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A Look Ahead: How IoT, AI, and Blockchain will Shape the Intelligent Business Network

April, 2018 | Mark Morley

Agenda

- Ecosystem evolution
- Progress of digital transformation
- The autonomous supply chain
- The intelligent business network



opentext[™] | Business Network



Digital Transformation and Ecosystem Evolution

Changing market conditions



Political change & trade restructuring



Accelerated market dematerialization



Increased regulatory compliance



Unprecedented digital transformation



Consumer-driven industry convergence



Increasing levels of M&A/JV activity

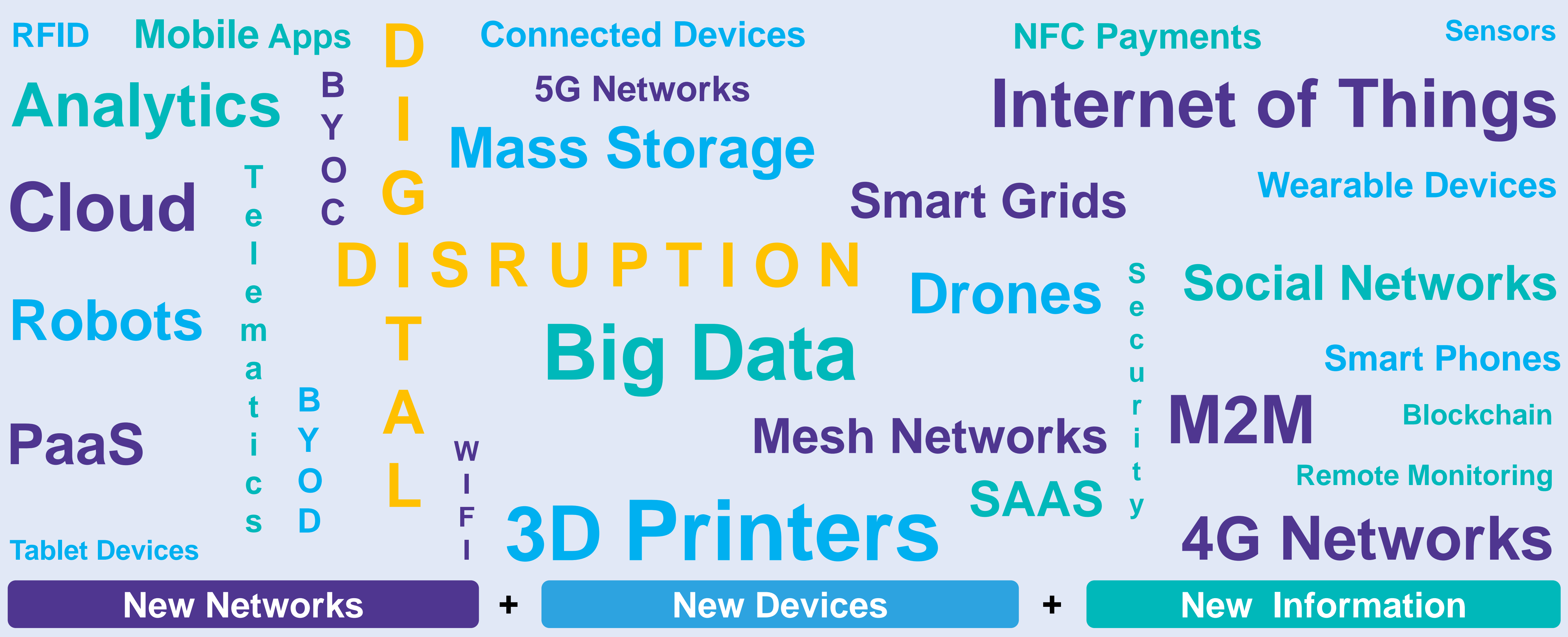


Market & channel expansion



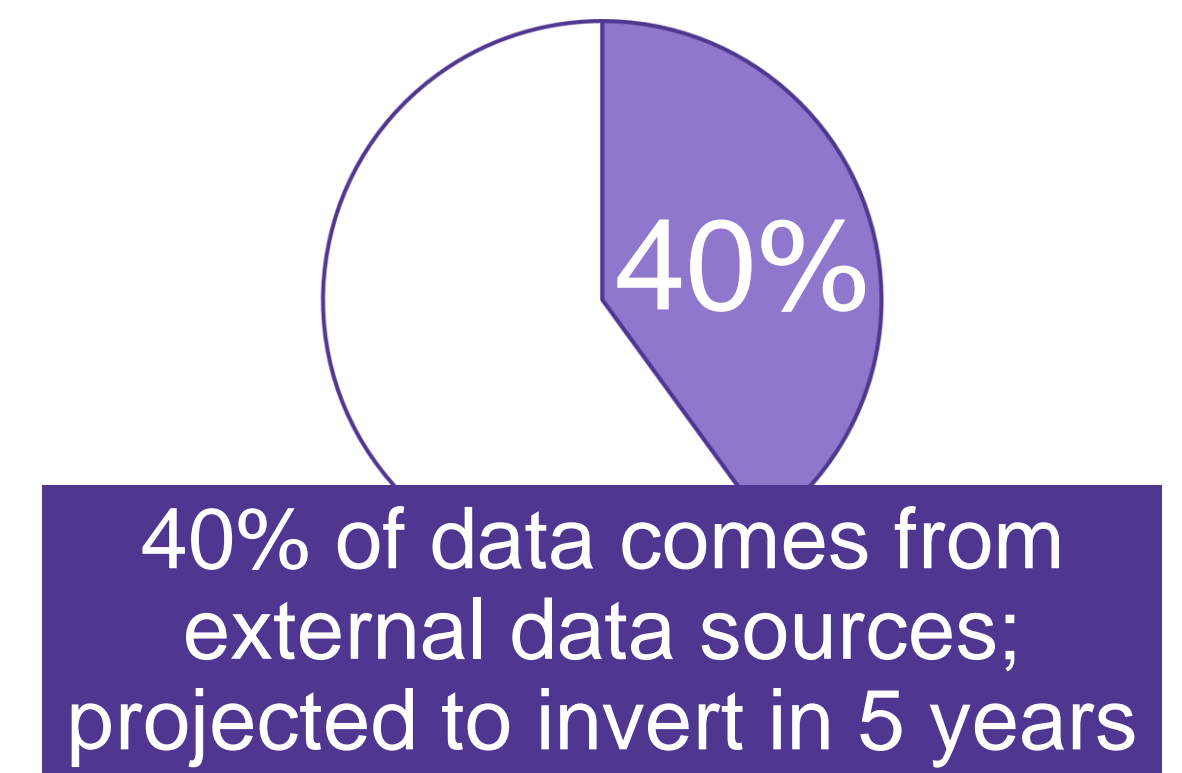
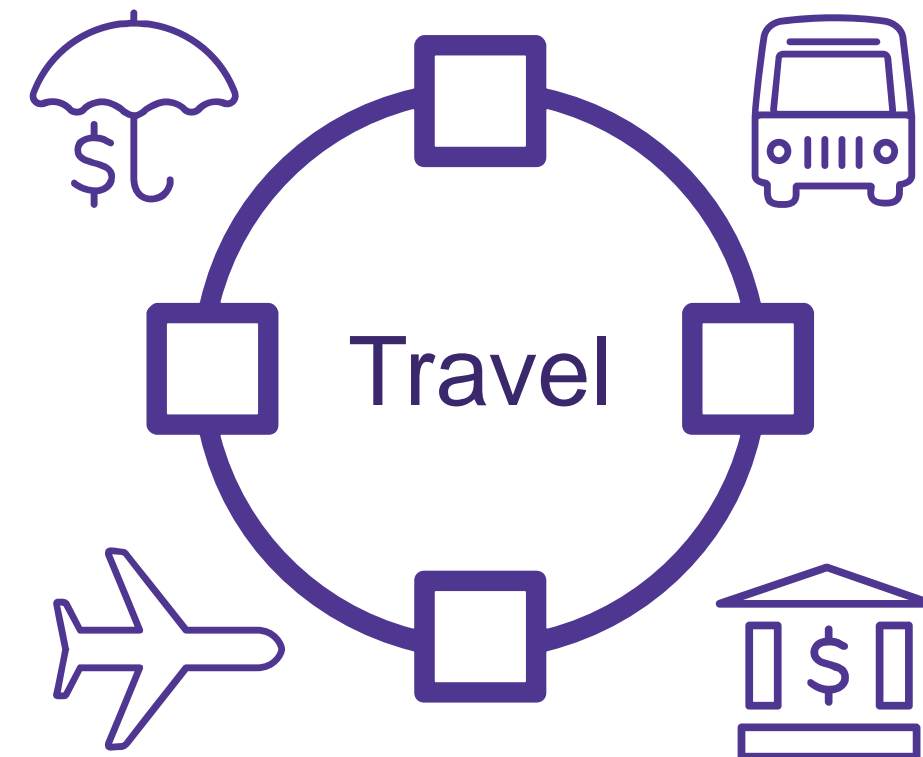
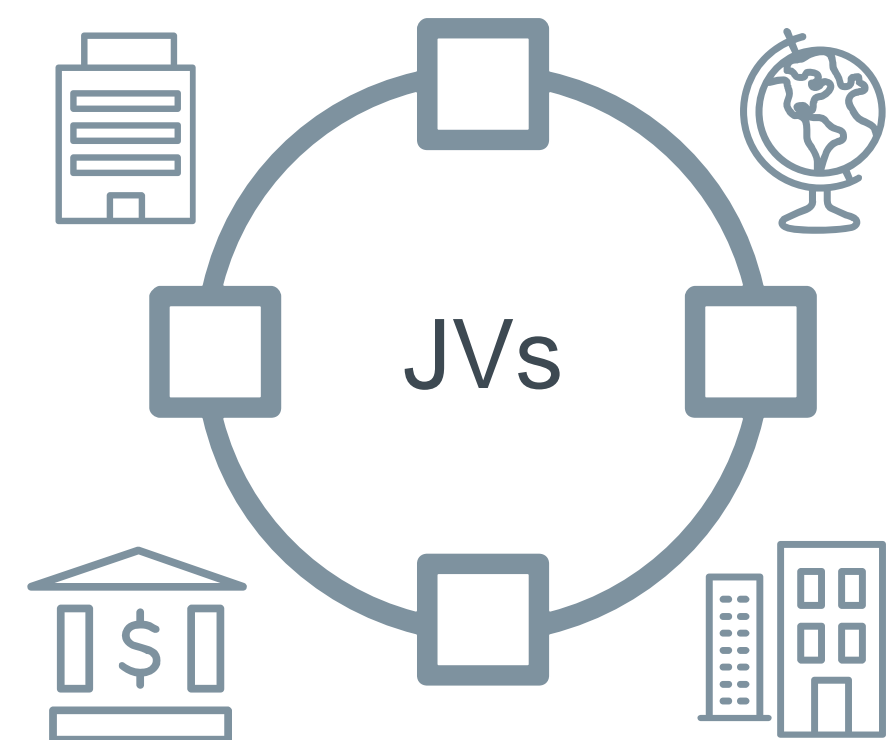
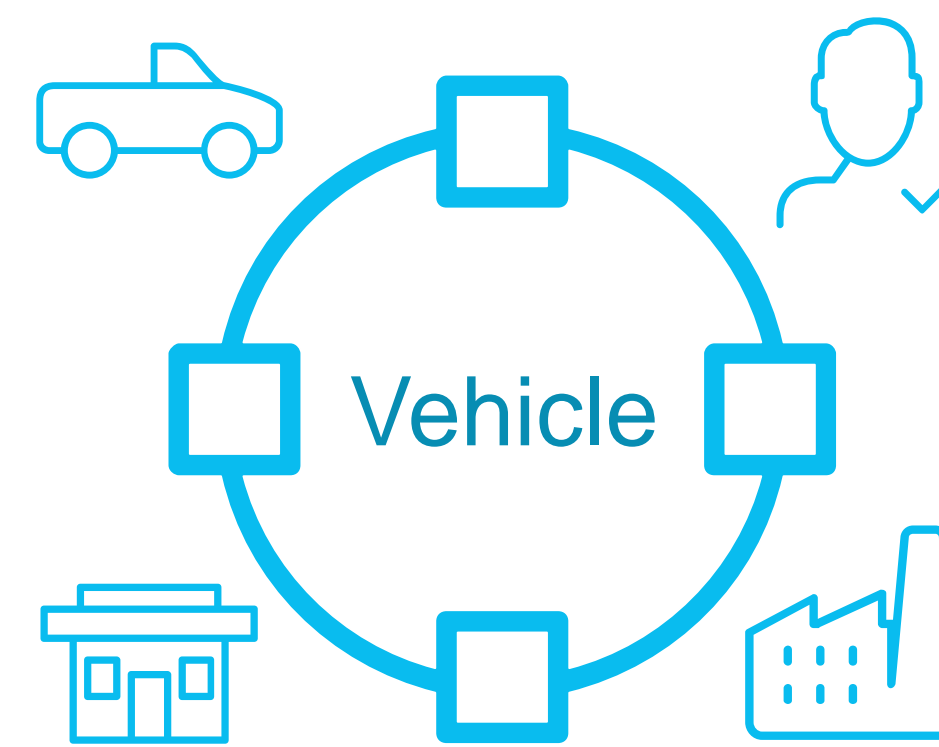
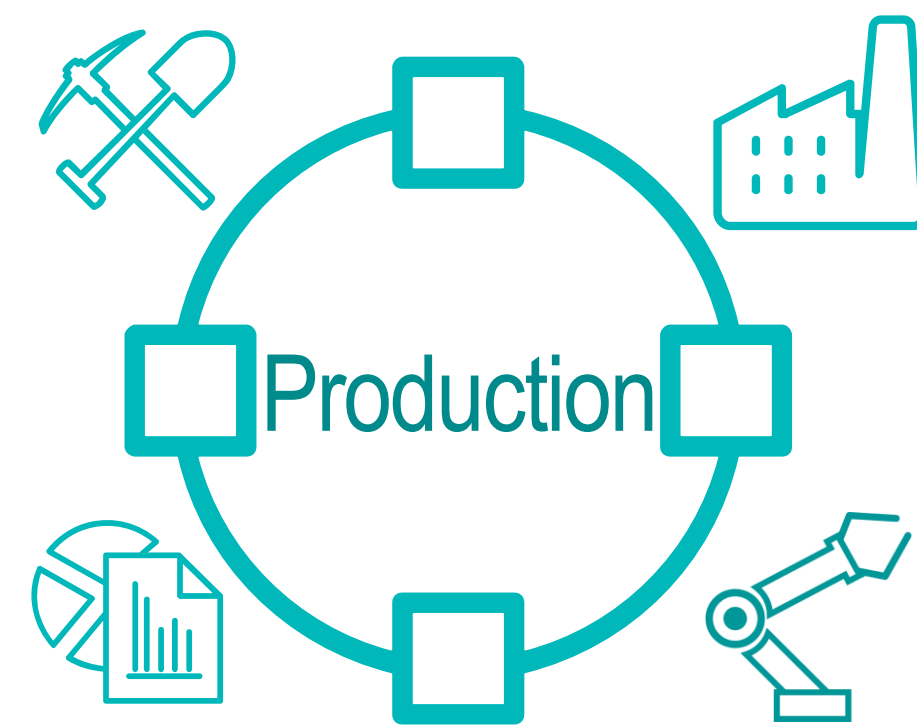
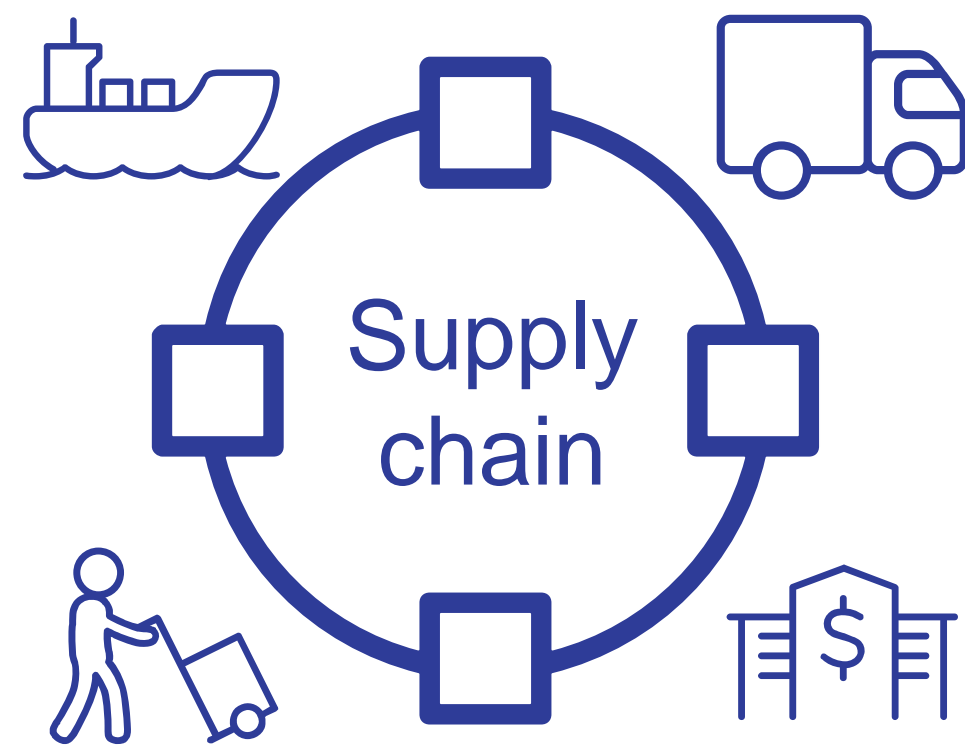
Modernizing enterprise business systems

