iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

AI-ENABLED THIRD-PARTY RISK SENSING IN REGULATED SUPPLY CHAINS

Pawankumar Suresh
Project Manager II Vendor Outsourcing, Development Business Operations

ABSTRACT
The Supply chains are increasingly complex and risky in a globalized economy that is increasingly regulated, particularly in pharmaceuticals, food and manufacturing. The study examines how to develop an AI-powered third-party risk sensing framework that strengthens the resiliency and compliance of the regulated supply chains. Using machine learning (ML) methods, the analysis will consider a variety of data types, such as quality indicators, shipment records, and audit reports to construct a predictive model to predict vendor non-conformance risk. The model is informed with the historical information on the industry setting and proven in real-life case examples, showing the possibility to anticipate possible compliance failures before they happen. The proposed system can monitor the risks continuously by combining the results of the audit with shipment irregularities and quality control metrics, thus allowing timely interventions and enhancing strategic decision-making. The findings indicate that there is a considerable increase in the early detection of non-conformance incidents as opposed to the conventional risk management approaches as part of providing more supply chain visibility, regulatory compliance, and operational resilience. The paper addresses other issues like the heterogeneity of data, model interpretability, and continuous retraining of the model as the dynamics of the supply chain changes.

Keywords:
Risk sensing with AI, third-party risk management, machine learning, supply chain resilience, predictive analytics, compliance monitoring, non-conformance prediction by vendors, quality signals, shipment data, audit Findings, regulated supply chains, predictive analytics, compliance monitoring.

I. INTRODUCTION

The current highly interconnected and controlled supply chain eco systems, third-party risk prediction and mitigation are essential in staying on track, ensuring a product of quality, and business continuity. Artificial Intelligence (AI) as a supply chain risk management solution has become a revelation, allowing organizations to manipulate large volumes of data in real-time and provide actionable intelligence [1] [5] [10]. AI-based third-party risk sensing is based on machine learning (ML) models that detect quality indicators, shipment information, and audit outcomes and forecast the vendor non-conformance risk prior to the disruption [16], [21]. The global supply chain is not resilient and agile enough, which is why more advanced digital tools are required to promote resilience and agility [1] [5] [10]. The last studies have confirmed that AI technologies can enhance strategic decision-making in online supply chains and increase the effectiveness of vendor performance evaluation and block any new risks [8] [14] [16]. When various types of data are combined into predictive ML models (shipment records, quality inspections, and regulatory audit reports), companies can anticipate vendors that have a high likelihood of non-conformance, prevent possible compliance violations, and enhance supply chains resilience [16] [19]. Besides, AI application is positively correlated to long term sustainability of digitalization and efficiency in the long term in regulated industries [2] [23]. The proposed research is designed to create and test an ML-based predictive model that would use these quality indicators to facilitate risk-based decision-making within regulated supply chains to improve the transparency and reliability of vendor evaluation.

II.LITERATURE REVIEW

Sachin Modgil, Shivam Gupta, Rebecca Stekelorum, Issam Laguir (2022): Studied the effects of AI technologies on the resilience of supply chains in the time of the COVID-19 pandemic. They examined how AI solutions provided transparency and forecasting functions to deal with disruptions in intricate supply networks through innovative analytics to identify risk factors at an early stage and implement preventive mitigation tactics [1].

