# Embracing Augmented Reality Technologies to Accelerate Your Organization's Digital Transformation

Sponsored by: Lenovo

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## IDC OPINION

Much has been written about the fact that the COVID-19 pandemic has accelerated the pace of digital transformation for companies around the world. Still there is one area where this phenomenon has been especially dramatic: augmented reality (AR). Forward-thinking companies have been leveraging AR technologies for many years. Still the pandemic shifted interest and adoption of AR into overdrive across a wide range of industries and use cases. And as the world slowly looks to move beyond lockdowns and quarantines, AR technologies will only become more embedded and important to many companies' future success.

One of the key ways AR has helped organizations manage their challenges over the past two years is by bringing remote expert videoconferencing capabilities to frontline workers. While executives, managers, and knowledge workers may lament the back-to-back video meetings resulting from the worldwide shift toward hybrid work, many employees in the field have long wished for the ability to connect with a colleague who could help them solve a complex issue on the fly. Remote expert videoconferencing lets frontline workers use a mobile phone or AR headset to connect to a colleague and show the colleague what they see. By putting a second set of eyes, often with more experience, on the problem, it's often possible to solve issues immediately versus requiring an expensive and time-consuming second truck roll.

And remote expert videoconferencing is just the tip of the iceberg for a growing list of ways AR can help a company digitally transform its business. Other ways discussed in this paper include digital knowledge capture and transfer (worker training), on-demand work instructions, access to 3D assets, design and manufacturing, compliance assurance, and logistics.

IDC continues to forecast substantial growth in the coming years across all areas of AR, including hardware, software, and services. While many companies may initially balk at the perceived cost of entry, most realize that investments in AR pay for themselves in terms of improved efficiencies, travel savings, and happier customers within a short time. Moreover, many organizations quickly realize they can use AR to upskill their current employees and that it can be a draw to potential candidates who see its use as a reflection of a company that's looking to the future and not stuck in the past.

AR is no longer a technology that will manifest in a few years: It's here today, and if you're considering the technology for your company, there's an excellent chance that your competitors have already begun to move on to adoption. In fact, in certain industries, there's a chance you're already behind the curve, so it's time to gain a better understanding of what AR can do and how you can take your first steps toward adoption. The sections that follow help you begin the journey.

## METHODOLOGY

To better understand how current IT decision makers (ITDMs) are leveraging AR to help their companies digitally transform, IDC conducted an online survey in the United States to ask questions about use cases, benefits, and challenges around adoption. The survey, conducted in 2021, interviewed 409 ITDMs that self-identified as current adopters or future intended adopters of AR technology. The sample included a wide range of industries and enterprise companies with 1,000+ employees. Adopters were screened to confirm that they had moved beyond researching and experimenting with AR to early deployments and beyond.

## SITUATION OVERVIEW

The AR market has seen substantial spending increases for the past several years, but the growth is only just beginning. IDC's AR/VR Spending Guide shows spending on AR hardware, software, and services grew from about $966 million in 2020 to about $1.8 billion in 2021. Spend is forecast to reach $5.9 billion in 2022, on its way to $45.6 billion by 2025. And those numbers exclude the spending related to mobile devices such as smartphones and tablets that companies may deploy to get started with AR. Figure 1 shows the forecast of worldwide spend on AR software, hardware, and services.