Embarking on a journey of digital transformation

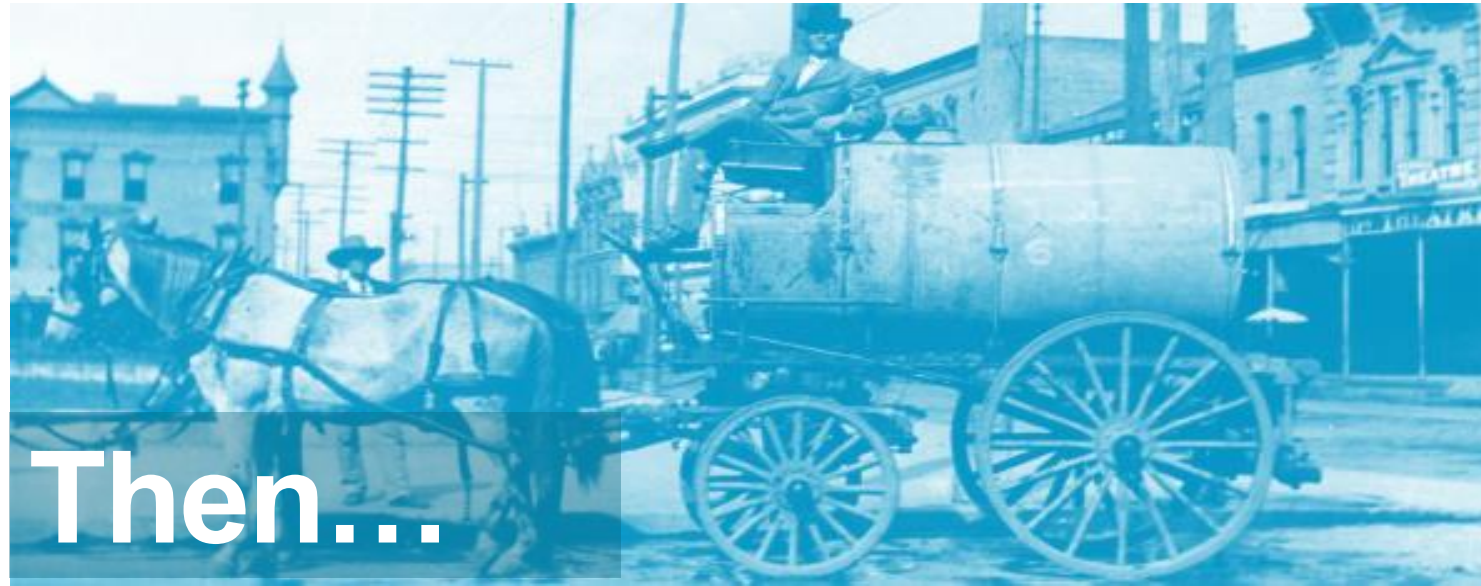


New sources of information will need managing & analyzing across the enterprise

Transformation impacts your business ecosystems



Supply chain ecosystem evolution



- Rigid, linear hand-offs—a chain
- Volume production, mass markets
- ‘Just in case’ inventory
- Capitalized on labor-arbitrage
- Single channel
- Own the entire manufacture chain
- KPI: minimal variation
- Manual, paper-intensive



- Business networks
- Markets of groups e.g. generation
- ‘Just in time’ assemble to order
- Political volatility, closing labor gap
- Multi-channel
- Strategic tier-1 suppliers
- KPI: perfect order
- EDI turns 50! standards proliferate



- Demand sensing, risk adjusting
- Markets of one; individual values
- 3D printing minimizes inventory
- Robotics remove labor dynamic
- Omni-channel
- Dynamic ecosystem of partners
- KPI: lifetime value/service (e.g., car)
- API explosion, any to any

Competitive organizations require...

Agile business ecosystems that support expansion into new markets



Digital information flows for **timely informed decisions** that minimize risk of supply chain disruption



Customer-centric processes that improve engagement, satisfaction and deliver new sources of value



Improved **productivity and tech future-proofing** with seamless integration and always-current Cloud



A 'digital backbone' to **support new digital transformation** initiatives



A **trusted partner** to manage integration complexities while you focus on **innovation**



Progress of Digital Transformation in the Supply Chain

Is digital transformation driving supply chain restructuring?

IDC White Paper | Digital Transformation Drives Supply Chain Restructuring Imperative

Sponsored by OpenText

Authors:
Simon Ellis
Kimberly Knickla
Lorenzo Varonesi
Victoria Brown
July 2017

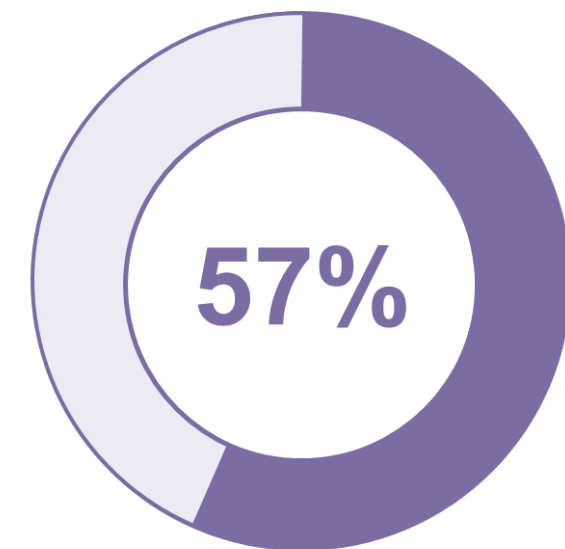
Digital Transformation Drives Supply Chain Restructuring Imperative

IDC OPINION

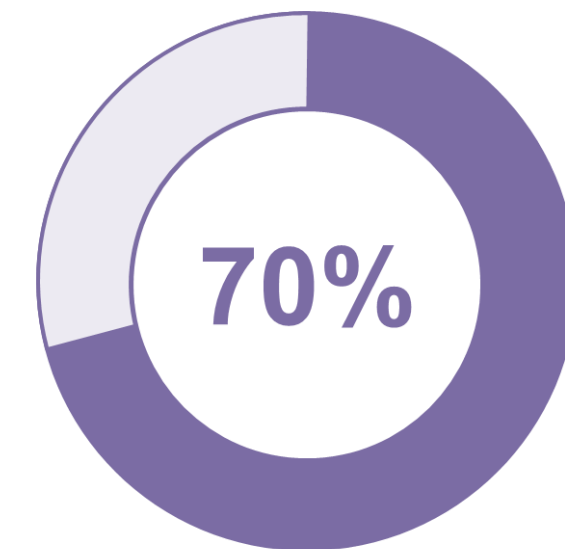
Today's supply chains are experiencing high levels of change in terms of both internal and external pressures. There's every reason to believe that this pace of change will accelerate and that the supply chain of the future will be in a constant state of flux. Companies that can build supply chain flexibility more quickly will be better positioned to support their consumers/customers and thus grow their business more effectively. Based on survey results and domain knowledge, this white paper explores how digital transformation (DX) is driving dramatic restructuring changes in the supply chain. Insights in this white paper include the following:

- Overall, the state of DX maturity cited by survey respondents is somewhat more advanced than we have seen in similar prior surveys. The survey that underpins this document reflects only the supply chain, so in that way, it is different. In extensive conversations that IDC has had with manufacturers and retailers, we would not judge supply chains to be particularly advanced. It does appear that companies are assessing their digital transformation efforts as more mature than they are in reality. We would suggest that there is little to be gained by a company thinking that it is more advanced than it really is.
- Digital transformation is moving fast, and the time to understand its implications for the supply chain is now.
- Digital transformation isn't necessarily disruptive, at least not immediately. While there may be disruptive things to be done with new technology eventually, most of the near-term applications are about improving performance and efficiency of current approaches and processes — things that are at the core of improving today's supply chain.
- To be successful at deploying a DX initiative, companies need to leverage external integration support. This is not just because companies do not or will not have internal skills to understand and implement new technologies; it is also

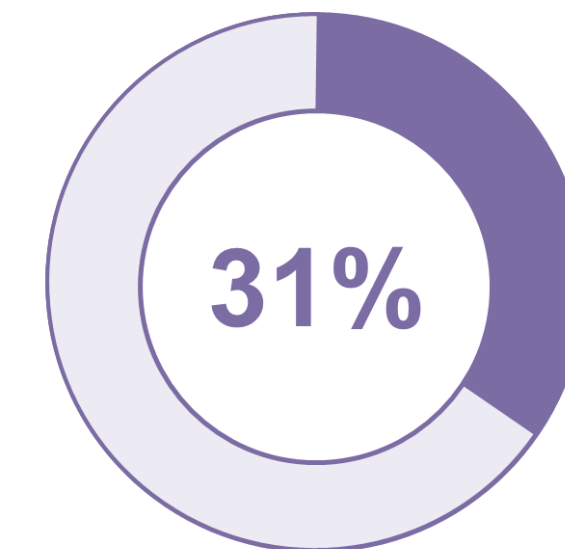
#US4298417 © 2017 IDC. www.idc.com | Page 1



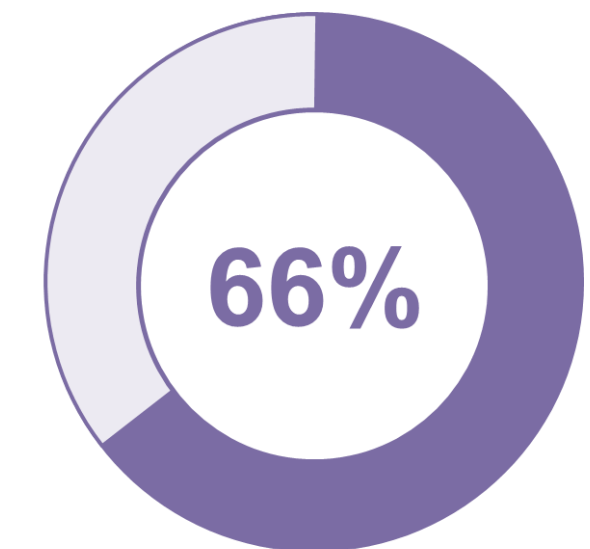
Respondents said they were using digital transformation to enable new capabilities across their supply chains



Respondents said they were using cloud B2B networks across their supply chains today



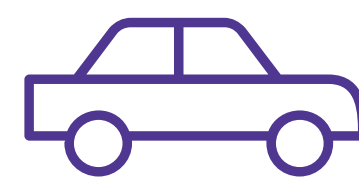
Respondents said a lack of bandwidth was preventing them exploring new digital transformation projects



Respondents said they were considering an outsourced approach to managing their B2B integration requirements



