# Advancing into the Future: A Digital-first Blueprint for Superior Performance and Readiness

Jian Xiao, CPA, CMA, CGMA

Philip Panaro

Amir Sternhell

March 18, 2024

ima®

The Association of Accountants and Financial Professionals in Business

# Featured Presenters

***Jian Xiao, CPA, CMA, CGMA***

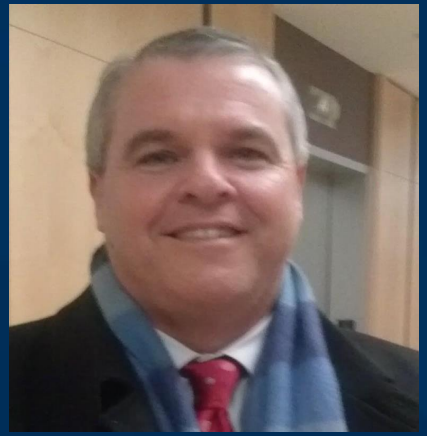
Accounting Lecturer and Entrepreneurial Fellow-Blackstone LaunchPad

Queens College School of Business

***Philip Panaro***

Independent Senior Advisor

Deloitte & Touche LLP



**Amir Sternhell**

Chief Strategy Officer

Sertainty

# Agenda

1. Introduction
2. Section 1 - The Capital Investment Decision Consideration
3. Section 2 - Digital Twin Transformation
4. Section 3 - Cyber and Zero-Trust
5. Conclusion
6. Key take away

# The Capital Investment Decision Consideration

“Digital Transformation is a fundamental reality for businesses today.”

*– Warren Buffett*

“90% of CEOs believe the digital economy will impact their industry, but less than 15% are executing on a digital strategy.”

“MIT Sloan and Capgemini

# Poll Question 1:

What is your capital budget plan priority for 2024 and beyond?

a. Cost Savings/Operating efficiency
b. Top Line Growth
c. Compliance/Risk Management

# Poll Question 1 Results: (Placeholder)

# the Capital Investment Decision Making Consideration

| | | | |
|---|---|---|---|
| **Sales & Capacity** | **Fixed Asset & Breakeven point** | **Bottleneck & Throughput** | **Regulatory** Requirements |
| **Asset Replacement & Maintenance Enhancement** | **Cash Flow & ROI** | **Funding** | **Cost of Capital vs. ROI** |

# Digital Twin Transformation

# Poll Question 2:

Are you familiar with Digital Twins?

a. Yes
b. No

# Poll Question 2 Results: (Placeholder)

# Regulatory compliance | Numerous US city, state, and federal emissions reporting regulations currently enforced or pending

**Local Law 97**

$268 per ton of CO2e above allowable limits on buildings 25,000 sf and larger.

Penalty of $10 per square foot up to $7.5 million per year.

