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Technology and the Board

with Elaine Coughlan, Atlantic Bridge

IoD Ireland Briefings Series: Sponsored by Accenture

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Atlantic Bridge Institute of Directors

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Technological Evolution Speeds Up Exponentially

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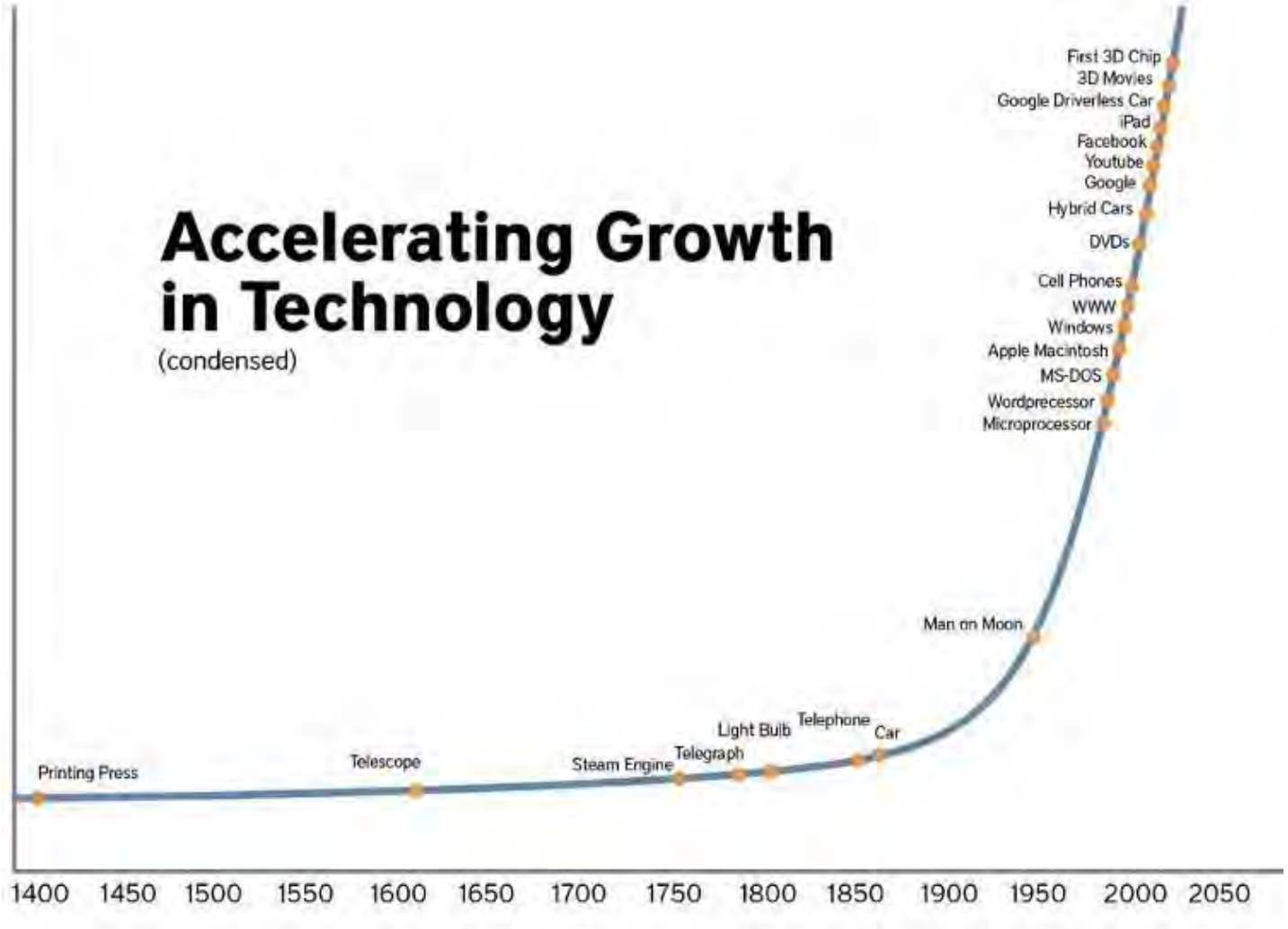
We are entering the second part of the hockey stick (a.k.a the exponential growth curve).