Industries Surveyed



Automotive



High Tech



Retail

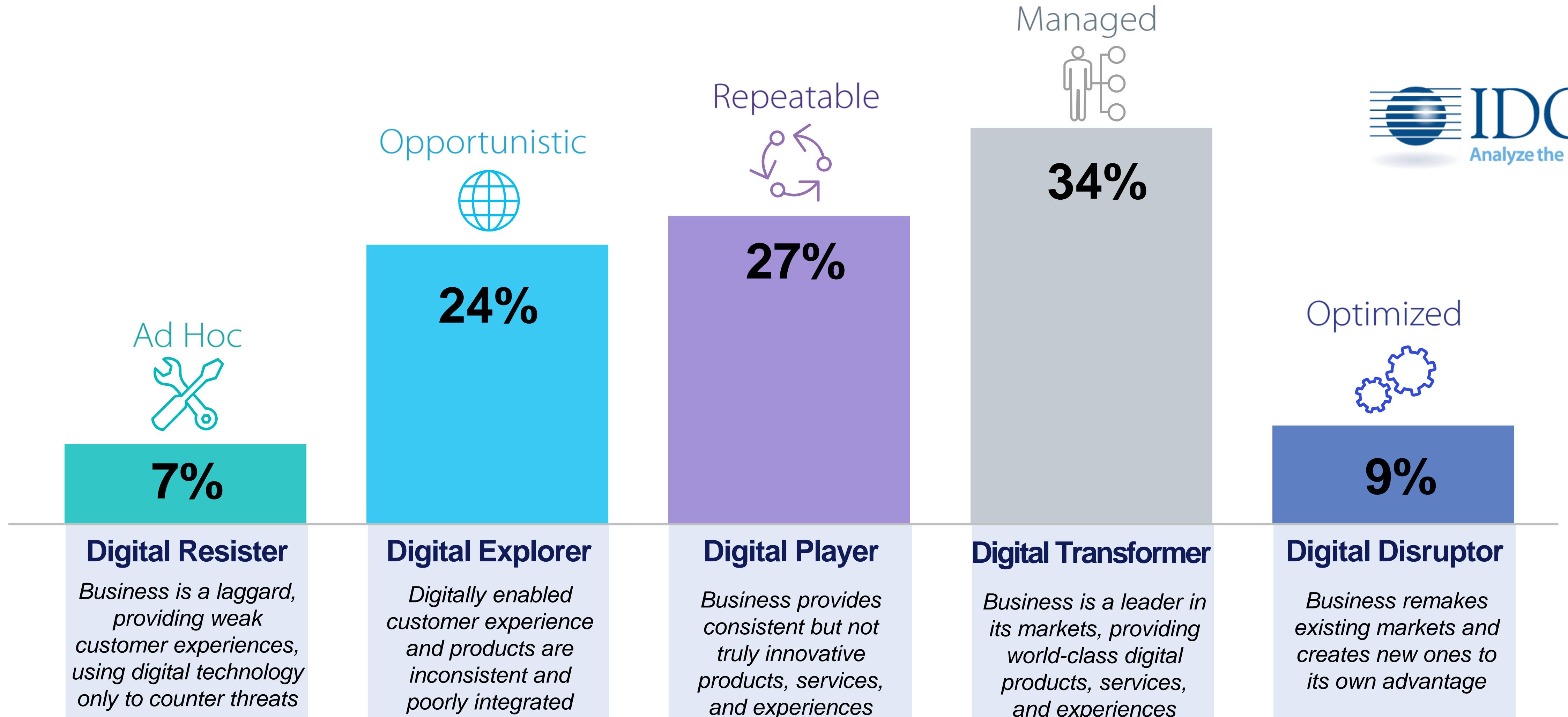


CPG

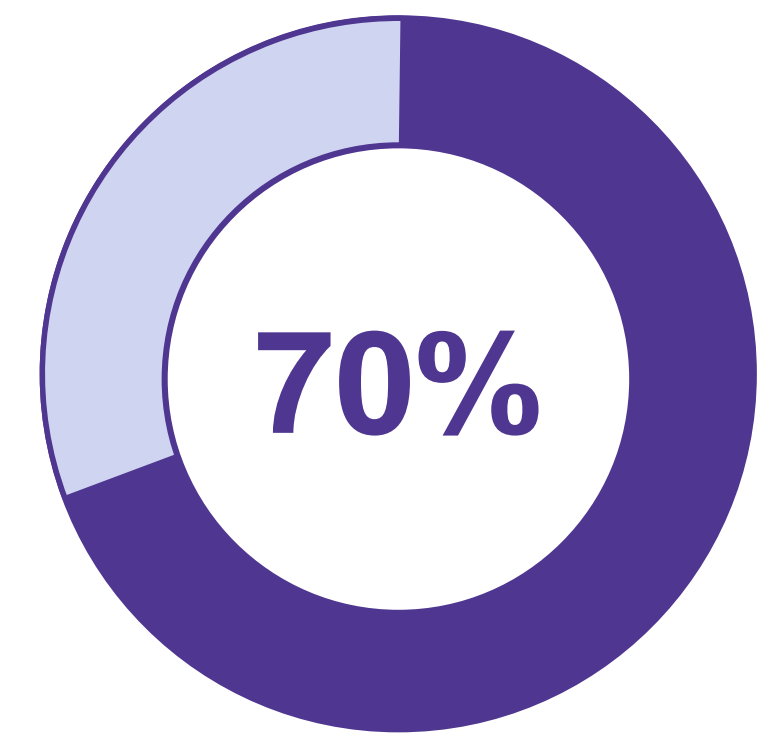
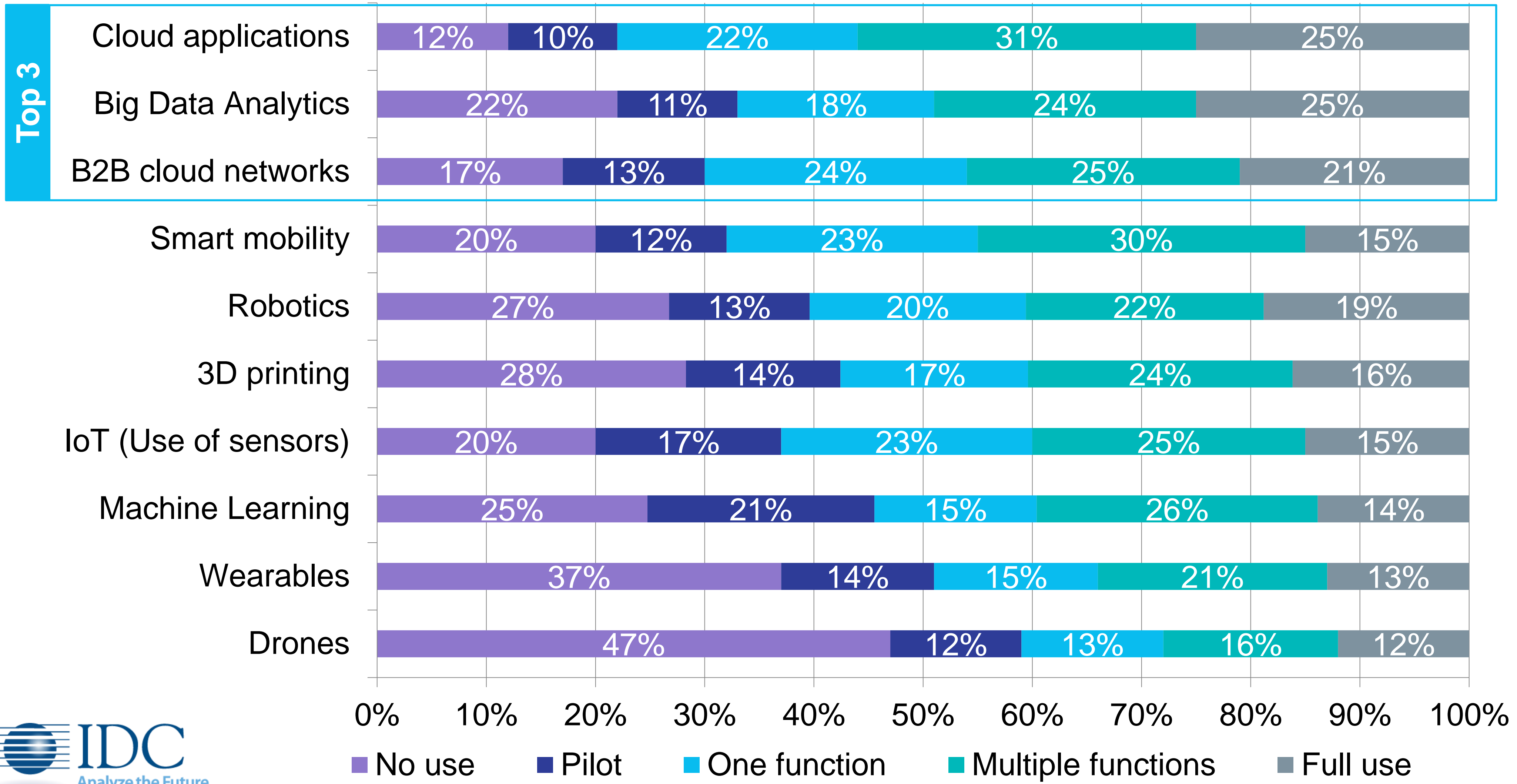
Countries Surveyed



Digital transformation maturity in the supply chain



Digital technologies used in the supply chain today



Respondents said they were using cloud B2B networks today

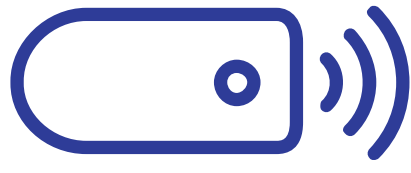


The Autonomous Supply Chain

We are at an inflection point of disruptive technologies and market demands that will transform supply chain operations...




Digital Business Ecosystems



Internet of Things



Artificial Intelligence



Blockchain

The Autonomous Supply Chain

au·ton·o·mous

/ô'tänəməs/ *adjective*

(of a country or region) having self-government, at least to a significant degree.

"the federation included sixteen autonomous republics"

• acting independently or having the freedom to do so.

"an autonomous committee of the school board" "an autonomous republic"

synonyms: self-governing, self-ruling, self-determining, independent, sovereign, free

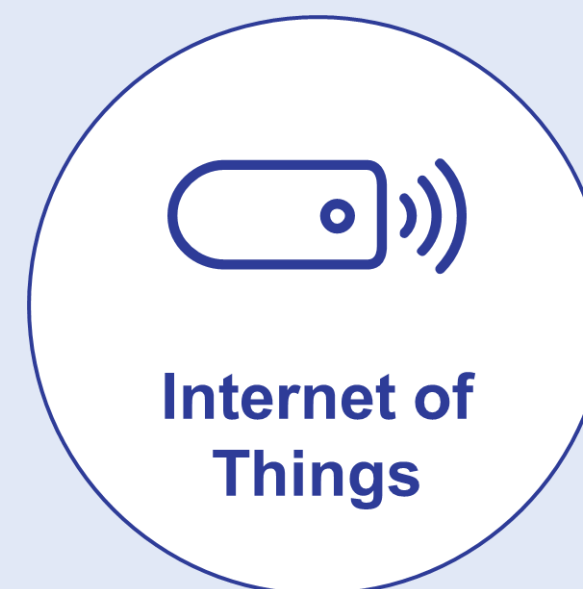


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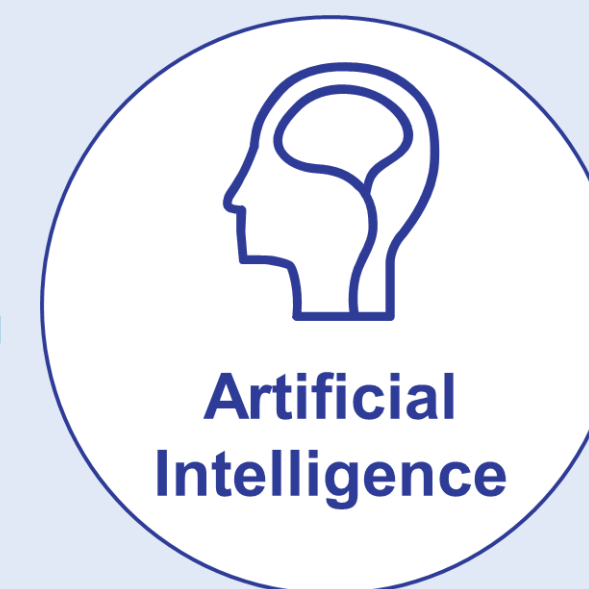
Pervasive

+



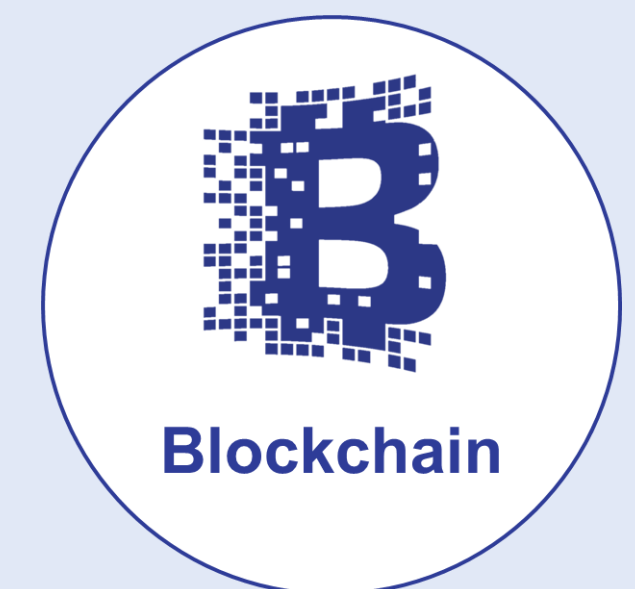
Connected

+



Intelligent

+

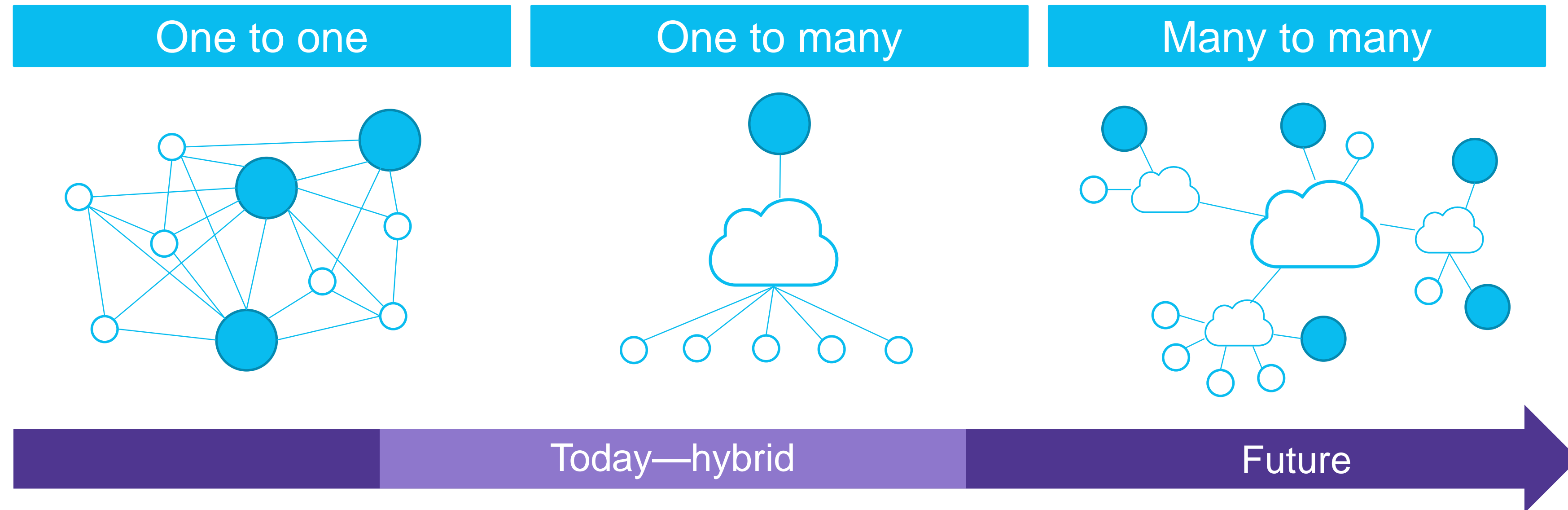


Trusted

Pervasive: Digital Business Ecosystems



Business networks evolution

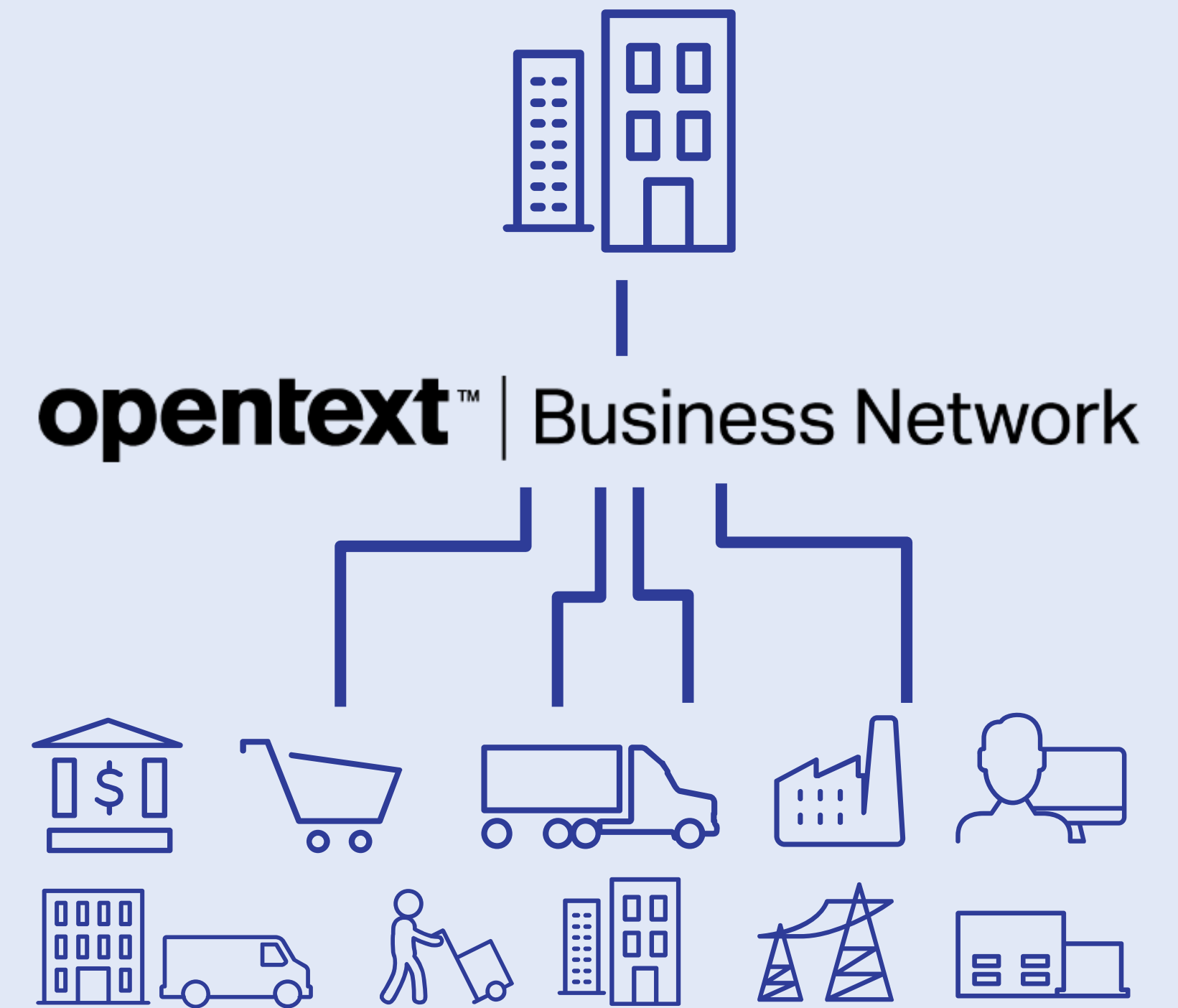


- From static, hard-coded connections to real-time dynamic connections (auto-discovery, auto-provisioning, self-service, API-integration, etc.)
- Pervasive integration—any format, protocol, standard, structured and unstructured
- Federated to n-tier for shared visibility and collaboration
- Fused with analytics for single 360° view, real-time control tower to sense/respond

OpenText Business Network

Managed services and software to facilitate efficient, secure and compliant collaboration between people, systems, and things.

