7 février 2017
Beauce Numérique

TENDANCES TECHNOLOGIQUES STRATÉGIQUES POUR L'ANNÉE 2017

François Banville, partenaire exécutif chez Gartner

BEAUCE NUMÉRIQUE

Intelligent

Advanced Machine Learning & AI

Intelligent Apps

Intelligent Things

Digital

Augmented & Virtual Reality

Digital Twin

Blockchain & Distributed Ledger

Conversational Systems

Digital Technology Platforms

Mesh App & Service Architecture

Adaptive Security Architecture

Mesh

Intelligent Digital Mesh

By 2020, **20%** of enterprises will employ dedicated people to train neural networks.

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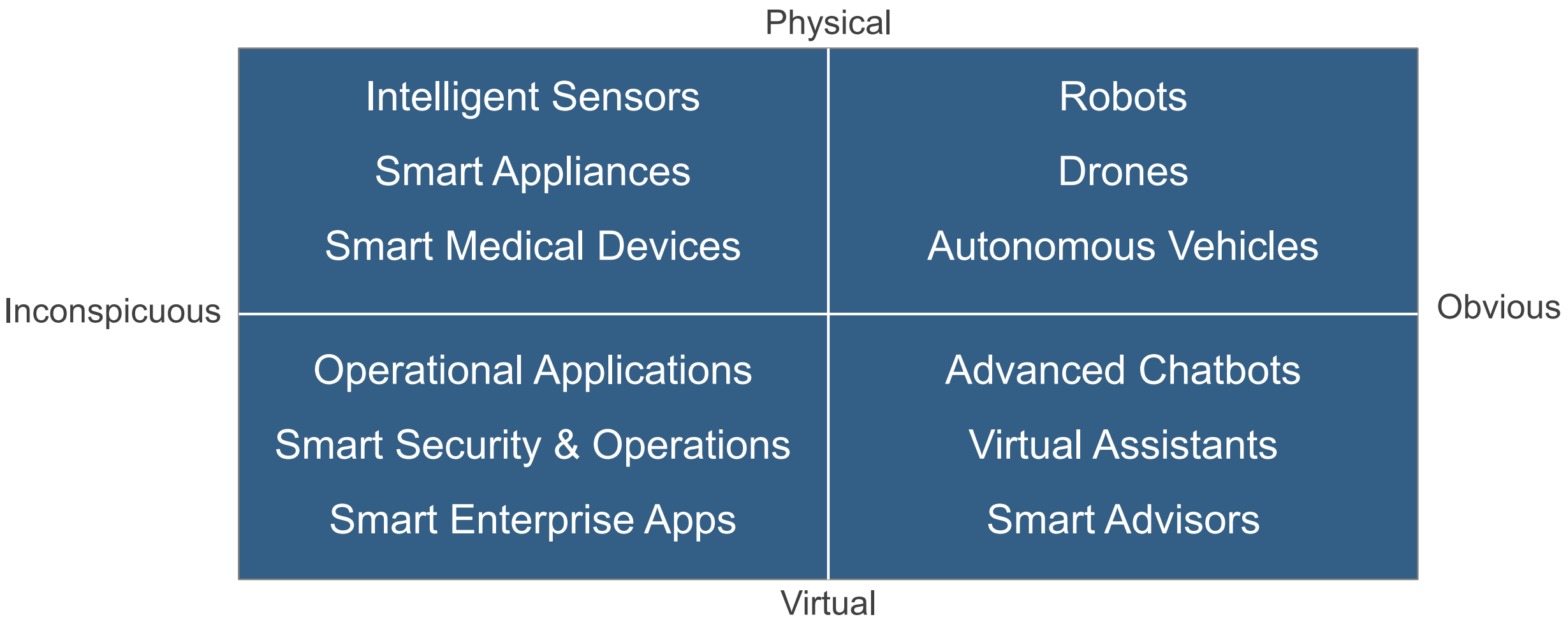
Artificial Intelligence and Machine Learning

Well-Scoped Purpose	**Evolution of Data Science**
Deal With Complexity	**Model-Driven, Content as Code**
Understand, Learn, Predict, Adapt	**DNN and Inference Engines**
Act Autonomously	**Context- and Event-Driven**

Intelligent Apps and Intelligent Things: Intelligence Anywhere and Everywhere



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Opportunity

- Move from manual to automated inspection of burger bun production to ensure and improve quality

Data and Analytics

- Photo-analyze over 1,000 buns per minute for color, shape and seed distribution
- Continually adjust ovens and process automatically

Result

- Eliminate thousands of pounds of wasted product per year
- Speed production; save energy
- Reduce manual labor costs

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Memorial Sloan Kettering Oncologist Advisor

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Intelligent Things: Everything Can Be Intelligent

Consumer Things

Healthcare Things

Embedded Things

Pre-AI AI-Enabled

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Intelligent Things: Autonomous Vehicles in Specialized Environments

Intelligent Things: Autonomous Vehicles for General-Purpose Road Use

Today

2020-2030

Technology Will Not Be the Driving or Limiting Factor

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Intelligent Things: Retail Robots

Autonomous Navigation
Smart laser sensors

3D and Product Scanner
Human body detection

Customer Engagement
Speech recognition
Product information and location
Inventory integration
Beacons

Location-Based
Special Offers

Obstacle Avoidance
Smart laser sensors

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Hotel guests are greeted by 10 lifelike robots at Henn-na Hotel in Nagasaki, Japan, removing all human staff from reservations.

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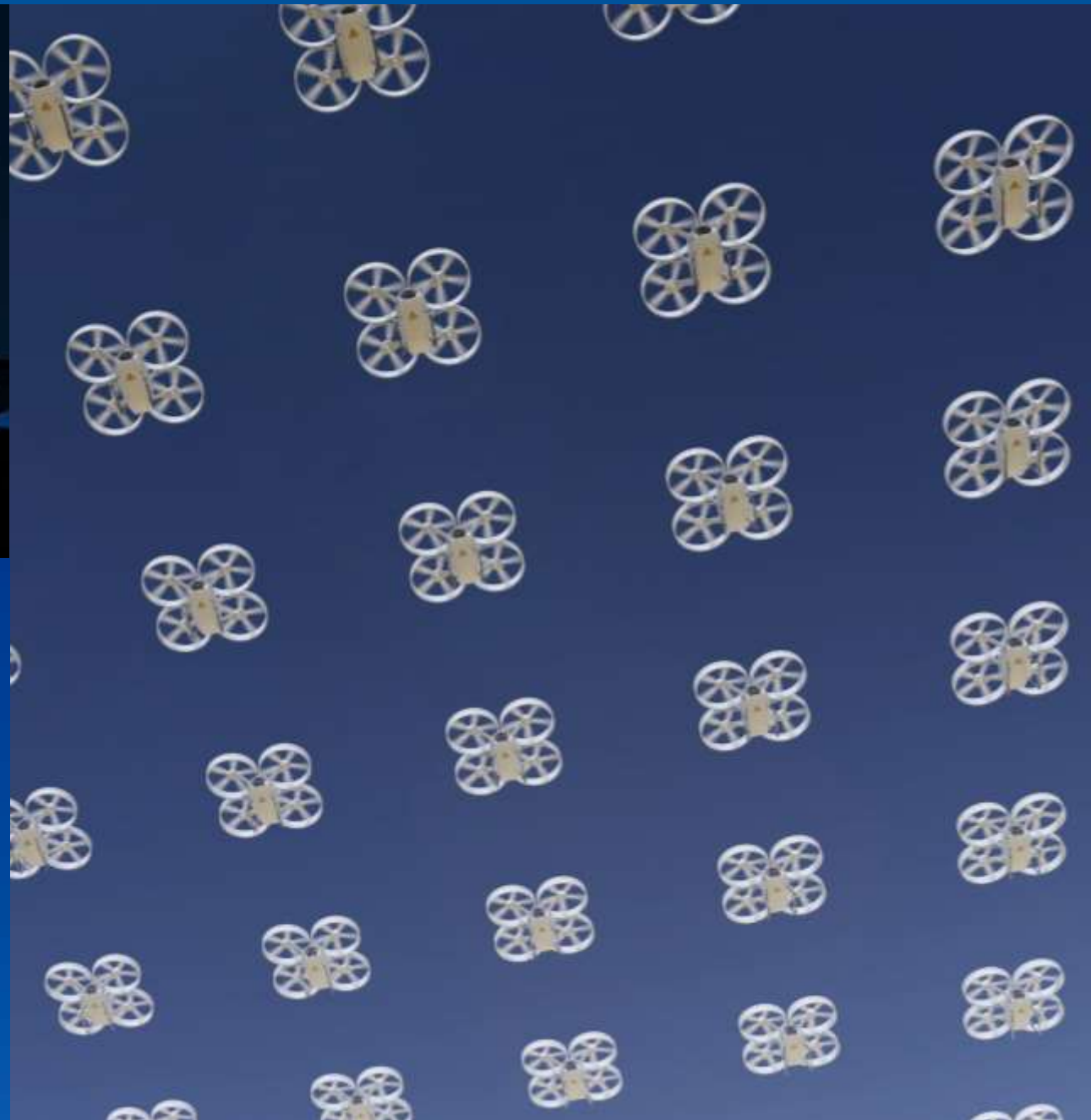
Intelligent Things: Collaborative Intelligence



