

Pharmaceutical Supply Chain Visibility

HEALTHCARE

ESP Vendor Assessment Matrix

 CBINSIGHTS

Market summary

Supply chain failures cost \$35B annually

The pharmaceutical industry loses nearly \$35B each year due to failures in transporting and storing products. This problem has received more attention due to the recently approved Covid-19 vaccines, which require consistent storage at low temperatures.

Sensors and IoT are creating more data

Advancements in data capture technology have significantly increased the amount of data available across the supply chain. Vendors analyzed here bring disparate data together and optimize analytics based on client workflows.

Leaders are gaining traction with top pharma players

Market leaders offer solutions spanning the entire supply chain, from manufacturing to delivery. Their traction is evidenced by established partnerships with major pharmaceutical companies.

REPORT DETAIL

Pharmaceutical supply chain visibility solutions compile and analyze real-time data from manufacturing, transportation, and delivery.

For this report, we reviewed hundreds of private technology companies to define the category and select 8 vendors for inclusion in the **ESP** matrix on page 3. Methodology details are on pages 45-48.

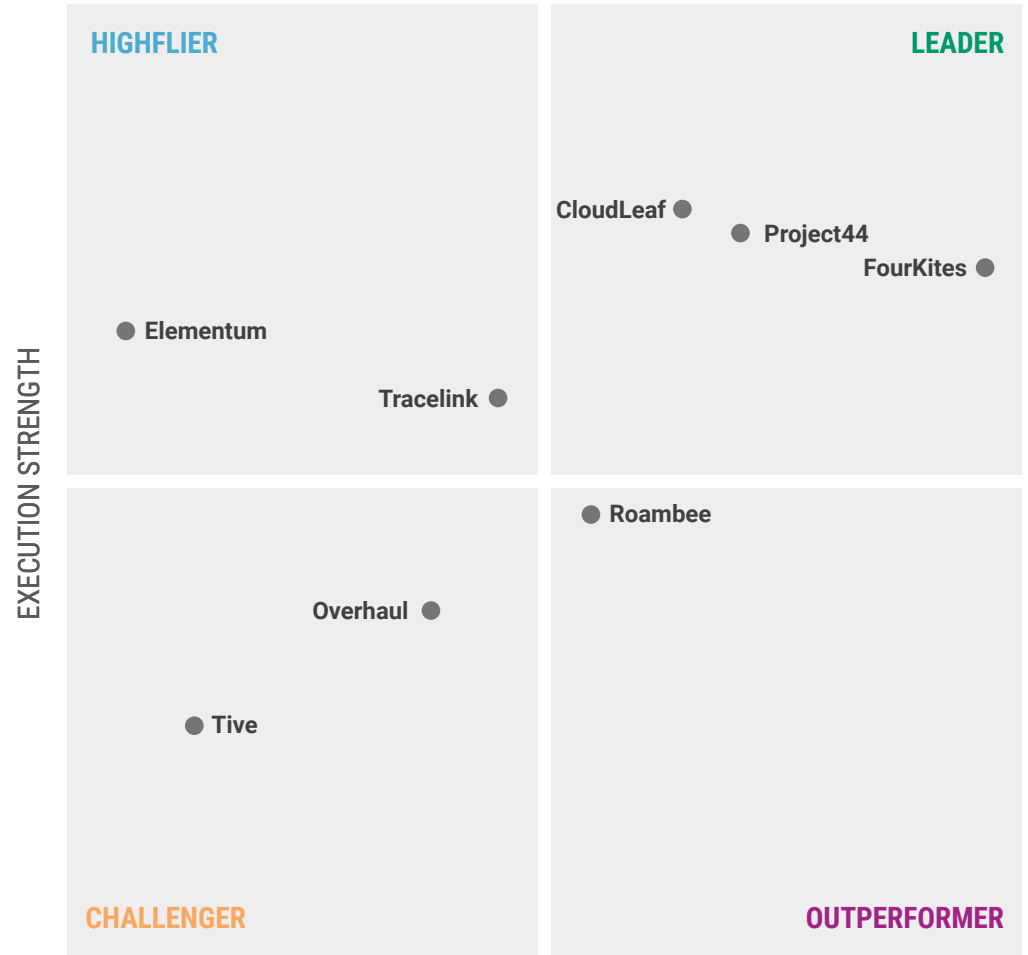
ESP scores the **Execution** and **Market Strength** of selected private companies, in order to determine their relative **Positioning** in the category.

This analysis was completed in July 2021.

Pharmaceutical Supply Chain Visibility

HEALTHCARE

ESP Vendor Assessment Matrix



MARKET STRENGTH

The bottom line

Vendor	Quadrant	Key takeaways
FourKites	Leader	<ul style="list-style-type: none">• FourKites uses IoT sensor integration and predictive data science to track over 2M shipments daily, with order- and SKU-level visibility.• The company has over 800 customers to date.
Project44	Leader	<ul style="list-style-type: none">• Project44 uses a bottom-up approach by enabling every supply chain partner to connect via API.• Its network includes 800 provide integrations and 4.3M connected drivers.
Cloudleaf	Leader	<ul style="list-style-type: none">• Cloudleaf has 400+ APIs that connect to nearly any product sensor, and its cloud AI/ML models automatically identify anomalies in the data.• Multiple clients report 100% visibility for critical assets.
Roambee	Outperformer	<ul style="list-style-type: none">• Roambee provides sensor hardware and visibility software for a single subscription fee.• The company counts Bayer and Eli Lilly among its clients.
Tracelink	Highflier	<ul style="list-style-type: none">• Tracelink enables pharmaceutical clients to eliminate counterfeit drugs through serial number tracking and regulatory compliance processing.• Its network includes 1,300+ customers and 283,000+ network members.
Elementum	Highflier	<ul style="list-style-type: none">• Elementum's software enables internal and external supply chain participants to share information and manage incidents.• The company is offering free solutions for companies dealing with Covid-19 supply chain disruption.