Provides the necessary digital foundation for automating and insight for optimizing business processes across your extended ecosystem.



Reduce cost



Accelerate time to revenue



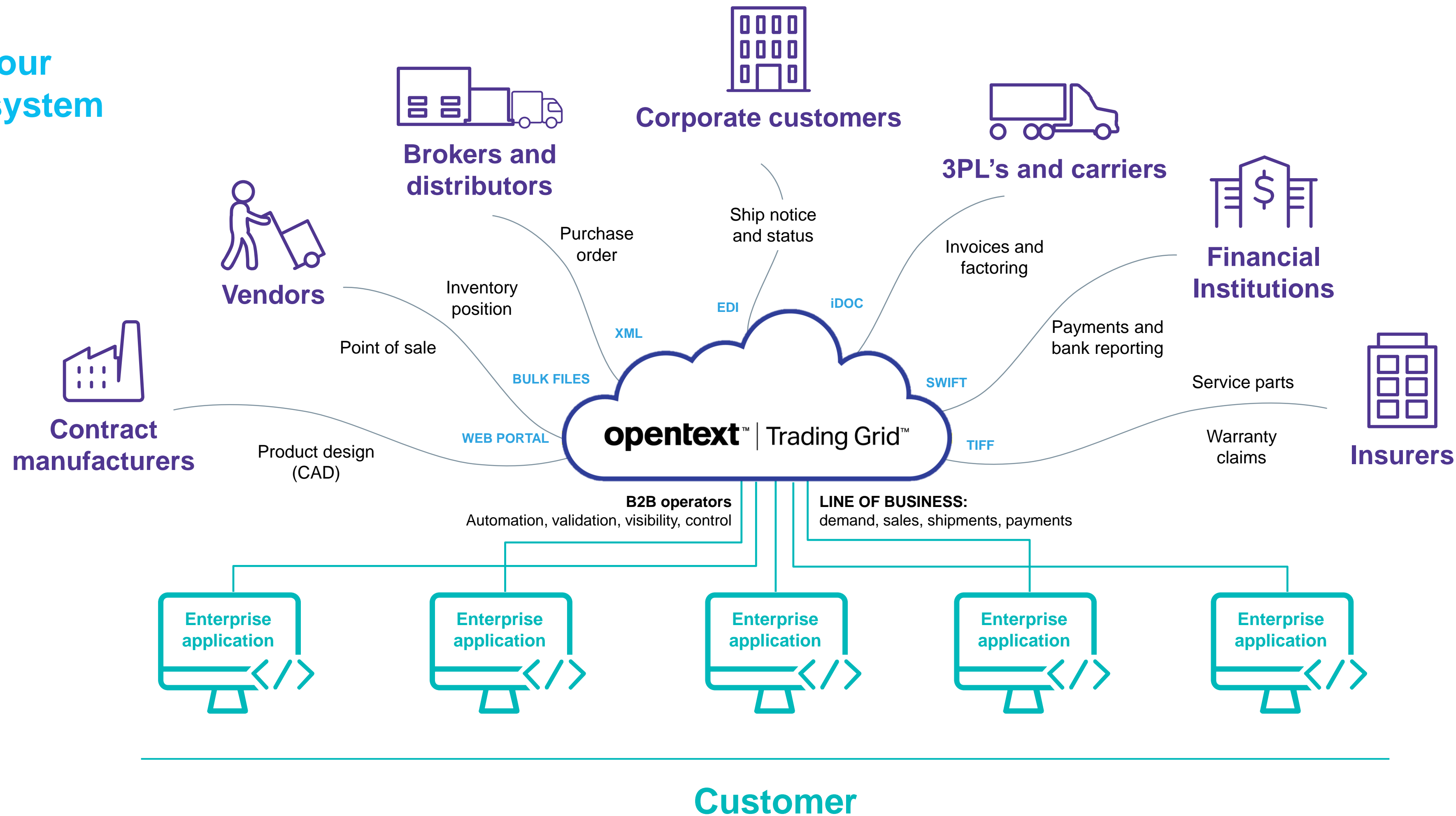
Improve services



Focus on core business

Digital backbone for extended ecosystems

Your ecosystem



Order Management

Procure to pay,
Order to cash,
Logistics visibility



Community Management

Onboarding,
governance,
compliance &
collaboration



Treasury Management

Single connection
to all banks,
SWIFT



e-Invoice Compliance

Invoice automation
& regulatory
compliance

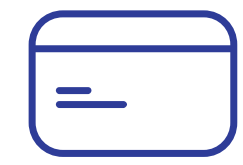


Performance

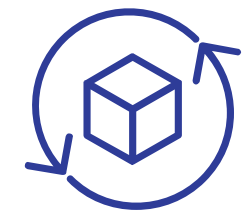
Operational and
business metrics,
supplier KPIs



Existing community, infrastructure, flexibility



\$8 Trillion+ transaction value



22/25 world-class supply chains



600,000+ businesses connected



65,000+ customers



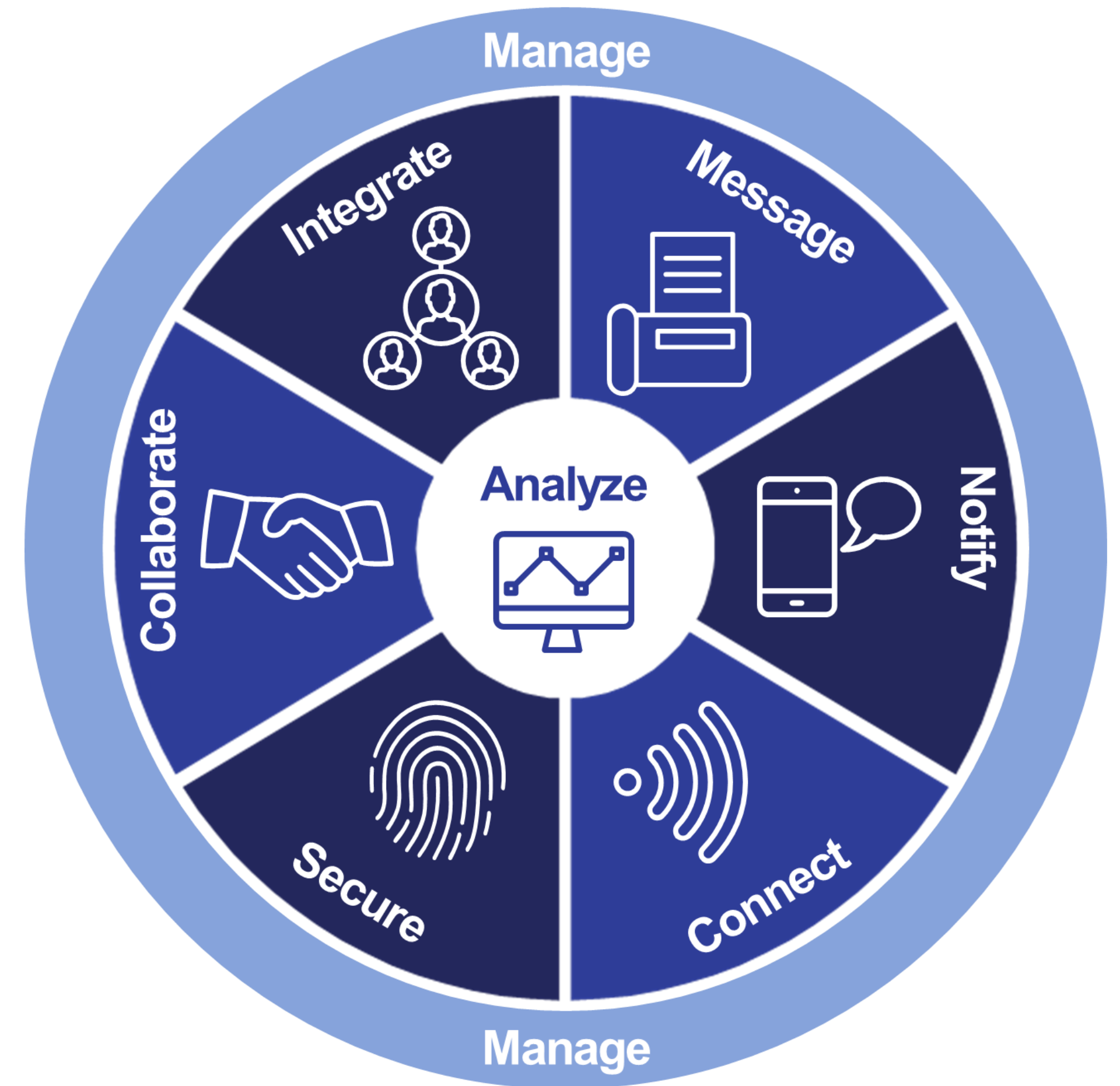
20+ countries with direct operations



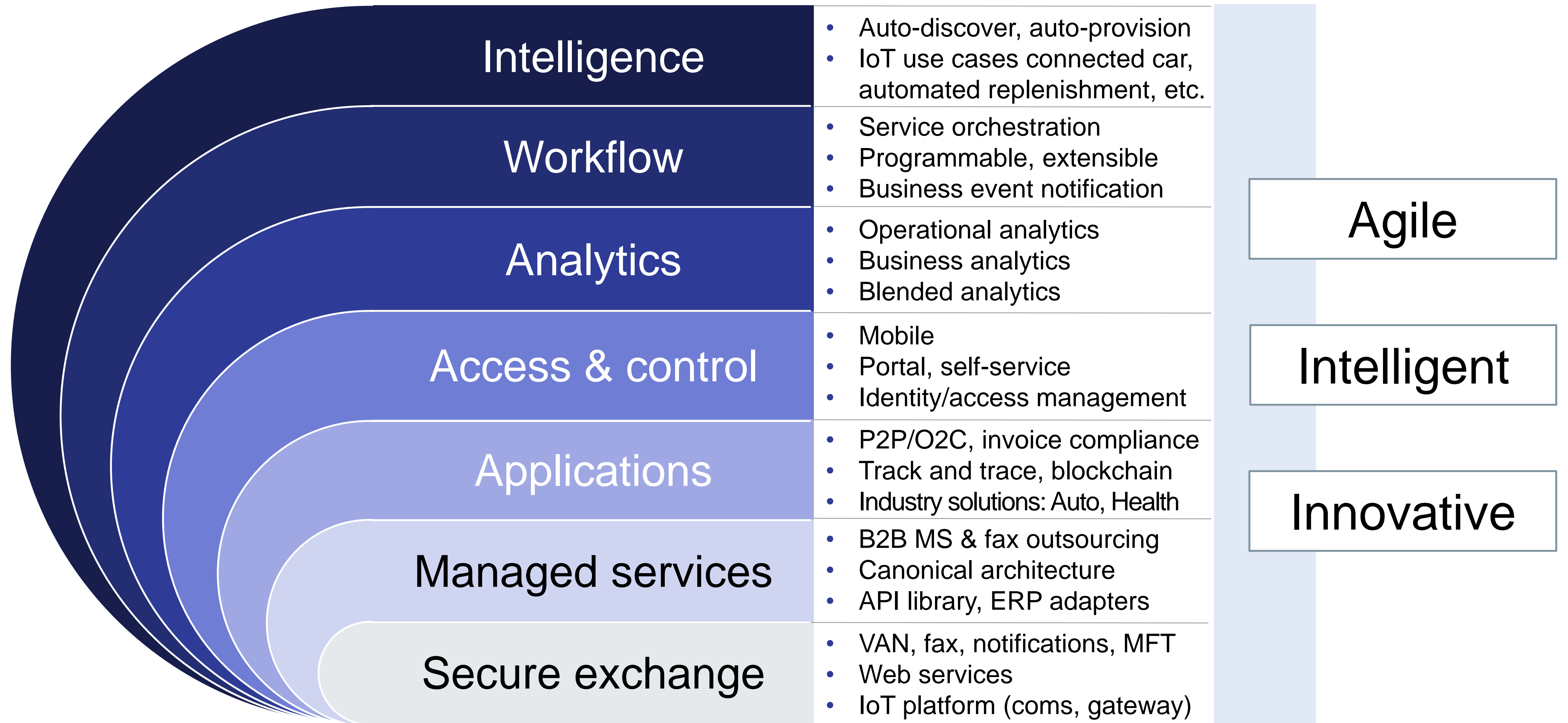
24 Billion+ B2B transactions



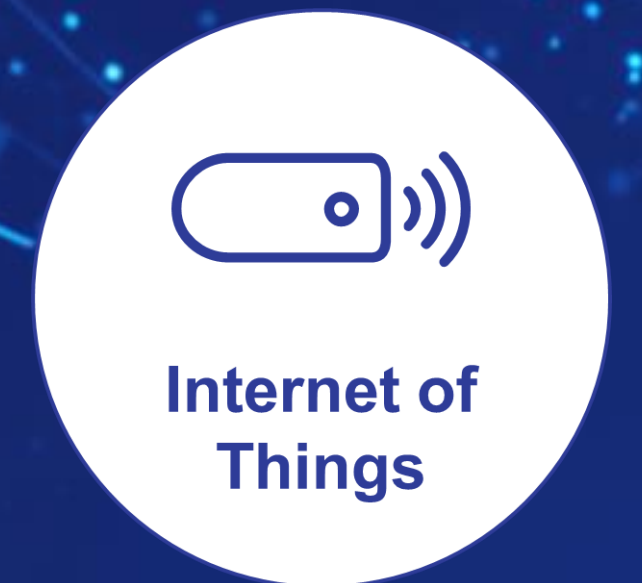
2 Billion+ faxes



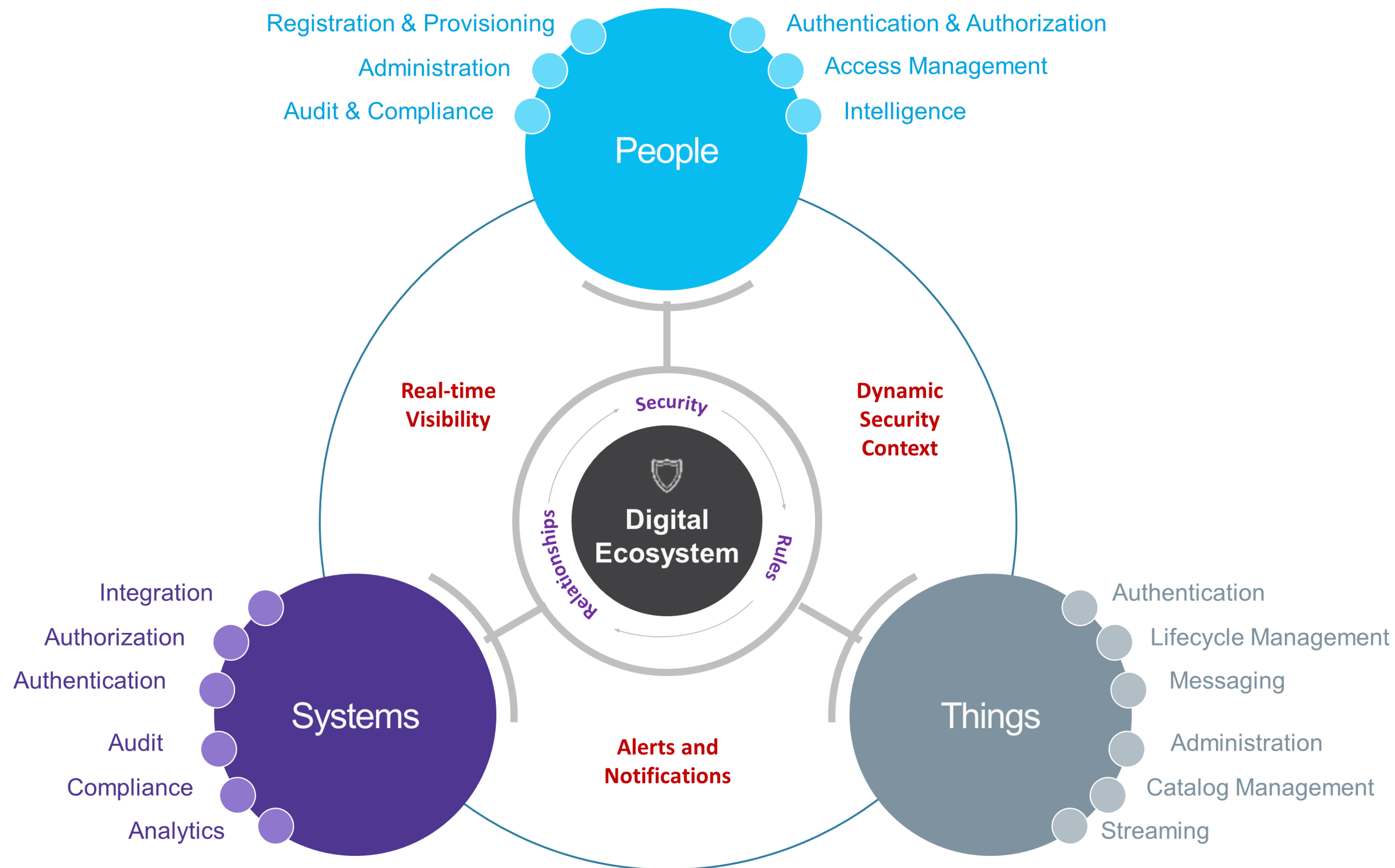
Vision: The intelligent Business Network



