2019 AUGMENTED AND VIRTUAL REALITY SURVEY REPORT

INDUSTRY INSIGHTS INTO THE FUTURE OF IMMERSIVE TECHNOLOGY

MARCH | **2019** | VOLUME 3

PRESENTED BY

PERKINScoie | **XRA** XR ASSOCIATION

Contents

By the year 2025, immersive technologies of XR—including augmented reality, virtual reality and mixed reality—will be as ubiquitous as mobile devices.

That's the opinion of nearly 9 in 10 respondents from a new survey by global law firm Perkins Coie LLP and the XR Association. The broad feeling of optimism when it comes to the technologies listed above (more commonly referred to as AR, VR and MR) shows the enormous potential of immersive technology as we enter the third decade of the 21st century. Similar to findings from past surveys, however, concerns remain about the quality of user experience and available content offerings, along with the pace of adoption.

"We need to make the hardware more user-friendly," said a U.S.-based consultant working in software development for a startup, who went on to note that cost, comfort and utility all must be addressed. Similarly, one German-based software developer working for an established tech company said, "The VR instrument should be as light as a goggle, without looking like an extra device— something like contact lenses."

Despite some notes of caution, there was strong confidence among survey respondents when it comes to the future of immersive technologies—perhaps stemming from heavy investment activity in the space in late 2018. The survey of 200 startup founders, executives with established technology companies, investors and consultants is the third conducted by Perkins Coie in the past four years, and the 2019 edition was expanded to better track a quickly evolving sector—one in which investors are jumping on board. One investor said that immersive space "will aid in all fields of life."

INVESTOR: "AN EXCITING TIME"

Investors surveyed said they put more money into immersive technology last year than they predicted in previous surveys—and that they would continue to invest in the coming year, with a focus on software and hardware components. As one investor put it, "It is an exciting time to be living with this type of technology."

To be sure, investment in the space is still somewhat unpredictable—but it surged in late 2018. The fourth quarter saw a spike in global venture capital deal value to $1.7 billion in AR and VR, about three times the deal value for the same time period in 2017, according to PitchBook. Investment also rose year-over-year, from more than $2.5 billion in 2017 to $3.8 billion in 2018. There were slightly fewer total deals in 2018, and many of them were in later financing rounds—perhaps signs that investors are eager to jump in but want surer bets from more mature players.

"The idea of VR and AR as a means of connecting people to the digital world in a much more natural and human way is profound," said Tipatat Chennavasin, general partner at Venture Reality Fund. "It will help everyone benefit from the power of the digital economy. It allows us to redefine computer literacy—we can adapt the computer to the way we think and want to work."

Still, more than one-fourth of respondents (26%) said user experience, such as bulky hardware or technical glitches, was the biggest obstacle to mass adoption of AR technologies. A similar percentage (24%) cited content offerings, such as lack of quality content or the amount of content available, as the biggest obstacle for AR. Similarly, in terms of VR adoption, user experience (27%) and content offerings (19%) were seen as the biggest obstacles to mass adoption.

The pace of adoption is also on the minds of startups. More than two-thirds of respondents (69%) said slow adoption among consumers was the most common concern they heard from potential investors, while 58% felt a lack of an established market for the technology was a barrier for investment.

Startup advisor Shel Israel said that the future of immersive technology will not be with individual consumers—instead, people will consume this tech in a more secondary way, such as in doctors' offices or schools, or even through buying products that were manufactured using forms of immersive tech. "AR and VR are important work tools," he said.

KEY REGIONS, SECTORS

As the technologies' potential bears out, some geographies and sectors continue to flourish. North America, perhaps not surprisingly, was seen as the top region for investment (62%) and was the region expected to witness the fastest growth in the next five years (57%). But despite the stability of the North American market, the survey found promise for the technologies around the globe. Only 13% of respondents identified the Asia-Pacific region as most promising for investment, but significantly, 18% said it will witness the fastest growth in the industry in the next five years, which represents a 38% spread in the tech-hungry Asian market.

When asked where they expected to see the most investment in the next 12 months, respondents had a diverse set of answers. As was the case in previous surveys, gaming again led the pack for applications with 54% of respondents expecting high investment. Not far behind, 43% of respondents chose healthcare and medical devices. But education, military and defense, and manufacturing and automotive were also all chosen by at least 20% of respondents—an indication of how the space is maturing.

Workforce development also showed particular promise, especially as it relates to XR. When shown the statement, "XR is highly applicable to workforce development at this time," 78% of respondents said they agreed. When then asked about the top workforce uses for XR, there was a connection between providing access to all information in real time and facilitating training and mirroring real-life experiences.

"This stuff is amazing—and it's here to stay," Joshua Alan Young, founder of a creative agency specializing in immersive technology, said. "But it's going to take a few years before it's used in day-to-day life. With VR and AR, it's such a new technology and it's so different that it's going to take a while longer to mature. Investment needs to have a slightly longer view in ROI."
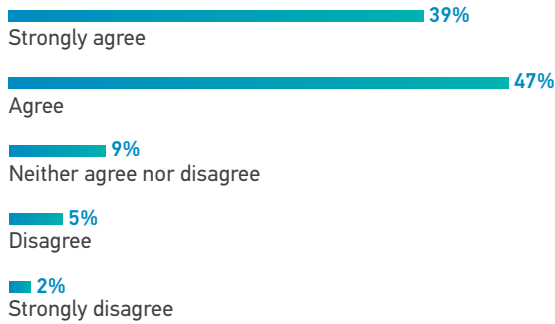
Key Findings

- The vast majority of respondents think that by 2025, <u>immersive technology will be as ubiquitous as mobile devices</u> in the consumer market, with 39% saying they strongly agree with that statement and 47% saying they agree. Only 7% of respondents disagreed with the statement.

- Respondents found user experience, such as bulky hardware or technical glitches, to be the biggest obstacle for mass adoption of <u>AR (26%)</u> and <u>VR (27%)</u>—but that's down from last year, when user experience was at 39% for AR and 41% for VR. In 2019, content offerings were also a concern for mass adoption for both <u>AR (24%)</u> and <u>VR (19%)</u>, staying similar to the 2018 results for AR (25%) and VR (17%).

- When respondents were asked about <u>concerning legal risks while developing immersive technology</u>, consumer privacy and data security (61%) came out on top. This percentage was up significantly from last year's survey, when only 44% listed consumer privacy and data security as a concern, most likely from organizations taking important steps to address increased regulation, such as the European Union's General Data Protection Regulation and California's Consumer Privacy Act. Other top issues for 2019 included product liability/health and safety issues (49%), difficulty in licensing technology and IP (32%), potential infringement of third party–owned IP (30%) and compliance with platform requirements in publishing content (30%).

- <u>70% of respondents</u> said they anticipate the AR market to surpass the VR market in revenue. When asked when the AR market will surpass the VR market, <u>81% of respondents</u> predicted it would happen within five years. Both of these results are in line with last year's findings.

