AN EVALUATION OF INSURANCE REQUIREMENTS ACROSS THE PHARMACEUTICAL SUPPLY CHAIN

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-Dissertation Report

INTRODUCTION

The pharmaceutical supply chain transports high-value, sensitive, and often life-saving products through complex, regulated environments. Disruptions such as temperature excursions, theft, contamination, and regulatory delays can result in financial losses, compliance breaches, and risks to patient safety.

With the increasing reliance on distribution networks and third-party logistics, the importance of structured insurance frameworks has grown significantly. Insurance has become a strategic tool for ensuring continuity, regulatory compliance, and effective risk mitigation. This study explores the need to evaluate and strengthen insurance coverage across all stages of the pharmaceutical supply chain.

OBJECTIVE

- To identify key risks and vulnerabilities at different stages of the pharmaceutical supply chain.
- To explore insurance products relevant to each stage such as marine cargo, cold chain, product liability, and recall insurance.
- To assess how pharmaceutical companies evaluate and manage supply chain risks through insurance.
- To examine the adoption and application of Institute Cargo Clauses (ICC A/B/C), Incoterms®, and other global insurance standards.

RESEARCH QUESTIONS

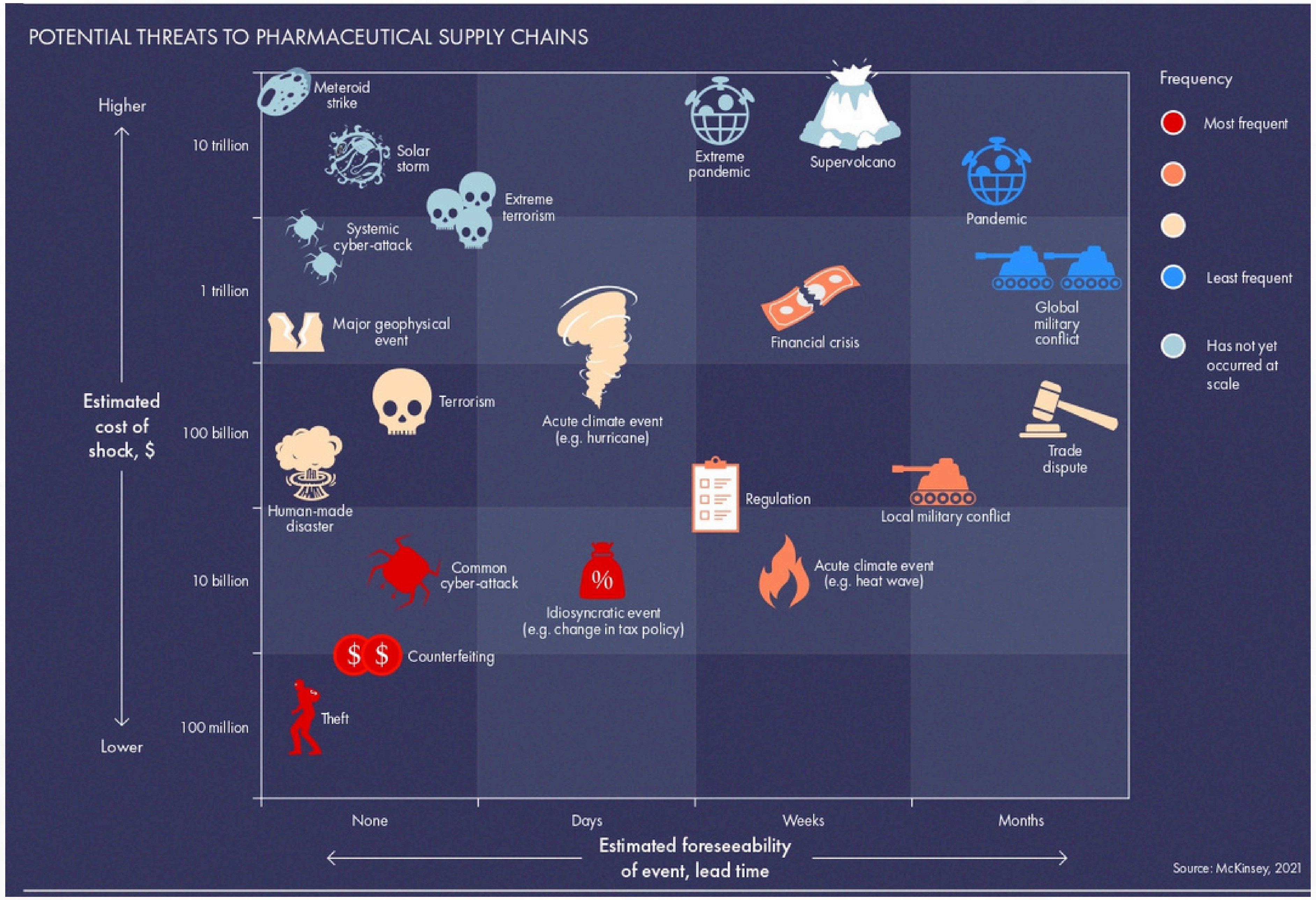
- What are the critical insurance requirements at different stages of the pharmaceutical supply chain?
- How do companies assess risks and select appropriate insurance products?
- What challenges exist in aligning insurance policies with operational and regulatory risks?