Intelligent Digital Mesh

CEOs expect that, by 2020, **46%** of the customer-perceived value proposition of their products and services will be digital.

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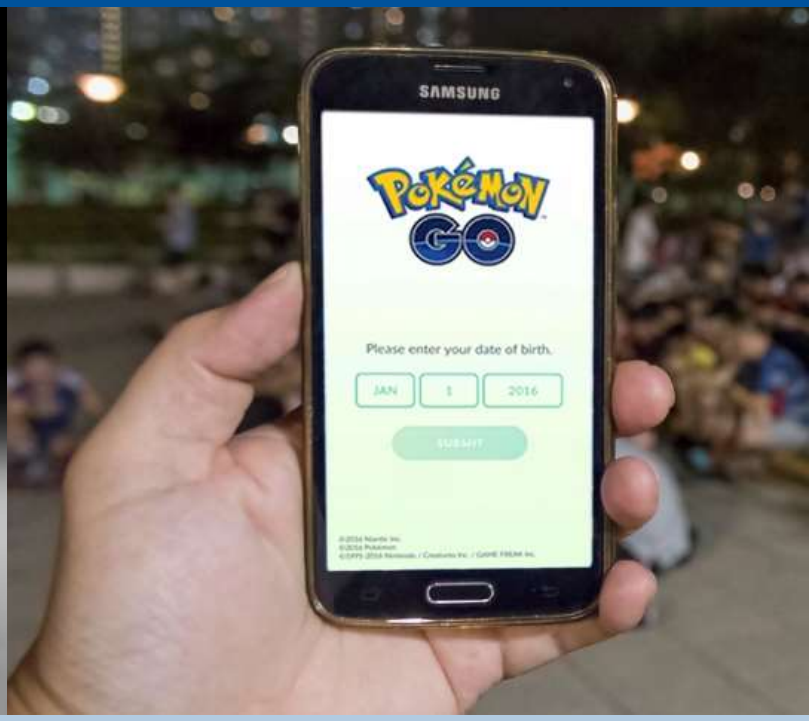
Virtual and Augmented Reality: It Creates an Immersive Digital World

Explore Your Trip

Plan Your Project



Game Your Reality

Mobile

HMD

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Virtual and Augmented Reality: Enabling Digital Business Moments and Models

Simulated Experiences

Healthcare Therapies

Molecular Modeling

Robot Lets Kids in Hospital Explore Zoos Through Virtual Reality

Image credit: Robots for Good, courtesy of Richard Hulskes

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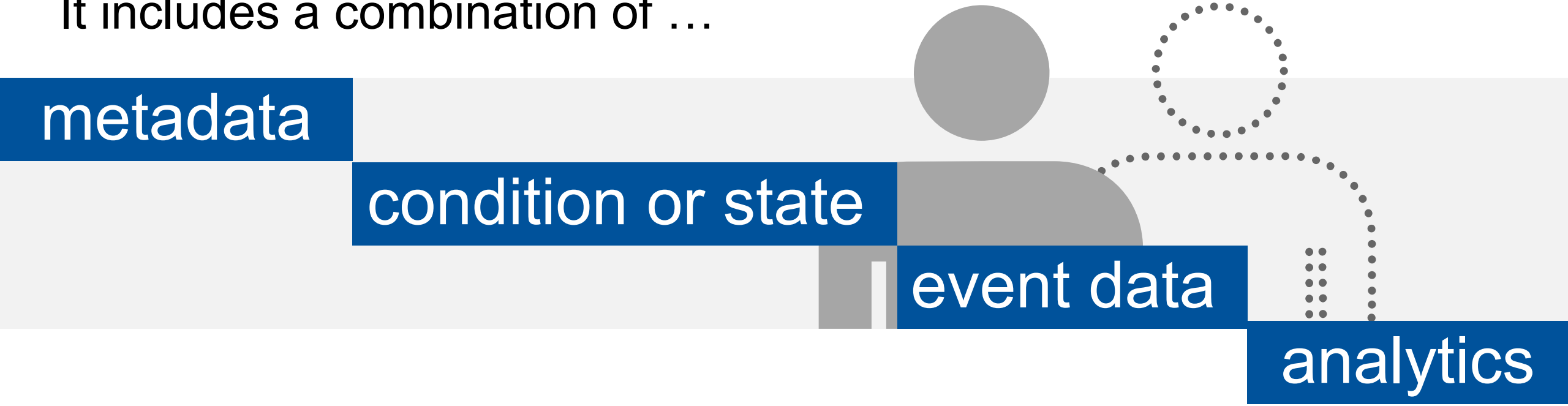
Digital twin is a dynamic software model of a thing or system that relies on sensor and/or other data to understand its state, respond to changes, improve operations and add value.