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Time to Reach 50 Million Users

Source: Investors

Growth of Mobile and App Technology

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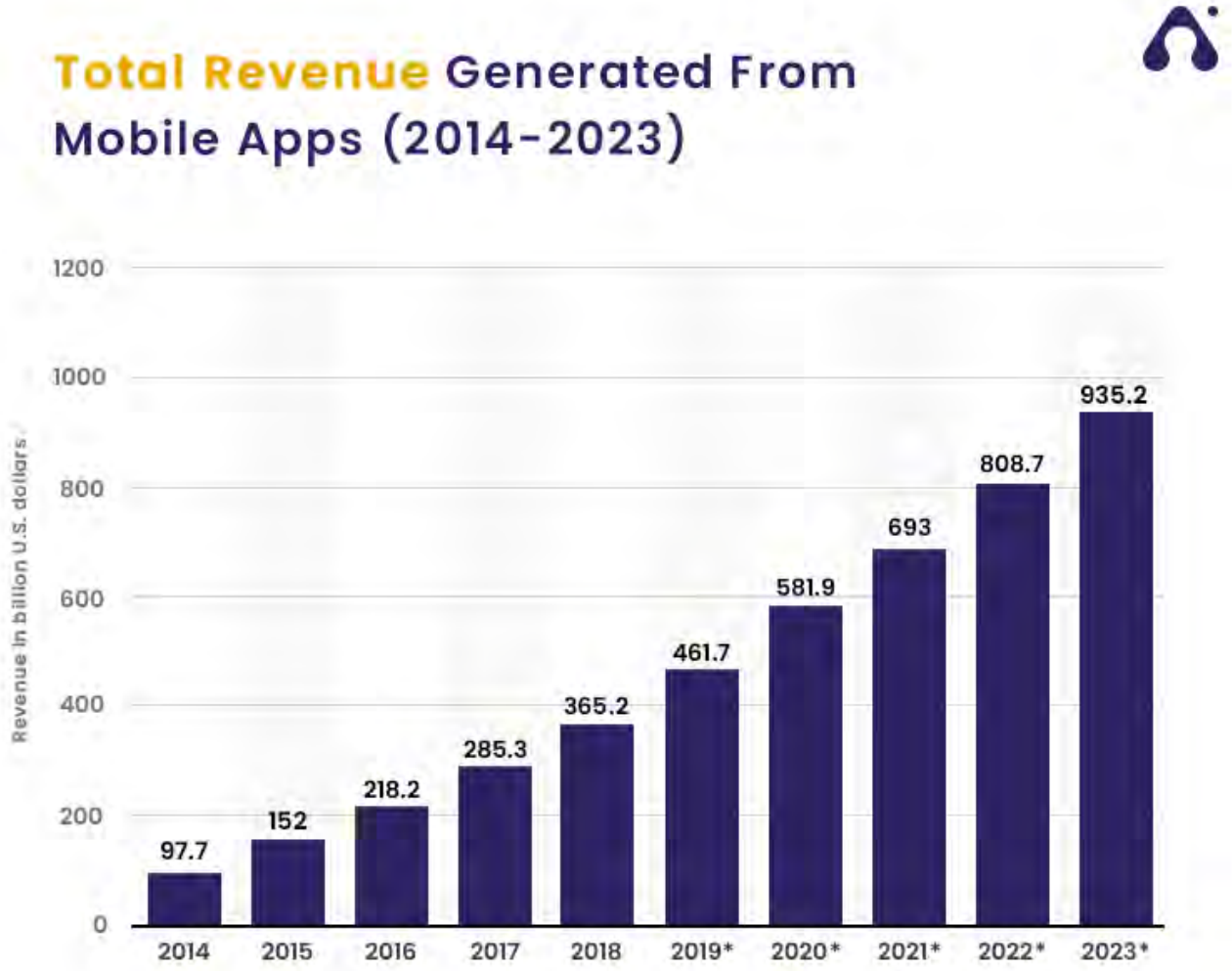
Growth of the IoT market leads a hike in demand for mobile applications in the coming years as it helps in captivating more information utilized for optimization and enriched app features for end-users.

