



Snap Consumer

AR Global
Report
2021

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AR is evolving at a rapid rate and is poised to take-off and become as significant of a technology shift as the web or mobile.

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03 AR is Evolving Fast

The camera is driving the adoption of AR from being a playful technology to being a ubiquitous experience that drives excitement and utility into people's lives.

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Introduction

Key Takeaways



AR adoption is tracking with the mobile usage boom - by 2025, nearly **75% of the global population and almost all smartphone users will be frequent AR users.**¹



73% of people successfully identify AR when they see it², but when talking about it, they have a hard time defining or describing what it is.



65% of AR consumers around the world and across generations use AR to have fun; the majority are discovering AR through social / communications apps.³



AR is generally seen as a “toy”, but **76% of people expect and desire to use it as a practical “tool”** in their everyday lives.⁴



Interacting with products that have AR experiences leads to a **94% higher conversion rate.**⁵

1: See additional methodology details in appendix
 2: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
 Base = Aggregate average (n=11,457)
 Q: AR Recognition for 9 examples
 3: Base = Aggregate (n=10,166)
 Q: Why do you use AR?
 4: Base = Aggregate (n=11,938)
 Q: Augmented Reality is useful / Augmented Reality is not useful | A: Agree much more with A, Agree somewhat more with A
 5: Harvard Business Review Article, “How AR is Redefining Retail in the Pandemic”

Consumers are redefining the digital experience by using AR.

Augmented Reality (AR) is the next form of mobile engagement that is exciting consumers, driving an enhanced engagement with brands, elevating consumer experiences and increasing brand revenues.




Augmented Reality refers to experiences in which the real-world environment seen through your phone, computer, app camera, or an AR headset is altered or enhanced with the addition of images, objects, text, or other digitally-added information. Augmented Reality could be applied to both visuals of the front facing (selfie) and outward facing (world) cameras.¹





There is something really unique happening right now – **an incredible number of hobbyists and professionals are using AR.** Downloading tools across the Snap AR platform. They’re taking time to learn, they’re curious.”

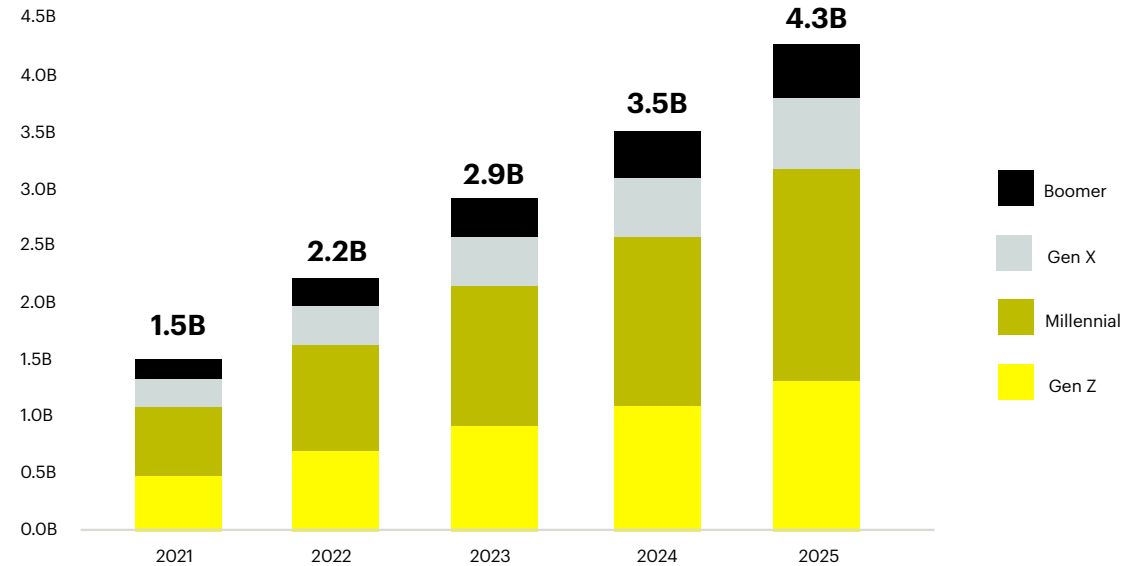
 Eitan Pilipski
SVP Camera Platform
Snap Inc.

AR is growing

By 2025, **nearly 75%** of the global population* and almost all people who use social / communication apps will be frequent AR users.¹

Frequent AR Consumers

Based on people ages 13-69 who use social / communication apps



¹ See additional methodology details in appendix.
*Global population includes people ages 13-69 (5.61B based on UN World Population Prospects 2019)

Note: 2021 AR Consumers based on people who use AR weekly or daily from 2021 Global Deloitte Digital Study commissioned by Snap Inc. 2022 to 2025 forecasted in line with 2000-2003 growth rate of smartphone users since AR is in the toy-launched phase of adoption; if we look at where this transition took place with mobile phones, one can argue that this was when games like 'snake' started being available (e.g., 1997: Nokia 6110 device released, 1999: emojis were invented, 2000: Nokia 3310, and the first commercially available camera phone launched in Japan).

“Our commitment to reinventing the camera is most evident through our advances in augmented reality. **Today, more than 200 million people engage with AR on Snapchat everyday on average.** We have co-developed our vision for augmented reality together with our growing community and have created cutting-edged tools and capabilities that allow creators to build increasingly advanced Lenses and distribute them to the entire Snapchat community.”



Evan Spiegel
Chief Executive Officer
Snap Inc.

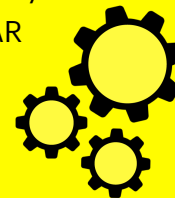
Younger, more group-oriented households are driving AR growth

Age Differences

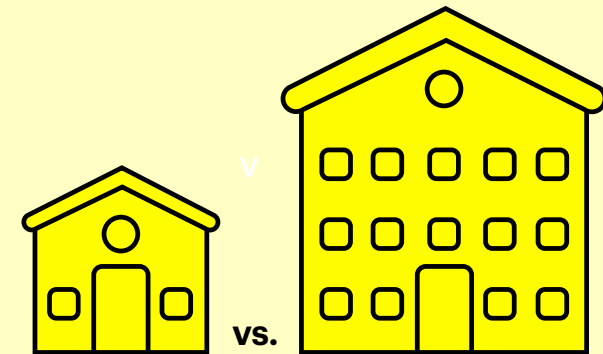


Gen Z / Millennials are both **71% more** likely to use AR all the time vs. older generations.¹

Older generations are nearly **20% more** likely to view AR primarily as practical.²



Household

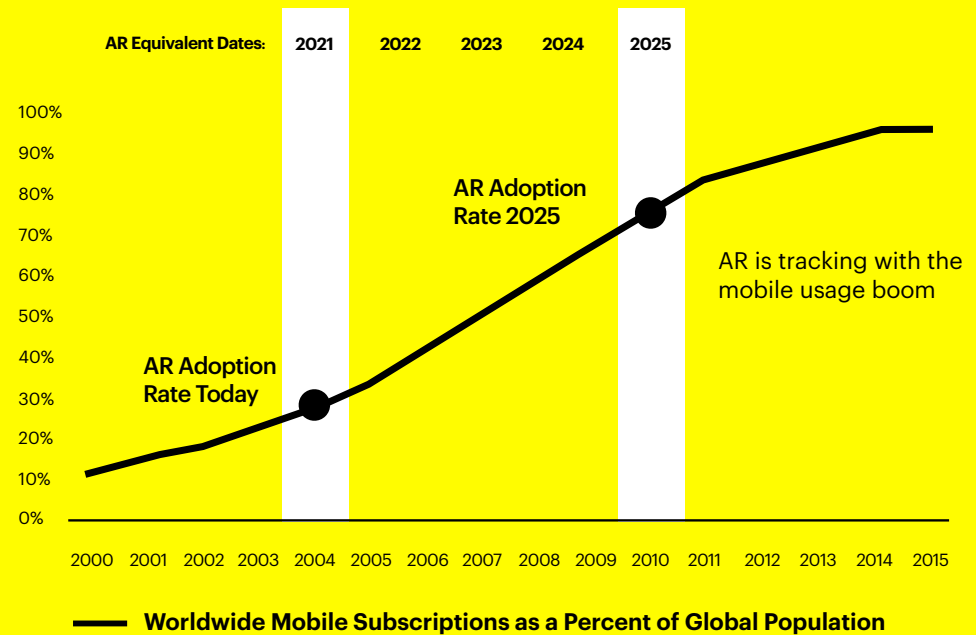


Bigger households are **89% more likely than solo households** to use AR all the time.³

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Gen Z (n=2,379), Millennials (n=1,751), Gen X (n=1,591)
Q: What year were you born? | Q: How familiar are you with AR? | A: I use AR all the time
2: Base = Age 45-50 agreeing AR is practical (n=281), Age 13-24 agreeing AR is practical (n=1,891)
Q: What year were you born? | Q: Augmented Reality is for entertainment / Augmented Reality is practical | A: Agree much more with B, Agree somewhat more with B
3: Base = Solo HH (n=272), 5+ HH (n=1,403)
Q: How many people occupy your residence (including you)? This includes related family members and all the unrelated people, if any, who live with you. | Q: How useful and/or important do you think AR will be in 5 years? | A: Very useful / important, Somewhat useful / important

Note: People who live with others is based on households with 5 or more individuals. Increased number of household members implies more time spent being social with friends and family, a driver of AR usage.

Compared to mobile tech adoption AR is poised to take-off



Technology advances are driving the accelerated adoption of AR:



AR-related patents in the US grew more than 3x over the last 10 years.¹



5G will accelerate AR technology adoption with benefits like increased download speeds and accessibility.²

1: Deloitte Digital Insights, The Spatial Web and Web 3.0
2: ZDNet Article, "How 5G will affect augmented reality and virtual reality"

“As AR evolves, it will revolutionize our lives and **will become as significant of a technology shift as the web or mobile** was to society, changing how we view and interact with the world around us.”



Allan Cook
Digital Reality Business Leader
Deloitte Digital

Q2

AR's Impact on Brands

A lot of people are using AR to make purchase decisions and plan to keep doing so

There are

100
million
consumers

shopping with AR online and in-stores.¹

94%

agree they'll use AR the same or more when shopping next year.²

1: Gartner Press Release
2: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=6,876)
Q: Will you use AR while browsing and/or shopping more or less than last year?

