Sustainable Chemical Logistics for the Future

Presented by

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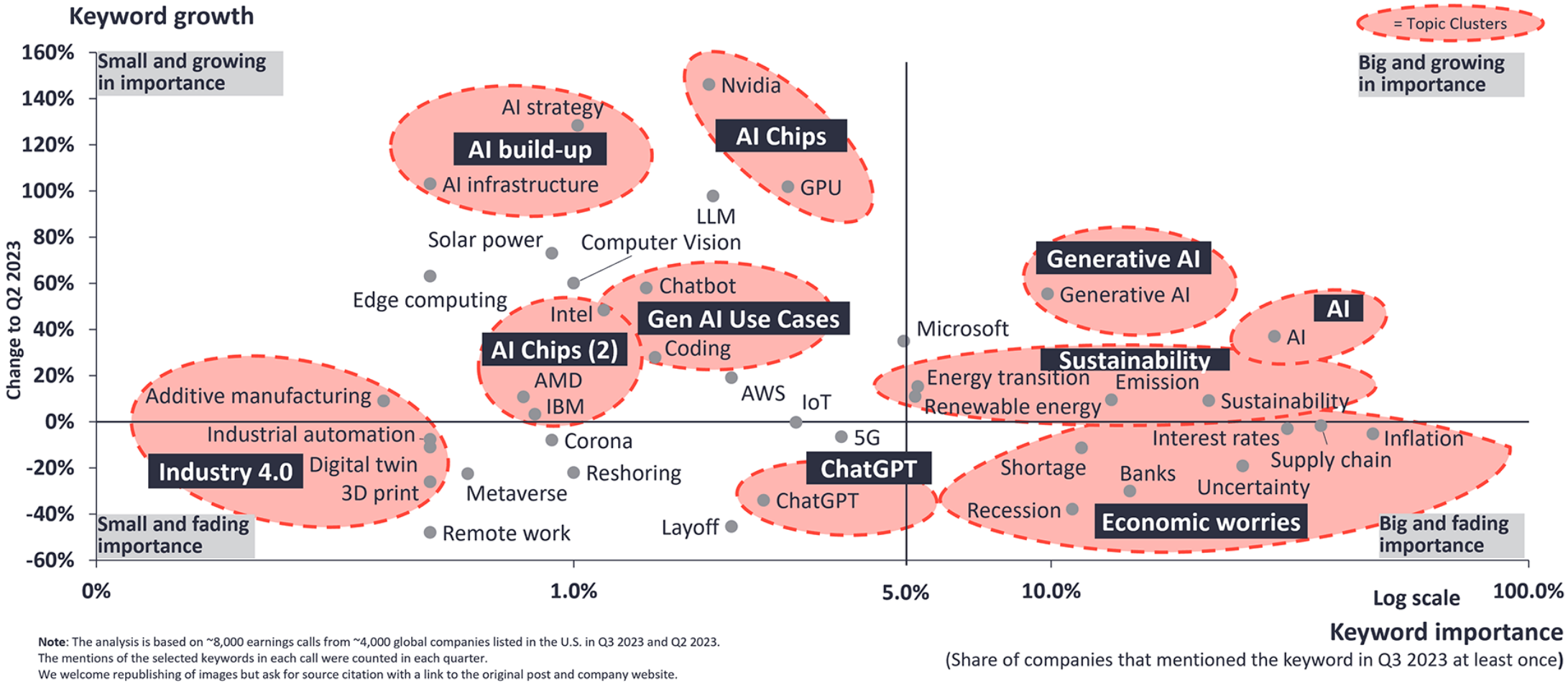
IOT ANALYTICS

Your Global IoT Market Research Partner

What CEOs talked about in Q3/2023 (vs. Q2/2023)



Note: The analysis is based on ~8,000 earnings calls from ~4,000 global companies listed in the U.S. in Q3 2023 and Q2 2023.
The mentions of the selected keywords in each call were counted in each quarter.
We welcome republishing of images but ask for source citation with a link to the original post and company website.

Source: IoT Analytics

Sustainability in Chemical Logistics

Sustainable chemical logistics for the future is a critical consideration in our ongoing efforts to minimize the environmental footprint of the chemical industry and contribute to its long-term viability by enhancing safety and efficiency.