## FIGURE 1

### Worldwide Spending on AR Hardware, Software, and Services, 2020-2025
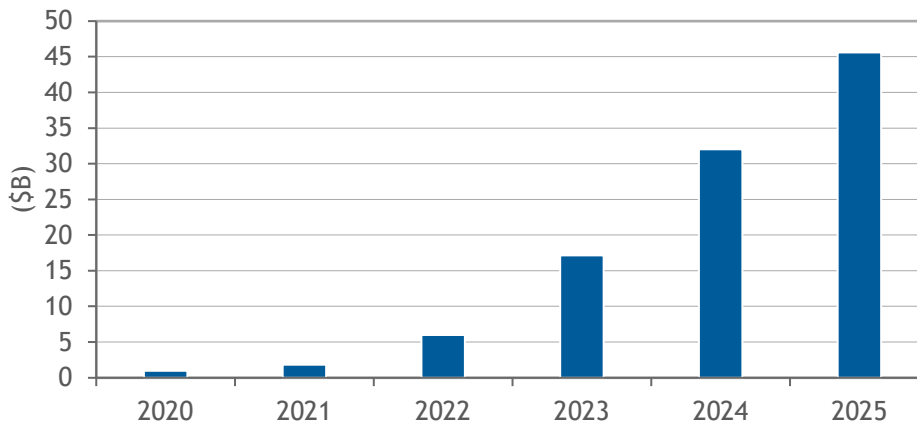


Source: IDC's AR/VR Spending Guide, 2021

That's a key point to make early on: While the ultimate and best instantiation of AR may require a headset, it makes sense to start with mobile phones and tablets for many companies. Our survey shows that among current AR adopters, about 72% said their primary hardware type in 2021 was mobile devices versus 28% using headsets. However, looking ahead to 2022, about one-third of adopters expect to move to headsets as primary hardware. In effect, it's okay to start with mobile devices if you work with a technology partner that can help you map out a strategy that makes a future transition to headsets for some or all of your users smooth and painless. Figure 2 provides details about device type usage now and in the future.

FIGURE 2

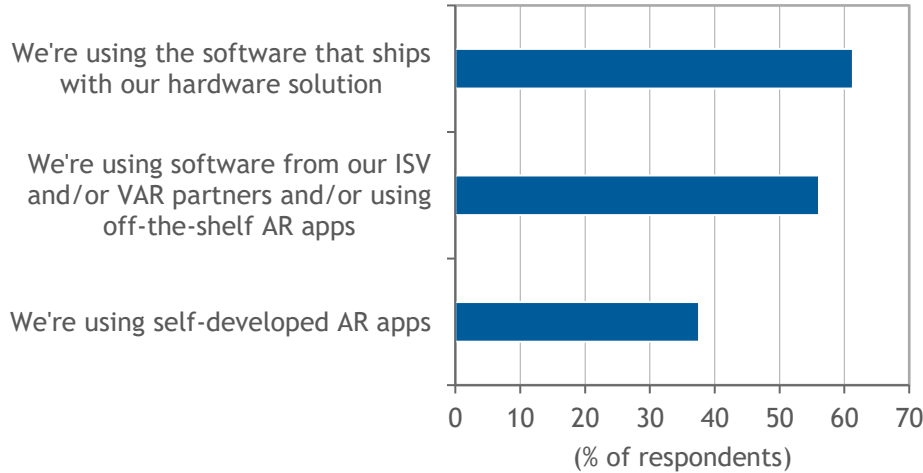**Device Type Used for AR, 2021 and 2022**
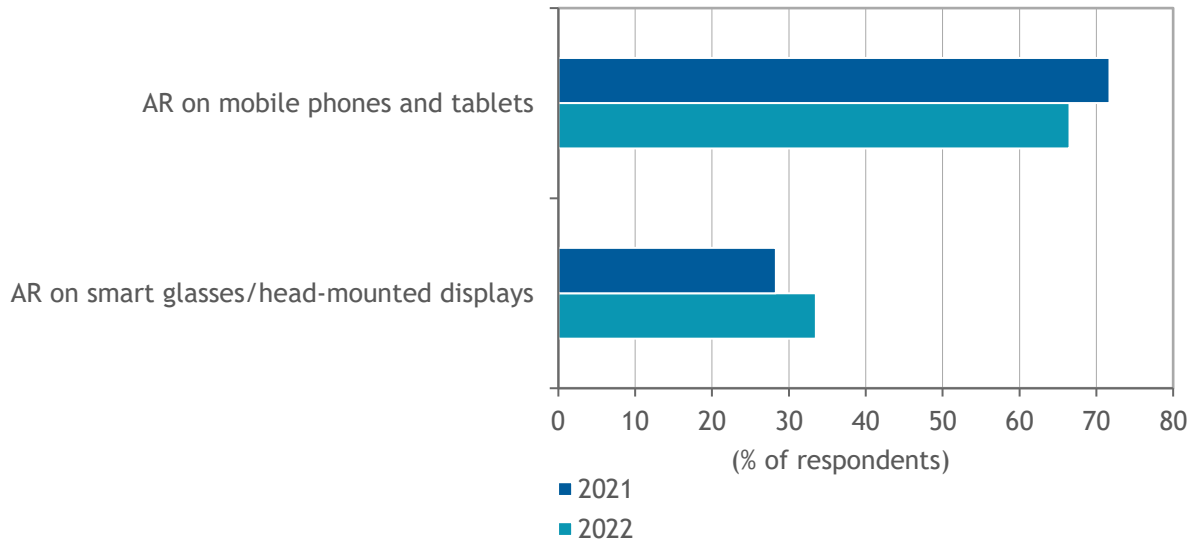