- The highest percentage of respondents <u>monetize or plan to monetize</u> immersive technologies through the sale of products or subscriptions (48%), which dropped significantly from last year's survey (59%). Other monetization plans for 2019 include charges for additional features or in-app purchases within apps that can be downloaded for free (41%) and revenue from advertising within apps (39%). There is no doubt that producers will have to get creative with their monetization, especially when it comes to in-app disruptions and the potential of artificial intelligence.
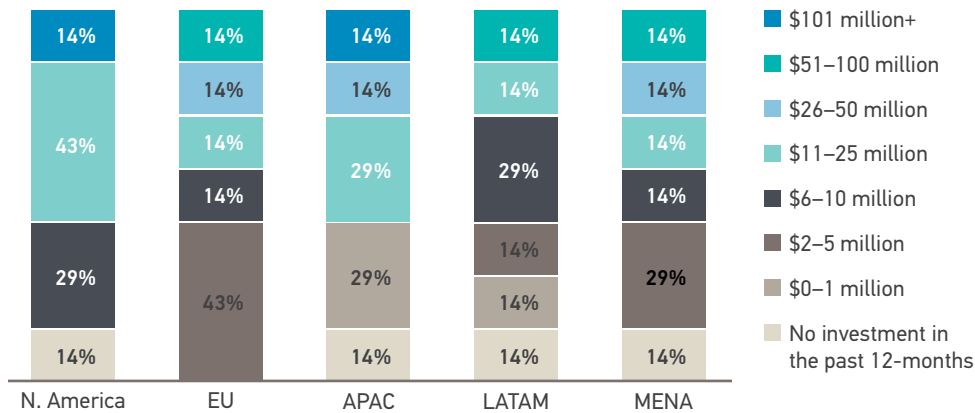
The survey was completed by 200 respondents. In the charts that follow, some questions do not add up to 100% due to rounding, and some exceed 100% because respondents were invited to select more than one answer. For the full survey methodology and a breakdown of respondent demographics, <u>see page 22.</u>

Pervasiveness of AV/VR/MR/XR Is Under Debate

> Please indicate your agreement with this statement: By 2025, AR/VR/MR/XR will be as ubiquitous as mobile devices in the consumer market.
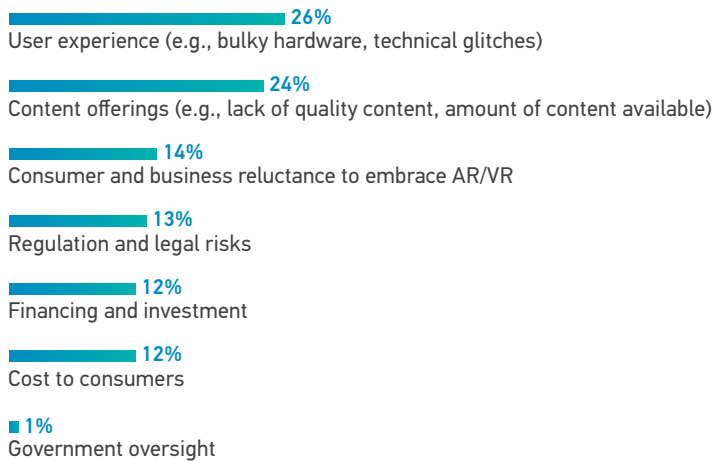
39% Strongly agree

47% Agree

9% Neither agree nor disagree

5% Disagree

2% Strongly disagree

> Investment in the last 12 months:

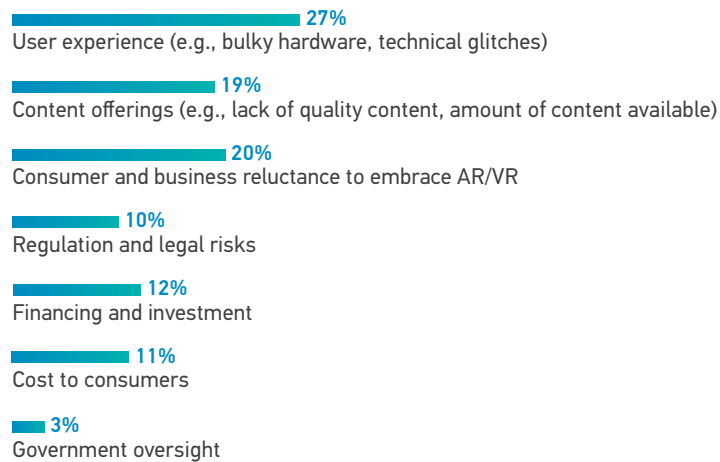|	N. America	EU	APAC	LATAM	MENA
$101 million+	14%	14%	14%	14%	14%
$51–100 million					
$26–50 million		14%	14%	14%	14%
$11–25 million	43%	14%	29%		14%
$6–10 million		14%		29%	14%
$2–5 million	29%	43%	29%	14%	29%
$0–1 million				14%	
No investment in the past 12-months	14%		14%	14%	14%

Immersive technology is broadening and is showing its potential across industries. Respondents to our survey overwhelmingly agreed this expansion will continue, noting that immersive technology will be as ubiquitous as mobile devices by the year 2025. This sentiment is in line with the fact that there has been increased investment in the space. _VentureBeat_ referred to these investments as "the next computing frontier after the emergence of PCs in the 1970s, the web in the 1990s, and mobile in the 2000s." The industry is now more than just big glasses; it is less clunky, more integrated and more user-friendly, although more advancements are still necessary.

What is the biggest obstacle to mass adoption of AR technologies?

26%
User experience (e.g., bulky hardware, technical glitches)

24%
Content offerings (e.g., lack of quality content, amount of content available)

14%
Consumer and business reluctance to embrace AR/VR

13%
Regulation and legal risks

12%
Financing and investment

12%
Cost to consumers

1%
Government oversight

What is the biggest obstacle to mass adoption of VR technology?