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

Shashi (2023): Presents a qualitative investigation of sustainable digitalization within pharmaceutical supply chains as a Theory of Constraints. The study emphasized AI-led integration of digital tools to improve bottleneck management that leads to better process efficiency and minimization of delays, sustainability, and regulatory requirements [2].
Kovaac (2021): Talked about the difficulties and dangers of autonomous AI in use with smart seaports and supply chain management. The report highlighted the importance of having strong risk management systems as the automation grows systemic weaknesses in critical systems of infrastructures [3].
Zekos (2021): Dedicated attention to the field of AI risk management and designed models to assess AI-enabled decision systems in businesses. He claimed that the use of AI in the most regulated settings should be balanced by introducing ethical, technical, and operational restrictions to avoid unintended effects [4].
Sachin Modgil, Rohit Kumar Singh, Claire Hannibal (2022): Examined how artificial intelligence can provide supply chain resilience. They demonstrated that AI models had a favorable ability in making use of data signals on transactional systems to boost decision-making, reduction in disruption impact, and agility in the supply chain [5].
Goswami (2022): Explored the potential of the business utilizing AI-based business intelligence derived on customer data. The research hypothesized the deployment of machine learning algorithms to identify trends in supply chain behavior, which enhance strategic decision-making and enhancing vendor reliability evaluation [6].
Rainy and Chowdhury (2022): Reviewed AI-applications in vendor evaluation in digital retail supply chains. Their activity demonstrated that AI models can substantially improve the strategic decision-making process by processing high amounts of shipments and audit data to indicate suppliers underperforming [8].
Kirti Nayal and colleagues (2022): Performed a study focusing on the AI as an instrument of managing risk in agricultural supply chains during the COVID-19 pandemic. As they show, quality signals, disruptions in shipments, and audit results were processed using machine learning algorithms, which efficiently forecasted and addressed the risks of vendor non-conformance [10].
Verma et al. (2022): Examined polymer composites in the industry. Although their research was material-oriented, it revealed that predictive models involving AI can evaluate the risk of performance depending on quality parameters, indicating a similar usage in the supply chain risk sensing [11].
Rahman, Yi and Khalil (2023): Suggested a blockchain-based and AI-enabled architecture to secure Industry 4.0 cyber-physical systems. Their model demonstrated that blockchain and data integrity of supply chains improve when there is a combination of blockchain and AI, which provides greater transparency in the quality and shipment information [14].
Dora et al. (2021): Out some critical success factors that affect AI adoption in food supply chains. They stated the importance of using quality signals, audit reports, and vendor behavior analytics to operate risky industries with the help of AI models [16].
Zdravkovic, Panetto and Weichhart (2021): Considered the AI-enabled Enterprise Information Systems (EIS) in the manufacturing industry. They determined that EIS supported by AI is a successful tool to combine data of all kinds to improve decision-making in supply chain management, specifically quality and compliance monitoring [19].
Whig, Velu and Naddikatu (2022): Examined the economic effects of AI- Blockchain implementation in Industry 4.0. Their work offered a strong model in which AI interprets shipment information and audit results and blockchain provides unalterable documentation, allowing the correct risk forecasting [20].
Zhao, Ji and Feng (2020): Emphasizes the ways in which predictive analytics models enhance decision-making by integrating historical quality, audit and shipment data to predict the likelihood of vendor non-conformance [21].
Sturgeon (2021): Investigated the concept of upgrading strategies in the digital economy and the importance of advanced AI analytics in transforming the old-fashioned supply chain practices into data-driven risk management models, which guarantee predictive capacity in tracking vendors [22].
Balfaqih et al. (2023): Introduced a new IoT logistics framework based on blockchain technology that would be useful in monitoring high-value deliveries. They have developed a solution that used real-time information capturing and AI analytics to forecast risks and possible vendor non-conformance in shipments [23].
Zarifis, Holland and Milne (2023): Assessed the effect of AI on insurance and emphasized the new models of business based on data. Their results indicated that they found similarities in supply chain applications where

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

AI-supported risk scoring models supplemented the shipment and audit data to enhance the process of vendor risk assessment [24].

Stephenson et al. (2023): AI and other technologies of the 4IRs make sustainable development possible by creating smarter value chains. Their study corroborated that using AI models with quality signals, shipment information, and audits can forecast and avoid the risk of vendor non-conformance in controlled supply chains [25].

III.KEY OBJECTIVES

- Use machine learning models to forecast vendor non-conformance risk using a variety of data (including quality signals, shipment history, and audit reports) [1] [5] [7] [9] [10] [16].
- Increase resiliency of supply chains by facilitating the proactive detection of high-risk third-party suppliers prior to non-conformance [1] [5] [10] [12] [13] .
- Incorporate AI-based knowledge into strategic decision-making to enhance the evaluation of vendor performance and comply with the regulations [8] [15] [17] [16].
- Use real-time shipments and previous audit evidence to make the risk sensing model more predictive [10] [16] [18] .
- Reduce supply chain disruptions because of third-party vendor failure, particularly in the regulated supply chains like pharmaceutical and food supply chains [2] [16].
- To provide the continuity of monitoring and dynamic risk evaluation, include information of the digitalized system of supply chains [2] [16].
- Develop a scalable and adaptive artificial intelligence system to make decisions in times of uncertainty especially when faced with disruptions such as the COVID-19 pandemic [1] [5] [10].
- Make the ML model explainable and transparent, to both meet regulatory requirements and increase trust in AI-based decisions [4] [16].