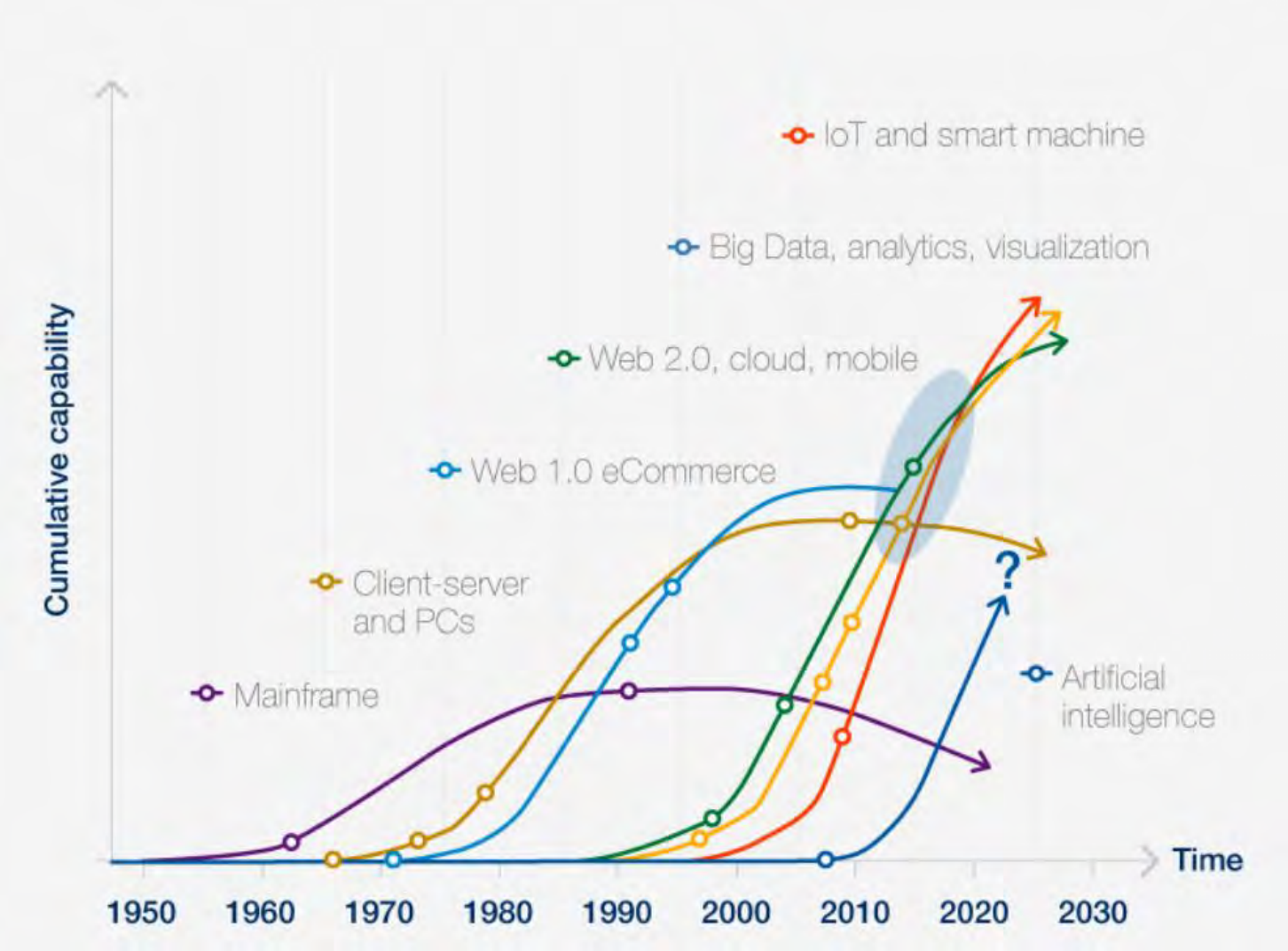


Source: NineHertz

Industry 4.0- The Fourth wave of the Industrial Revolution.

