



the assembly

A ONE NORTH EVENT



Vinu Krishnaswamy

SENIOR DIRECTOR, TECHNOLOGY, ONE NORTH



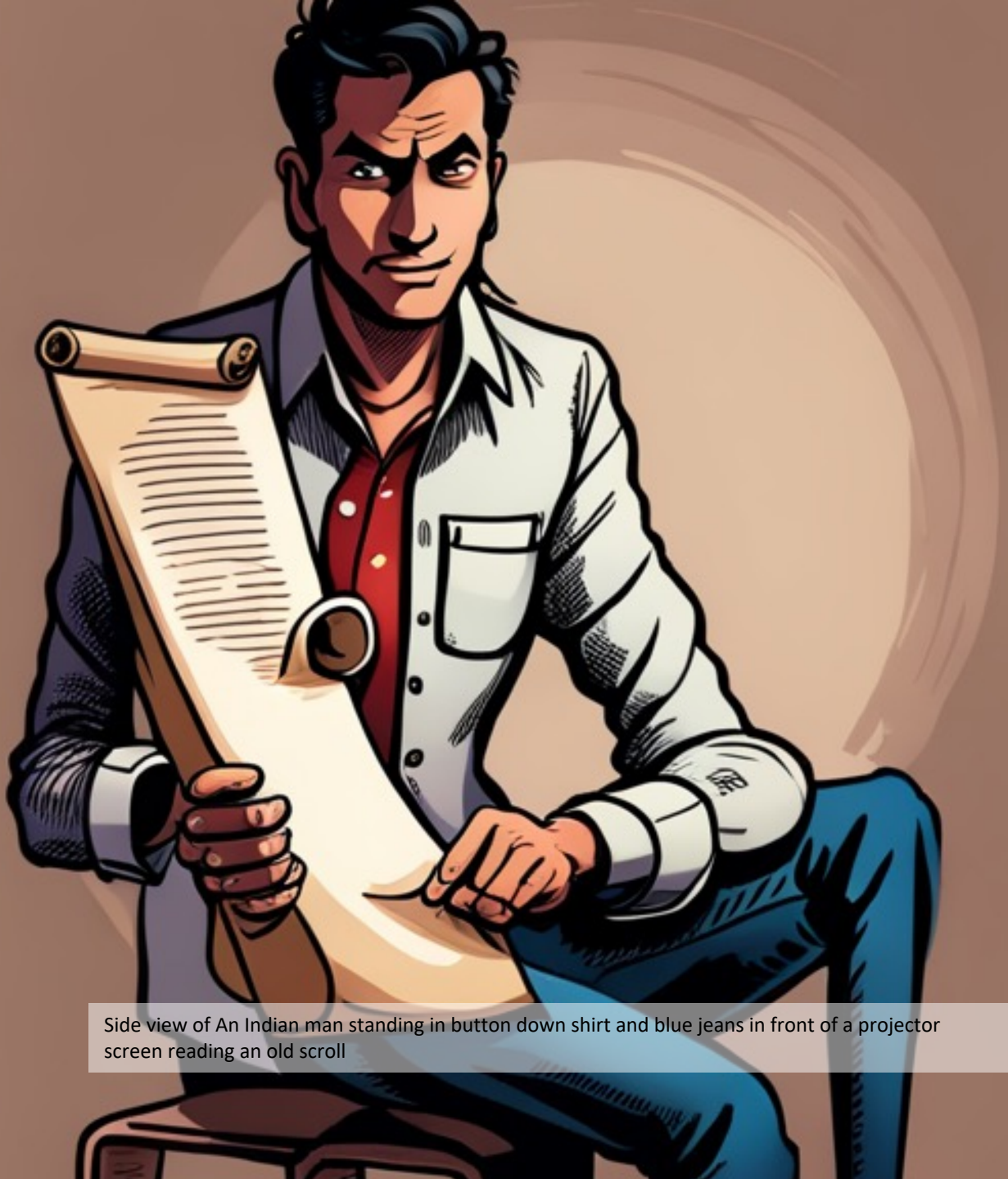


The Matrix Reimagined

Technology Trends that Bring Us Closer to a Hyper-Connected Reality

SPEAKER: VINU KRISHNASWAMY

one north A TEKsystems Company



A Disclaimer

Side view of An Indian man standing in button down shirt and blue jeans in front of a projector screen reading an old scroll