The bottom line

Vendor	Quadrant	Key takeaways
Overhaul	Challenger	<ul style="list-style-type: none">Overhaul's automated risk management and intelligent response system provides operators with real-time alerts and recommends steps for incident management.
Tive	Challenger	<ul style="list-style-type: none">Tive's proprietary long-lasting sensors capture multiple types of data, and its software provides insights and alerts for supply chain operators.

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Market Need & Traction

Why now?

Supply chain visibility solutions offer real-time insight into medication distribution and delivery, enabling pharmaceutical companies to ensure product availability, decrease counterfeiting risk, and take preventative measures against supply chain disruptions.

Typical product features/functions

- Tracking & ETAs
- Asset monitoring
- Order and inventory visibility
- Workflow automation
- Predictive analytics
- Supplier visibility
- Cold chain logistics
- Security + threat detection

Who's buying it?

Function/business unit	Title
Supply Chain	VP/Director of Supply Chain, Director of Risk Management
Logistics	VP/Director of Logistics, Director of Transportation
Accounting & Finance	CFO, Director of Procurement
Operations	VP of Operations, Director of Quality

What outcomes can you expect?

- Lower penalties related to late arrivals
- Reduced supply chain emergency costs
- Reduced customer service labor costs
- Decreased dwell and detention costs
- Lower direct and indirect logistics costs
- On-time performance improvement
- Accurate real-time location and condition information

What your peers are doing



Cardinal Health is partnering with FourKites to improve tracking of pharmaceutical products in transit to over 29,000 pharmacies and 90% of American hospitals.



Abbvie is working with Project44 to incorporate real-time transportation visibility into its supply chain strategy to improve agility and customer experience.



Novo Nordisk is working with shipping giant Maersk to improve visibility across its global pharmaceutical supply chain.

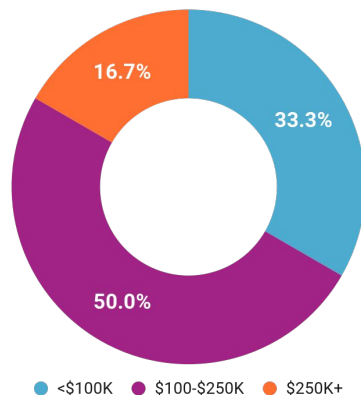
How much will it cost you?

Key averages

Contract value
\$235,200

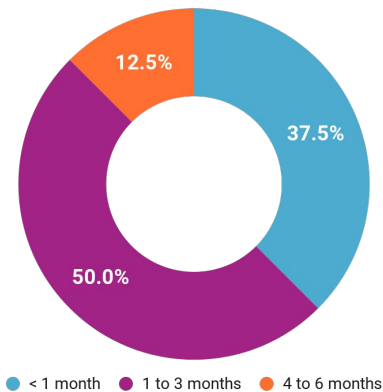
Average deployment
time
1.4 months

Annual cost



n = 6

Deployment time



n = 8

Market Data

Market size

Pharmaceutical logistics: **\$134.5B**

Cold chain pharmaceuticals: **\$13B**

Supply chain analytics: **\$8.5B**

Funding

With vaccine distribution as a global priority, funding to pharmaceutical logistics startups is on track to increase 250% after 3 years of steady growth.

Recent exit activity

BluJay Solutions was acquired by E2open in May 2021.

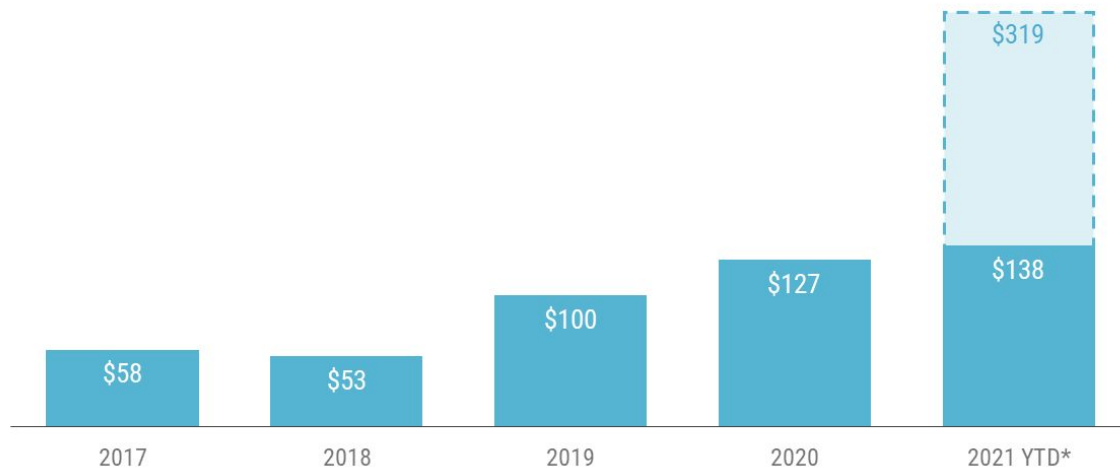
Blue Yonder was acquired by Panasonic for \$7.1B in March 2021.