Accelerating through the ‘Combinatorial Effects of Digital Transformation’

- *Today its estimated, 47% of all current tasks can already be automated with technology that is currently available on the market — that’s almost HALF!*
- *There’s a need for 20-60M new digital jobs over the next 10 years*



Source: McKinsey Research

Source: Gartner

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Technologies that are reshaping Business

- *Big Data*
- *Cloud Infrastructure*
- *Automation from AI and Autonomous Machines*
- *Mobile*
- *Connectivity Satellite Space and 5G*
- *Mixed virtual and augmented reality*
- *Blockchain*
- *Sensors, IoT, Robotics*
- *Crypto Currencies*

Cloud Computing is Booming in the Market

- *Cloud computing has changed the way IT solutions are delivered and consumed by the end-users.*
- *A corporate “no-cloud” policy will be as rare as a “no-Internet” policy*
- *$38BN mkt in 2020 going to 133 BN by 2025*

Source: Gartner

Big Data

- *When new technologies become cheaper and easier to use, they transform industries. That's what is happening with Big Data right now.*

Source: bernardmarr

Mixed Virtual and Augmented Reality

- *Augmented reality (AR) adds digital elements to a live view often by using the camera on a smartphone.*
- *Virtual reality (VR) implies a complete immersion experience that shuts out the physical world.*
- *Mixed Reality (MR) experience, which combines elements of both AR and VR, real-world and digital objects interact.*
- *Enter the MetaVerse*