Short Term Focus

Lack of Clear vision and strategy

Resistance to Change

Lack of Awareness and Education

Ecosystem Support

Lack of Collaboration

Social Barriers

Lack of impact assessment

Technological Barriers

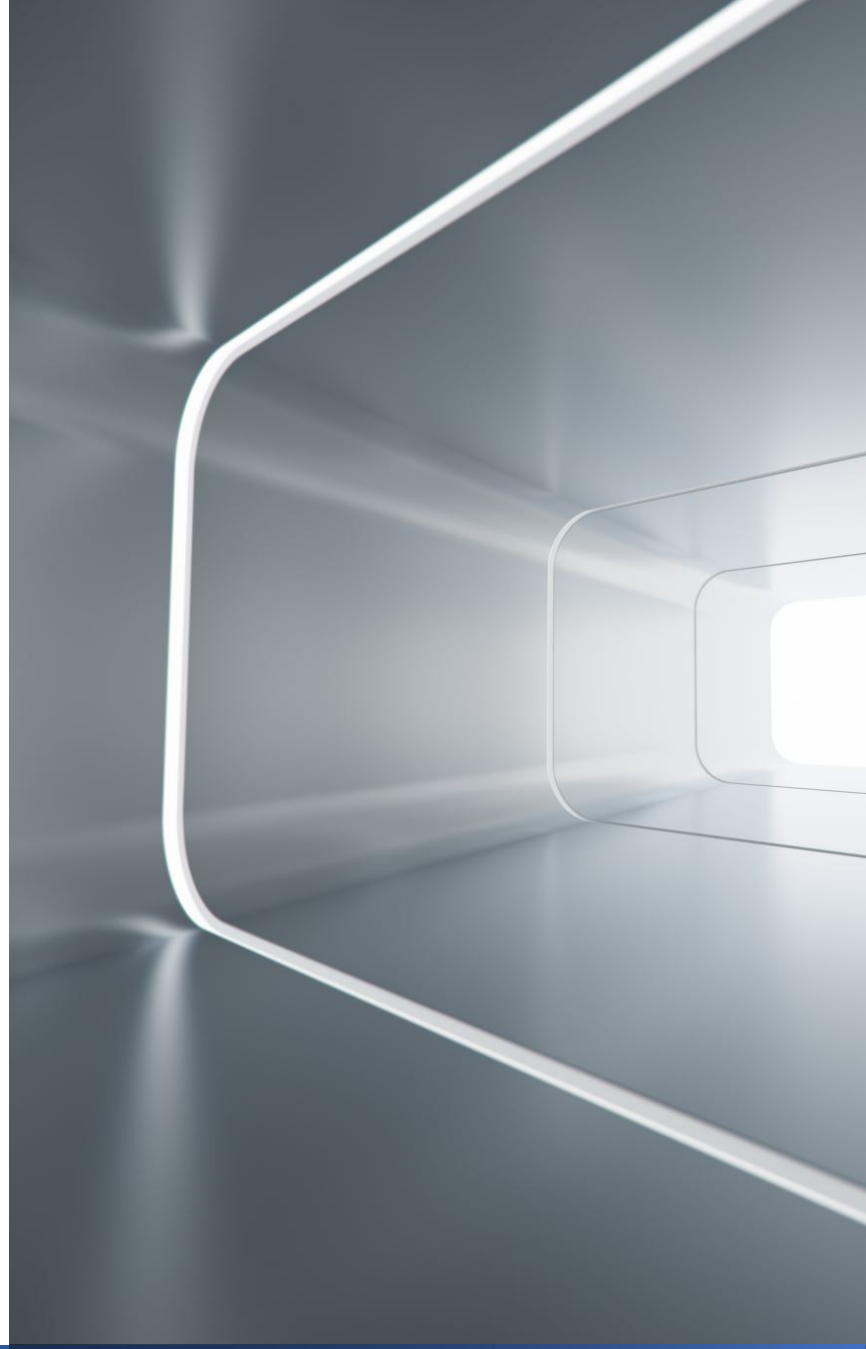
Limited access to Sustainable Technologies

Complex Supply Chains

Long Term Vision and Strategy

Having a clear, long-term vision that guides decision-making and investment in sustainable chemical logistics, recognizing that sustainability is a long-term investment in the future.

While the long-term outlook is firmed up within the organisation and the ecosystem, key enablers are required to be set in place and motion to help effectively strategize for key areas in logistics sustainability.



Key Enablers

Technology and Innovation

Embracing cutting-edge technologies like IoT, AI, blockchain, and data analytics to enhance efficiency and sustainability

Regulatory Frameworks

Supportive and well-defined regulatory frameworks at local, national, and international levels to drive compliance with environmental standards, safety protocols, and sustainability requirements

Collaborative Partnerships

Strong relationships with suppliers, customers, logistics partners, and stakeholders to facilitate information sharing, joint sustainability initiatives, and a coordinated approach to addressing challenges

gement and Communication

Engaging with the public, communities, and advocacy groups to address concerns, gather input on sustainability initiatives, and build support for sustainability efforts