Connected: IoT in the Supply Chain



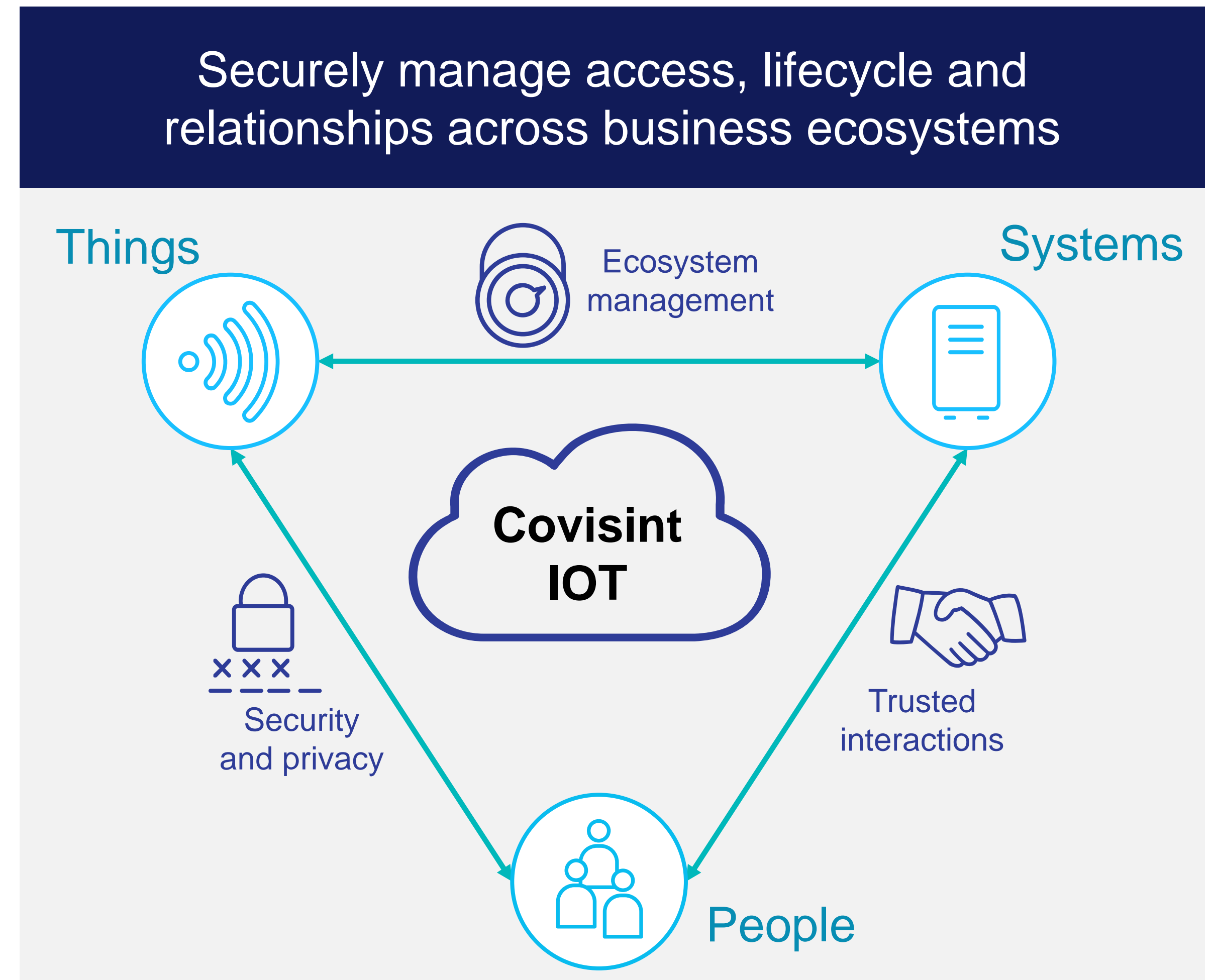
Digital ecosystems: people, systems, things



- Real-time feedback
- Operational level (efficiency, performance)
- Granular insights
- New digital value

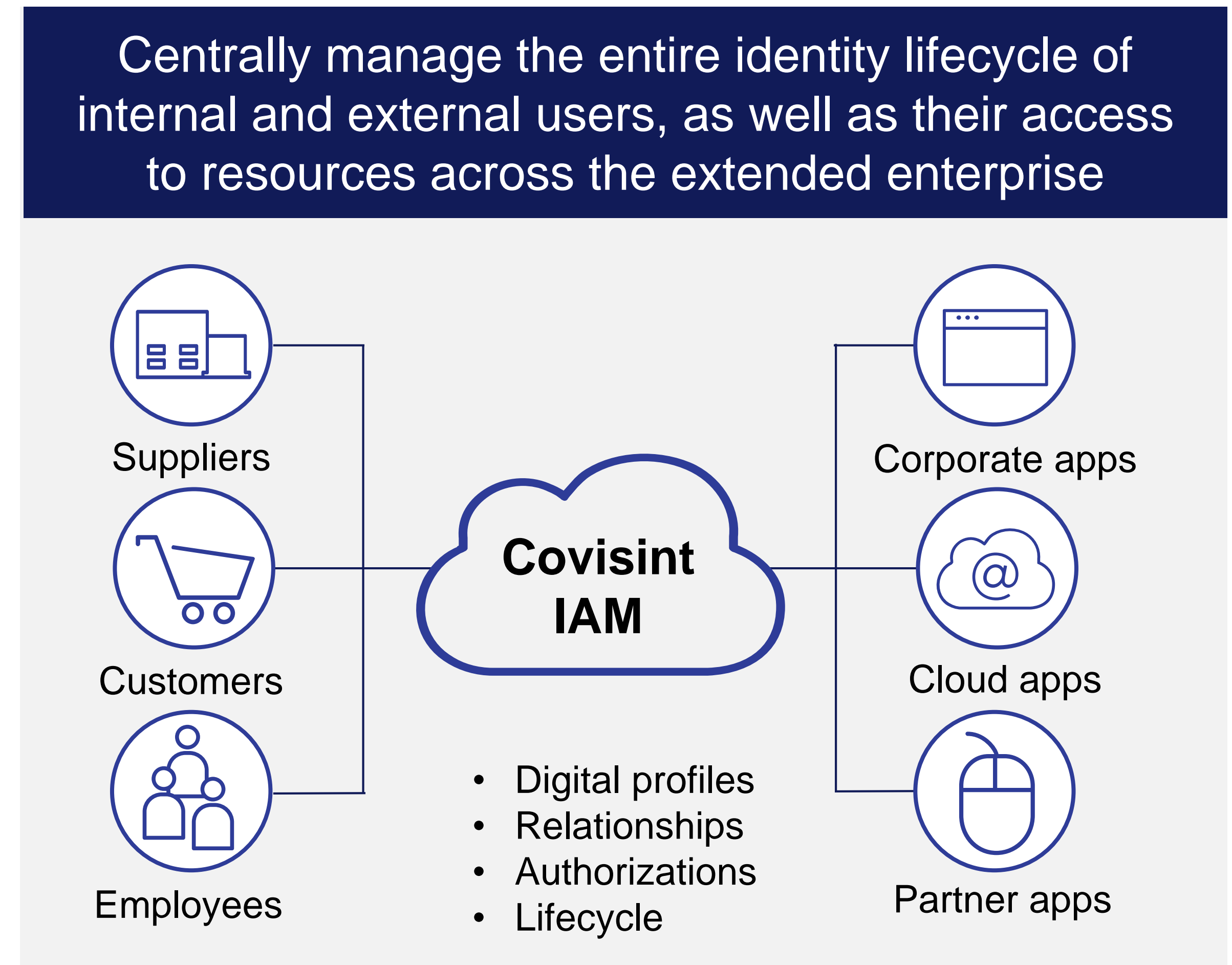
IoT platform enabled by ecosystem management

- **Relationship & lifecycle management**
Lifecycle management of people, systems & things
- **Ecosystem management**
Secure, enable, & manage trusted interactions across ecosystems
- **IoT messaging**
Integration of messaging technologies for rapid go-to-market
- **Unified data model**
Normalize data across ecosystems



Identity and access management for cybersecurity

- **Digital identity manager**
Are you who you say you are
- **Authorization manager**
What are you authorized to access
- **Identity sync, analysis & intelligence**
Analyze and audit information access
- **Identity event streaming engine**
Integrate all user and ID directories

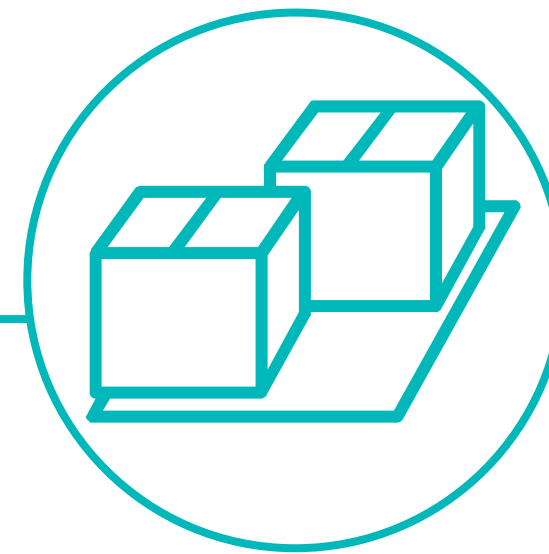


Supply chain use cases for IoT



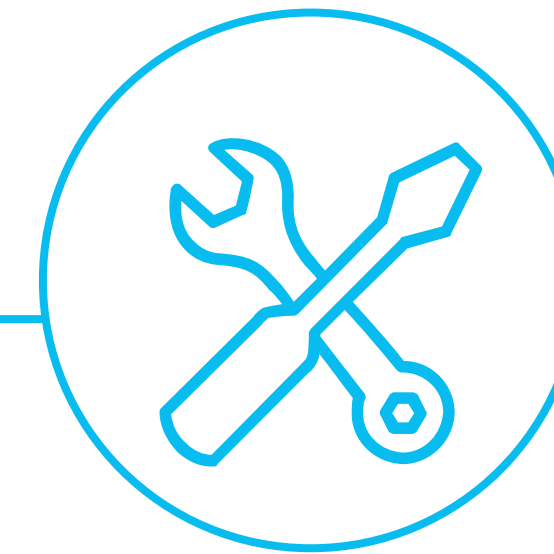
Pervasive Visibility

IoT will provide improved end-to-end visibility of shipments through highly connected supply chain 'assets' across multi-modal 3PL providers



Proactive Replenishment

IoT will provide real-time monitoring of inventory levels and consumption patterns which will automate replenishment processes with suppliers



Predictive Maintenance

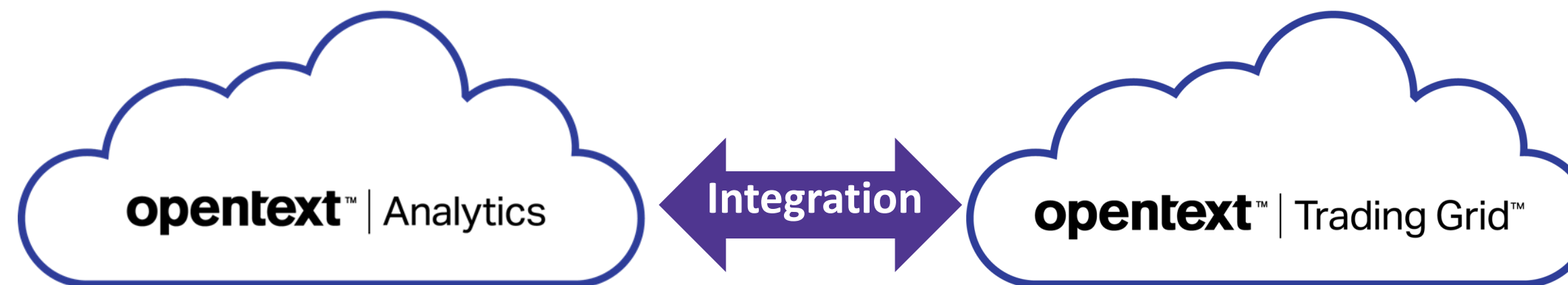
IoT will maximize asset availability by monitoring for potential part failures and automatically initiate a replacement part procurement process

1. Material Consumption Trends

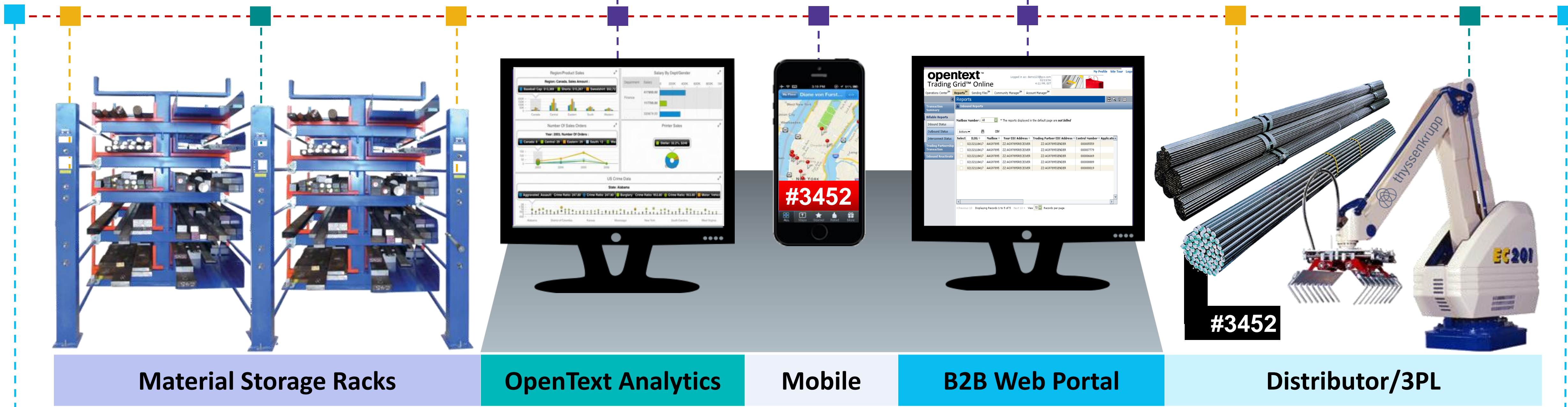
2. Distributor Replenishment Process

- Proximity Based Sensors
- Connected Devices
- Enterprise IOT Platform
- GPS / RFID Network

From Vendor Managed Inventory to 'Device Managed Inventory'

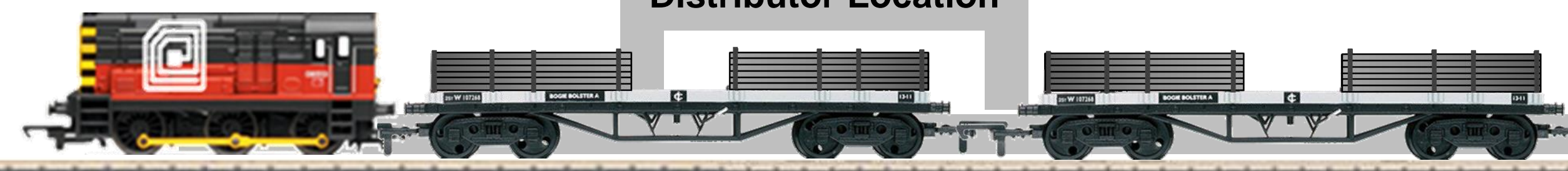


Wi-Fi Network



Customer Location

Distributor Location

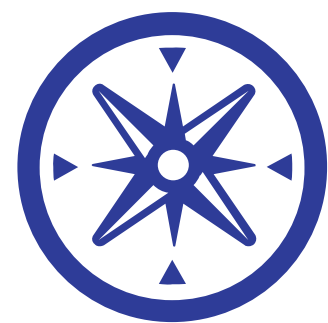


Intelligent: AI in the Supply Chain



opentext™ | Magellan™

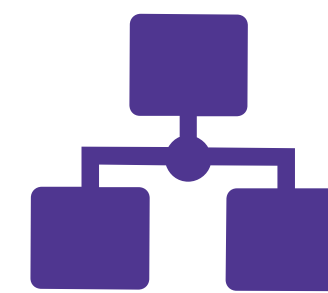
OpenText Magellan is a **flexible AI and Analytics platform** that combines open source machine learning with advanced analytics, enterprise-grade BI, and capabilities to acquire, merge, manage and analyze **Big Data** and **Big Content** – structured and unstructured. Magellan enables **machine-assisted** decision making, automation, and business optimization.