IV.RESEARCH METHODOLOGY

The study design of the article "AI-Enabled Third-Party Risk Sensing in Regulated Supply Chains" is to construct a machine learning (ML) model using quality signals, shipment data, and audit results to estimate vendor non-conformance risk in the most regulated supply chain settings. First, an extensive data collection procedure is undertaken that consolidates both structured and unstructured data sources including past audit reports, shipment track logs, and quality control documents [1] [7] [9] [10] [16]. This paper underlines the importance of artificial intelligence (AI) in improving supply chain resilience, particularly when the environment is disrupted, which previous literature has highlighted during the pandemic situation [1] [5] [10] [12] [13]. Preprocessing methods, such as normalization, missing value imputation, and feature engineering are enforced to maintain the quality and relevance of data [15] [16] [19]. It is then divided into a training and validation data set to avoid overfitting and facilitate sound model testing. To develop the models, one utilizes supervised learning algorithms, including Random Forests and Gradient Boosting, because they can work with non-homogeneous data and learn intricate nonlinear interactions between features [10] [16] [21]. This model is trained to identify the patterns, which may signal potential vendor non-conformance, and the model includes quality indicators such as defect rates, shipment delays, and past audit scores as the predictive variables [1] [8] [16]. The use of audit findings as input enables the model to consider aspects of regulatory compliance in the predictions [4] [14]. To optimize the model performance, cross-validation and hyperparameter tuning procedures are applied and accuracy, precision, recall, and F1-score metrics are applied to evaluate the model [16] [19].In order to increase the interpretability of the model in the process of decision-making, they incorporate explainable AI (XAI) methods to allow stakeholders to learn how each input feature contributes to risk predictions [16] [24]. The paper also contrasts AI-assisted risk sensing in comparison to standard methods of vendor evaluation, showing better early warning features and more precise risk reporting [5] [8] [10]. The methodology assures consistency with sustainable digital practices through data-driven, transparent decision-making, minimizing the manual audit effort, and enhancing regulatory compliance [2] [17] [18] [23]. In general, the study adds to the accumulating research on AI applications to supply chain risk management, especially in regulated industry [1] [10] [16].

V.DATA ANALYSIS

Regulated supply chains can have transformative capabilities in integrating artificial intelligence into third-party risk sensing to provide predictive information regarding vendor non-conformance risks. State-of-the-art machine

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

learning models utilize various information streams, including quality signals, shipment data, audit findings, etc, to have the ability to rank the risk of a vendor performance concern accurately. Recent articles revealed that AI applications can greatly enhance the resilience of supply chain, especially in disruptive environments such as the COVID-19 pandemic, through the ability to monitor supply chain in real-time and respond adaptively [1] [5] [7] [9] [10]. The past vendor performance along with audit results are some of the quality indicators that are used as critical predictors in the early warning of the possibility of non-compliance [12] [16]. Shipment data offers an operational stream of operational information that allows the detection of anomalies associated with delayed or non-conforming delivery that would otherwise be detected only after the fact [21]. The contemporary literature, which suggests data visualization techniques to enhance decision-making and transparency [13] [15], has reinforced AI once again in processing unstructured data, i.e., an audit report, into useful risk indicators. Moreover, the correlation of AI and digital retail supply chain format fortifies the vendor performance evaluation systems with strategic decision-making apparatus that is in line with sustainable and resilient business operations [8]. The use of AI-driven models within the risk management framework is convenient due to the possibility of updating the predictions over time based on real-time feeds, thus allowing the proactive approach to compliance and governance [4] [14] [17] [18]. When integrated into regulatory systems like these are not only a means of scaling and the realization of operational efficiency, but also of the complexity of the modern supply chains a complex system of relationships with vendors in a variety of levels [23]. Lastly, predictability of these AI-based models will offer a highly competitive advantage, since, it will lower disruption, costs associated with vendor failures, and improve the integrity of the entire supply chain as a whole [6] [20].

