

The Impact of IoT on Supply Chain Cybersecurity

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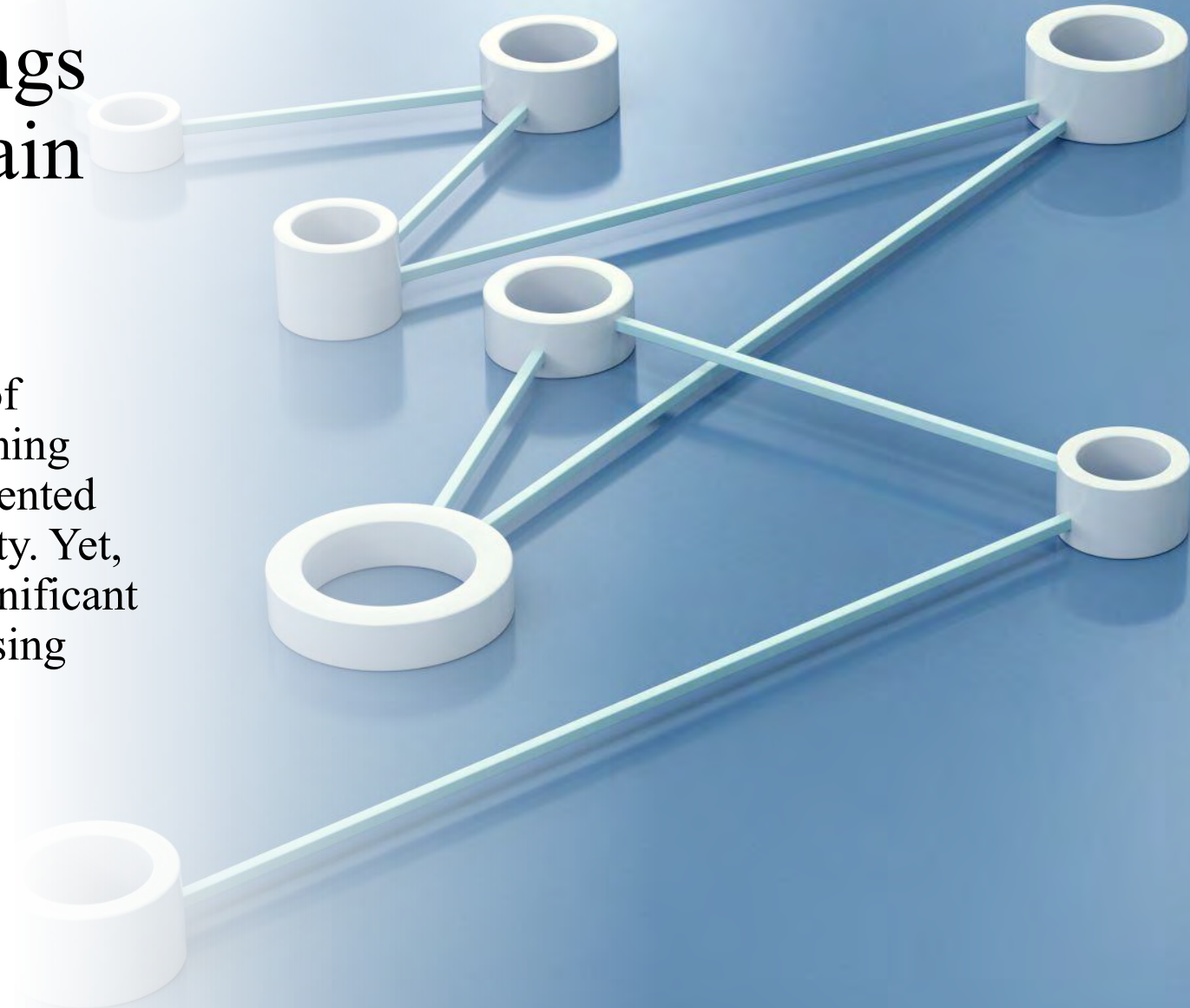
Background

A person's hands are shown holding a tablet computer. The tablet screen displays a blue-toned interface with a supply chain diagram, including arrows and data points. The background is a blurred industrial setting, likely a warehouse or factory, featuring blue metal shelving units and several orange robotic arms (palletizers) positioned around a pallet of cardboard boxes.

- **Supply chain** : network of processes, people, and resources involved in producing and delivering a product or service, from raw materials to the end consumer. It includes sourcing, manufacturing, storage, distribution, logistics, and customer service.
- **The Internet of Things (IoT)** connects physical devices with sensors and software to collect and exchange data over the internet, enabling automation and efficiency in various applications.
- **Cybersecurity** is the practice of protecting systems, networks, and data from digital attacks, unauthorized access, and damage.

