



DIGITIZING THE AI-POWERED SUPPLY CHAIN

Prepared by
Graham Parker
Chief Executive Officer
Ship Angel
www.shipangel.com

TABLE OF CONTENTS

	INTRODUCTION	1
	AI INVESTMENTS	2
	HOW AI HAS CHANGED DIGITIZATION STRATEGIES	3
	AI-POWERED SUCCESS FOR A GLOBAL SHIPPER	4
THE COST OF AI		5
DEVELOPING AN AI PLAN		6
ABOUT SHIP ANGEL		8



INTRODUCTION

Digitization—the process of replacing manual or analog processes throughout supply chains with digital solutions—has long been a goal for businesses. However, without a clear strategy, many companies struggle to progress as far on their digitization journey as they would like.

As global trade dynamics shift and threats increase, businesses are revising their digitization strategies by increasing investments in artificial intelligence (AI).

According to technology solution provider Blue Yonder's 2024 Supply Chain Executive Survey, respondents identified supply chain improvements, particularly advanced technology, as key to addressing these challenges. Among the respondents, 79% reported that their companies have increased supply chain investments over the past year, and more than half (51%) are allocating over \$10 million to these improvements.

A significant focus of these efforts is the application of AI, machine learning (ML), and other advanced technologies. The Blue Yonder survey revealed that over half of companies are already applying AI in supply chain planning (56%), transportation management (53%), and order management (50%). Moreover, supply chain teams plan to continue adding cutting-edge capabilities, with 86% of survey respondents indicating plans to increase investments in AI, ML, and generative AI in the future.

When asked about the results of their supply chain investments, executives cited improved efficiencies (53%), revenue growth (37%), increased market share (37%), fewer disruptions (37%), and higher profitability (29%).

Consulting firm Kearney also found that most companies surveyed in 2024 are spending more on innovation. An overwhelming 92% of respondents reported that their innovation budgets had increased over the past 12 months. Two in three executives (66%) indicated a rise of more than 6%, while one in five (19%) reported an increase of over 10%.

Additionally, Kearney's research highlighted a direct relationship between the percentage of revenues invested in innovation activities and average ROI.

56%

Applying AI in supply chain planning

86%

To increase investments in AI, ML, and generative AI

53%

Cited improved efficiencies due to supply chain investment



AI INVESTMENTS

As businesses plan to increase investments in AI, AI start-ups are experiencing significant growth. Nearly half of all venture capital (VC) funding is now directed toward AI. According to PitchBook, investors poured \$27.1 billion into AI start-ups in the U.S. between April and June 2024.

While VC funding activity slowed in Q3—declining 13% year-over-year—AI start-ups still raised an impressive \$11.8 billion, marking the sixth-largest quarterly total in the market’s history, according to Stocklytics.

Despite its benefits, building AI solutions is expensive. Start-ups focused on AI require extensive computing power, including large quantities of powerful computer chips and substantial cloud storage.

An analysis of 125 AI start-ups by Kruze Consulting, an accounting and tax advisory firm, revealed that these companies spent an average of 22% of their expenses on computing costs during the first quarter of 2024—more than double the 10% spent by non-AI software companies during the same period.

HOW AI HAS CHANGED DIGITIZATION STRATEGIES

Supply chain disruptions cost organizations an average of \$184 million annually, according to insurance provider Swiss Re. However, through the use of AI in supply chains, the costs of disruptions are able to be better controlled.

As such, the integration of artificial intelligence (AI) into supply chain management has fundamentally transformed how businesses approach digitization.

Traditional supply chains once operated reactively, addressing issues as they arose. However, AI has introduced a more proactive approach, enabling businesses to anticipate challenges and optimize operations. By analyzing vast amounts of data, AI systems can identify patterns, predict disruptions, and recommend actionable solutions.

Real-time tracking powered by AI also ensures that businesses can monitor shipments, detect delays, and adjust as needed. This transparency is particularly valuable in global supply chains, where multiple stakeholders and regions are involved. AI-enabled visibility not only improves operational efficiency but also builds trust with customers and partners by ensuring accountability and reliability.

AI systems can also evaluate supplier performance, analyze contract terms, and identify potential risks, allowing businesses to make informed decisions.

Moreover, AI-driven tools facilitate better collaboration with suppliers by automating routine tasks like order processing and invoice reconciliation. This automation frees up resources, enabling supply chain teams to focus on strategic initiatives rather than administrative work.

In addition, AI has revolutionized logistics and transportation by enabling smarter route planning and resource allocation. Machine learning algorithms analyze traffic patterns, weather conditions, and delivery schedules to determine the most efficient routes, reducing fuel consumption and delivery times.

AI has also allowed for quicker decision-making by providing real-time insights and recommendations. Decision-makers can access AI-generated dashboards that consolidate data from various sources, offering a clear and actionable overview of supply chain operations.