It includes a combination of …



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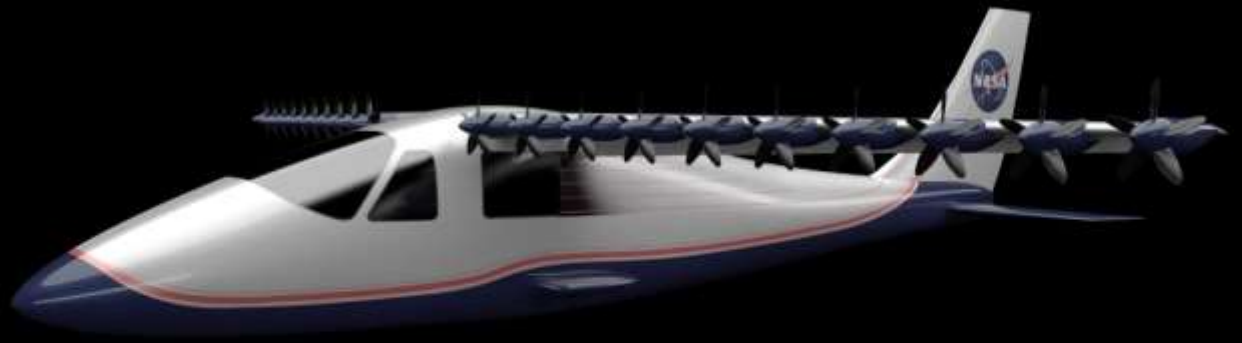
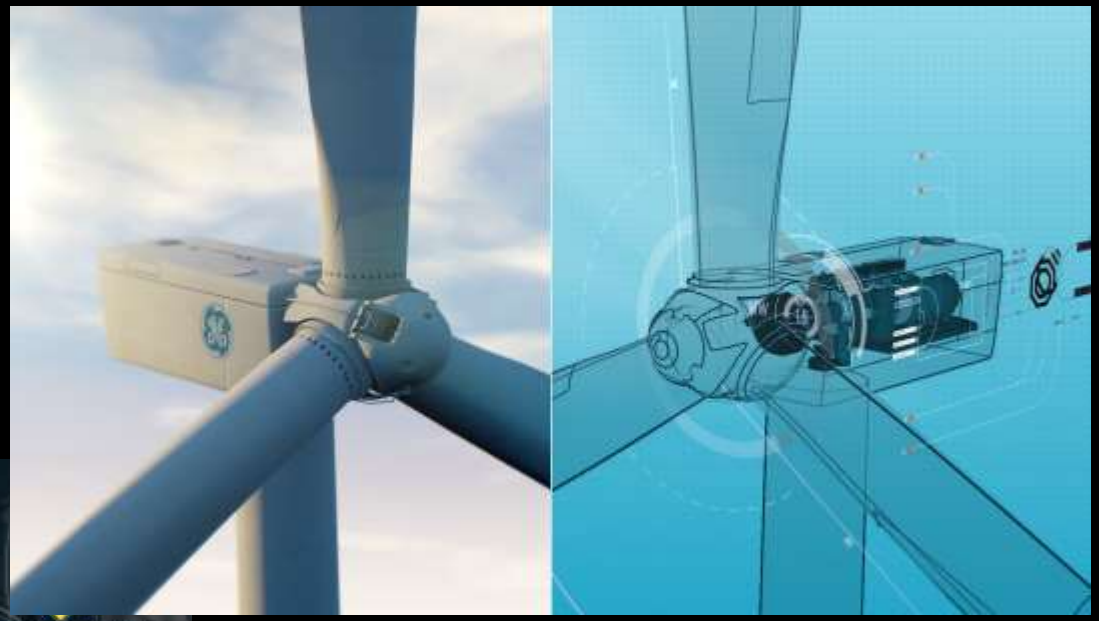
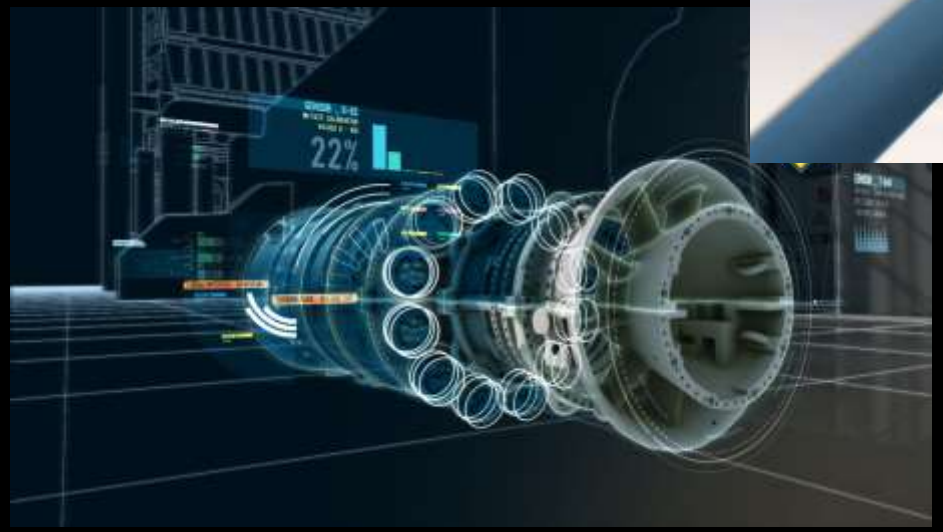
Digital Twin: The IoT Revolution Heightens the Potential



NASA





GE

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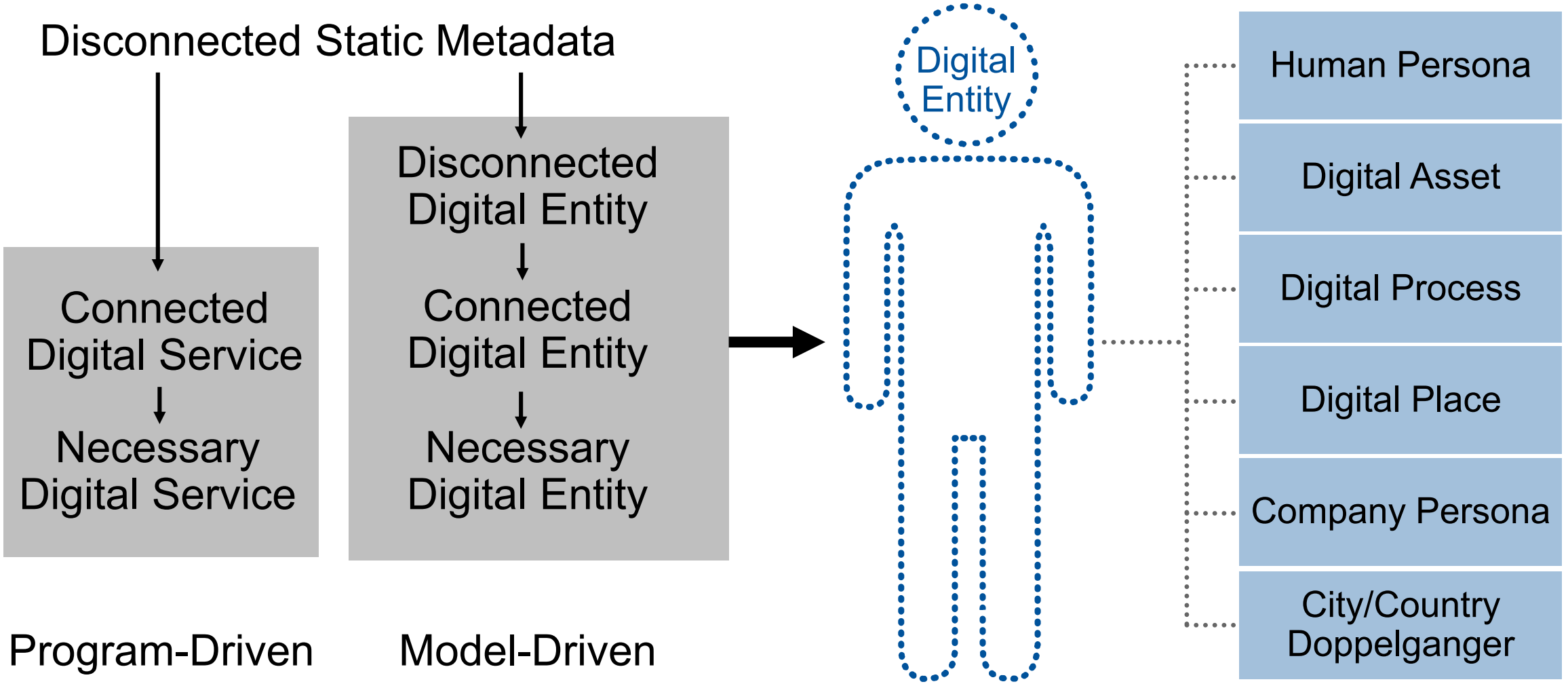
Digital Twin: An Evolving and Expanding Digital Universe



