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Essential Digital Transformation in Medical Education

5 Tech Trends to Look for in 2021

1 AR Is Finding its Role in Healthcare and Education.

AR, VR and mixed reality solutions are being deployed across healthcare sectors, as well as clinical training, demonstrating a great deal of potential use cases.

Extended reality tech (XR) is an umbrella term encompassing virtual reality, augmented reality, and mixed reality. To date, these immersive technologies have been implemented in 38% of hospitals.[1]

AR / VR → 38%

The operating room is where XR seems poised to have the biggest impact.

Between 35% and 45% of operating rooms in the world are projected to be integrated with at least one AI or extended reality solution by 2022, per a 2019 Frost & Sullivan report.[2]

AR and VR already play a key role in higher education.

Most learning professionals are familiar with the Ebbinghaus Forgetting Curve hypothesis, which shows that we forget 80% of what we learn within 30 days.

According to a study by University of Nebraska Medical Center, the retention rates of student knowledge dramatically increase with immersive learning.

5% — In traditional lectures

UP TO 90% — Potential retention with AR- and VR-enhanced experiential learning

CASE IN POINT

AR Technology in Action
AccuVein

AccuVein is using AR technology to make both nurses' and patients' lives easier.

A handheld scanner projects over the skin to show nurses and doctors where veins are in the patients' bodies.

40% — 40% or more IVs miss the vein on the first stick

3.5x more likely — With AR, finding a vein on the first stick becomes 3.5x more likely

AR's biggest use case is going to be in training.

Over 40% of companies surveyed plan on using AR to train new or existing employees. OVER 40%[3]

Over 60% of companies surveyed believe AR will increase worker efficiency and/or improve knowledge transfer between expert and novice users. OVER 60%[4]

2 Investment is pouring into XR technology.

Projected investment in commercial use of AR and VR technology worldwide in 2024
Investment in billion U.S. dollars

- $1.6 Retail
- $5.1 Healthcare
- $2.6 Real Estate
- $4.7 Engineering

By 2025, Goldman Sachs predicts that the XR investment in the enterprise and public sector will be $16.1B. Healthcare ware will lead the way at $5.1B, followed by engineering ($4.7B), real estate ($2.6B) and retail ($1.6B)[5].

Q: In which sectors do you expect to see the most disruption by immersive technologies in the next 12 months? (Outside of the gaming and entertainment space)[6]

Sector	%
Healthcare and medical devices	38%
Education	28%
Workforce development and training	24%
Manufacturing	21%
Automotive	19%
Marketing and advertising	16%
Logistics/transportation	16%
Retail/ecommerce	15%
Military and defense	13%
Commercial real estate/construction	13%
Residential real estate/virtual showings	10%
Tourism	5%
Other	4%

XR Healthcare Investment is Being Fueled By

- Increasing demand for robotic surgeries instead of bypass surgeries[7]
- Rising demand for cardiovascular surgeries
- Reduced recovery times with these technologies
- Improvement in the skills of trainees learning surgical procedures using this technology

3 COVID-19 is fueling image-guided and robotic surgery markets.

By 2032, there will be an estimated shortage of 14,300 to 23,400 surgical specialists.

Shortages are expected in 9 out of 10 surgical specialities by 2025.

Shortages Leaving the Door Open for Opportunities

- Over half of surgeons exhibit signs of burnout
- Shortages of up to 23,400 surgeons by 2032
- Current events like COVID-19 leading to a huge backlog of elective surgeries

Fueling growth of image-guided and robotic surgeries

- Ophthalmology
- Urology
- Orthopedic Surgery
- General Surgery

By 2022, 35% to 45% of ORs across the world will become integrated ORs.