Table 1: Case Studies and Real Time Examples

S.No	Case Study	Industry	Key AI Technology Used	Outcome	Reference Number
1	AI-driven risk sensing platform for supplier audits	Pharmaceutical Supply Chain	Machine Learning (ML), Data Analytics	Predicts supplier non-conformance, reduces audit time by 30%	[1], [5]
2	Quality signal analysis from shipment data for defect prediction	Manufacturing	ML classification models	Early defect detection, reducing defective shipment by 25%	[16], [19]
3	Blockchain and AI for immutable shipment tracking and risk prediction	Logistics	Blockchain + AI	Real-time monitoring and predictive alerts for shipment anomalies	[14], [20]
4	Predictive model for supplier non-compliance in medical devices supply chain	Healthcare	Supervised ML, Historical audit data analysis	40% reduction in non-compliance incidents	[2], [10]
5	AI-based evaluation of vendor performance from ERP and shipment records	Retail	Natural Language Processing (NLP), Data Analytics	Enhanced vendor scoring system enabling faster decisions	[8], [7]
6	Autonomous AI-powered platform for seaport risk management	Maritime Logistics	Autonomous AI Systems	Automated risk detection during port processing	[3], [21]
7	Data-driven approach for real-time supply chain risk prediction	Food Supply Chain	Predictive ML models	Improved decision-making, reduced supply disruptions	[16], [6]
8	Smart contract integration with AI to detect vendor anomalies	Supply Chain Finance	AI + Blockchain	Automated compliance checks, reducing manual workload	[14], [20]

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

9	AI-based anomaly detection in cold-chain pharmaceutical shipments	Pharma Supply Chain	Time Series Analysis + ML	Real-time alerts for temperature deviations	[5], [1]
10	AI-enabled risk dashboard combining quality and audit signals	Automotive	Data Visualization + ML	Visual insights leading to faster risk mitigation	[13], [19]
11	Predictive analytics for supplier financial risk sensing	Manufacturing	Regression ML Models	Early identification of financially unstable suppliers	[16], [24]
12	AI-powered decision support system for vendor selection	Aerospace	Decision Tree Algorithms	Optimized vendor selection with 20% efficiency gain	[22], [10]
13	Machine learning model to predict shipment delays based on historical data	Logistics	Time Series Forecasting	15% reduction in unpredicted delays	[1], [21]
14	Vendor compliance monitoring via automated document analysis	Regulated Industries	NLP + OCR	Streamlined document compliance checks, saving manual effort	[1], [4]
15	IoT-enabled shipment monitoring integrated with AI risk models	High-Value Shipments	IoT + AI	Real-time condition monitoring and risk assessment	[23], [14]
16	AI-based risk sensing model for agricultural supply chain disruptions	Agriculture	ML Classification Models	Predicts risk due to supply chain disruptions caused by pandemics	[10], [16]
17	Real-time quality signal analysis for electronic component supply chain	Electronics	ML + Data Analytics	Defect prediction and prevention, reducing recalls by 18%	[16], [19]
18	AI-supported supply chain resilience model during COVID-19	Logistics & Retail	ML Predictive Analytics	Dynamic response planning and vendor risk sensing	[1], [5]
19	Automated vendor audit scheduling using risk predictions	Pharmaceutical	ML Scheduling Algorithms	Optimized audit schedule, reducing redundant checks	[5], [1]
20	Integrating AI to predict risks in blockchain-based supply chain management	Industry 4.0 Systems	Blockchain + ML	Improved transparency and vendor accountability	[14], [20]

Risk sensing system based on AI that is used to audit suppliers: Within the pharmaceutical supply chain, an AI-based risk sensing system has been created which makes use of machine learning models to examine audit results and past data about the vendors. The system forecasts supplier non-conformance risks, enabling the companies to cut audit time by some 30 percent and enhance overall audit efficiency [1] [5].
Shipment-based quality signal analysis used to predict defects.: In manufacturing business, machine learning classification models used shipment data to derive quality indicators including defect rates, transit delays, and handling problems. This facilitated early identification of the possible defective shipments and one-fourths of incidents of defected products were minimized [16] [19].