n = 212

Source: IDC's Custom Survey for Lenovo, 2021

Equally crucial to the type of AR hardware that companies use is the software that it runs. It's early days in terms of AR hardware, and among our respondents, just 37% said they were developing their own apps, with 61% using apps that shipped with their hardware solution and 56% leveraging off-the-shelf apps or software from independent software vendors (ISVs) or value-added resellers (VARs). Here again, we note the importance of establishing solid relationships with partners that can connect you with the right ISVs so you can pull together the right software suite to address your company's use cases and needs. Figure 3 provides details on software acquisition.

## FIGURE 3

### Software Acquisition

*Q.     Where has your organization acquired the AR software it uses?*



We're using the software that ships with our hardware solution

We're using software from our ISV and/or VAR partners and/or using off-the-shelf AR apps

We're using self-developed AR apps
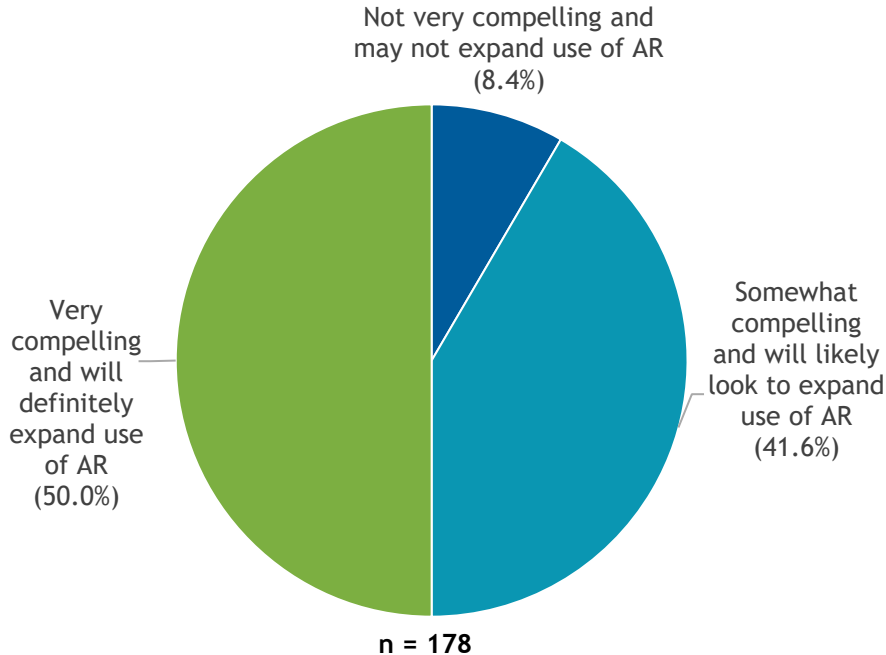
(% of respondents)

n = 212

Source: IDC's Custom Survey for Lenovo, 2021

Establishing the jobs to be done with AR early in the process and then moving to bring together the right hardware, software, and potentially services to accomplish those jobs is incredibly important. Too often, companies move to embrace new technology such as AR without a clear set of goals and metrics to measure success. By establishing key performance indicators (KPIs) early in the process, it is entirely possible to capture the value that AR can bring to your organization. When we asked adopters who said they were familiar with the results of their company's cost-benefit analysis of AR, an impressive 50% said the results were "very compelling," another 42% said the results were "somewhat compelling," and just 8% said the results were "not very compelling" (see Figure 4). Among the subgroups in our survey, those in the transportation industry were most likely to say the results were very compelling (69%), while 58% of companies with more than 5,000 employees said the same.

