



## CAN AI SAVE THE SUPPLY CHAIN? THE MODERATING EFFECT OF FAKE NEWS DETECTION TOOLS ON OPERATIONAL EFFICIENCY

<sup>1</sup>Meena G and <sup>2</sup>Kumar G

<sup>1,2</sup> Faculty of Management, SRM Institute of Science and Technology, Kattankulathur, India, Tamil Nadu, Chengalpattu, 603203.

### ABSTRACT

Fake news in supply chain activities affects the operational efficiency of the manufacturing industry. The misleading information delays organizations manufacturing decision-making process and decreases manufacturing productivity. The study aims to role of AI-based detection in identifying fake news. The study also finds the moderation effect of AI-based detection tools on operational efficiency. The target population taken for the examination is manufacturing industry supply chain professionals in Chennai. The quantitative research technique was used for the study. The study adapted snowball sampling for collecting the samples. The questionnaire was circulated to more than 300 supply chain professionals. The 263 questionnaires were received after circulation. The study looks into the various factors, a. frequency of fake news exposure, b. source credibility, c. information literacy skills, organisational culture of information verification influence e. operational efficiency. The study establishes a constructive relation between the Frequency of Fake News Exposure, Source Credibility, Information Literacy Skills and organisational culture of Information Verification and operational efficiency. This study proposes that the output efficiency of the supply chain can be built by precise management and confirmation of information. Also, the study establishes that there was a lenitive effect obtained between artificial intelligence-based fake news discovery tools on operational efficiency. This combination makes the tools more trustworthy and helps good decision-making processes. These AI technologies are encouraged for organisations to adopt and apply them to improve the information management practice and also to make the supply chain operations more reliable and efficient.

**Keywords:** Fake News, Operational Efficiency, AI-Based Detection Tools, Information Literacy, Organizational Culture, Quantitative Research, Decision-Making Processes, Source Credibility, Supply Chain Disruptions.

### 1. Introduction

The (SC) supply chain is a more important activity that is more related to the conversion of raw material into finished product for the consumer (Rickardo & Wites, 2023). The (SC) supply chain issues happen because of various reasons, they are global political issues, Natural Disasters and specifically fake news spread. .so the manufacturing units have supply chain issues and wrong prediction of the availability of raw material. This makes operational issues in the manufacturing industry (Sanchís & Poler, 2019) (Oberg et al., 2011) (Tang, 2006) (Sanchís, 2020). Because of fake news, it is difficult for the organisation to plan on production

plan, difficulty in collaboration with suppliers and increases the cost of production (Chatterjee et al., 2022) (Petratos & Faccia, 2023) (Lazer et al., 2018) (Petratos & Faccia, 2023)(Chatterjee et al., 2022) (Li-qin & Zhang, 2011)

The (FN) fake news affects the supply chain function and gives the wrong direction in the production area and inventory planning (Cai & Luo, 2020; Alkahtani et al., 2021). The fake news creates a lot of discrepancies in the production process. Issues such as forecasting demand, communication problems with suppliers, and reduced production floor plans (Cai & Luo, 2020) also arise. The (FN) fake news introduces the trust issue and fear among manufacturers regarding the availability of raw materials (Cai & Luo, 2020; Alkahtani et al., 2021).

The fake news and its importance have more impact on the planning organisation's supply chain activities. It helps the organisation to stay competitive and bounce back from the supply chain issues (Alkahtani et al., 2021). The fake news has a different impact on operational activities, failure in the supply chain and gives ambiguity in the strategic decision-making process. Any issue that happens in one country affects the supply chain planning difficult for globally(Saleheen & Habib, 2022) (Alkahtani et al., 2021).

The raw materials are imported and exported from different countries. The raw materials are converted into finished products in different countries. So an issue in one country impacts globally. It disturbs the global manufacturing and availability of raw materials (Akhtar et al., 2022; Kar et al., 2022). So it is more important to address supply chain issues in the source country, and an immediate action plan should be made with the help of world global trade organisation. There were multiple stakeholders in the supply chain activities, like raw material producers, manufacturers, middle man and, countries and trade organisations. The fake news gives uncertainty in the supply chain planning and affects the stakeholders of the supply chain (Waisbord, 2018; Maruchek et al., 2011). To avoid uncertainty and integration among the stakeholders of SCM, it is more important to address fake news issues.

Various studies have been made to identify the factors related to fake news. The researchers identified factors like source information, frequency of getting fake news, literacy level of manufacturers about fake news and organisational practices on facing supply chain issues (Omar et al., 2023)(Saleheen & Habib, 2022)(Waisbord, 2018).

Even though a lot of factors have been identified in the previous research, there is still a gap in the identification of fake news in the current business environment. Here, the technology plays a vital role in identifying fake news. The introduction of artificial intelligence is an important technology that helps to analyse and identify fake news. The artificial intelligence technique involves algorithms that train the system model and enable the system model to understand the (FN) fake news using the mathematical model. The system model is trained with past data and future constraints. So the system model can make a prediction about fake news or original news based on the dataset and constraints. (Sheffi, 2018) (Jöhnk et al. 2020) (Stop the Virus of Disinformation, 2021).

This study mainly focuses on how AI-based fake news detection tools help the supply chain stakeholders understand fake news in the supply chain (SC) supply chain activities. So the study emphasises the need for every organisation to implement AI-based fake news detection tools in their organisation or consult to check the validity of the (SC) supply chain news. The study identifies the disparity between traditional fake news detection tools and AI-based

detection tools for deciding parameters in the supply chain-related issues.. The study suggests that the organisation requires a plan to face the fake news issues with proper employee training, advanced technology and best practices(Rao et al. 2020) (Hossain et al. 2022) (Kros et al. 2019).

The research question raised in this study is the role of integrating AI-based fake news detection to make effective decisions in supply chain activities. Also, the research aims to identify the moderation effect of AI tools on operational efficiency. This study aims to present empirical evidence and practical recommendations to increase the supply chain operations' resilience and efficiency by doing so. The other motive of this study also attempts to bring together the factors that determine supply chain (SC) resilience and efficiency, which can be used as a basis for future studies and industry practices.

This research can provide useful insights that supply chains may enable them to be more resilient and effective, as these findings may be applied to develop strategies and policies in the context of the supply chain that can be used to harden and improve the resilience of the supply chain in multiple industries. Next, the output of this research could also be useful to improve sustainability and environmental footprint in the existing supply chains of these industries. The hypothesis is derived from the literature review and theoretical framework as follows: The (SC) research explains the purpose of integration of the AI tool with the (SC) supply chain

## **2. Literature Review**

In modern supply chains, fake news (FN) spreads across multiple channels. This misleading message or news creates critical issues in the SC. And it poses a great threat to modern supply chains. (Singh et al., 2022) (Hossain et al., 2022) The interconnectivity of these networks, especially in the manufacturing industry, amplifies the spread and impact of such misinformation. The intent or unintended spreading of fake news can lead to disastrous results in supply chain operations (Petratos & Faccia, 2023; Akhtar et al., 2022). A possible solution is that Artificial Intelligence (AI) is growing and being integrated into supply chain (SC) management. Using AI power-driven tools, one can detect and mitigate fake news, thus safeguarding operational efficiency. (Zhou & Zafarani, 2020) (Kumar & Shah, 2018). Nonetheless, very few studies have specifically focused on the moderating effect of these AI tools on supply chain performance. The objective of the review content is to synthesise the present knowledge, highlight the research gaps and lay the path for further research in the use of AI in combating fake news and developing a resilient supply chain.