Elemica was acquired by Eurazeo in August 2019.



Pharmaceutical logistics funding is on a record pace

Disclosed equity funding (\$M), 2017 – 2021 YTD



Source: cbinsights.com *2021 full-year totals based on run rate as of 6/8/21.



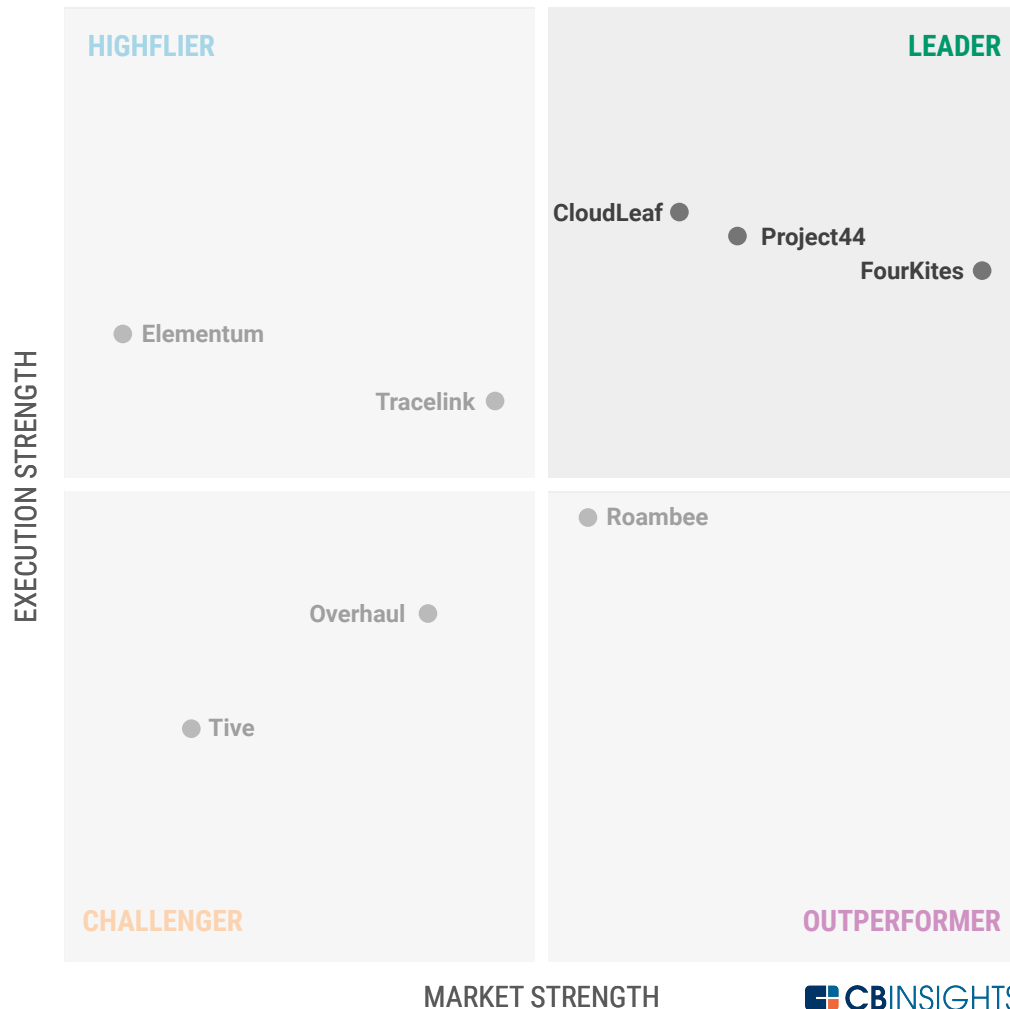
Company Profiles

Pharmaceutical Supply Chain Visibility

HEALTHCARE

LEADER

ESP Vendor Assessment Matrix



MARKET STRENGTH



Company/ product factsheet

View profile on  CBINSIGHTS



Product description

FourKites' supply chain visibility software optimizes supply chain logistics by combining real-time tracking of shipments with integrated operations and analytics capabilities. Its solutions help pharmaceutical customers to keep up with changes in critical demand, mitigate disruption, and protect products in transport. It tracks over 2M shipments daily.

Competitive positioning

FourKites' platform uses IoT sensor integration and predictive data science to provide end-to-end visibility. The platform offers features like yard and appointment management, temperature tracking, and security alerts.

Partnerships

Accenture
Infosys
McKinsey
Tata Consulting
Ernst & Young

Integrations

Blue Yonder
SAP
Oracle



Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2014	United States	\$203M	\$711M	Mar 2021	\$100M	Series D

Analyst spotlight

FourKites provides one of the most complete end-to-end supply chain visibility solutions on the market. Although it began in less regulated markets, the company is quickly gaining traction in the pharmaceutical and healthcare spaces. Its customers include Cardinal Health, which is deploying FourKites enterprise-wide. With over 800 clients to date and 6 recent senior management hires, the company has charted a course for rapid growth and expects to generate \$100M in revenue within the next 18 months.





Market strength

Commercial outcomes

NOTABLE CLIENTS

Abbott

Bayer

Baxter

Cardinal Health

Value proposition

FourKites enabled a global pharmaceutical manufacturer to save \$5.5M in detention costs and penalties.