Designed
to drive autonomy



Infused with AI
powered analytics

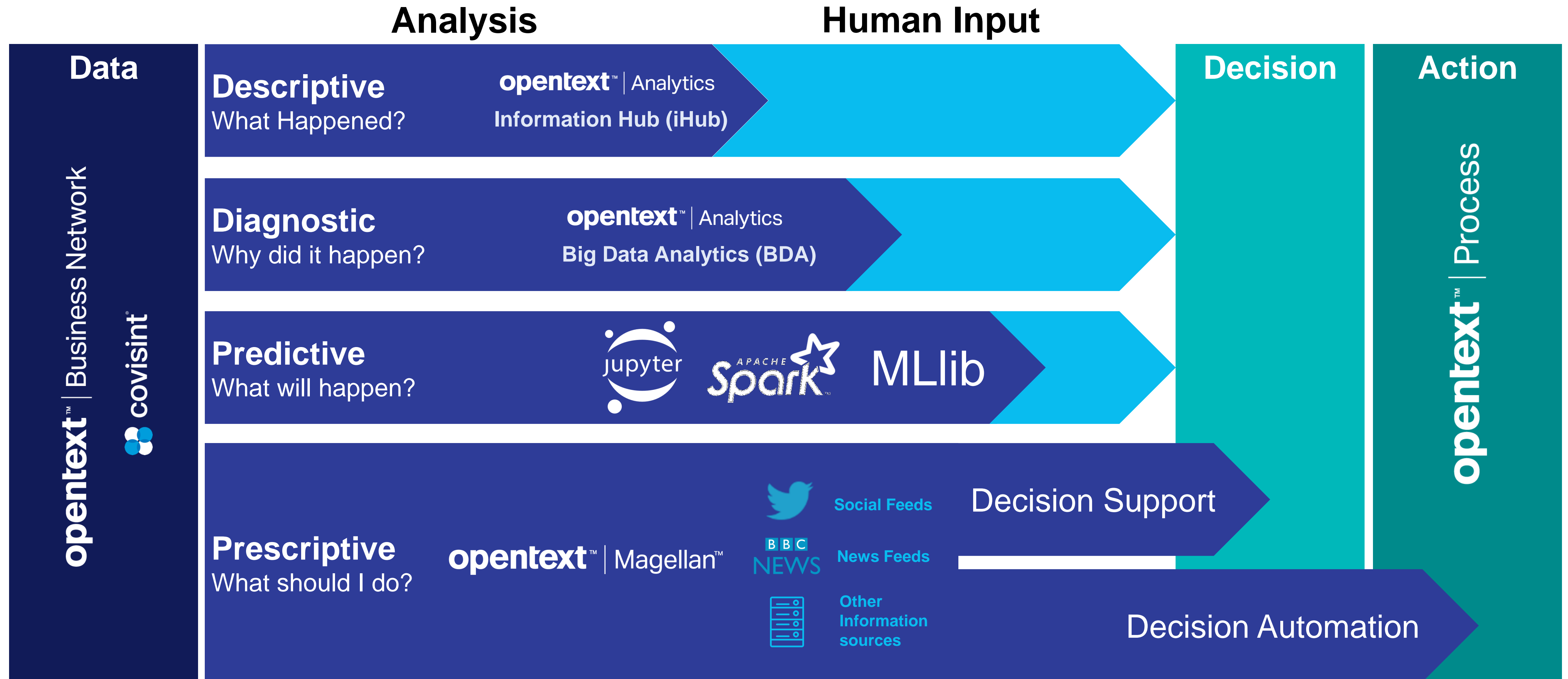


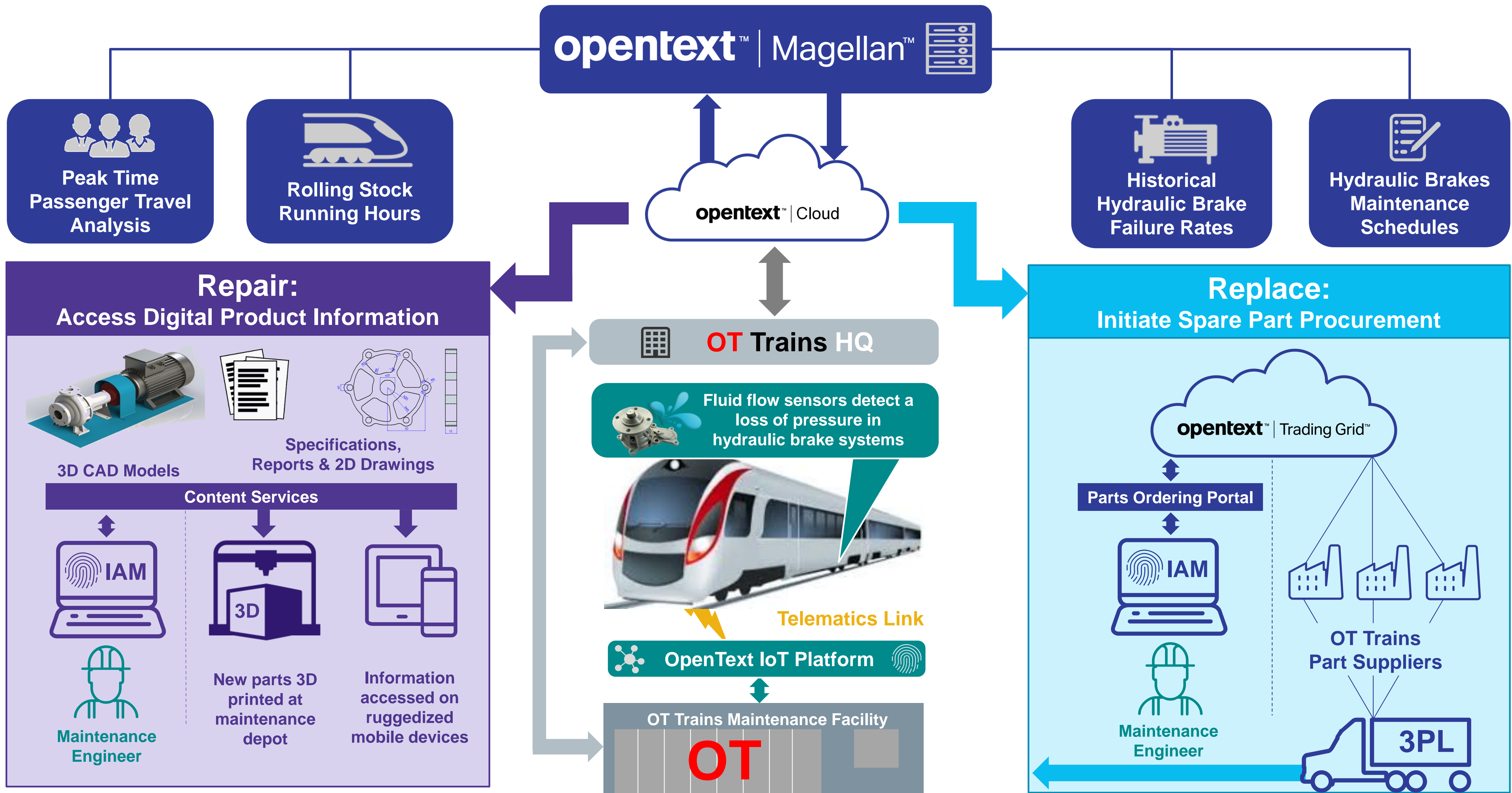
Built on
an open foundation

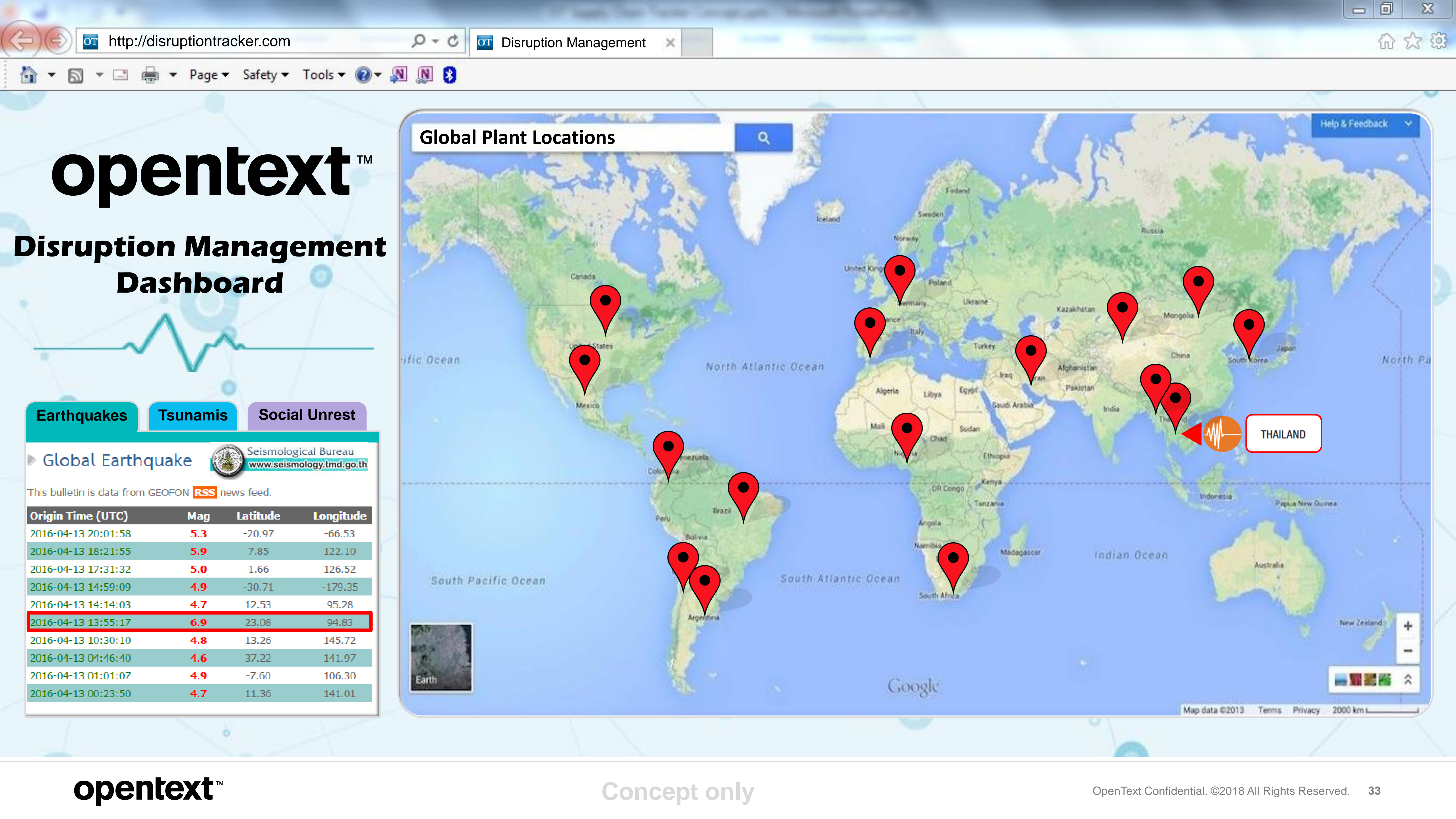


Ready to solve your
business problems

The analytics spectrum







opentext™

Disruption Management Dashboard

Earthquakes Tsunamis Social Unrest

Global Earthquake  Seismological Bureau
www.seismology.tmd.go.th

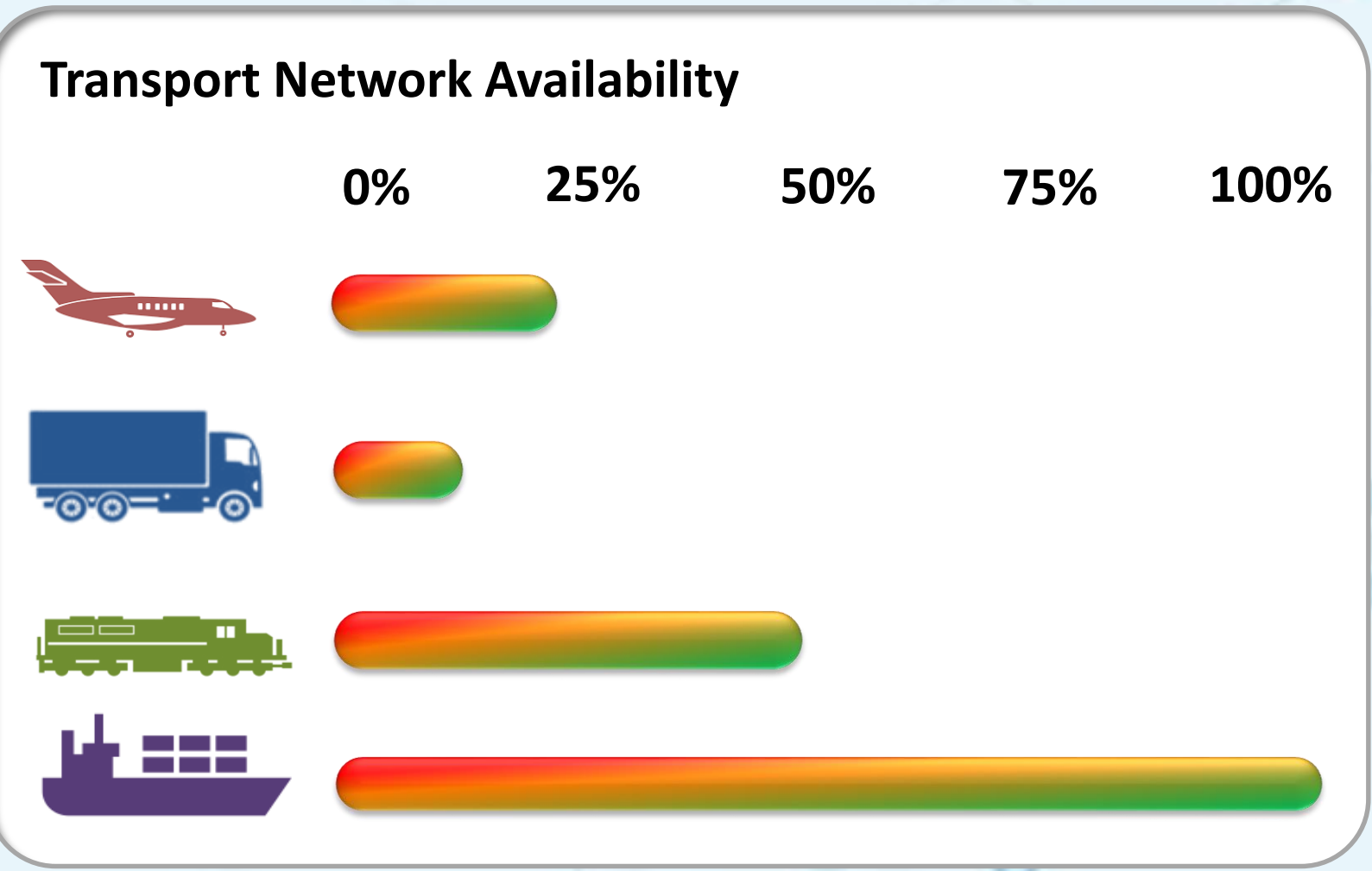
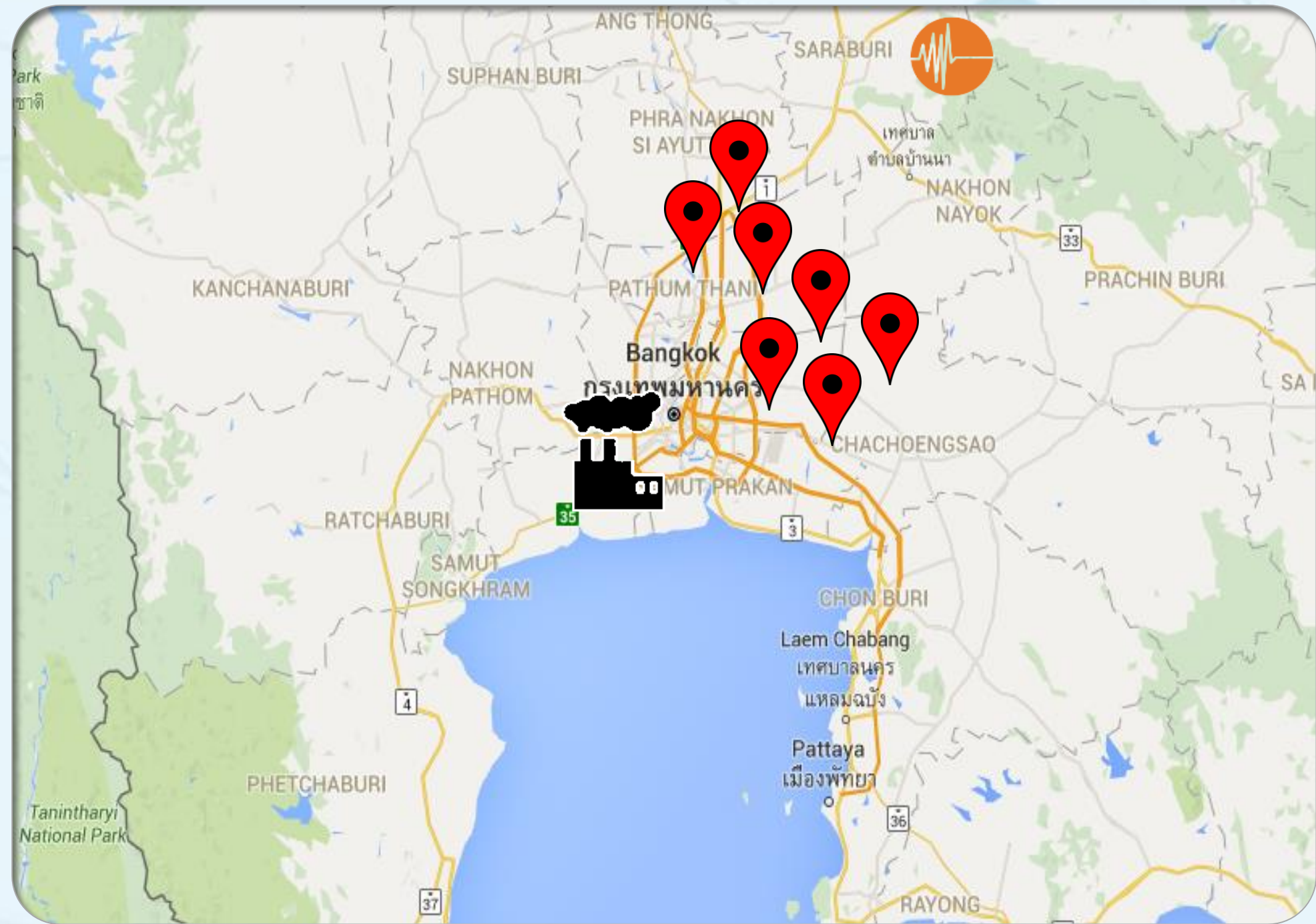
This bulletin is data from GEOFON  news feed.

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2016-04-13 13:55:17	6.9	23.08	94.83
2016-04-13 10:30:10	4.8	13.26	145.72
2016-04-13 04:46:40	4.6	37.22	141.97
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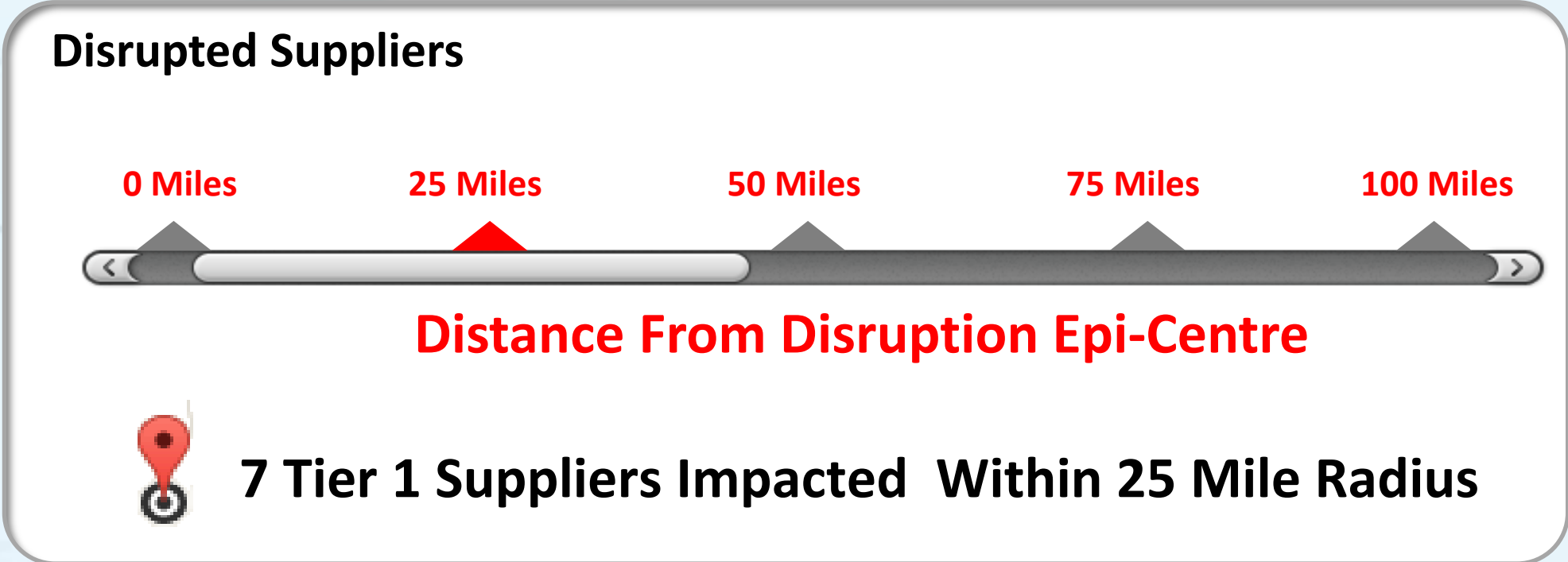
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Disruption Management Dashboard



Plant Disruption Location
Bangkok, Thailand

