The competitive intelligence crisis

Why dynamic offers and AI agents demand a new approach for the airline industry

About 3Victors

3Victors was founded in 2018 to address the evolving needs of the travel industry: to efficiently manage the increasing volumes of data in a world of dynamic offers and enable real-time insights. Dedicated to transforming how the travel industry harnesses the power of data, we deliver industry-best data to enable our partners to discover actionable insights and make informed business decisions.

In 2023 we were acquired by ATPCO, the airline industry's leader in pricing and retailing solutions. This acquisition enables both ATPCO and 3Victors to utilize new data sets, machine learning, and AI to enhance our ability to build and implement the framework and solutions the industry requires for the future of modern airline retailing.

Executive Summary

The airline industry stands at a crossroads: as dynamic offers and AI agents revolutionize how travelers shop for flights, legacy competitive intelligence methods like web scraping will not be sustainable. This white paper explores the looming data crisis facing airlines and introduces a future-ready solution—PriceEye. PriceEye uses Iris, a shopping data repository, to generate real-time, accurate insights that empower airlines to stay competitive in an AI-driven world.

The airline industry is continues to evolve how offers are created and the way people shop for flights. Both of these innovations in flight shopping are creating a dramatic rise in data volumes. The amount of data created worldwide in 2025 will be triple the amount of data created in 2020, and it's not stopping there. A data deluge is coming as more people use AI to communicate, shop, and organize their daily lives.

The airline industry is likewise experiencing massive increases in information. Airlines forecast worldwide passenger growth for years to come, and those billions of airline passengers will increasingly shop for flights online in new ways. As they do so, the way flight shopping works online will evolve rapidly—in fact, it has already begun.

Two major flight shopping trends are accelerating this transformation:

Dynamic offers
Using data to create real-time offers based on shopping behavior

AI-based search
Sophisticated searches that use AI agents to continuously query the web for the best offer

These two forces—one driven by airlines, the other by changing technology and shopper search behavior— create personalized shopping experiences, but they also create a massive increase in the data that airlines must handle. The impending data flood will be so great that current techniques used for competitive and shopper insights will become untenable for airlines.

The data and technology revolutionizing flight shopping

Both airlines and consumers are experiencing a revolution in flight offers and shopping, driven by advances in technology including dynamic offers and AI-enabled search.

Dynamic offers

Dynamic offers represent a seismic shift in airline offer management, generating an explosion of data far beyond traditional pricing structures. Unlike pre-filed fares, which relied on a finite set of price points, dynamic offers multiply the number of possible price-product combinations. Every search becomes a unique interaction, shaped by real-time factors, competitive positioning, time of day, and even external variables such as weather or demand surges.

The effect of dynamic offers on airline systems is only just beginning to be felt. 31% of offers sold to shoppers today are dynamically created—mostly by a handful of the world's largest airlines—and ATPCO has a goal to deliver the tools and solutions that will enable an increase of dynamically generated offers to 80% by 2026, which will lead to an exponential increase in the variety and total number of offers in the marketplace. With such an increase in offer volume, any company seeking to understand the competitive offerings in the market is facing a lot more work.

Dynamic offers will increase the amount of offers in the marketplace

Volume of product x price points

Dynamic offers

Pricing capabilities

AI agents

AI agents are artificial intelligence tools that can search the web and perform tasks for people based on natural language prompts.
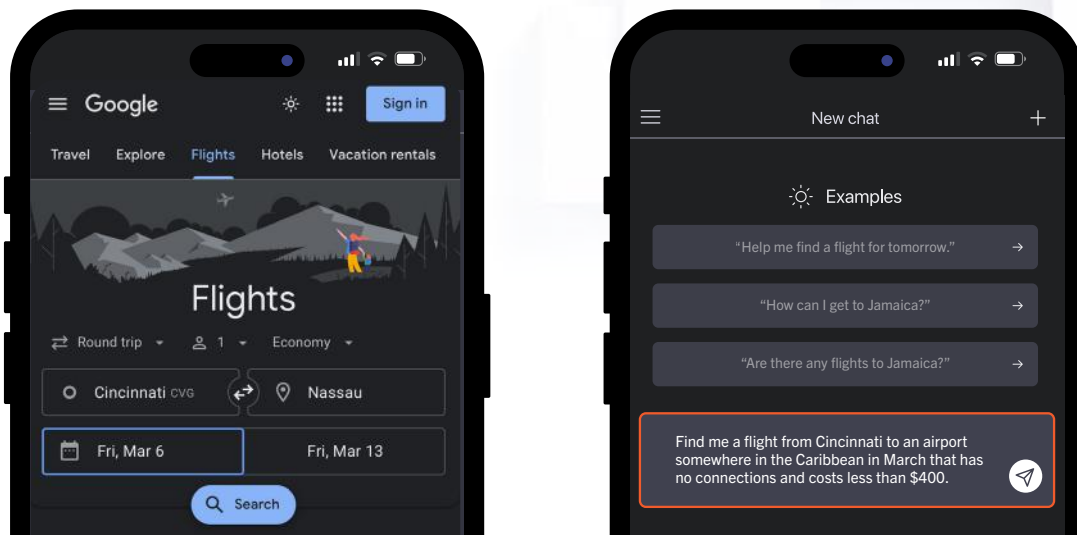