Execution strength

Sales model and go-to-market strategy

NOTABLE PARTNERS

o9 Solutions

MercuryGate

SMC3

NOTABLE HEADLINE

“Cardinal Health, FourKites Target Deeper View of Medical Supply Chain”

The Wall Street Journal





FOURKITES | **What clients say**



CardinalHealth

"It all goes back to providing an end-to-end solution, data-driven insights and delivering on our commitments no matter what is thrown our way, whether it's a winter storm, Covid-19 or some other event. Our partnership with FourKites is a critical building block for making these things happen and the investment is proving to be more powerful than we originally expected."

Joshua Dolan

VP Global Logistics, Cardinal Health

EASTMAN

"FourKites impressed us with their willingness to develop and adapt to meet Eastman product quality expectations, and they have a well-articulated global visibility strategy across regions and modes. Their flexibility and willingness to collaborate made us feel confident in them as a key partner as Eastman drives to optimize every layer of the end-to-end supply chain."

Tom Morton

VP Global Supply Chain, Eastman





Company/ product factsheet

View profile on  CBINSIGHTS

Product description

Project44 provides a network of web service APIs that facilitate real-time information flow between global supply chain partners. Its pharmaceutical solutions enable faster delivery times, lot-level shipment monitoring, and inventory management.

Competitive positioning

Project44's bottom-up approach differentiates its solution in the market by enabling each component of the supply chain to plug in via API. Its network spans 165 countries, 800 provider integrations, and 4.3M connected drivers.

Partnerships

Infor
IBM
Blue Yonder

Integrations

SAP
Oracle





CB Insights viewpoint

Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2014	United States	\$393M	\$1.2B	Jun 2021	\$202M	Series E

Analyst spotlight

Project44's market strength is evidenced by major pharmaceutical clients such as Abbvie, Alcon, and Bayer. As an API-driven solution, it has established numerous partnerships and integrations in an effort to make data ingestion and analysis seamless for its clients. Its execution strength is demonstrated by \$202M in disclosed funding, 37% year-over-year headcount growth, and 10 recent senior management hires. Project44 has made 2 acquisitions – ClearMetal and Ocean Insights – to date in 2021.





Market strength

Commercial outcomes

NOTABLE CLIENTS

Abbie

Alcon

Amazon

Bayer

ResMed

Walgreens

Walmart

Execution strength

Sales model and go-to-market strategy

NOTABLE PARTNERS

SAP

Reliance Partners

NOTABLE HEADLINES

“Project44 Expands Network Coverage in China for Real-Time Transportation Visibility”

Financial Post

“Project44 adds air, ocean freight visibility to platform”

FrieghtWaves



abbvie

“The immediate real-time understanding of the position of your shipments, and then being able to respond, creates a level of added assurance to your customers. We feed the p44 data into our data lake and it drives the generation of a lot of our performance metrics.”

Greg Pritchard

Head of Global Logistics, Abbvie

Alcon

“It’s very difficult to go through all the different carriers websites to get that tracking information. The partnership with p44 has brought all of that together. It’s a single source we can go to in order to capture all that information in one spot.”

Travis Schmidt

Head of North America Transportation, Alcon



Company/ product factsheet

View profile on  CBINSIGHTS

Product description

Cloudleaf's data visibility platform uses APIs to connect to any sensor along the supply chain and its Sensor Fabric technology manages IoT device health. Its solutions include asset monitoring, process monitoring, dry chain, and cold chain.

Competitive positioning

Cloudleaf combines APIs and asset sensors to provide end-to-end supply chain visibility. Its 400+ APIs connect to nearly any product sensor – streaming data directly to the cloud – and its AI/ML models automatically identify anomalies and exceptions.

Partnerships

Microsoft
Intel
Qualcomm
Accenture

Integrations

SAP
AWS



Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2014	United States	\$39M	\$67.5M	Feb 2020	Undisclosed	Series B - II

Analyst spotlight

Cloudleaf has gained market traction by providing a set of solutions spanning the supply chain. The solutions began with food & beverage and manufacturing, and more recently expanded to pharmaceutical clients. Cloudleaf's AI/ML capabilities and 400+ APIs aim to provide top-tier visibility. Multiple clients have reported 100% visibility for critical assets. Despite having less funding than its competitors, Cloudleaf has grown headcount by 72% YoY and recently made 7 senior management hires.



Market strength

Value proposition

PHARMACEUTICAL

Cloudleaf reportedly enabled a global pharmaceutical company to track blood plasma samples with 100% visibility across 8M liters, 82 donor centers, and 5 plasma facilities.

MANUFACTURING

Cloudleaf reportedly replaced physical audits with real-time tracking that provided 100% accurate inventory and saved millions of dollars annually.

Execution strength

Sales model and go-to-market strategy

NOTABLE PARTNERS

Microsoft

VMware

Intel

SAP

Qualcomm

Tech Mahindra

Accenture



What clients say



“With the increased focus on tracing of plasma and pharmaceutical products, Wiliot is excited to work with Cloudleaf to integrate real-time and historical location and temperature tracking, as well as configurable alerts and notifications to boost cold chain visibility.”

Steve Statler

SVP of Marketing & Business Development, Wiliot



“Our team worked for many months evaluating the right partner for our new track and trace product offering. In Cloudleaf we found...a modern software architecture, a visionary product road map, and a laser like focus on the customer.”