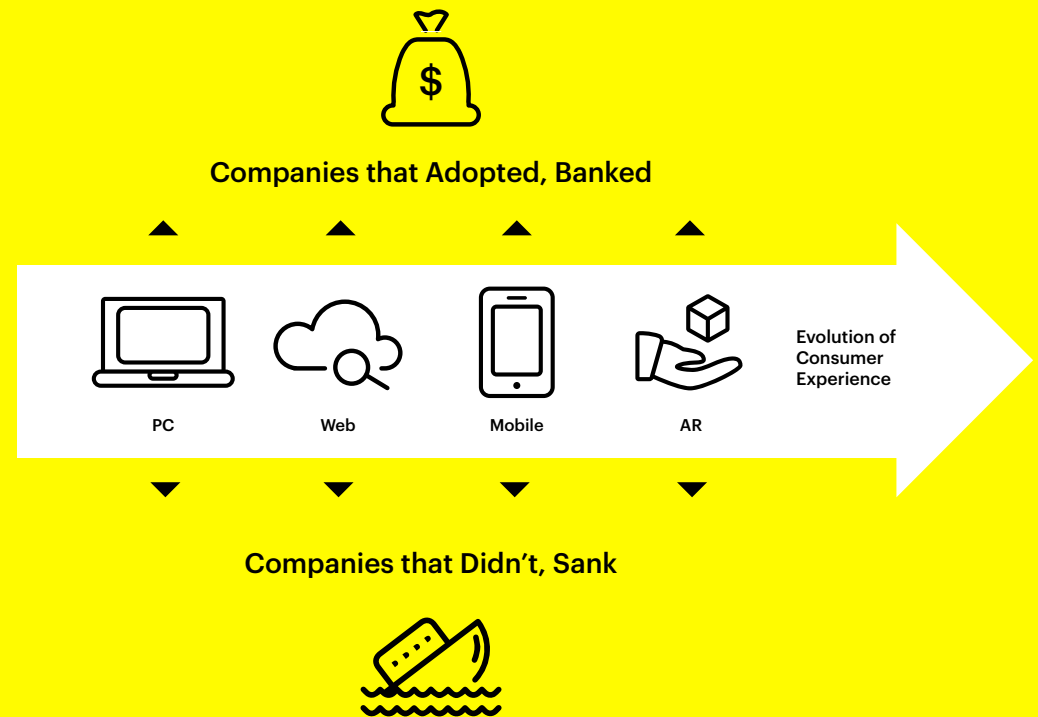


AR is the new consumer experience and **cannot** be ignored

Consumers continuously expect more *personalized* and *engaging* experiences that enable them to interact with the world.

The companies that *embrace change* can become *dominant industry players* – those that *don't*, fall behind competitors ...and sink.

It's not too late to be a leader and get first mover benefits.



“Historically, advertising interrupted your life to get your attention. **With AR a brand can create content that you can personalize with the camera and leverage to tell your own story in a way that is genuinely interesting, entertaining and relevant to your friends and followers.**”

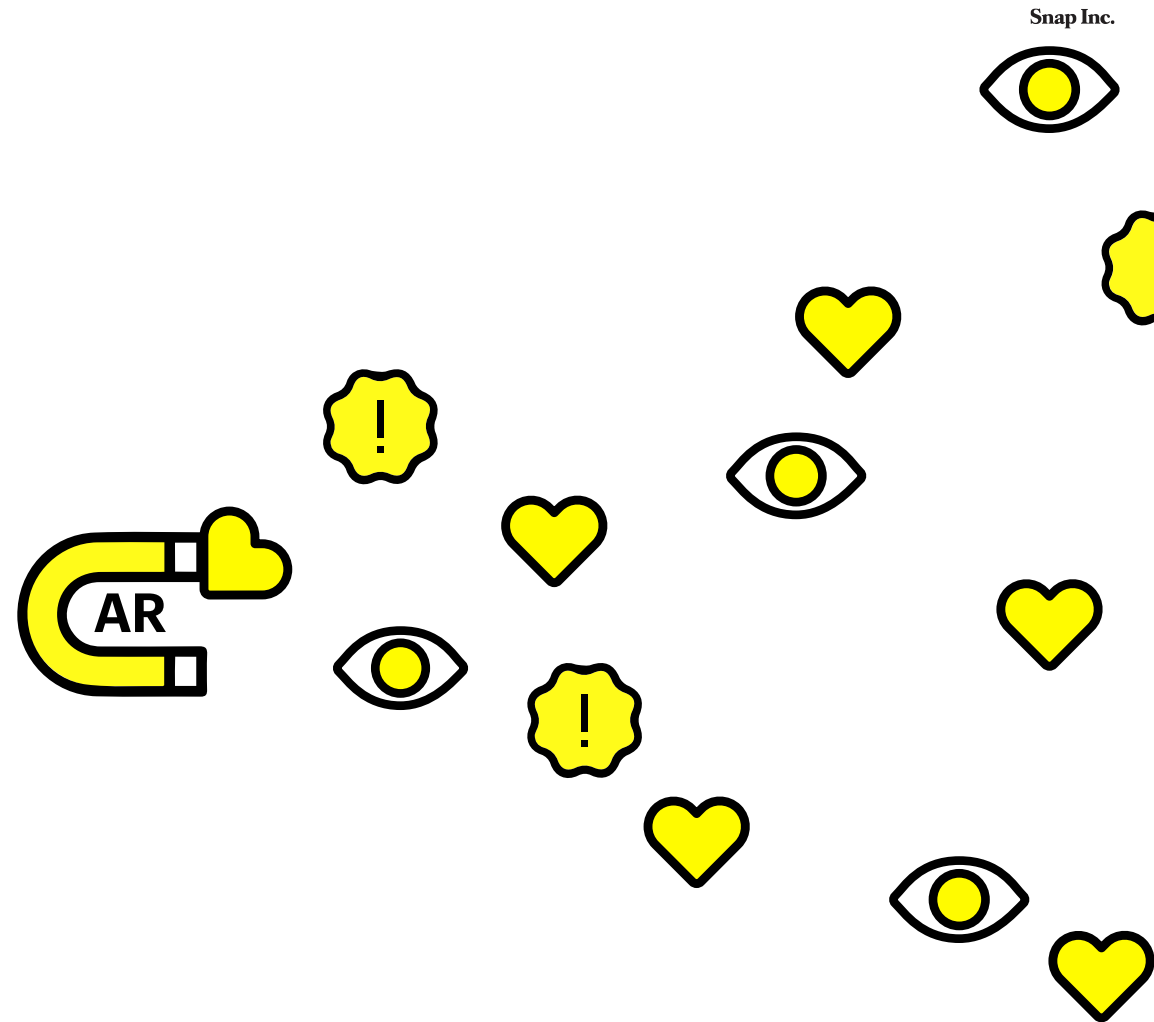
AR captures consumer attention

AR delivers almost **2x** the levels of visual attention compared to their non-AR equivalent, leading to improved memories and more powerful responses from consumers.¹



People who frequently use AR with their family and friends are **50% more likely to pay attention to a brand.**²

1: Zapper Article, "How augmented reality affects the brain"
2: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base - Over 60% of friends and family sharing AR (n=1,330). Less than 20% of friends and family sharing AR (n=1,209)
Q: How many of your friends and family do you think use AR today? | Q: Sometimes brands will create AR experiences through an app camera (e.g., a big movie company makes an AR experience where the heroes of a movie are fighting next to you, or a restaurant provides you a lens/filter/effect that turns you into a hamburger). What impact, if any, does interacting with that AR experience have on your perception of that brand?



Snap Inc.

Deloitte.
Digital

Brands and people connect better with AR experiences

Brands are

41%

more likely to be considered if they have a branded AR experience.¹

Snap Inc.

¹: 2021 Global Deloitte Digital Study commissioned by Snap Inc.

Base = People who use AR all the time (n=1,760)

Q: Sometimes brands will create AR experiences through an app camera (e.g., a big movie company makes an AR experience where the heroes of a movie are fighting next to you, or a restaurant provides you a lens/filter/effect that turns you into a hamburger). What impact, if any, does interacting with that AR experience have on your perception of that brand? | A: I am more likely to pay more attention to the brand, I am more likely to share a brand's AR experience with friends and family, I am more likely to consider their products

Deloitte.
Digital

AR builds consumer confidence

56%

of shoppers agree that AR gives them more confidence about product quality.¹

+

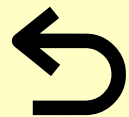
Over half

of people want to use AR technology to assess products, allowing for a risk free, "try-before you buy", experience.²



Nearly 3 in 4 consumers say they're willing to pay more for a product that promises the total transparency that AR can provide.³

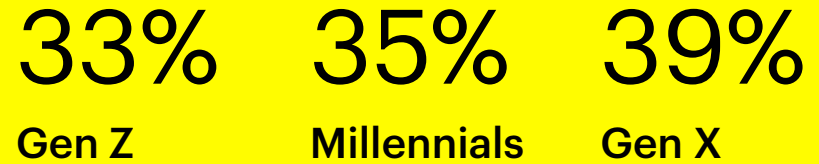
Returns are a \$550 billion problem, which AR can help fix. AR-guided purchases led to a **25% decrease** in returns.⁴



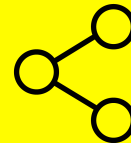
1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=4,770)
Q: How does AR impact your browsing and/or shopping experience?
2: NielsenIQ Analysis. Augmented retail: The new consumer reality
3: 2016 Label Insight Transparency ROI Study via <https://www.labelinsight.com/insights/transparency-roi-study>
4: ARInsider Article. "Does AR Really Reduce eCommerce Returns?"

Social is driving AR adoption.

People want to share their favorite Brand's AR experiences



Rely on friends and family to discover branded AR experiences¹



Find it important to share branded AR easily¹

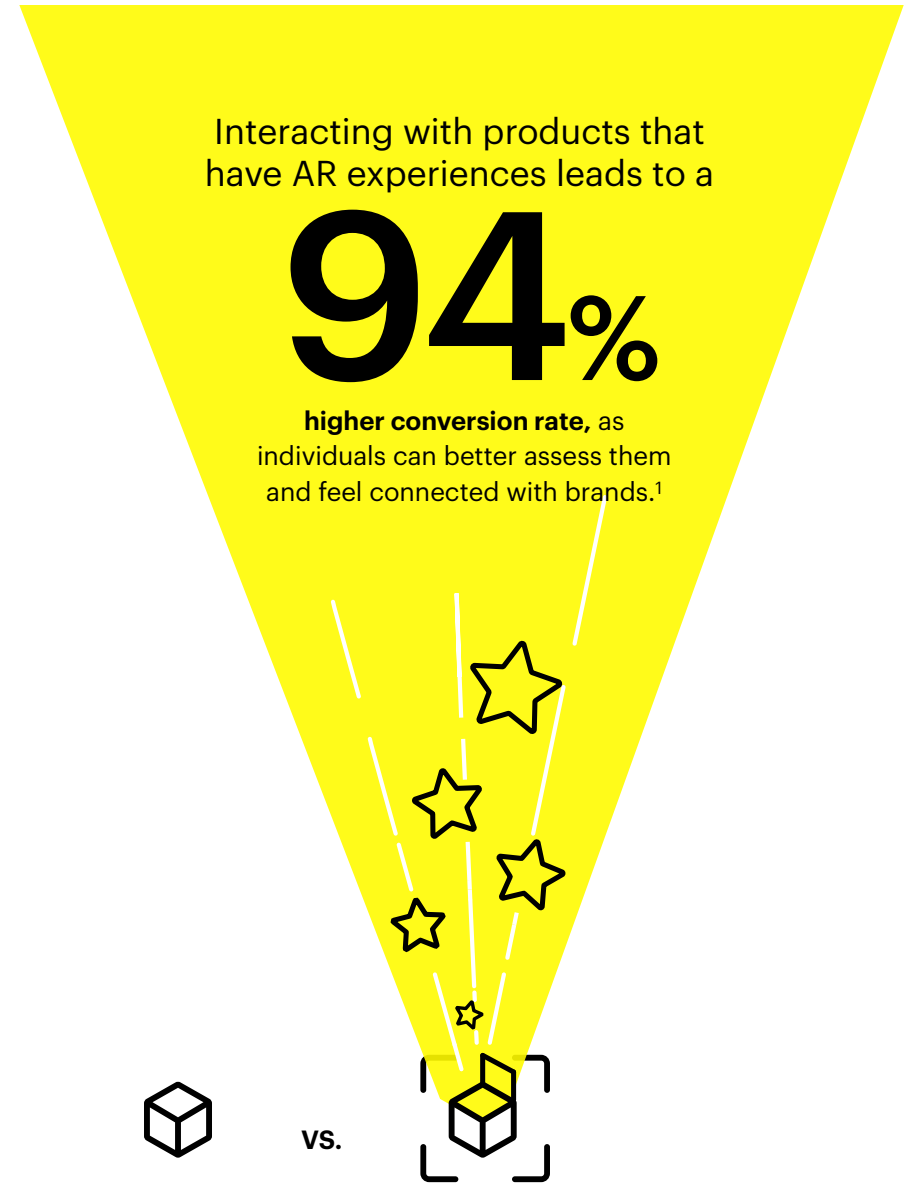
The results
are in 

AR interactions drive conversion

“The conversion rates that we’ve seen have surprised us, as a result **we’re doubling-down on AR** experiences to drive eCommerce.”

