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How to Measure Freight Data Analytics Value and Why Backtesting Proves It

WHITE PAPER

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Volatility has become commonplace in transportation management. According to Dan Weinberger of Supply Chain Brain, **"In a time of increasingly unpredictable consumer demand, traditional supply chains are struggling to keep up. In response, businesses need to weed out outdated components and obsolete practices, while moving toward a more agile system.**

Organizations that are still employing traditional methods will struggle to streamline end-to-end supply chain processes. Obsolete practices will only increase the complexity and difficulty of the task."

Part of that need to identify obsolete practices and find a better path forward depends on the ability to maximize the value of new technologies, including analytics.

In other words, supply chain leaders need to validate and measure the success (read "accuracy") of data source analytics and how well they stack up to the observed market conditions. In fact, that's where the value of FreightWaves Scientific Indices and Intermodal Contract Savings Indices is most apparent.

To help supply chain leaders understand the necessity of backtesting in data analytics, particularly predictive freight analytics, this white paper will explore:

- **The possible backlash resulting from outdated data or inaccurate data insights.**
- **The impeccable value of accuracy in all predictive analytics insights.**
- **A few tips to measure the validity and accuracy of analytics metrics.**

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List of SONAR features to know

Exhibit A. FreightWaves Scientific Ticker (FWS.USA)
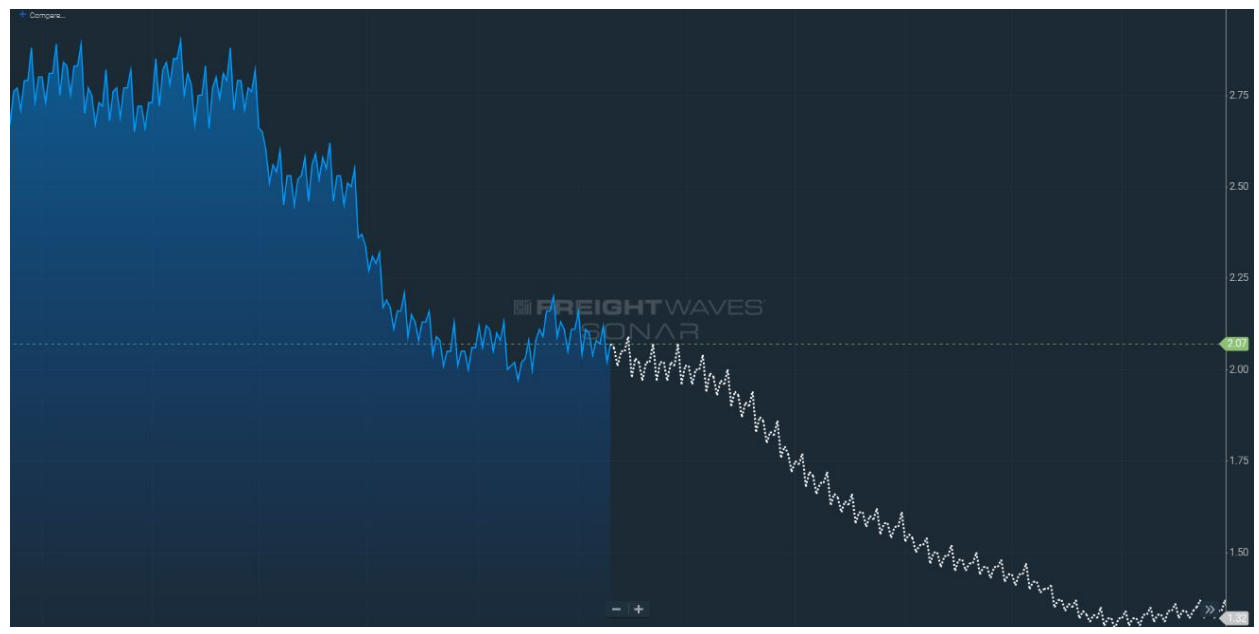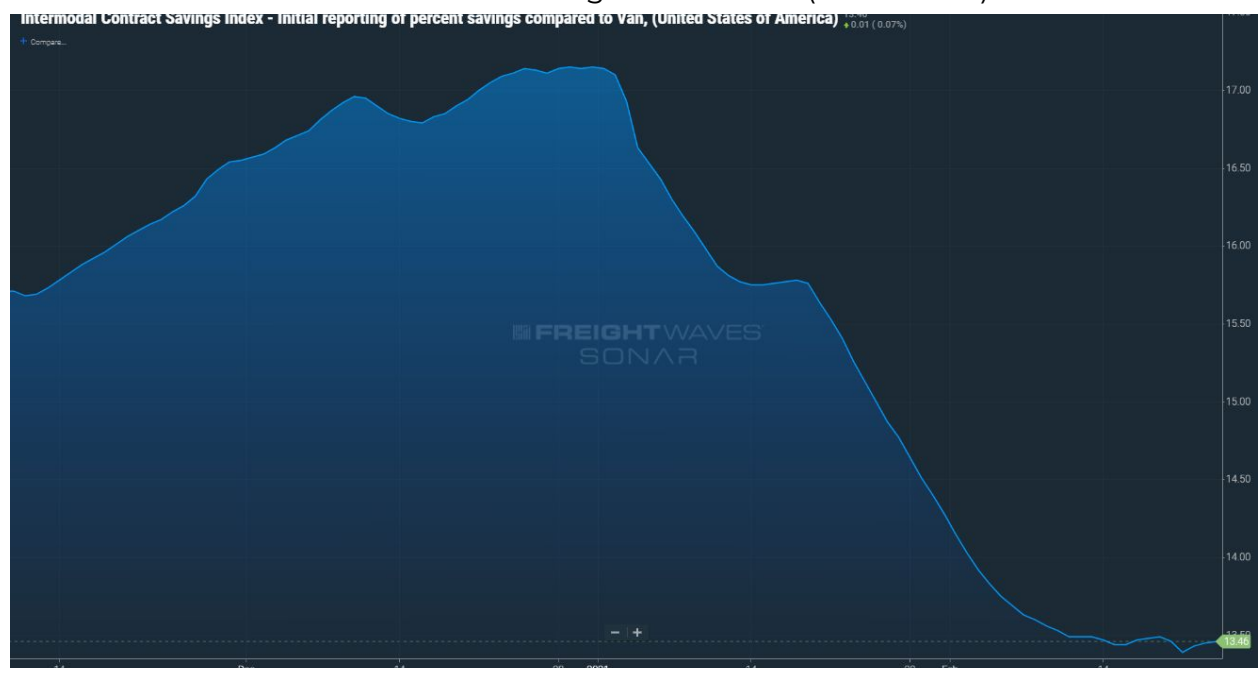