27%
User experience (e.g., bulky hardware, technical glitches)

19%
Content offerings (e.g., lack of quality content, amount of content available)

20%
Consumer and business reluctance to embrace AR/VR

10%
Regulation and legal risks

12%
Financing and investment

11%
Cost to consumers

3%
Government oversight

For AR and VR technologies to become ubiquitous by 2025, there are some obstacles to overcome—the biggest of which is user experience, for example, bulky hardware and technical glitches. Much improvement is still needed to make customers realize that these technologies will be a natural extension of all the tech they use in their daily lives. It is worth noting that user experience was also the top issue in the 2018 survey, but this year its leading position dropped a bit for both AR (39%) and VR (41%).
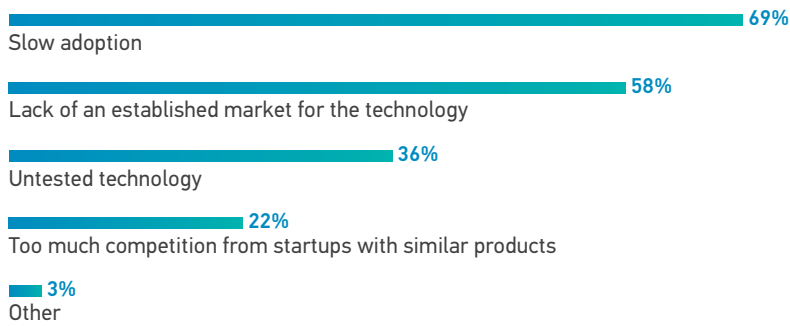
Respondents also noted content offerings as a major obstacle. This shows a disconnect; consumers want to use these technologies if they exist, but immersive technology producers have not been making enough content because, historically, there have not been enough users. Startup advisor Shel Israel thinks that the future of immersive technology will not be with individual consumers—instead, people will consume this tech in a more secondary way, such as in doctors' offices or schools, or even through buying products that were manufactured using forms of immersive tech.

> "With VR and AR, it's such a new technology and it's so different that it's going to take a while longer to mature. Investment needs to have a slightly longer view in ROI."
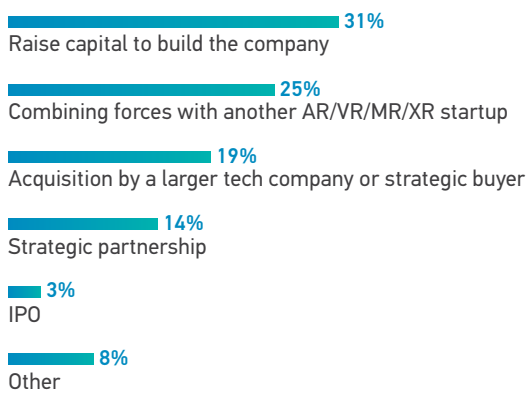>
> – Joshua Alan Young, founder of a creative agency specializing in immersive technology

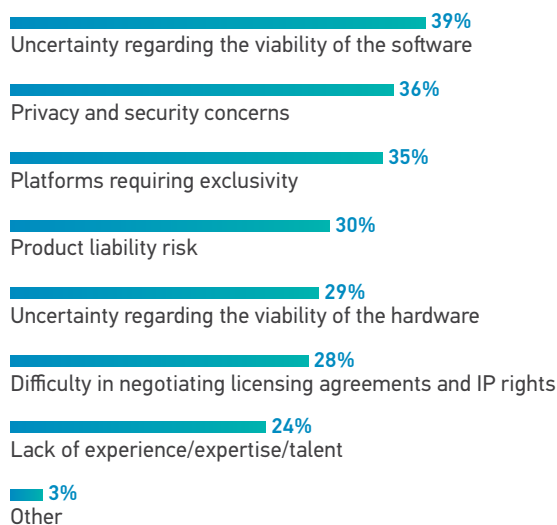*The following questions were answered only by startup firms.*

❯ What are the most common concerns you hear from potential investors in AR/VR/MR/XR startups?

69% Slow adoption

58% Lack of an established market for the technology

36% Untested technology

22% Too much competition from startups with similar products

3% Other

❯ Which of the following best describes your growth or exit strategy over the next three years?

31% Raise capital to build the company

25% Combining forces with another AR/VR/MR/XR startup

19% Acquisition by a larger tech company or strategic buyer

14% Strategic partnership

3% IPO

8% Other

> What challenges have you faced in entering into deals with companies developing AR/VR/MR/XR solutions?

39% Uncertainty regarding the viability of the software

36% Privacy and security concerns

35% Platforms requiring exclusivity

30% Product liability risk

29% Uncertainty regarding the viability of the hardware

28% Difficulty in negotiating licensing agreements and IP rights

24% Lack of experience/expertise/talent

3% Other

When in talks with potential investors, startup firms seem to hear two main concerns: slow adoption and lack of an established consumer market. This implies that widespread adoption may still be a few years away, as products continue to improve and their intended uses become clearer.

It is also worth noting that startup respondents said that, along with raising capital, their growth/exit strategy for the next three years involves combining forces with another immersive technology startup. Young wasn't surprised by this, as combining forces is a "necessity and a shift in culture." In his experience, there has been a change in tech culture that has allowed for more collaboration and openness, partially ridding itself of the cutthroat, highly competitive nature of the past. "We are now seeing more diversity, teams and different approaches," he said.

> "A wide range of high-quality content should be made available to attract consumers. Also, more marketing/promotion needs to be done to spread the word about these technologies and educate people on the benefits they offer to users."
> – VR startup founder

Geographies and Hot Markets

> In your opinion, which region offers the most promising investment opportunities for AR/VR/MR/XR technologies?

North America **62%**

EU **21%**

APAC **13%**

MENA **2%**

LATAM **1%**

Other **1%**
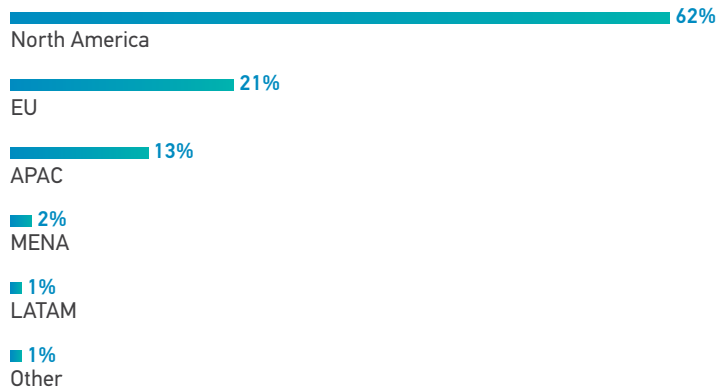
> "China has a massive middle class that will rapidly adopt this technology."
>
> – CEO/Founder/President, U.S.-based startup firm

> In your opinion, in which region do you expect to witness the fastest growth in AR/VR/MR/XR in the next 5 years?