## SEC Climate-Related Disclosures

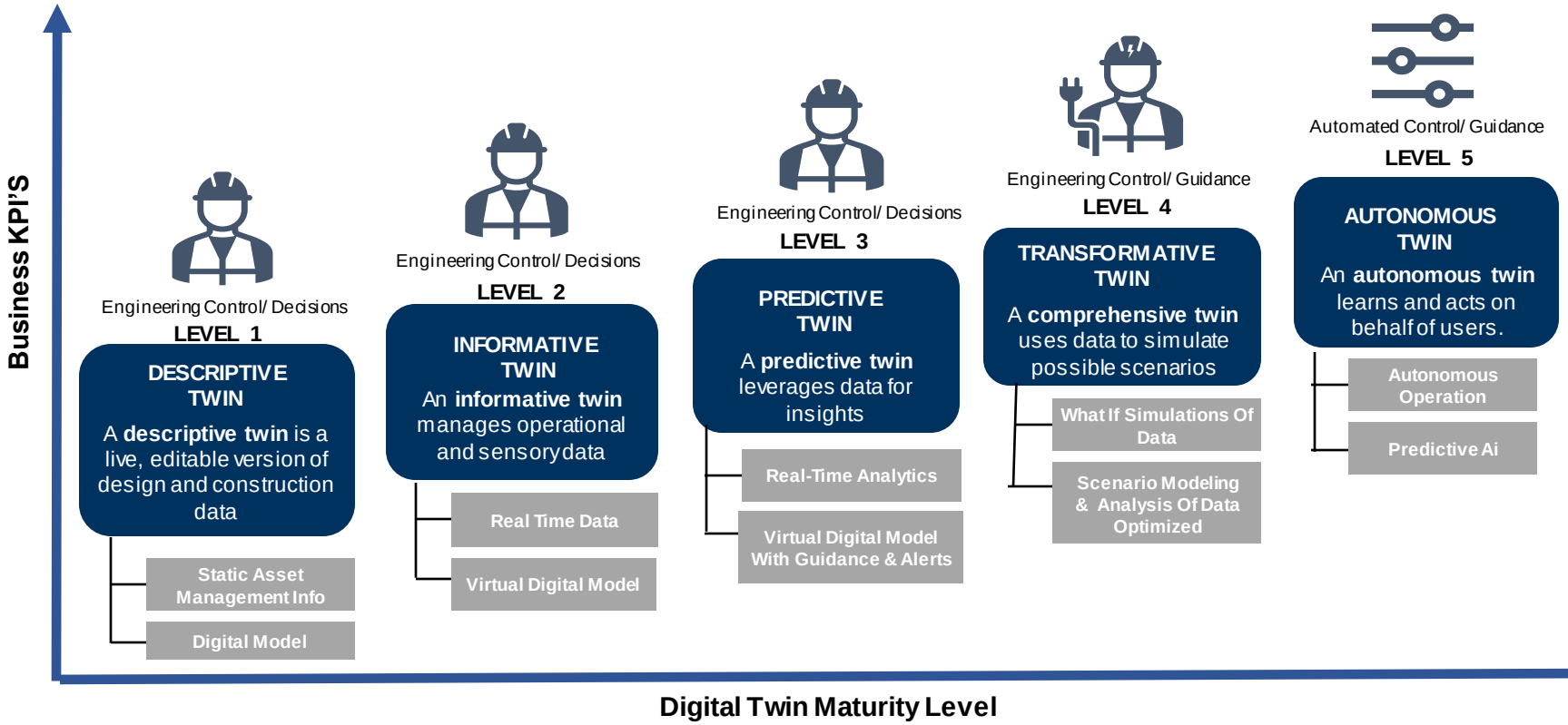
Mandatory disclosure of climate related risks and material impacts under different climate scenarios.

## 135 US Cities Pledge Race to Zero

| | | |
|---|---|---|
| Atlanta | Jersey City | Philadelphia |
| Austin | Las Vegas | Phoenix |
| Boston | Los Angeles | Pittsburg |
| Chicago | Louisville | Portland |
| Cincinnati | Madison | St. Louis |
| Dallas | Miami | Salt Lake City |
| Denver | Minneapolis | San Antonio |
| Des Moine | New Orleans | San Diego |
| Detroit | New York City | San Francisco |
| Hartford | Oakland | Seattle |
| Hoboken | Orlando | Tampa |
| Houston | Palo Alto | Washington, DC |

- By 2025 Mechanical Engineering Predicts Over 500 Cities Will Be Built Using Digital Twins