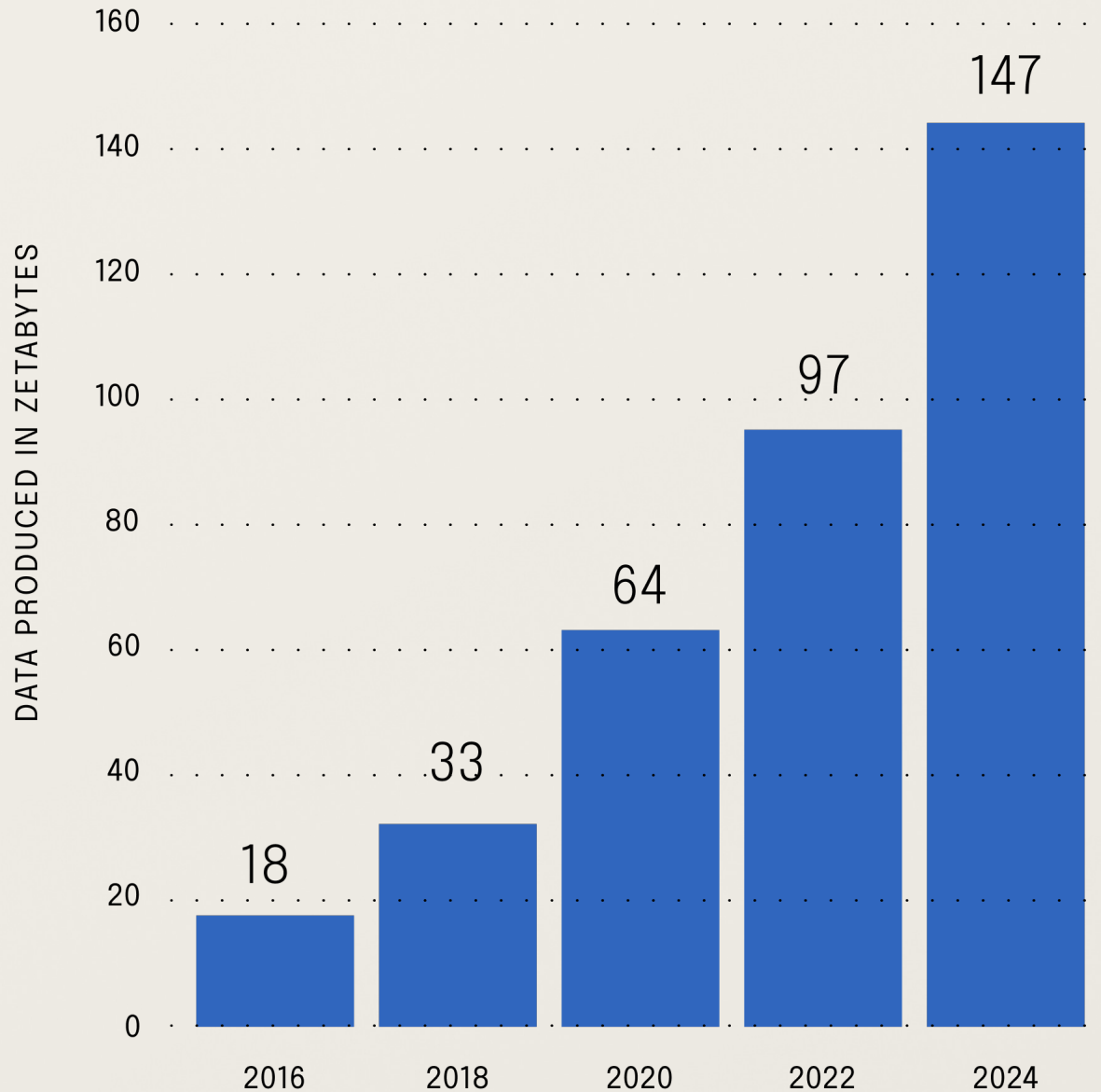
A 70s image of an early desktop computer monitor



Zoom in of network cables behind a PC



Zoom in of hand holding phone with social media apps



Explosion of data

The data we produce globally has grown exponentially in the past 10 years, as expected.





Easier human computer interfaces

We have also continuously innovated
on how we interface with technology.



A digital vs physical divide

- How are we using all this data?
- Have these new ways of interfacing with technology complicated our lives?



Real world vs virtual world





Taking the Long View



KU REEVES LAURENCE FISHBURNE

THE MATRIX

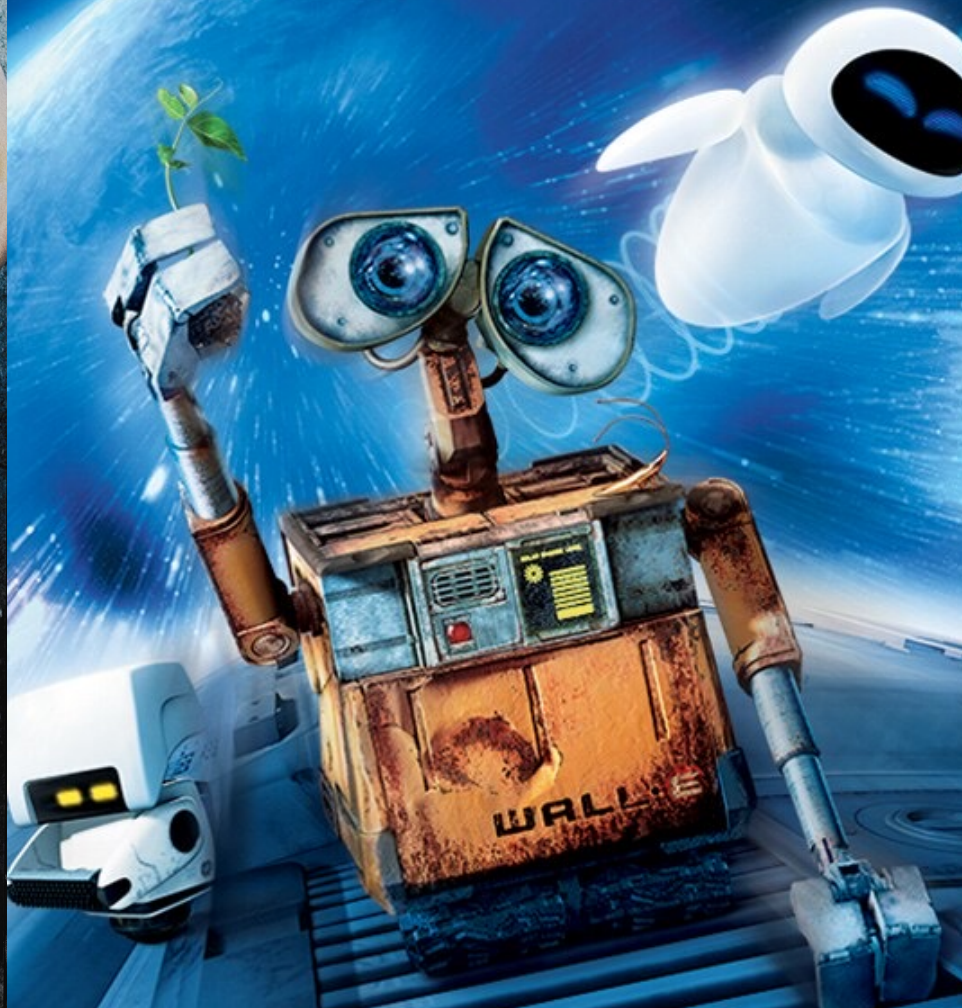
WARNER BROS. PRESENTS
A VILLAGE ROADSHOW PICTURES / GROUCHO FILM PARTNERSHIP
SILVER PICTURES PRESENTS
KEANU REEVES LAURENCE FISHBURNE "THE MATRIX" CARRIE-ANNE MOSS HUGO WEAVING AND JOE PANTOLIANO
WITH DON DAVIS AND ZACH STACHEBERG
DIRECTED BY LUCY FISHER
PRODUCED BY DAN CRAICHOLO
SCREENPLAY BY BARBIE OSGORNE ANDREW HANSON ANDY WACHOWSKI LARRY WACHOWSKI ERWIN STOFF AND BRUCE BERMAN
DIRECTED BY JOEL SILVER
BASED UPON THE WACHOWSKI BROTHERS
www.whatisthematrix.com

IN MARCH 31ST THE FIGHT FOR THE FUTURE BEGINS.