(SC) Supply chain disruption occurs due to exploitation of the information asymmetry, disruption of trust between the stakeholders, and introduction of bias in the decision-making process (Althaf and Babbitt, 2021; Sudan and Taggar, 2021; Hendricks and Singhal, 2003; Tomlin, 2009). Based on the theoretical frameworks of the signalling theory and principal-agent theory, it explains how misinformation can interfere with signals and incentives in supply chains (Kamalahmadi & Parast, 2015; Li et al., 2021). Moreover, empirical studies have demonstrated the tangible negative effects of fake news, for example, higher costs due to panic buying or stockpiling that is unnecessary, production delays as a result of inexact information about supplier disruptions (Singh, 2021), or the resulting damage to reputation which can cause customer attrition (Filbeck & Zhao, 2020), (Kleindorfer & Saad, 2005), (Tang, 2006). In particular, manufacturing becomes a particularly vulnerable sector due to the effects resulting

from disruptions in the raw material sourcing or component availability in the (SC) supply chain.

Several factors affect the prevalence and impact of fake news in supply chains. Even when one suspects fake news, frequent exposure to it can lead one to accept it and act on it (Arendt, 2006; Lazer, 2018; Zhou, 2020). The researchers discussed about the credibility of the information and the source of information. The trust is developed in (SC) based on an authenticated source. So the manufacturing unit must have information literacy and awareness about the fake news detection and interpretation of (Global SC) news. The study from the researchers shows that the organisation having more information literacy about the supply chain, the manufacturing units can make effective decisions in their manufacturing units.. The organization culture has a great impact on trusting the fake news in the supply chain (Allcott, 2019).

Based on their description, natural language processing, machine learning and other advanced algorithms, they are informed algorithms that can examine and determine the credibility (realness) of information and flag dubious or misleading claims. Using these tools, it is promising that they have been able to determine fake news with varying degrees of inaccuracy (Alsharidah & Alazzawi, 2020; Kashem et al., 2023). However, they are not foolproof. However, as some studies have shown, limitations include the fact that fake news that is specifically created to appear as real news or cleverly utilises very subtle linguistic nuances (Belhadi et al., 2021; Kazançoğlu et al., 2022) cannot be detected. However, despite these hurdles, AI tools can still be integrated into supply chain management systems (Helo & Hao, 2021; Naz et al., 2021). These tools can ease human resources for effective strategic tasks, and quicken and better decision making, by automating the process of information verification (Thatikonda, 2020), following in the AI supply-chain (SC) revolution ( McKinsey, 2021).

Research emerging shows that the AI-based fake news detection tools can mitigate the relationship between revealing fake news and operational efficiency (Riahi et al., 2021). These tools help in improving the reliability of information within the supply chain and thus help in reducing the negative impact of fake news on decision-making and resource allocation. Next, they can indirectly contribute to the positive effects of information literacy and organisational culture by offering additional support for the identification and verification of the information (Rickardo & Wites, 2023). Although the empirical grounds of the moderating effect of AI tools on supply chain efficiency is still not verified, the studies related to the broader impact of AI in supply chains (SC) point that the use of such AI tools can significantly increase operational efficiency by optimizing inventory management, improving the demand forecast, and optimizing logistics. (Helo & Hao, 2021)

Despite the accrued volume of studies on fake news (FN) and AI, there remain major knowledge voids as to how AI tools could singularly address the wrongful result that fake news has on supply chain (SC) efficiency. To our knowledge, the moderating effect of AI tools in this context has not been directly studied in a few studies, specifically in the manufacturing industry. Future research should close this gap by carrying out empirical studies to find out the effectiveness of AI tools in real-world settings of the (SC) supply chain. Furthermore, it IS helpful to investigate how AI adoption impacts supply chain resilience in the long run, what

ethical implications come with the use of AI in information verification and exploration of opportunities for human-AI collaboration to counter fake news.

### 3. Research Objectives

- a) To examine the nature and strength of the linear impact between the frequency of exposure to fake news (FN) and the level of operational efficiency in manufacturing supply chains.
- b) To assess the linear relationship between the perceived credibility of information sources and operational efficiency,
- c) To determine the linear relationship between information literacy ability in supply chain (SC) professionals and operational skillfulness to comprehend the degree to which these skills can mitigate the adverse effects of fake news.
- d) To search for the linear state between information verification culture vs operational efficiency, and how such a culture can support resilience against misinformation.
- e) To see whether the usage of AI-based fake news detection tools can eliminate the negative linear relationship between fake news (FN) exposure and operational efficiency.

### 4. Research Hypotheses:

H1: The Frequency of fake news exposure is positively linearly related to operational efficiency in manufacturing supply chains.

H2: The perceived source credibility of information has a linear relationship with operational efficiency (OE) in manufacturing supply chains (SC).

H3: A linear relationship exists between information literacy skills of supply chain professionals and operational efficiency.

H4: The Strength of an organisation's culture of information verification has a linear effect on operational efficiency.

H5: The usefulness of AI-supported fake news sensing tools moderates the relationship between perceived source credibility vs operational efficiency, in other words, the negative association.

### 5. Research Methodology

#### a) Study Design

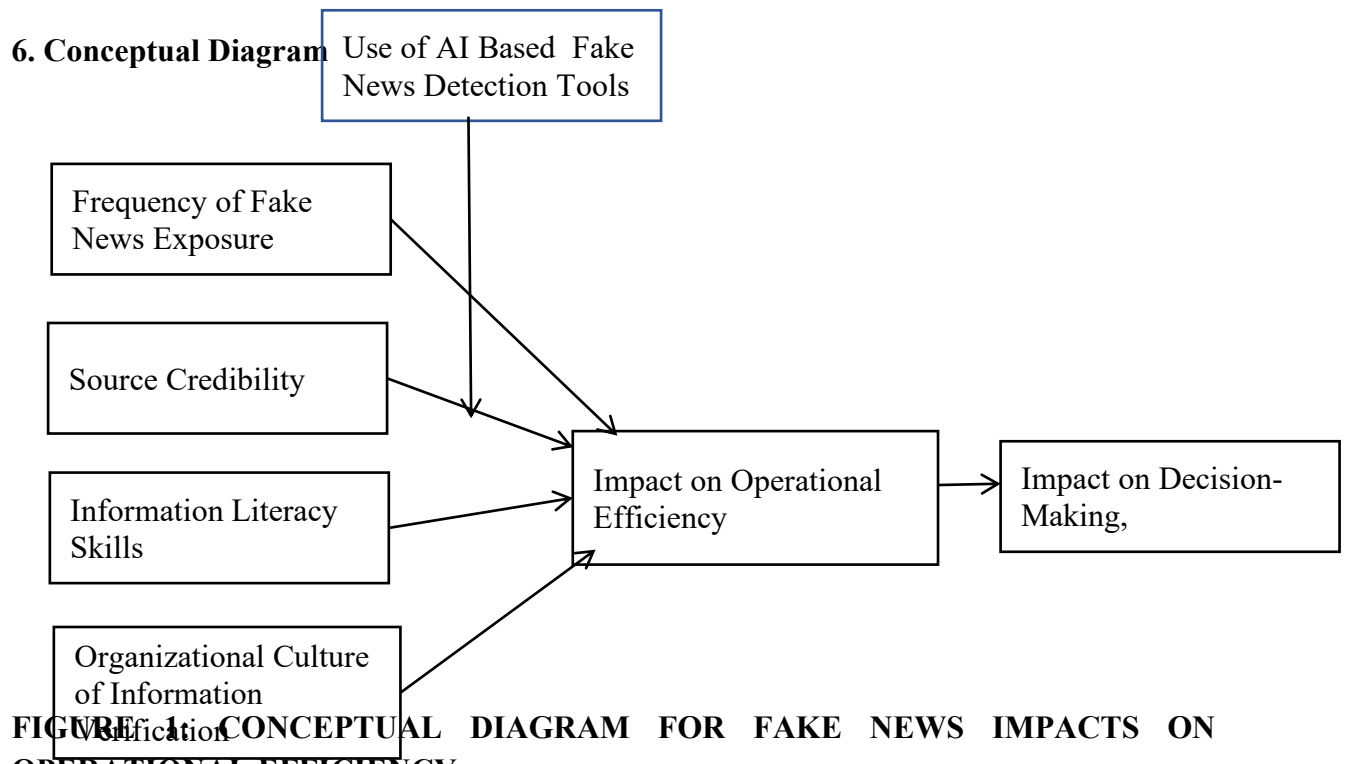
b) The quantitative cross-sectional research design to measure the association between fake news exposure, information literacy, organisational culture and operational efficiency of the Indian manufacturing industry and the moderating role of AI-based fake news detection tools. This design also permitted an assessment of the relationships between variables at one point in time.