# Section 2: Journey To Clean, Autonomous Buildings | Through Five Levels Of A Digital Twin



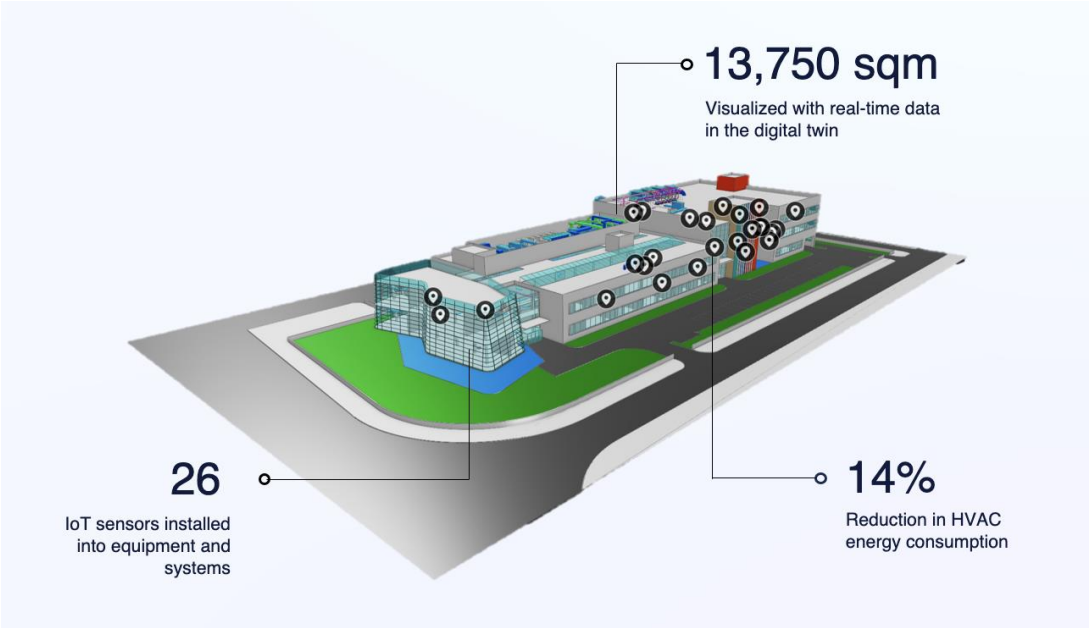
# IKEA

- 231,000 employees and €44.6 Billion in revenue
- IKEA digitized 10% of their global retail stores
- 7,000 data points from various BMS, EMS and IoT systems were connected to a single Digital Twin platform.
- The Digital Twin encompassed 34 million square feet of space and modeled 6,000 pieces of HVAC equipment from 10 different manufacturers
- **Result:** 30% reduction in energy consumption to the central HVAC system saving $720K annually.

# Saint-Gobain R&D Center

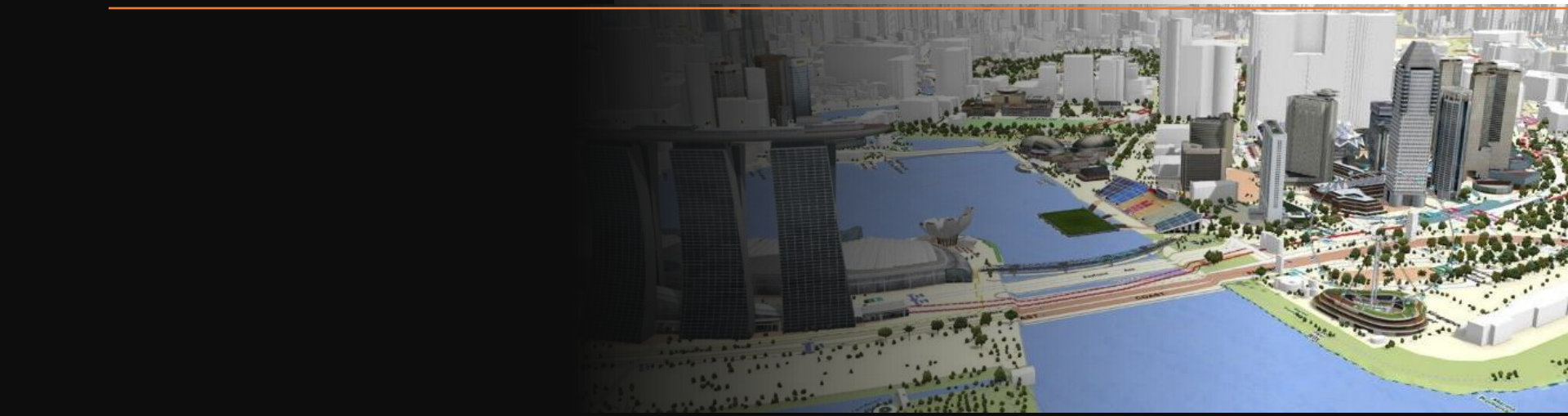
- Employees and revenue

- Built an interactive 3D model of the building and linked its operations to real-time data collected from IoT sensors tracking assets and systems



# Leveraging Digital Twins to Facilitate ESG Reporting & Running Simulations for Capital Purchases

# Singapore's Digital Twin – From Science Fiction To Hi-tech Reality

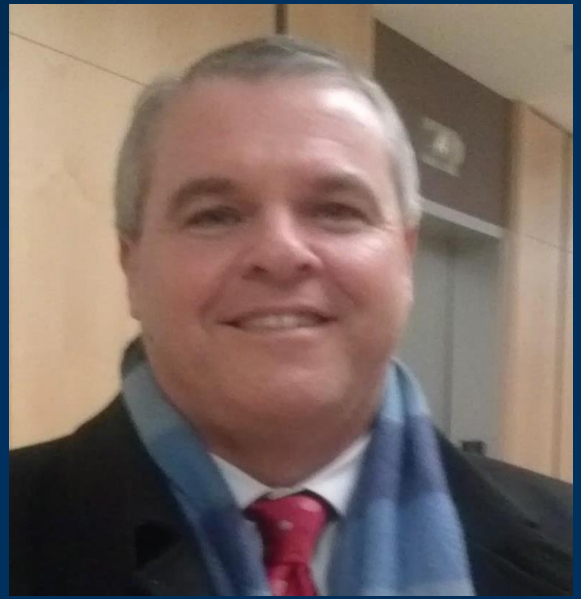
# Poll Question 3:

After today's session would you consider implementing AI-Digital Twins?

a. Yes
b. No

# Poll Question 3 Results: (Placeholder)

# Cyber and Zero Trust

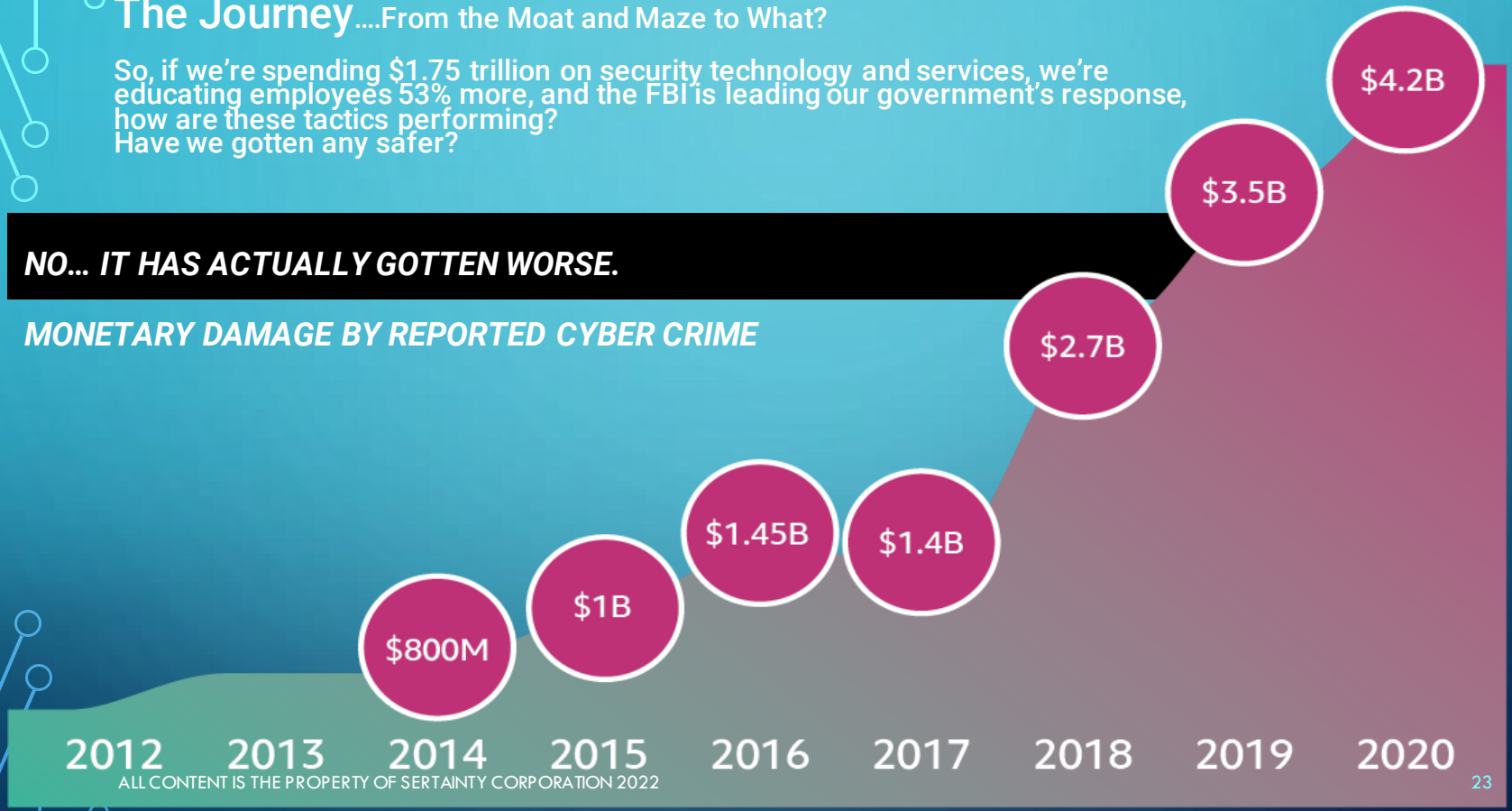


# The Journey….From the Moat and Maze to What?

So, if we're spending $1.75 trillion on security technology and services, we're educating employees 53% more, and the FBI is leading our government's response, how are these tactics performing?
Have we gotten any safer?

