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Supply Chain Visibility and Traceability

Navigating modern challenges
with innovative solutions

Srividhya Vaidyanathan

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Complete Quality Transformed

Speaker

Srividhya Vaidyanathan – Biography
20+ years of global experience in Energy, Strategy, Supply Chains

Srividhya (Sri) Vaidyanathan is a seasoned energy strategist with over 20 years of global experience, specializing in supply chains and digital transformation. Starting at Shell, she has driven growth and sustainability initiatives, focusing on reducing Scope 3 emissions. A thought leader in the energy sector, Sri is also pursuing an Executive Doctorate in Business Administration at the University of Houston.

Beyond crafting strategies, Sri excels in catalyzing business transformations to propel growth. Her mastery of digital transformation has been instrumental in delivering remarkable outcomes.

Renowned for her ability to drive distinctive commercial and digital opportunities, Sri's strategic interventions have yielded substantial value creation in driving competitive, resilient and sustainable supply chains.

Agenda
What will we learn today………….

Introduction and Importance

Risk Mitigation in the Current Market

Latest Tracking Technologies

Conclusion and Key Takeaways

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"May You Live in Interesting times"

– Fortune Cookie

Poll 1 - Risk

There are major risks that impact supply chains ………….

FIGURE C | **Global risks ranked by severity over the short and long term**

"Please estimate the likely impact (severity) of the following risks over a 2-year and 10-year period."
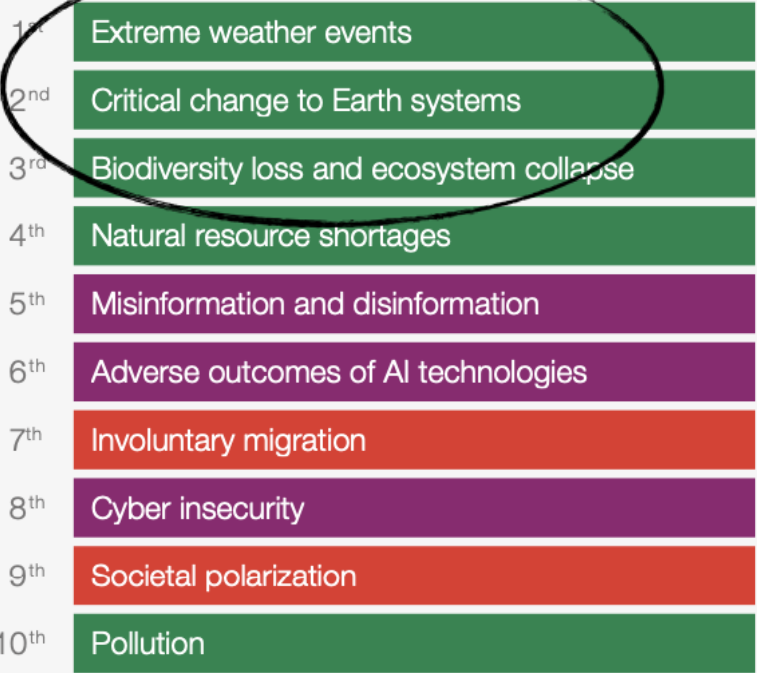
Risk categories