#### c) Sampling and Data Collection

d) **Target Population:** The supply chain (SC) executives working in the Indian manufacturing industry formed the target population.

e) **Sampling Method:** It was difficult to obtain a complete list of all professionals; hence, a snowball sampling method was used. It involved creating a small network of supply chain professionals at the lower end who would introduce their colleagues in their networks to participate. This process recruited 263 participants in total.

- f) **Instrument:** Data collection was performed using a well-framed questionnaire administered through online
- g) The questionnaire included items measuring the following constructs:
- h) **Frequency of Fake News Exposure:** Measured how often participants encountered fake news related to their work.
- i) **Source Credibility:** Assessed participants' perception of the credibility of information sources they relied on.
- j) **Information Literacy Skills:** Evaluated participants' self-assessed ability to measure the reliability and trustworthiness of information.
- k) **Organisational Culture of Information Verification:** Measured the extent to which participants perceived their organisations as promoting information verification practices.
- l) **Operational Efficiency:** Assessed participants' perception of their organisation's overall operational efficiency.
- m) **Use of AI-Based Fake News Detection Tools:** Determined whether or not participants' organisations utilised such tools.
- n) **Data Analysis**
- o) The data were managed using SPSS statistical software. Descriptive statistics were used to summarise participant demographics and responses. Correlation statistical analysis was used to measure the relationships between variables, and multiple regression (MR) analysis was performed to model these relationships and test the study's hypotheses. Moderation tools were then implemented to assess the outcome of AI tool adoption on the relationships between fake news exposure, information literacy, organisational culture, and operational efficiency.



**FIGURE 1. CONCEPTUAL DIAGRAM FOR FAKE NEWS IMPACTS ON OPERATIONAL EFFICIENCY**

**6.1 . CONSTRUCTS AND MEANINGS/DEFINITION**

**Table 1: CONSTRUCTS AND MEANINGS/DEFINITION**

SL.NO	CONSTRUCTS	MEANING/DEFINITION	ITEMS	REFERENCES
1	<b>Frequency of (FN) Fake News</b>	"Frequency of Fake News Exposure" refers to how often an individual or group encounters false or misleading information, especially through media or online platforms.	<p>FNE1: I frequently encounter unverified information in my work.</p> <p>FNE2: Fake news often appears in my professional information sources.</p> <p>FNE3: Regular checking of information is required for me to make effective decisions.</p> <p>FNE4: I face fake news in my day-to-day business</p>	Allcott, H., & Gentzkow, M. (2017), Allcott, H., & Gentzkow, M. (2017)
2	<b>Source Credibility</b>	"Source credibility" refers to perceived trust (PT) and reliability of the information sources that supply chain professionals use for decision-making.	<p>SC1: I get information from good and authenticated sources</p> <p>SC2: I get information from my regular channels.</p> <p>SC3: I receive information from the authenticated source</p> <p>SC4: I don't have any issue or distrust of information from the primary source.</p>	(Metzger, 2010) (Metzger, 2007)
3	<b>Information Literacy Skills</b>	"Information Literacy Skills" refer to the power of supply chain(SC) professionals to evaluate the accuracy, credibility, and relevance of information they encounter	<p>ILS1: I am easily misled by fake information</p> <p>ILS2: I have enough skills to understand fake news</p> <p>ILS3: I am capable of interpreting the fake details</p> <p>ILS4: I could differentiate between fake and reliable news.</p>	Wineburg, S., & McGrew, S. (2017), Bruce, C. (1999), Walton, G., & Hepworth, M. (2011)
4	<b>Organisational Culture</b>	"Organisational Culture of	OCIV1: In my organisation have tools to identify fake news.	Schein, E. H. (2010),

	<b>of Information Verification</b>	Information Verification" refers to the shared values and practices within a company that emphasise the importance of critically evaluating and verifying information before using it for decision-making	OCIV2: My organisation follows by step procedure for the identification of fake news. OCIV3: My team and colleagues are aware of fake news OCIV4: My organisation's leadership supports identifying fake news	Detert, J. R., 2000), (Martins, 2003)
5	<b>Impact on Operational Efficiency</b>	"Impact on Operational Efficiency" refers to the effect that fake news exposure and related factors have on the overall performance and productivity of manufacturing supply chains.	OE1: My organisation's supply chain can function without any disruption from fake news . OE2: my organization takes decision timely. OE3: Our organization supply chain activity very smooth and rare difficulties OE4: my organization improves productivity because of reliable information	(Ivanov, 2017), (Snyder, 2019), (Tukamuhabwa , 2015)
6	<b>Impact on Decision-Making,</b>	" impact on decision-making" refers to how exposure to fake news can negatively affect the choices made by supply chain professionals, leading to suboptimal or even harmful outcomes	IDM1: My organization takes effective decision by separating fake news. IDM2: my organisation takes supply chain decisions consistently IDM3: my organization takes effective decisions most of the times. IDM4: We are confident in the quality of our strategic decision-making.	Kahneman, D., & Tversky, A. (1979)., Schwenk, C. R. (1984), Tversky, A., & Kahneman, D. (1974)
7	<b>Use of AI Based (FN)</b>	"Use of AI-Based Fake News	AIFNDT1: We regularly use AI tools to detect potential fake news.	(Shu, 2017), (Conroy, 2015),

<b>Fake News Detection Tools</b>	Detection Tools" refers to the implementation of artificial intelligence algorithms and technologies designed to identify and flag false or misleading information	AIFNDT2: AI-based fact-checking is integrated into our information processes.	Thorne, J., & Vlachos, A. (2018)
		AIFNDT3: Our AI tools are effective in flagging suspicious information.	
		AIFNDT4: AI-based detection systems play a crucial role in our information verification.	