***NO… IT HAS ACTUALLY GOTTEN WORSE.***

***MONETARY DAMAGE BY REPORTED CYBER CRIME***



# AGE OF YOTTABYTES…

- Data is growing around 2.5 quintillion bytes of data a day due to a rise in user activities in Meta, Google, Amazon, and Microsoft as well as AI/ML and Deep Learning constructs, which require a continuous consumption of vast volumes of data for activities such as large language modeling.
- The current global supply chain is projected to grow to 200 zettabytes by 2025 with 55.7 billion connected IoT devices generating 80B zettabytes of data.
- By the end of 2030, we will probably reach 1000 zettabytes—entering the age of yottabyte…

# WE CATEGORIZE DATA INTO TWO STREAMS: PERSISTENT AND TRANSIENT

- The emphasis is on unstructured data (data that resides outside the database). Whether “at rest” or “in transit,” or “under process” internal to an application (such as a cyber-security app), this is data that could be stored physically in any digital form in data lakes, as spreadsheets, word docs, images, audio, integration files, “key stores,” or in archives, tapes, off-site backups, mobile devices, USB drives, etc.
- The emphasize is on Industrial Control System (transient) data: information which does not ”persist,” typically, once delivered, is never retained but is essential to the operations of a system.

# NEED TO MIGRATE TO A DATA-CENTRIC PARADIGM

- US Army - Data Security "Adversaries are not stealing our networks; they're stealing the data on the network… So, if the data isn't protected at the data level [instead of] at the perimeter level… then we're not going to survive moving into the future." Thomas Sasala, Director of the Army Architecture Integration Center and Chief Data Officer at the U.S. Army.
- GOOGLE: "Shifting the focus of security from the technical hygiene of code and configuration to self-defending data, will save time and resources while unlocking rapid and safe innovation." Royal Hansen, Google Security VP, 2021 RSA Conference

# DEEP AND BROAD IMPACT

- Create a Zero-Trust-Architecture at the data level, to enable DevSecOps and Digital Twinning capabilities for software developers, systems integrators, and their end-users to resolve cybersecurity exposures and big picture issues regarding Enterprises, 5G Communications, Blockchain, AI and IIOT.

# Poll Question 4:

Are you familiar with implementing Zero Trust in a Data Supply Chain such as Software Billing of Material (SBOM)?

a. Yes
b. No

# Poll Question 4 Results: (Placeholder)

# DATA LAYER - CENTRIC CONSTRUCT

Unprecedented data breach prevention capabilities

Persistent, Full Life Cycle Protection of Data

Robust Data Privacy Compliance

**Attributes of Self Protecting Data**

- Governance
- Provenance
- Key Management
- Security

Simplified auditability, tracking and reporting

Suitable for your most critical data transmissions

Cost Saving, Self Protecting Data

No disruptions to workflow, saving precious time

Serverless solution

# WE MUST MAKE DATA SELF-AWARE AND SELF-PROTECTING

- Transmission Level Security
- Network Level Security
- System Level Security
- Application-Level Security C
- DATA as a New End-Point and an Independent Layer in the Security Fabric

# Commercial Attributes of Data-Layer Technology:

- Security centered on data, rather than networks.
- Security centered on workflows, rather than infrastructure.
- Distributed architecture premised on customer-centric designs, cost optimizations, and service agreements.
- Data, processes, and workflows, constructed along a fixed duration or lifecycle.
- Convergence between OT and IT environments.
- Distributed decision-making capabilities - by making data Self-Aware, to aggregate and streamline its ingestion, for precision and qualification of AI training.
- Quantum resistance.

# Questions and Answers

**Jian Xiao, CPA, CMA, CGMA**
**Accounting Lecturer and Entrepreneurial Fellow-Blackstone LaunchPad**
Queens College School of Business

**Philip Panaro**
**Independent Senior Advisor**
Deloitte & Touche LLP

**Amir Sternhell**
**Chief Strategy Officer**
Sertainty

# Thank you!


The Association of
Accountants and
Financial Professionals
in Business