Internet of Things and Supply Chain

- The global supply chain, powered by the Internet of Things (IoT), is transforming commerce with unprecedented efficiency and connectivity. Yet, this innovation brings significant cybersecurity risks, exposing vulnerabilities in an interconnected world.



IoT Growth Statistics

- **IoT Market:** Projected to reach **\$1.1 trillion** by 2026, with a **CAGR of 24.7%** from 2021.
- **Connected Devices:** **12.3 billion** in 2020, expected to exceed **30 billion** by 2025.
- **Smart Homes:** Over **70 million** smart homes by 2025, boosting demand for IoT devices.
- **Industrial IoT:** Expected to generate **\$15 trillion** in value by 2030, enhancing efficiency.
- **Healthcare IoT:** Connected medical devices to grow from **\$41.9 billion** (2021) to **\$182 billion** by 2027.

Source: Statista 2021

Role of IoT in Supply Chains

- Supply chains connect producers, distributors, and consumers globally.
- IoT devices have revolutionized supply chain efficiency and visibility.



How IoT Transforms Supply Chains

- **Efficiency Gains:**

- Real-time tracking of shipments with RFID and GPS.
- Automated inventory management in warehouses.

Example: E-Commerce companies, Pharmaceutical and Cold Chain Companies

- Predictive maintenance for machinery.

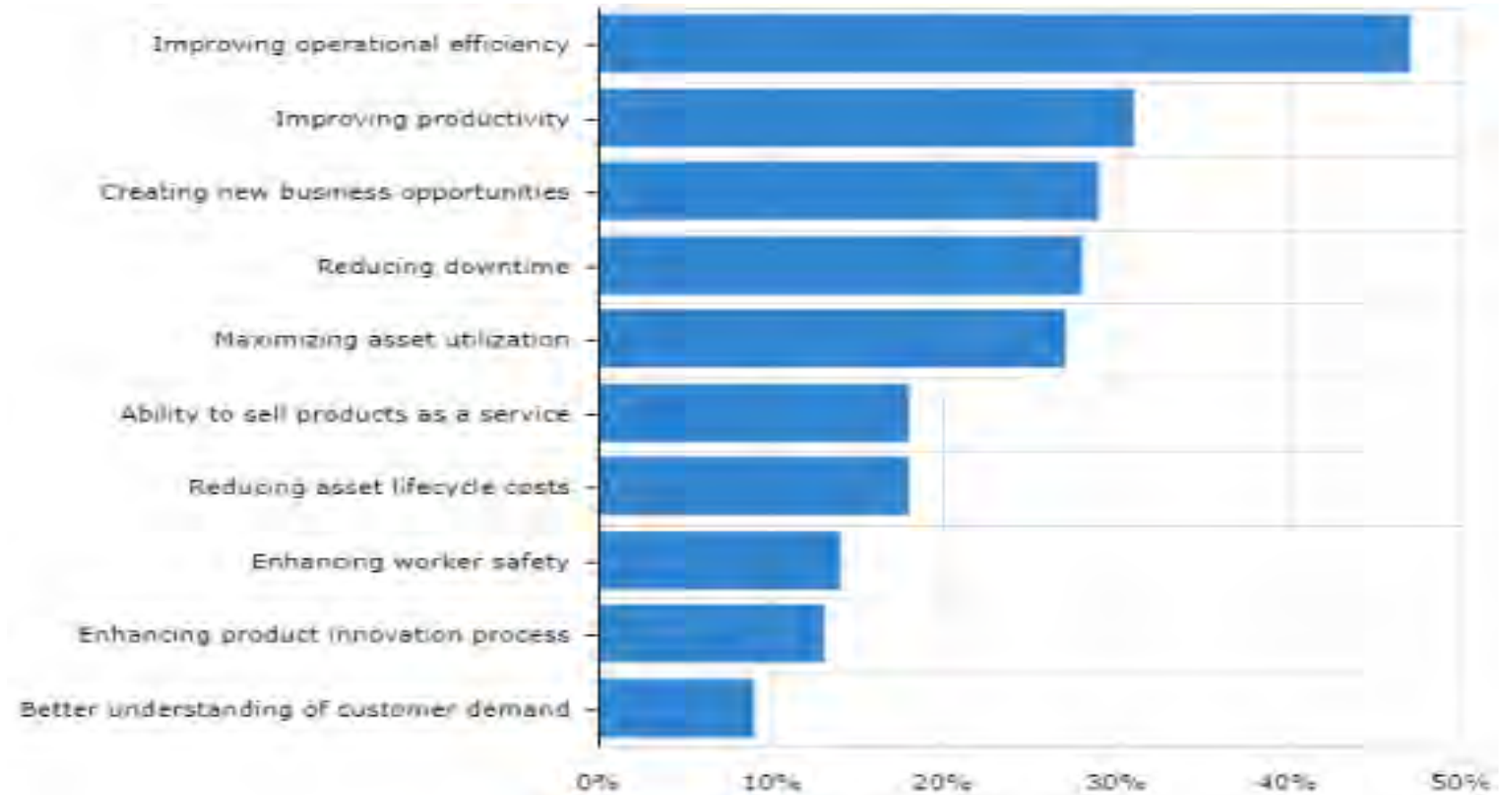
- **Enhanced Decision-Making:**

- Data-driven insights for supply chain optimization.
- Predictive analytics to mitigate disruptions.