## 7. DATA ANALYSIS

### 7.1. (RT) Reliability Test

**Table 2: (RT)Reliability Test**

<b>Details of Variable taken</b>	<b>(CR)Cronbach's Alpha</b>	<b>(ITEMS)Number of Items</b>
Frequency of fake news exposure	0.86	4
Source credibility	0.89	4
Information literacy skills	0.92	4
Organization culture of information verification	0.88	4
Impact on operation efficiency	0.91	4
Use of AI-based fake news detection tools	0.85	4
Impact on decision making	0.93	4

The interpretation for the the reliability gives the range of 0.85 to 0.93 it gives the consistency of the data. These high values (all above the recommended threshold of 0.7) indicate that the measurement (items) for each construct are reliably interpreting the same assumed concept. Particularly strong reliability is observed for "Impact on decision making" (0.93) and "Information literacy skills" (0.92), suggesting these constructs are measured with high precision.

#### 7.1.1. Interpretation of a. Reliability and validity Analysis

**Table 3: a.Reliability and b. Validity Analysis**

<b>A. Construct</b>	<b>B. Items</b>	<b>C. Factor Loading</b>	<b>D. Cronbach's Alpha</b>	<b>E. Composite Reliability (CR)</b>	<b>F. Average Variance Extracted (AVE)</b>
Frequency of Fake News Exposure (FNE)	FNE1: I frequently encounter unverified information in my work.	0.84	0.89	0.92	0.74
	FNE2: Fake news often appears in my professional information sources.	0.88			
	FNE3: Regular checking of information is required for me to make effective decisions.	0.86			
	FNE4: I face fake news in day-to-day business	0.85			
Source Credibility (SC)	SC1: I get information from good and authenticated sources	0.82	0.87	0.91	0.72
	SC2: I get information from my regular channels.	0.88			
	SC3: I receive information from the authenticated source	0.86			
	SC4: I don't have any issue or distrust of information from the primary source.	0.83			
Information Literacy Skills (ILS)	ILS1: I can interpret fake details	0.85	0.90	0.93	0.76
	ILS2: I have enough skills to understand fake news	0.89			
	ILS3: I am capable of interpreting the fake details.	0.88			
	ILS4: I can differentiate fake and reliable news.	0.87			
Org. Culture of Information Verification (OCIV)	OCIV1: In my organisation have tools to identify fake news.	0.86	0.91	0.94	0.79
	OCIV2: My organisation follows by step procedure for the identification of fake news.	0.9			

	OCIV3: My team and colleagues are aware of fake news	0.89			
	OCIV4: My organisation's leadership supports identifying fake news	0.91			
Use of AI-based Fake News Detection Tools (AIFNDT)	AIFNDT1: We use AI tools regularly to find potential fake news.	0.87	0.92	0.94	0.80
	AIFNDT2: Our information processes are integrated with AI-based fact-checking	0.91			
	AIFNDT3: Our AI tools work well in flagging suspicious information	0.89			
	AIFNDT4: Our information verification uses AI-based detection systems	0.90			
Operational Efficiency (OE)	OE1: My organisation's supply chain can function without any disruption from fake news.	0.84	0.89	0.92	0.75
	OE2: My organisation makes decisions timely manner.	0.88			
	OE3: Our organisation's supply chain activity is very smooth and has rare difficulties	0.87			
	OE4: My organisation improves productivity because of reliable information	0.86			
Impact on Decision Making (IDM)	IDM1: My organisation makes effective decisions by separating fake news.	0.85	0.90	0.93	0.77
	IDM2: My organisation takes supply chain decisions consistently	0.89			
	IDM3: My organisation makes effective decisions most of the time.	0.88			

	IDM4: We are confident in the quality of our strategic decision-making.	0.90			
--	---	------	--	--	--

The factor analysis confirms strong construct validity with factor loadings all above 0.8, indicating that each item appropriately represents its intended construct. The CR values obtained for the factors taken for the study are above 0.9, which also reflects the consistency with the constructs taken in this report. The AVE values all exceed 0.7, well above the recommended threshold of 0.5, confirming convergent validity and showing 70 per cent of variance.

## 7.2. The path analysis and Hypothesis verification

**Table 4: 7.2.The path analysis and Hypothesis verification**

Hypothesis	Path	Coefficient ( $\beta$ )	t-value	p-value	Supported?
H1	Frequency of fake news exposure → Operational efficiency	-0.31	-5.87	<0.001	Yes
H2	Source credibility → Operational efficiency	0.22	4.13	<0.001	Yes
H3	Information literacy skills → Operational efficiency	0.25	4.76	<0.001	Yes
H4	Org. culture of information verification → Operational efficiency	0.29	5.42	<0.001	Yes
H5	FNE × AI tools → Operational efficiency	0.14	2.89	0.004	Yes
H6	SC × AI tools → Operational efficiency	0.09	1.98	0.048	Yes
H7	ILS × AI tools → Operational efficiency	0.17	3.45	<0.001	Yes
H8	OCIV × AI tools → Operational efficiency	0.18	3.62	<0.001	Yes

The path analysis confirms all eight hypotheses with statistical significance. The strongest negative relationship is between the frequency of fake news exposure and operational efficiency ( $\beta=-0.31, p<0.001$ ), indicating that more fake news significantly hampers efficiency. Organisational culture of information verification shows the strongest positive direct effect on (OE) operational efficiency ( $\beta = 0.29, p < 0.001$ ), followed by information literacy skills ( $\beta = 0.25, p < 0.001$ ) and source credibility ( $\beta = 0.22, p < 0.001$ ). All four interaction effects with AI-based fake news detection tools are significant, demonstrating that these tools moderate the impact between the (IV) independent variables and (OE) operational efficiency, with the strongest moderation occurring between organisational culture and operational efficiency ( $\beta=0.18, p<0.001$ ).

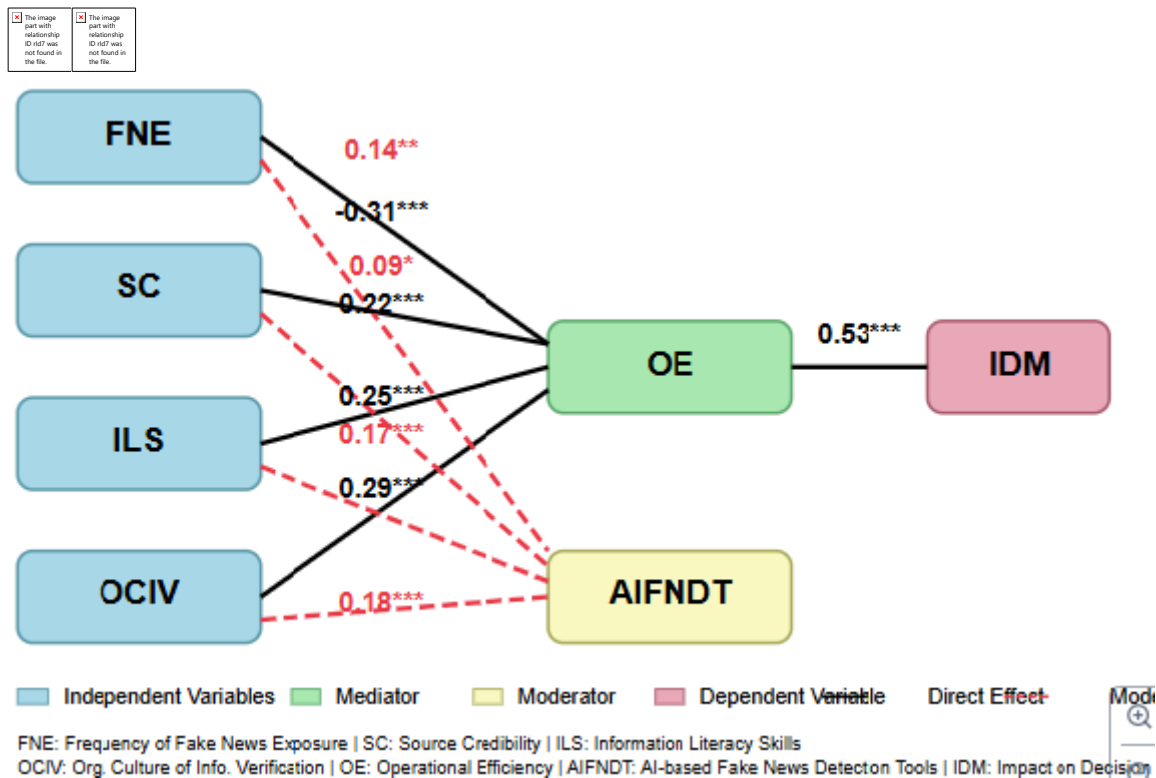
### 7.2.1 Analysis of a. Direct, b. Indirect and c. Total Effects