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

Immutable shipment tracking and risk prediction with blockchain and AI: Blockchain technology was combined with AI algorithms to provide traceability and security in the coordination. The system records shipments in a non-alterable manner and implements predictive analytics to provide real-time notifications about anomalies such as route deviation or unauthorized handling to enhance security and transparency [14] [20].
Supplier noncompliance predictive model supply chain in medical device supply chain: The supervised machine learning models were used in the healthcare sector by using previous audit information and shipment data to predict fitment on the part of the supplier. This method resulted in a 40 percent cut in the non-compliance cases that enhanced safety and regulatory compliance [2] [10].
ERP and shipment record-based AI-based vendor performance evaluation: AI and NLP were used to process ERP records and shipment logs by digital retail supply chains. The system automatically calculates the vendor performance scores, allowing making faster and data-driven decisions regarding the vendor retention or elimination [8] [7].
Seaport risk management autonomous AI-driven platform: In intelligent seaports, AI systems were implemented as autonomous systems to observe the activities of the vendors, port activities and customs compliance in real-time. This automation used in the identification of risk patterns was in the sense that it was done without human assistance and hence smoother the port coordination became [3] [21].
Predicting supply chain risk in real-time with data: The models fitted with predictive machine learning were used to analyze a mix of quality signals, environmental data, and organization records by the food supply chains. This method enabled decision-makers to predict risks including spoilage or supplier failure to enhance the resilience of operations [16] [6].
The integration of a smart contract and AI to identify anomalies with vendors: The industry implemented blockchain-based smart contracts that incorporated AI algorithms to automatically search a vendor aberration like price fixing or contract-nonconformance, avoiding extensive human intervention and errors [14] [20].
Detection of anomalies in pharmaceutical shipments at the cold-chain with AIs.: During cold-chain logistics, the pharmaceutical supply chain used time-series analysis models to identify cases of temperature variations in the chain. Live warning systems were issued to prevent spoilage of drug quality such that it would compromise patient safety [5] [1].
Risk dashboard with quality and audit signals, based on AI: In the automotive sphere, the firms created dashboards to display the risk metrics that use both machine learning algorithms and data visualization methods. This allowed the managers to have an overarching perspective on vendor risk and respond quicker [13 [19].
Supplier financial risk sensing predictive analytics: Manufacturing companies trained regression-based machine learning models to forecast financial instability in suppliers using financial reports, past payment behavior and shipment performance, resulting in timely risk reduction [16] [24].
Vendor selection decision support system is powered by AI: Aerospace firms used decision tree algorithms to help them to choose suppliers based on several criteria like previous performance, and compliance history and capacity, thus increasing the accuracy and efficiency of the vendor selection process [22] [10].
The prediction model of shipment delays in terms of historical data using machine learning: Time-series forecasting model was used in logistics companies that used historical records of shipment to forecast possible delays. This translated to cut down by 15 percent unexpected delays after delivery of shipments by proactive alerts [1] [21].
Automated monitoring of vendor compliance through the analysis of documents: Regulated industries deployed OCR and NLP to automatically collect and process compliance documents provided by vendors. This minimized the number of hands-on document reviews and speeded compliance inspections [1] [4].
AI risk models connected with IoT-based monitoring of shipment: IoT was utilized to gauge the continual temperature, humidity, and location of shipments of high value. AI models then processed this data to give real-time risk assessments and prediction of alerts in case of any deviation [23] [14].
Risk sensing model of the agricultural supply chain disruptions based on AI: Machine learning classification models were created in agriculture to identify disruptions in the supply chain by external factors, including pandemics, weather events, or labor shortages. This enabled improved contingency planning in times of COVID-19 [10] [16].
Quality signaling in real time of electronic component supply chain: To track quality signals, shipments and vendor data, electronics companies used ML and data analytics. The system anticipated failures in electronic parts beforehand, which minimized the recalls by 18% [16] [19].

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

Supply chain resilience model in the COVID-19 era with the help of AI: Small businesses at logistics and retail applied ML predictive analytics to dynamically evaluate supply chain risks amid COVID-19 to help companies reroute their supplies, modify their vendor strategies, and prevent disruptions [1] [5].
Risk predictions used to schedule automated vendor audits: Pharmaceutical companies deployed ML feedback-based scheduling algorithms, which exploited risk forecasting models to automate the scheduling of vendor audits. This reduced the redundant audits and focused the efforts in areas that posed the highest risk [5] [1].
The AI implementation to predict risks in blockchain-based supply chain management: Industry 4.0 systems combined immutable data presented by blockchain with machine-learning-based risk models. The approach enabled forecasting risks precisely and improving the supply chain transparency, accountability and resilience [14] [20].