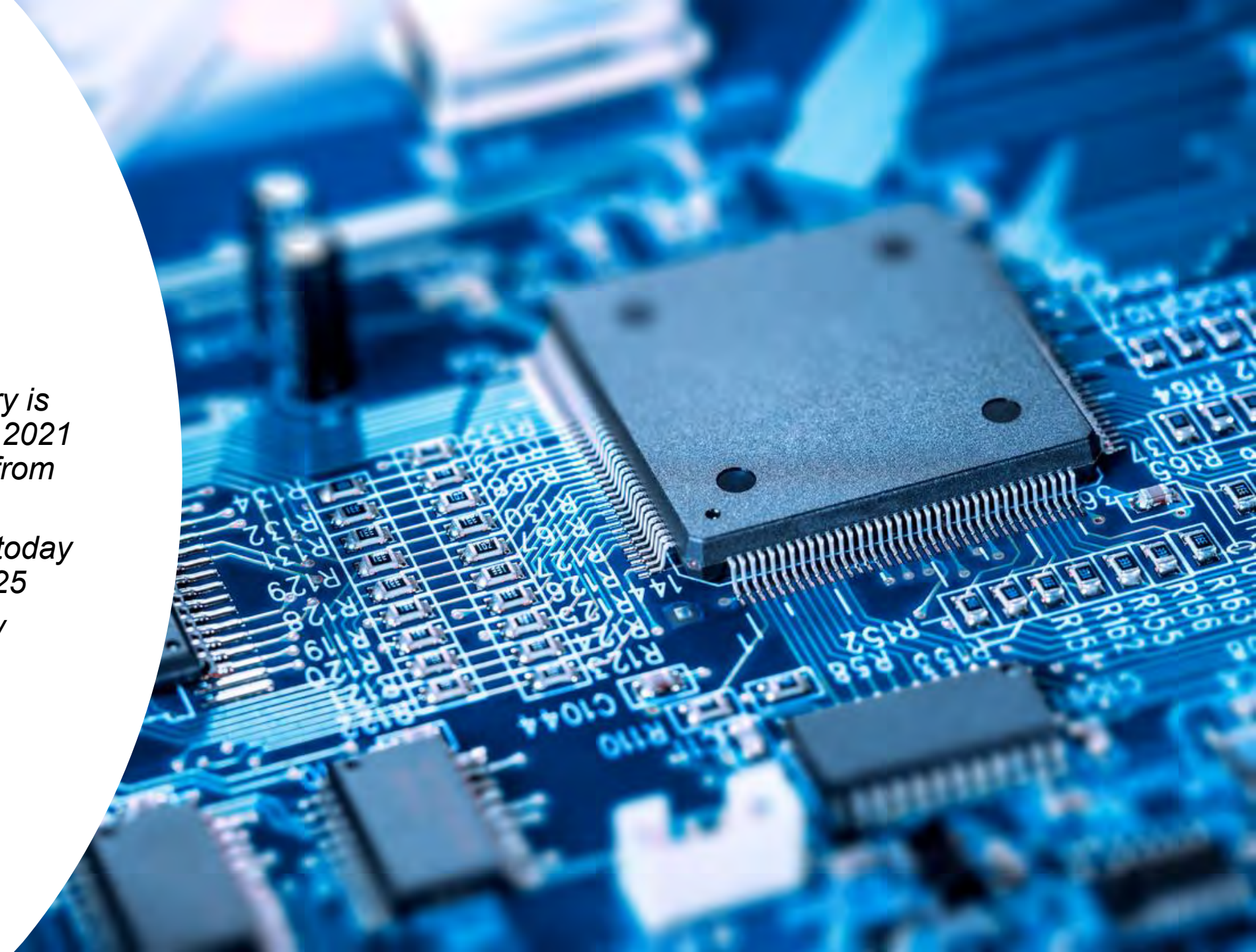
Source: NineHertz

Semiconductor

The semiconductor industry is poised for faster growth in 2021 now that it has recovered from a cyclical downturn.

12BN Connected devices today growing 4x to 42BN by 2025

Generating 79 ZB of data by 2025



Source: Gartner

AI Semiconductors

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AI techniques are now being leveraged in edge computers and increasingly in endpoint devices to support the need for analysis of locally captured data