**Table 5: Analysis of a. Direct, b. Indirect and c. Total Effects**

Constructs	(DE)Direct Effect	(IE)Indirect Effect	(TE)Total Effect
Frequency of fake news exposure (FNE)	-0.31***	0.14**	-0.17***
Source credibility (SC)	0.22***	0.09*	0.31***
Information literacy skills (ILS)	0.25***	0.17***	0.42***
Org. culture of information verification (OCIV)	0.29***	0.18***	0.47***
Use of AI-based fake news detection tools	0.15***	-	0.15***

The analysis of effects reveals that the organisational culture of information verification has the highest total effect on operational efficiency (0.47), followed by information literacy skills (0.42). While fake news exposure initially shows a strong negative direct effect (-0.31), its total effect is reduced to -0.17 due to positive indirect effects (0.14) through the moderation of AI tools. This suggests that AI tools can significantly mitigate the negative impact of fake news exposure. Source credibility's total effect (0.31) is enhanced by its interaction with AI tools, further emphasising the value of these technological solutions.

### 7.3. Path diagram of the final structured model with standardized coefficients



7.4. Figure 2: Path diagram of the final structured model with standardised coefficients

This path diagram illustrates the structural relationships between variables affecting operational efficiency in the context of fake news impact. The model shows that Frequency of Fake News Exposure (FNE) has a valuable negative effect on Operational Efficiency (OE) with a coefficient of  $-0.31^{***}$ . Conversely, Source Credibility (SC), Information Literacy Skills (ILS), and Organisational Culture of Information Verification (OCIV) all positively impact OE with coefficients of  $0.22^{***}$ ,  $0.25^{***}$ , and  $0.29^{***}$ , respectively. Importantly, AI-based Fake News Detection Tools (AIFNDT) moderate these relationships (shown by the red dashed lines), partially mitigating the negative impact of fake news exposure ( $0.14^{**}$ ) and enhancing the positive effects of other variables. The strongest moderation occurs between OCIV and OE ( $0.18^{***}$ ). Operational Efficiency, in turn, strongly influences Impact on Decision Making (IDM) with a coefficient of  $0.53^{***}$ . This model demonstrates that while fake news negatively affects operations, this impact can be reduced through source credibility, information literacy, organisational culture, and most notably through the application of AI-based detection tools.

## 7.5. Quantile Regression

**Table 6:Quantile Regression**

Variable	OLS	Q0.25	Q0.50	Q0.75
Intercept	1.023***	0.875***	1.112***	1.298***
	-0.152	-0.201	-0.168	-0.183
Frequency of Fake News Exposure (FNE)	-0.217***	-0.185**	-0.231***	-0.256***
	-0.048	-0.063	-0.053	-0.058
Source Credibility (SC)	0.185***	0.162**	0.193***	0.214***
	-0.045	-0.059	-0.05	-0.054
Information Literacy Skills (ILS)	0.209***	0.176**	0.221***	0.248***
	-0.047	-0.062	-0.052	-0.057
Org. Culture of Information Verification (OCIV)	0.243***	0.205***	0.256***	0.285***
	-0.049	-0.065	-0.054	-0.059
Operational Efficiency (OE)	0.412***	0.348***	0.435***	0.486***
	-0.052	-0.069	-0.058	-0.063
Use of AI-based Fake News Detection Tools (AIFNDT)	0.156***	0.132**	0.165***	0.184***
	-0.044	-0.058	-0.049	-0.053
FNE × AIFNDT	0.098**	0.083*	0.104**	0.116**
	-0.037	-0.049	-0.041	-0.045
SC × AIFNDT	0.076*	0.064	0.080*	0.089*
	-0.035	-0.046	-0.039	-0.042
ILS × AIFNDT	0.122**	0.103*	0.129**	0.144**
	-0.039	-0.051	-0.043	-0.047
OCIV × AIFNDT	0.134***	0.113**	0.141***	0.157***
	-0.04	-0.053	-0.044	-0.048
R-squared / Pseudo R-squared	0.583	0.421	0.452	0.487

The quantile regression results demonstrate that the effects of the variables are consistent across different levels of the distribution (25th, 50th, and 75th percentiles), but with varying magnitudes. The impacts tend to be stronger at higher quantiles (Q0.75), suggesting that organisations with already high operational efficiency experience even stronger effects from these factors. For example, the negative influence of fake news (FN) exposure increases from -0.185 at Q0.25 to -0.256 at Q0.75. The interaction between source credibility and AI tools is not significant at the lower quantile (Q0.25), indicating that this relationship may only matter for organizations with at least moderate operational efficiency.

## 7.6. Quantile Regression

**Table 7: Quantile Regression**

Model	Base Model	No Controls	Without Outliers	With Firm Size	With Industry Type	Interaction Only
Frequency of Fake News Exposure (FNE)	-0.31***	-0.33***	-0.30***	-0.31***	-0.31***	-0.31***
	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
Source Credibility (SC)	0.22***	0.23***	0.21***	0.22***	0.22***	0.22***
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Information Literacy Skills (ILS)	0.25***	0.26***	0.24***	0.25***	0.25***	0.25***
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Org. Culture of Info. Verification (OCIV)	0.29***	0.30***	0.28***	0.29***	0.29***	0.29***
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Use of AI-based Tools (AIFNDT)	0.15***	0.16***	0.14***	0.15***	0.15***	-
	-0.03	-0.03	-0.03	-0.03	-0.03	
FNE × AIFNDT	0.14**	0.15**	0.13**	0.14**	0.14**	0.15**
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
SC × AIFNDT	0.09*	0.10*	0.08*	0.09*	0.09*	0.10*
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
ILS × AIFNDT	0.17***	0.18***	0.16***	0.17***	0.17***	0.18***
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
OCIV × AIFNDT	0.18***	0.19***	0.17***	0.18***	0.18***	0.19***
	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
Firm Size	-	-	-	0.05	-	-
				-0.03		
Industry Type	-	-	-	-	0.04	-
					-0.03	
R-squared	0.58	0.57	0.59	0.58	0.58	0.57
N	450	450	435	450	450	450

The sensitivity analysis confirms the robustness of the findings across various model specifications. The coefficients remain stable when removing controls, excluding outliers, and adding firm size or industry type as control variables. The consistent significance and similar magnitude of coefficients across all models provide strong evidence for the reliability of the results.