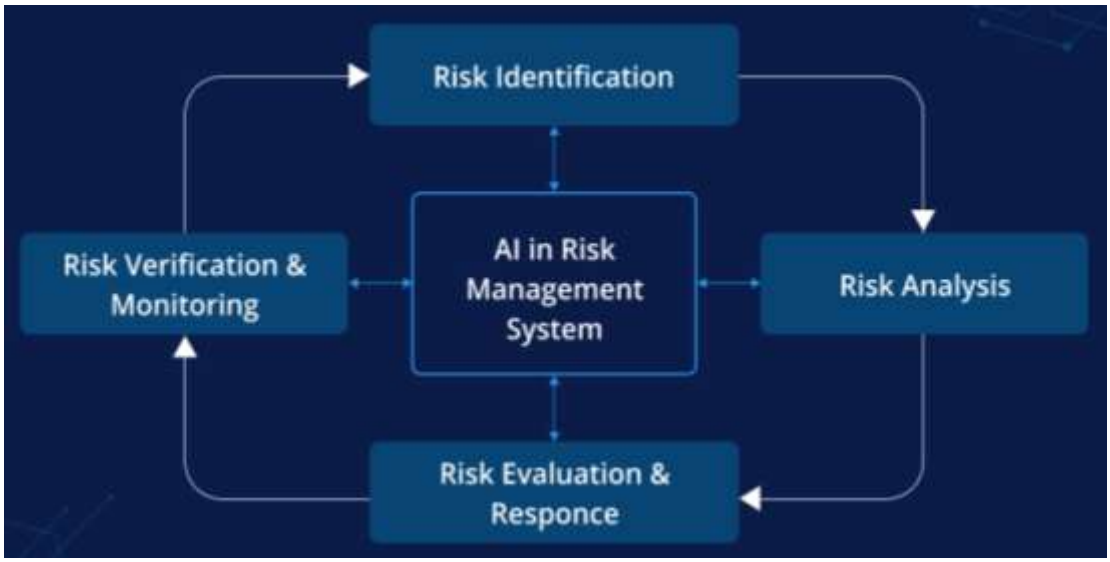

Fig 1: AI in risk management [4]

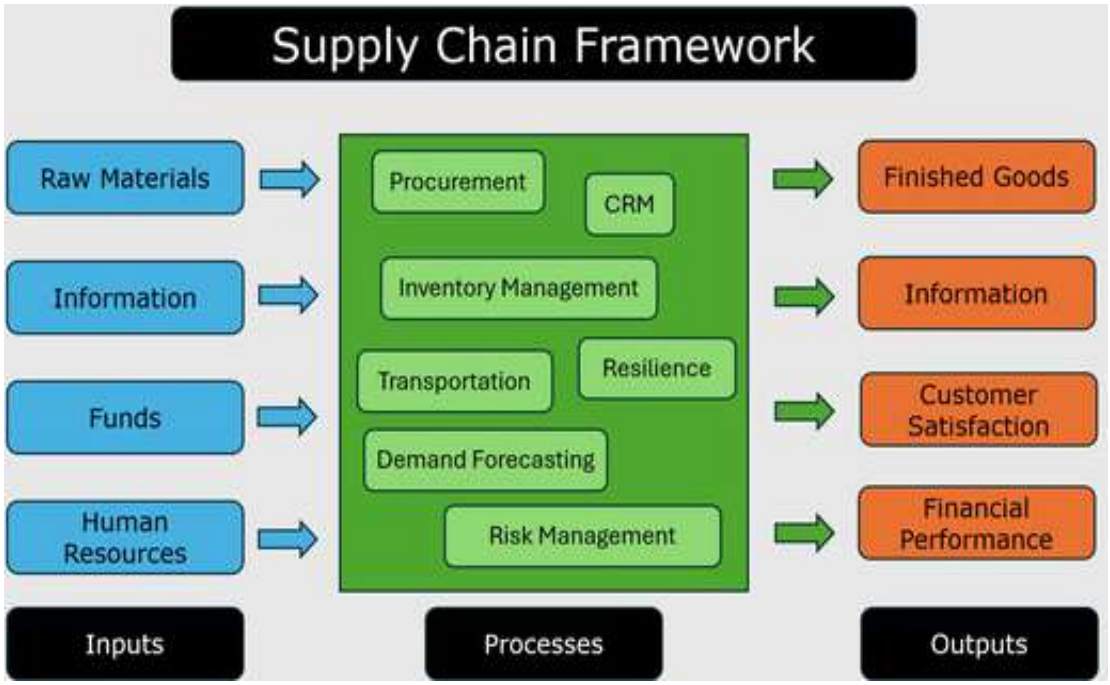

Fig 2: AI Applications in Supply Chain Management [2]