PROBLEM STATEMENT

Pharmaceutical supply chains face critical insurance gaps, especially among SMEs, due to underinsurance, limited policy awareness, and misalignment between risk and coverage. Even large firms struggle with inconsistent integration of global insurance standards and overreliance on third-party logistics.

SIGNIFICANCE

Insurance plays a strategic role in ensuring pharmaceutical business continuity, patient safety, and regulatory compliance. By evaluating the existing insurance frameworks and identifying implementation gaps, this study contributes to building a more resilient and responsive pharmaceutical supply chain. The findings offer valuable insights for manufacturers, logistics providers, insurers, and policy-makers—highlighting the need for proactive, informed insurance adoption across the industry.



LITERATURE REVIEW

Sr. No.	Author	Title	Key findings
01	Shetty AD, Shetty A, Shetty J, Shenoy S, Sreedhar D, Nayak S	Pharma Insurance: A Mechanism for Risk Mitigation	Insurance reduces risks in the pharmaceutical supply chain by covering mishandling, pilferage, and transit issues, highlighting the need for comprehensive policies to ensure operational continuity and regulatory compliance across all stages.
02	Wang M, Jie F	Managing supply chain uncertainty and risk in the pharmaceutical industry.	Supply chain integration enhances risk management in the pharmaceutical sector by improving coordination, mitigating uncertainties, and supporting strategic decisions. It addresses research gaps and offers insights applicable to other high-risk industries.

LITERATURE REVIEW

Sr. No.	Author	Title	Key findings
03	Aberidoost M, Nikfar S, Abdollahiasl A, Dinarvand R	Pharmaceutical supply chain: A systematic review.	The pharmaceutical supply chain's complexity and regulatory demands require robust insurance to manage disruptions, quality failures, and compliance risks, ensuring financial protection and continuity amid growing geopolitical, cyber, and logistical challenges.
04	Goswami A, Alok Baveja, Ding X, Melamed B, Roberts F.	An integrated framework for modelling pharmaceutical supply chains with disruptions and risk mitigation	Identifies and mitigates disruptions like crime, natural disasters, and human error by mapping supply chains, emphasizing the need for comprehensive risk management and tailored insurance to strengthen resilience and operational continuity.

GAP ANALYSIS

Identified Gap	Impact
SMEs lack comprehensive insurance coverage	High exposure to financial loss, especially in cold chain and recalls
Misalignment between risks and insurance coverage	Leads to claim rejections and inadequate protection
Low awareness of specialized insurance solutions	Underinsurance or misapplication of policies
Absence of structured insurance audits and assessments	Missed vulnerabilities, poor preparedness for disruptions

METHODOLOGY

- **Research Design:** A qualitative research design to explore insurance requirements and risk mitigation strategies in the pharmaceutical supply chain.