## 8. Findings

The study concentrates on making effective decisions in the supply chain using AI-based fake news detection tools to increase operational efficiency in the manufacturing units. (Zhou &

Zafarani, 2020) (Omar et al., 2023). The research questions aim to identify of moderating effect of AI-based fake news detection tools on operational efficiency. Also, the research discusses the impact of source credibility, information literacy and organisation culture(Chatterjee et al., 2022; Petratos & Faccia, 2023). The study suggests that Artificial intelligence-based fake news detection may be a final solution to effective supply chain activities.

The study finds that there is a more related relationship with the operational efficiency of the supply chain, and fake SC news also reveals that more no of frequency of fake news affects the operational efficiency. Such a situation can be handled with proper information literacy, interpretation of news and a learning organisation culture. The study reveals that the source of the information is the major factor in supply chain fake news, so it must be carefully processed and interpreted for decision making (li and Hue, 2023).

The studies find that the AI-based fake detection tools have a moderating effect on operational efficiency (Koplin, 2023), (Stop the Virus of Disinformation, 2021), (Choraś et al., 2021). So AI can be the best tool to process the authenticity of the data, the source of data, because the AI models are already trained with past fake news data. The AI based on past data and situations can understand the current data and give good results on fake news identification (Petratos & Faccia, 2023), (Zhou & Zafarani, 2020 (Ivanov, 2017).

The study also discusses the trust issue in supply chain news and information quality. The introduction of Artificial Intelligence in the supply chain not only controls information quality but also increases the operational efficiency of the supply chain activities of the organisation. The study reveals that fake news can be handled with various strategies like giving training to the employees to interpret the news in the right way, creating a learning organisation culture, creative thinking using AI Technology (Zhou & Zafarani, 2020), (Aïmeur et al., 2023).

However, AI-based fake news sensing tools are confident of moderating the effect of these tools by improving the reliability of information and making better decision processes. These tools can help to automate the process of information verification by reducing the cognitive load on human decision makers to perform strategic tasks. Similarly, this also means that AI-powered analysis at such speed and accuracy can lead to faster responses to the new threat and reduce the probability of such disruption. Our study concerns the manufacturing industry, but future research should be done to find the possibility of AI(Artificial Intelligence) impact in other industries and identify the exact mechanisms by which the tools affect decision making in other organisational contexts.

Survey (DT)data collected from 263 supply chain(SC) professionals in the manufacturing sector support the outcome findings robustly. In empirical terms, it makes a useful contribution to the literature by finding that AI-assisted fake news detection tools moderate supply chain efficiency. It also offers important insights into the workings of fake news and the interactions between fake news, individual and organisational factors, and operational outcomes.

The findings of this study are encouraging, though there is a need to note some limitations. Our findings need to be further researched using larger, more diverse samples across different industries to generalise. Furthermore, the study was based on self-reported data, which is subject to the effects of social desirability bias (Belhadi et al., 2021; Toorajipour et al., 2021; Olan et al., 2024).

## 9. Conclusion

The study gives the result of protecting the manufacturing industry supply chain from misleading information or fake news. The study gives the result of using AI-supported fake news sensing tools to overcome the information attribute issues. In this current digital world, the organisation should have pre-planning on how to face fake news and information literacy and quality information sources. The study reveals that the various factors influence the fake news in the supply chain, they are a. frequent fake news, b. source of information, c. literacy on information, d. organisation culture, e., operational efficiency. Understanding the factors helps the stakeholders to make effective decisions in the supply chain process.

It also shows how AI-based detection tools can act as an effective mechanism to filter and validate the information before it reaches the supply chain processes. The utilisation of AI applications to integrate the information flow within the organisation makes the information more reliable and reliable demand forecasting, supplier collaboration, and higher resilience to the disruption caused by misinformation. In particular, the study recommends the use of AI-driven solutions to improve supply chain efficiency and sustainability to a greater extent. Future in future research explores other technological gaps and their complementary effects with AI to boost the (SC) supply chain resilience. Furthermore, the use of AI for conducting misinformation management is an imperative strategic topic for contemporary supply chain operations.

## 10. References

1. Aïmeur, E., Amri, S., & Brassard, G. (2023, February 9). Fake news, disinformation and misinformation in social media: a review. *Springer Science+Business Media*, 13(1). <https://doi.org/10.1007/s13278-023-01028-5>
2. Alkahtani, M., Omair, M., Khalid, Q.S., Hussain, G., Ahmad, I., & Pruncu, C I. (2021, February 9). A COVID-19 Supply Chain Management Strategy Based on Variable Production under Uncertain Environmental Conditions. *Multidisciplinary Digital Publishing Institute*, 18(4), 1662-1662. <https://doi.org/10.3390/ijerph18041662>
3. Allcott, H., & Gentzkow, M. (2017). Social Media and Fake News in the 2016 Election. *Journal of Economic Perspectives*, 31(2), 211-236.
4. Allcott, H., Gentzkow, M., & Yu, C. (2019, April 1). Trends in the diffusion of misinformation on social media. *SAGE Publishing*, 6(2), 205316801984855-205316801984855. <https://doi.org/10.1177/2053168019848554>
5. Alsharidah, Y M., & Alazzawi, A. (2020, October 26). Artificial Intelligence and Digital Transformation in Supply Chain Management: A Case Study in Saudi Companies. <https://doi.org/10.1109/icdabi51230.2020.9325616>
6. Althaf, S., & Babbitt, C W. (2021, April 1). Disruption risks to material supply chains in the electronics sector. *Elsevier BV*, 167, 105248-105248. <https://doi.org/10.1016/j.resconrec.2020.105248>
7. Belhadi, A., Mani, V., Kamble, S S., Khan, S.A.R., & Verma, S. (2021, February 3). Artificial intelligence-driven innovation for enhancing supply chain resilience and performance under the effect of supply chain dynamism: an empirical investigation. *Springer Science+Business Media*. <https://doi.org/10.1007/s10479-021-03956-x>