 Robert Triefus
EVP of Brand & Customer Engagement
Gucci

1: Harvard Business Review Article, "How AR is Redefining Retail in the Pandemic"



03

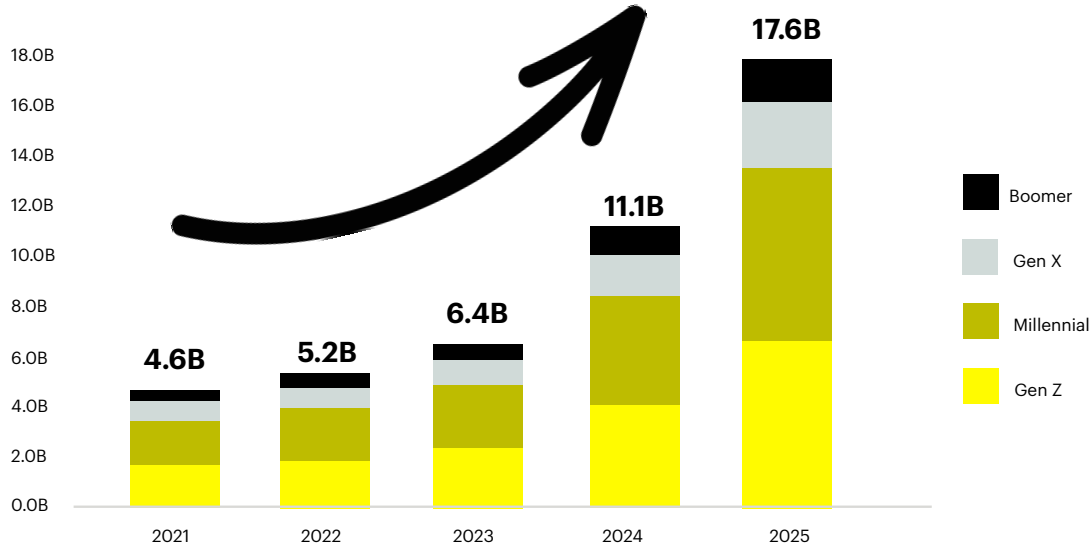
AR is
Evolving
Fast

Over **4.5 billion** AR photos and / or videos are taken daily by consumers

AR use will grow with an increase in awareness and access to AR experiences and content.

AR Photos / Videos Per Day¹

Generational Breakout of Daily AR Photos / Videos Created



22

↑ 40%

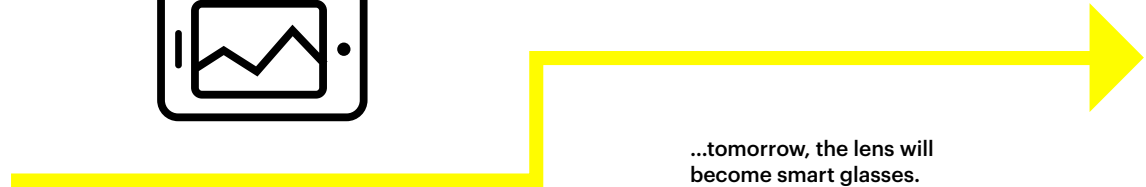
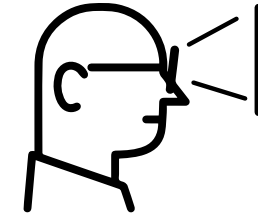
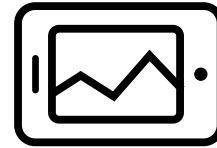
2021-2025 CAGR of AR Photos / Videos per Day.¹



On Snapchat, there are **500 million minutes** of AR playtime per day on average.²

1: See additional methodology details in appendix; CAGR: 4-year compounded annual growth rate that measures the annual increase in AR Photos / Videos per day from 2021 to 2025
2: Snap Inc. internal data Q1 2020

As mobile devices improve, **the phone and the camera are becoming synonymous**, allowing everyone to experience the world through each others' eyes.



Today, we experience the world through the lens of the camera...

Consumers are **23% more** likely to use the front-facing camera when they use AR to express themselves.¹

...tomorrow, the lens will become smart glasses.

The camera will...

Be the New Search

Pointing your camera at something will be similar to typing a term into a search bar.



"Snap's choice of a smartphone's camera as the interface is a familiar, comfortable tool that is almost always within reach. Snap adapted an interface that complemented users' natural movement—leveraging sophisticated facial mapping and computer vision technology that creates 3D animations that rotate and expand."²

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = People who Use AR to express themselves with front-facing camera (n=859).
People who Use AR to express themselves with rear-facing camera (n=700)
Q: Do you usually take photos/videos with front-facing or rear-facing cameras?
Q: Why do you use AR?
2: Deloitte Digital Insights, Intelligent interfaces: Reimagining the way humans, machines, and data interact

“ In tech, there is an inner circle (now-18 months) and outer circle (18-36 months) of trends to take seriously. AR is properly in the inner circle. **Nothing is more powerful than AR; it is the bridge between the 2D and the 3D world, and we’ve never had that before – we instead forced ourselves to accept the 2D world that you cannot touch or live.**”



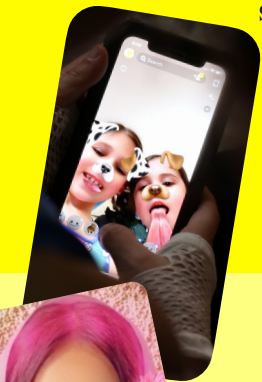
Paul McDonagh-Smith
Digital Capability Leader
Massachusetts Institute of Technology

TECH

The "technology" phase:
Consumers and developers try new Technologies, like communication platforms, to create and connect with the world.

Discover and test a new capability.

E.G. Using a lens to give yourself puppy ears or putting your face on a dancing rabbit.



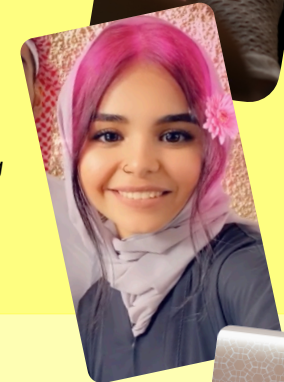
Snap Inc.

TOY

The "feature" phase:
Test and Toy with AR to play and have fun via applications like selfies.

Experiment with interesting features.

E.G. Testing out a hair color and sharing this with friends or capturing a 3D monster.



WE ARE HERE *

TOOL

The "impactful" phase:
engage with useful features, like AR directions on how to get home.

Understand the benefits or utility of AR experiences. As this understanding grows, so too, do practical applications and how they might be used.

E.G. Trying out a brand's lipstick to see how it looks on or how a TV looks on the wall to determine which size of TV to purchase.



25

TOTALITY

Business as usual / the new normal:
See AR's full power as developers make more content available to use in everyday life, shifting from selfie to world and play to utility.

Interact with frictionless applications and experiences. Expectations to use AR becomes ubiquitous across platforms, providing interaction points to engage with the world in its totality.

E.G. Shopping seamlessly across brands and platforms.



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Digital

04

AR is Here
Today and
Here to Stay

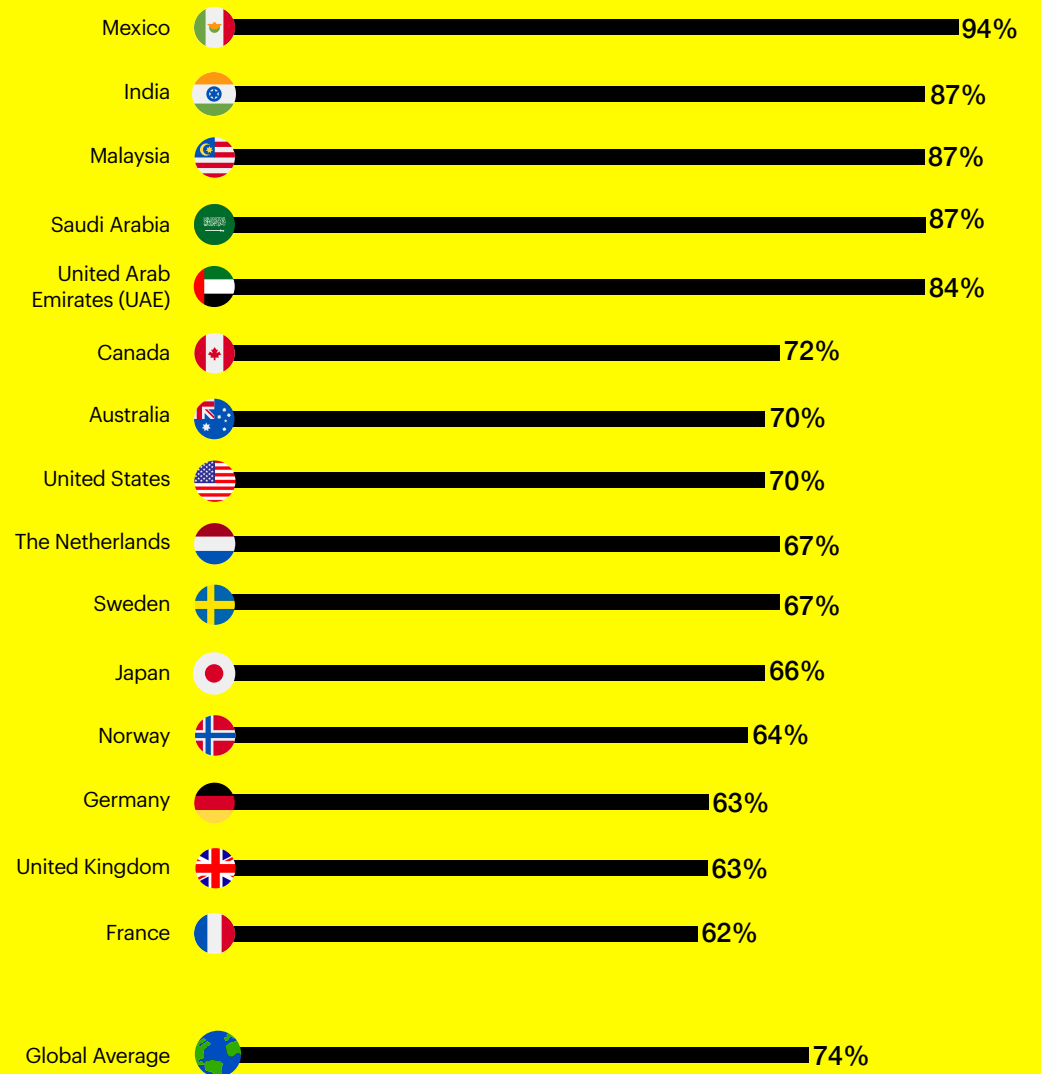
Where in the world is AR being used?