57%
North America

20%
EU

18%
APAC

3%
MENA

2%
LATAM

1%
Other
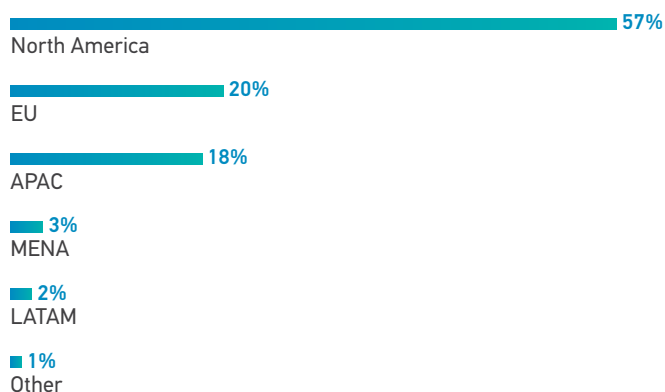
North America might reign supreme when it comes to investment opportunities for immersive technologies and the fastest growth expected in the next five years, but there is plenty of potential in other parts of the world.
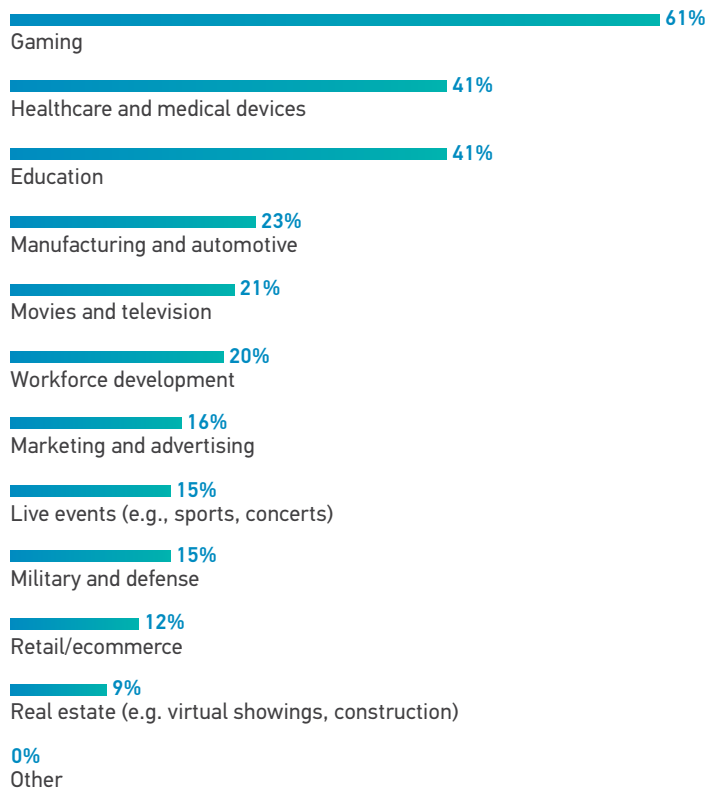
For instance, APAC is not to be overlooked—respondents noted that the sheer population of the countries within the region, along with China's commitment to the technology, creates a space for growth. One U.S.-based executive working in content development for an established technology firm wrote, "Although the U.S. may be the start of the technology, APAC will be the center of utilization, given the regulations favor the new technologies to be adopted."

A U.S.-based manager working in content development for a startup firm says that North America, the EU and APAC are actually all connected: "North America tends to build upon Asian advances. We both create advancements in the technology itself, but America applies it in a wider variety of ways, then it goes back to Asia for further development on the tech and creative side. The EU plays a role similar to the U.S., but not quite as much on the tech development."
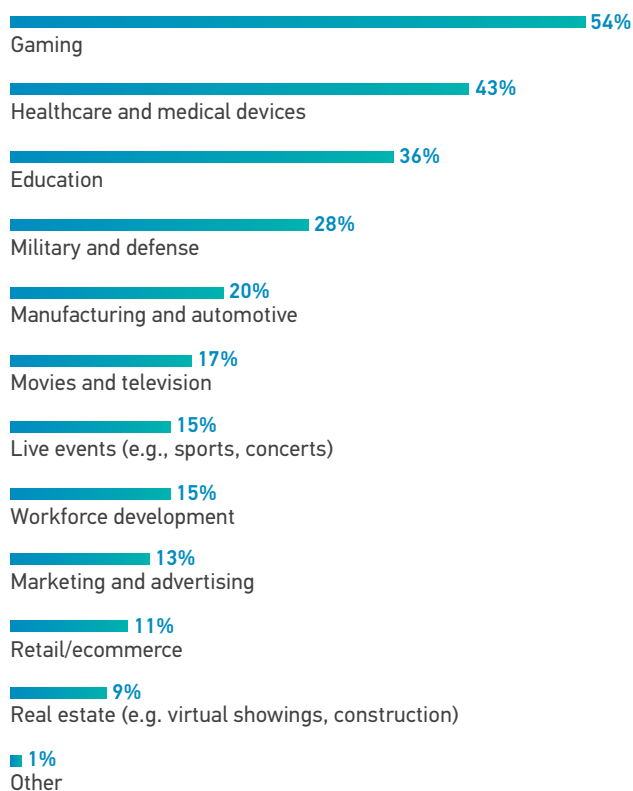
> "The ability to scale consumer adoption and push into distribution channels is still easiest in North America."
> – Marketing/Business Development Director of an established Japan-based technology firm

> In which industries do you believe XR is most applicable at this time?
> (Please select up to 3 options)

61%
Gaming

41%
Healthcare and medical devices

41%
Education

23%
Manufacturing and automotive

21%
Movies and television

20%
Workforce development

16%
Marketing and advertising

15%
Live events (e.g., sports, concerts)

15%
Military and defense

12%
Retail/ecommerce

9%
Real estate (e.g. virtual showings, construction)

0%
Other

In which sectors do you expect to see the most investment directed to the development of AR/VR/MR/XR technology or content in the next 12 months? (Please select up to 3 options)

Sector	Percentage
Gaming	54%
Healthcare and medical devices	43%
Education	36%
Military and defense	28%
Manufacturing and automotive	20%
Movies and television	17%
Live events (e.g., sports, concerts)	15%
Workforce development	15%
Marketing and advertising	13%
Retail/ecommerce	11%
Real estate (e.g. virtual showings, construction)	9%
Other	1%

It is probably no surprise that gaming is once again seen as most promising area of development. But respondents provided a fairly diversified look at promise in other industries, especially with regard to healthcare and medical devices, education, manufacturing and automotive, and military defense.

Compared to last year's survey, both healthcare and medical devices (26% in 2018) and education (26% in 2018) saw big increases in the expectation for investment in the next 12 months. Real estate came in at just 9% in 2019—a considerable decrease from last year, when 21% of respondents thought there would be a big investment in this industry.