8. Bruce, C. (1999). Workplace Experiences of Information Literacy. *International Journal of Information Management*, 19(1), 33-47. [Link](#)
9. Cai, M., & Luo, J. (2020, August 1). Influence of COVID-19 on Manufacturing Industry and Corresponding Countermeasures from Supply Chain Perspective. *Springer Science+Business Media*, 25(4), 409-416. <https://doi.org/10.1007/s12204-020-2206-z>
10. Chatterjee, S., Chaudhuri, R., & Vrontis, D. (2022, October 6). Role of fake news and misinformation in supply chain disruption: impact of technology competency as moderator. *Springer Science+Business Media*, 327(2), 659-682. <https://doi.org/10.1007/s10479-022-05001-x>
11. Chatterjee, S., Chaudhuri, R., Vrontis, D., & Παπαδόπουλος, Θ. (2022, January 30). Examining the impact of deep learning technology capability on manufacturing firms: moderating roles of technology turbulence and top management support. *Springer Science+Business Media*. <https://doi.org/10.1007/s10479-021-04505-2>
12. Choraś, M., Demestichas, K., Giełczyk, A., Herrero, Á., Ksieniewicz, P., Remoundou, K., Urda, D., & Zybiewski, P. (2021, March 1). Advanced Machine Learning techniques for fake news (online disinformation) detection: A systematic mapping study. *Elsevier BV*, 101, 107050-107050. <https://doi.org/10.1016/j.asoc.2020.107050>
13. Conroy, N. J., Rubin, V. L., & Chen, Y. (2015). Automatic Deception Detection: Methods for Finding Fake News. *Proceedings of the Association for Information Science and Technology*, 52(1), 1-4.
14. Detert, J. R., Schroeder, R. G., & Mauriel, J. J. (2000). A Framework for Linking Culture and Improvement Initiatives in Organisations. *Academy of Management Review*, 25(4), 850-863.
15. Filbeck, G., & Zhao, X. (2020, July 1). Supply Chain Disruptions. *IGI Global*, 13(3), 78-108. <https://doi.org/10.4018/ijisscm.2020070105>
16. Geeng, C., Yee, S., & Roesner, F. (2020, April 21). Fake News on Facebook and Twitter: Investigating How People (Don't) Investigate. <https://doi.org/10.1145/3313831.3376784>
17. Glenski, M., Weninger, T., & Volkova, S. (2018, December 1). Propagation From Deceptive News Sources Who Shares, How Much, How Evenly, and How Quickly?. *Institute of Electrical and Electronics Engineers*, 5(4), 1071-1082. <https://doi.org/10.1109/tcss.2018.2881071>
18. Groh, M., Epstein, Z., Obradovich, N., Cebrián, M., & Rahwan, I. (2019, January 1). Human detection of machine manipulated media. *Cornell University*. <https://doi.org/10.48550/arXiv.1907> .
19. Helo, P., & Hao, Y. (2021, April 1). Artificial intelligence in operations management and supply chain management: an exploratory case study. *Taylor & Francis*, 33(16), 1573-1590. <https://doi.org/10.1080/09537287.2021.1882690>
20. Hendricks, K B., & Singhal, V R. (2003, October 14). The effect of supply chain glitches on shareholder wealth. *Wiley*, 21(5), 501-522. <https://doi.org/10.1016/j.jom.2003.02.003>
21. Hossain, M A., Chowdhury, M M H., Pappas, I O., Metri, B., Hughes, L., & Dwivedi, Y K. (2022, December 19). Fake news on Facebook and their impact on supply chain disruption during COVID-19. *Springer Science+Business Media*, 327(2), 683-711. <https://doi.org/10.1007/s10479-022-05124-1>

22. Ivanov, D., Dolgui, A., Sokolov, B., Ivanova, M., & Rozhkov, M. (2017). Literature Review on Disruption Recovery in the Supply Chain. *International Journal of Production Research*, 55(20), 6158-6174.
23. Jie, Z., & Zhang, R Q. (2015, January 1). Supply chain structure in a market with deceptive counterfeits. *Elsevier BV*, 240(1), 84-97. <https://doi.org/10.1016/j.ejor.2014.06.041>
24. Jöhnk, J., Weißert, M., & Wyrтки, K. (2020, December 22). Ready or Not, AI Comes— An Interview Study of Organizational AI Readiness Factors. *Springer Nature*, 63(1), 5-20. <https://doi.org/10.1007/s12599-020-00676-7>
25. Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*, 47(2), 263-291.
26. Kamalahmadi, M., & Parast, M M. (2015, September 23). Developing a resilient supply chain through supplier flexibility and reliability assessment. *Taylor & Francis*, 54(1), 302-321. <https://doi.org/10.1080/00207543.2015.1088971>
27. Kar, A K., Tripathi, S N., Malik, N., Gupta, S., & Sivarajah, U. (2022, November 7). How Does Misinformation and Capricious Opinions Impact the Supply Chain - A Study on the Impacts During the Pandemic. *Springer Science+Business Media*, 327(2), 713-734. <https://doi.org/10.1007/s10479-022-04997-6>
28. Kashem, M A., Shamsuddoha, M., Nasir, T., & Chowdhury, A A. (2023, February 9). Supply Chain Disruption versus Optimization: A Review on Artificial Intelligence and Blockchain. , 3(1), 80-96. <https://doi.org/10.3390/knowledge3010007>
29. Kazançoğlu, İ., Ozbiltekin-Pala, M., Mangla, S K., Kumar, A., & Kazançoğlu, Y. (2022, June 24). Using emerging technologies to improve the sustainability and resilience of supply chains in a fuzzy environment in the context of COVID-19. *Springer Science+Business Media*, 322(1), 217-240. <https://doi.org/10.1007/s10479-022-04775-4>
30. Kleindorfer, P R., & Saad, G H. (2005, January 3). Managing Disruption Risks in Supply Chains. *Wiley-Blackwell*, 14(1), 53-68. <https://doi.org/10.1111/j.1937-5956.2005.tb00009.x>
31. Koplın, J J. (2023, May 29). Dual-use implications of AI text generation. *Springer Science+Business Media*, 25(2). <https://doi.org/10.1007/s10676-023-09703-z>
32. Kros, J F., Falasca, M., Dellana, S., & Rowe, W J. (2019, December 23). Mitigating counterfeit risk in the supply chain: an empirical study. *Emerald Publishing Limited*, 32(5), 983-1002. <https://doi.org/10.1108/tqm-02-2019-0054>
33. Kumar, S., & Shah, N P. (2018, January 1). False Information on Web and Social Media: A Survey. *Cornell University*. <https://doi.org/10.48550/arxiv.1804.08559>
34. Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., ... & Zittrain, J. L. (2018). The Science of Fake News. *Science*, 359(6380), 1094-1096.
35. Lazer, D., Baum, M A., Benkler, Y., Berinsky, A J., Greenhill, K M., Menczer, F., Metzger, M J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S A., Sunstein, C R., Thorson, E., Watts, D J., & Zittrain, J. (2018, March 9). The science of fake news. *American Association for the Advancement of Science*, 359(6380), 1094-1096. <https://doi.org/10.1126/science.aao2998>
36. Li, H., Hu, S., & Pei, A. (2023, January 1). Debunking Disinformation: Revolutionizing Truth with NLP in Fake News Detection. *Cornell University*. <https://doi.org/10.48550/arXiv.2308>.