Over 2/3 of consumers in all markets believe AR will be useful and important in 5 years.²

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=9,511)
Q: How often do you use AR for any of the following reasons? Communication | A: Several times each day, Once a day, Several times a week, Once a week
2: Base = Aggregate (n=11,493)
Q: How useful and/or important do you think AR will be in 5 years? | A: Very useful / important, Somewhat useful / important

Snap Inc.

■ % think it will be important in 5 years¹



Deloitte.
Digital

Where do people love using AR most today?



67% of consumers use AR primarily in their homes.¹

Consumers predominantly use AR at home, and do so for a wide range of uses.

What are people using AR for at home?²



74%

Communication



52%

Media & Entertainment



55%

Gaming



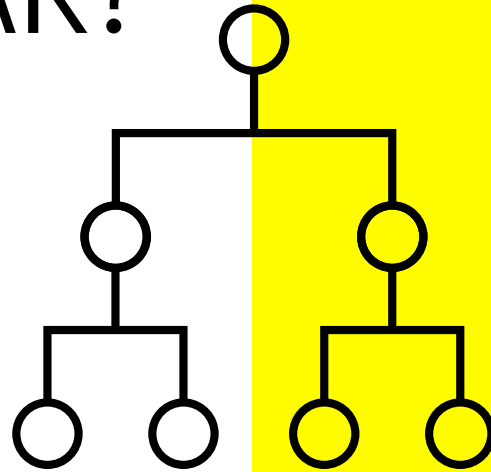
41%

Shopping

¹: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=10,028)
²: Where do you typically use AR? Please rank the locations from where you use AR the most to the least. | A: At Home Rank 1st
2: Base = At home = Communication (n=7,458), M&E (n=5,253), Gaming (n=5,508), Shopping (n=4,139)
Q: Where do you typically use AR? Please rank the locations from where you use AR the most to the least. | A: At Home Rank 1st
| Q: How often do you use AR for any of the following reasons? | A: Several times each day, Once a day, Several times a week, Once a week, A few times a month, Once a month

Note: Across all 15 markets, the 2021 Global Deloitte Digital Study commissioned by Snap Inc in field from February 23, 2021 to April 5, 2021. Since the survey was conducted during the COVID-19 pandemic, primary usage of AR in consumers' homes may be higher than normal

How are people learning about AR?



82%

learn about AR from social / communication channels and networking.¹

Frequent AR users are more likely to have **over 50%** of their friends and family using AR.²

¹: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
 Base = Aggregate (n=12,813)
 Q: Where did you first discover AR content? | A: I saw people I know using it on social media, communication, and camera apps, I saw it in an advertisement on a social media, communication, or camera app, I stumbled across it while exploring viral content on social media, communication, or camera app, I saw celebrities / influencers use it on social media, communication, and camera apps, I read about it on a blog / forum, I heard about it from friends / family, in-person
²: Base = People who use AR all the time with 60%+ friends who share (n=1,645), People who have used AR before with 60%+ friends who share (n=1,578)
 Q: How familiar are you with AR? | A: I use AR all the time, I have used AR before | Q: How many of your friends and family do you think use AR today? | A: 60-80%, Over 80%

Why do they use AR?

Snap Inc.

TECH: **OSMOSIS** "I didn't even realize I was using it"

TOY: **JOY** "I want to have fun and connect with friends"

30

TOOL: **UTILITY** "I need to and it's useful"

TOTALITY: **UBIQUITY** "It's everywhere and commonplace"

Deloitte.
Digital

Why do they use AR?

Osmosis

61% 

of people use AR for communication.¹

People may have a hard time describing AR, but

 73%

successfully identify AR when they see it.²

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=9,518)
Q: How often do you use AR for any of the following reasons? Communication |
A: Several times each day, Once a day, Several times a week, Once a week
2: Base = Aggregate average (n=11,457)
Q: AR Recognition for 9 examples



Why do they use AR?

Joy



1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base - Aggregate (n=6,571)
Q: Why do you like to use AR? | A: Open end

Why do they use AR?

Joy

“From the consumer perspective, they are willing to handle an AR learning curve, if they are having fun doing it along the way.”

 Jason Yim,
CEO & Chief Analyst
Trigger Global

65%

of consumers use AR to have fun, the biggest driver for AR use.¹

“The draw of AR comes from feelings of joy. People are fascinated by themselves, and AR can be a great tool for explore those emotions.”

 Adrian Mills
Creative Brand & Advertising Business Lead
Deloitte Digital

1 and 2: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=10,166)
Q: Why do you use AR?
Q: What year were you born? | Q: Why do you use AR?

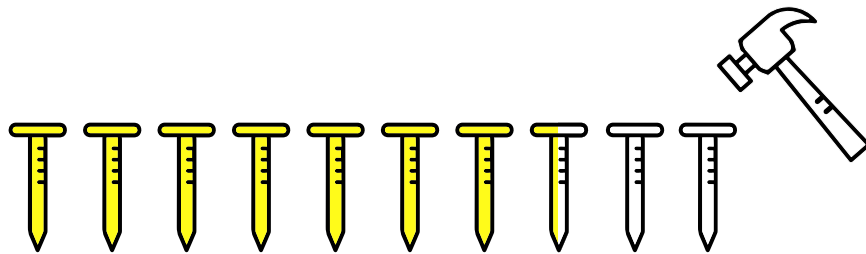
**Consumers list
AR / VR as the top
technologies they
want to assist them
in their daily lives.**

Why do they use AR?

From Utility to Ubiquity

We are over halfway there.

Over 3 in 4 already recognize AR as useful.¹



Snapchatters are **3x more likely** than Non-Snapchatters to say they are using AR to try on products more than they did last year.³

Ubiquity is achieved as consumers encounter AR everywhere, something that currently **50% of AR users experience.**²



1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=1,938)
Q: Augmented Reality is useful / Augmented Reality is not useful | A: Agree much more with A, Agree somewhat more with A
2: Base = Aggregate (n=7,145)
Q: "I see Augmented Reality everywhere" | A: Agree Much more with A, Agree somewhat more with A
3: 2021 Global Cassandra Study commissioned by Snap Inc.
Base: Aggregate (n=27,006)
Q: Which of the following, if any, are true for you? Select all that apply.



“The more AR and visual computing becomes a natural medium for searching, learning, and viewing information in our environments, the more adoption we will see.”



Shrenik Sadalgi,
Director of R&D
Wayfair

74% of consumers believe that AR will be even more important in their lives in the next 5 years.¹

Next year, consumers plan on using AR more in 4 key growth areas, showing the increase in value that they see in AR and that they are excited for future uses.

↑ Media²
50%

↑ Shopping³
46%

↑ Gaming⁴
41%

↑ Communications⁵
35%

31% want to create their own interactive media plots by guiding characters through a script.⁶

54% want to readily view information about an item or product as soon as it's scanned with the phone camera.⁶

41% want to project their AR avatar into their favorite games, media & entertainment.⁶

41% want to customize environments to their own imagination and share with others.⁶

¹: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=11,453)
Q: How useful and/or important do you think AR will be in 5 years?
A: Very useful / important, Somewhat useful / important
²: Base = Aggregate (n=3,232)
Q: How would you like to use AR in the next year to enhance the way you view sports, concerts, movies, and TV?
³: Base = Aggregate (n=3,394)
Q: Will you use AR while browsing and/or shopping more or less than last year?

⁴: Base = Aggregate (n=2,898)
Q: Will you use AR in gaming more or less than last year?
⁵: Base = Aggregate (n=2,805)
Q: How do you feel about AR on social media, communication, and camera apps? | A: I want more ways to interact with friends and family using AR
⁶: Base = Project through AR avatar (n=4,696), Create TV/Movie/Video plot narratives (n=3,560), Readily view information about item or product (n=6,243), Customize environments (n=4,717)
Q: Below is a list of ways you could use AR in the future. Please select all the ways that you would be interested in using AR.

Utility is a primary driver for AR's future use¹

Wellness
↑ 139%

Improve Productivity

Instructions
↑ 55%

↑ 76%

Navigation
↑ 36%

TV & Sports
↑ 36%

Learn Something new
↑ 35%

1. 2021 Global Deloitte Digital Study commissioned by Snap Inc. Base = Why use AR - Wellness (n=1,680), Improve Productivity (n=2,636), Instructions (n=3,517), Learn something new (n=4,903), TV & Sports (n=2,798), Navigation (n=4,156) | Desire for more AR use - Wellness (n=4,021), Improve Productivity (n=4,635), Instructions (n=5,453), Learn something new (n=6,601), TV & Sports (n=3,814), Navigation (n=5,658)
Q: Why use AR? Q: Desire for more AR use

05

Are You Ready
for the Future?

I regard [AR] as a big idea, like the smartphone. The smartphone is for everyone, we don't have to think the iPhone is about a certain demographic, or country or vertical market: it's for everyone.

I think AR is that big, it's huge. I get excited because of the things that could be done that could improve a lot of lives. And be entertaining."



Tim Cook
Chief Executive Officer
Apple Inc.

Fast-Forward to Totality or Press Pause?



Drivers accelerating the adoption of AR

- Consumers are becoming creators
- Desire to increase utility
- Increased mobile usage through COVID-19
- Keeping things fun



Barriers slowing the adoption of AR

- Lack of content
- Industry-wide limited enablement & engagement with the developer / creator community
- Need for frictionless experience

▶ Consumers are becoming creators

Everyday consumers have more access to technology tools that enable them to be creators of digital content.

AR is a creative vehicle

64%

believe AR allows them to be more creative.¹

53%

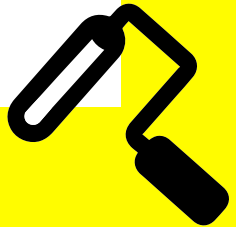
believe they are AR creators in their everyday lives.²

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=10,061)
Q: How much do you agree or disagree with each of the statements below? AR allows me to be more creative [A: Agree/strongly agree
2 and 3: Base = Aggregate (n=8,252), Snapchatters (n=4,842), Non-Snapchatters (n=3,410)
Q: Have you ever used tools (e.g. Snapchat Lens Studio, Facebook for Developers/Spark AR, Instagram for Developers, TikTok for Developers) to create your own AR filters/lenses/effects? | A: Yes

Snapchatters are **1.5x** as likely to be AR creators.³

63%

Snapchatters



vs.

