



Harnessing AI for Creative Sourcing Solutions: Mitigating Tariff Impact for Our Customers

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Abstract - This article will explore how to leverage artificial intelligence to mitigate the impact of tariffs by identifying alternative sourcing options for customer orders. We will provide an in-depth examination of the tactical sourcing strategies that AI is transforming. First, we will discuss the capabilities of AI in analyzing various sourcing plants to minimize tariff impacts on products. By utilizing machine learning algorithms, businesses can efficiently evaluate and select suppliers based on proximity, cost-effectiveness, and tariff rates, leading to substantial savings. Once AI has pinpointed the most advantageous sourcing alternatives, we will delve into how this sourcing data can be seamlessly integrated with advanced Available-to-Promise (ATP) solutions, such as SAP Advanced ATP. This integration will ensure that when customers place orders, they receive accurate commitment dates, thereby enhancing customer satisfaction. Additionally, organizations can achieve reduced tariff exposure, optimizing their supply chain operations. Throughout the article, we will demonstrate the effectiveness of AI-driven sourcing in overcoming tariff challenges, ultimately positioning businesses for greater resilience and competitiveness in a dynamic global market.

Keywords - Supply Chain, Tariffs, SAP Advanced Available To Promise, AI, SAP Systems, Machine Learning, Alternate-Based Substitution

1. Introduction

Tariffs are regulatory measures designed to restrict the amount of imports entering a country. They effectively add extra costs to goods and services bought from other countries, raising their prices for local buyers. This increase in price makes imported products less attractive compared to similar items produced domestically.

It is crucial to understand the wider effects of tariffs on global trade. When a nation enacts a tariff, it not only affects its own economy but also creates consequences for the exporting country. Consumers in the country imposing the tariff may opt to lessen their consumption of imports due to the heightened costs linked to the tariffs. This shift in buying patterns can greatly influence the demand for goods from the exporting nation.

Nonetheless, suppose local consumers decide to continue buying the pricier imported items despite the tariff. In that case, it indicates a strong inclination towards those products, often due to their distinctive features or brand appeal. In these situations, the tariff increases the overall cost that consumers in the exporting country must incur, as they might need to modify their pricing strategies to stay competitive. This scenario highlights the intricate interdependence among nations concerning trade and consumer behavior.

2. AI Algorithms for Alternate Source Identification in Supply Chains

Every organization faces critical strategic and tactical decisions when it comes to determining the sourcing of their products in response to customer orders. When a customer places an order for a product that is not hindered by regulatory restrictions, the organization can efficiently fulfill that order from alternative locations. However, fulfilling orders from these other locations is not merely beneficial for timely order fulfillment; it additionally serves as a strategic approach to mitigate the impact of tariffs that may affect pricing and profitability.

To optimize this sourcing decision process, organizations employ advanced artificial intelligence algorithms that consider a range of variables. These variables may include factors such as product availability, shipping costs, delivery times, geographical proximity to the customer, and historical data on supply chain reliability. By analyzing these parameters, the AI algorithms can pinpoint the most effective sourcing option when a customer places an order.

The sophistication of these algorithms allows them to process large datasets rapidly, enabling companies to automate the sourcing decision-making process. This automation significantly enhances efficiency, allowing businesses to respond swiftly and accurately to customer demands.

Once the AI has identified the optimal sourcing strategy, it is essential to integrate this information with Advanced Available-to-Promise (ATP) tools within the enterprise architecture. This integration ensures that the order fulfillment solution is not only effective in mitigating tariffs but also enhances overall customer reliability and operational efficiency. By utilizing these advanced technologies, organizations can provide timely and dependable service, ultimately elevating customer satisfaction and loyalty.

