Innovation and Expansion

Digital Supply Chain

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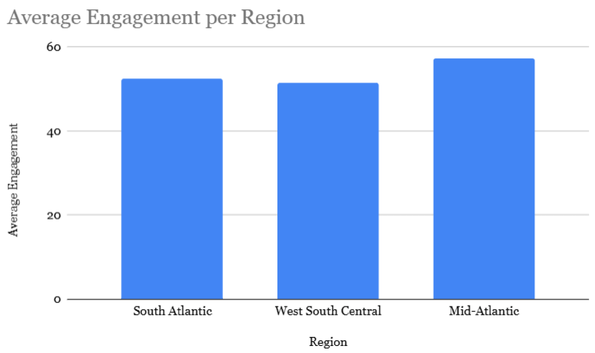
Abstract

This project was developed in response to a challenge presented in response to a common organizational dilemma presented in a Purdue University technical and service selling class. The challenge involved a midwest-based supply chain and industrial distribution company seeking to expand both domestically and internationally within the digital supply chain sector. In today's industrial engineering landscape, digital supply chains have become increasingly important for improving operational efficiency and reducing bottlenecks. Using Google Trends, geographic regions with significant interest in the digital supply chain were identified. Both real-time and historical data were analyzed to determine areas with strong potential for expansion. Domestically, the Mid Atlantic region, specifically New Jersey, New York, Pennsylvania, emerged as the strongest candidate for expansion. Internationally, Singapore was found to be the most similar with a promising global market. The significance of this project lies in its data-driven approach to help similar companies expand in terms of profits and revenue as well as reduce bottlenecks that align with both company and local interests.



This graph shows the average engagement score for the regions with states in the top 5. As shown above, the Mid-Atlantic is the highest, with an average of 57.3.

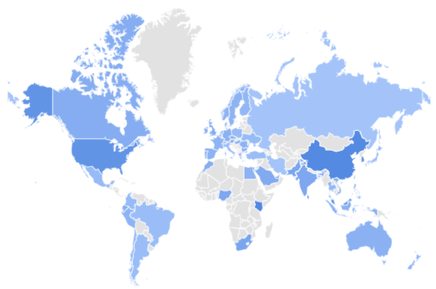
Understanding Digital Supply Chains & Our Expansion Strategy

The digital supply chain uses technologies like IoT, cloud platforms, AI, and data analytics to connect and automate the flow of information, goods, and finances across the supply chain network. The goal is real-time visibility, faster decision-making, and greater efficiency and resilience from suppliers to customers.

As industries increasingly rely on these tools to reduce bottlenecks and streamline logistics, identifying the right markets for expansion becomes critical. We were able to do this by utilizing Google Trends using “digital supply chain” as our core search keyword to analyze both real-time and historical search interest. We identified the Mid-Atlantic region (New York, New Jersey, and Pennsylvania) as the strongest domestic opportunity, given its dense concentration of industrial and distribution activity. Internationally, Singapore stood out as the premier global candidate due to its position as a leading logistics hub in Southeast Asia and its high engagement with digital supply chain innovation. Google trends data represents search popularity for search terms on a scale of 0-100 for the past 12 months. Google Trends data for the keyword "digital supply chain" revealed clear geographic concentrations of interest both domestically and globally.

Domestic and Global Analysis

The real-time domestic map highlights strong engagement across the East Coast, showing that there is a dense and sustained interest across the broader Mid-Atlantic corridor. When combined with historical trend data the Mid-Atlantic region (New York, New Jersey, and Pennsylvania) served as the strongest and most consistent domestic target, as it had a higher average engagement than any other region. The urban density of this region makes it particularly well-suited for digital supply chain expansion: key cities such as New York currently dominate the U.S. logistics market due to the strategic location, well-developed infrastructure, and large population densities, serving as a critical hubs for both national and international trade that is supported by major ports, airports, and extensive road and rail networks.[1] This is further reinforced by market size projections, as New York's freight and logistics market alone is expected to reach USD 71.19 billion in 2025, growing to USD 80.99 billion by 2030[2], showing that this is a high-demand environment where digital supply chain solutions can generate immediate impact.

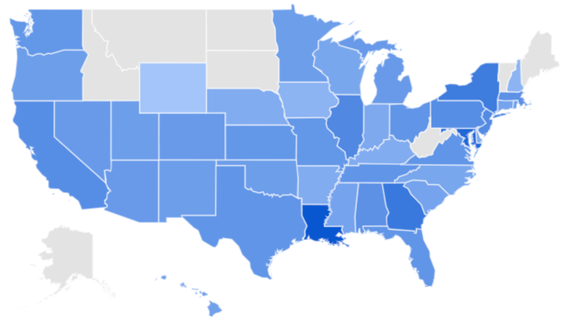


Globally, Singapore ranked #1 worldwide with a perfect Google Trends score of 100. This top ranking is well-supported by market fundamentals that make Singapore a perfect target for digital supply chain expansion. The Singapore logistic market was valued at USD 26.4 billion in 2024 and is projected to reach USD 42.2 billion by 2033, growing at a CAGR of 4.37%[3]. Beyond market size, Singapore's infrastructure and tech readiness are also key factors that set it apart from its counterpart, as the world's second-busiest container port, with a liner shipping connectivity index of 117.8 and direct calls from more than 200 carriers.[4] Digitalization is also deeply embedded in Singapore's business landscape, with the rapid expansion of e-commerce pushing logistics providers to adopt AI and IoT technologies for real-time tracking and route optimization, supported by government-driven smart port and blockchain initiatives.[5]. Together, these factors confirm Singapore not just as a high-interest market, but as a strategically mature and fast-growing hub where digital supply chain services can deliver immediate and long-term value.

Global Results

1	Singapore	100
2	St. Helena	75
3	Kenya	56
4	China	54
5	South Korea	48

Regional Results



1	Louisiana	100
2	District of Columbia	86
3	Maryland	86
4	Georgia	70
5	New York	67

Conclusions

The Google Trends data demonstrates that there is a high level of interest digital supply chain, and points toward specific geographic regions where this supply chain functionality might succeed. Domestically, the Mid-Atlantic represents a growing logistics market which could benefit from investing in modern supply chain technologies. Globally, the data suggests a high level of interest in the search term in Singapore, which has the logistics infrastructure to support digital supply chain implementation.

Future Recommendations

Therefore, if more countries invested in digital supply chain infrastructure, global trade would become significantly more efficient, resilient, and transparent. This would reduce costly disruptions and strengthen international partnerships.