COMMUNICATION TECHNOLOGY UPDATE 2024

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South Carolina
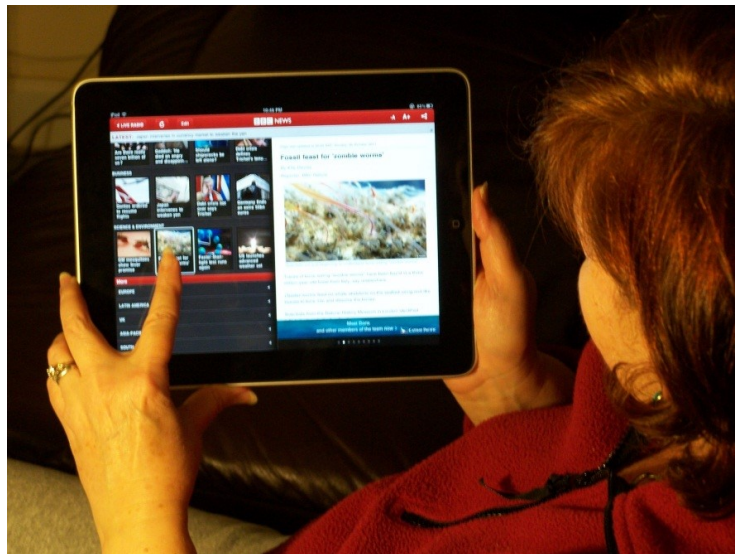