Disney • PIXAR

WALL-E



TOM CRUISE

A STEVEN SPIELBERG FILM

MINORITY REPORT

TWENTIETH CENTURY FOX AND DREAMWORKS PICTURES PRESENT A CRUISE/BLUE TULIP/RONALD SHUSETT/GARY GOLDMAN PRODUCTION A STEVEN SPIELBERG FILM
TOM CRUISE "MINORITY REPORT" COLIN FARRELL SAMANTHA MORTON AND MAX VON SYDOW
DIRECTED BY JOHN WILLIAMS
SCREENPLAY BY INDUSTRIAL LIGHT & MAGIC
PRODUCED BY DEBORAH L. SCOTT
EXECUTIVE PRODUCERS MICHAEL KAHN, A.C.E. AND ALEX MCDOWELL
DIRECTOR OF PHOTOGRAPHY JANUSZ KAMINSKI, ASC
EXECUTIVE PRODUCERS GARY GOLDMAN RONALD SHUSETT
PRODUCED BY GERALD R. MOLEN BONNIE CURTIS WALTER F. PARKES JAN DE BONT
BASED UPON THE STORY BY PHILIP K. DICK
SCREENPLAY BY SCOTT FRANK AND JON COHEN
DIRECTED BY STEVEN SPIELBERG
DREAMWORKS PICTURES PRESENTS
www.minorityreport.com

EVERYBODY RUNS JUN



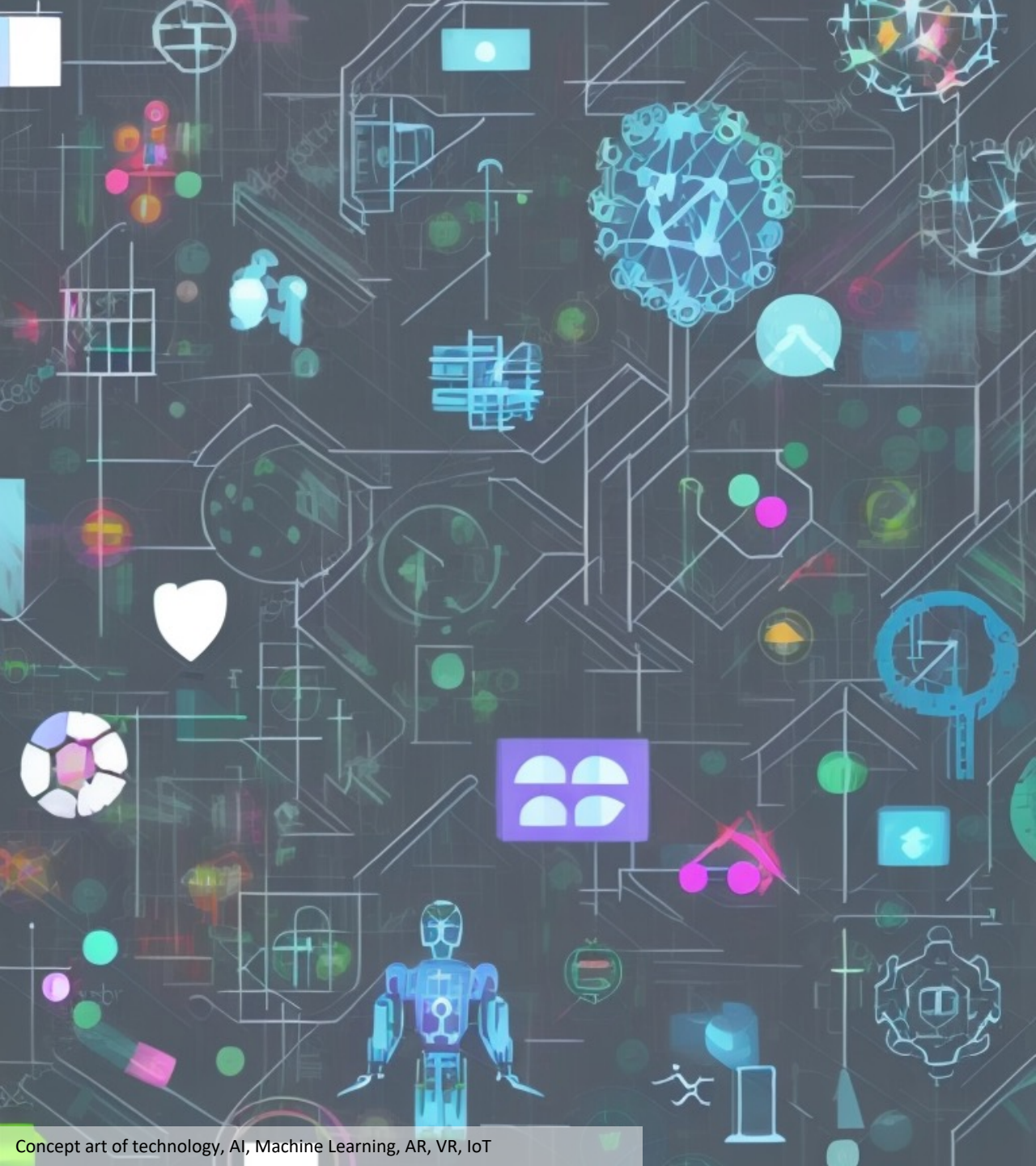
Every day, we're saying, 'How can we keep this customer happy?' How can we get ahead in innovation by doing this, because if we don't, somebody else will.

— Bill Gates



The opportunity lies in bridging the gap between the real and virtual world through data-driven innovation and in using technology to create new forms of interaction and value.