Education is also a growing area. _EdWeek_ recently wrote a recap focusing on the U.S. Department of Education's annual ED Games Expo, noting that "with over 100 educational game titles showcased ... approximately one-fifth of these games featured augmented or virtual reality." But there is a caveat, as the recap noted: "whether or not the K-12 education market will bite on these new game features and styles—and whether they are effective at improving learning—is still up in the air."
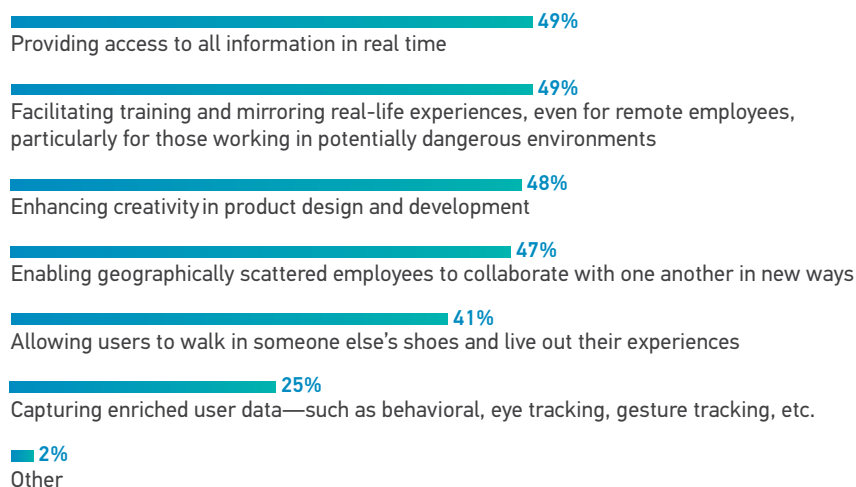
The technology is there, but it's unclear how long it will take before broad adoption. Immersive technology growth will continue, startup advisor Shel Israel said, in industries such as healthcare, education and manufacturing.

Workforce Development Sector

> Please indicate your agreement with this statement:
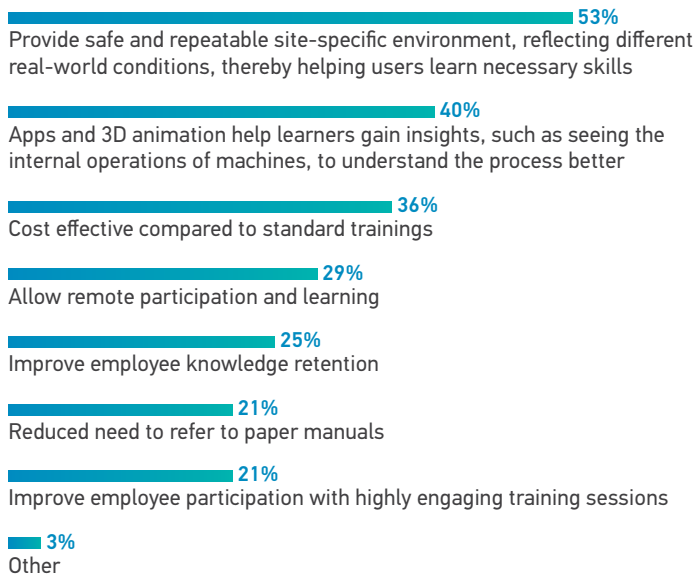> *"XR is highly applicable to workforce development at this time."*

31%
Strongly agree

47%
Agree

16%
Neither agree nor disagree

7%
Disagree

1%
Strongly disagree
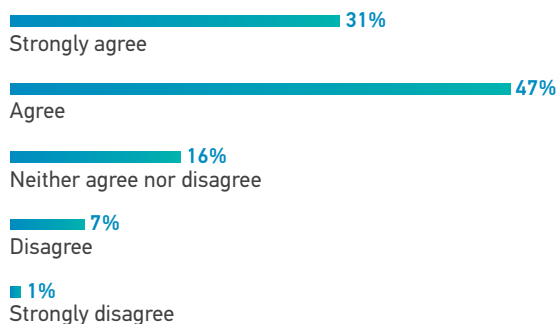
> What are the top workforce development benefits of XR?
> (Select all that apply)

49%
Providing access to all information in real time

49%
Facilitating training and mirroring real-life experiences, even for remote employees, particularly for those working in potentially dangerous environments

48%
Enhancing creativity in product design and development

47%
Enabling geographically scattered employees to collaborate with one another in new ways

41%
Allowing users to walk in someone else's shoes and live out their experiences

25%
Capturing enriched user data—such as behavioral, eye tracking, gesture tracking, etc.

2%
Other

When asked specifically about workforce development, respondents believe XR is highly applicable for workforce development—and they also believe in a variety of uses. XR "can help provide experiential learning workers need," consulting and professional services firm Accenture wrote in a recent report, citing benefits such as "lower costs, increased employee engagement and the ability to mirror real-life situations." Some industries have already embraced XR, such as energy, industrial, manufacturing and construction, according to Accenture. Other uses, such as medical training for students, retail training and outside sales rep training, are still in the exploration phases.

The first wave of XR in the workplace has been with training to make people more productive, said Tipatat Chennavasin, general partner at Venture Reality Fund. But he thinks there will eventually be more to XR than just training. "When XR really reaches its full potential is when it's not training people to be productive in the real world, but when they are productive in the virtual world," Chennavasin said, citing the designing of cars as an example.

How do you believe AR/VR/MR/XR technologies can most effectively address challenges in health and safety training situations?

53%
Provide safe and repeatable site-specific environment, reflecting different real-world conditions, thereby helping users learn necessary skills

40%
Apps and 3D animation help learners gain insights, such as seeing the internal operations of machines, to understand the process better

36%
Cost effective compared to standard trainings

29%
Allow remote participation and learning

25%
Improve employee knowledge retention

21%
Reduced need to refer to paper manuals

21%
Improve employee participation with highly engaging training sessions

3%
Other

> ## Which of the following challenges do users of AR/VR/MR/XR technologies face relating to health and safety training situations? (Select all that apply)

Late adoption/hesitancy by older workers

N. America **43%**

EU **46%**

Other **33%**

Total **44%**
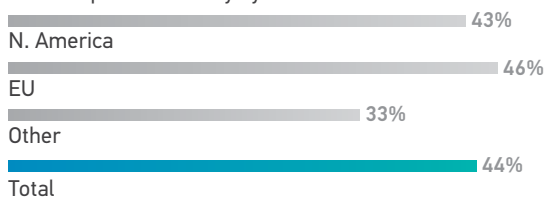
Time consuming as mock training sessions need to be conducted by technicians and concerned staff to avoid any equipment damage or other issues during real training sessions

N. America **36%**

EU **53%**

Other **33%**

Total **43%**
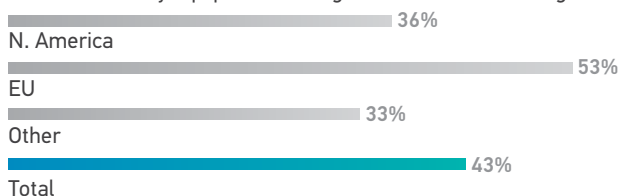
Side effects such as simulator sickness

N. America **37%**

EU **51%**

Other **17%**

Total **42%**
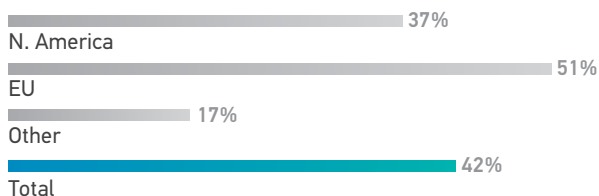
The technologies cannot [supplant] standard training procedures