Tom Weir

COO, CSafe Global

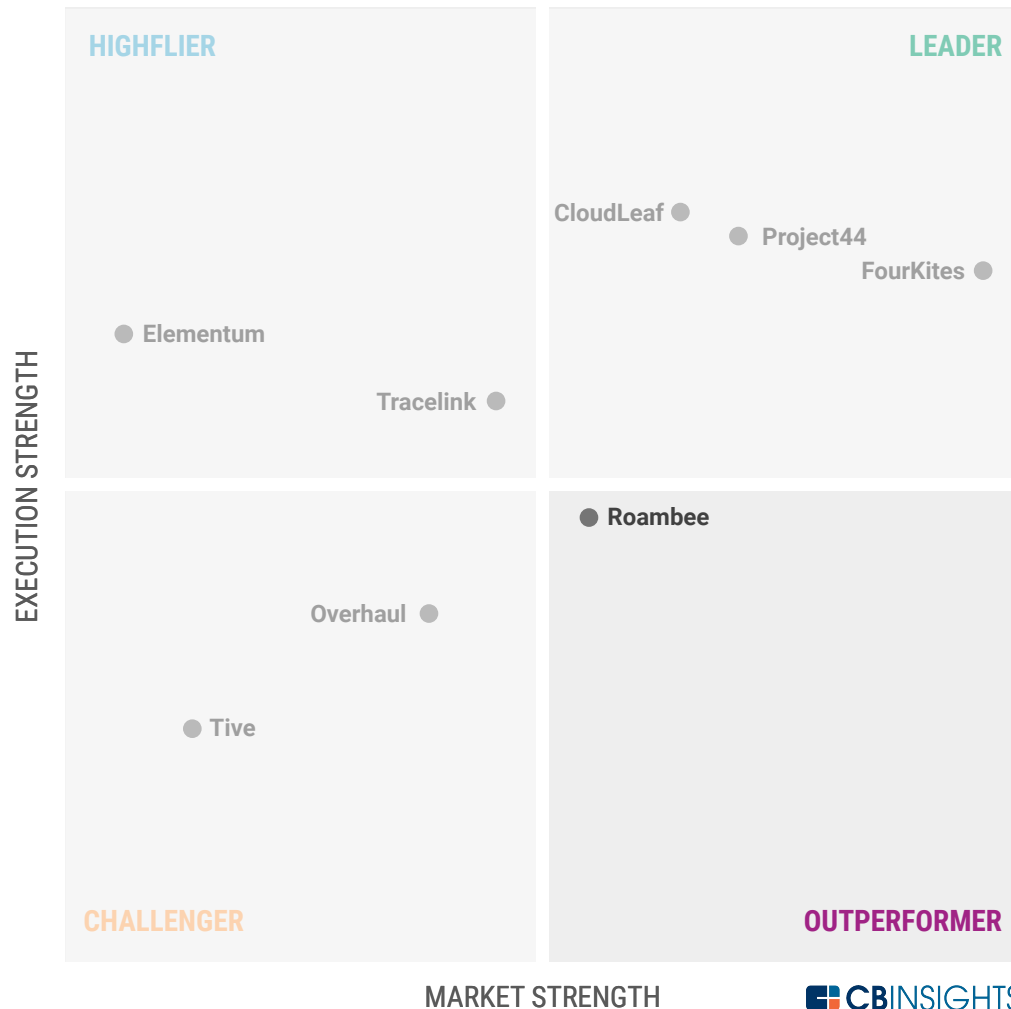


Pharmaceutical Supply Chain Visibility

HEALTHCARE

OUTPERFORMER

ESP Vendor Assessment Matrix





Company/ product factsheet

View profile on  CBINSIGHTS

Product description

Roambee provides a full-stack visibility platform that includes IoT sensors to collect data, software to surface the data, AI to deliver insights, and robotic process automation to automate operations. Its use cases include multimodal shipment monitoring (including Covid-19 vaccine distribution) and asset monitoring, such as returnable assets, work in process (WIP), and inventory monitoring.

Competitive positioning

Roambee's core differentiator is that it provides the sensor hardware in addition to its visibility platform, all bundled within a single fully-managed service subscription (i.e., no hardware purchase costs).

Partnerships

Rogers
DHL
PSA International

Integrations

SAP
Oracle
Blue Yonder





CB Insights viewpoint

Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2013	United States	\$42M	\$40M	Feb 2021	\$18M	Series B - IV

Analyst spotlight

Roambee distinguishes itself in the market by providing a full-stack solution – including sensor hardware – for a single subscription fee. The company is experiencing 132% customer growth YoY and 200% revenue growth YoY, and counts companies such as Danone among its clients. It recently received a strategic investment from Reefknot Investments, a joint venture between Temasek and global logistics company Kuehne + Nagel.





Market strength

Commercial outcomes

NOTABLE CLIENTS

Bayer
BASF
Douglas Pharmaceuticals
Eli Lilly

NOTABLE ACQUISITIONS

“Roambee Acquires Swiss-Based Modum to Dominate the Pharma Cold Chain Monitoring Market”

PR Newswire



Execution strength

Sales model and go-to-market strategy

NOTABLE PARTNERS

Blue Yonder
DHL
Oracle
PSA International
SAP

NOTABLE HEADLINES

“PSA International invests in Roambee to improve supply chain data visibility.”