There is a growing prevalence of AI agents that make it easier for people to search for something complex, such as OpenAI's Operator, which is designed for travel search. AI agents can search while considering the many variables of flights, including origin, destination, time, price, ancillaries, and status. A flight shopper can enter any prompt they would like, and the agent can effortlessly search information across the internet.

Examples of AI agent flight searches

1. Find me a flight from Cincinnati to an airport somewhere in the Caribbean in March that has no connections and costs less than $400.

2. I need a flight from Denver to San Francisco that has extra legroom on 25 April, and I want to land before dinner.

3. What is the cheapest flight I can take that gets me to Phoenix at least three hours before the football game on 12 October?

4. I have loyalty status on airlines X and Y. Which one delivers better rewards for a flight from New York to London?

It's clear that AI agents create a much more natural search process that makes it easier for consumers to handle greater complexity. With 400 million weekly users of ChatGPT alone, and 78% of people surveyed expressing interest in using AI for travel accommodations, airlines must act quickly to adapt to this new era of flight shopping.

ChatGPT Weekly Active Users Worldwide
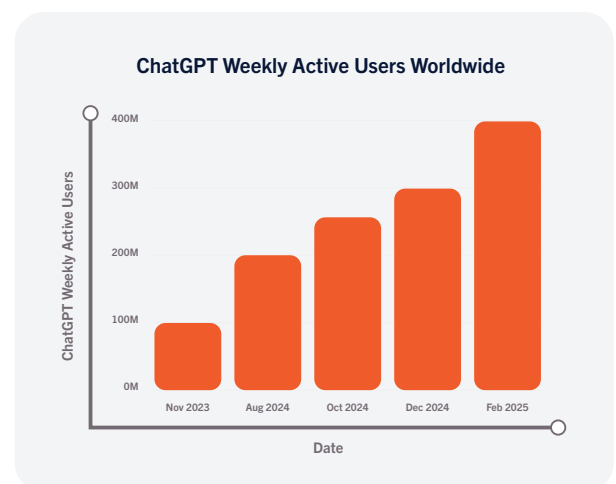
> "We are already seeing more shoppers using AI agents, which means that the runway is short for airlines. They will see a massive increase in the amount of data that is involved in flight shopping, not to mention a sea change in the way bots and web scraping work (or don't work)."
>
> **Rick Seaney, VP of Innovation at 3Victors**

To deliver relevant results for complex searches, AI search works quite differently from current search algorithms. When a shopper searches for flights via an AI-powered assistant, the agent reads all content across the entire web almost instantly. AI agents do this using a large language model that can understand content on the page the way a person does, and then the agent assembles the information and calculates responses with incredible complexity. Within seconds, it could generate hundreds of potential combinations.

But this comes at a cost. AI agents create significant strain on current airline systems in a few ways:

- AI searches create huge volumes of data because they continuously collect and process information.

- AI agents work using bots, which airline websites typically block today to prevent competitors from web scraping their shopping data. AI agents could therefore be inhibited from collecting the necessary information to ensure an airline is present in a search result.

These pressures will start to affect airlines in the not-so-distant future. The use of AI agents across the internet and the business world is predicted to increase dramatically; 82% of large enterprises plan to integrate them in the next three years. Airlines will need to redesign how they optimize shopping sites to satisfy AI agent requirements in their design.

> **Becky Gross from American Airlines explains,** "As robotic personal shopping engines grow in size, we could see a tremendous volume impact, in terms of the number of searches. I think everyone will be struggling with that, not just airlines. That said, I think when somebody comes to an airline site to do a shopping search, what happens behind the scenes is a whole lot more complex than when someone goes to some other retail site, so the impact to our industry could be more significant than elsewhere."

The limitations of today's methodology

> "Information on airline prices and the variety of products airlines want to offer in the future is more important because the price will likely change more frequently with the rise of continuous and other dynamic pricing, that is going to require a new type of data exchange."
>
> **Adam Bockelie, Air Canada**

Better flight shopping is in our grasp, but innovation including dynamic offers and AI search come at a cost. The amount of data and computing power needed to drive these new flight shopping norms will create too much volume and velocity for our current methods to work. Critically, the currently popular practice of web scraping to gather competitive information is unsustainable.

