

July 12, 2022

Extended Reality (XR) Will Shape the Future of Work and Drive the Productivity Boost We Desperately Need

By Chris Pickett

Soaring inflation and a looming recession have produced a malaise reminiscent of the 1970s - even though the US is at near full employment. While policymakers and the Federal Reserve consider what additional steps to take to escape our summer of discontent, now is an important moment to step back and reflect. As challenging as the present moment is for workers, families and entire business sectors, there is great reason for optimism. Seasons of adversity can inspire great advances. If history is any guide, new innovations and breakthroughs can help generate not just a recovery but a renaissance of new activity and industries.

At DigiLens, we believe XR is uniquely positioned to be an important part of that solution. XR can help overcome both an immediate near-term challenge as well as a profound long-term challenge. The near-term challenge is productivity, which has flatlined and ultimately decreased since 2007.¹ As Bloomberg recently reported, U.S. productivity dropped in the first quarter by 7.5 percent, the most since 1947. The long-term challenge deals with the nature of work itself and meeting the needs of a workforce that is in uncharted territory.

A Brief History of Work and Innovation

Let's think first about the important long-term trend. For most of human history, until very recently, work meant staying in one job or career for most of one's life. Ever since human

¹ <https://www.bls.gov/productivity/charts/long-term-labor-productivity-by-sector-for-selected-periods.htm>

beings transitioned from being hunters and gatherers to farmers work meant doing the same type of activity and then passing that vocation on to the next generation. The Industrial Revolution, which started about 150 years ago, was obviously disruptive. Yet, even then, this work paradigm continued. Without being landlocked to farms, factory and steel workers could be more mobile and move to cities, hence urbanization, but work still meant doing the same type of job for most of one's life. After the Industrial Revolution, the next generation had more freedom about a choice of vocation, yet vocation, again, still largely meant lifelong work in the same sector.

In our lifetimes (for those Gen X or older), all of that changed. For some time now, jobs for life have been a thing of the past. The Information Revolution has created a new era of lifetime learning and professional mobility that has never existed before. Some social scientists say this transition is a cause of our lack of social cohesion. As people have become more nomadic, they also feel more adrift and isolated.

The debate about what to do about this transition is understandably complex and charged. While policymakers may promise a return to the way things used to be, the reality is the global economy is an engine without a reverse gear. This is sci-fi economics that promises time travel to an era that no longer exists. The good news, however, is that while the



Enterprises large and small are integrating XR into their operations and seeing material productivity improvements

past age is gone, tomorrow's age will be better. History shows us time and time again that innovation is the answer and that the constructive disruption that comes from new technology creates far more benefits than costs.

In her book *Bourgeois Dignity*, Deirdre N. McCloskey writes, "In 1800 the average human consumed and expected her children and grandchildren and great-grandchildren to go on consuming a mere \$3 a day. The only people much better off than \$3 or so up to 1800 were lords or bishops or some few of the merchants. It had been this way for all of history, and for that matter all of prehistory. With her \$3 a day the average denizen of the earth got a few pounds of potatoes, a little milk, an occasional scrap of meat."



On the job training, coaching and general assistance are enabled like never before with XR

If the per capita income 200 years ago was about \$1,100, in the United States today it's about \$63,000 - a 60-fold increase. What made these astonishing gains possible, McCloskey writes was something she calls the "Bourgeois Revaluation," a cultural shift in attitudes away from the idea that only lords of nobles could start and own businesses to an idea that an economy should value a more dispersed meritocracy based on the quality of an individual's entrepreneurial idea. Two hundred years later this shift in attitudes helped foster the "zero to one" concept that is often referred to in Silicon Valley and that Peter Thiel, a German American famous entrepreneur, wrote a detailed book about it in 2014. The rise of bottom-up entrepreneurship rather than command and control elite directives created an economic miracle that lifted hundreds of millions of people out of poverty, expanded literacy and lengthened lifespans.

This concept is in line with our vision and efforts at DigiLens. Thiel writes, “The most valuable businesses of coming decades will be built by entrepreneurs who seek to empower people rather than try to make them obsolete.”

I think that is right. People will be at the center of the next evolutionary step in display technology. That’s why I recently argued² that the future of display technology won’t be purely virtual (VR), but true see-through XR is where real-life interaction can be enhanced.

DigiLens believes XR³ not VR will win the day, because VR (including VR + pass through AR) offers primarily an artificial and synthetic experience where users are not looking at the real world but instead a copied representation of the real world. The cameras and screen tech required for this approach cause lag and distortion and use very large form factors that limit peripheral view. On the other hand, see through XR is real XR because you see the real world undistorted by optics or screen technology and without camera lag.

XR has the potential to be a zero to one technology because it meets real needs and solves real problems. It isn’t merely a neat gadget or device that requires a company to conjure up a market. It’s a technology that fits the moment and a market that already exists.