AI-POWERED SUCCESS FOR A GLOBAL SHIPPER

A leading chemical manufacturer, moving thousands of shipments annually, faced operational bottlenecks stemming from fragmented rate management. Freight rates from dozens of vendors came in a chaotic variety of formats—PDFs, Excel files, and unstructured email text. Each submission required hours of manual entry and validation within sprawling spreadsheets. The complexity often led to discrepancies in vendor comparisons and missed opportunities for cost savings.

Beyond rate challenges, the company struggled to meet its ambitious sustainability targets. They had no reliable way to track CO2 emissions for their shipments.

Vendor contracts were another source of inefficiency, frequently amended without proper communication. These hidden changes introduced unexpected costs and strained supplier relationships.

After implementing Ship Angel's AI-powered platform, the company saw a dramatic transformation in its supply chain operations.

85%

Reduction in rate processing time

30%

Reduction in vendor disputes

Ship Angel's sophisticated AI engine ingested and standardized freight rates from any format—cutting rate processing times by 85% and enabling real-time analysis.

Procurement teams, once bogged down in manual comparisons, now had instant access to clean, actionable data for decision-making. This not only improved efficiency but also unlocked significant cost savings by identifying competitive pricing faster.

On the sustainability front, Ship Angel provided granular visibility into CO2 emissions for every shipment. This allowed the company to track progress toward its environmental goals and provide transparent reporting to internal and external stakeholders.

Ship Angel's Amendment Guard proved essential in contract management. The tool scanned and highlighted contract changes and discrepancies, flagging unauthorized amendments before they could impact financial outcomes. With better oversight, the company strengthened relationships with key vendors and reduced disputes by 30%, saving both time and money.

The shift from fragmented, reactive processes to an automated, AI-driven workflow not only boosted efficiency but positioned the company as a leader in sustainable, data-driven logistics.

THE COST OF AI

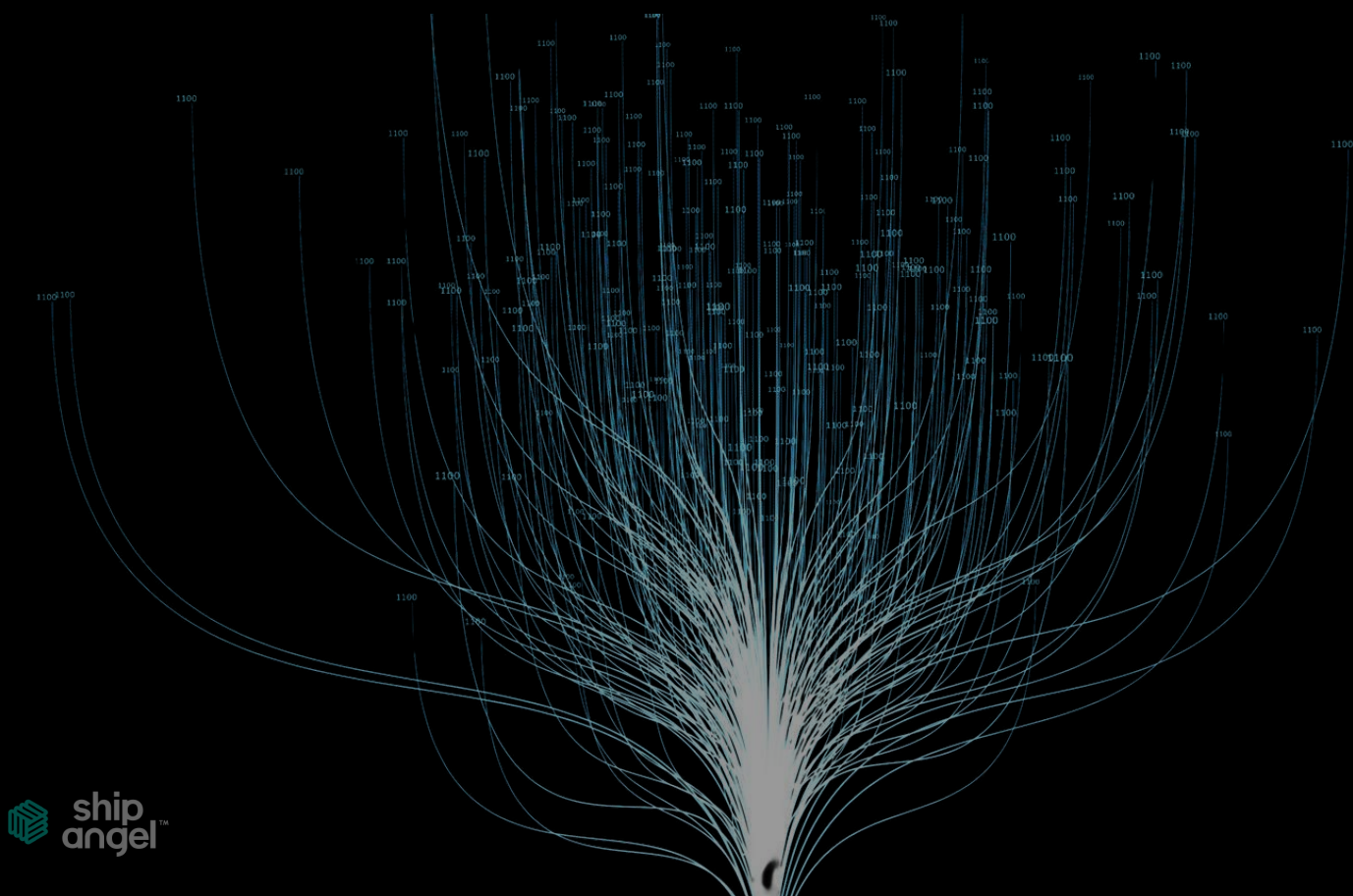
Adding AI often requires significant up-front investment. According to a survey by Accenture, approximately 53% of small and medium-sized businesses (SMBs) found the initial cost of AI implementation to be much higher than anticipated. AI requires not only the software itself but also compatible hardware, including high-performance servers, powerful processors, and data storage upgrades, to handle the complexity of AI algorithms.