- Economic
- Environmental
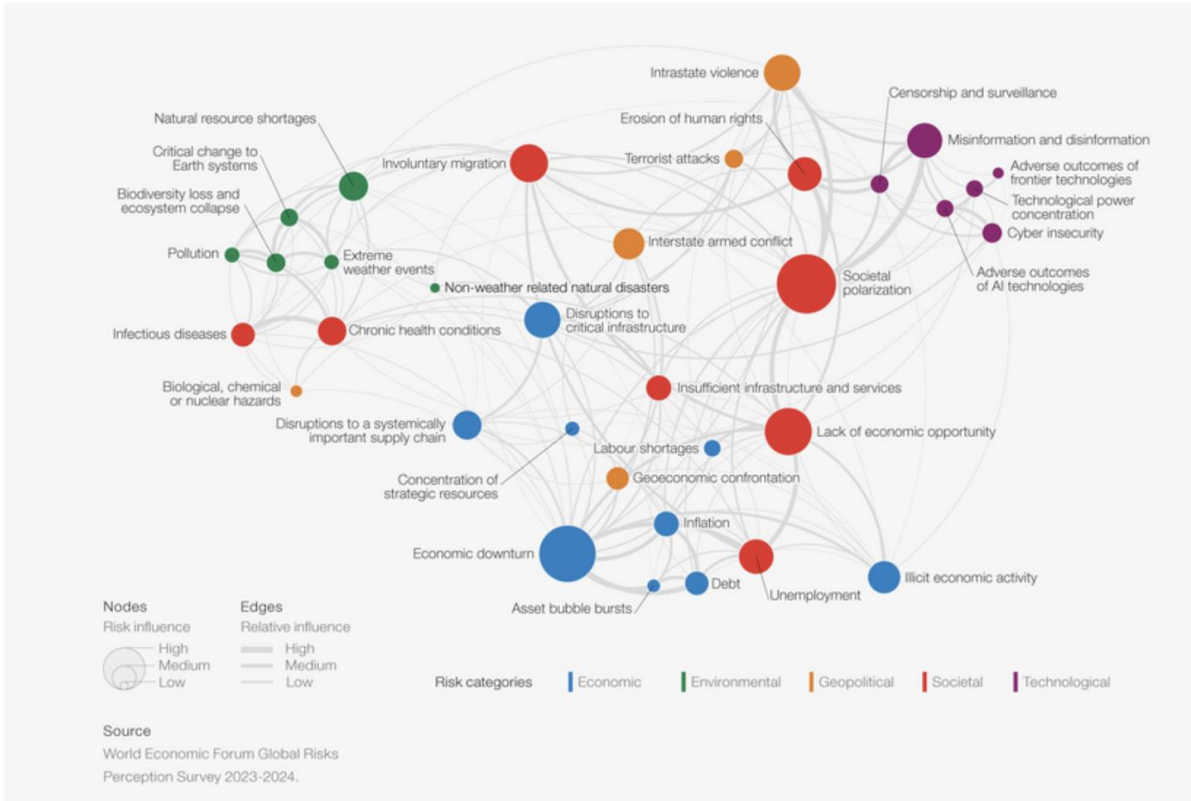- Geopolitical
- Societal
- Technological

2 years

1st	Misinformation and disinformation
2nd	Extreme weather events
3rd	Societal polarization
4th	Cyber insecurity
5th	Interstate armed conflict
6th	Lack of economic opportunity
7th	Inflation
8th	Involuntary migration
9th	Economic downturn
10th	Pollution

10 years

1st	Extreme weather events
2nd	Critical change to Earth systems
3rd	Biodiversity loss and ecosystem collapse
4th	Natural resource shortages
5th	Misinformation and disinformation
6th	Adverse outcomes of AI technologies
7th	Involuntary migration
8th	Cyber insecurity
9th	Societal polarization
10th	Pollution

Source

World Economic Forum Global Risks
Perception Survey 2023-2024.

........and increasingly these risks are interconnected

FIGURE D   Global risks landscape: an interconnections map

Nodes — Risk influence: High, Medium, Low
Edges — Relative influence: High, Medium, Low

Risk categories: Economic, Environmental, Geopolitical, Societal, Technological

Source: World Economic Forum Global Risks Perception Survey 2023-2024.

As an example here are some weather events...

1 — **2021 Texas Freeze:**
Worst unplanned blackout in U.S. history; halted factory production and disrupted transportation.

2 — **2023 Heavy Rains in California:**
Major transportation hub; caused 20%-30% decrease in deliveries.

3 — **2023 Panama Canal Drought:**
Significant delays for container ships; exacerbated global shipping disruptions.

4 — **2023 Taiwan Chip Production:**
Droughts and extreme weather worsened chip shortages, impacting various industries.

5 — **2024 Early Winter Storms:**
Lingering transportation disruptions from 2023; El Niño predicted to further strain supply chains.

6 — **El Niño Effects:**
Warmer/drier California, increased flooding in Peru/Bolivia, typhoons in Southeast Asia, droughts in Australia and East Africa; overall strain on global logistics and production.

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...with immense consequences

1

Costly Disruptions:
Missed deadlines and production halts damage trust.

2

Skyrocketing Costs:
Inefficiencies and emergency fixes eat into profits.

3

Compliance Pitfalls:
Risk of fines, recalls, and legal battles.

4

Quality Failures:
Defects slip through, harming reputation.

5

Fraud Exposure:
Counterfeits infiltrate, weakening brand integrity.