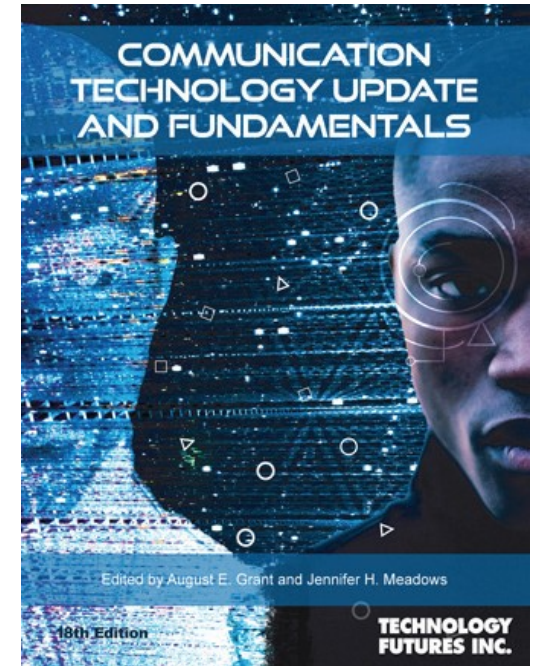
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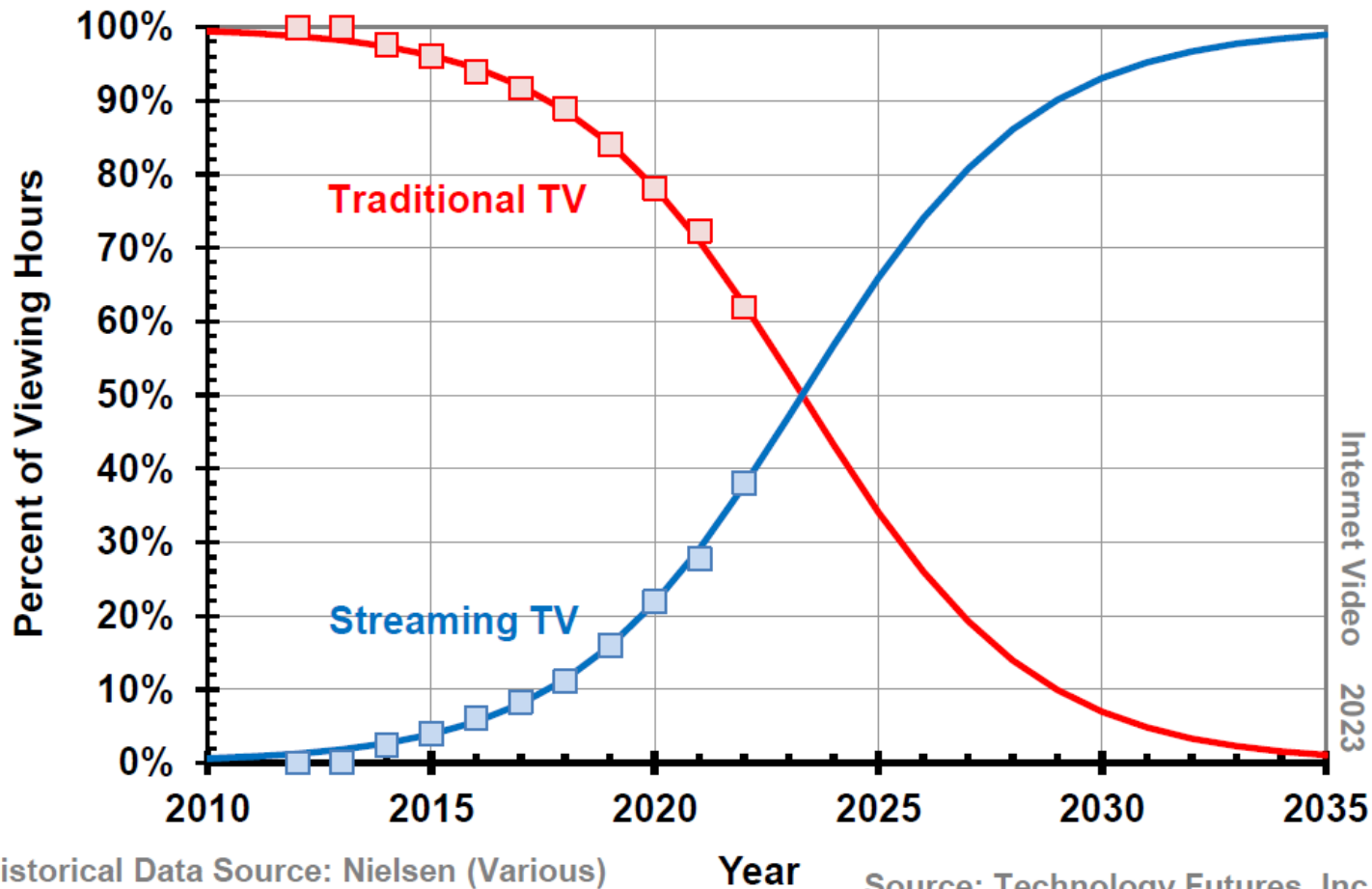
TELEVISION