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**FIGURE 4**

**AR Cost-Benefit Analysis**

*Q.    You said you are familiar with the results of your organization's study of the cost-benefit analysis of AR. How would you characterize the findings?*

Not very compelling and
may not expand use of AR
(8.4%)

Very
compelling
and will
definitely
expand use
of AR
(50.0%)

Somewhat
compelling
and will likely
look to expand
use of AR
(41.6%)

**n = 178**

Source: IDC's Custom Survey for Lenovo, 2021

As we noted previously, one of the critical use cases that brings AR into an organization is remote expert videoconferencing/collaboration. As expected, when we asked adopters what use cases they were currently employing in their organizations, videoconferencing/collaboration was near the top (48%). But just above that was employee training (50%) and in third place was sales and marketing, followed by compliance assurance and then field service. Perhaps just as notable is that when we asked respondents to estimate their future use cases, almost all categories increased for 2022. In other words, organizations that have embraced AR expect to use it more as they look ahead. Figure 5 provides details on current and future use cases.

FIGURE 5

## Current and Future Use Cases, 2021 and 2022
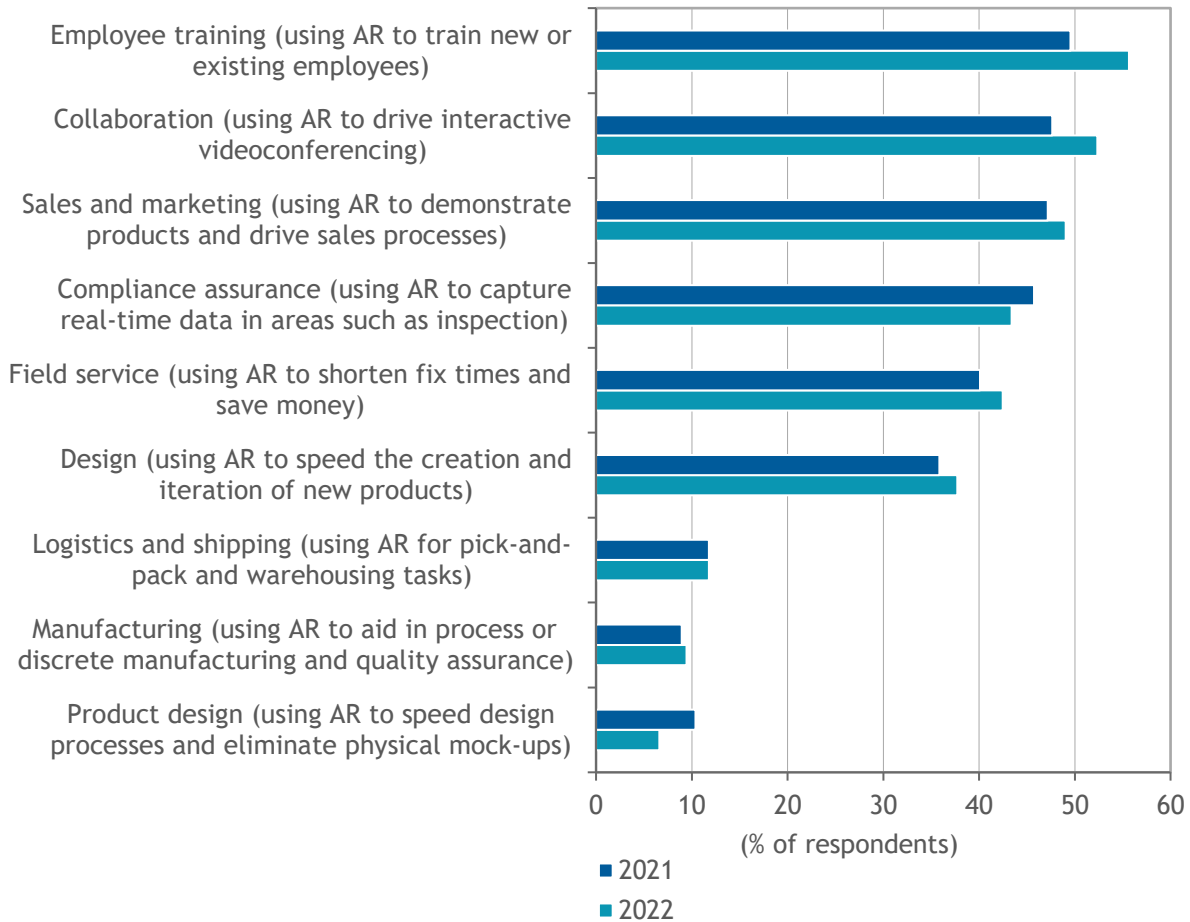


n = 212

Source: IDC's Custom Survey for Lenovo, 2021

When we asked adopters what they saw as the most significant benefits AR brought to their business, the clear number 1 benefit was improved real-time collaboration (41%), followed by increased worker efficiency (38%), improved design and manufacturing