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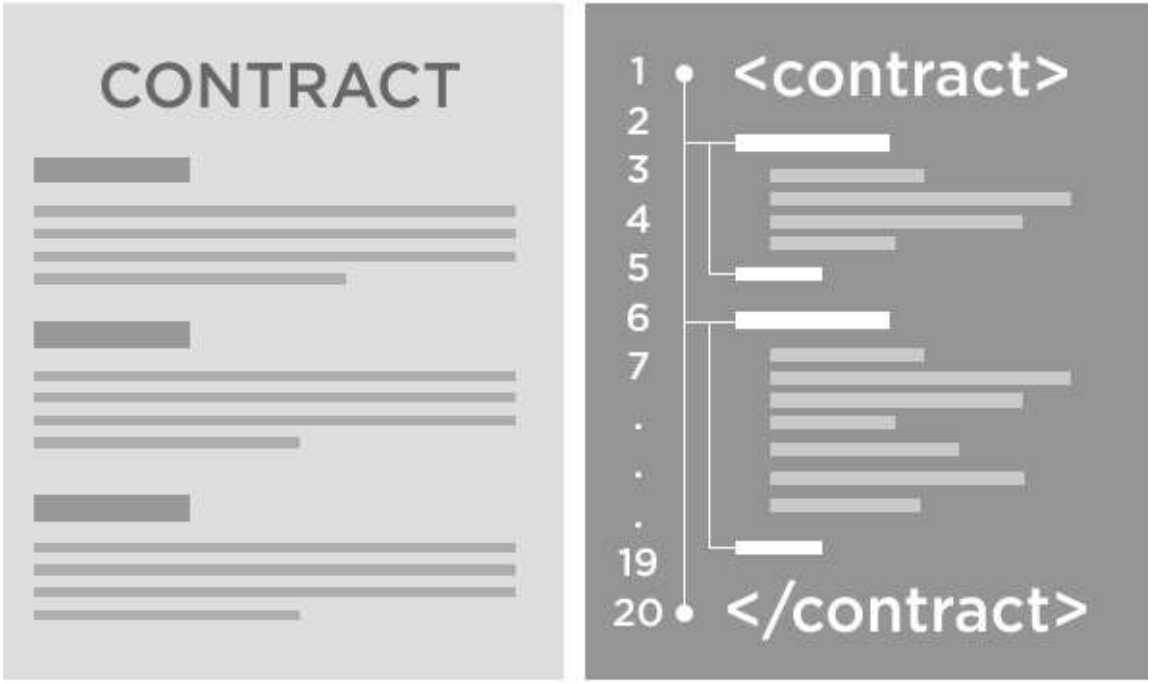
Blockchain and Distributed Ledger: An Emerging Digital Platform

- Mechanism for adding trust in an untrusted environment
- An irrevocable record of significant data and events, such as monetary transactions, property records or other valued assets
- Not just a passive data record, but can optionally add dynamic programmed behavior to events



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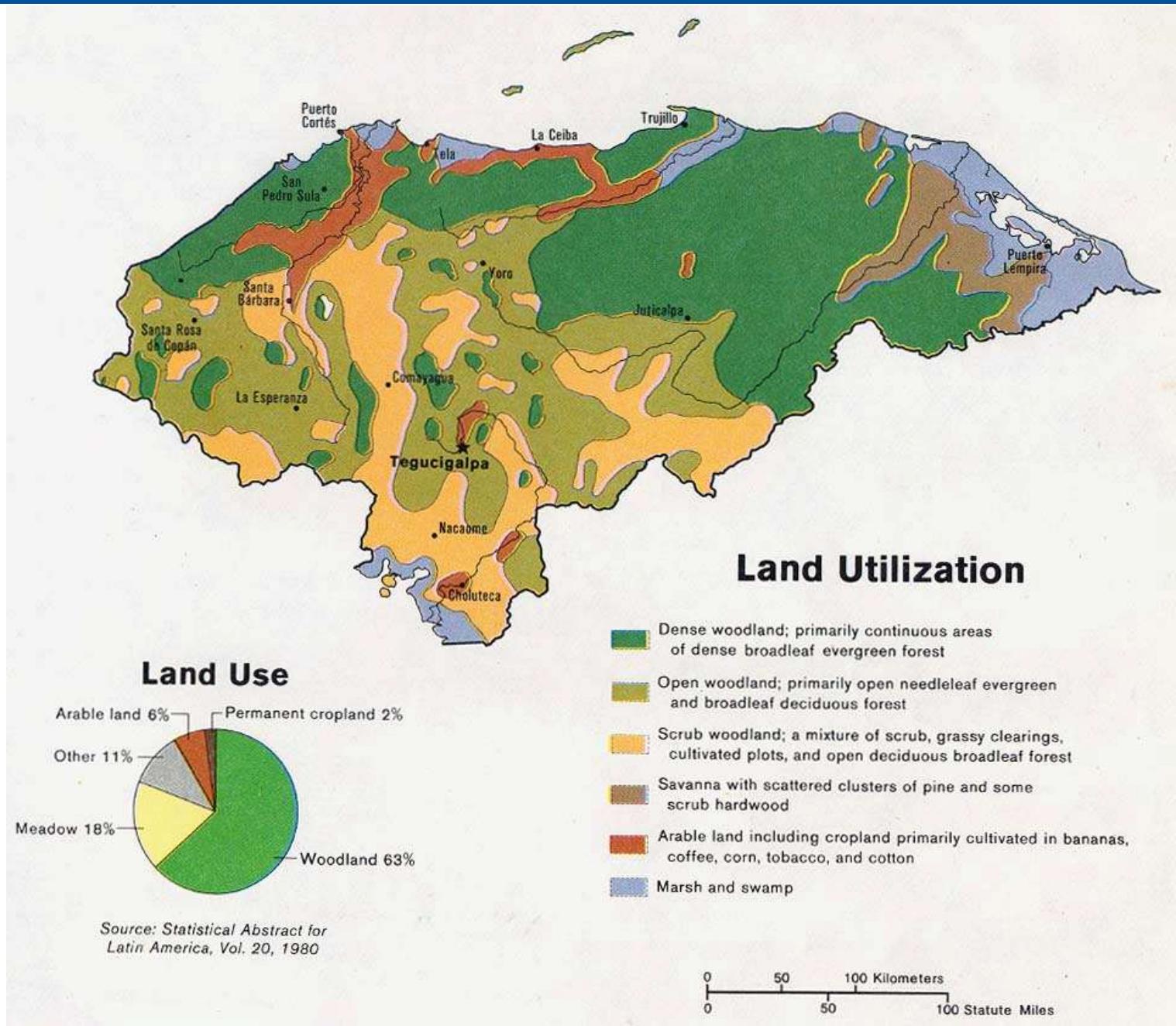
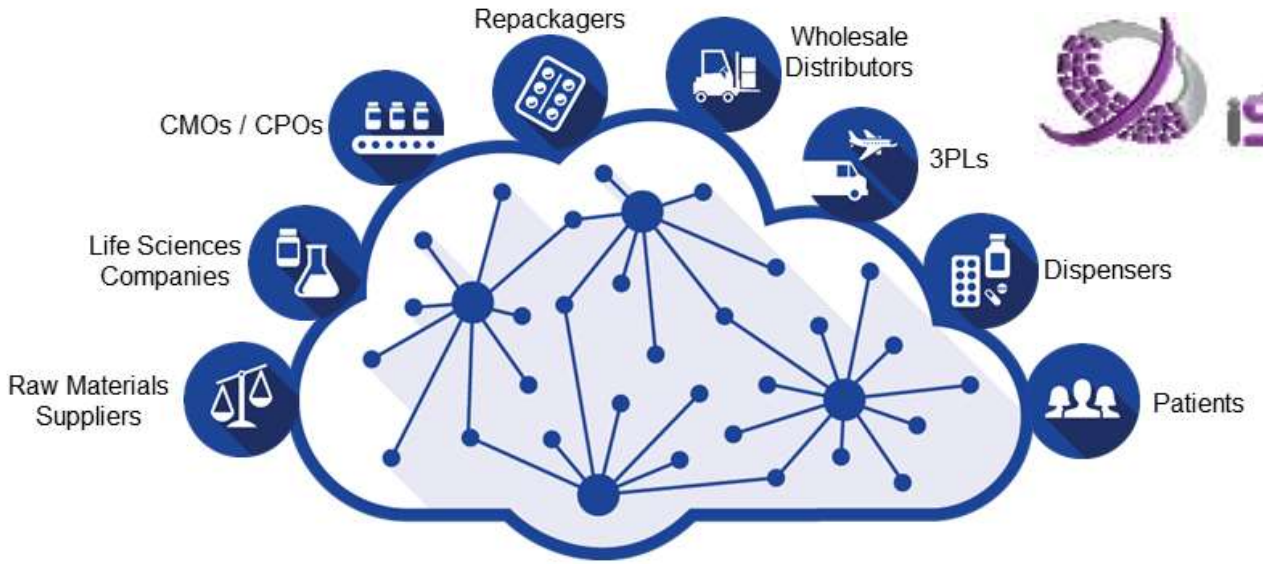
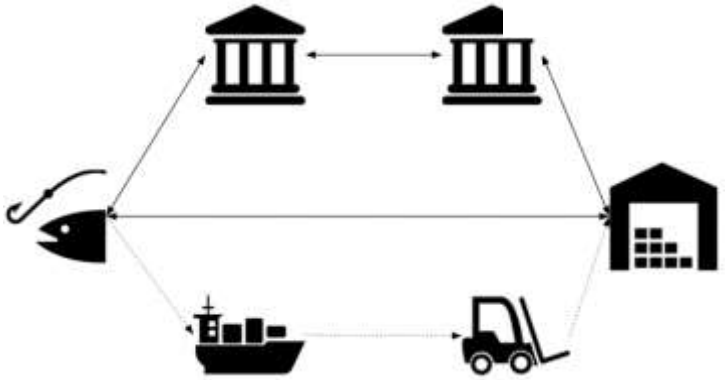
Honduras will use blockchain to build a secure land title record system