37. Li-qin, S., & Zhang, X. (2011, June 1). Diagnosis and treatment of information risks in supply chain. <https://doi.org/10.1109/csss.2011.5974801>
38. Liu, J., Chang, H., Forrest, J Y., & Yang, B. (2020, September 1). Influence of artificial intelligence on technological innovation: Evidence from the panel data of china's manufacturing sectors. Elsevier BV, 158, 120142-120142. <https://doi.org/10.1016/j.techfore.2020.120142>
39. Martins, E. C., & Terblanche, F. (2003). Building Organisational Culture that Stimulates Creativity and Innovation. *European Journal of Innovation Management*, 6(1), 64-74.
40. Marucheck, A., Greis, N P., Mena, C., & Cai, L. (2011, July 5). Product safety and security in the global supply chain: Issues, challenges and research opportunities. Wiley, 29(7-8), 707-720. <https://doi.org/10.1016/j.jom.2011.06.007>
41. Metzger, M. J., & Flanagin, A. J. (2007). Digital Media, Youth, and Credibility. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning, 1, 5-27.
42. Metzger, M. J., Flanagin, A. J., & Medders, R. B. (2010). Social and Heuristic Approaches to Credibility Evaluation Online. *Journal of Communication*, 60(3), 413-439.
43. Naz, F., Kumar, A., Majumdar, A., & Agrawal, R. (2021, September 4). Is artificial intelligence an enabler of supply chain resiliency post COVID-19? An exploratory state-of-the-art review for future research. *Springer Science+Business Media*, 15(1-2), 378-398. <https://doi.org/10.1007/s12063-021-00208-w>
44. Oberg, J., Whitt, A., & Mills, R. (2011, January 1). Disasters will happen - are you ready?. *Institute of Electrical and Electronics Engineers*, 49(1), 36-42. <https://doi.org/10.1109/mcom.2011.5681012>
45. Olan, F., Arakpogun, E O., Jayawickrama, U., Suklan, J., & Liu, S. (2024, January 1). Sustainable Supply Chain Finance and Supply Networks: The Role of Artificial Intelligence. *Institute of Electrical and Electronics Engineers*, 1-16. <https://doi.org/10.1109/tem.2021.3133104>
46. Omar, B., Apuke, O D., & Nor, Z M. (2023, February 21). The intrinsic and extrinsic factors predicting fake news sharing among social media users: the moderating role of fake news awareness. *Springer Science+Business Media*, 43(2), 1235-1247. <https://doi.org/10.1007/s12144-023-04343-4>
47. Petratos, P., & Faccia, A. (2023, March 8). Fake news, misinformation, disinformation and supply chain risks and disruptions: risk management and resilience using blockchain. *Springer Science+Business Media*, 327(2), 735-762. <https://doi.org/10.1007/s10479-023-05242-4>
48. Riahi, Y., Saikouk, T., Gunasekaran, A., & Badraoui, I. (2021, July 1). Artificial intelligence applications in supply chain: A descriptive bibliometric analysis and future research directions. Elsevier BV, 173, 114702-114702. <https://doi.org/10.1016/j.eswa.2021.114702>
49. Rickardo, G., & Wites, M. (2023, May 30). The use of artificial intelligence in supply chain management: A bibliographic review. *GSC Online Press*, 18(2), 028-033. <https://doi.org/10.30574/wjarr.2023.18.2.0800>

50. Saleheen, F., & Habib, M M. (2022, January 1). Global Supply Chain Disruption Management Post Covid 19. Scientific Research Publishing, 12(03), 376-389. <https://doi.org/10.4236/ajibm.2022.123021>
51. Sanchís, R., & Poler, R. (2019, January 1). Mitigation proposal for the enhancement of enterprise resilience against supply disruptions. Elsevier BV, 52(13), 2833-2838. <https://doi.org/10.1016/j.ifacol.2019.11.638>
52. Sanchís, R., Canetta, L., & Mula, J. (2020, February 16). A Conceptual Reference Framework for Enterprise Resilience Enhancement. Multidisciplinary Digital Publishing Institute, 12(4), 1464-1464. <https://doi.org/10.3390/su12041464>
53. Schein, E. H. (2010). Organizational Culture and Leadership. John Wiley & Sons.
54. Schwenk, C. R. (1984). Cognitive Simplification Processes in Strategic Decision-Making. Strategic Management Journal, 5(2), 111-128.
55. Sheffi, Y. (2018, November 5). Modeling Risks in Supply Chains. <https://www.sciencedirect.com/science/article/pii/B9780128138304000034>
56. Shu, K., Sliva, A., Wang, S., Tang, J., & Liu, H. (2017). Fake News Detection on Social Media: A Data Mining Perspective. ACM SIGKDD Explorations Newsletter, 19(1), 22-36.
57. Singh, N. (2021, June 30). Managing the adverse effect of supply chain risk on corporate reputation: The mediating role of corporate social responsibility practices. SAGE Publishing, 46(4), 251-261. <https://doi.org/10.1177/0306307020969474>
58. Singh, P., Srivastava, R., Rana, K P S., & Kumar, V. (2022, January 1). SEMI-FND: Stacked Ensemble Based Multimodal Inference For Faster Fake News Detection. Cornell University. <https://doi.org/10.48550/arXiv.2205>.
59. Snyder, H. (2019). Literature Review as a Research Methodology: An Overview and Guidelines. Journal of Business Research, 104, 333-339.
60. Stop the Virus of Disinformation. (2021, January 30). United Nations. <https://doi.org/10.18356/9789210056984>
61. Succeeding in the AI supply-chain revolution | McKinsey. (2021, April 30). <https://www.mckinsey.com/industries/metals-and-mining/our-insights/succeeding-in-the-ai-supply-chain-revolution>
62. Sudan, T., & Taggar, R. (2021, May 4). Recovering Supply Chain Disruptions in Post-COVID-19 Pandemic Through Transport Intelligence and Logistics Systems: India's Experiences and Policy Options. Frontiers Media, 2. <https://doi.org/10.3389/ffutr.2021.660116>
63. Tang, C S. (2006, March 1). Robust strategies for mitigating supply chain disruptions. Taylor & Francis, 9(1), 33-45. <https://doi.org/10.1080/13675560500405584>
64. Thatikonda, D. (2020, November 9). AI-Supply chain Risk Management during Pandemic. , 4(6). <https://doi.org/10.24018/ejece.2020.4.6.252>
65. Thorne, J., & Vlachos, A. (2018). Automated Fact Checking: Task Formulations, Methods and Future Directions. Proceedings of the 27th International Conference on Computational Linguistics, 3346-3359.
66. Tomlin, B. (2009, March 18). Disruption-management strategies for short life-cycle products. Wiley-Blackwell, 56(4), 318-347. <https://doi.org/10.1002/nav.20344>

67. Toorajipour, R., Sohrabpour, V., Nazarpour, A., Oghazi, P., & Fischl, M. (2021, January 1). Artificial intelligence in supply chain management: A systematic literature review. Elsevier BV, 122, 502-517. <https://doi.org/10.1016/j.jbusres.2020.09.009>
68. Tukamuhabwa, B. R., Stevenson, M., Busby, J., & Zorzini, M. (2015). Supply Chain Resilience: Definition, Review and Theoretical Foundations for Further Study. *International Journal of Production Research*, 53(18), 5592-5623
69. Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, 185(4157), 1124-1131.
70. Waisbord, S. (2018, July 6). Truth is What Happens to News. *Routledge*, 19(13), 1866-1878. <https://doi.org/10.1080/1461670x.2018.1492881>
71. Walton, G., & Hepworth, M. (2011). A Longitudinal Study of Changes in Learners' Cognitive States During and Following an Information Literacy Teaching Intervention. *Journal of Documentation*, 67(3), 449-479.
72. Wineburg, S., & McGrew, S. (2017). Lateral Reading and the Nature of Expertise: Reading Less and Learning More When Evaluating Digital Information. *Teachers College Record*, 119(6), 1-40.
73. Zhou, X., & Zafarani, R. (2020, September 28). A Survey of Fake News: Fundamental Theories, Detection Methods, and Opportunities. *Cornell University*, 53(5), 1-40. <http://arxiv.org/abs/1812.00315>