processes (33%), and improved knowledge transfer between expert and novice workers (29%). Clearly, the companies that have adopted AR see real-world benefits, and they expect those benefits to increase over time. Figure 6 provides the complete list of AR benefits.

FIGURE 6

## Key Benefits of AR

*Q.        What do you see as the greatest benefits AR has brought to your business?*



n = 212

Source: IDC's Custom Survey for Lenovo, 2021

As noted previously, many organizations begin their AR journey by leveraging smartphones and tablets. For many, however, the real value comes from leveraging a headset that allows the employee to work hands free. One of the critical challenges around AR hardware has been the high cost, coupled with the fact that most headsets could offer either a comfortable, lightweight form factor or high-end optics, but not both. We took the opportunity to ask adopters how interested they would be in an enterprise-focused, lightweight headset that leverages an Android smartphone and can also be used as a digital desktop. As you might imagine, the interest level was high, with 80% of adopters suggesting they were very interested and 19% saying they were somewhat interested. Less than 1% said they were not at all interested (see Figure 7). Among the various verticals represented in our survey, healthcare had the highest level of very interested at 67%.

FIGURE 7

## Interest in a Lower-Cost, Lightweight Headset

*Q.     How interested would your organization be in an enterprise-focused, lightweight headset that leverages an Android smartphone, costs less than $1,500, and can also be used as a digital desktop?*