- **Study Setting:** The study was conducted during a 3-month internship at Prudent Insurance Brokers Pvt. Ltd., with a focus on the commercial lines of insurance relevant to pharmaceutical operations.

- **Data Collection Methods:**

  Primary Data: Observational insights from internship activities.

  Secondary Data: Review of academic literature, regulatory guidelines (e.g., IRDAI, ICC, Incoterms®), and industry reports.

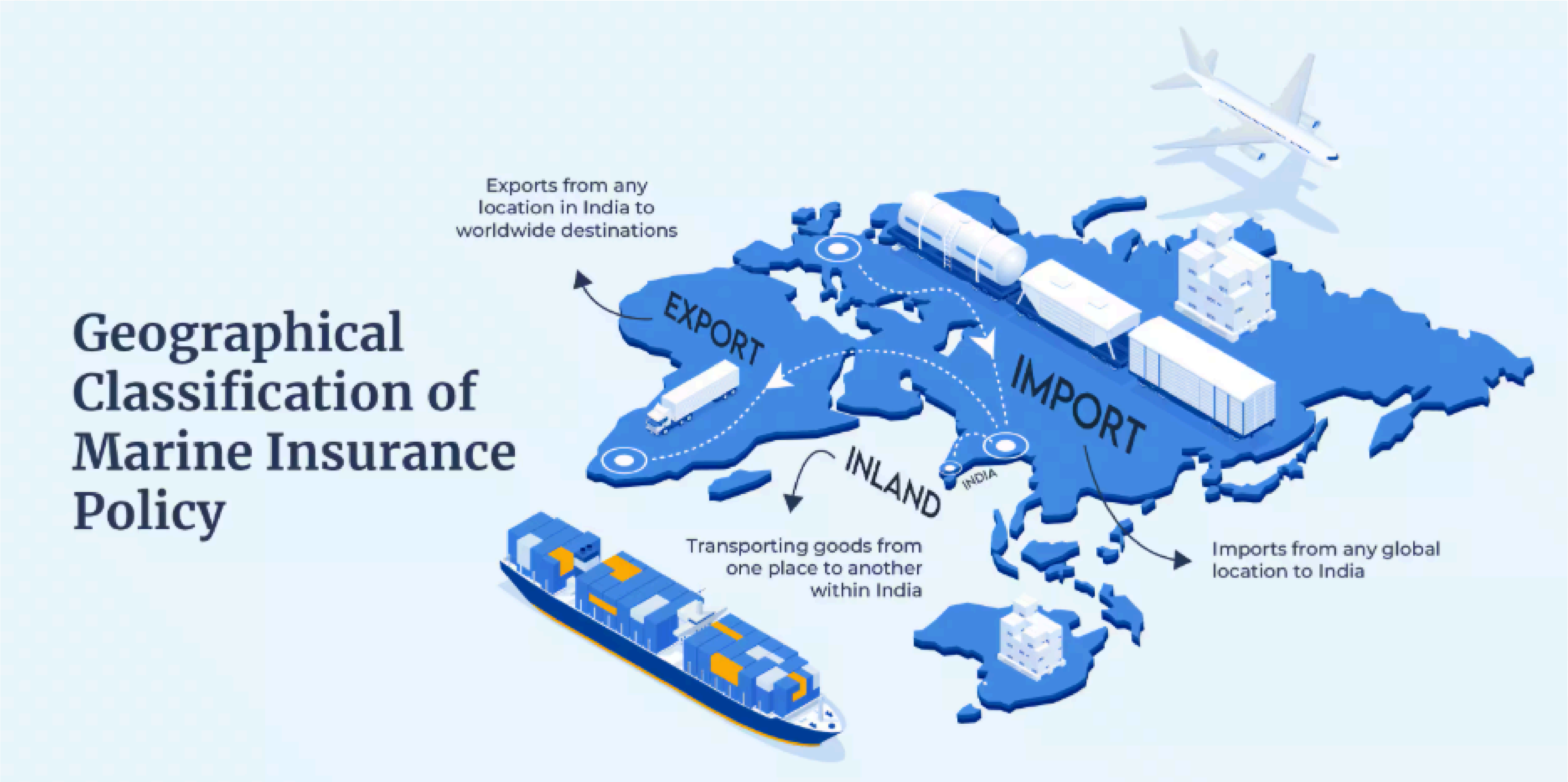
- **Duration of Study:** March 12 to May 30, 2025.