Impact of Internet of Things on Supply Chain Operations

Source: Morgan Stanley –
Automation World
Industrial Survey, Alpha
Wise



Cybersecurity Risks



The Dark Side of IoT in Supply Chains

- **Key Vulnerabilities:**
 - Lack of standardization in IoT devices.
 - Expanding attack surface with billions of devices.
 - Sensitive data exposure.
- **Examples:**
 - The **SolarWinds** breach (2020) compromised software updates, affecting companies like **Microsoft** and **FireEye**. Hackers accessed sensitive data, disrupting global supply chains. Trusted networks were infiltrated, enabling espionage and data theft.

Mirai launching DDoS attacks

•**2016:** Mirai botnet launched a **620 Gbps** DDoS attack on Krebs On Security.

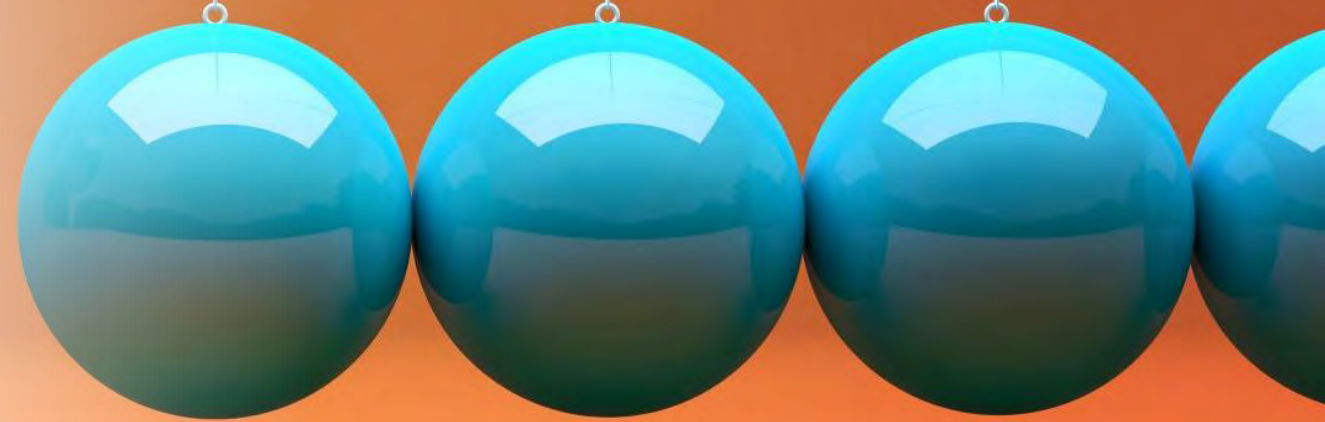
•Targeted IoT devices (cameras, routers) with weak passwords via **HTTP floods**.

•Attack forced Krebs on Security to use **Google's Project Shield** for protection.



Balancing Innovation and Risk in a Connected World

- In a connected world, balancing innovation with risk requires integrating robust security into every layer of IoT and supply chain operations. By prioritizing resilience alongside technological progress, organizations can harness the full potential of connectivity without compromising trust or efficiency



Strategies for IoT Security in Supply Chains



Adopt Zero Trust Architecture:

Assume devices or networks may be compromised.

Implement strict access controls.



Enhance Endpoint Security:

Encrypt IoT devices and ensure regular updates.

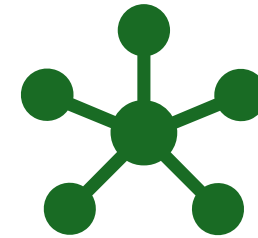
Collaborate with vendors for secure designs.

Strategies for IoT Security in Supply Chains cntd



Improve Visibility:

Use AI for anomaly detection.
Implement blockchain for secure records.



Industry Collaboration:

Create shared security standards.
Join threat intelligence platforms

The Future of IoT in Supply Chains

Future Outlook

- Autonomous vehicles and self-healing logistics networks.
- Predictive risk management with AI and IoT.
- Collaborative frameworks for cybersecurity.



Safeguarding the Future

Call to Action

- IoT offers immense opportunities but requires robust security.
- Prioritize cybersecurity alongside innovation.
- Collaboration between governments, industries, and tech leaders is critical.



Thank You!

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