Smart Maritime Network

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OUTPERFORMER

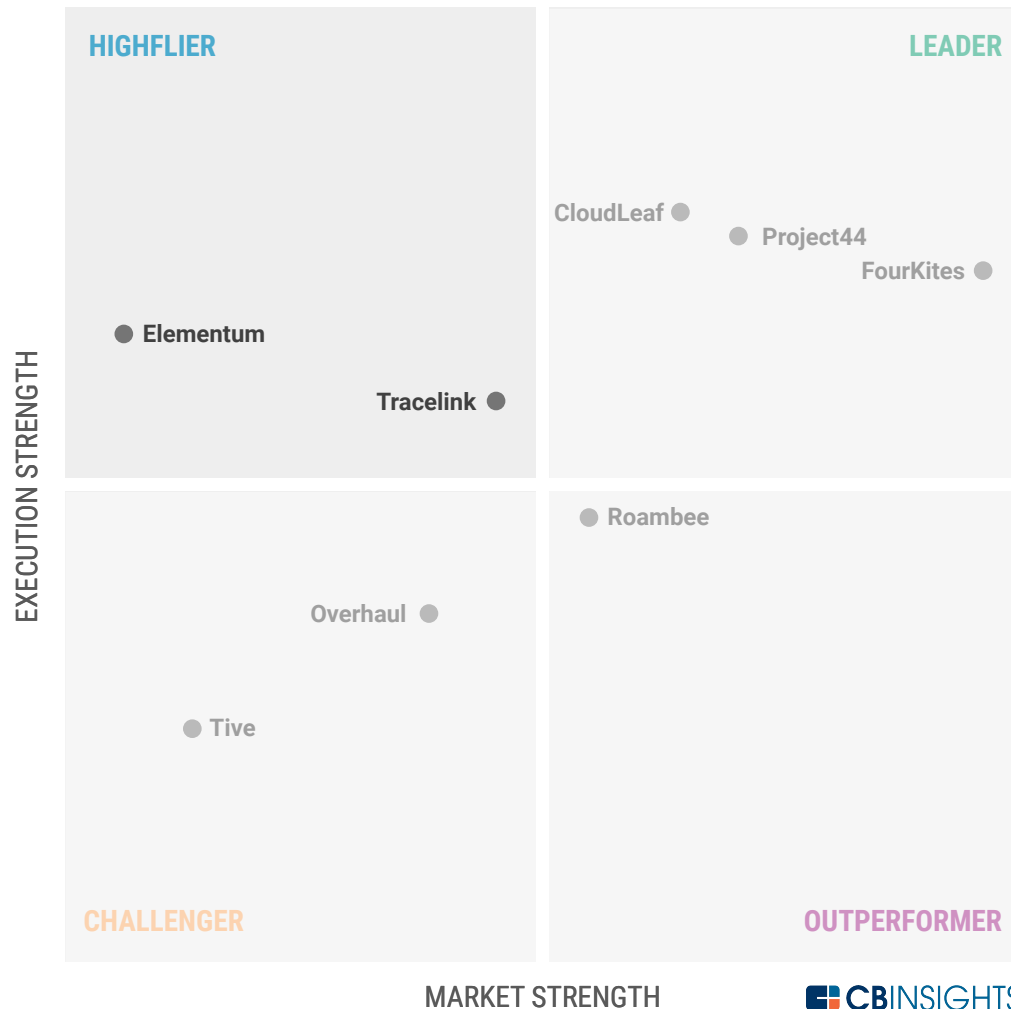


Pharmaceutical Supply Chain Visibility

HEALTHCARE

HIGHFLIER

ESP Vendor Assessment Matrix





Company/ product factsheet

View profile on  CBINSIGHTS

Product description

Tracelink provides a track and trace network for the pharma supply chain that aims to eliminate counterfeit drugs from the global marketplace.

Competitive positioning

Tracelink is tailored specifically to pharmaceutical companies shipping drugs. It incorporates serial number tracking and regulatory compliance processing to minimize the risk of counterfeiting.

Partnerships

Accenture
Clarion
DDK Pharma Consulting
Excellis Health Solutions
LifeBee
VimaChem

Integrations

None disclosed.





CB Insights viewpoint

Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2009	United States	\$174M	\$618M	Jun 2018	\$93M	Series D

Analyst spotlight

To date, Tracelink's network includes 1,300+ customers and 283,000+ network members. Each Tracelink customer and supply chain member adds value for all other network participants. This approach has reportedly reduced incident response time by 65% and improved delivery performance by 82%. Tracelink is one of the largest companies analyzed and is backed by 3 Smart Money investors. However its headcount growth is slower than most competitors.





Market strength

Commercial outcomes

NOTABLE CLIENTS

Doppel Pharma

Roche

Trillium Health

Virtus Pharmaceuticals

Value proposition

Tracelink's serialization solution resulted in traceability for 60-80M non-salable products for a customer in the pharmacy returns market.



Execution strength

Sales model and go-to-market strategy

NOTABLE PARTNERS

Accenture

Clarion

Excellis Health Solutions

Saudi Azm

NOTABLE HEADLINE

"Leading Generics Pharmaceutical Company...Selects Tracelink to Comply with EU Regulations"

PR Newswire





Company/ product factsheet

View profile on  CBINSIGHTS

Product description

Elementum provides an information and communication platform for internal and external supply chain participants. Its software enables customer service teams, sourcing managers, and suppliers to share information and manage incidents.