PEACOCK BREAKTHROUGH

Source: Dall-E via Bing.com

- 1/13/24 Playoff Game
  - KC Chiefs and Miami Dolphins
- Streaming only on Peacock
- Largest US streaming audience ever
- Consumed 30% of US bandwidth during the game

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OTT/STREAMING TODAY

IMPLICATIONS

- Fundamental change in bandwidth requirements
  - Every device has its own, dedicated connection to a server

- Change in business model for ISPs
  - Xumo replaces cable box
    - Comcast/Charter partnership
  - Video services controlled by app
  - Most important—app bundling

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ECONOMIC ANALYSIS

Broadcast
    No marginal cost for additional viewers
Streaming
    Additional server/bandwidth cost for each
        additional viewer
    BUT—marginal server/bandwidth cost
        dropping to near zero

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IMPACT ON TRADITIONAL TV

- Local
  - Shift to more local news content
  - Cord cutting leads to loss of retransmission revenue (up to 20% of gross)
  - Importance to local advertisers
- Network
  - Direct delivery to viewers
    - NBC → Peacock
    - CBS → Paramount +
  - Increased dependence upon live sports

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ATSC 3.0 BROADCAST STANDARD

- Delivery of 4K
- Up to 120 fps
- HDR
- Enhanced audio
- Mobile television
- Need for bandwidth
- Broadcast transition
- Targeted Advertising

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ATSC 3.0 PROGRESS

- Adopted in 75 markets, covering 75% of U.S. viewers
- 10 million devices sold as of the end of 2023
  - Out of about a billion TVs
- So far, nearly invisible to users

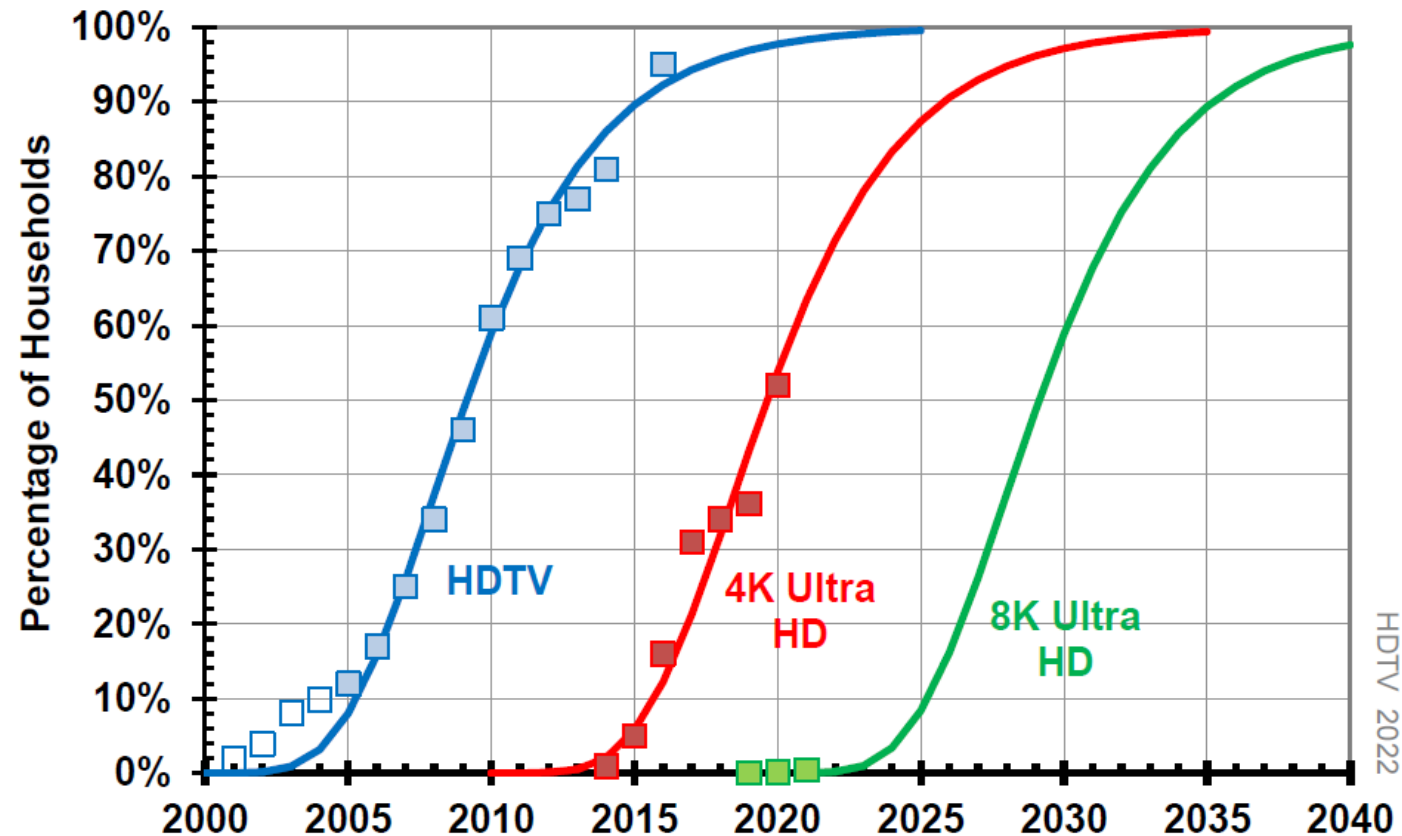- Note: revenue opportunities with digital services and targeted advertising