Key trends

Generative AI

Generative AI has rocked our world in the last 6 months. What is next?

Extended Reality

What happened to the hype around AR & VR?
Has it peaked?

IoT

How prevalent is IoT now? You'd be surprised.

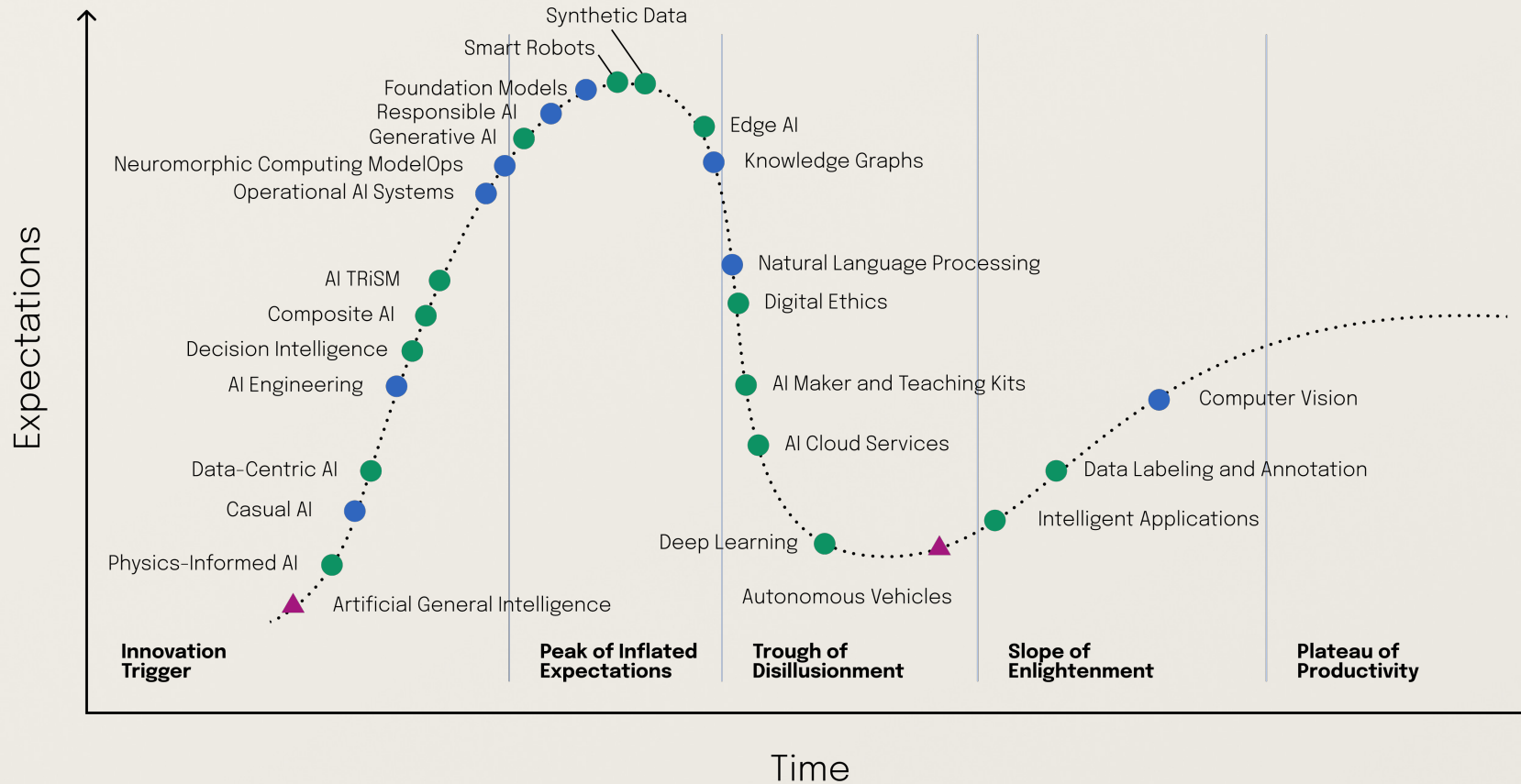


Generative AI

Large Language Models, Foundational Models



The hype is off the charts.



New tools being released every week
Heavy investment across big tech
MarTech is buying into the hype





V1



V5

And the progress
is real and fast.





Versatile

Generative AI can be used in a lot of different use cases.

01

Create

Unlock creativity by generating text, images and videos. Can we distinguish between AI- and human-written articles?

02

Advise

Help with research and learning.

03

Code

Generate code that can then be optimized by developers.

04

Automate

Automate tedious and time-consuming tasks, increasing productivity and efficiency.

05

Personalize

Personalize content based on user roles and personas and improving customer engagement.

06

Augment Data

Generate data to train other machine learning models without having to find quality real-world data.





It's a language model bro, not a truth machine.

- A random redditor

The impact

Chegg

Student-focused “Study” tool is already seeing impact on revenue since ChatGPT is free and does a better job of helping with homework.

IBM

Potential 7800 jobs at IBM could be replaced by AI as it pauses hiring for these jobs to evaluate AI impact.

Accenture

Accenture’s research says about 40% of working hours can be impacted.

Improved Customer Support

Study of 5179 customer support agents that supported applications that have a steep learning curve:

- Conducted by MIT and Stanford
- Improved productivity by 14%
- Improved retention
- Greatest boost among novice and low-skilled workers but minimal impact on experienced workers



Some big concerns remain.

Content Access

Social media platforms are already preventing access to LLMs. Twitter and Reddit are leading the way.

Liability Issues

Legal advice from ChatGPT has been significantly scaled back. How are we accounting for built-in biases?

IP Infringement

How are content creators compensated?

Privacy Concerns

With Privacy concerns, what safeguards or guidelines need to be in place?

Regulations

Senate hearing on AI was unexpected...lots of substance. EU and China are introducing an "AI Act."

Open-Source Models

How effective will they be?



...even on simple use-cases

Consider using transcribing software to record meetings and using ChatGPT to summarize the meetings and pick out action items.