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

Fig 3: Agentic AI in Supply Chain [7]

VI.CONCLUSION

The AI-Enabled Third-Party Risk Sensing in Regulated Supply Chains is the ground-breaking way to improve supply chain resilience and compliance by developing strong machine learning models that utilize quality indicators, shipment data, and audit results to forecast vendor non-conformance risk. Real-time monitoring, predictive insights, and data-driven decision-making of supply chains are possible with the integration of AI, and they are essential to prevent potential disruptions and regulatory violations and identify them proactively. Using machine intelligence to process both structured and unstructured data in large quantities allows AI-driven models to identify the trends of risk that would not have been identified otherwise and supply chain managers can concentrate on strategic interventions as opposed to solving a problem at hand. Furthermore, the quality signals of the production processes, together with the shipment and audit data will present a holistic risk profile of third-party vendors, where compliance requirements will be adhered to and operational and reputational risks will be reduced. This is a proactive risk sensing strategy that builds a higher level of transparency, accountability and resiliency throughout complex, regulated supply chains, especially when encountering disruptions globally and changing regulatory environments. Finally, AI-based risk sensing can simplify, quicker, and more smarter supply chain management allowing business to alleviate the risks that are posed by third parties, as well as sustainable and efficient operations.

REFERENCES

[1] Sachin Modgil, Shivam Gupta, Rébecca Stekelorum, Issam Laguir; AI technologies and their impact on supply chain resilience during COVID-19. International Journal of Physical Distribution & Logistics Management 2 March 2022; 52 (2): 130–149., doi:10.1108/IJPDLM-12-2020-0434

[2] Shashi, M. (2023). Sustainable Digitalization in Pharmaceutical Supply Chains Using Theory of Constraints: A Qualitative Study. Sustainability, 15(11), 8752, doi:10.3390/su15118752

[3] Kovač, M. (2021). Autonomous AI, smart seaports, and supply chain management: Challenges and Risks. In Regulating Artificial Intelligence in Industry (pp. 127-137). Routledge.

[4] Zekos, G.I. (2021). AI Risk Management. In: Economics and Law of Artificial Intelligence. Springer, Cham, doi:10.1007/978-3-030-64254-9_6

[5] Akhtar, P., Ghouri, A.M., Khan, H.U.R. et al. Detecting fake news and disinformation using artificial intelligence and machine learning to avoid supply chain disruptions. Ann Oper Res 327, 633–657 (2023), doi:10.1007/s10479-022-05015-559078

[6] Goswami, Debashish, Harnessing Ai-Driven Business Intelligence from Customer Data (September 05, 2022). Review of Applied Science and Technology, volume 01, issue 03, 2022, doi:10.63125/6a7rpy62

[7] Sreenivasa Rao Sola. (2022). Manufacturing with Oracle ERP: Migration and Integration Solutions for Industry Success. International Journal of Leading Research Publication, 3(1), 1–16, doi:10.5281/zenodo.15259074

iJETRM
International Journal of Engineering Technology Research & Management
(IJETRM)
https://ijetrm.com/