Blockchain and Distributed Ledger: Trillion-Dollar Opportunity in Supply Chain





BLOCKCHAIN for commodities @GFT

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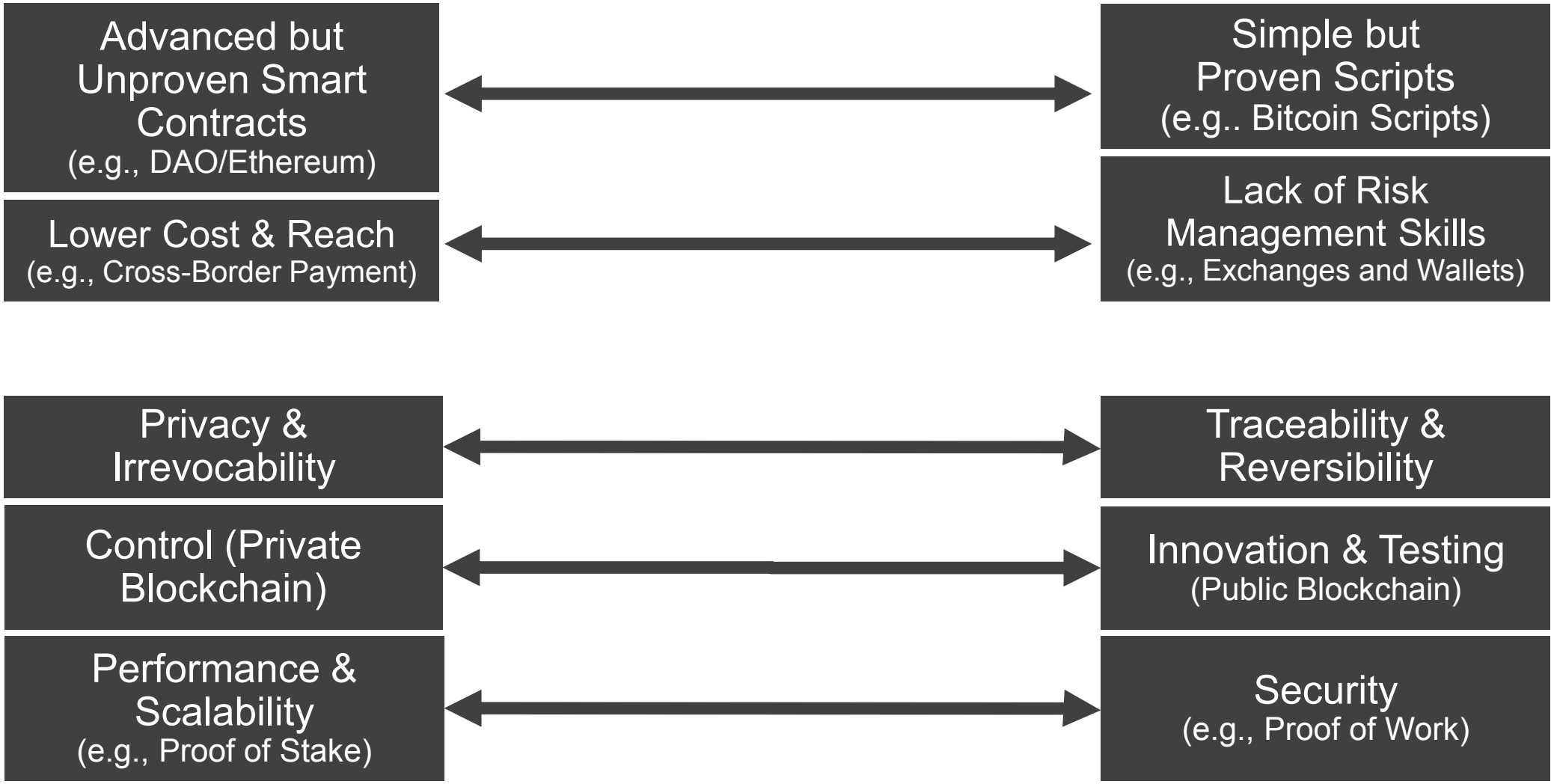
Blockchain & Distributed Ledgers: Understand Technology Trade-Offs & Maturity Level



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Intelligent Digital **Mesh**

>26B

connected IoT sensors and endpoints deployed by 2020

25

or more conversational AI systems by 2018

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Conversational Systems: The Mesh Is Dynamic and Pervasive