Competitive positioning

Elementum's solution enables pharmaceutical companies to improve exception identification and management. This ensures that minimal resources are required to resolve supply chain incidents.

Partnerships

None disclosed.

Integrations

None disclosed.



Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2013	United States	\$60M	\$220M	Jul 2017	Undisclosed	Series C

Analyst spotlight

Like many supply chain visibility companies, Elementum began outside of the pharmaceutical market, where regulations are less stringent. It secured major clients including Starbucks, Corning, and Johnson & Johnson, and recently entered the pharmaceutical market with a Covid-19 supply chain solution. Clients have reportedly caught up to 74% of incidents before shipments reach the customer and improved incident resolution time by up to 60%.





Market strength

Commercial outcomes

NOTABLE CLIENTS

Corning

Johnson & Johnson

Starbucks

Unilever

Value proposition

Elementum reportedly enabled a client to improve incident resolution time by 60%, saving \$250K per preventative action taken.



Execution strength

Sales model and go-to-market strategy

NOTABLE HEADLINES

“OSI Elevates its Customer Experience with Elementum’s Supply Chain Orchestration Platform”

PR Newswire

“Providing Free Virtual “War Rooms” To Supply Chain Organizations Dealing With COVID-19 Disruptions”

SupplyChain247

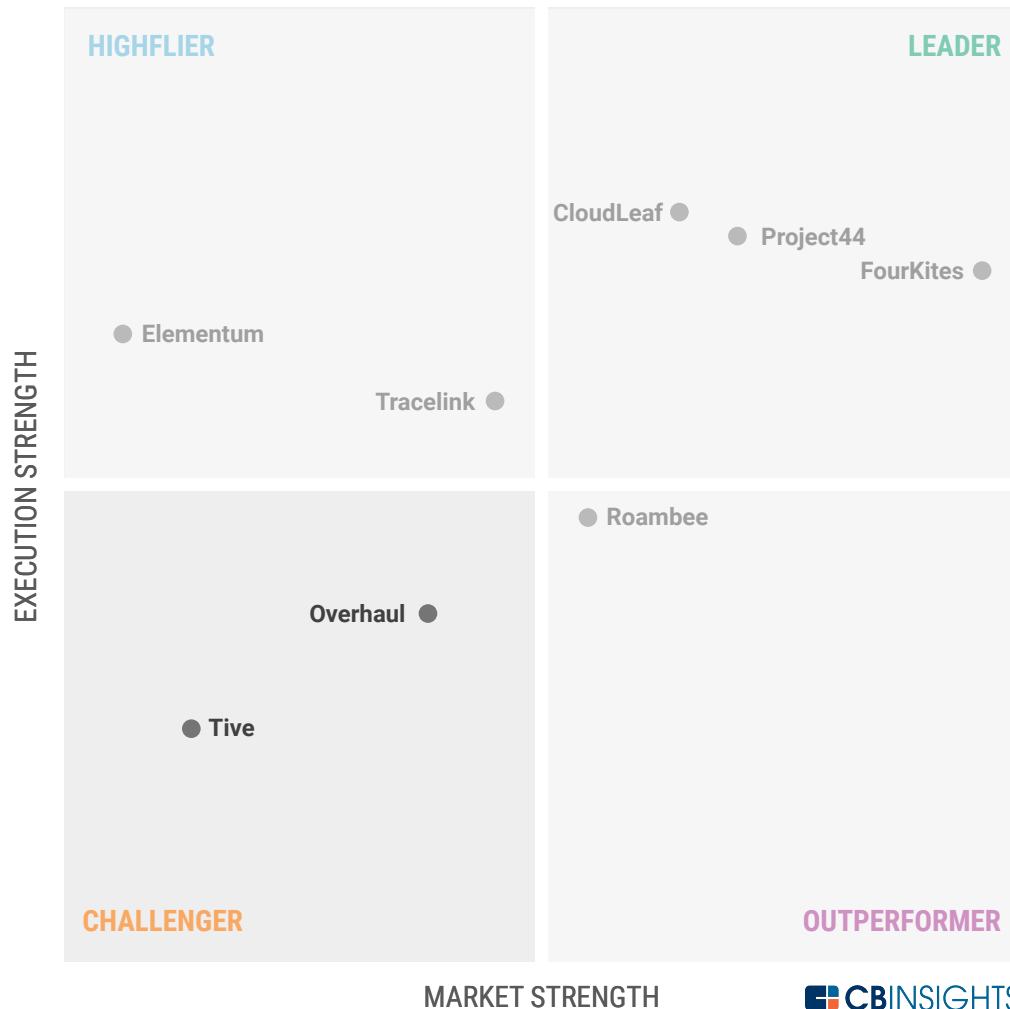


Pharmaceutical Supply Chain Visibility

HEALTHCARE

CHALLENGER

ESP Vendor Assessment Matrix





Company/ product factsheet

View profile on  CBINSIGHTS



Product description

Overhaul's real-time supply chain visibility platform enables shippers and 3PLs to feed disparate data sources into a situational analysis engine. It combines existing systems and third-party integrations to connect to data sources. Overhaul also provides a proactive risk management software and other critical insights, such as ETA prediction and exception management.

Competitive positioning

Overhaul's core differentiator is its automated risk management and intelligent response system. Its Sentinel software provides operators with real-time alerts and recommends automated steps for solving the problem.