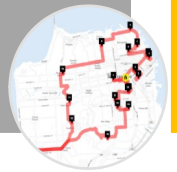
Transportation

Modal Shift

- Combine multiple transportation modes for efficiency e.g., rail-truck or ship-truck combinations
- **Prioritize rail or ship transport** for long distances for savings in greenhouse emissions per ton-mile
- Dispatch in bulk to minimize excess storage

Route Optimization

- Implement **advanced route planning software** that factors in real-time data like traffic, weather, and delivery schedules
- Make **real-time route adjustments** to minimize fuel consumption and delays



Fleet Management

- Utilize a **modern, fuel-efficient vehicle**
- **Regular Preventive maintenance** to ensure optimal performance of vehicles and reduce emissions.
- **Load optimization** to maximize capacity while reducing wear and tear.

Cleaner Fuels

- Transition to **electric vehicles** reduces carbon emissions and dependence on fossil fuels.
- **Hybrid vehicles** combine electric and traditional engines for improved fuel efficiency
- Invest in **hydrogen-powered vehicles,** emitting only water vapor.

Sustainable Packaging

- Invest in durable, **reusable containers** to minimize single-use packaging waste.
- Choose **eco-friendly packaging materials** made from recycled or sustainable sources.
- **Optimize packaging design** to reduce waste and maximize space in shipping containers.

Investment in Technology

- Use GPS and network triangulation technologies to monitor the location of chemical shipments in real-time.
- Utilize telematics systems for vehicle diagnostics and performance monitoring.

Tracking Systems

- Deploy IoT devices for real-time monitoring of shipments and assets for condition sanctity
- Monitor driver state using ADAS and In-Cab Camera systems to prevent mishaps

Monitoring Systems

- Blockchain is a decentralized digital ledger technology that securely records and verifies transactions, making it valuable for supply chain management, and secure data sharing
- Integrate Blockchain for transparent and traceable supply chains

Blockchain Integration

- Employ predictive data analytics to determine maintenance needs beforehand, minimize breakdowns.
- Employ AI/ML to make dynamic adjustments for route optimization

Data Analytics

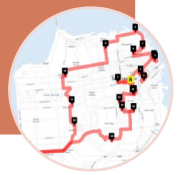
Safety and Risk Management

- Stay updated on evolving **environmental and safety regulations** to ensure full compliance.
- Continuous Improvement: Strive to exceed regulatory requirements to minimize environmental impact further.

Regulatory Compliance

- Strict adherence to safety measures and regulations to **prevent accidents and protect human health**.
- Develop and practice **emergency response plans** to respond quickly to spills or accidents.

Risk Mitigation and Safety



- Conduct **thorough life cycle assessments** to identify areas for improvement in sustainability efforts.
- **Data-driven decision-making** to reduce the environmental impact of chemical logistics operations.

Life Cycle Assessment

- Conduct frequent **audits and inspections**.
- Identify and rectify hazards and inefficiencies

Audits and Certifications

Collaboration and Partnerships

- **Supplier collaboration** to optimize shipping schedules and reduce lead times.
- **Customer engagement** in logistics planning to enhance efficiency
- **Sharing data on emissions and best practices** to work towards shared sustainability goals

Collaboration and Information Sharing

- **Training and Education** for drivers and handlers to handle and respond to any emergencies
- **Engaging with employees** on sustainability and safe practices fosters a culture of responsibility within our organizations

Training and Awareness

- **Transparency**: Communicate openly about sustainability efforts to build trust with the public and stakeholders.
- Gather **feedback and input from stakeholders** to improve sustainability practices continually.

Public and Stakeholder Engagement

Sustainability Focus in National Logistics Policy

	Existing Initiatives	Initiatives under NLP
Direct Policies	• Euro VI standards • Vehicle Scrappage Policy • Exploring Alternate Fuels – H2 / CNG	• Accreditation of Green Logistics Enterprises and Green Logistics Infrastructure • Rating and Recognition of LSPs for sustainability • Development a “Green Logistics” Centre of Excellence in India
Operational Shift	• Focus on Coastal Shipping with Relaxation of Cabotage Laws • Focus on Inland Water Transport with operational National Waterways	• Supporting development of infrastructure that makes adoption of multimodal alternatives feasible • Supporting initiatives to solve congestion points in road networks • Standardization in Packaging for waste reduction
Incremental Impact	• Introduction of a National E-Way Bill and FASTag • Regulatory Clarification for separate registration of tractor and trailer • Introduction of WIM (Weigh-In-Motion) technology in highway corridors	• Coordination between Line Ministries and Agencies to promote green and sustainability related principles within the projects identified in the National Logistics Master Plan • Development of State wise Master Plans to promote green alternatives for urban logistics and last mile connectivity

THANK YOU