**n = 212**
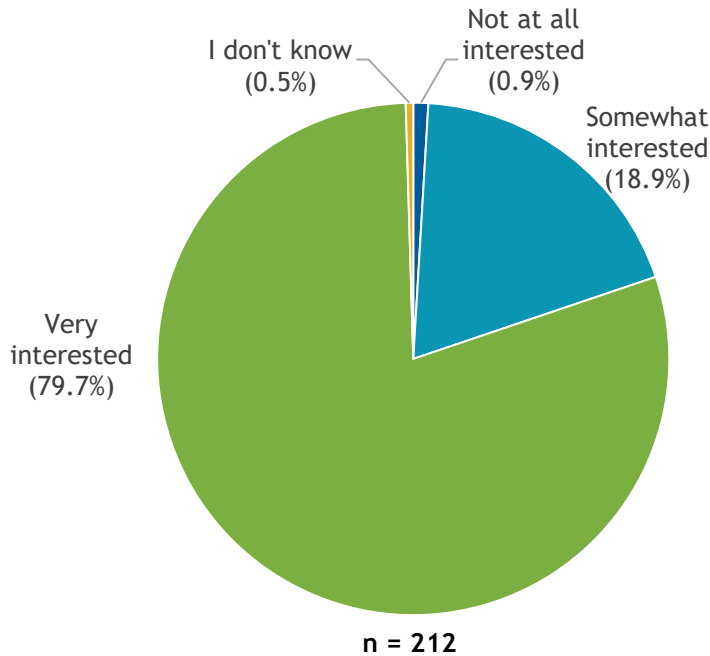
Source: IDC's Custom Survey for Lenovo, 2021

Current adopters of AR technology see a great deal of value in it. Of course, the move to adopt a new technology is never without its challenges, and that can be particularly true among industries where the pace of technology uptake has been slow to date. The shift to AR can seem daunting to companies with workers engaged in paper-based processes. And even among current adopters, inhibitors remain. Chief among them are concerns about manageability (33%), security (29%), and the long-term viability of new AR partners (28%). That last one is significant because, unfortunately, many of the companies that pioneered early AR technologies didn't survive long enough to enjoy the market's growth. Once again, it comes back to carefully choosing the right partners to accompany you on your AR journey.

## CONSIDERING LENOVO'S THINKREALITY PLATFORM AND A3 HEADSET

Lenovo is a trusted partner to many enterprise organizations that have purchased PCs, tablets, phones, servers, and software and services from the company over the years. Today, Lenovo also offers a robust AR product suite, including its innovative ThinkReality platform and its new A3 headset, and the company is on the forefront of powering the first-generation business metaverse. Moreover, Lenovo's early entrance into the AR market has positioned the company well as the broader market growth begins to take off.

Lenovo designed the ThinkReality platform to be a one-stop shop for enterprises moving to adopt AR in a meaningful way. The ThinkReality platform brings together a growing list of capabilities for the enterprise looking to smartly manage its AR (and virtual reality) assets, including devices, apps, and cloud services. The platform offers cloud services that support third-party applications, which allows a company to easily deploy and manage those apps. The platform also has its own software development kit (SDK), workflow support, and 3D workspace and design. Finally, ThinkReality offers access to third-party apps to support see-what-I-see videoconferencing, a key building block to any company's entrance into AR. Best of all, the platform is hardware agnostic, which means it works with mobile devices and many of the AR headsets that companies have already purchased.

Of course, Lenovo's legacy is in hardware, and the company also offers its own headsets. The latest is the A3, a lightweight, next-generation headset in a lightweight, highly wearable form factor. The A3 weighs just 130g and offers binocular 1080p resolution and 6 degrees of freedom tracking. The headset includes voice, smartphone touchscreen input, head and gaze tracking, barcode reading capabilities, and the Qualcomm Snapdragon Spaces SDK that enables object and image recognition. It connects to a PC or a smartphone, features an ergonomic fit kit for enhanced comfort, and sells for $1,500.

Many of AR's earliest enterprise adopters invested in small companies with innovative products that unfortunately didn't have the financial stability to survive a new market's inevitable ups and downs. Lenovo is a well-established company with a long history of supporting enterprise organizations. As such, the company should be near the top of your list when considering partners as you begin your AR journey.

## CHALLENGES/OPPORTUNITIES

As with any move to embrace new technologies, there will be challenges along the way. Early adopters have pointed to some of the key issues as cost (of hardware and software), concerns about device manageability and, of course, security. These are all warranted concerns, but each can be adequately addressed with a smart, well-executed plan that leverages well-chosen partners' learnings.

And while challenges may be top of mind, the opportunities inherent in adopting AR are numerous from addressing old, outdated processes to tackling the brain drain of valuable employees retiring to opportunities to enhance employee retention and become more attractive to new employees in a competitive market. The opportunities are many for those ready to make the leap.

## CONCLUSION

As this paper outlines, AR is no longer some pie-in-the-sky technology that will appear on the horizon. It's here today, and there's a strong likelihood that your fiercest competitors have already adopted the technology and are using it to make their businesses stronger. A move to embrace new technology such as AR can be daunting, and the move to do so should be made with great deliberation. In addition to thinking through what hardware, software, and services you need to solve your current and future problems, some of the most critical decisions you will make are which companies you will partner with along the way. Our recommendation is to find partners with a long history of working with enterprise organizations that will be there to support you today, tomorrow, and well into the future.

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