news feed that's a core engagement point of its product.

And to keep users coming back to the news feed, Facebook has discovered that frequent sharing of multimedia between friends is a major engagement driver. To that end, Facebook believes that AR graphics will represent the next feature set to boost multimedia appeal and engagement.

Network Effects

At the center of Facebook's new mobile AR efforts is the Camera Effects Platform launched at f8. This is a toolset for developers (AR Studio) and non-developers (Frame Studio) to create AR graphics. It includes stickers, geofilters and other media overlay formats that developers will build.

This importantly differs from Snapchat's closed approach in that an open platform can yield a much greater library of graphics and apps. There will be thousands of stickers and filters for shared media, instead of the tens that Snapchat offers. This will be necessary for the effort to scale.

Facebook will end up with the standard fare of selfie masks, but also new creations from developers. For example, applications that let you leave notes for friends in physical places, or tag buildings with virtual paint, which Mark Zuckerberg points out is cheaper and cleaner than the real thing.

And by virtue of Facebook's deep pockets, the AR itself is improving. Simultaneous localization and mapping (SLAM) renders overlaid graphics that interact with the contours of the world in dimensionally accurate ways. This "true AR," will bring more compelling and consumer-friendly apps.





Image Credit: Facebook

Locally Grown

Back to the core advertising business, brands will also get creative with these tools in the spirit of the native advertising that's become Facebook's bread and butter. Nike for example can offer selfie-adorning graphical overlays for fitness milestones that people are self-motivated to share.

For local advertising, there will be features such as posting graphical reviews on real-world restaurants. The "ad inventory" for local businesses to make themselves visible thus extends to their physical spaces. And local businesses are a huge growth engine for Facebook.

Snapchat already offers Geofilters, which are geo-relevant overlays that small businesses can create for users to apply to snaps when at or near their businesses. But Facebook's open approach will let developers concoct even greater AR tools for individuals and local merchants.

Business Model Innovation

Speaking of copying Snapchat, Facebook's real innovation with mobile AR won't just happen on technical levels: The AR-heavy approach to multimedia sharing was plucked wholesale from Snapchat. Rather, it's a business model innovation in the open platform approach, and scale.



The latter is critical and it's where Facebook shines. Put another way, AR is about the real world which is a big place. Facebook showed with an open platform approach that it knows it will take an army of outside developers to fill such a large canvas. But it's not the only one...

Companion Video

Click the link below for ARtillry commentary on Facebook's AR strategies

https://youtu.be/fiessDYWITs





Part IV: Apple

Following Facebook's camera effects platform – the first major open developer platform for augmented reality – Apple quickly upstaged it with ARKit. Due to iOS's reach and the size of its developer network, ARKit creates the world's largest AR development platform overnight.

That means we'll see lots of AR apps populate the App Store in the coming months. Those will be iPhone centric, developing over time into glasses-based apps. Like Faceboook, Apple knows that the smartphone – already in everyone's pocket – is the nearer term and scalable AR opportunity.

And Apple happens to own that hardware. Evidence continues to stack up that the next iPhone will be built around AR. The rumored iPhone 8 — or "iPhone X to commemorate the device's 10th year — will likely launch at Apple's Fall hardware event with an \$800 – \$1,000 price tag.

Meanwhile, ARKit will lay the groundwork with months of lead time for developers to build AR apps. That will in turn provide a library of apps that unlock the functionality and appeal of an AR-centric iPhone. This is the same one-two punch (vertical integration) that Apple has executed for years.

The Why

Apple's motivation to enter AR goes back to the reason tech giants ever enter emerging areas: to protect or embolden a core product. And Apple's core product is iThings. The iPhone is where it makes most of its margins and, as stated, that's where the near term AR opportunity lies.

But Apple's vested interest in a smartphone-based AR world has an additional angle. iPhone sales growth is slowing as the product matures and approaches global saturation. So it believes that an AR-centric iPhone 8 or iPhone X will boost revenue, as will a premium price point.