- **Facial ID& Gesture Recognition**

- **Autonomous things/robotics**

- **Machine data**

- **Surveillance**

AI and Autonomous Driving

- *Autonomous vehicles as a "killer app" for AI*

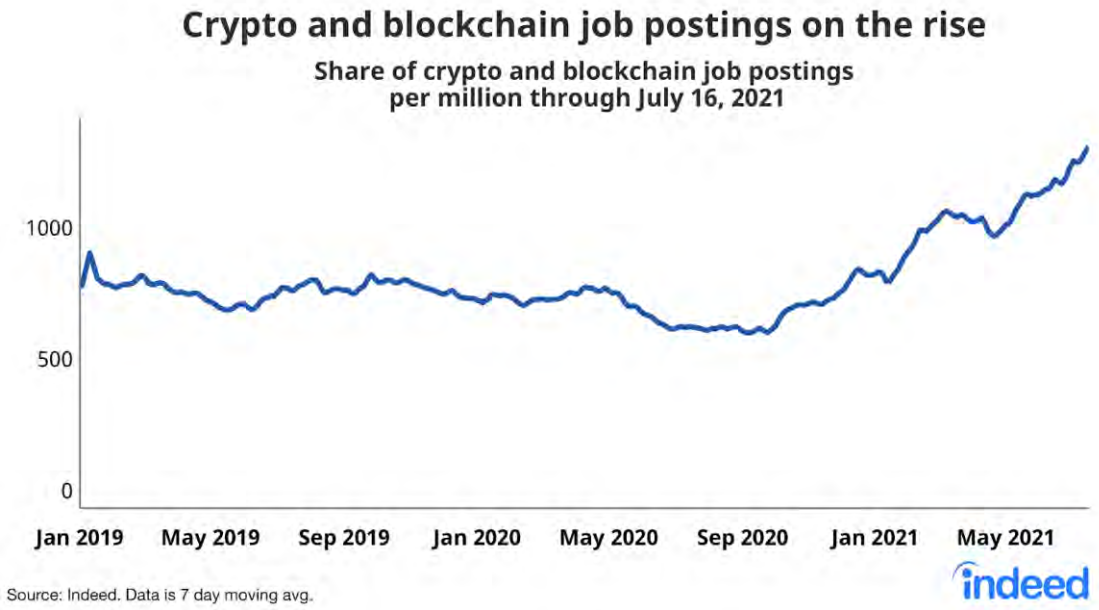
Cryptocurrency

- *Cryptocurrencies use Blockchain technology, which is the master ledger of a sort that records all previous transactions and activity in order to validate the ownership of all units at any given time.*

Source: Keap

BlockChain

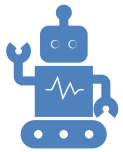
Pretty much anything can be stored on a blockchain, from financial transactions and contracts to supply chain information and medical data.



Source: Indeed

Nature of Work is Changing

Talent is the # 1 barrier Digital Strategy implementation



Automation can replace 50% of jobs today using existing tech

Digitization to create 20-50m jobs globally but requires different skills

30-40% workforce will need transition occupations **significantly upskill**

Upskilling – 2-4x undersupplied hiring firing costs rising and skilling costs decreasing

Millennials and Gen Z – new skills new attitudes

Source: Indeed

Important for Boards to Reskill Non-Tech People

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Truck Driver To
Front End Developer in 4 months

Mortgage Loan Processor to
Digital Marketer in 3 months

Hospitality Professional to
Android Developer in 6 months

Source: Indeed

What Should We Do?

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FAVOR QUALITY OVER QUANTITY

LOOK FOR STRONG TALENT THAT CAN LEARN AND ADAPT

USE BUDGET STRATEGICALLY

CIO AND CRHO HAVE TO OWN TECH TRAINING PROGRAM

Source: Indeed

QUESTIONS WE SHOULD BE ASKING OF OURSELVES AT BOARD

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1. PEOPLE
2. ACCESS TO DIGITAL THINKING
3. PARTNERSHIPS, INVESTMENTS, LEARNINGS
4. CYBER

Source: Indeed

Proliferation of Devices that See, Hear, Speak, Sense & Think

Disruption Creates New Deep Technology Ecosystem

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Industry 4.0, Semiconductors & Robotics

Intelligent Edge Devices

Big Data & CyberSecurity

Software for Real Time Big Data, SaaS

- **Artificial Intelligence** for cybersecurity, image/voice recognition, sensor fusion, human simulation
- **Big Data Analytics** and **Scale-out Infrastructure** for real-time data analysis, data visualization, financial
- **Vertical Software-as-a-Service (SaaS)** for industrial, field service, eGovernment, marketing, construction

Hardware for Edge Devices & the Cloud

- **AR, VR and Holography** for industrial, automotive and consumer applications
- **Processors** architected for vision, artificial intelligence, massively parallel computing
- **Sensor Integrated Circuits** for sound, distance, speed, biometrics, temperature, location
- **Power Integrated Circuits** for automotive, cloud infrastructure, battery-based devices

Significant Reduction In Data Storage Cost As One Of The Makers Of The Tectonic Shift