... but, at scale

- That is a lot of proprietary information.
- Possibly client information that we are sending to a public tool
- Tons of Personal Information too



Though Generative AI is very promising, for us to realize the full value of it, Enterprises will need to stand up their own models, hosting, and tools/applications.





Where do we start?

Entertain Bottom-Up Ideas

The technology is so versatile that how it can be used across different departments and teams will be very different.

Find Pilot Projects and Start Slow

Consider user testing and internal feedback to train a model before going all in. Consider Open Source models to start.

Find Data-Rich Use Cases

Find use cases that already produce a lot of data. Eg: Knowledge systems, Product catalogs, customer service calls. Don't underestimate the effort of cleaning up this data before training a model.



zoom in to a female athlete at the starting line ready to start running a race. side view





Where do we start?

Assemble a Cross-Functional Team

Leaders from Data Science, Engineering, Legal, IT, InfoSec, Marketing, and Design can explore the POCs and identify and prioritize the high-value use cases.

Monitoring the AI Output Is Key

If you are using off-the-shelf models or training your own model, a cross-functional team to monitor and measure the output is key to check for Data Privacy, IP and Bias issues.

Train Your Employees

... on use cases, how to use it and how to identify the limitations of the technology.



Person climbing stairs towards a light. Colorful





Extended Reality

AR/VR & Metaverse



Feels like the natural evolution of the Internet, but not much concrete has changed in our day-to-day lives... yet. Why?





The potential

Gaming and Social Media

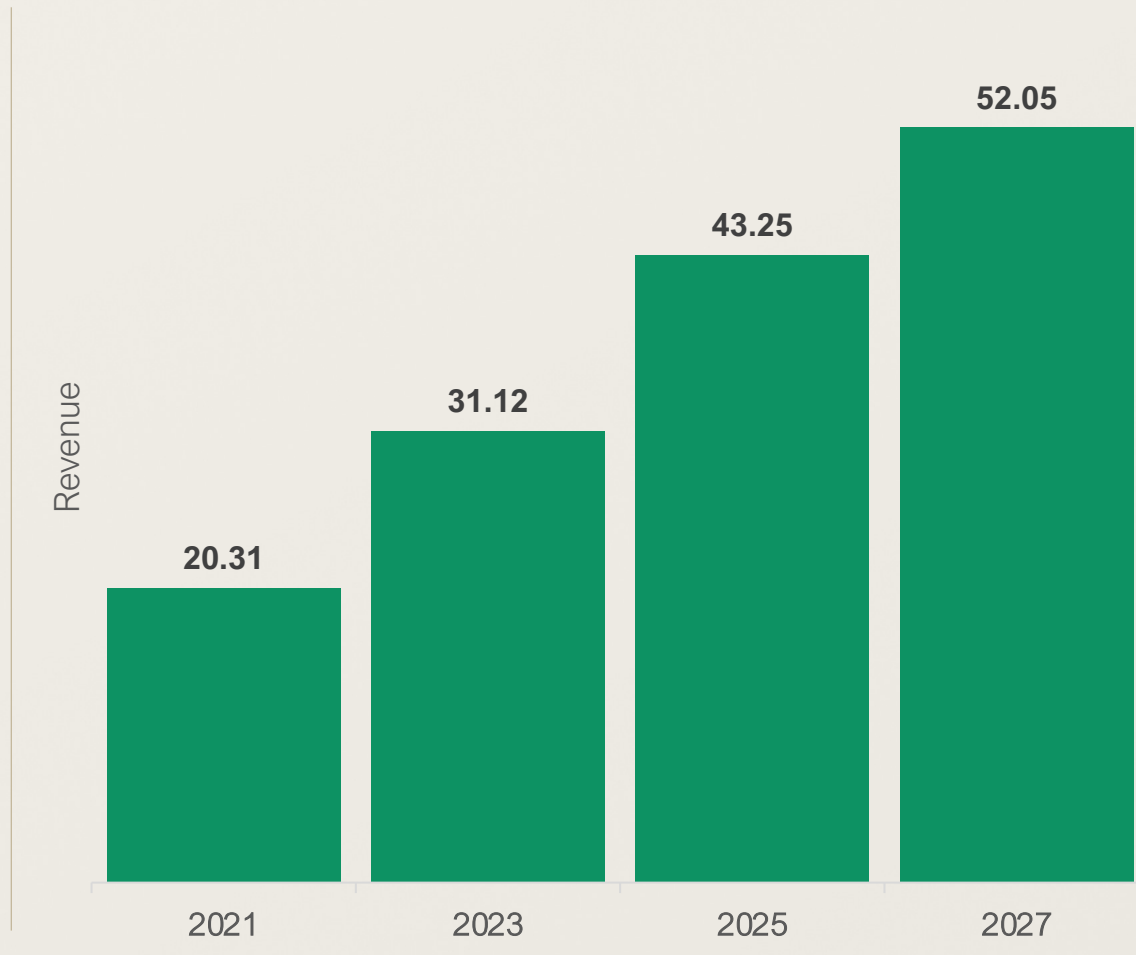
Seems like this is where AR/VR is prominent these days.

Reinventing Stagnant Industries

Some industries haven't changed their core customer experience in decades—e.g., Healthcare, Real Estate.



The opportunity



- Revenue projected to be at \$52B worldwide by 2027. If you add Metaverse, it is projected to be at 4-5 Trillion by 2030.
- Number of users is expected to be at 2.5 Billion by 2027.







Customer engagement

Nike

Sale of \$185 million in NFTs of Digital Apparel for Avatars

Introducing more Gamification to increase engagement and revenue

Introducing AR/VR experiences in-store



Employee training

Walmart VR Trainings

Increase in VR trainings across Walmart, especially around emergency situations.

Volkswagen VR Assembly Training

Instead of extensive travel to train new employees, Volkswagen uses VR to train them.

BOA New Employee Orientation

Instead of using traditional click-through training, BOA uses VR to increase knowledge level of employees.



Remote and hybrid work

VR Meeting Using Horizon Workrooms

A 2-hour experimental meeting was conducted over zoom and VR.

Experience

VR participant felt the experience was seamless. Audio was well-synced to the avatar. Eye-contact was exceptional.