In addition, clean data is required. Many SMBs discover that their data is fragmented, inconsistent, or not detailed enough for AI purposes. This means they must either invest in data cleaning processes or pay for external datasets, which can be costly.

A Deloitte report found that over 55% of small businesses experienced unexpected expenses related to data preparation for AI.

Once implemented, AI models will need to be refined, algorithms updated, and bugs fixed. Regular maintenance is necessary to ensure AI systems stay effective, accurate, and aligned with business goals. SMBs might need to subscribe to software updates, pay for maintenance contracts, or bring in external consultants when technical issues arise.

Without ongoing maintenance, AI systems risk becoming obsolete or even producing flawed insights, which can lead to disastrous business decisions. It's estimated that maintenance and upgrades can add another 15-20% annually to the initial cost of AI implementation. SMBs, especially those with limited cash flow, may find these recurring expenses particularly challenging.



DEVELOPING AN AI PLAN

An AI strategy pulls together the various components and competencies required to accomplish business objectives related to the use of AI technologies.

A well-crafted strategy informs what actions the organization, its leaders, and other employees need to take to ensure their uses of AI are effective, efficient, and optimal.

ASSESSMENT & READINESS

Businesses should first evaluate their existing supply chain processes and infrastructure by mapping out workflows, identify bottlenecks, and document inefficiencies. Next, an assessment of data readiness is necessary as well as an evaluation of the current technology stack to determine whether existing systems can support AI integration or if upgrades are necessary.

SETTING CLEAR OBJECTIVES

Once all of that is done, the next step in creating an AI-powered supply chain strategy is to establish clear objectives such as reducing costs, improving demand forecasting or optimizing inventory levels.

DEFINING SCOPE

After the objectives are defined, determine the scope of the AI implementation. Setting clear boundaries helps in allocating resources effectively and ensuring measurable outcomes.

DATA GOVERNANCE

Implement data governance policies to maintain quality and compliance with regulations.

SELECTING TOOLS

Choose the right AI tools and platforms. Cloud-based platforms often offer scalability and flexibility, making them a popular choice for supply chain AI.

DEVELOPING AN AI PLAN

* BUILDING AI MODELS

Develop AI models tailored to the business need. This involves selecting appropriate machine learning algorithms and training them using historical and real-time data. Validate the models by testing them in controlled environments. This step ensures accuracy and reliability before full-scale deployment.

* PHASED IMPLEMENTATION

Roll out AI solutions in phases to minimize risks and allow for improvements.

* PERFORMANCE MONITORING

Monitor performance using predefined KPIs, such as lead times, cost savings, and customer satisfaction rates. Regularly review AI outputs to ensure they align with business goals and adjust as needed.

* SCALING AND REFINEMENT

Once the initial implementation proves successful, expand AI applications to other parts of the supply chain. Continuously refine AI models using new data and feedback from stakeholders. Look for opportunities to automate decision-making processes, such as optimizing freight rates to further enhance efficiency.



ABOUT SHIP ANGEL

Ship Angel is a cutting-edge rate management platform designed to streamline logistics operations for BCO shippers. Focused on solving complex supply chain challenges, Ship Angel provides innovative solutions for rate management, amendment guard, invoice auditing, and sustainability reporting. At the heart of Ship Angel is its AI-driven technology, which empowers shippers to manage rates more efficiently, ensure contract accuracy, and optimize cost savings. With a commitment to transparency and efficiency, Ship Angel's platform helps companies avoid costly delays and disruptions, making it an invaluable tool for managing the modern supply chain. Driven by a vision to revolutionize logistics, Ship Angel works closely with clients across various industries. By offering personalized support and advanced tools, Ship Angel helps companies stay ahead in an ever-evolving global trade environment.

For more information, visit [**shipangel.com**](https://shipangel.com)

Book a Demo