An AR-centric iPhone also lets Apple fill the gap until AR glasses become accessible. By accessible, we mean the 1-2 cycles of Moore's Law (3-4 years) that need to turn before components come down in price and size to make them tenable for mass consumption.

Smart glasses could follow the iPhone as Apple's next cash cow. But until then, It's supporting iPhone growth by doing what it does best: seeding a developer network, industrial design and supply chain management. These factors will converge to make the iPhone X a likely AR success.





The What

As for what the prospective iPhone X will be and do, there's the Robert Scoble prediction that it will be a thin layer of transparent glass to house an AR interface. And ARkit will engender a large developer ecosystem to build apps that drive the AR appeal and utility of the device.

Famed Apple watcher Gene Munster meanwhile predicts more powerful chips and 3D sensors, as well as a curved OLED screen. Following the supply chain, there's evidence that Taiwan Semiconductor is in mass production of the next iteration (A11) Apple chips.

And of course there's the pastime of tracking acquisitions to paint a picture of functionality we may see in an AR-packing iPhone X. That includes Metaio, Primesense, Flyby Media, and more recently RealFace, which does computer-vision driven facial recognition.

As mentioned above, computer vision is at the heart of AR, in terms of mapping a point cloud on which to array images that interact with the world in dimensionally accurate ways (i.e. SLAM). And the optics in the iPhone 7+ hint at the stereoscopic capabilities for AR depth of field.

As for the types of AR content and use cases, those will vary and be determined by the third party developer network that picks up and runs with ARkit. But they'll likely be seeded by Apple's own batch of apps, just like the iPhone 1 was (think: maps, photos, weather, messaging, etc.).



It's also likely that the use cases will be consumer-oriented to stay true to Apple's DNA. That compares to Microsoft — likewise staying true to its DNA — already showing signs of positioning Hololens as an enterprise play (more on Microsoft's strategy is in the next section).

The Wild Card



Image Credit: Apple

In addition to graphically oriented AR — the modality in which it's mostly discussed and visualized — we have a longstanding prediction at ARtillry that Apple could be already pioneering an underdiscussed format for AR: Audible.

This looks at AR in a different context, involving informational overlays that are sound waves instead of photons. In other words, getting informed about your surroundings through an ambient whisper in your ear instead of a graphics in front of your eyes.

The seeds for this vision have already been planted with Apple's AirPods, as well as other players like Here One. But before Apple gets there, it has to condition the use case of an all-day wearable, which is precisely what it's now doing.

Then it has to seed the content marketplace with enough "stuff" to make the experience worthwhile. Right now that means Siri, which isn't going to cut it. But a third party developer network a la ARKit, could populate an audio app marketplace.



That could be everything from local information (think: audio tours and Yelp reviews), or background information about the person you're about to meet with. Essentially we would all become secret service agents with persistent whispers of new intel.

Or at least that's what we know now, and the speculation and triangulation we can draw from it. One thing is certain: there will be a lot to watch and it will happen quickly.



Part V: Microsoft

After decades of dominance in the PC era, followed by a decade of inferiority in the smartphone era, Microsoft has returned to grace with positioning for the immersive era.

It can also be compared to Facebook: Driven to not miss the boat again with hardware that's the dominant consumer touch point (smartphone), Facebook invested heavily for the next era (Oculus). Microsoft has done similar by building rather than buying. And its vessel is the Hololens.

This will position it with not only hardware but a software platform licensed to other headsets manufacturers; and tied into its foundational desktop operating system. Altogether, it achieves vertical integration — the same strategy by which its longtime nemesis Apple rose to power.

And it's going to need that advantage to fight Apple. As explored above, ARkit makes Apple the largest AR development platform overnight, which will be further emboldened by a rumored AR-centric iPhone 8. Apple's biggest difference is a mobile strategy versus Microsoft's goggles approach.



Image Credit: Microsoft

Mixed Metaphors

Carrying the above strategy forward, Microsoft has branded its approach as Mixed Reality. Seeming at first to be marketing jargon (which it partly is), this defines AR graphics that interact with physical objects in dimensionally accurate ways — basically SLAM.