N. America **34%**

EU **28%**

Other **50%**

Total **32%**

Other **5%**

N. America

EU **0%**

Other **17%**

Total **4%**
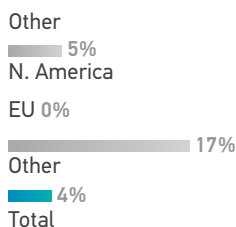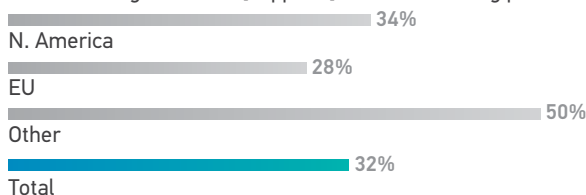
One aspect of workforce development is health and safety training. Respondents found that providing safe and repeatable real-world conditions as well as apps and 3D animation to help learners gain insights to be the top ways immersive technologies can be used to effectively address challenges.

Caterpillar Safety Services recently launched Cat Safety VR for workforce training purposes so that "learners are immersed into a virtual jobsite and the experience is so realistic the learner's brain captures the training like a memory, creating greater retention than traditional learning." The company's VR safety kit includes a gaming laptop configured to run the Cat Safety VR program and HTC VIVE virtual reality system, which can be used to learn safe behaviors on a job site.

Another example for training is GibLib, where users can watch surgical procedures from medical centers around the world. Applying this further, these immersive technologies are also beginning to be used in the actual operating room like with Proprio, which lets surgeons augment their perception in real time, Chennavasin said, as well as Vicarious Surgical, who are using surgical robots being controlled by people in VR, ensuring that procedures are done with the utmost precision.
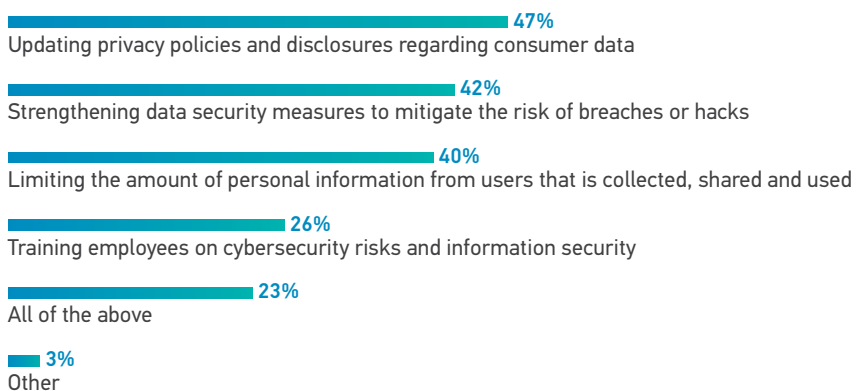
Top Legal Risks

The following questions were answered only by startup firms, established tech companies, advisors and outside consultants

> ## Which of the following legal risks are of concern to your organization in developing AR/VR/MR/XR technology or content? (Select all that apply)

61%
Consumer privacy/data security

49%
Product liability/health and safety issues

32%
Difficulty in licensing technology and IP

30%
Potential infringement of third party–owned IP (patents, trademarks, copyrights)

30%
Compliance with platform requirements in publishing content

12%
Export control issues

2%
Other
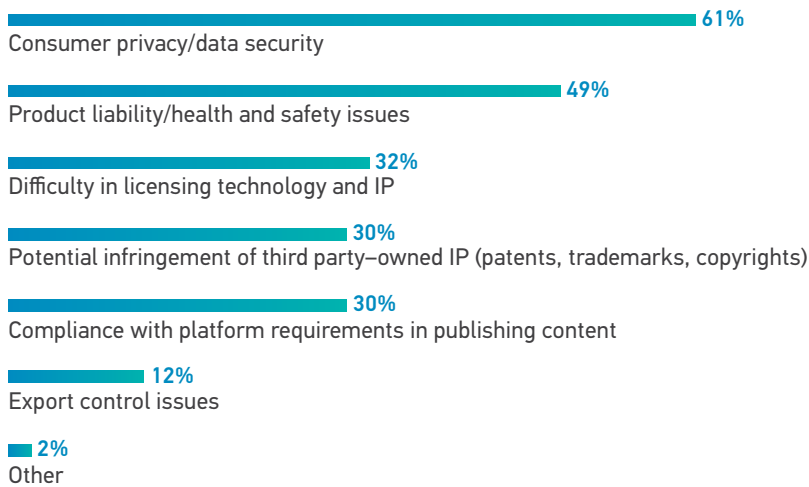
> ## What steps has your organization taken to address privacy and data security concerns with AR/VR/MR/XR technologies? (Select all that apply)

47%
Updating privacy policies and disclosures regarding consumer data

42%
Strengthening data security measures to mitigate the risk of breaches or hacks

40%
Limiting the amount of personal information from users that is collected, shared and used

26%
Training employees on cybersecurity risks and information security

23%
All of the above

3%
Other

> Which of the following intellectual property issues do you feel are most likely to drive disputes and litigation in the AR/VR/MR/XR industry? (Select all that apply)

56%
Trademark and copyright disputes (e.g., use of copyrighted images/text or trademarked products/services in a virtual world)

50%
Patent litigation (e.g., infringement lawsuits over AR/VR-related)

37%
Trade secret claims (e.g., confidential business information acquired by a competitor or third party by a former employee or other improper means)

32%
Rights of publicity (e.g., laws protecting the economic interest of brands/people portrayed in a virtual experience)

1%
Other

It is no surprise that consumer privacy (47%) and data security (42%) top the charts for legal risks concerning immersive technology organizations. Amid headlines about data security as well as new regulations, like the European Union's General Data Protection Regulation and the California Consumer Privacy Act, companies are thinking more and more about how to use their data and how to protect it. When compared to 2018 survey results, data security increased from 44% to 61%.

Companies have responded to these new regulations and privacy concerns in various ways, with updating privacy policies and disclosures regarding consumer data (47%) being their top step to address concerns. But other approaches didn't fall far behind. Companies are also strengthening data security measures (42%), limiting the amount of personal information that is shared (40%) and training employees about risks (26%).