Work

Home

Car

A Shifting Set of Endpoints

Desk

Person

Environment

At the Game

With Customer

Restaurant

Away

Retail

Chatbots and Personal Assistants as Conversational Intermediaries

With Intelligent Cloud Services

Xiaoi

Image © Apple

Siri

Image © Microsoft

Cortana

Image Amazon

Amazon

… Just the Beginning

Conversational +

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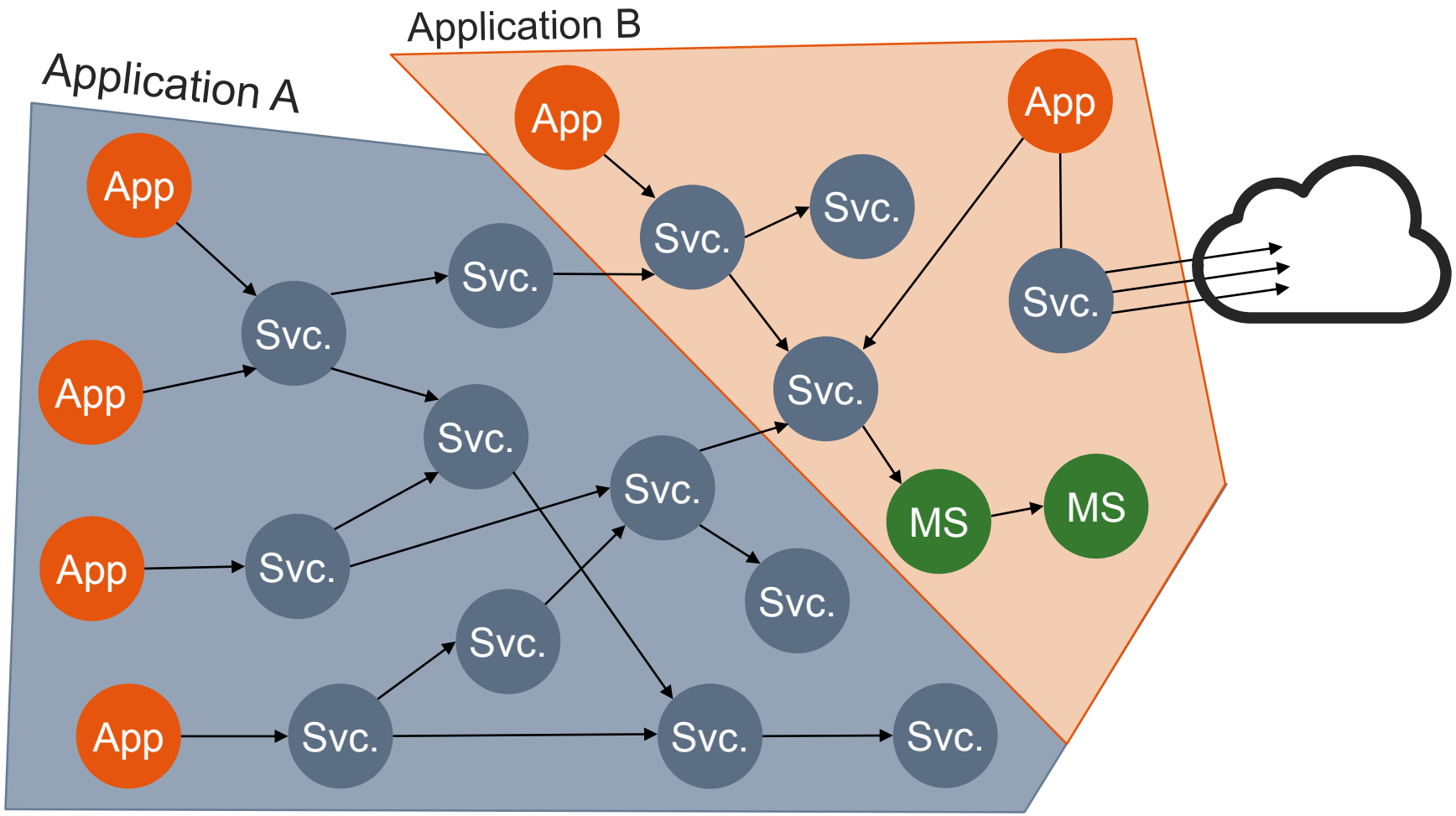
Mesh App and Service Architecture: Agility and Flexibility Drive the Design

- Cloud-Based
- Serverless
- Service-Oriented
- Software-Defined (APIs)
- Event-Driven



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Digital Technology Platforms: Conversational AI-Powered Platforms

Conversational AI and IoT	**2017 onward**
Mobile and Cloud	2007-20
Internet and Web Applications	1998-20
Client/Server and GUIs	1990s
PCs and File-Sharing LANs	1980s
Minicomputers	1970s
Mainframe Systems	1960's

"Alexa order a pizza"

amazon echo

+

[redacted]

The ability to converse with AI-enabled platforms transforms the customer experience. CEOs must ensure their CIO/CTO is actively engaged.

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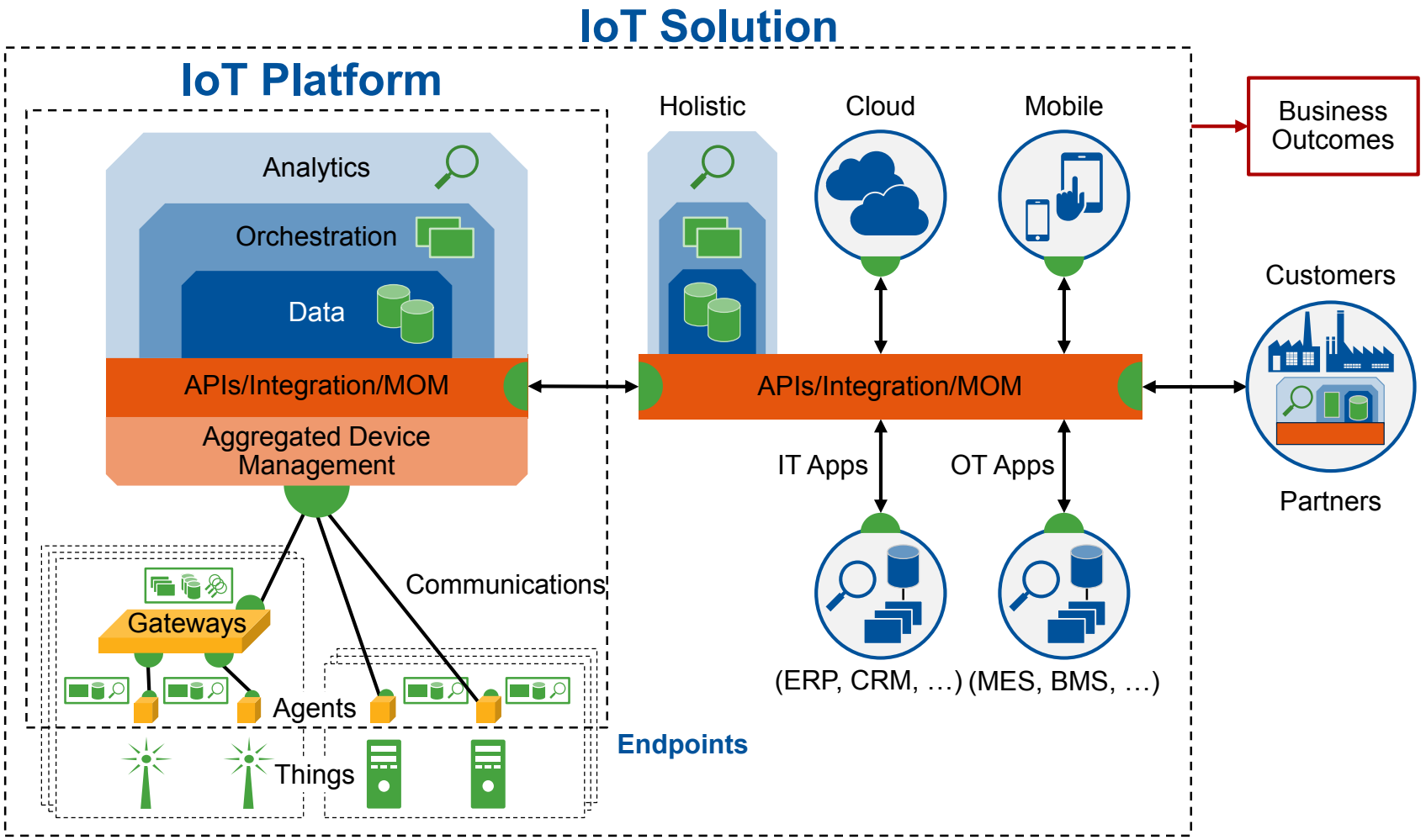
Digital Technology Platforms: IoT Platforms Are Necessary for Solution Success