Disruption Type
6.9 level Earthquake 200 miles NE of Bangkok

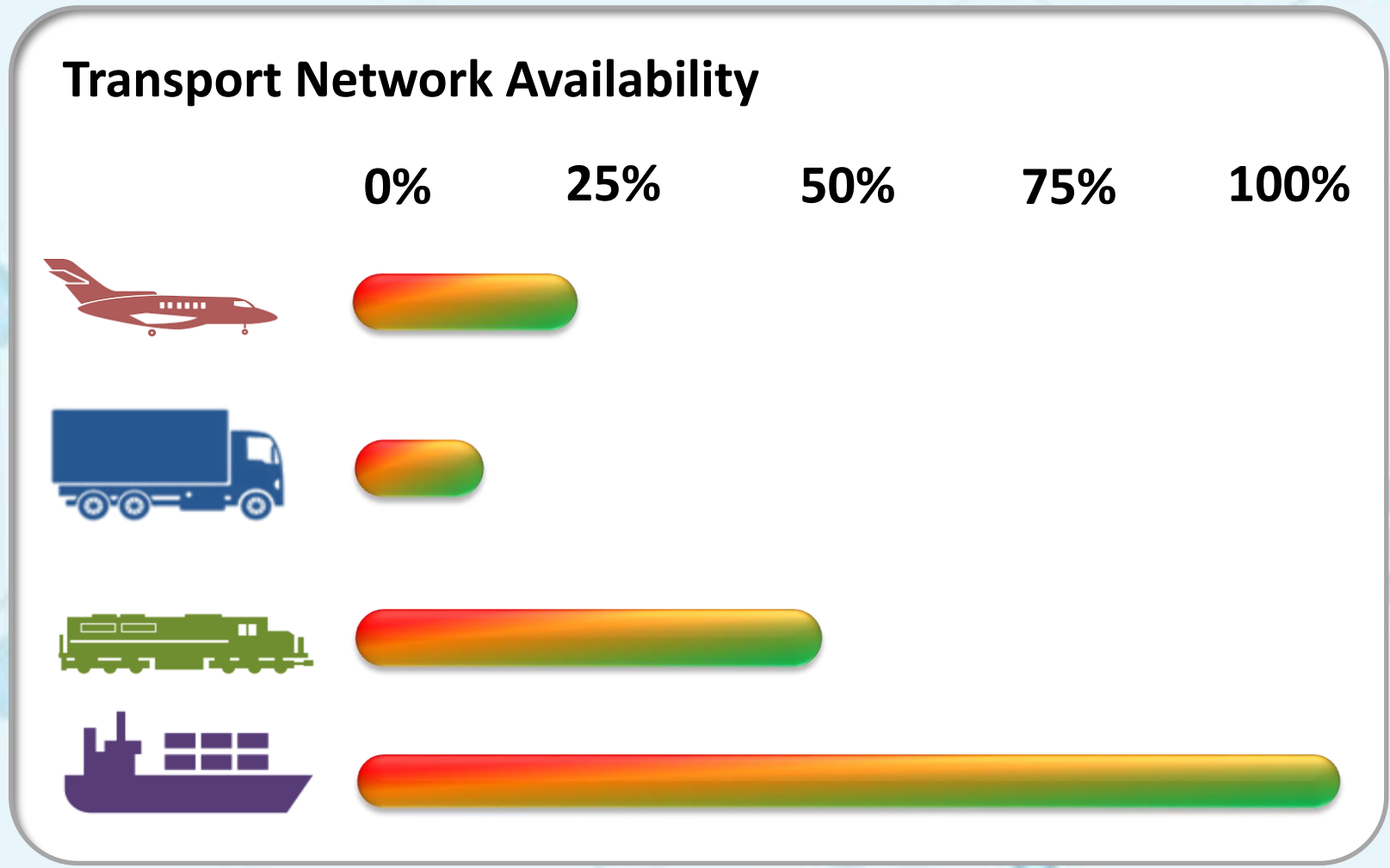
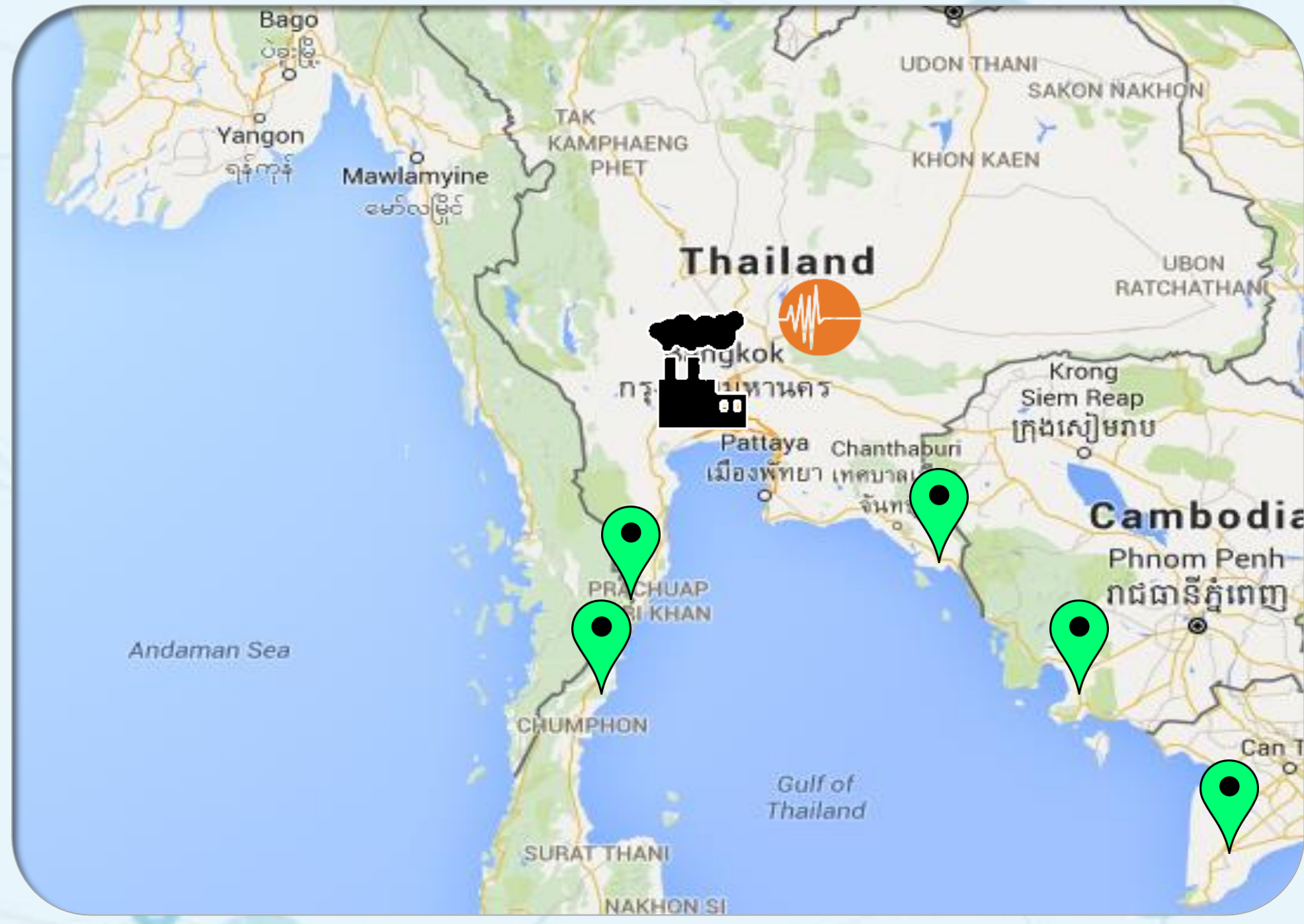


- ### Impacted Suppliers
- Bangkok Precision Castings
 - Thailand Metals
 - GG Sunroofs
 - Valeo (Bangkok)
 - Johnson Controls (Bangkok)
 - Bosch Automotive (Bangkok)
 - Continental (Bangkok)

Impacted Orders

opentext™

Disruption Management Dashboard



Plant Disruption Location
Bangkok, Thailand

Disruption Type
6.9 level Earthquake 200 miles NE of Bangkok

- ### Impacted Orders
- PO234679 - 3000 x 10mm Spade Connectors
 - PO234679 - 6000 x 5mm Spade Connector
 - PO234680 - 7500 x 2mm Connection Pins
 - **PO256800 - 9000 x 25mm Optical Switches**
 - PO257777 - 2000 x 30mm Two Way Switches
 - PO267990 - 1500 x Electric Motors
 - PO278677 - 1500 x Electric Motor Brackets

Alternate Suppliers

- ### Alternate Suppliers
- Valeo (Cambodia)
 - **Bosch (Thailand)**
 - Rexel
 - Delphi
 - Thai Switch Company