Windows Mixed Reality (WMR) and Hololens will also stay true to Microsoft's DNA with an enterprise focus. This will be a point of strength, anchored in Windows' enterprise installed base. And enterprise overall will be a strong early market for AR, before consumers adopt en masse.

That early adoption is mostly due to the ROI story in functions like design and assembly. That in turn results from increased productivity, reduced mistakes and overall cost savings. And cultural resistance to glasses-based AR adoption (style, privacy, etc.) isn't present in enterprise contexts.

One example is the Hololens-assisted Cirque du Soleil stage design process. Rather than lots of back and forth between remote designers, and building physical stage mockups, the production team visualizes stylistic changes dynamically and saves lots of time.

Virtualization

Though AR has lots of adoption and market size advantages, Microsoft isn't ignoring VR. In fact, one component of WMR is an industry-leading positional tracking system. And that's a key factor for VR advancement that the industry continues to agonize over.

As quick background, WMR has inside-out positional tracking, which eliminates the setup and cordladen orientation of outside-in tracking systems like HTC Vive's Lighthouse. WMR achieves this through computer vision to map surroundings, a key ingredient for mixed reality.

Microsoft has intelligently decided to utilize that asset by licensing WMR to third party hardware manufacturers to build sub-\$500 VR headsets. Starting with partners like Acer and HP, this will accelerate VR consumer adoption with price competition for capable mid-range headsets.





Image Credit: Microsoft

Vertical Challenge

Altogether, Microsoft is pursuing many paths to immersive technology. It's vertically integrated by owning the hardware (Hololens), OS (Windows) and application layer (WMR). As shown historically by Apple, that approach can engender an elegant linking of hardware and software.

At the same time, it's pursuing the traditional Microsoft model that licenses software to third party hardware manufacturers (think: Windows-based PCs). That misses out on the quality control and product design of vertical integration, but it has economic advantages in high margins and scale.

While pursuing both of these strategies, WMR all the while stays true to Microsoft's DNA by playing to its strengths in enterprise applications. And the whole thing will be built on the massive installed base — in both consumer and enterprise worlds — of the Windows operating system.

Roll it all up and Microsoft is in a position to own the technology stack, accelerate its market penetration, and lower costs through economies of scale. This could place it in the best position among tech giants pursuing AR. In the 'Four Horsemen' construct, it just might be the dark horse.



Key Takeaways (redux)

- There are several factors causing multimedia capture and sharing to become a prevalent consumer use case: better camera optics, mobile broadband and millennial behavior.
- This is causing the smartphone camera to take over as the next app development platform. And that has natural synergies with AR (portability, viewfinder, graphical processing, etc.).
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About ARtillry

ARtillry is a publication and research firm that examines augmented reality (AR) and virtual reality (VR). Through writings and multimedia, it provides deep and analytical views into the industry's biggest players and opportunities. It's about insights, not cheerleading.

Run by career analyst and journalist Mike Boland, coverage is grounded in a disciplined and journalistic approach. It also maintains a business angle: Though fun and games permeate VR and AR (especially the former) long-term cultural, technological and financial implications are primary.

Learn more at https://artillry.co/





About Intelligence Briefings

ARtillry Intelligence Briefings are monthly installments of VR/AR data and analysis. They synthesize original and third party data to reveal the dynamics of VR and AR sectors, and their opportunities.

In addition to data, a layer of insights is applied to translate market events and raw figures into prescriptive advice for VR/AR players. This takes form in a narrative story arc, grounded in market figures.

Questions and requests for deeper analysis can be submitted at https://artillry.co/contact/

Note of Disclosure

ARtillry has no financial stake in the companies mentioned in this report, nor received payment for its production. ARtillry's disclosure and ethics policy can be seen at https://artillry.co/disclosure-and-ethics-policy/



Appendix: Additional Viewing

Pulled from ARtillry's Workshop series of on-demand presentations, the below video explores the theme of this report through slides and audio voiceover (click link).

https://youtu.be/T-MEcVssUkY