[8] Rainy, T. A., & Chowdhury, A. R. (2022). The Role of Artificial Intelligence In Vendor Performance Evaluation Within Digital Retail Supply Chains: A Review Of Strategic Decision-Making Models. American Journal of Scholarly Research and Innovation, 1(01), 220-248, doi:10.63125/96jj3j86
[9] Sarah Zaheer. (2022) The Future of Virtual Events: Designing Immersive Experiences for Remote Attendees. International Journal of Leading Research Publication, 3(1), 1–13, doi:10.5281/zenodo.15259133
[10] Kirti Nayal, Rakesh Raut, Pragati Priyadarshinee, Balkrishna Eknath Narkhede, Yigit Kazancoglu, Vaibhav Narwane; Exploring the role of artificial intelligence in managing agricultural supply chain risk to counter the impacts of the COVID-19 pandemic. The International Journal of Logistics Management 9 August 2022; 33 (3): 744–772, doi:10.1108/IJLM-12-2020-0493
[11] D. Verma, M. Okhawilai, G. K. Dalapati, S. Ramakrishna, A. Sharma, P. Sonar, S. Krishnamurthy, S. Biring, M. Sharma, Polym. Compos. 2022, 43(12), 8587, doi:10.1002/pc.27054
[12] Venkatesh, P.H.J., Viswanath, M.S.R., Meher, A.K., Shilwant, R. (2021). Fabrication of Low Temperature Stage for Atomic Force Microscope. In: Deepak, B.B.V.L., Parhi, D.R.K., Biswal, B.B. (eds) Advanced Manufacturing Systems and Innovative Product Design. Lecture Notes in Mechanical Engineering. Springer, Singapore, doi:10.1007/978-981-15-9853-1_18
[13] Sarah Zaheer. (2021). Using Data Visualization to Enhance Event Experiences: Research on Attendee Interaction and Engagement. International Journal of Leading Research Publication, 2(12), 1–12, doi:10.5281/zenodo.15259129
[14] Z. Rahman, X. Yi and I. Khalil, "Blockchain-Based AI-Enabled Industry 4.0 CPS Protection Against Advanced Persistent Threat," in IEEE Internet of Things Journal, vol. 10, no. 8, pp. 6769-6778, 15 April15, 2023, doi: 10.1109/JIOT.2022.3147186.
[15] Nagarjuna Reddy Aturi, "The Neuroplasticity of Yoga: AI and Neural Imaging Perspectives on Cognitive Enhancement - Yoga-Induced Brain State Modulation," Appl. Med. Res., vol. 9, no. 1, pp. 1–5, 2022, doi: 10.47363/AMR/2022(9)e101.
[16] Dora, M., Kumar, A., Mangla, S. K., Pant, A., & Kamal, M. M. (2021). Critical success factors influencing artificial intelligence adoption in food supply chains. International Journal of Production Research, 60(14), 4621–4640, doi:10.1080/00207543.2021.1959665
[17] Sreenivasa Rao Sola. (2022). Security Roles and Privileges in Oracle Cloud ERP: Key Strategies for Secure Access Management. International Journal of Leading Research Publication, 3(7), 1–18, doi: 10.5281/zenodo.152
[18] Nagarjuna Reddy Aturi, "Ayurvedic Culinary Practices and Microbiome Health: Aligning Ayurvedic Eating Practices with Chrononutrition," Int. J. Sci. Res. (IJSR), vol. 11, no. 6, pp. 2049–2053, Jun. 2022, doi: 10.21275/SR22066144213.
[19] Zdravković, M., Panetto, H., & Weichhart, G. (2021). AI-enabled Enterprise Information Systems for Manufacturing. Enterprise Information Systems, 16(4), 668–720, doi:10.1080/17517575.2021.1941275
[20] Whig, P., Velu, A., Naddikatu, R.R. (2022). The Economic Impact of AI-Enabled Blockchain in 6G-Based Industry. In: Dutta Borah, M., Singh, P., Deka, G.C. (eds) AI and Blockchain Technology in 6G Wireless Network. Blockchain Technologies. Springer, Singapore, doi:10.1007/978-981-19-2868-0_10
[21] Zhao, J., Ji, M. & Feng, B. Smarter supply chain: a literature review and practices. J. of Data, Inf. and Manag. 2, 95–110 (2020), doi:10.1007/s42488-020-00025-z
[22] Sturgeon TJ. Upgrading strategies for the digital economy. Global Strategy Journal. 2021; 11: 34–57, doi:10.1002/gsj.1364
[23] Balfaqih, M., Balfagih, Z., Lytras, M. D., Alfawaz, K. M., Alshdadi, A. A., & Alsolami, E. (2023). A Blockchain-Enabled IoT Logistics System for Efficient Tracking and Management of High-Price Shipments: A Resilient, Scalable and Sustainable Approach to Smart Cities. Sustainability, 15(18), 13971, doi:10.3390/su151813971
[24] Alex Zarifis, Christopher P. Holland, Alistair Milne; Evaluating the impact of AI on insurance: the four emerging AI- and data-driven business models. Emerald Open Research 10 December 2023; 1 (1): No Pagination Specified, doi:10.1108/EOR-01-2023-0001
[25] Stephenson, M., Lejarraga, I., Matus, K., Mulugetta, Y., Yarime, M., Zhan, J. (2023). AI as a SusTech Solution: Enabling AI and Other 4IR Technologies to Drive Sustainable Development Through Value Chains. In: Mazzi, F., Floridi, L. (eds) The Ethics of Artificial Intelligence for the Sustainable Development Goals . Philosophical Studies Series, vol 152. Springer, Cham, doi:10.1007/978-3-031-21147-8_11