Web scraping is the typical method for gathering competitive information today, but there are many limitations:

- **Incomplete information**
  Airlines are unable to get a full picture of competitive offers because only limited information is available from a single source. The taxes and carrier-imposed fees that make up the total price are not typically captured, providing only partial snapshots of competitors' offers and missing critical details.

- **Old data**
  With more offers being generated dynamically and more prices being updated frequently, web scraping is already having trouble keeping up with changes that occur quickly.

- **Focus on price alone**
  Most web scraping focuses on gathering the lowest competitive price, which ignores important elements of the offer that influence shopper decision-making.

- **Expensive cat-and-mouse game**
  Many airlines employ web scraping where they can but also have controls in place to limit web scraping on their own site, creating a pricey arms race.

The limitations of web scraping result in unreliable data, delay competitive insights by days, and carry hidden costs from inefficiencies on an airline's website.

"As airline selling processes evolve with channel differentiation and continuous pricing, it becomes increasingly challenging to understand the competitive selling fare landscape," **said Becky Gross, American Airlines.** "Analysts are looking for more data, and more detailed data, to understand what products are selling and associated sell-up strategies. Understanding the lowest selling fare is no longer enough."

With the increase in dynamic offers and AI search, web scraping will not even be possible.

The bot problem

Today, many airlines employ tools on their website to block bots from scraping flight data from their site. Typical bot-blocking techniques include implementing rate limiting, user agent checks, IP blocking, CAPTCHAs, advanced bot detection services, and sophisticated analysis of user behavior.
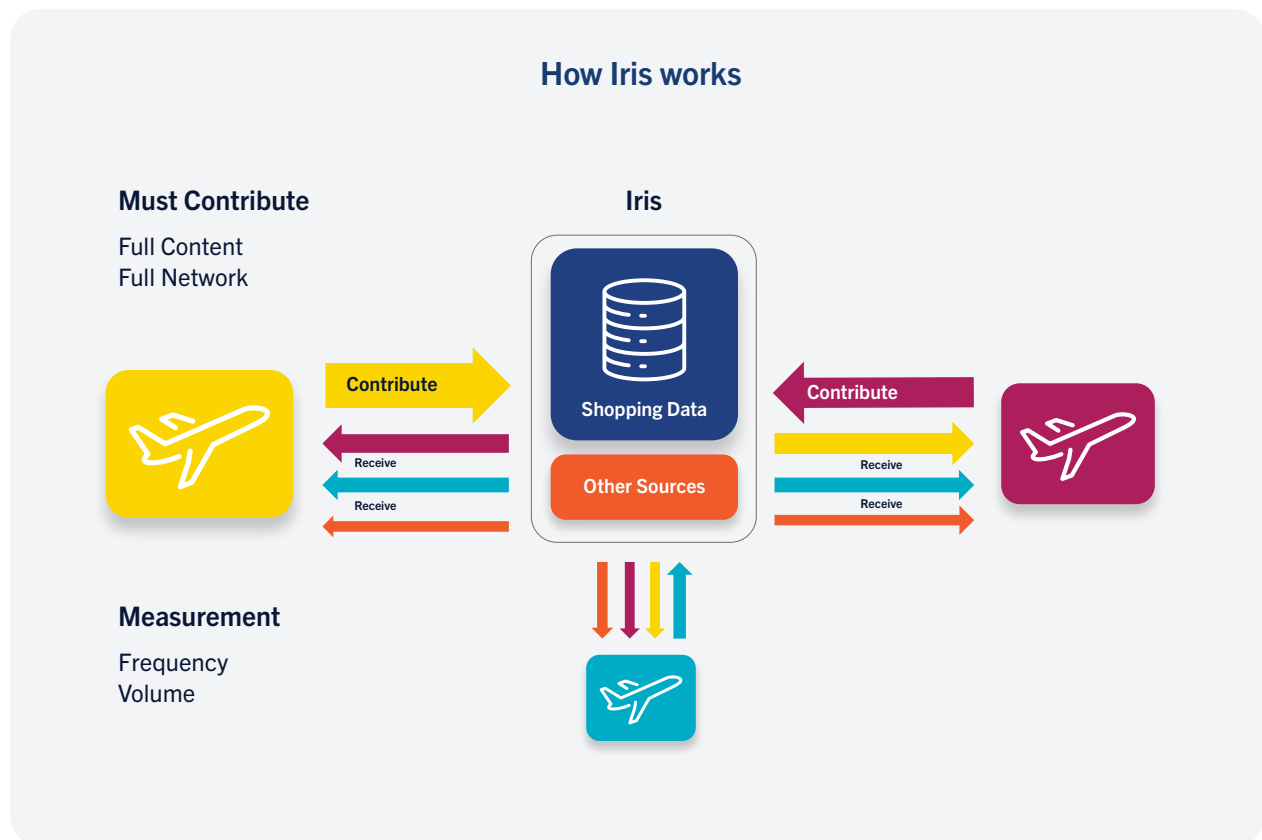
While these approaches help airlines block unwanted web scraping activity, they inadvertently also block AI agent bots that are looking for flight information to deliver to a shopper in a search result.