43%

Non-Snapchatters

have used tools to create AR.

▶▶ The need to increase utility

The pandemic exacerbated the demand for fun and practical content and reinforced AR's importance.

AR helps shoppers make decisions.

55% 

of AR shoppers believe that AR is more important for making browsing and / or shopping more rewarding / fun.¹

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Total used AR for shopping (n=3,072)
Q: Think about how your life has changed as a result of COVID-19 and pandemic restrictions. How, if at all, has COVID-19 changed the importance of AR in your life? AR makes browsing and/or shopping more rewarding/fun



As more retailers and brands invest in increasingly sophisticated AR-powered experiences, reaching more consumers across an ever-increasing number of touch points, **consumer expectations will continue to escalate. They are demanding more utility for their time and attention.** The brands and retailers who step-up to successfully meet this opportunity will stand out and be more likely to earn their business."



James Clarke
Sr. Director Media Strategy & CRM
Frito-Lay North America

▶ COVID-19 accelerated AR adoption

Worldwide spending on augmented reality and virtual reality (AR/VR) is forecast to accelerate out of the pandemic, growing from just over \$12.0 billion this year to \$72.8 billion in 2024.¹

1: International Data Corporation Worldwide Augmented and Virtual Reality Spending Guide via IDC
2: 2021 Global Deloitte Digital Study commissioned by Snap Inc.

Base = People who use AR all the time (n=2,405)
Q: Based on the above description, which of the following best describes your familiarity with AR before today? | A: I use AR all the time | Q: Think about how your life has changed as a result of COVID-19 and pandemic restrictions. How, if at all, has COVID-19 changed the importance of AR in your life? AR makes digital experiences more useful and important

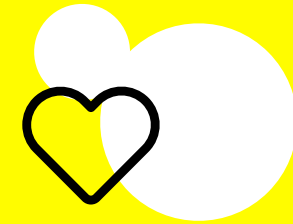
3: Base = People who use AR all the time (n=2,525)
Q: Based on the above description, which of the following best describes your familiarity with AR before today? | A: I use AR all the time | Q: Think about how your life has changed as a result of COVID-19 and pandemic restrictions. How, if at all, has COVID-19 changed the importance of AR in your life? AR makes me feel like I am somewhere else

4: Base = People who use AR all the time (n=2,382)
Q: Based on the above description, which of the following best describes your familiarity with AR before today? | A: I use AR all the time | Q: Think about how your life has changed as a result of COVID-19 and pandemic restrictions. How, if at all, has COVID-19 changed the importance of AR in your life? AR creates possibilities for new tech innovations

COVID-19 has reinforced AR's importance as a bridge between the physical and the digital.

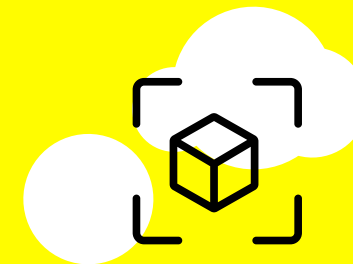
56%

say COVID-19 has made AR digital experiences more important.²



56%

say COVID-19 has made shopping with AR more rewarding and fun.³



59%

say COVID-19 has made AR tech innovations more important.⁴



E-commerce benefited the most from COVID-19 and it's here to stay. AR has the opportunity to piggyback on this trend."

 Mike Boland
CEO
ARtillery



In the wake of COVID-19, in which retailers worldwide shut down for months, retailers using AR are enjoying a 19% spike in customer engagement...and the customer conversion rate increases by 90% for customers engaging with AR versus those that don't."¹

 Judy Mottl
Editor
Retail Customer Experience

¹: Retail Customer Experience Article, "Why retailers should embrace augmented reality in the wake of COVID-19"



▶▶ Keeping things fun

The experience of overlaying imagery onto the real world is fun.

74%

of consumers say that AR has entertainment value.¹



1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (11,634)
Q: For each pair of statements below, please select which side you agree with more about.
Augmented Reality. Augmented reality is for entertainment | A: Agree somewhat/much more

II Develop more content

Keep AR consumers engaged with new, relevant content.

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = View information about an item or product (n=7,592). View instructional guides (n=6,587)
Q: Below is a list of ways you could use AR in the future. Please select all the ways that you would be interested in using AR

Consumers want AR to simplify their lives

49% want to see more information about a product.¹

47

42% want to view instructional guides.¹

For brands to keep customers engaged, they need to increase the volume and relevance of content to improve customer value.

“The more a consumer spends time with something, the more likely they are to buy it – there is no question that **when the ad is personal / interactive, engagement rate goes up...**How do you create an ad that deeply engages the consumer? That’s why we have AR. **When an ad is interactive, such as AR, there’s no question the interaction & engagement rates go up.”**

II Develop more content

The case for investment in AR is there – customers using AR spend more time in apps and have higher purchase rates.



According to Adi Tatarko, Houzz's CEO, customers spend more time in apps that offer AR – **up to 2.7x more time** –

and importantly, Houzz customers using AR are **11x more** likely to make a purchase.¹

49

Brands can create engaging content and gain access to developer networks by tapping into an ecosystem of platform businesses.*

*A platform business enables value-creating interactions between two distinct user groups: creators and consumers. Adapted from: Platform Revolution, Ch. 3 - Geoffrey G. Parker, Marshall W. Van Alstyn, Sangeet Paul Choudhary

1: Houzz [Press Article](#): "Houzz App Upgrades 3D Augmented Reality Tool with ARKit to Help You Design and Shop"

“The labor market is evolving towards jobs that demand more digital skills, not fewer. Meanwhile burgeoning technologies like Augmented Reality – in greater demand than ever due to social restrictions – are set to become more ingrained into our daily lives.”

II Enable & engage developers

AR skillsets are nascent but growing.

Over **50%** of AR developers have under a year of experience.¹

Consumers represent untapped potential for social and communications platforms with **63% of consumers** having tried at least one social platform developer account.²



Snapchatters are AR content creators
55% of Snapchatters who have Lens Studio are Gen Z.⁵

¹: SlashData Report, A closer look at AR/VR practitioners' experience & goals
²: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (9,773)
Q: Please select from the list the development tools and apps that you are familiar / have tried or created with.
³ and ⁴: SlashData Report, A closer look at developers & non-developers involved in AR/VR
⁵: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Snapchatters who have Lens Studio (n=4,181)
Q: Have you ever used tools (e.g. Snapchat Lens Studio, Facebook for Developers/Spark AR, Instagram for Developers, TikTok for Developers) to create your own AR filters/lenses/effects? | Q: What year were you born?



East Asia, North America, and South Asia are hotspots for AR and VR skillsets.

68% of global AR / VR practitioners are in East Asia, North America and South Asia (31%, 23% and 14% respectively).³

Over half of AR / VR practitioners in South Asia are students.⁴

II Consumers are becoming casual AR creators

Novelty is driving this adoption.

69% 

create AR to experience the latest technology.¹


 65%

create AR to build something that hasn't been done before.¹

¹: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = People who use tools to create AR frequently – to experience the latest technology (moderately/very important) (n=3,363); People who use tools to create AR frequently – to create something unique, that others haven't yet (moderately/very important) (n=3,363)
Q: Have you ever used tools (e.g. Snapchat Lens Studio, Facebook for Developers/Spark AR, Instagram for Developers, TikTok for Developers) to create your own AR filters/lenses/effects? | Q: How important are each of the following to you when creating custom filters/lenses/effects? | A: Moderately Important, Very Important


|| Casual creators want AR to shape how they interact with the world

“Thanks to companies like Snap, people are now familiar with light-touch AR. With 5G, tech is finally catching up with ambition.”


 Kris Soumas
Head of Gaming & Next Gen Entertainment
Verizon

Casual creators have the opportunity to shape AR's future.


50%

 want to enhance and share the real-world footage they capture.¹

52%

 want to know more about products that they scan.¹

44%

 want to navigate to new areas of interest.¹


1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = People who use tools to create AR frequently - to enhance real-world footage (n=2,422), People who use tools to create AR frequently - to readily view information about an item or product (n=2,518), People who use tools to create AR frequently - to navigate to new areas of interest (n=2,126)
Q: Have you ever used tools (e.g. Snapchat Lens Studio, Facebook for Developers/Spark AR, Instagram for Developers, TikTok for Developers) to create your own AR filters/lenses/effects? | Q: Below is a list of ways you could use AR in the future. Please select all the ways that you would be interested in using AR

|| A strong developer ecosystem will drive valuable content

Fulfillment

Platforms that enable them to deliver their creative vision, while being rewarded for their contribution via revenue sharing agreements.


"AR seems to me the best way to democratize my work – everyone can wear my creations. It can't be the future if no one can try it on."

 Ines Alpha
Lens Creator
3D Makeup Artist

Support

Platform developer support for creating AR experiences, especially as developer support for non-AR mobile applications starts to decline.

"The perfect AR platform listens to and communicates with its creators."


Clara Bacou 
Lens Creator

Developer Ecosystem Needs

Tools

Significant platform-specific configuration and development support, to meet growing and uncaptured demand.


"Someone needs to provide a sandbox that everyone uses so that developers can focus on developing."

 Anwar Noriega
CEO and Co-Founder
Wabisabi Design

Innovation

The freedom and license to create innovative AR content, test this content with consumers, and iterate on new ideas, without the fear of scrutiny, loss of work, and / or overbearing performance metrics.

"It's one thing to develop for people remotely connecting, but developing to enable people to interact in the same space via AR is exciting."

Snehaal Dhruv 
Founder & Lens Creator
SuperFan

Snap Inc. has over
150,000
creators, who
have made over
1.5 million
lenses.¹

1: Snap Inc. internal data as of September 30, 2020

Snap Inc.



The key is harnessing AR in a very intuitive way. Partnering with Snap allows us to bring our products to life in an exciting new way.”



Shane Horneij
Senior Director
Performance Marketing King

55



Snap [Inc.] has done so many great things for adoption of AR for both consumers and developers. Snapchat filters taught the world what AR was and the art of the possible.”



Max Dawes
Managing Director
Zappar

Deloitte.
Digital

II Reduce friction

Educate consumers and increase hardware access to continue to propel AR's evolution



Consumer Behavior

Consumers will continue to learn about AR and how it can be used to enhance their experience.

Brands should **entertain** and **educate** consumers on the value AR can provide and **incentivize** them to partake in the AR movement.



Hardware / Access

As battery life, network latency, and processing continue to improve, AR devices will become slim, functional, and aesthetically pleasing.

Brands should strive to provide experiences that can **scale and adopt** to technology advancements and provide **equitable access** for Creators and consumers.



The barriers for **creatives without a technical background to create AR experiences is understanding the technical limitations.** You have to understand these to pave over the cracks. As soon as there is a glitch or issue for user it breaks the illusion.”



Qi Pan
Director of Engineering
Computer Vision
Snap Inc.