RISK COVERAGES

Component	Purpose	Application
Marine Cargo Insurance	Provides coverage for goods in transit (sea, air, land).	Protects pharmaceuticals from loss, damage, or theft during domestic/international transport.
Institute Cargo Clauses (ICC A/B/C)	Standardized global clauses defining the extent of coverage.	ICC (A) is preferred in pharma for all-risk protection, especially for cold chain items.
Incoterms® 2020	Defines responsibilities between buyer and seller in international trade.	Terms like CIF and CIP specify who arranges insurance and bears transit risk.

MARINE INSURANCE

Marine cargo insurance provides financial protection for goods transported via sea, air, or land. In the pharmaceutical supply chain, it covers risks like theft, damage, and temperature excursions during transit. It is essential for safeguarding high-value, sensitive products and ensuring uninterrupted delivery across domestic and international routes.

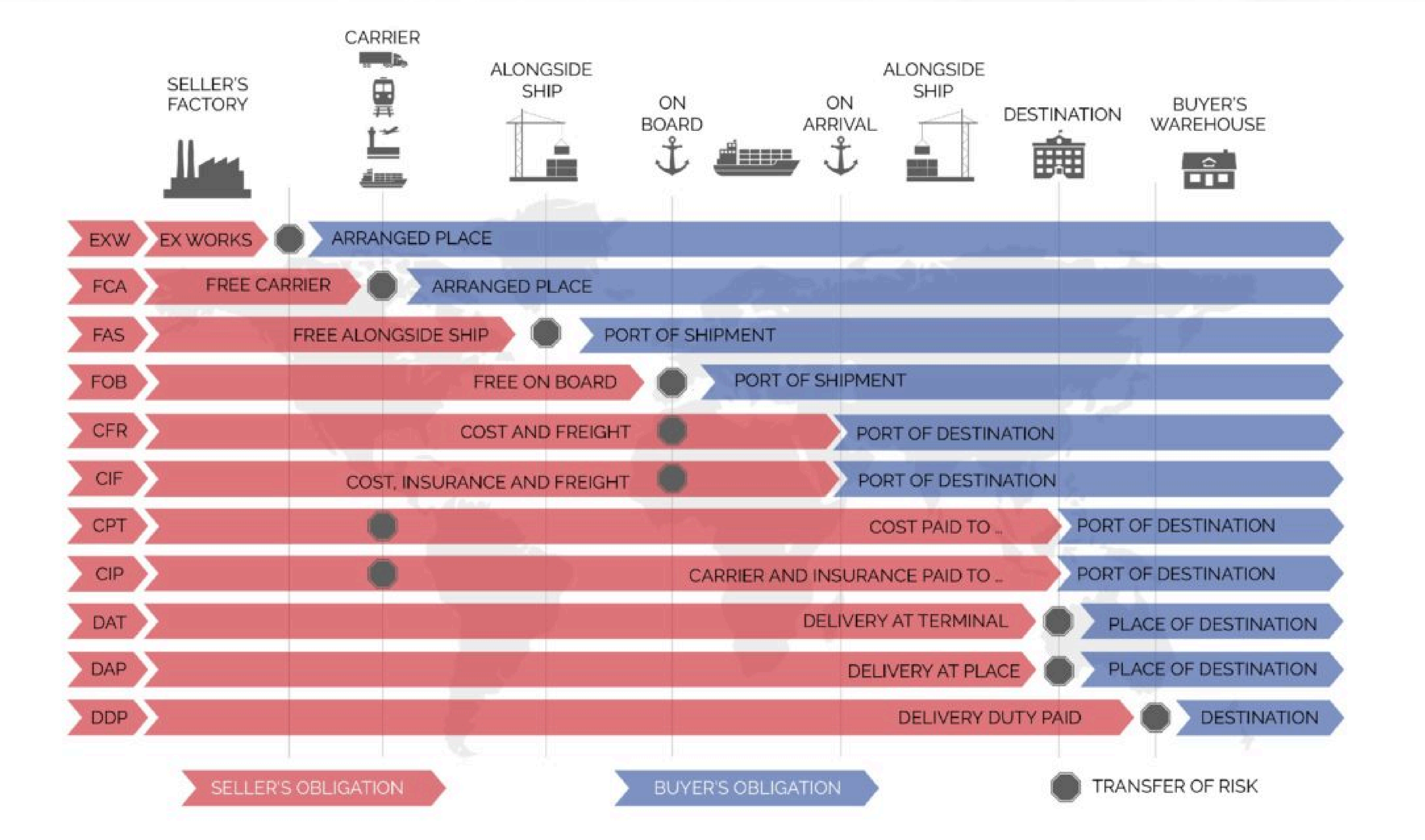


INSTITUTE CARGO CLAUSE

Institute Cargo Clauses (ICC A/B/C) are globally recognized insurance terms defining the extent of cargo coverage during transit. In the pharmaceutical supply chain, ICC (A) is most suitable, offering all-risk protection. It ensures financial security against loss or damage, especially for temperature-sensitive, high-value drugs transported across complex logistics networks.

Description of Risk	ICC A	ICC B	ICC C
Fire or explosion	✓	✓	✓
Stranding, grounding, capsize	✓	✓	✓
Overturning or derailment	✓	✓	✓
Collision or contact of vessel with external object	✓	✓	✓
Discharge at port of distress	✓	✓	✓
Earthquake, volcanic eruption or lightning	✓	✓	✗
General Average	✓	✓	✓
Jettison	✓	✓	✓
Washing overboard	✓	✓	✗
Entry of sea, lake, river water	✓	✓	✗
Rainwater damage	✓	✗	✗
Total loss of any package lost/dropped overboard	✓	✓	✗
General average and salvage charges	✓	✓	✓
Theft, pilferage and non-delivery	✓	✗	✗
Piracy	✓	✓	✗
Rough handling	✓	✗	✗
Contamination	✓	✗	✗
War/Strikes risk forwarding charges	✓	✗	✗

INCOTERMS ®