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HIGH-RESOLUTION TV

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Ultra HD Households (4K and 8K) - 2022 TFI Forecast

Historical data sources: HDTV - 2001-2004 Misc, 2005- Leichtman Research; 4K 2014-15 Strategy Analytics,2016-2020 Consumer Technology Assc, ; 8K - Strategic Analytcis

Source: Technology Futures, Inc.

TECHNOLOGY FUTURES INC.

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TRANSPARENT TV

Source: LG Electronics

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CINEMA

2023 CINEMA DEVELOPMENTS

TRADITIONAL

• Strikes

• Rebound

• Streaming

• And BARBENHEIMER!!!!

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BARBENHEIMER
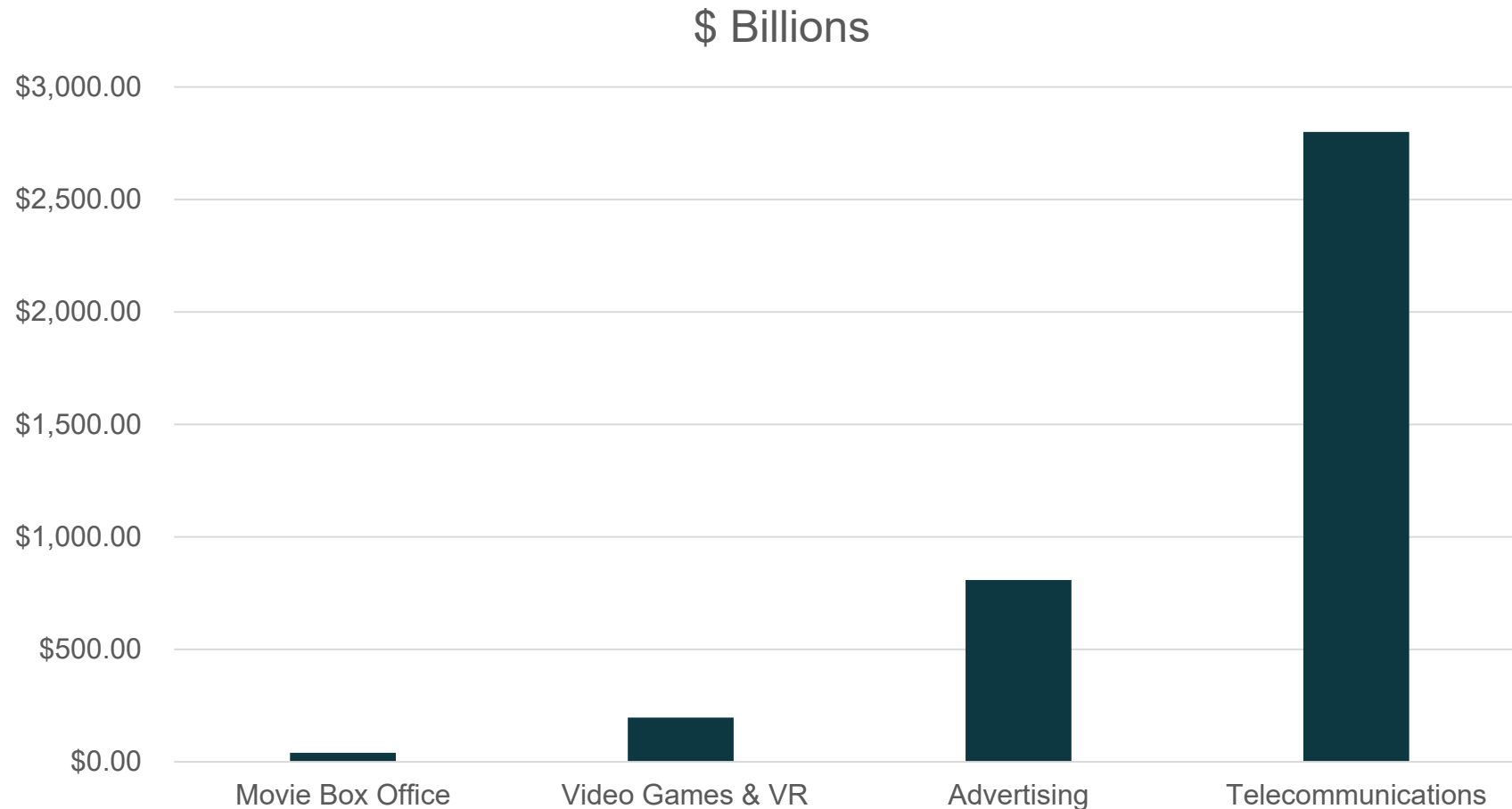