Results

Participants felt connected, even if it was virtually.



man working from home from a desk and attending a virtual meeting





Some big challenges remain

Hardware Costs

Hardware cost is not commensurate with the quality or use. Truly experimental for personal use.

Lack of Standards

Creating an ecosystem around the hardware is hard due to lack of standards. No one wants a metaverse cable company.

Security and Privacy

Too much data can be captured with no clear idea of how it will be used.

Social Media on Steroids

Misinformation, echo chambers are still a problem with Metaverse.

Lack of Sticky Use Cases

Applications now haven't necessarily had sticking power e.g., Pokemon Go, IKEA AR Application, etc.

Poor UX

Most applications in extended reality are buggy. Limited field of vision, for example, in Goggles.





In a world that is yearning for connection, AR/VR & Metaverse may need to focus on targeted use cases first that are immersive and innovative.





Where do we start?

Brainstorm for Use-Cases that AR/VR Make Possible

In the near future, what use cases make sense for your company to improve customer and employee engagement?

Evaluate If You Are Ready for AR/VR

For example, are your product models digital? Is your training content fit for an immersive experience?

Start With a Prototype, Pay Attention to UX

Be clear on the goals, strategy, capabilities and limitations of the technology.



side view zoom in of a leg stepping out of the door wearing formal shoes. Buildings background





IoT

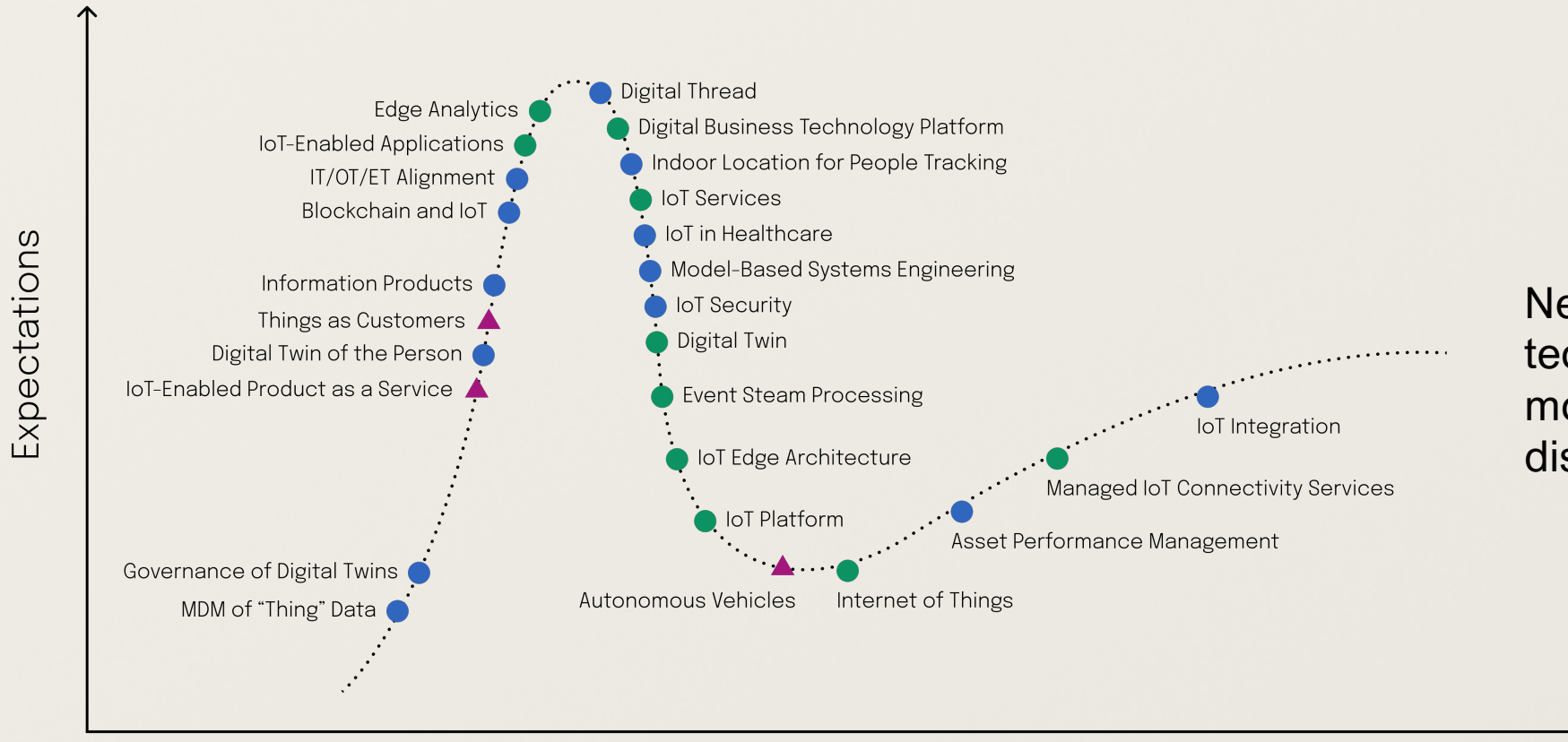


If AR/VR is imposing the virtual world into the real world, IoT is the other way around.





The hype is wearing off.



Never seen a set of technologies that are mostly in the trough of disillusionment before

Hype Cycle for the Internet of Things, 2020





Current state

Smart Assistants & Wearables

These are the most mature IoT offerings in the market right now, but use cases are still limited.

IoT Marketplaces on the Rise

Azure, AWS have robust marketplaces and starter-kits to make adoption easier.