Below are the dynamic capabilities that AI leverages to explore alternative sources for fulfilling customer demands:

- **Forecasting Tariff Shifts and Market Trends:** Utilizing advanced algorithms, AI delves into extensive datasets to identify and predict fluctuations in tariffs and overarching market trends. By analyzing historical patterns alongside current economic indicators, it equips businesses with actionable insights that allow for proactive adjustments to their supply chain strategies. Moreover, AI can simulate a multitude of tariff scenarios, presenting companies with a comprehensive view of potential outcomes and enabling them to swiftly pivot in response to market changes.
- **Enhancing Sourcing and Supplier Networks:** AI plays a pivotal role in scrutinizing the global tariff landscape, helping companies identify alternative suppliers or geographic regions that could mitigate tariff impacts. By employing real-time analytics, it assesses the cost implications of sourcing from various suppliers, pinpointing those in countries that impose lower tariffs. Furthermore, AI evaluates the stability of these suppliers against tariff volatility, enabling businesses to build a more resilient and diversified supply chain that can withstand unexpected disruptions.
- **Maximizing Cost Efficiency and Crafting Pricing Strategies:** With deep learning models, AI captures the intricate dynamics of how tariff changes cascade through supply chains, influencing raw material costs and overall pricing structures. This insight allows businesses to not only identify cost-saving opportunities but also to devise strategic pricing models that account for anticipated tariff-related increases. By automating price adjustments in response to cost fluctuations, companies can maintain their competitive edge while safeguarding their profit margins.
- **Elevating Supply Chain Transparency and Real-Time Monitoring:** AI enhances the visibility of supply chain operations, equipping businesses with real-time tracking capabilities for shipments and customs clearance processes affected by tariffs. This technology monitors logistical pathways, using predictive analytics to identify potential bottlenecks or delays before they escalate into significant issues. By proactively managing these challenges, companies can ensure that they meet customer demand on time, improving overall service reliability.
- **Streamlining Compliance and Customs Processes:** AI significantly simplifies the complexities of compliance by automating the classification of products according to tariff codes. It meticulously prepares customs documentation, ensuring accuracy and minimizing the risk of errors that could lead to costly delays. This level of automation not only reduces the administrative workload for compliance teams but also accelerates the customs clearance process, allowing companies to respond more swiftly to changing market conditions and regulatory requirements.

3. AI Integration with Advanced ATP Tools

The concept of real-time available-to-promise (ATP) is a fundamental capability embedded within enterprise frameworks that become critical when processing customer orders for products. Specifically, we will focus on the Advanced Available-to-Promise feature found within the SAP S/4HANA suite. This feature enables a real-time ATP check at the moment a customer places an order. Additionally, if there is a need to revise the customer commitments later on, these ATP checks can be conducted to update promises based on the latest demand and supply dynamics.

An important aspect of this system is the alternate-based confirmation capability, which operates within the realm of advanced ATP. Before securing a commitment for a customer order, the system first identifies alternative sources or plants for the requested product. Following this identification, a material availability check is performed, ensuring that the correct resources can be allocated efficiently. Leveraging insights from predictive AI models, the system can recognize optimal sourcing options tailored to specific customers and their locations.

All predictive sourcing information generated by the AI is seamlessly integrated into the alternate-based master data model. This integration is pivotal in the advanced ATP algorithm, functioning effectively whenever a customer places an order.

Whether a customer initiates a new order or revises an existing order, the system allows for a recalibration of ATP checks based on enhanced sourcing predictions from AI. These updated commitments take into account not only the physical availability of materials but also the most strategic sourcing options. This approach not only optimizes the delivery timelines but also helps mitigate potential tariffs, thereby enhancing overall cost-effectiveness for both the enterprise and the customer.

The illustration in Figure 1.1 serves as a valuable tool for visualizing the comprehensive flow of calculations and data processes involved. This representation not only aids in delivering precise commitments to customers but also plays a crucial role in minimizing the effects of tariffs. By detailing each step of the data journey, the figure clarifies how various inputs and calculations converge to ensure that customer transactions are handled efficiently and with a high degree of accuracy. This ultimately leads to enhanced customer satisfaction and mitigated financial repercussions related to tariff fluctuations.