Source: Looper.com

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DON'T FORGET: RELATIVE GLOBAL REVENUES

$ Billions

Bar chart showing $ Billions for Movie Box Office, Video Games & VR, Advertising, and Telecommunications.

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VIDEO GAMES

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2023 Global Video Game Revenues: $184 billion

(up 0.6%) from 2022

CONVERGENCE OF VIDEO GAMES AND VR

- Multiplayer universes
- Fluid identities
- Immersive experience

Source: Cnet

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VR

BIGGEST NEWS COMING FEBRUARY 2: APPLE VISION PRO

- $3599
  - Plus accessories, warranty, etc.
- Limited app availability

- Likely applications
  - Industrial
  - Military

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VR NOTES

- Apple bucking trends
  - Sub $500 prices
  - Untethered
- Physical limitations
  - Accessibility
  - 15-minute limit
  - Need for dedicated space
- Critical mass needed for interactive applications

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THE "METAVERSE"

- Not here yet
- Virtual words are unconnected

- Key question: Will they become connected as email and internet were in the 1990s?

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CHALLENGES OF THE METAVERSE

- Physical
  - 15 minute limit
  - Reluctance to use HMDs

- Critical Mass
  - Need to connect virtual worlds to maximize interactivity

- Representation
  - Actual image
  - Avatar
    - Which one?

Source: Dall-E via Bing,
"What a small, 40 person technology Conference will look like in the metaverse.