Incoterms® 2020 are internationally accepted trade terms that define the roles, responsibilities, and risk transfer points between buyers and sellers in global transactions. In pharmaceutical logistics, terms like CIF and CIP are crucial, as they specify which party arranges insurance and at what point the risk shifts during transportation.

RESULT AND FINDINGS

The study successfully identified key risks and vulnerabilities across each stage of the pharmaceutical supply chain—ranging from procurement and manufacturing to warehousing, transit, and delivery.
It was found that tailored insurance products such as marine cargo, cold chain liability, product liability, and recall insurance are critical in mitigating these risks.

Larger pharmaceutical companies proactively manage these vulnerabilities through structured insurance strategies, including the use of Incoterms® and Institute Cargo Clauses (ICC A/B/C). ICC-A emerged as the most suitable for pharmaceutical logistics due to its all-risk coverage, although cost remains a barrier for smaller firms. The findings reveal that the adoption of global insurance standards is more prevalent among large enterprises, whereas SMEs require greater awareness and support to enhance their risk coverage.

SUGGESTION

- Pharmaceutical companies should conduct regular insurance audits and adopt a risk-based approach to coverage.

- SMEs must be educated on the importance of comprehensive insurance, including cold chain, product recall, and cyber liability. .

- Collaborating with brokers to customize policies for each supply chain stage can ensure better protection and regulatory alignment.

CONCLUSION

A resilient pharmaceutical supply chain demands more than operational efficiency—it requires proactive risk management through comprehensive insurance planning. Insurance should be treated as a strategic investment, not an afterthought. By aligning policies with real-world risks, adopting global standards like ICC clauses and Incoterms®, and closing awareness gaps, especially in SMEs, companies can ensure regulatory compliance, financial stability, and uninterrupted access to life-saving medicines.

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THANK YOU

For your kind attention

A presentation on dissertation report

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