

## Assuring Fuel Integrity from Pipeline to Pump

*By Kevin McKenna, Chief Executive Officer, Authentix*

### Leveraging Data to Drive Actionable Insights

In a recent survey conducted by Oil & Gas IQ, over 200 downstream industry leaders were asked about the importance of supply chain fuel integrity in delivering on their brand promise. Not surprisingly, 76 percent of respondents said it was very important and 19 percent responded it was somewhat important. Despite the importance of this matter, only 26 percent of the respondents said that they had access to the required data to assure supply chain fuel integrity.

This lack of supply chain data and subsequent corrective and preventative actions exposes brand owners to the ubiquitous risk of fuel manipulation. Fuel manipulation can occur through negligence, system failures, or deliberate illicit acts. Regardless of the cause, when it occurs it can have damaging and lasting effects on consumer confidence and the integrity of branded products – resulting in lost revenue and competitive advantage.

#### **The Looming Risks of Fuel Manipulation**

Many think fuel manipulation isn't happening in their country or market, or that it is happening at a scale that can be considered part of the cost of doing business, perhaps in the range of five percent of the volume of product sold. Our experience at Authentix is that the volume is typically much higher – in many cases more than 30 percent of the volume of product sold. Petroleum products present a lucrative opportunity for those who wish to deliberately manipulate fuel supplies for their illicit gain. Perpetuating the crime is a simple exercise of price arbitrage – obtain a product at a low price and sell it at a higher price. Lower prices can be obtained from outright theft, subsidized products, smuggling, lower grade products, or adulteration of products with solvents, waste oils, or any low-cost liquid criminals can obtain. This is big business that often goes undetected as represented in a 2017 Ernst & Young report that estimated the illicit fuel market to be \$133 billion a year.

#### **Minimize Risks with a Comprehensive Fuel Integrity Program**

When a comprehensive fuel integrity program is deployed with sampling, testing, analysis and enforcement, our customers have been able to effectively stop fuel manipulation and achieve returns on investment in many cases of over 10 times. A key tool Authentix uses to combat fuel manipulation and facilitate the tracking and authentication of fuel products is the application of unique chemical markers coupled with proprietary analyzers to detect and measure the markers in the fuel. This lock and key combination of markers and analyzers facilitates the rapid and definitive authentication of products throughout the supply chain – enabling you to detect manipulation from multiple sources. To date, we have marked and protected over two trillion liters of petroleum products across the globe to identify and ameliorate issues such as grade swapping, product adulteration, or quality issues (e.g., incorrect additive dosing, water contamination, etc.).

Over the last few years, we have transformed our solutions to merge the physical authentication results from fuel sampling and testing with ubiquitous data sources (e.g., volume flows, pricing information, truck tracking, etc.) to aggregate and analyze data via the Authentix Information System (AXIS®). AXIS enables our customers to proactively operate their supply and distribution chains for competitive advantage. This transformation has been enabled and accelerated by four ongoing industry trends:

1. Increase in data collection, enabled by better connectivity and the Internet of Things (IoT)
2. Cheap computing power and cloud infrastructures available
3. Improved analysis algorithms and inexpensive machine learning software available
4. Excellent open-source software options for data science programming and analysis

Today we are leveraging cloud architecture, simplifying data collection solutions while accelerating adoption of additional IoT sensors and investing in proprietary data solutions to increase our ability to provide actionable insights to our customers. AXIS delivers insightful data analytics to isolate anomalies, reveal opportunities for fraud, and identify trends in unauthorized product placement, so you can act to maintain the integrity of the supply chain. By extracting the full value of customer, market, and supply chain data, and combining that with the integrity and responsiveness of our people, our customers gain a significant competitive advantage.

Enabling our customers to thrive in today's complex supply chains requires more than a chemical marker and a device for measurement. It requires nuanced sector expertise and the means to collect, aggregate, and analyze supply chain data from multiple sources. It requires collaborative partnerships to leverage the growing ecosystem of IoT applications and data sources to deploy solutions quickly, and then learn, adapt, and drive toward predictive analytic solutions built on the AXIS platform. All of this contributes to our vision of creating a world of confident commerce – consumers can be confident they are getting what they pay for, and brand owners are confident they are competing on a level playing field to deliver on their brand promise.

**Industry Trends Driving the Digital Transformation**

- Increase in data collection and better networks (IoT)
- Low-cost computing power and availability of cloud infrastructures
- Improved algorithms and inexpensive machine learning software
- Excellent open-source software for programming and analysis

***Kevin McKenna** is Chief Executive Officer at Authentix, the authority in authentication solutions. Authentix helps you thrive in supply and distribution chain complexity by providing advanced authentication solutions for governments, central banks and commercial products. These solutions ensure that local economies grow, banknote security remains intact, and commercial products have robust market opportunities. Our partnership approach and proven sector expertise inspires proactive innovation, helping you mitigate risks to promote revenue growth and gain competitive advantage.*