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METAVERSE PREDICTIONS

- Commercial applications will overwhelm all others
  - Consider the evolution of the internet
- HMDs will be less popular that multi-screen setups
  - Curved
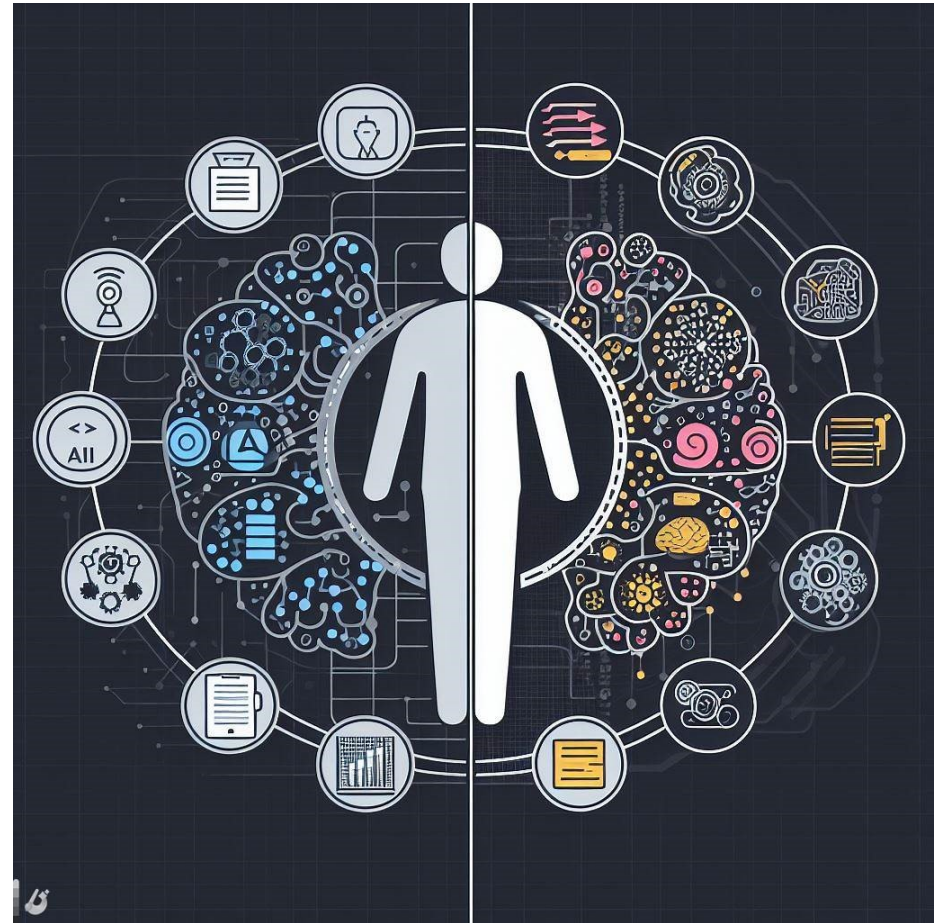 - Stacked
  - Surround

- Still looking for a killer app…

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AI

COMPETING DEFINITIONS

- Artificial Intelligence
  - Implies consciousness and independence
- Augmented Intelligence
  - Implies dependence and task-association

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AI ANALOGIES

• Personal computers

• Smart phones

• Internet connectivity

AI ISSUES IN 2024

- Copyright
  - Current case law is that anything created by AI can't have copyright protection

- Safety and Veracity

- Worker displacement

- Underlying data sources for generative AI
  - Protection of intellectual property
  - Current issue: Access to news sources
    - (with a surprising twist!)

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QUANTUM COMPUTING AND AI

Here is an image created by Dall-E via Bing:

"Create an image of Augie Grant using AI to Illustrate quantum computing."

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SPHERE

- Entertainment: Top 10 Facts about the Sphere

- Art: Refik Anadol's Machine Hallucinations

- Commercial: Stanley/Black and Decker Video

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"3D" SIGNAGE

Source: Pupperish

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KEY FACTORS FOR DIGITAL SIGNS

- Efficiency
- Environmental (including power consumption)
- Regulation (distraction and neighborhood aesthetics)
- Function

DIGITAL SIGNAGE DANGER?

- Beware of QR code spoofing

- QR codes used in signs, menus, brochures etc.
  - Check the destination URL before you click

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INTERNET ACCESS

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INTERNET ACCESS INNOVATIONS DIFFUSING

- Mature:
  - Telco
  - Cable

- Emerging:
  - 5G

  - Satellite

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INTERNET OF THINGS

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FEW IOT DEVELOPMENTS

- Good: Integration of common standard

matter

- Bad: Obsolescence of connection
  - Cellular: Modem replacement (2G, 3G, soon 4G)
  - Wifi: Older WiFi connections slowing networks