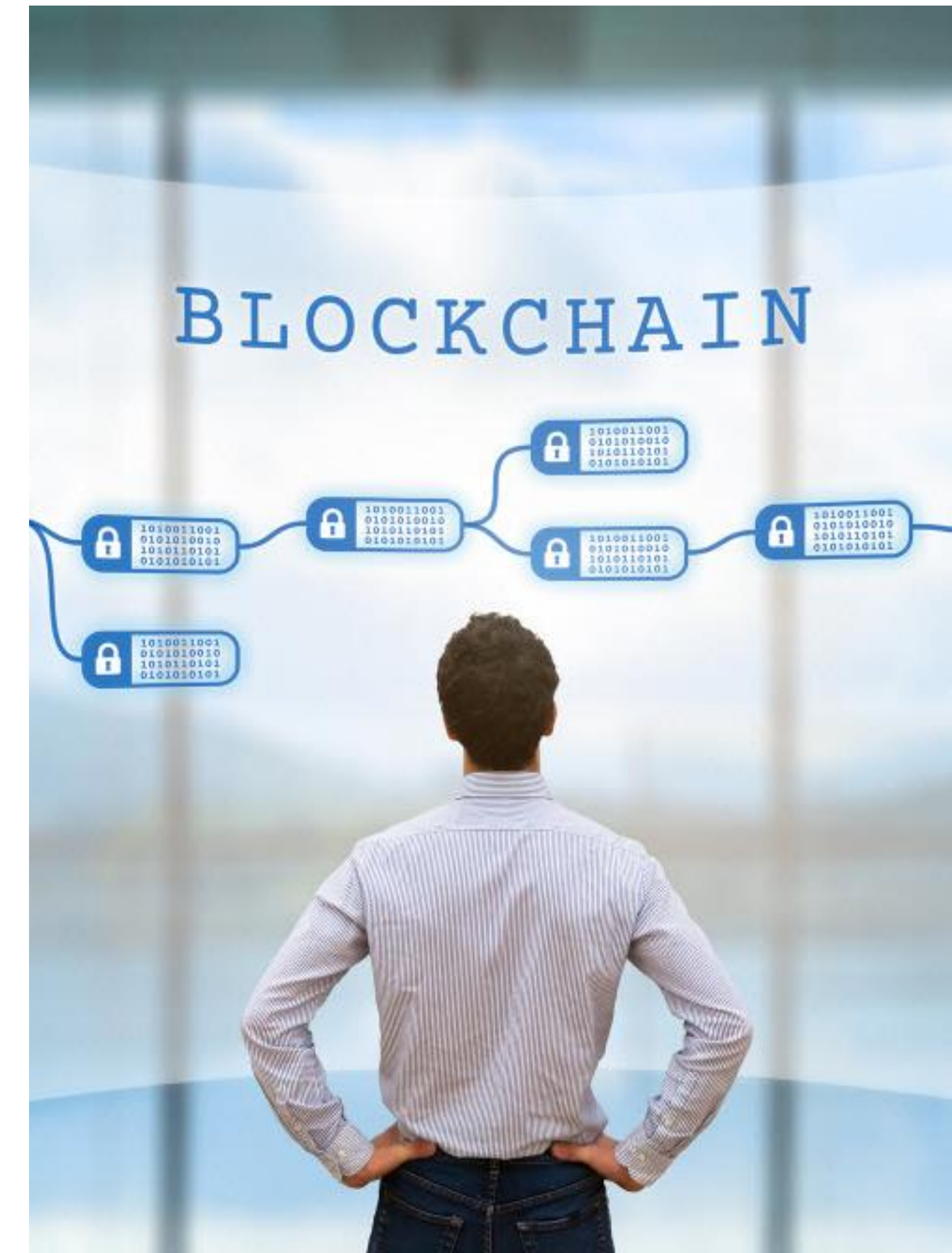
Initiate Order

Trusted: Blockchain in the Supply Chain



What is Blockchain?

- Blockchain is a distributed ledger technology that maintains a continuously growing list of records/blocks
- Each block, in each node, references the previous block by a hash value—forming a chain
- Data in the block cannot be retrospectively altered
- Everyone can have a copy of the ledger, having no central control authority, forcing trust in system
- OpenText and BlockEx evaluating supply chain use cases:



Potential supply chain use cases for Blockchain



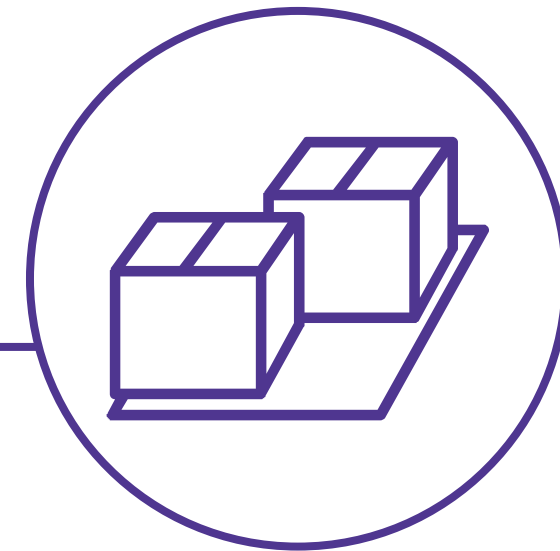
Supply chain finance

Banks want transparency across the physical and financial supply chains. Blockchain retains all information relating to the financing of shipments as they move across the end-to-end supply chain



Raw materials traceability

Manufacturers seek ability to track raw materials across supply chain, from mine to finished product. Blockchain retains this information and leverages IoT sensors to track shipments



Perishable goods transportation

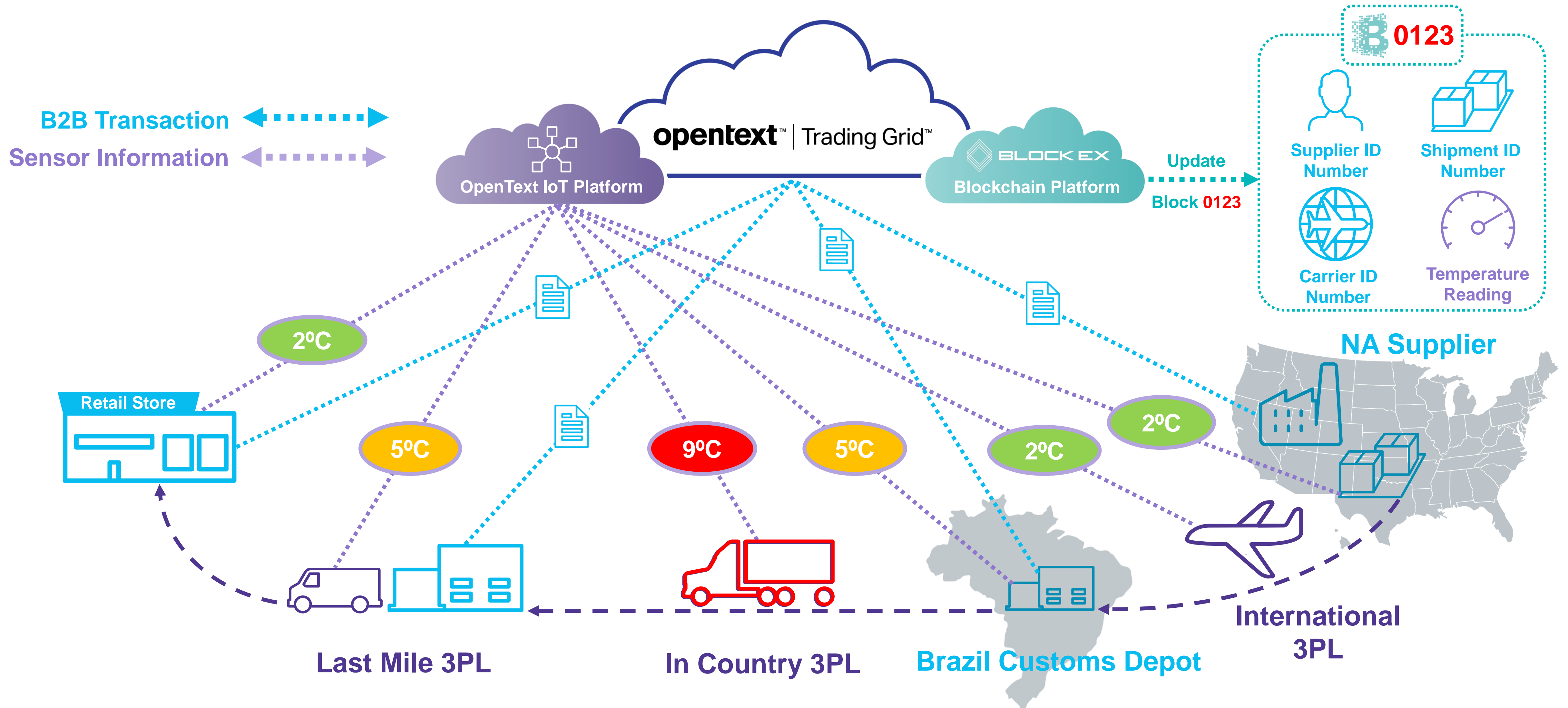
Retailers must ensure perishable products are delivered in safe condition. Blockchain retains all 3PL shipping information (temperature, shock, etc.) at each stage of the journey



Vehicle rental & fleet management

Vehicle rental companies seek to improve customer service and fleet optimization capabilities. Blockchain retains rental agreement, assigned vehicle details and ongoing maintenance history

Perishable goods monitoring using Blockchain

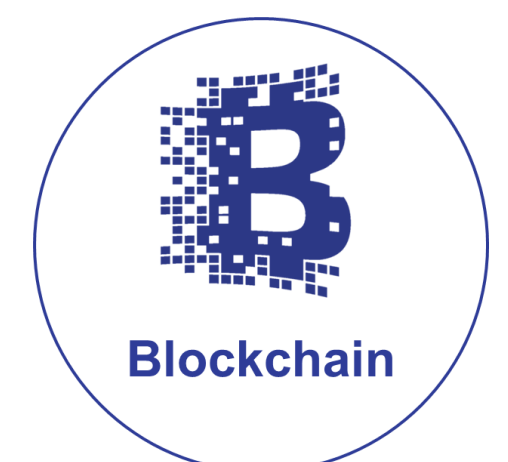
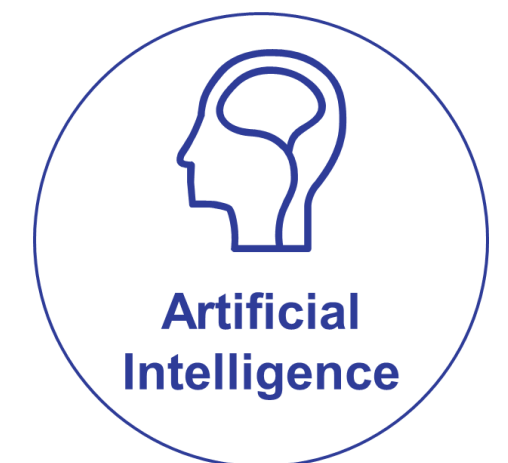
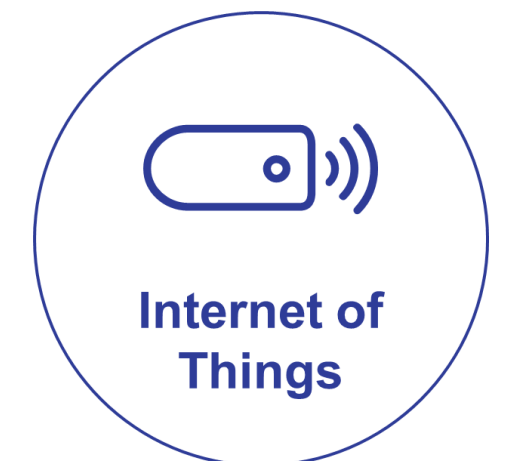




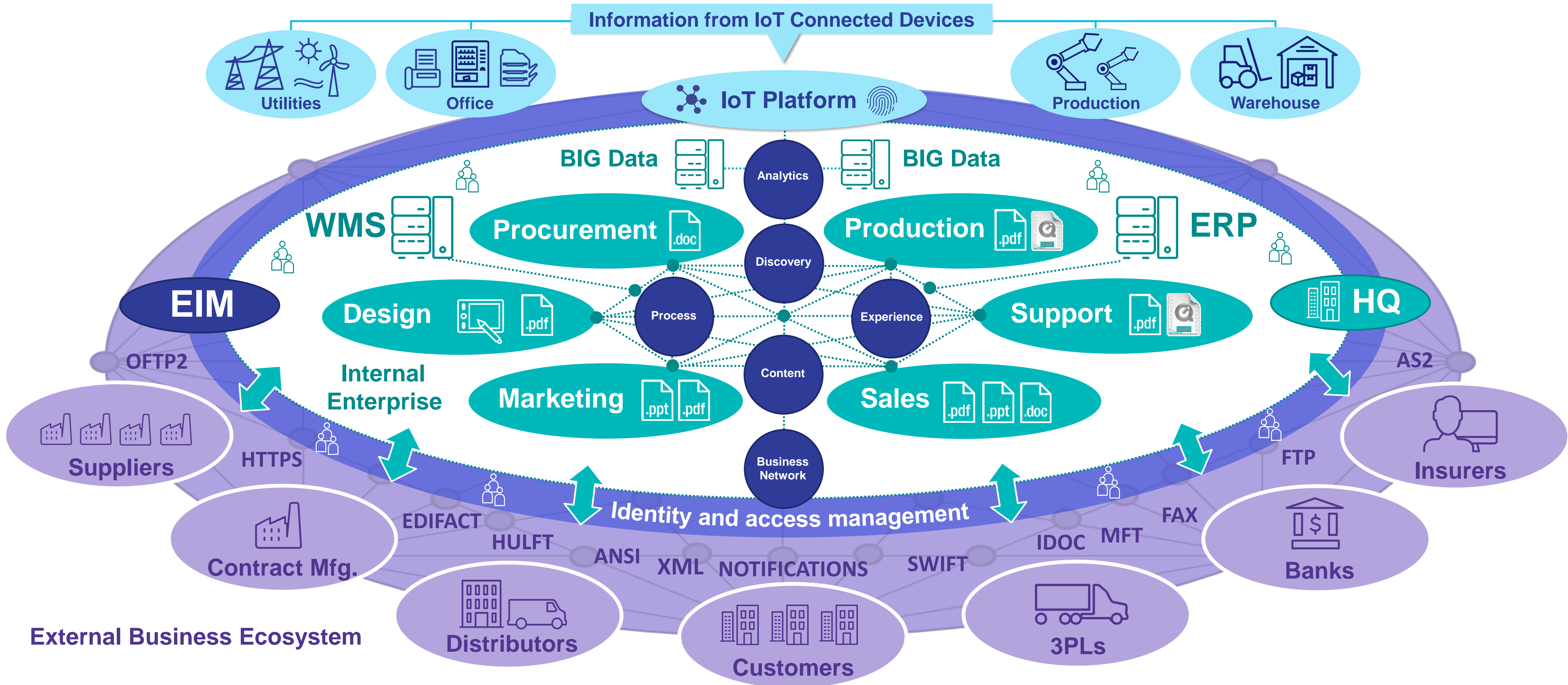
Bringing It Together: The Intelligent Business Network

The Intelligent Business Network

- **Pervasive:** Creates a digital backbone that allows the digital exchange of information and offers seamless integration to enterprise business systems
- **Connected:** Enables a highly connected ecosystem of people, systems, and things with digital identities and cybersecurity
- **Intelligent:** Provides a self-aware environment where deep insights into supply chain performance can optimize business processes and learn to respond to different and unexpected situations in a more efficient way
- **Trusted:** Offers a single source of truth relating to the traceability of goods as they move across the physical supply chain and an archive of all digital interactions between a company and its trading partner community



OpenText - Enabling the digital business



The background of the slide is a dark blue field filled with a complex network of glowing light blue lines and dots. The lines are of varying thickness and curvature, some forming loops and others extending across the frame. Small, bright blue dots are scattered throughout, often appearing at the intersections of the lines, creating a sense of a dynamic, interconnected system or data network.

Thank You