Means of Monetizing Technology

The following questions were answered only by startup firms, established tech companies, advisors and outside consultants

> How are you currently monetizing—or how do you intend to monetize— AR/VR/MR/XR products or services? (Select all that apply)

48%
Sale of products or subscriptions (e.g., AR/VR devices, games)

41%
Charge for additional features or in-app purchases within apps that can be downloaded for free

39%
Revenue from advertising within apps

30%
Product placement within the AR/VR experience

19%
Charge for access to live events (e.g., sports, concerts)

16%
Location-based entertainment (e.g., VR arcades, malls)

3%
Other
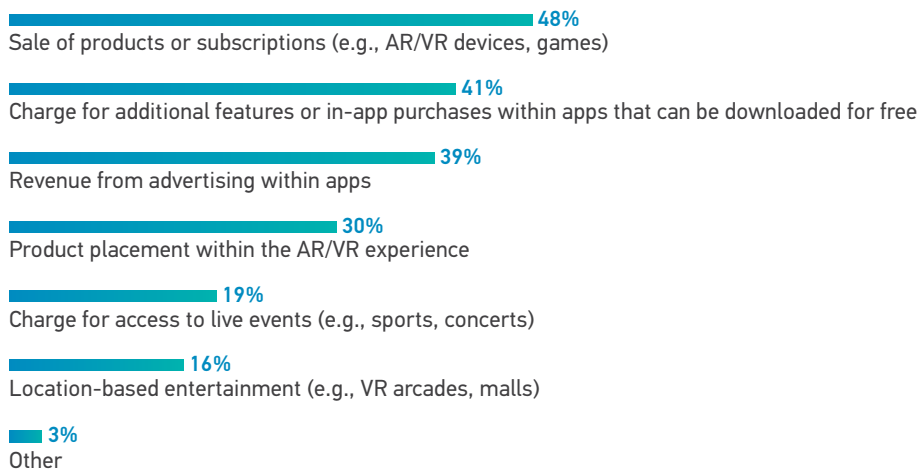
Sale of products or subscriptions remained in the top spot for monetizing technology, although it dropped from 59% in the 2018 survey. Additionally, in 2019, there was a much higher percentage of respondents who are or intend to charge for additional features or in-app purchases within apps that can be downloaded for free (41%) and gain revenue from advertising within apps (39%).

In-app advertisements are sometimes considered intrusive, but it seems that, based on respondent sentiment (39%), they are becoming more common.

It is no doubt that producers will have to get creative with their monetization, especially when it comes to in-app disruptions. One potential solution is through artificial intelligence, as a recent *Entrepreneur* article notes: "AI & Machine Learning (ML) provide deep insights about each user, which enables the developer to track revenue expectation from an individual. This revenue generation happens over in-app advertising and IAP. Having a fair idea of the lifetime value of a user puts the developer in control of his monetization models."

> "People have unrealistic expectations of what VR games and experiences should cost."
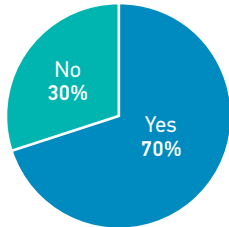>
> – Joshua Alan Young, founder of a creative agency specializing in immersive technology

> "I am hoping AI will make contextualized ads more of a reality. How we make money is unresolved and AI is the most promising solution I see."
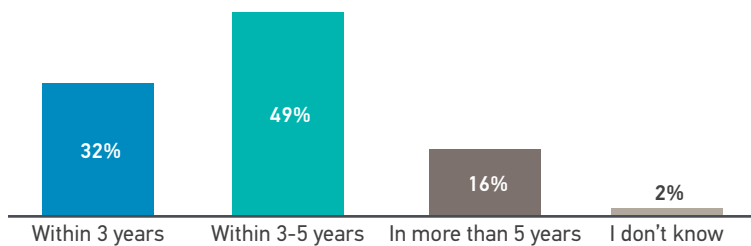>
> – Shel Israel, startup advisor

Additional Findings

> Do you anticipate that the AR market will surpass the VR market in revenue?

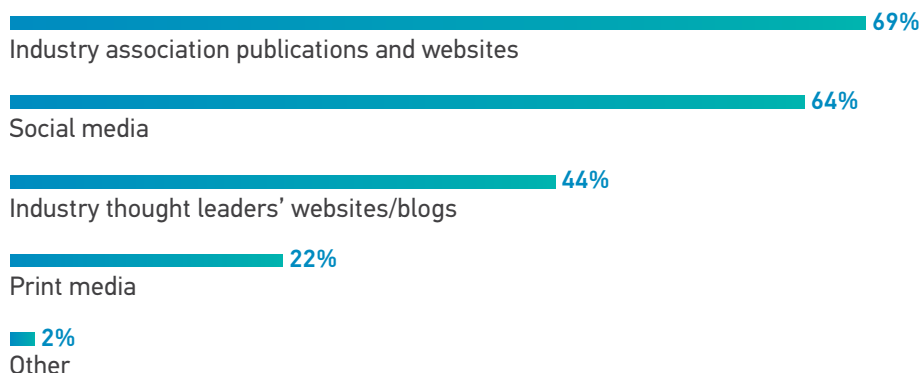> When do you expect the AR market to surpass the VR market in revenue?

Within 3 years	Within 3-5 years	In more than 5 years	I don't know
32%	49%	16%	2%

Excitement about immersive technologies has come from some of the biggest names in technology. "I think AR is that big, it's huge," said Apple CEO Tim Cook. "I get excited because of the things that could be done that could improve a lot of lives and be entertaining. I view AR like I view the silicon here in my iPhone—it's not a product per se, it's a core technology. But there are things to discover before that technology is good enough for the mainstream."

With two years having passed since Cook's 2017 remark, respondents still seem to share his optimism, as the vast majority think AR will surpass VR in revenue within the next five years. Currently, C-suite executives are equally interested in both AR and VR, according to CB Insights research.

> "Big tech companies like IBM, Dell, Apple, Google and Microsoft are all pumping millions into AR research and development."
>
> – Chief Technology Officer, established
>   U.S.-based tech company

From which sources of media do you currently obtain news on AR/VR/MR/XR technologies? (Please select top two options)

69%
Industry association publications and websites

64%
Social media

44%
Industry thought leaders' websites/blogs

22%
Print media

2%
Other

These findings regarding media sources indicate that the immersive technology industry "gets it"—they think these tools are important and will continue to be important—but there is still a lag in traditional print media. Reporters may not yet know how to cover these trends or how to frame them, despite the fact that the industry itself is covering them dynamically.

More mainstream media and social media will begin to cover the immersive technology industry once the applications become less training-oriented and more ingrained in various industries' day-to-day work, Chennavasin said. "I think that is the more interesting, compelling story," he said.

The following questions were answered only by startup firms.

What is the current state of your company's funding?

36%
Self-funding

25%
Venture capital

22%
Strategic investors

11%
Angel investment

3%
Pre-funding

0%
Growth equity

3%
Other
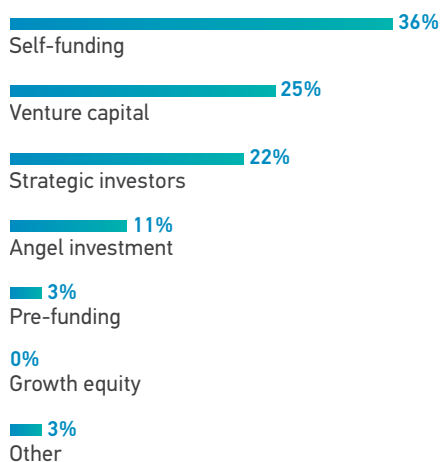
What is the current status of your efforts to raise capital?