6

Lost Customers:
Delays and errors drive customers to competitors.

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Poll 2 - Preparedness

Therefore supply chain visibility and traceability are crucial ……
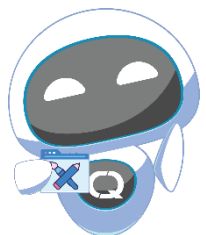
Visibility

"Do you have the real-time insight needed to track and optimize every step of your supply chain?"

Traceability

Can you pinpoint the exact path your products and materials take from start to finish?"

Combining advanced visibility and traceability tools empowers you to proactively manage and mitigate risks, ensuring a more resilient and compliant supply chain.

Identify Common Supply Chain Risks:

- **Disruptions:** Delays, natural disasters, geopolitical tensions.
- **Quality Issues:** Defective products, non-compliance with standards.
- **Cyber Threats:** Data breaches, unauthorized access.
- **Demand Fluctuations:** Sudden spikes or drops in demand.

Role of Visibility in Risk Management:

- **Real-Time Monitoring:** Stay informed of potential disruptions as they happen.
- **Predictive Analytics:** Anticipate and mitigate risks before they escalate.
- **End-to-End Transparency:** Ensure all stakeholders are aware of risks and can respond promptly.

Traceability for Risk Resolution:

- **Root Cause Analysis:** Quickly identify where issues originate in the supply chain.
- **Compliance Assurance:** Maintain traceable records to meet regulatory requirements.
- **Efficient Recalls:** Swiftly isolate and address affected products or materials.

Traceability delivers value on multiple fronts

Sourcing
- Where is the product from?
- Was it ethically farmed?
- Were pesticides used?

Processing
- Where was the product processed?
- Were chemicals used?
- Are there alternatives if the factory is disrupted?

Circularity
- How can I reuse products after consumption?
- Does circularity create new business opportunities?

Packaging
- What percentage of the product packaging is made from recycled content?
- Is the packaging certified BPA free?

Disposal
- How did the consumer dispose of the packaging?
- Was the packaging recycled or reused? By whom?

Consumption
- Who drank the product?
- Did they like it?

Distribution
- How did the product travel to the customer?

Consumer goods beverage product

Source: Bain and Company

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Revolutionizing Visibility and Traceability with Advanced Technologies

IOT

Purpose: Connects the physical world to digital data.

Application: Real-time tracking of goods and environmental monitoring.

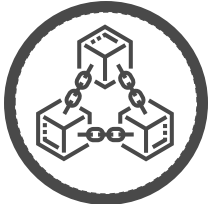**Impact:** Reduces risk by providing instant insights into product status.

Blockchain

Purpose: Ensures unbreakable data integrity and transparency.

Application: Securely records every transaction and movement.