Microsoft Azure

ORACLE

Google

SAP

GE

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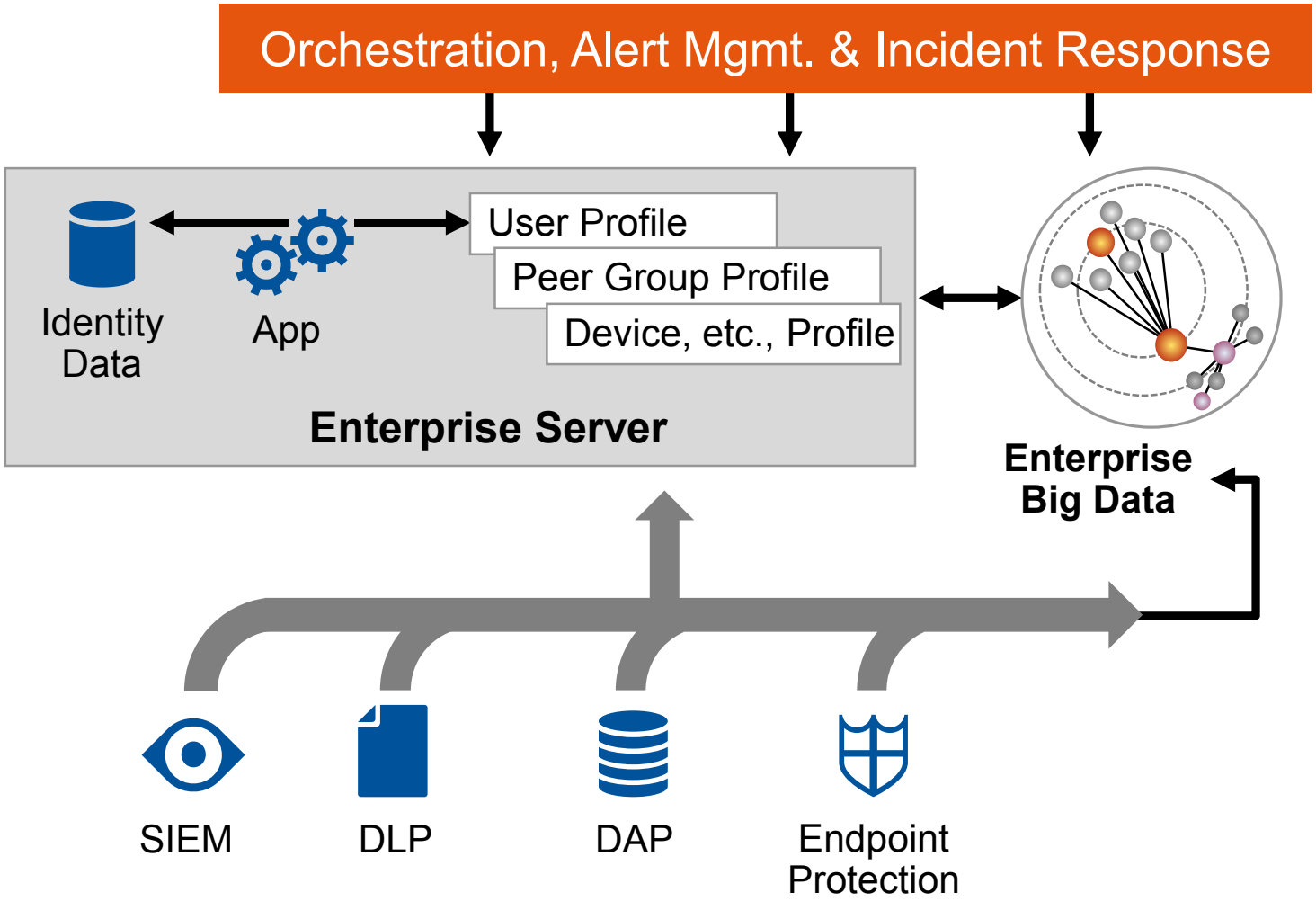
Adaptive Security: Continuously Analyze User and Entity Behavior



External Identity and Threat Intelligence

1. Review; Rules/Score
2. Continuous Profiling
3. Continually Analyze and Authenticate

Transaction Context

Device, Location, Behavior
Transactions, Attributes

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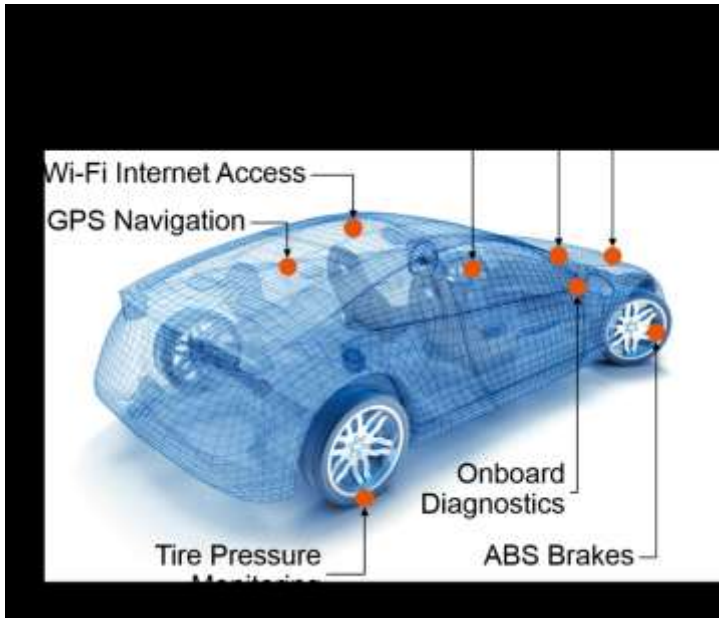
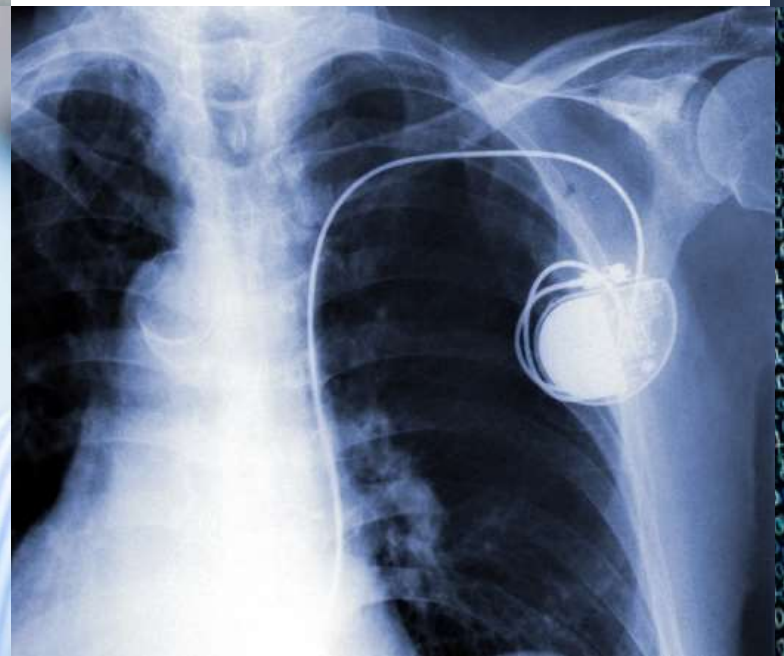
Adaptive Security Architecture: Securing the Intelligent Digital Mesh