36%
We plan to seek a capital infusion in the next 12 months

28%
We have been actively seeking funding, but have yet to find an investor

19%
We recently obtained a capital infusion and are not seeking additional investment

17%
Other
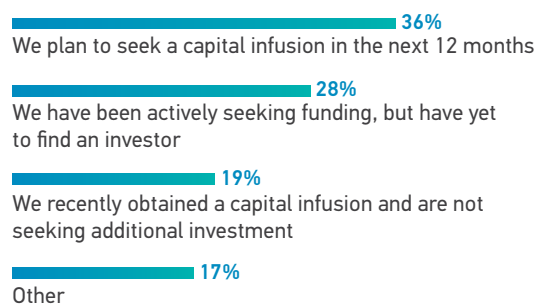
The following questions were answered only by startup firms and established tech companies.

Which platform(s) are you currently developing for? (Select all that apply)

Platform	Percentage
Google ARCore	34%
Oculus Rift	33%
HTC Vive	28%
PlayStation VR	27%
Samsung Gear VR	26%
Google Cardboard	21%
Oculus Go	21%
Apple ARKit	20%
Google Daydream	17%
Microsoft HoloLens	16%
Windows MR Headsets	12%
Google Tango	9%
Magic Leap	6%
ARVR 1	3%
Other	5%
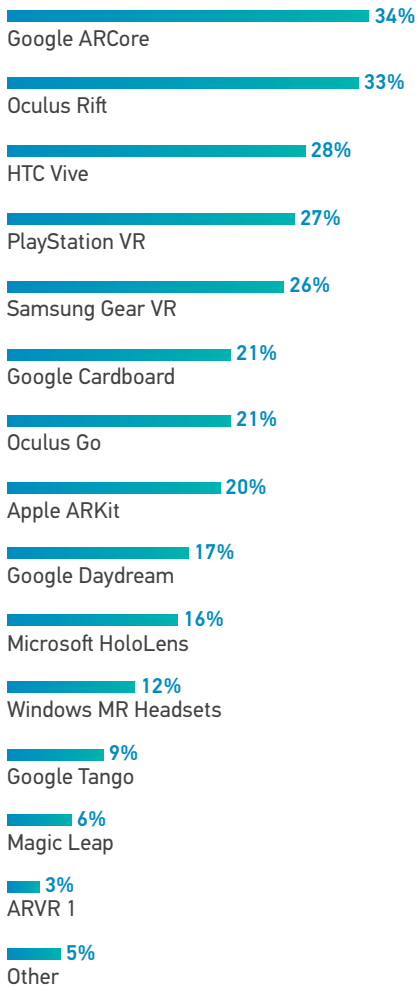
If your organization is creating content for AR/VR/MR/XR, what type of content are you currently developing?

Content Type	Percentage
Video games	48%
Social	31%
Advertising	26%
Livestream	25%
Film and entertainment	24%
News and visual stories	22%
Music	20%
Other	10%
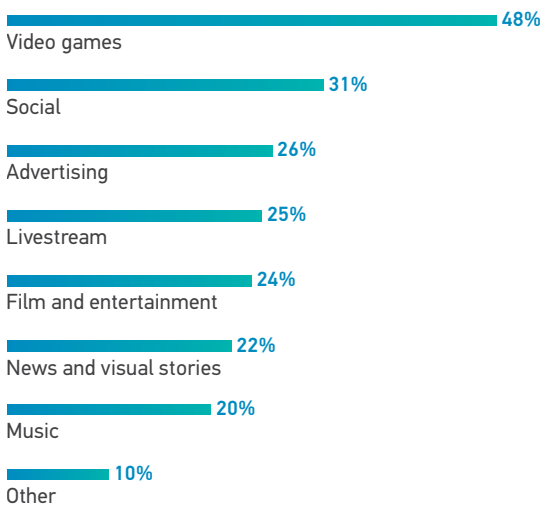
Methodology and Demographics

In early 2019, 200 respondents completed Perkins Coie and the XR Association's Augmented and Virtual Reality Survey via an online survey tool. The results were tabulated, analyzed and released in March 2019. Due to rounding, the results for some questions may exceed 100%.

More than half of the respondents (57%) held C-level or VP titles (e.g., CEO, president, owner or chief technology officer). Individuals completing the survey came from a variety of industries, with gaming (19%) and software for business (18%) among the most prominent. The breakdown of respondents is as follows:

- Executive within an established technology company (68%)

- Founder/executive of an AR, VR or MR startup (18%)

- Adviser/outside consultant (7%)

- Policymaker/government (4%)

- Investor (4%)

Respondents identified their primary area(s) of focus as the following:

41%
Virtual Reality (VR): Immersive multimedia experiences simulate a physical presence in a real or imagined world and allow the user to interact in that world.

28%
Augmented Reality (AR): A physical, real-world environment is overlaid by computer-generated content.

26%
Mixed Reality (MR): The real and virtual worlds are merged to create an environment where physical and digital objects coexist and interact.

6%
XR: An umbrella term that encompasses AR, MR, VR, and other forms of alternate, expanded, or immersive reality applications, including those not yet invented.

About the Study Authors

DON KARL
PARTNER | CORPORATE
CO-CHAIR | INTERACTIVE ENTERTAINMENT
Los Angeles
DKarl@perkinscoie.com

KIRK SODERQUIST
PARTNER | TECHNOLOGY TRANSACTIONS & PRIVACY
CO-CHAIR | INTERACTIVE ENTERTAINMENT
Seattle
KSoderquist@perkinscoie.com

MIRIAM FARHI
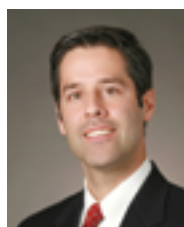SENIOR PRIVACY AND PRODUCT COUNSEL
Seattle
MFarhi@perkinscoie.com

ANDREW GRANT
PARTNER | CORPORATE
Seattle
AGrant@perkinscoie.com

DAVID PEKAREK KROHN
COUNSEL | PATENT LITIGATION
Madison
DPekarekKrohn@perkinscoie.com

BRENDAN MURPHY
PARTNER | PRODUCT LIABILITY
Seattle
BMurphy@perkinscoie.com

JASON SCHNEIDERMAN
PARTNER | EMERGING COMPANIES &
VENTURE CAPITAL
Palo Alto
JSchneiderman@perkinscoie.com

BEN STRAUGHAN
PARTNER | EMERGING COMPANIES &
VENTURE CAPITAL
Seattle
BStraughan@perkinscoie.com

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