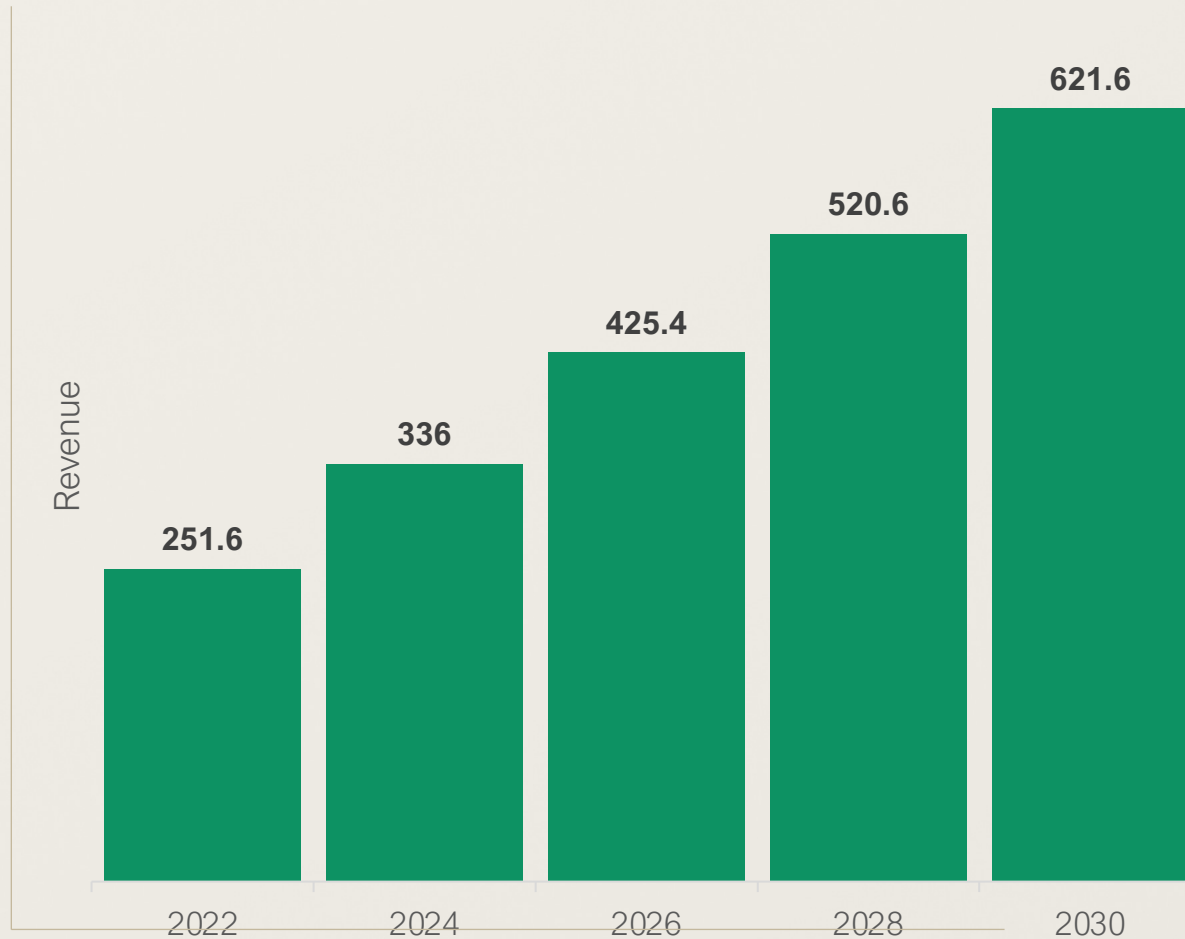


When we talk about the Internet of Things, it's not just putting RFID tags on some dumb thing so we smart people know where that dumb thing is. It's about embedding intelligence, so things become smarter and do more than they were proposed to do.

— Nicholas Negroponte, MIT, First TED Talker



The opportunity



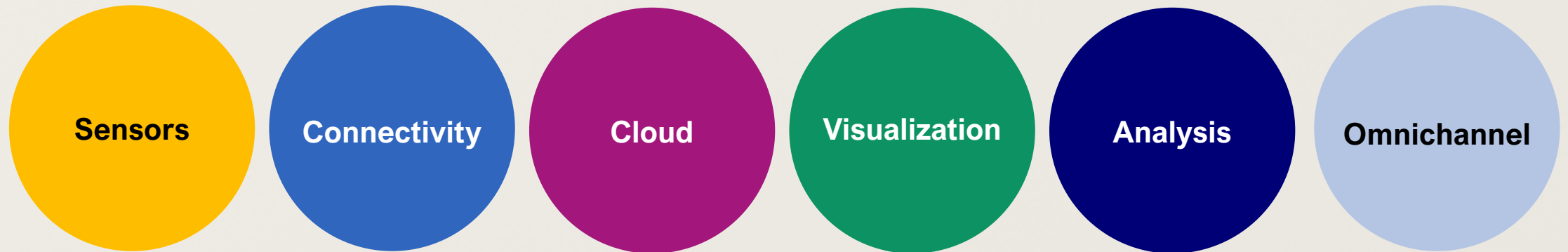
- Revenue projected to be at \$621.6 Billion by 2030.
- Projected to have 30 billion IoT devices by 2030.
- Most deployed use cases projected to be Consumer electronics, Energy sector, and Retail.