XR is Positioned to Meet the Challenge of Lifetime Learning

If yesterday’s paradigm was lifetime work, today’s paradigm is *lifetime learning*. And that learning isn’t primarily going to be classroom learning but *learning by doing* and learning in the field. XR can vastly improve “on the job training” and help companies achieve measurable and significant near-term gains in productivity. Consider how XR has worked when tried.

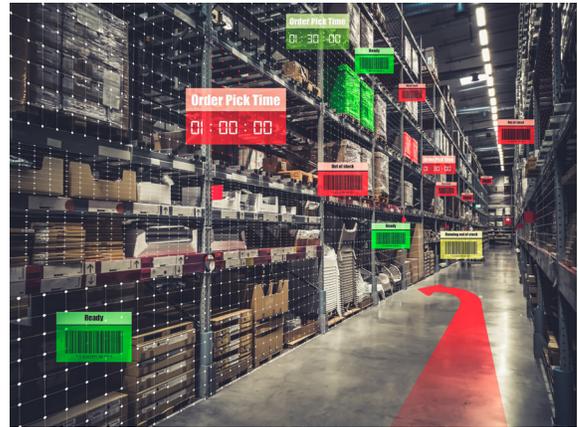
As Harvard Business Review reported, “Newport News Shipbuilding, which designs and builds U.S. Navy aircraft carriers, uses augmented reality near the end of its manufacturing process to inspect a ship. With augmented reality, they can now see the final design superimposed on the ship, which reduces inspection time by 96%—from 36 hours to just 90 minutes.”

Other companies and organizations such as Amazon, Meta (Facebook), General Electric, Intel, Xerox, the Mayo Clinic and medical device companies are experimenting with XR

² <https://www.digilens.com/xr-will-be-next-big-thing/>

³ Extended Reality (XR) is the term we use to capture both Augmented Reality (AR) and Mixed Reality (MR)

and seeing major gains in productivity. GE used XR to help factory workers perform complex wiring processes in wind turbines and achieved a 34% increase in productivity. Intel achieved a 29% picking time reduction in warehouses when it used XR. Xerox helped its field increase their first-time fix rate by 67% with XR. In other fields, XR has dramatically improved the efficiency of day-to-day medical tasks like blood draws while XR's ability to superimpose 3D on 2D manuals has slashed training times. **In short, XR makes learning faster.**



XR-enable applications allow users in the enterprise to see the world in a more insight manner

If XR is so great, a skeptic may ask, why isn't everyone using it? That's a fair question and the honest answer is because the technology has not been ready for prime time at the level needed for scale and market penetration across sectors. XR isn't "a thing" everyone uses yet because the technology hasn't hit its stride.

Yet, the technology is very close and we're eager to prove that's the case. As we've shown at DigiLens, we've overcome major hurdles relating to optics and social acceptability. We're currently working on a new offering that can help XR scale across sectors.

Our strategy is to focus and help XR breakthrough in the enterprise market because that is where it is most likely to take off and achieve escape velocity. We've already seen enough case studies to know XR's potential productivity gains are a game changer.

We believe we'll see widespread adoption of smartglasses as a tool not a toy, because it allows for new use cases and functionality such as:

1. Remote expert;
2. Step-by-step instructions;
3. 3D viewing for both single user and remote multi-user; and
4. Mobile-ready document instructions as a 2D screen replacement.

With a little more refinement on the user interface and user experience side, and a bridge between the device and the cloud, XR can become "a thing" that is a part of our daily lives.

While we appreciate the gee whiz gaming aspects of XR, our world isn't suffering from an entertainment deficit as much as a productivity deficit. The market isn't asking for escapism as much as "presentism" - the ability for people in the real world to be more effective and present. By starting with the enterprise sector, we're confident XR can prove its staying power.



You're going to want to see this - here's a sneak peek of what's coming

It's true our current economic malaise is unsettling, but the future is full of possibility. For the past 200 years, innovation and our zero to one culture has led to incredible advances across sectors. I'm confident XR's moment has come and DigiLens is going to lead the way and finally unlock the value that futurists have been writing and talking about for so long. In fact, DigiLens is going to have a major announcement before the end of the year accelerating this outcome and I think you will be pleased when you see it!

Legal Information and Disclosures

This thought piece expresses the views of the author(s) as of the date indicated and such views are subject to change without notice. DigiLens has no duty or obligation to update the information contained herein. Further, DigiLens makes no representation, and it should not be assumed, that the head worn hardware market will develop in a manner envisioned by DigiLens.

This thought piece is being made available for educational purposes only and should not be used for any other purpose. The information contained herein does not constitute and should not be construed as an offering of advisory services. Certain information contained herein concerning trends and performance is based on or derived from information provided by independent third-party sources. Digilens, Inc. (“DigiLens”) believes that the sources from which such information has been obtained are reliable; however, it cannot guarantee the accuracy of such information and has not independently verified the accuracy or completeness of such information or the assumptions on which such information is based.