06

Conclusion

Conclusion

Consumers continuously expect more personalized and engaging experiences that enable them to interact with the world. **AR is delivering that to consumers, today, but there remains untapped potential for so much more.**

Brands know the consumer appetite for AR is already here – consumers are far more likely to pay attention to brands using AR. **There is a content imperative for brands to meet consumers AR demand, and now is the time to meet this demand. Brands that meet the demand for AR experiences may be more likely to gain market share in the future.**

The convergence of use cases and the networking effects is expediting AR adoption. But to unlock AR's potential, **brands, developers, and platforms need to work together to accelerate content development and grow the AR ecosystem.**



 **Thank you**

07

Appendix

Report Methodology

Research Overview Global, Quantitative Online Survey

- 20-minute online survey among 15,000 international respondents
- Survey in field from February 23, 2021 – April 5, 2021

Alignment with Interdisciplinary Experts

- Experts within the AR industry participated in in-depth interviews to provide context for survey findings and contribute guidance on the future of AR in society.

Respondent Qualification

- n=1000 per market
 - Ages 13-50
 - 500 Snapchatters who use Snapchat at least once daily, split evenly amongst age groups 13-17, 18-24, and 25-50
 - To ensure a representative read on Snapchatters, cell weighting based on nested gender and age were applied to each country to correct for demographic imbalances due to set sampling size.
 - 500 Non-Snapchatters, who do not have Snapchat downloaded/have never heard of Snapchat, minimum of N=100 in all three age groups
- Markets: Australia, Canada, France, Germany, India, Japan, Malaysia, Mexico, The Netherlands, Norway, Saudi Arabia, Sweden, United Arab Emirates, United States, United Kingdom

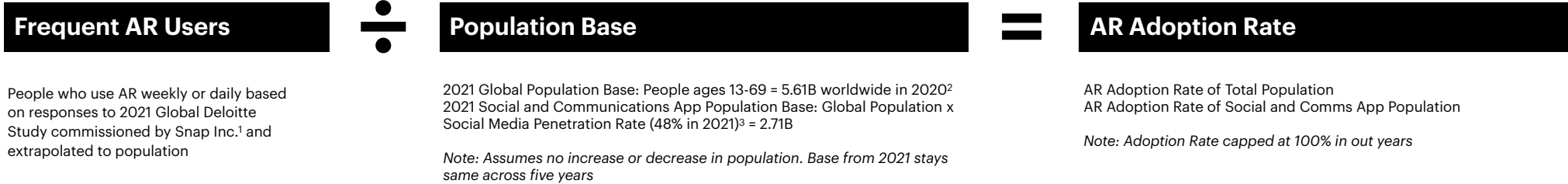
61

Local Market Additions and Exceptions

- U.S.: Ethnicity quota (maximum 65% white respondents, maintained only for Snapchatters; Non-Snapchatters sample should be roughly nationally representative)
- KSA and UAE: Representative expat / citizen quotas (88% expat in UAE; 30% expat in KSA for both Snapchatters and Non-Snapchatters).
- Norway: Sample recruited for n=1000 to be representative of social media and communication app users in that market, with a skew on ages reflective of other markets (evenly distributed across 13-17, 18-24, and 25-50)
- Japan: Sample recruited for n=1000 to be representative of smartphone users in that market, with a skew on ages reflective of other markets (evenly distributed across 13-17, 18-24, and 25-50)

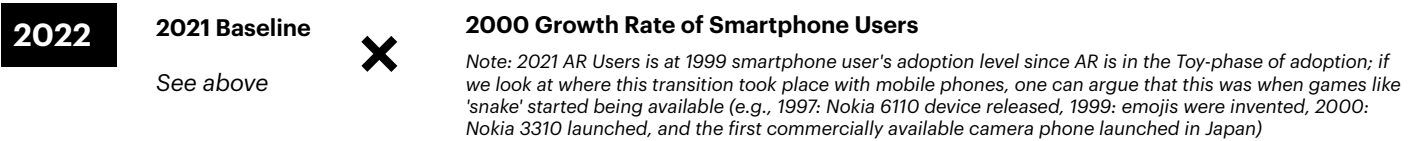
Frequent AR Users Methodology

2021 Baseline



Survey Equivalent Ages:	13-24	25-44	45-50
AR Usage Frequency (2021)	Gen Z	Millennial	Gen X / Boomer
Several times each day	26%	19%	12%
Once a day	13%	13%	7%
Several times a week	19%	18%	15%
Once a week	8%	8%	8%
A few times a month	10%	11%	12%
Once a month	4%	5%	8%
Less than once a month	8%	13%	17%
I don't use AR in this way	12%	14%	21%
Frequent	66%	58%	42%

2022-2025 Forecast

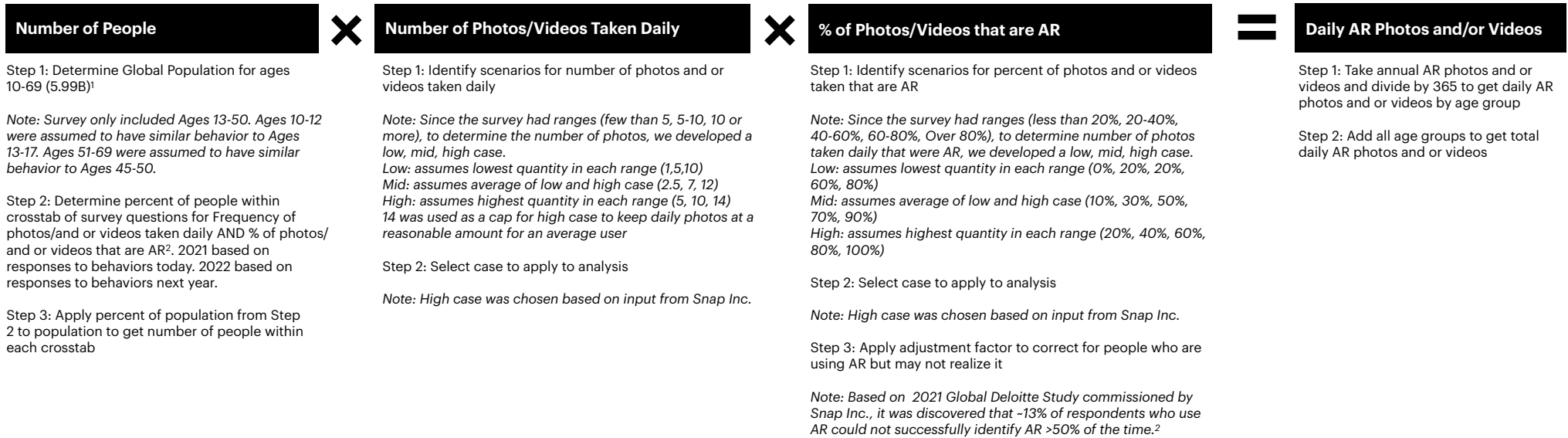


1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
 Base = Gen Z (n=4,319), Millennial (n=3,564), Gen X / Baby Boomer (n=3,448)
 Q: How often do you use AR for any of the following reasons? Communication
 Note: Boomers assumed similar behavior to Gen X since Boomers were not part of survey group
 2: United Nations Population Division Department of Economic and Social Affairs, World Population Prospects 2019, World Population 2020
 3: Statista Global Social Network Penetration 2017-2025

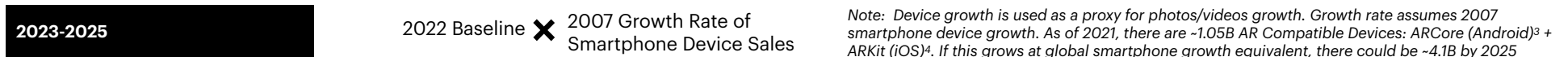
AR Photos / Videos per Day Methodology

Overall: Calculations were done by age groups in the 2021 Global Deloitte Digital Study commissioned by Snap Inc. and netted up into a generational view. The following methodology was used for each age group (Ages: 13-17, Ages 18-24, Ages: 25-34, Ages: 35-44, Ages: 45-50)

2021 and 2022 Baselines



2023-2025 Forecast



¹: United Nations Population Division Department of Economic and Social Affairs, World Population Prospects 2019, World Population 2020
²: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
 Base = Aggregate (n=15,635)

Q: How many photos or videos do you capture on your phone's native (non-app) camera and across all apps in a day? And thinking about all the photos and videos you capture on your phone in a day, what percent of them are captured with or edited to include AR?
³: AR Insider Article: "ARCore Reaches 400 Million Devices"

⁴: Statista Research: "Augmented reality (AR) and virtual reality (VR) headset shipments worldwide 2020-2025"

Expert Interviews

Snap Inc.

First Name	Last Name	Country	Company	Date
Glen	Gainor	United States	Amazon Studios	2/13/2021
Raimon	Homs	Spain	Deloitte	2/16/2021
Bryan	Rokoszak	United States	Deloitte Digital	2/16/2021
Alan	Smithson	Canada	MetaVRse	2/16/2021
Ed	Grieg	United Kingdom	Deloitte	2/17/2021
Adrian	Mills	Australia	Deloitte Digital	2/17/2021
Bill	Briggs	United States	Deloitte	2/18/2021
Yagna	Akaluri	India	Deloitte	2/22/2021
Joanna	Popper	United States	HP	2/22/2021
Jason	Williamson	United States	Deloitte	2/22/2021
Donald	Brady	United States	Deloitte Digital	2/23/2021
Shashi	Deethi	India	Deloitte	2/23/2021
Ram	Chandel	United States	Deloitte	2/23/2021
Lokesh	Ohri	United States	Deloitte	2/23/2021
Steven	Bailey	United States	Deloitte	2/23/2021
Jean-Emmanuel	Biondi	United States	Deloitte	2/23/2021
Dea	Lawrence	United States	Variety	2/23/2021
Shrenik	Sadalgi	United States	Wayfair	2/24/2021
Mike	Boland	United States	ARtillery	2/24/2021
Jason	Yim	United States	Trigger Global	2/25/2021
Paul	McDonagh-Smith	United Kingdom	MIT	2/26/2021
Kaitlyn	Kuczer	United States	Deloitte Digital	2/26/2021
Max	Dawes	United Kingdom	Zappar	2/26/2021
Alex	Sanger	United States	Universal Pictures	2/26/2021
Walter	Delph	United States	Magic Leap	3/1/2021
Snehaal	Dhruv	India	SuperFan	3/1/2021

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Expert Interviews

First Name	Last Name	Country	Company	Date
Tony	Parisi	United States	Unity	3/3/2021
Anwar	Noriega	Mexico	CEO / Cofounder at Wabisabi Design	3/4/2021
Ines	Alpha	France	3D Makeup Artist	3/5/2021
Alice	Bezirard-Fischer	United Arab Emirates	Wella Company	Write-in
Kirsten	Soumas	United States	Verizon	3/8/2021
Shane	Horneij	United Kingdom	Performance Marketing King	3/9/2021
Qi	Pan	United Kingdom	Snap	3/9/2021
Kimberlee	Archer	United States	Snap	3/9/2021
Carolina	Arguelles	United States	Snap	3/9/2021
Robert	Triefus	Switzerland	Gucci	3/12/2021
Clara	Bacou	United Kingdom	Lens Creator	3/11/2021
Timoni	West	United States	Unity	3/16/2021
Lara	Bean	United Kingdom	adidas	3/16/2021
Peggy	Johnson	United States	Magic Leap	3/19/2021
Cheney	Jon	United States	Seek XR	3/17/2021
James	Clarke	United States	Frito-Lay North America	Write-in
Andrew	McPhee	United States	Snap	3/17/2021
Eitan	Pilipski	United States	Snap	3/17/2021
Allan	Cook	United States	Deloitte Digital	3/18/2021

AR connections drive revenue

**AR
Connections**

Over half of consumers view AR as social.¹



+

**Brand
Engagement**

33% more likely to share brand experiences.²



66

=

**The Recipe for
Revenue Success**

53% more likely to purchase products from the brand.³




1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Aggregate (n=8,173)
Q: AR is a group activity / AR is a solo activity; A: Agree much more with A, Agree somewhat more with A

Q: AR is a group activity / AR is a solo activity; A: Agree much more with A | Q: Sometimes brands will create AR experiences through an app camera (e.g., a big movie company makes an AR experience where the heroes of a movie are fighting next to you, or a restaurant provides you a lens/filter/effect that turns you into a hamburger). What impact, if any, does interacting with that AR experience have on your perception of that brand?
3: Base = AR is a group activity - Agree much more with (n=1,143), Aggregate (n=4,109)

Q: AR is a group activity / AR is a solo activity; A: Agree much more with A | Q: Sometimes brands will create AR experiences through an app camera (e.g., a big movie company makes an AR experience where the heroes of a movie are fighting next to you, or a restaurant provides you a lens/filter/effect that turns you into a hamburger). What impact, if any, does interacting with that AR experience have on your perception of that brand?