Partnerships

Flight Aware
Marine Traffic
Microsoft
Oracle
Schneider
RiskPulse

Integrations

CaLamp



Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2015	United States	\$64M	\$269M	Jun 2021	\$35M	Series B

Analyst spotlight

Unlike other vendors, Overhaul's largest markets are pharmaceutical and healthcare. The company is beginning to make inroads with clients such as Bristol Myers Squibb. Overhaul is experiencing rapid growth, with client count increasing over 200% YoY and revenue over 100% YoY. Its recent \$35M financing will be used to further accelerate client growth and establish new partnerships.





Company/ product factsheet

View profile on  CBINSIGHTS

Product description

Tive provides supply chain visibility and analysis of in-transit goods through its wireless sensors and cloud software. It enables customers to monitor shipments, get real-time alerts, and analyze their supply chains.

Competitive positioning

Tive provides its proprietary long-lasting, multi-sensor trackers to capture location, integrity, and climate data. The platform offers actionable insights and alerts to improve efficiency of supply chain operators.

Partnerships

FourKites
Project44
AT&T
Accenture
HCL
Oracle
Quantitec

Integrations

None disclosed.





CB Insights viewpoint

Founded	HQ	Total raised	Estimated valuation	Last raised date	Last raised amount	Stage
2015	United States	\$25M	\$19M	Jun 2021	\$7.5M	Unattributed

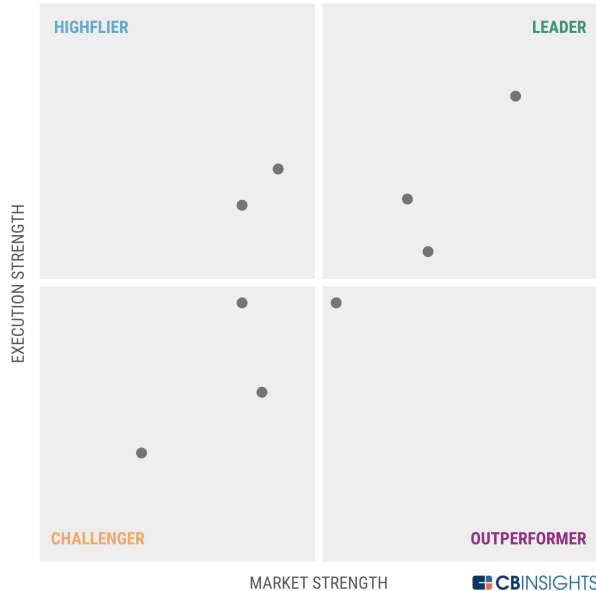
Analyst spotlight

Tive aims to improve its market strength through collaborations with market leaders such as FourKites and Project44. Tive has already helped a pharmaceutical company ensure a successful product launch by monitoring shipping temperatures on ocean freight. Tive is the youngest company analyzed in this report; however, it has grown headcount 150% during the past year.



Methodology

At a glance: ESP Vendor Assessment Matrix



How do I use the ESP Matrix?

- Technology buyers can identify vendors, gain a view into top vendors, and identify the relative traction of companies within a specific tech market.
- Decision makers looking at partnerships, investments, and M&A – or scouting a tech market ahead of a build, buy, partner decision.

How does the ESP Matrix work?

- The spatial positioning through our proprietary methodology allows for an easily absorbed view into fragmented technology markets
- Each quadrant may be of interest depending on tech buyers' aims:
 - Leaders are established in the category with rounded offerings
 - Outperformers are high in momentum with promising capacity
 - Highfliers are robust in resources and rich in opportunity
 - Challengers may surprise on the upside and credibly threaten established market conventions

At a glance: ESP Vendor Assessment Matrix

How are vendors selected for the matrix?

- Analysts choose the tech providers which should be considered for decision makers' short lists. These selections are based on data and on analysts' industry knowledge.
- Preference is given to vendors for which we have complete data. Although it is not a requirement, vendors which respond to a survey may have an advantage over those that do not.

What data is used to position vendors on the ESP Matrix?

Y Axis – Execution Strength	X Axis – Market Strength
Products and services	Total addressable market
Financial status and health	Value proposition
Sales model and go-to-market strategy	Packaging and pricing
Company details	Brand and marketing
Management team and leadership	Commercial outcomes

The methodology

The ESP matrix is the distillation of data and analyst insight into a clear picture of key private-company players in a technology market. The proprietary methodology integrates difficult-to-find inputs such as patent applications, business relationships, and private-company filings. It also incorporates Mosaic, our National Science Foundation-backed quantitative indicator of company health. The full array of signals — also including web, funding, and people data — determine a company's positioning relative to its peers. As the report is prepared, each company is evaluated against the same criteria in order to arrive at an easy-to-digest and consistent view into a market.

The ESP does not propose to be a complete picture of a tech market or a comprehensive view into its participants. The ESP focuses on private companies in each market under examination. It begins with a bottom-up view of the category by reviewing hundreds of company descriptions and

competitors through the CB Insights technology insights platform. Vendors are invited to respond to an online survey which collects additional data. The data on each of the companies is reviewed by our team of analysts who verify and augment the information collected and organized by our technology. Through distinct stages of analysis considered in the methodology, companies are selected for final inclusion in the matrix based on the overall quality as well as strength of signals pertaining to Market and Execution.

Some of the companies or vendors included in this report may be CB Insights clients. However, we never give preference to clients in the selection process. Companies cannot pay to be represented in the reports.

Disclaimer: This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors or investment advice.