Intelligent Digital **Mesh**

Bonus Round

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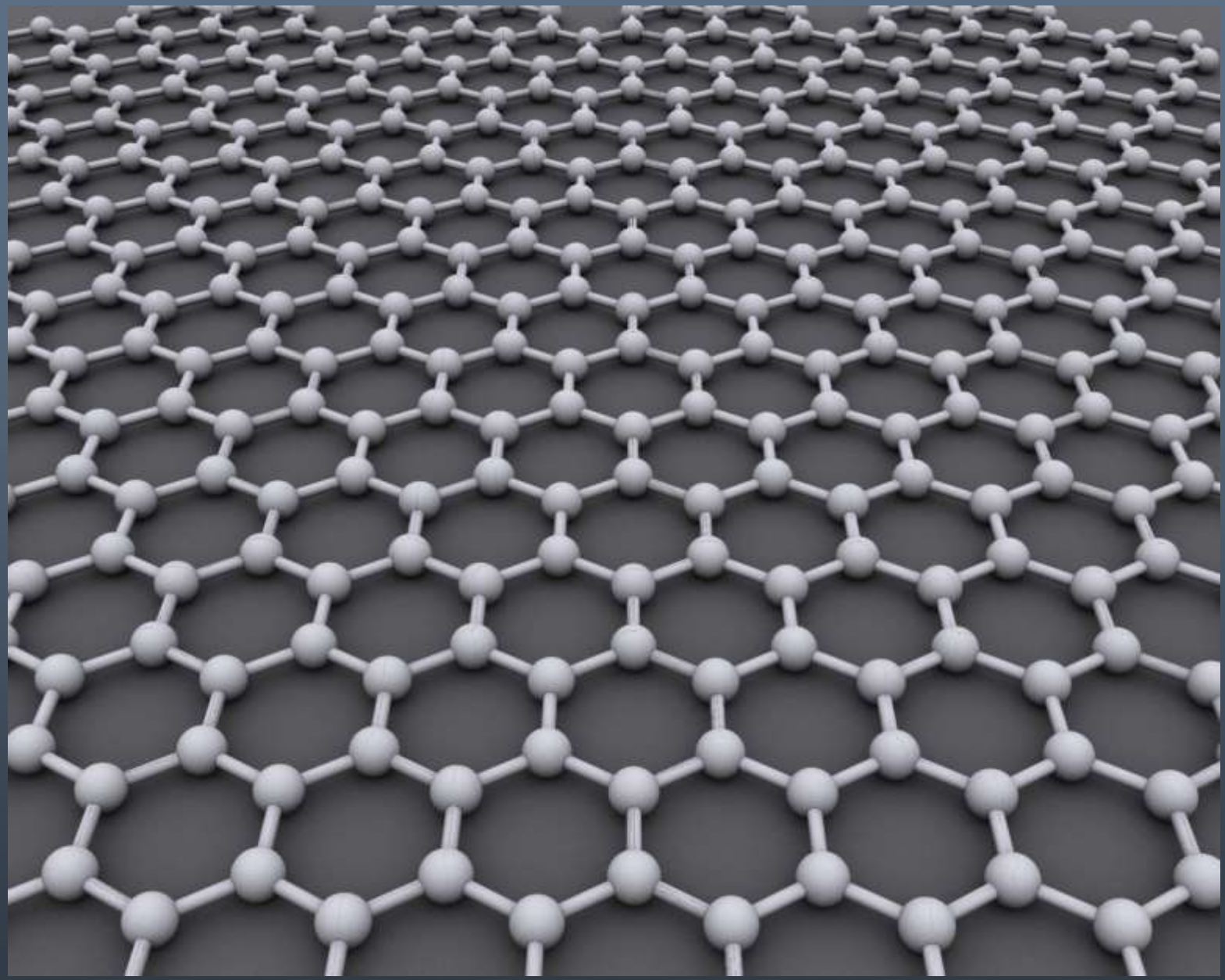

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Graphene: research now, reap next decade

Deloitte Global predicts

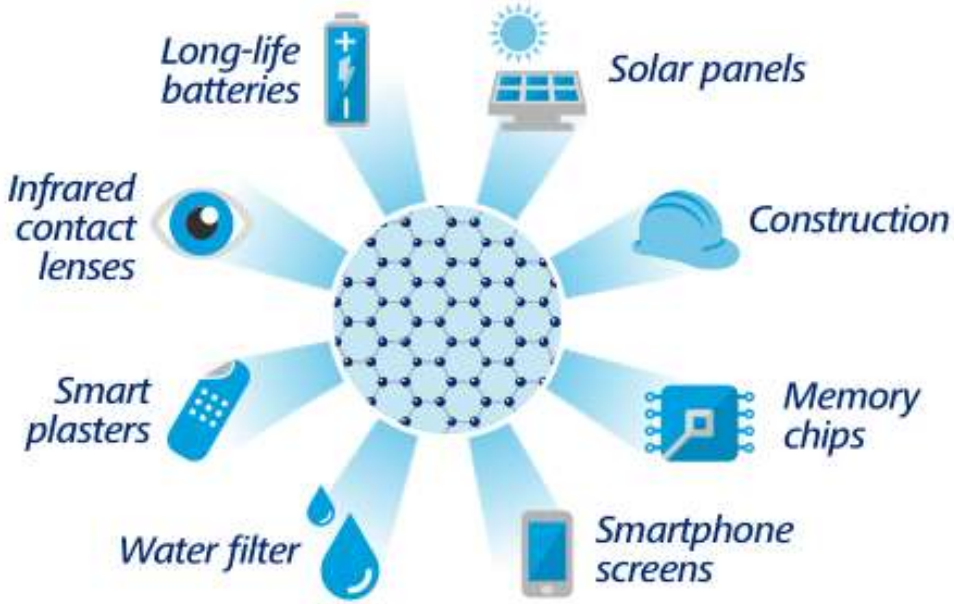
the total value of the graphene materials market in 2016 is likely to be in the

low tens of millions of dollars

yet research and development spending is likely to be in the

hundreds of millions of dollars

Graphene could be used for



Graphene is a *two-dimensional structure single atom thick,* which is *a million times thinner than a human hair* and *stronger than steel*.

GTA

Intelligent Digital Mesh

By 2022, IoT will save consumers and businesses **$1 trillion a year** in maintenance, services and consumables.

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Intelligent Digital Mesh

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François Banville, partenaire exécutif chez Gartner

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