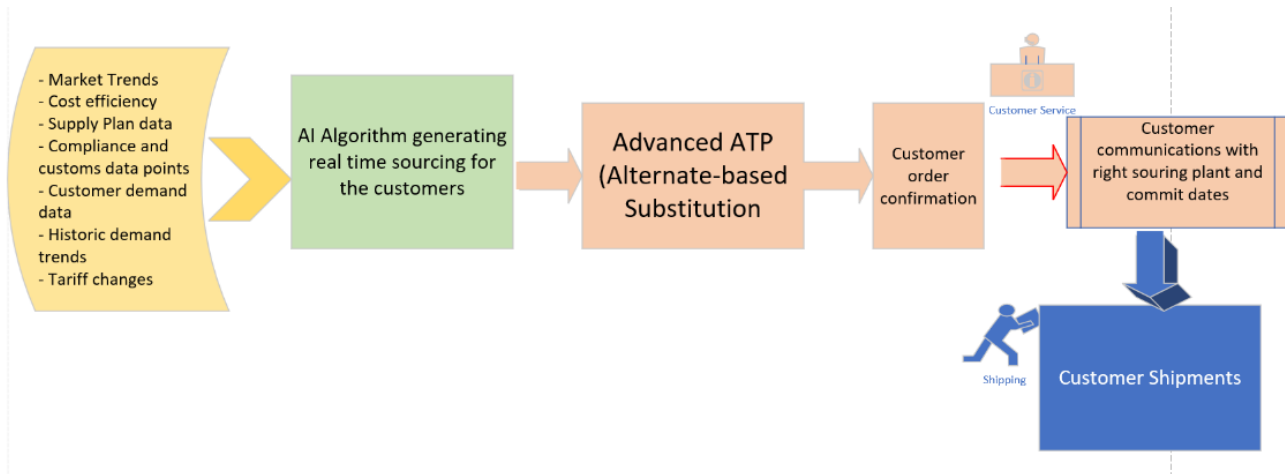


Figure 1. Process Flow for Alternate Source Identification with AI

4. Benefits

The Importance of Alternate Source Identification under Tariff Implications:

- **Mitigating Cost Increases:** Tariffs impose significant additional costs on imported goods, which can severely impact a company's profit margins. For instance, a company reliant on imports may face a 25% tariff on specific products, effectively cutting into their profits. By proactively seeking alternative sources from countries with minimal or no tariffs on these goods, businesses can regain their competitive edge. This strategic approach not only helps in preserving profit margins but also allows for better pricing strategies in the market.
- **Navigating Supply Chain Disruptions:** The introduction of tariffs often leads to unexpected disruptions in established supplier relationships, requiring companies to pivot to new suppliers. This transition can be both time-consuming and costly, as businesses may need to reestablish trust and negotiate new contracts. Identifying and vetting alternative suppliers ahead of time—particularly those in countries with favorable trade agreements—can mitigate these disruptions. By having a contingency plan in place, companies maintain operational continuity and reduce the risks associated with sudden policy changes.
- **Addressing Uncertainty and Risk:** The unpredictable nature of trade policies and tariff regulations generates substantial uncertainty within supply chains. By diversifying supplier locations, companies can create a more resilient supply network that is less susceptible to political and economic fluctuations. For instance, if tariffs are imposed on Chinese imports, a company with suppliers in Southeast Asia or Mexico can adapt more swiftly by shifting its sourcing strategy. This geographic diversity not only enhances flexibility but also fortifies the supply chain against potential disruptions caused by sudden policy shifts.
- **Building Long-term Resilience:** Effective tariff management goes beyond mere compliance; it encompasses strategic investments in supplier diversification and enhanced transparency within the supply chain. Companies that engage in rigorous scenario planning and risk assessment are better equipped to respond quickly to changes in trade policy. This proactive approach involves regularly assessing supplier performance, costs, and geopolitical risks, ensuring that businesses are always prepared to pivot as necessary. By fostering a resilient supply chain, companies can thrive even in an uncertain trade environment, ultimately safeguarding their long-term success.

5. Conclusion

Identifying and securing alternative sources of supply has become an essential response to the challenges posed by tariffs. This strategic approach not only helps businesses manage their costs more effectively but also enhances the resilience of their supply chains, enabling them to better navigate the complexities and uncertainties of the global trade landscape.

While the process of finding new suppliers can be time-consuming and resource-intensive, leveraging advanced tools such as supply chain risk management software can streamline this effort, making it more efficient and responsive to market changes.

Companies might also explore strategies like reshoring, which involves bringing production or sourcing operations back to their home country. This can mitigate some tariff impacts while potentially fostering local economic growth. Alternatively, nearshoring sourcing from neighboring countries that have favorable trade relations—can also serve as a viable strategy. This approach not only reduces tariff exposure but can also shorten delivery times and lower logistics costs, thereby enhancing

overall supply chain effectiveness. By adopting these strategies, businesses can create a more robust and adaptable supply chain capable of withstanding external pressures.