Exhibit B. Intermodal Contract Savings Index Initial (IMCSI1.USA)

The risk of analytics, a lack of backtesting and the wrong data insights

The grave risk of analytics rests with a lack of intelligence and real-time data. Without real-time data, it's easy to overlook opportunities for advancement and increase overhead.

Yet the supply chain generates a proverbial mountain of data that can be applied to provide insight into current trends relating to tender rejections, rates and use of various modes. According to Logistics Viewpoints, **"You then want to apply intelligence on top of that – e.g., what's the estimated ETA based on weather, traffic, lane patterns, road closures and a host of other real-time conditions? Maybe the customer wants to find the location of every load captured in a single purchase order. Then, what proactive recommendations can the system make after analyzing everything?"**

It is all subject to the risk of inaccurate insights due to outdated data. When data ages, it begins to lose its value in short-term outlooks. In the freight market, that's a massive risk that can amount to significant losses over time. Therefore, the need to backtest analytics to determine their overall efficacy and accuracy is crucial. After all, making decisions based on outdated data could mean sending assets to the wrong markets for brokers or carriers. For shippers, it means offering rates that are not in accordance with observed market conditions and increasing the risk of hostility from network partners, namely carriers. And even more disastrous, customer outcomes begin to suffer.

The cycle becomes self-propagating and promotes a deterioration of the supply chain's viability and results in a greater risk for financial implications. However, there is a solution to find out how well these systems and data insights align with reality.

Measuring analytics value depends on meaningful, accurate insights

Take a moment to think about any prediction. On its most basic level, a prediction is just that, a prediction. In time, it is easy to see if that prediction worked out accurately. That may sound simple enough in a manual process, but with 138 individual freight markets in the U.S., determining the accuracy of data analytics insights becomes a monumental challenge. Yet again, technology is swooping in to help identify and measure the value of analytics in hindsight.

As reported by McKinsey & Company, **"It's unsurprising that several opportunities for differentiation center around technology. But contrary to expectation, the investment levels required are often minimal. A chemical manufacturer added custom-built solutions to its current automated production system as part of its transformation. By taking a customer-back approach and using agile working methods for faster implementation, it increased earnings before interest and tax (EBIT) profits by 3 percentage points, while raising service-level adherence from 70 to 95% and forecasting accuracy from 50 to 90% — a vast improvement from previous results."**

It is this distinction that allows freight management leaders to assess the validity of their analytics platforms and determine how to use such insights in the future.

For example, if the supply chain leaders see that analytics insights have aligned well over the course of a week, it amounts to a better strategy for tendering rates to the spot market. However, insight into a one-month view of historic accuracy can have additional implications for the creation of new mini-bids and even onboarding additional carriers or lanes to meet demand.

That has a natural implication for additional value in serving in a consultant role to network partners.

Assume a broker is using analytics value to assess its current annual carrier contracts. If that broker is able to point to analytics accuracy and say, **"Look. Our data analytics indicates an accuracy above 90% across all time periods for the past three months,"** it is easier to control negotiations. The same capability can be applied by a shipper when looking to secure better rates from carriers or justify why shipments are continuously being tendered at rates below or different from carrier expectations.