If airlines continue to employ anti-web scraping and bot-blocking practices, then they could run into an issue where their flight information is not included in AI search results and therefore miss ever-larger segments of shoppers.

Competitive intelligence built for the future

3Victors is addressing these challenges with PriceEye, 3Victors' competitive intelligence solution, and Iris—an industry-neutral, cost-effective shopping data repository. By contributing their own shopping data, participants will be able to receive competitive data at higher volume, velocity, and variety.

Gathering relevant competitive insights via web scraping while maintaining existing costs **will become challenging for airlines.**

How Iris works

Must Contribute

Full Content
Full Network

Contribute

Receive
Receive

Iris

Shopping Data

Other Sources

Contribute

Receive
Receive

Measurement

Frequency
Volume

Participants receive shopping data commensurate with the participating airlines, volume, velocity and comprehensiveness of the data they provide.

Spotlight on shopping data

Shopping data is time-stamped flight search and results data generated whenever a shopping request occurs and a system returns offers for air travel. This data is more complete, accurate, and timely compared to traditionally collected competitive data.

Shopping data includes the search request and detailed offer response including departure and arrival airports, dates, times, airlines, flight numbers, cabin class, passenger count, fare prices, taxes, fees, surcharges, baggage allowances, layover durations, available seat types, and amenities and ancillary services.

The Iris shopping data repository provides the foundation for 3Victors' PriceEye and tomorrow's AI-based tools. By reducing reliance on expensive data scraping and third-party dependencies, Iris enables stable data feeds that support accurate pricing strategies, demand forecasting, and enhanced decision-making.

> "With AI, we are at the tip of the iceberg when it comes to the work that could be done to further modernize computing capacity and really give people the kinds of insights that they need and want to quickly make decisions," **said Adam Bockelie of Air Canada.**

3Victors has a new vision for the future. PriceEye customers receive complete, accurate and timely data using Iris.

- **Complete**
  Iris data contains all offers returned from a shopping request, including all brands, cabins, and price points, unlike web-scraping techniques that most often pull the limited offer content presented to customers, typically at the lowest available price.

- **Accurate**
  Iris data is sourced directly from airline and GDS calls, so it is not prone to web-scraping errors such as changes to airline websites that move shopping elements to different areas on the page.

- **Timely**
  Shopping data is collected throughout the day, enabling multiple daily feeds and eliminating the need to perform web scraping in a small shopping window of the day and providing real-time market intelligence to inform airline decision making.

How airlines leverage the benefits of Iris through PriceEye

As Iris receives data directly from participants, PriceEye's AI-driven processes filter and enrich the data with fare basis codes, fare brands, taxes, and surcharges to ensure greater completeness, reliability, and scalability at increased frequencies.

With PriceEye and Iris, airlines can avoid web scraping and its related problems while maintaining similar costs for better competitive intelligence gathering.

- **Enabling dynamic offers**
  PriceEye enables airlines to go from making decisions based on hours-old scraped data to the real-time AI-powered analytics necessary to take full advantage of dynamically generated offers.

- **More reliable data feeds**
  Airlines no longer have to rely solely on outdated web-scraped data, deal with multiple intermediaries, and navigate complicated support.

- **Improved efficiency**
  By exchanging shopping data, airlines that use PriceEye can capture increasing amounts of competitive data without a corresponding increase in cost.

> "Airlines deserve access to accurate, up-to-date data. 3Victors and ATPCO are positioned to ensure they get what they need to be competitive in a future filled with uncertainty," **said Chris Phillips, Chief Commercial Officer ATPCO.**

Build the future of airline competitive intelligence

To remain competitive in a future of dynamic offers and AI agents, airlines must adopt solutions built for the increasing volume, velocity, and variety of data. PriceEye and Iris are designed to support this next era.

> "The datasets that companies like 3Victors are building are more comprehensive, and give a better understanding of what's really out there in terms of the kinds of offers that airlines are proposing to customers, compared to the data sources that exist today, which have holes in them," **said Adam Bockelie of Air Canada.**

By joining the trusted, airline-owned data ecosystem that's redefining competitive intelligence— you are empowering your airline with the insights needed to unlock revenue opportunities in a world of dynamic offers.

Start a proof of concept with PriceEye. Contribute to Iris. Help shape the future of airline competitive intelligence.

Work with ATPCO and 3Victors.

3VICTORS

an ATPCO company

Reimagining travel data