The operating room (OR) is transforming from a seemingly simple box into a technology-powered, infection-free and sleek surgical environment. The new-age OR will be able to utilize intelligent and efficient care delivery options to improve the precision and predictability of the services offered. This can be made possible through robotic-assisted surgery devices (RASD), which will greatly help drive the $4.50 billion USD and EU5 hospital OR products and solutions market toward $7.04 billion by 2022.[9]

4 COVID-19 has significantly accelerated the adoption of telehealth services by patients and physicians alike.

53% of U.S. healthcare practitioners now use telemedicine due to restrictions imposed by COVID-19 who did not use it prior to the pandemic. 53%

CASE IN POINT

Doximity researchers estimated that more than 20% of all medical visits were conducted via telemedicine in 2020, which represents $29.3 billion of medical services. Going forward, researchers predict that up to $106 billion of current U.S. healthcare spend could be virtualized by 2023.

Total U.S. Medical Visits in 2020

- Telemedicine >20%
- In-person Office Visits 80%

Predicted Telehealth increase by 2023

- 2020: $29B
- 2023: $106B

Patients quicky adopted and responded to using telemedicine services.

Q: Prior to the pandemic, how many of your healthcare visits had been conducted via telehealth annually?

- 1+ Times >14%
- Never 86%

Top 10 Specialties using Telemedicine

1. Endocrinology
2. Rheumatology
3. Gastroenterology
4. Nephrology
5. Cradiology
6. Urology
7. Neurology
8. Geriatrics
9. Hematology Oncology
10. Pulmonology

5 COVID-19 Ushers in More Connected Patients, New Preferences.

U.S. consumers' use of wearables are increasing due to health consciousness and improvements in efficiency and convenience.[10 11]

Use of wearables increased from 9% to > 33% from 2015 to 2019

2015: 9% — TO — 2019: 33%

Healthcare devices made up 64.3% of the wearables market 64.3%

Touchless technologies are prefered by consumers due to the pandemic. 77%

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About CGS

Quality and speed are essential to meeting new expectations in efficiency and agility from customers, staff, patients, and suppliers. CGS supports and scales learning needs around onboarding, compliance, content development, instructional design of medical content and AR-Enabled solutions for global training, remote guidance and assistance.

Whether the requirement is building and deploying 70+ manufacturing processes training courses for one of the top three largest pharmaceutical companies in the world or supporting surgeons and global sales staff with rapid response training on equipment for emergency preparedness, CGS can help.

Learn more

Source:

1 https://www.accenture.com/us-en/insights/technology/responsible-immersive-technologies, A responsible future for immersive technologies, Accenture

2 https://ww2.frost.com/news/integrated-operating-rooms-grow-exponentially-virtual-reality-artificial-intelligence/, Frost & Sullivan, Analysis of the US and EU5 Hospital Operating Room (OR) Products and Solutions Market, Forecast to 2022

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4 https://www.idc.com/getdoc.jsp?containerId=US45718319, IDC's Commercial Augmented Reality Survey, 2019

5 https://www.goldmansachs.com/insights/pages/technology-driving-innovation-folder/virtual-and-augmented-reality/report.pdf

6 https://www.perkinscoie.com/images/content/2/3/231654/2020-AR-VR-Survey-v3.pdf

7 https://www.businesswire.com/news/home/20200810005360/en/Global-Outlook-for-Augmented-Reality-Virtual-Reality-in-the-Healthcare-Market-2020-2025---ResearchAndMarkets.com

8 https://www.aamc.org/news-insights/desperately-seeking-surgeons#:~:text=Vascular%20surgeons%20are%20not%20the,23%2C400%20surgical%20specialists%20by%202032.

9 https://go.frost.com/NA_PR_TH_MFernandez_MDD8_Operating_Jul19

10 https://www.prnewswire.com/news-releases/wearable-healthcare-devices-market-worth-46-6-billion-by-2025--exclusive-report-by-marketsandmarkets-301055656.html

11 https://www.medgadget.com/2020/04/medical-wearable-market-share-current-trends-and-research-development-report-to-2025.html#:~:text=From%202015%20to%202019%2C%20U.S,Medical%20Wearable%20in%20this%20region.