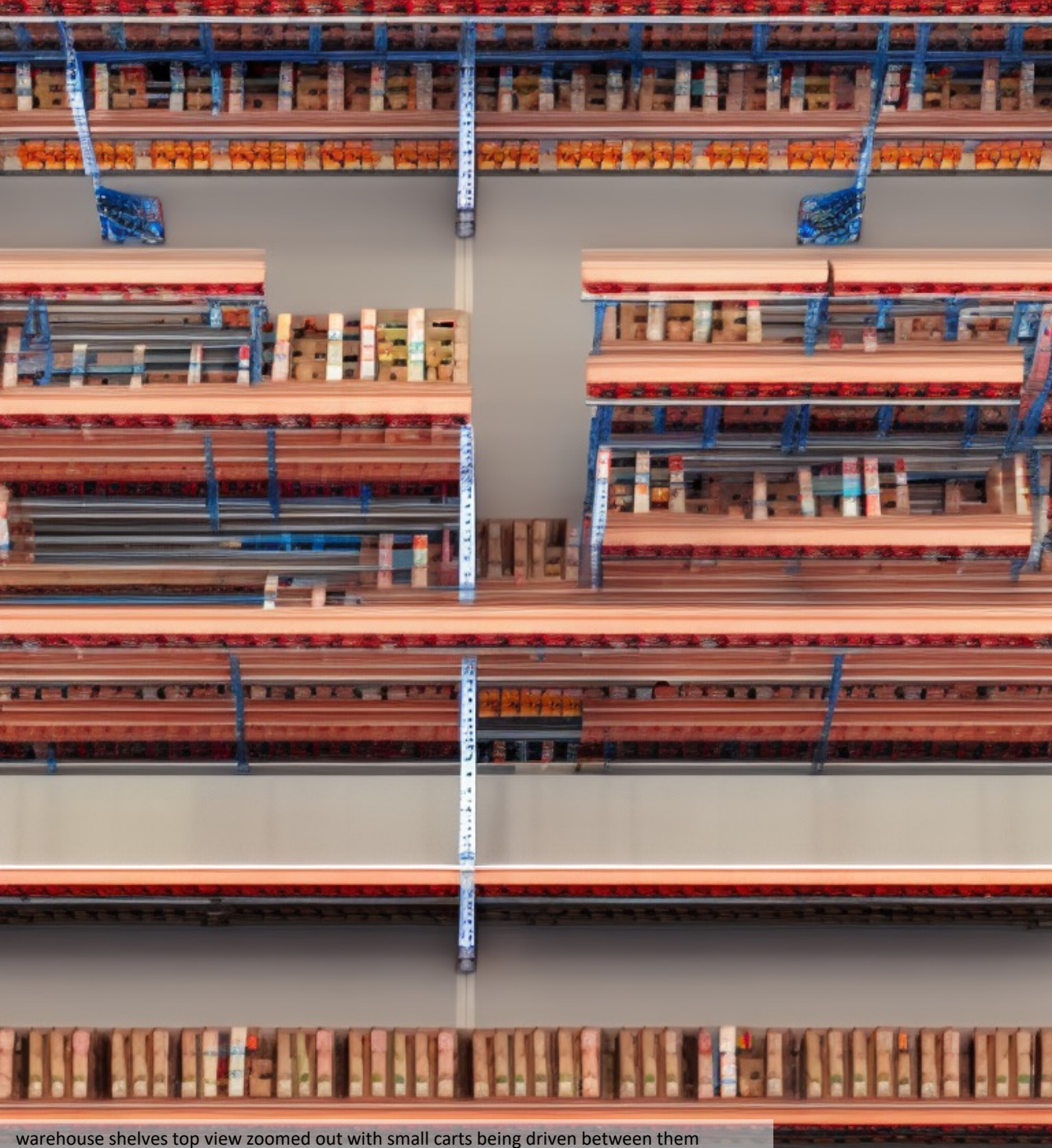




IoT components

IoT is not a single technology. For it to mature, it needs the following components, each of them currently at different levels of maturity.





Optimization and efficiency

Smart City

Deploy Mobility solutions to manage traffic in an already congested city.

Amazon Warehouses

Use up to 400 IoT devices to manage inventory and move products.

John Deere

Sensors monitor moisture levels, air, and soil temperature to inform fertilizer and water usage.



Understand your user

Data from Offline World

Sensors in the real world can tell you what a user is doing and personalize offers.

First-Party Data

Collect first-party data from IoT devices. Insurance companies have successfully convinced us to give up our driving data.



Some big challenges remain

Hardware Maintenance

Operationalizing maintenance or installation of the devices can be a lot.

Lack of Standards

Interoperability, even within an organization, will be challenging.

Technology Is Still Maturing

Low power connectivity, Edge computing, Sensors, Chips, etc. are at different levels of maturity in different industries.

Security and Privacy

Too much data can be captured with no clear idea of how it will be used. Transparency and Security are important.





Where do you start?

What data will be helpful?

Use cases will differ, firm to firm. Key question to ask would be what data would be great from the real world to supplement your online data?

Start with the user's phone.

Your apps, with some gamification, can act as a great way to start some POCs.







As we build this path forward, we are responsible for creating solutions that keep **Privacy, Security & Sustainability** in mind.

A zoomed out view of a long winding road being built in between a forest. Show only trees in the forest. Have a paver in the middle of the picture laying the road. Make the road 4 lanes. Center the view on the road



CREATORS
ALF

GEORGE CLOONEY

TOMORROWLAND



DISNEY PRESENTS A BRAD BIRD FILM GEORGE CLOONEY "TOMORROWLAND" AN A113 PRODUCTION HUGH LAURIE BRITT ROBERTSON RAFFEY CASSIDY TIM M...
KEEGAN-MICHAEL KEY MUSIC BY MICHAEL GIACCHINO VISUAL EFFECTS BY INDUSTRIAL LIGHT & MAGIC CO-PRODUCER TOM PEITZMAN COSTUME DESIGNER JEFFREY KURLAND EDITED BY WALTER MURCH, ACE CRAIG WOOD, ACE
DIRECTOR OF PHOTOGRAPHY CLAUDIO MIRANDA, ASC EXECUTIVE PRODUCERS JOHN WALKER BERNARD BELLEW JEFF JENSEN BRIGHAM TAYLOR PRODUCED BY DAMON LINDELOF, P.G.A. BRAD BIRD, P.G.A. JEFFREY CHERNOV, P.G.A. STORY BY DAMON LINDELOF
SCREENPLAY BY DAMON LINDELOF AND BRAD BIRD

REMEMBER THE FUTURE MAY 22

EXPERIENCE IT IN IMAX

A red vertical box containing the Disney logo at the top, followed by the title 'BIG HERO 6' in large, white, stylized letters. The '6' is particularly large and has a unique shape.



If future generations are to remember us more with gratitude than sorrow, we must achieve more than just the miracles of technology. We must also leave them a glimpse of the world as it was created, not just as it looked when we got through with it.

— Lyndon B. Johnson, Former President of the
United States of America

Thank you.

One North is a full-service digital agency helping businesses solve complex problems in creative ways. We're makers, technologists and relationship builders guiding you toward what's next.

Unlike traditional agencies, we stitch together a deep level of expertise across disciplines so that we can do the work of multiple teams. With capabilities in brand and communications, digital experience, technology and infrastructure, and optimization and insights, we can take on any challenge.

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