References

- [1] ChristianMorrison”<https://www.top10erp.org/blog/erp-supply-chain#:~:text=What%20are%20the%20benefits%20of,and%20tighter%20supply%20chain%20integration.”>(accessed on July 30 2025.)
- [2] JenniferBlender<https://www.statestreet.com/us/en/asset-owner/insights/price-of-protectionism-economic-tradeoffs-of-tariffs> (accessed on July 02. 2025)
- [3] Jenna Slagle<https://www.project44.com/blog/how-tariffs-may-disrupt-your-supply-chain-and-what-you-can-do-about-it/> (accessed on July 30. 2025)
- [4] TomChapman<https://supplychaindigital.com/operations/armanino-trade-war-advice-for-manufacturers>(accessed on July 02.2025)
- [5] Ritesh Thakur “<https://doi.org/10.71097/IJSAT.v16.i1.3717>” (accessed on July 02.2025)
- [6] LauraBuaman<https://www.thescxchange.com/tech-infrastructure/technology/adapting-to-tariffs>(accessed on July 10.2025)
- [7] K. R. Kotte, L. Thammareddi, D. Kodi, V. R. Anumolu, A. K. K and S. Joshi, "Integration of Process Optimization and Automation: A Way to AI Powered Digital Transformation," *2025 First International Conference on Advances in Computer Science, Electrical, Electronics, and Communication Technologies (CE2CT)*, Bhimtal, Nainital, India, 2025, pp. 1133-1138, doi: 10.1109/CE2CT64011.2025.10939966.
- [8] B. C. C. Marella, G. C. Vegineni, S. Addanki, E. Ellahi, A. K. K and R. Mandal, "A Comparative Analysis of Artificial Intelligence and Business Intelligence Using Big Data Analytics," *2025 First International Conference on Advances in Computer Science, Electrical, Electronics, and Communication Technologies (CE2CT)*, Bhimtal, Nainital, India, 2025, pp. 1139-1144, doi: 10.1109/CE2CT64011.2025.10939850.
- [9] Sehrawat, S. K., Dutta, P. K., Bhatia, A. B., & Whig, P. (2024). Predicting Demand in Supply Chain Networks With Quantum Machine Learning Approach. In A. Hassan, P. Bhattacharya, P. Dutta, J. Verma, & N. Kundu (Eds.), *Quantum Computing and Supply Chain Management: A New Era of Optimization* (pp. 33-47). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-4107-0.ch002>
- [10] Naga Surya Teja Thallam. (2024). AI-Enabled Disaster Recovery for Cloud Infrastructure: Proactive Failure Detection and Recovery Strategies. *International Scientific Journal of Engineering and Management*, 3(8).
- [11] Gunda, S. K. (2025). Accelerating Scientific Discovery With Machine Learning and HPC-Based Simulations. In B. Ben Youssef & M. Ben Ismail (Eds.), *Integrating Machine Learning Into HPC-Based Simulations and Analytics* (pp. 229-252). IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-6684-3795-7.ch009>
- [12] Singhal, S., Kothuru, S. K., Sethibathini, V. S. K., & Bammidi, T. R. (2024). ERP excellence a data governance approach to safeguarding financial transactions. *Int. J. Manag. Educ. Sustain. Dev*, 7(7), 1-18.
- [13] Rajender Pell Reddy, "Understanding Cybersecurity Risks in Supply Chain Management," *International Journal of Computer Trends and Technology (IJCTT)*, vol. 73, no. 6, pp. 34-41, 2025. Crossref, <https://doi.org/10.14445/22312803/IJCTT-V73I6P105>
- [14] Varinder Kumar Sharma - STRATEGIC FRAMEWORK FOR AI-ENHANCED PORTFOLIOS IN WIRELESS ENGINEERING: A LITERATURE REVIEW -*International Journal of Core Engineering & Management*, Volume-8, Issue-03, 2025 IJCEM.
- [15] Shrikaa Jadiga, "Understanding the Role of AI in Personalized Recommendation Systems, Applications, Concepts, and Algorithms," *International Journal of Computer Trends and Technology (IJCTT)*, vol. 73, no. 1, pp. 106-118, 2025. Crossref, <https://doi.org/10.14445/22312803/IJCTT-V73I1P113>