Impact: Builds trust with a tamper-proof record, verifying product authenticity.
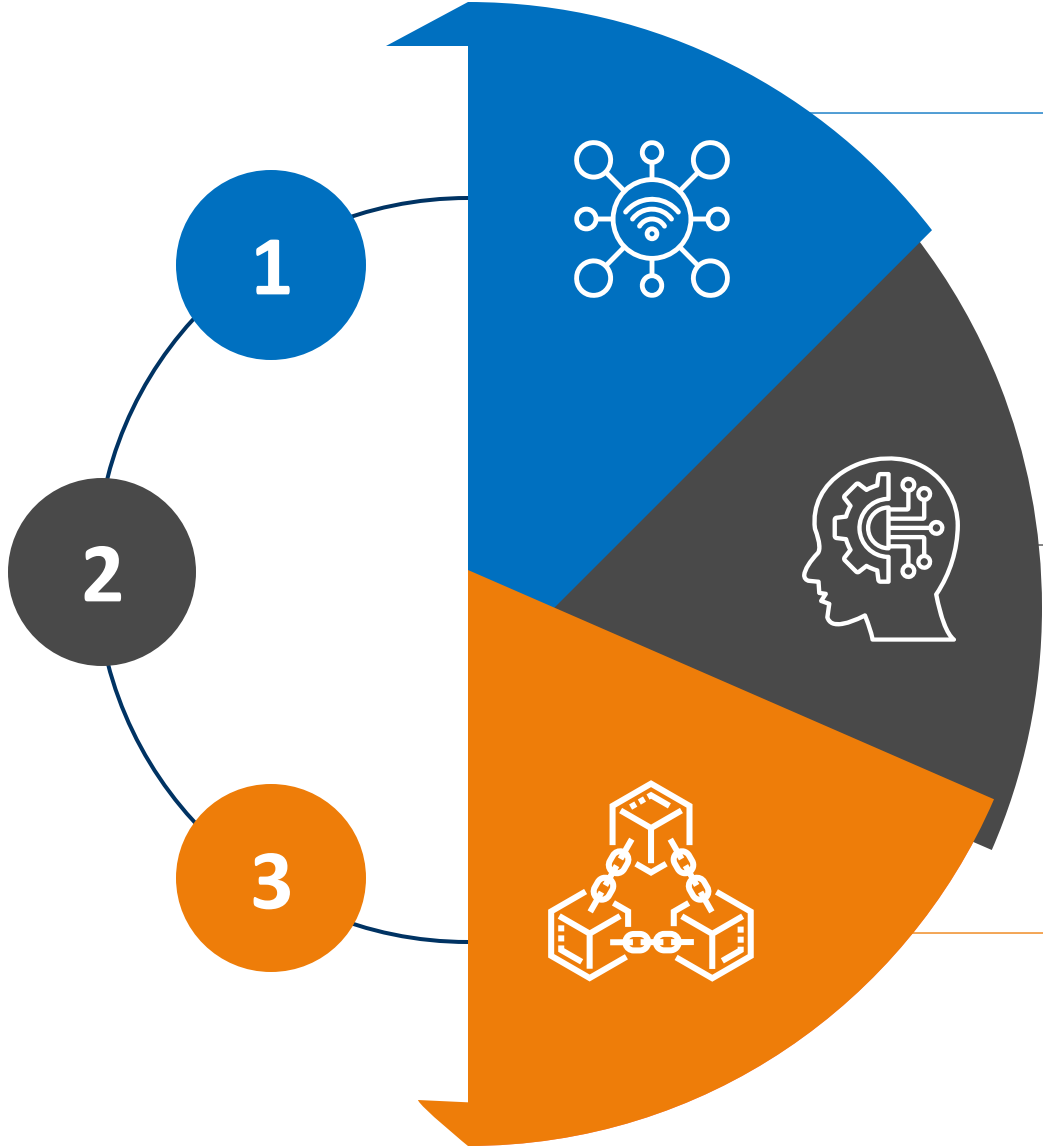
AI

Purpose: Transforms raw data into optimized supply chain strategies.

Application: Predicts demand, identifies risks, and suggests preemptive actions.

Impact: Powers smarter decisions, leading to a more efficient and resilient supply chain.

Better Together ....Integrating technologies

IoT and Blockchain:
IoT devices feed real-time data into a blockchain, creating a secure, traceable record.

AI and IoT:
AI analyzes IoT-generated data to forecast potential issues and optimization