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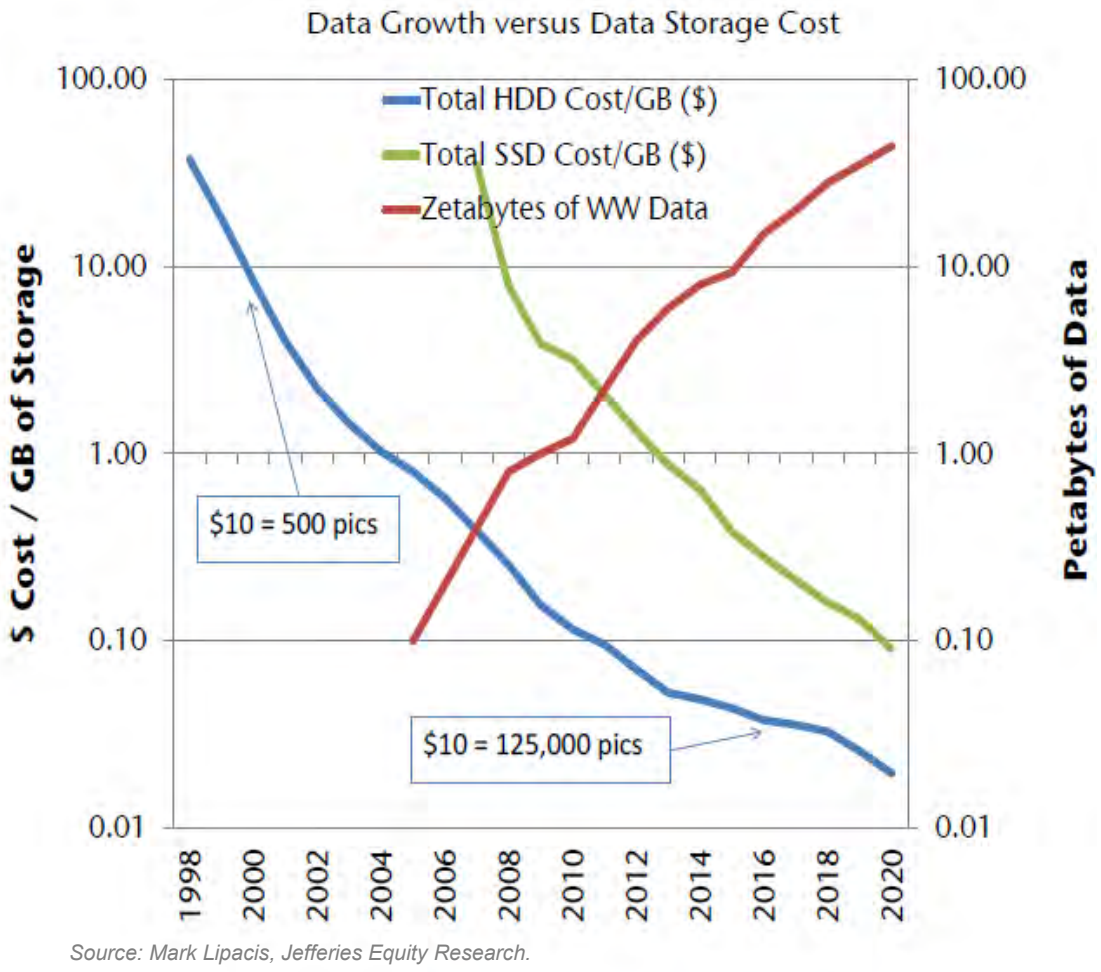

Source: Mark Lipacis, Jefferies Equity Research.

- In 2000, $10 purchased enough memory to store 500, 2MB photos
- Today, that same $10 buys you enough memory to store over 100,000 photos
- Fifteen years of memory price declines have driven massive price elasticities in memory demand
- Petabytes of memory (imagine 100 million bits stored in 1 billion different places) are now being stored at very low cost
- **Today, for many, data storage is effectively free**

An Increasingly Connected World Results In A Data Driven Industry

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Of Connected IoT Devices

(In Billions)

Expected Number Of Connected IoT Devices

CAGR: +28.7%

COVID-19 Impact

- The COVID-19 pandemic has resulted in a combination of manufacturing shutdowns, supply chain interruptions and a disruption in connected product availability
- Expected **18% decline** in net addition of IoT devices in 2020

IoT And Industry 4.0 Will Generate Massive Amounts Of Data

79.4ZB

Of Data Generated In 2025

Accelerating Cloudification

Cloud Storage Market

Rising Automation Of Vehicles

850,000+

Level 3 – 5 Autonomous Vehicle Units to be Sold by 2024

Source: ABI Research, IDC.

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