How to take the temperature of your analytics health

Success in transportation management, particularly truckload, depends on the accuracy of freight forecasting. In manufacturing, that amounts to using technology to maximize data capture and meaningful use. And as further explained by Weinberger, **"Manufacturing businesses will focus primarily on the combined usage of blockchain, IoT, robotics and data technology. They're likely to take a step toward building new supply chains through digitized or automated versions of manual and monotonous tasks. This will help to get rid of inefficient paper-based work that requires human intervention, which often results in data loss and wasted time."**

For that reason, enterprises need a hand up in trying to figure out which analytics are adding the most value and how they measure up over time. And a few tips for checking the success of analytics-driven insights include:

1. **Recognize the size of your analytics dataset first.** As with any data resource, it is important for enterprises to recognize the size of the analytics data set. The size of the data set plays a direct role in how much can be squeezed from the information going into the system. After all, a limited data set could result in a missed opportunity to understand what is happening within the varying freight markets, how different modes interact, and what might arise from the supply chain.

2. **Compare findings in hindsight.** The next step is simple; supply chain leaders need to compare the findings of analytics in hindsight. While this might seem counterproductive, it actually provides a way for an organization to determine how well the analytics insights aligned with observed market conditions.

    In the realm of paid data, this could take weeks to assess. However, the more near-real-time data can be, the faster it is to compare those findings and determine how well the algorithms are stacking up within the short-term. In a sense, this plays back into the need to gauge market volatility and align freight with the spot market as a general indicator of market volatility.

3. **Review insights for variations from observed values.** There will always be times when analytics insights vary from observed market conditions. This is the result of outside influences that cannot possibly be considered within typical algorithms. For example, sudden changes in weather patterns, including the events seen last month, can result in a deviation between analytics accuracy and projections.

    However, recognizing when these deviations occur and figuring out their contributing factors can go a long way in building the business case for continued use of analytics and applying real-time visibility to promote a more cohesive, collaborative infrastructure.

4. **Consider other options for savings opportunities, such as intermodal versus truckload savings histories (Exhibit B).** Additional savings for the supply chain can be realized through the

introduction of additional tickers and metrics to track potential savings across different modes. For years, supply chain experts have touted the need to rate every shipment across all modes prior to choosing a carrier for a load.

While that sounds great on paper, the inability to determine the actual savings value over time could leave money on the table. However, advancements within technology are creating a new way to determine how well savings stack up between individual data sets and within certain modes.

As an example, the intermodal tickers within FreightWaves SONAR now can provide insight into how these savings opportunities moved over time, including additional insight into freight movement projection with a limited data set and a final tabulation that considers the majority of all freight movements within intermodal itself.

5. **Renew bidding strategies based on review of analytics.** The value of measuring the health of analytics and their accuracy goes back to knowing when to renew bidding strategies and allowing organizations to stay strategic. In other words, an organization may opt to renew bidding strategies if the accuracy of analytics continues to be undisputed and proven within certain tickers, using that information to re-enter negotiations, onboard new lanes or expand the carrier network.

   As a result, it is easier to maintain control over the one-off loads within the spot market, which are typical whenever disruption strikes. And if the recent years and months have taught the supply chain anything, it is that disruption is an omnipotent and omnipresent threat.

6. **Implement new standards for checking market volatility among team members regardless of segment.** The next step in measuring the health of analytics insights is to implement new standards for checking marking volatility among team members and network partners regardless of segment. In other words, it is time to identify market volatility indicators and rapidly evaluate market conditions with analytics at the foundation.

   This is where advanced freight forecasting platforms like SONAR are continuously evolving and adapting interfaces to make it easier for shippers to navigate the freight market. In fact, SONAR supply chain intelligence (SCI) identifies those characteristics faster and promotes the increased use of analytics insights within the transportation management cycle.

7. **Take advantage of APIs to streamline data-driven decision making.** The best strategies for applying analytics should also leverage APIs to streamline data-application and review. Using APIs, it is easier to get those insights and avoid delays when they mattered the most.

8. **Repeat and learn from the process.** The final step can seem redundant, but it is a repeat of everything from step one through this point. The continuous cycle of the valuation and application of analytics promotes a more cohesive and defined data strategy.

   That is a real competitive advantage for today's freight market participants, and it is quintessential to measuring freight data analytics value with backtesting and using that information to promote the continued digital transformation and application of technology within an enterprise.

Summary: FreightWaves SONAR continues to offer up the best and most accountable freight analytics possible

The best data analytics algorithms will always be limited by the size of their data set and their applicability within the market. Although the supply chain generates more data daily than the whole of human history through the late 20th century, it is still subject to learning curves. In other words, any advancements in technology should be successfully measured and validated to ensure data insights aligned with observed market conditions.

That is the critical step to maximizing the value of such investments and avoiding upset. As a result, more organizations are turning to experienced and proven platforms, such as FreightWaves SONAR, to understand how well data analytics stack up over time. Both the **FreightWaves Scientific Index (Exhibit A)** tickers and intermodal savings tickers promote continuous opportunities to save and validate analytics insights over time.

Connect with FreightWaves to maintain your strategic transportation management goals

FreightWaves SONAR is the biggest and most successful freight forecasting platform on the planet. And its validity continues to grow as the organization creates new opportunities to assess the validity of analytics insights and determine how well an organization can count on its findings. Request a demo of FreightWaves SONAR to get started.