Blockchain and AI:
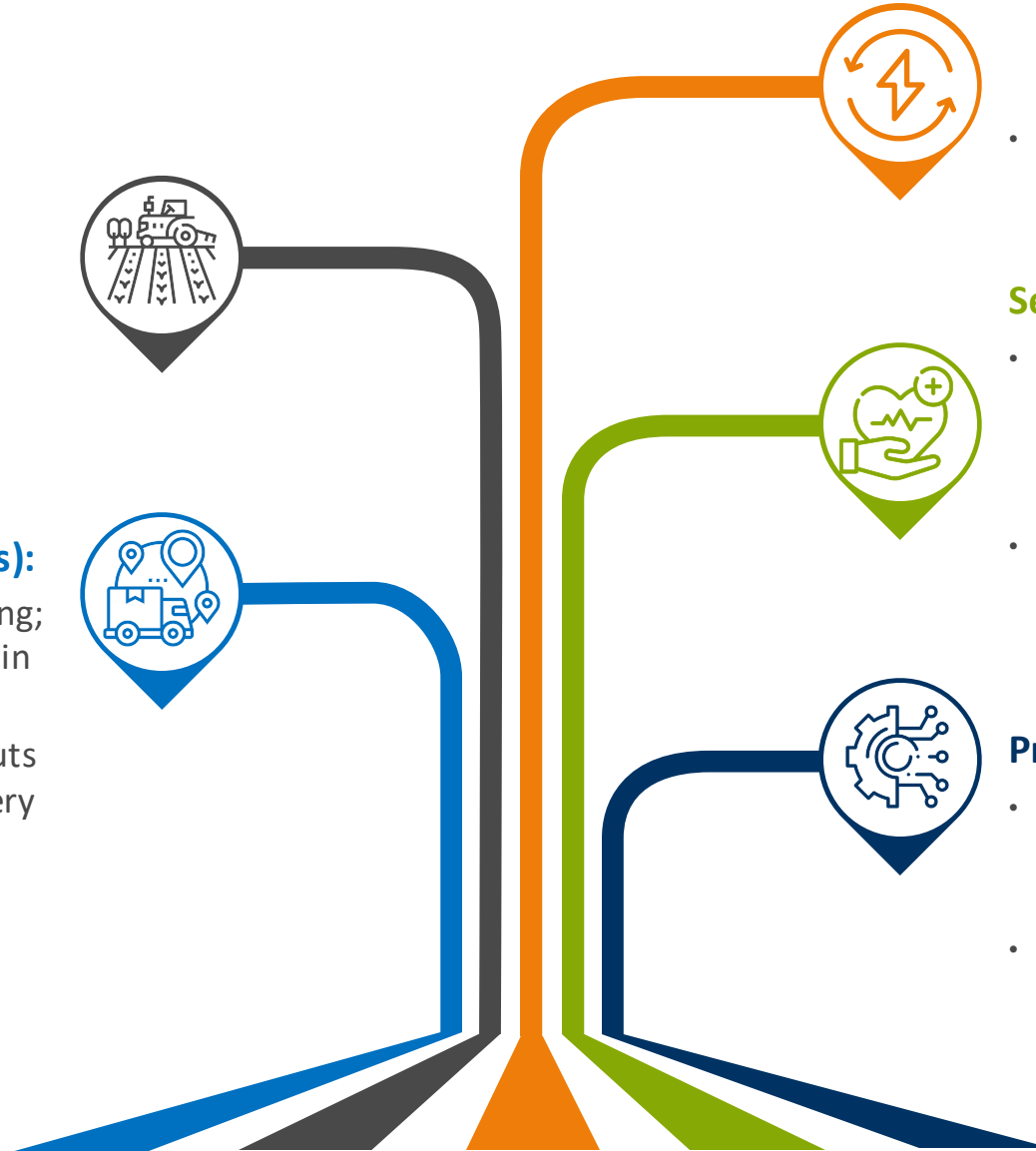AI processes blockchain data to identify patterns and ensure compliance.

.... unlocks innovation

Precision Agriculture (Agriculture):

- **Integration:** IoT monitors soil and weather conditions; Blockchain verifies organic and sustainable farming; AI optimizes crop yield predictions.
- **Impact:** Increases food production efficiency while ensuring transparency for consumers.

Autonomous Supply Chains (Logistics):

- **Integration:** IoT enables real-time tracking; AI automates decision-making; Blockchain ensures end-to-end transparency.
- **Impact:** Reduces human intervention, cuts operational costs, and guarantees delivery accuracy.

Smart Grid Management (Energy):

- **Integration:** IoT sensors measure energy usage; Blockchain secures energy transactions; AI predicts demand fluctuations and optimizes grid distribution.
- **Impact:** Reduces energy waste, enhances sustainability, and stabilizes energy prices.

Secure Data Sharing in Healthcare:

- **Integration:** IoT collects patient data from wearable devices; Blockchain ensures secure and compliant data sharing; AI analyzes data for personalized care.
- **Impact:** Enhances patient outcomes through data-driven insights while ensuring privacy and security.

Predictive Product Lifecycle (Electronics):

- **Integration:** IoT tracks usage and wear; Blockchain logs component history and origin; AI predicts failure or obsolescence.
- **Impact:** Extends product life, reduces e-waste, and provides more accurate service schedules.

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Poll 3 - Technology Readiness

In summary…. Supply chain visibility and traceability enables…….

Secure, transparent communication and data sharing with suppliers, ensuring alignment with new transparency standards.

Meet regulatory requirements

Collaborate better with customers and partners

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About ComplianceQuest

About ComplianceQuest

Transform to a fully connected business with a next-generation AI-Powered Product Lifecycle, Quality and Safety management platform, built on Salesforce.