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SOCIAL MEDIA

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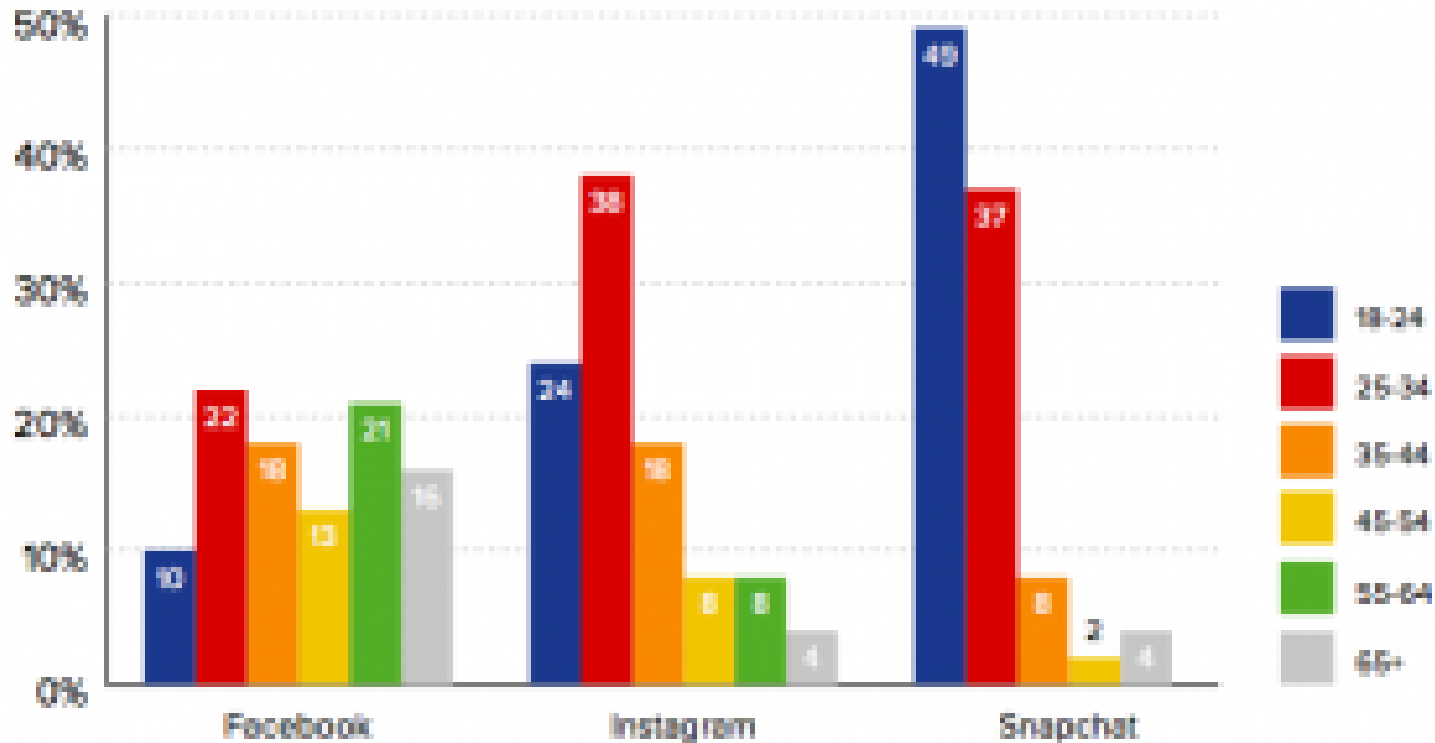UNIVERSITY OF SOUTH CAROLINA

KEY SOCIAL MEDIA DEVELOPMENTS

- Potential prohibition of access by children and teens
  - Research studies demonstrate harm to children from social media use

- Regulation of TikTok in the U.S.

- Issues with advertising efficiency

- Downward spiral of X

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AGE DISTRIBUTION OF DIFFERENT SOCIAL NETWORKS
UNITED STATES

SEGMENTATION

Source: Brandwatch

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SURVEILLANCE

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ROCKWELL'S LAMENT

- The panoptic society
  - Everyone is always seen everywhere

- Access to surveillance
  - Law enforcement
  - Marketing
  - Stalking

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RING DOORBELL EFFECT

Almost everyone is being watched by someone all the time.

This could change behavior.

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DAILY TECH TIDBITS:

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