“The **VICE model is how we see people building and using AR** in both their personal and professional lives. We have yet to find an AR use case that isn't about visualizing, communicating, instructing or engaging or some combination.”

 Allan Cook
Digital Reality Business Leader
Deloitte Digital

Develop with
consumers in mind:

Deloitte Digital's VICE Model for Impactful, Engaging Experiences

Question: What makes a
good AR app?

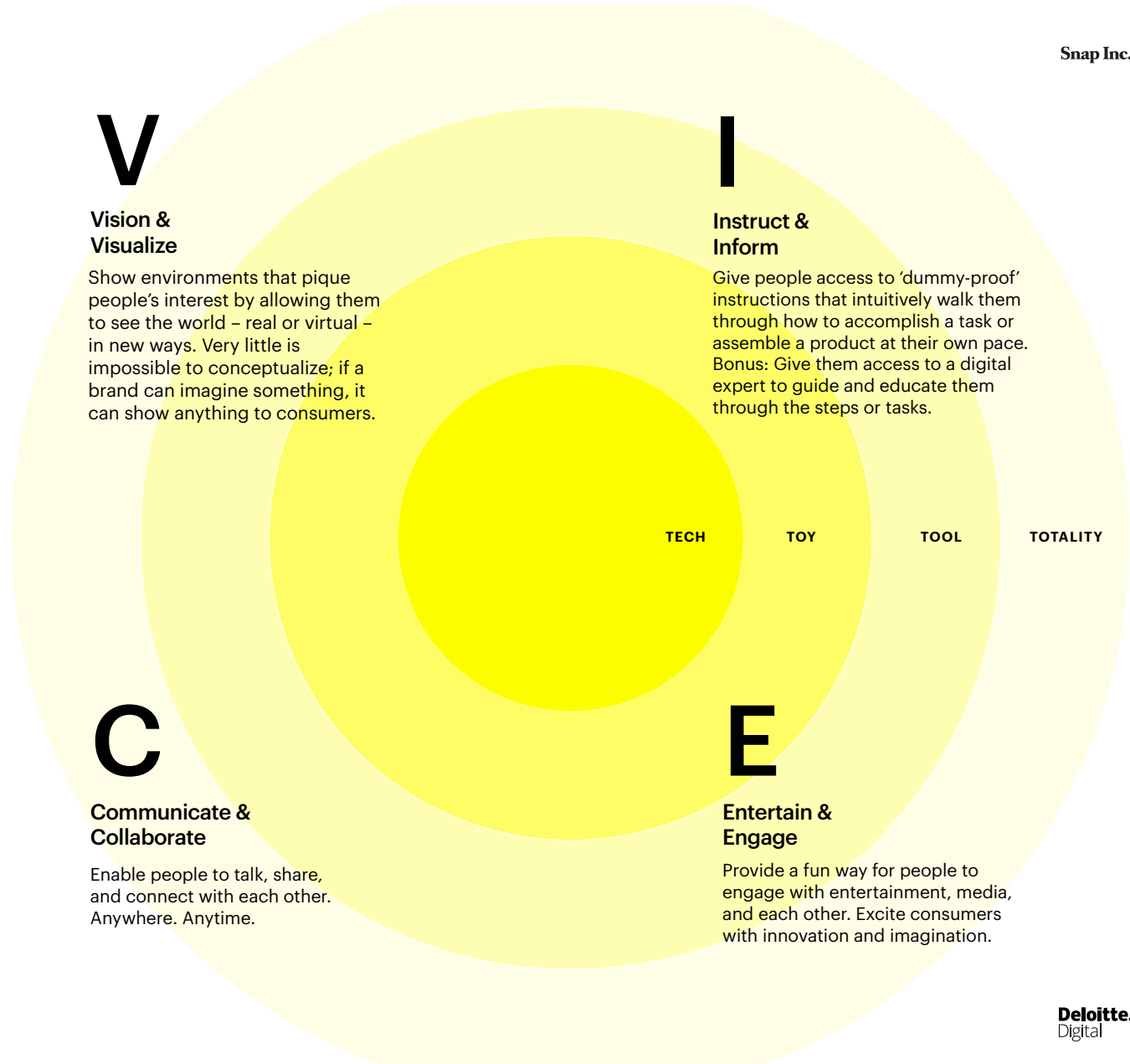


Answer: One that sells.
Obvious, yes.
Easy? No.

Based on our experience from the work we do with our clients at Deloitte and this research study, the VICE Model is a simple way to think about how AR adds significant value and can deliver maximum impact.

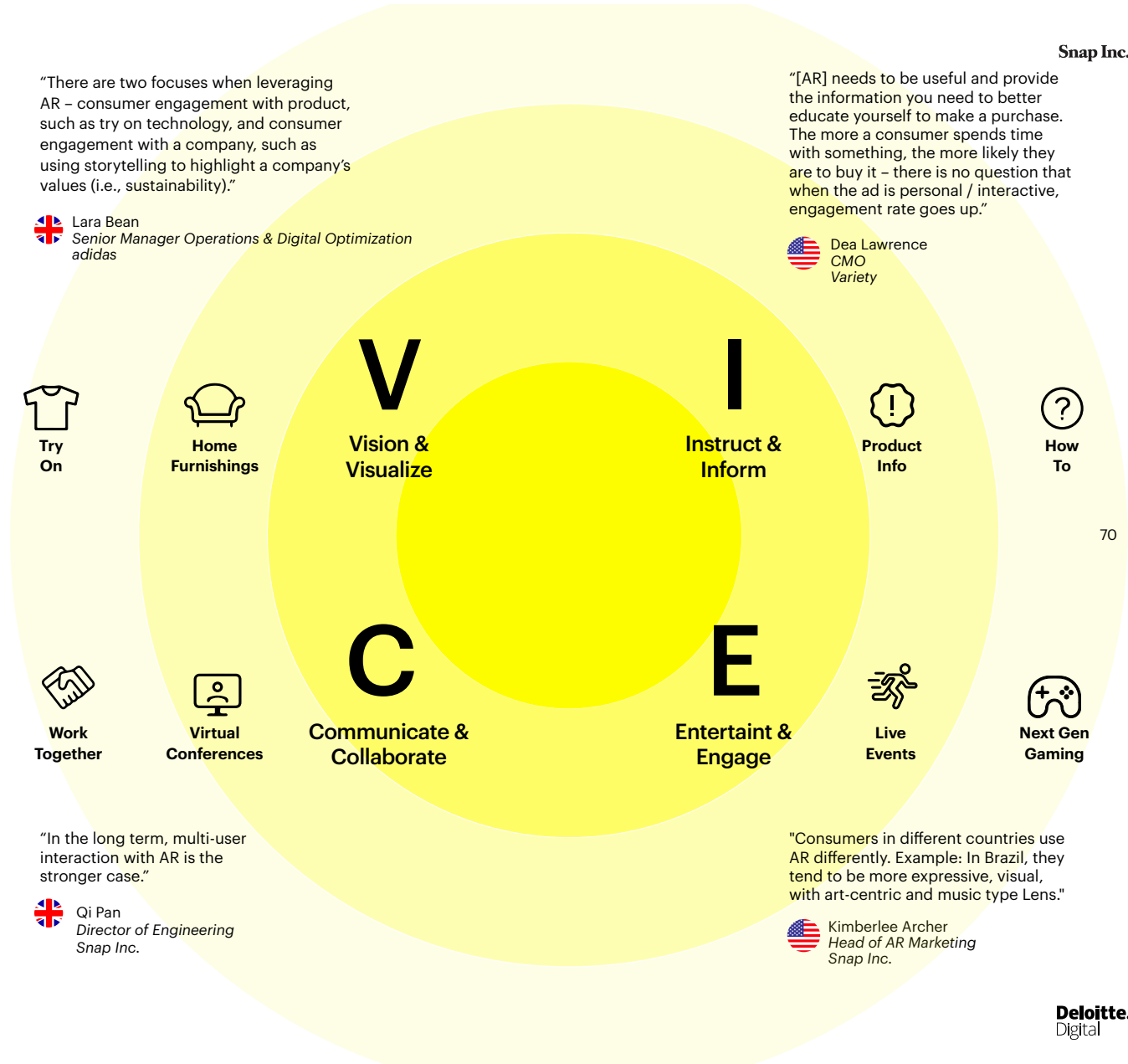
Develop with consumers in mind:

Deloitte Digital's VICE Model for Impactful, Engaging Experiences



AR Use Cases

The Vice Model for Impactful Experiences



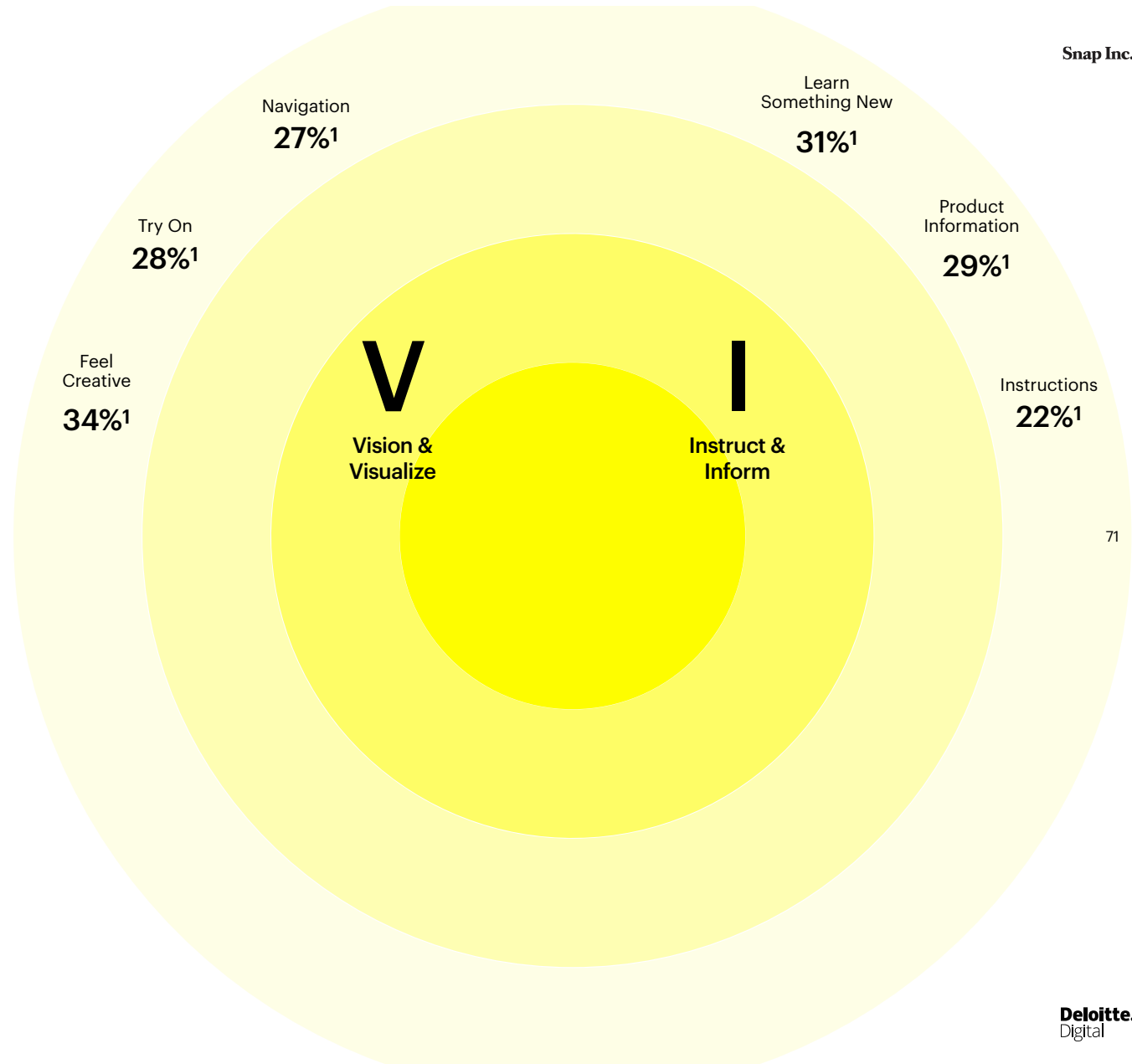
Snap Inc.

Deloitte.
Digital

What are they using AR for?

Top ways that people use AR to enVision & Visualize and Instruct & Inform.

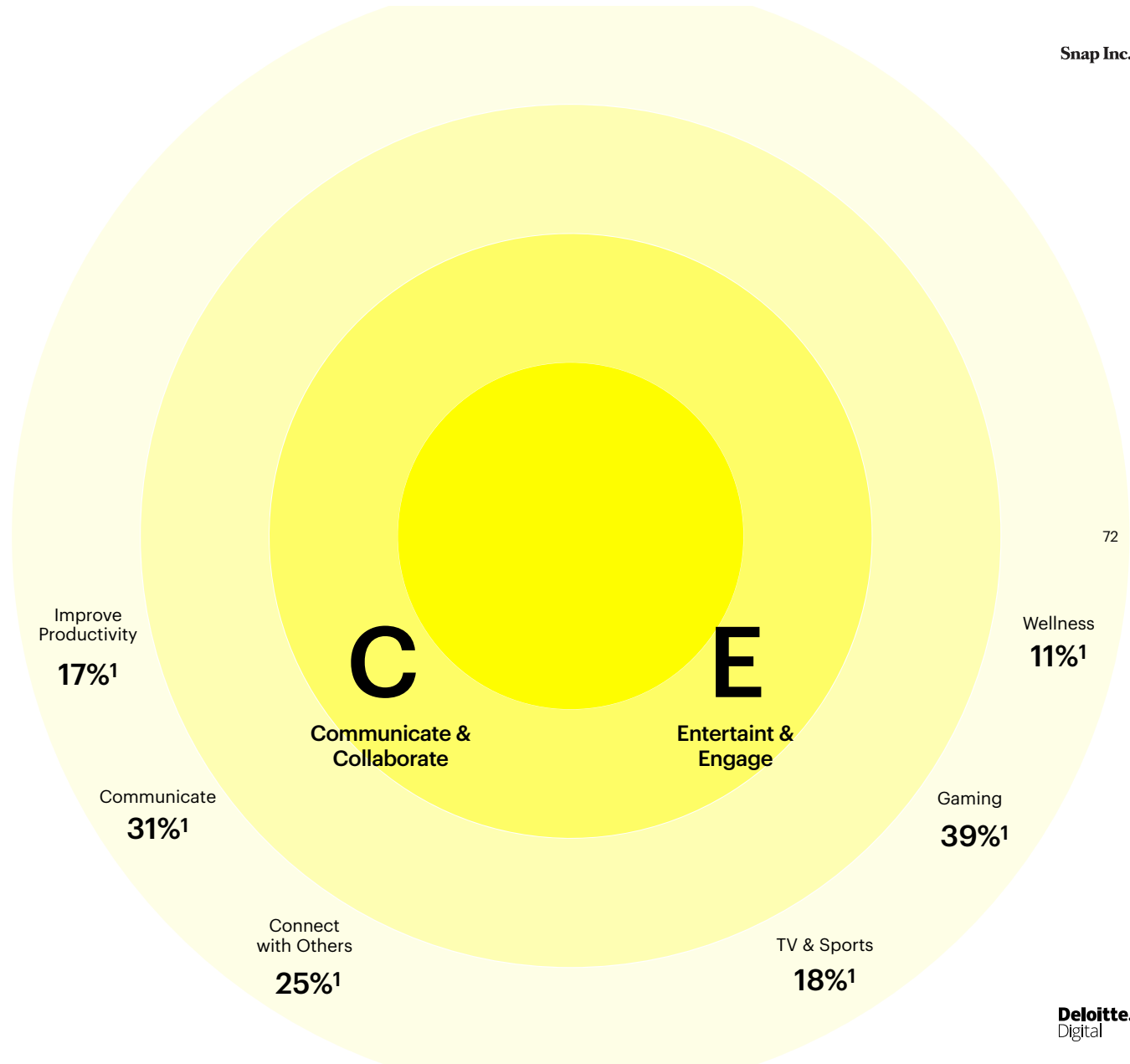
1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Why use AR - Feel creative (n=5,322), Improve shopping (n=4,370), Navigation (n=4,156),
Learn something new (n=4,903), Product information (n=4,520), Instructions (n=3,517)
Q: Why use AR



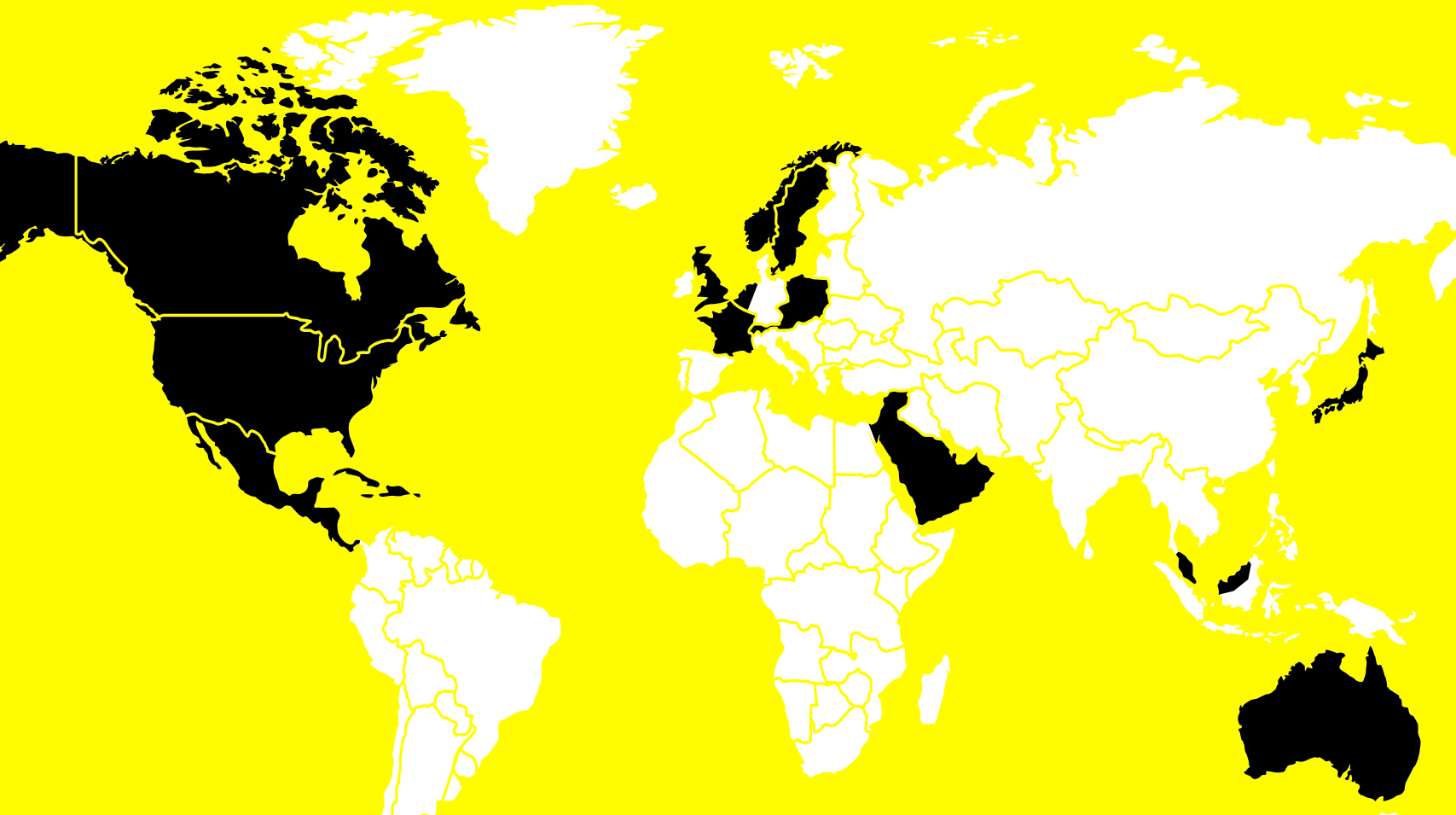
What are they using AR for?
















Top ways that people use AR to Communicate & Collaborate and Entertain & Engage.

1: 2021 Global Deloitte Digital Study commissioned by Snap Inc.
Base = Why use AR - Improve Productivity (n=2,636), Communicate (n=4,924), Connect with others (n=3,837), TV & Sports (n=2,798), Gaming (n=6,121), Wellness (n=1,690)
Q: Why use AR



Local Report Links



-  Australia
-  Canada
-  France
-  Germany
-  India
-  Japan
-  Malaysia
-  Mexico
-  The Netherlands
-  Norway
-  Saudi Arabia
-  Sweden
-  United Arab Emirates (UAE)
-  United Kingdom
-  United States

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