300,000+ Users
1000+ Customer Sites

100M+ Active Records being Managed

1000+ Man years Domain Expertise

Award Winning Solution

Worldwide Direct and Partner locations

Financially Strong

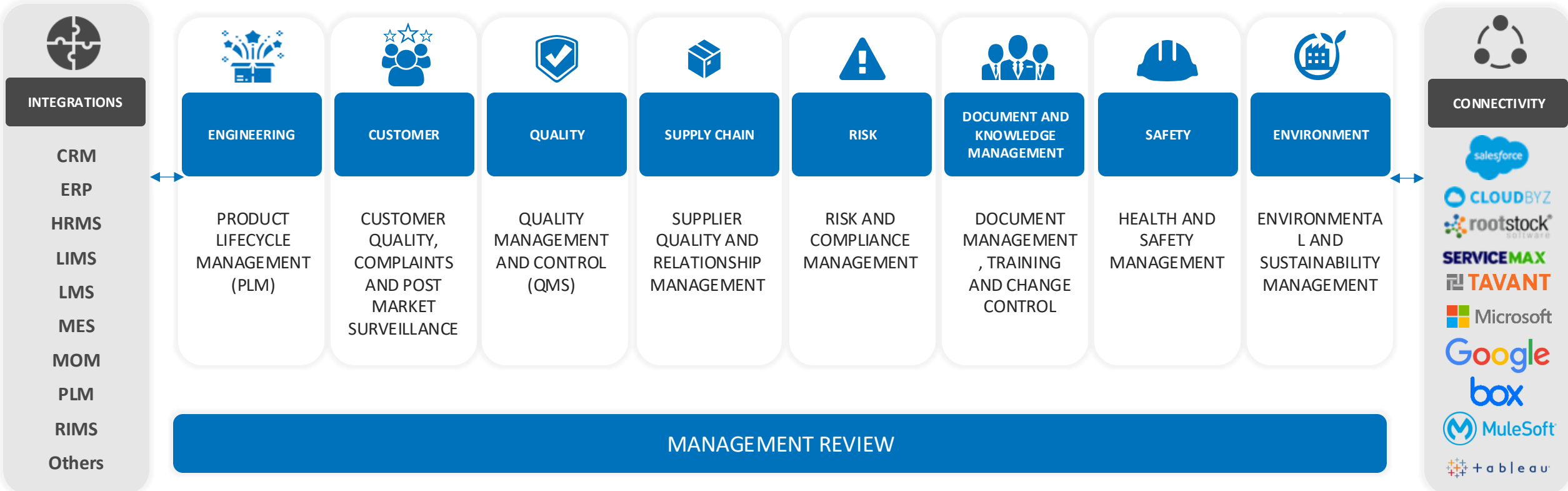Quality & Compliance begins at home and with Salesforce

Recognized

Time Tested and Proven

Achieve your Quest for Digital Operations

CQ intelligently automates operations from product innovation to customer success

INTEGRATIONS

- CRM
- ERP
- HRMS
- LIMS
- LMS
- MES
- MOM
- PLM
- RIMS
- Others

ENGINEERING	CUSTOMER	QUALITY	SUPPLY CHAIN	RISK	DOCUMENT AND KNOWLEDGE MANAGEMENT	SAFETY	ENVIRONMENT
PRODUCT LIFECYCLE MANAGEMENT (PLM)	CUSTOMER QUALITY, COMPLAINTS AND POST MARKET SURVEILLANCE	QUALITY MANAGEMENT AND CONTROL (QMS)	SUPPLIER QUALITY AND RELATIONSHIP MANAGEMENT	RISK AND COMPLIANCE MANAGEMENT	DOCUMENT MANAGEMENT, TRAINING AND CHANGE CONTROL	HEALTH AND SAFETY MANAGEMENT	ENVIRONMENTAL AND SUSTAINABILITY MANAGEMENT

MANAGEMENT REVIEW

CONNECTIVITY

- salesforce
- CLOUDBYZ
- rootstock software
- SERVICEMAX
- TAVANT
- Microsoft
- Google
- box
- MuleSoft
- tableau

Embedded & Advanced Analytics	Collaboration (Chatter, MS Teams)	2-Way Portal	Alerts and Notification	Forms Designer/ Runner	Mobile	Pre-Validated	Ratings	CQ.AI	MyCQ for casual users

PLATFORM POWERED BY salesforce

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THANK YOU

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