

PURCHASE OF STEEL FOR VACUUM INSULATED PIPE

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About Company



Cooler By Design.®

- Chart Industries is a company that designs and makes equipment for managing gases and liquids, like LNG, hydrogen and water.
- They have factories and service centres all around the world, working in 169 countries. Their products include storage tanks and VIP.



- Vacuum Insulated Pipe (VIP) is a specialized type of piping designed to efficiently transfer cryogenic liquids, such as liquid nitrogen, oxygen, hydrogen, or LNG, while minimizing heat transfer
- Stainless Steel is the most commonly used material for manufacturing Vacuum Insulated Pipes (VIPs) due to its excellent resistance to corrosion and its ability to perform well in low-temperature environments.
- 304 Stainless Steel: It provides a good balance between strength, durability and cost-effectiveness. Its versatility and resistance to corrosion make it suitable for most cryogenic applications.



Stainless Steel Suppliers

Baosteel (China)

Offers high-volume stainless steel production for industrial use.

Jindal Stainless (India)

A key player in producing stainless steel for cryogenic equipment.

Thyssenkrupp (Germany)

Known for providing corrosion-resistant and cryogenic-grade stainless steel

North American Stainless (USA)

Supplies high-quality 304 and 316 stainless steel for industrial pipelines.

Outokumpu (Finland)

A leading global supplier specializing in high-grade stainless steel, including grades like 304, 316 and 321.

VIP MARKET RESEARCH

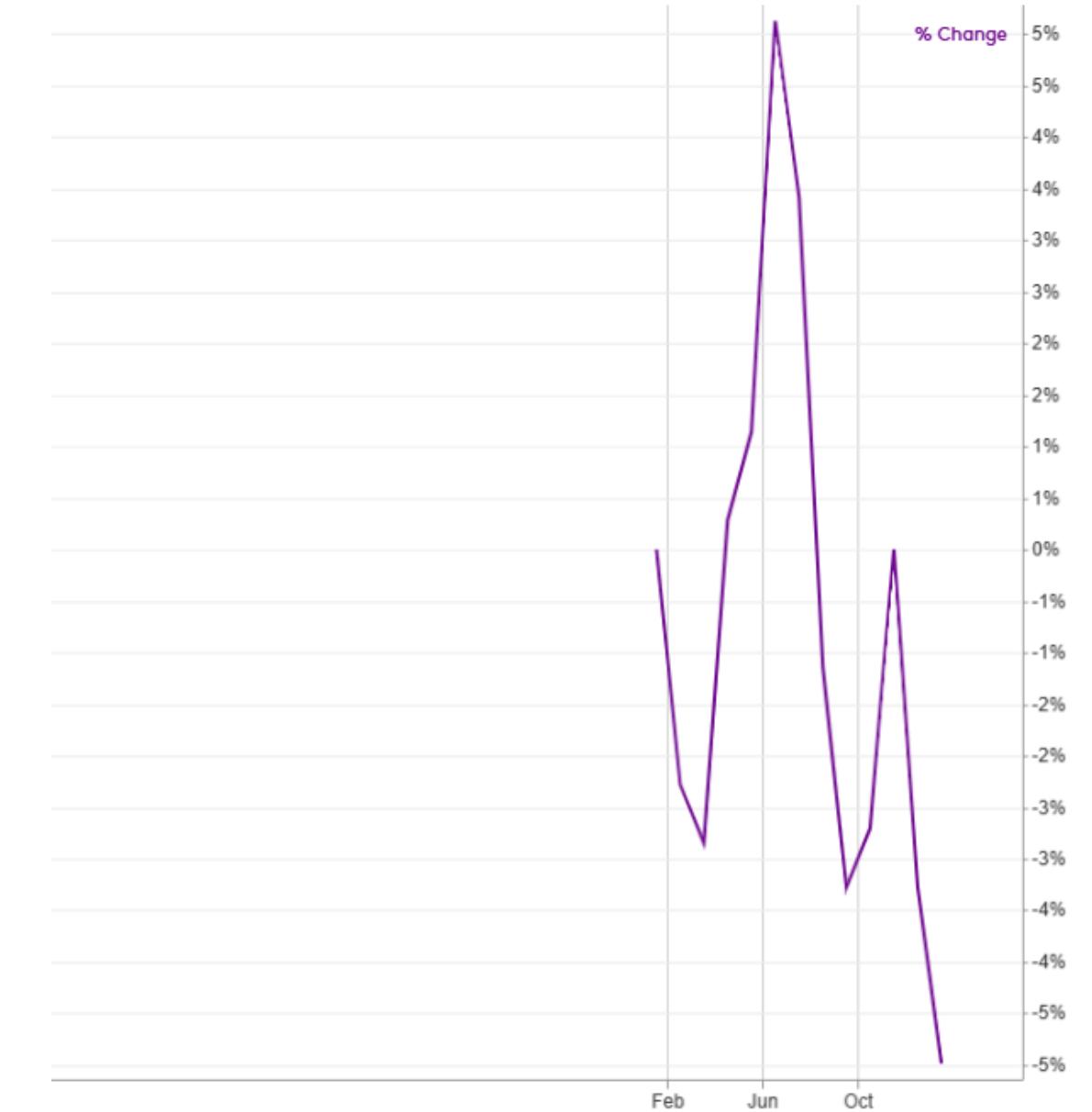
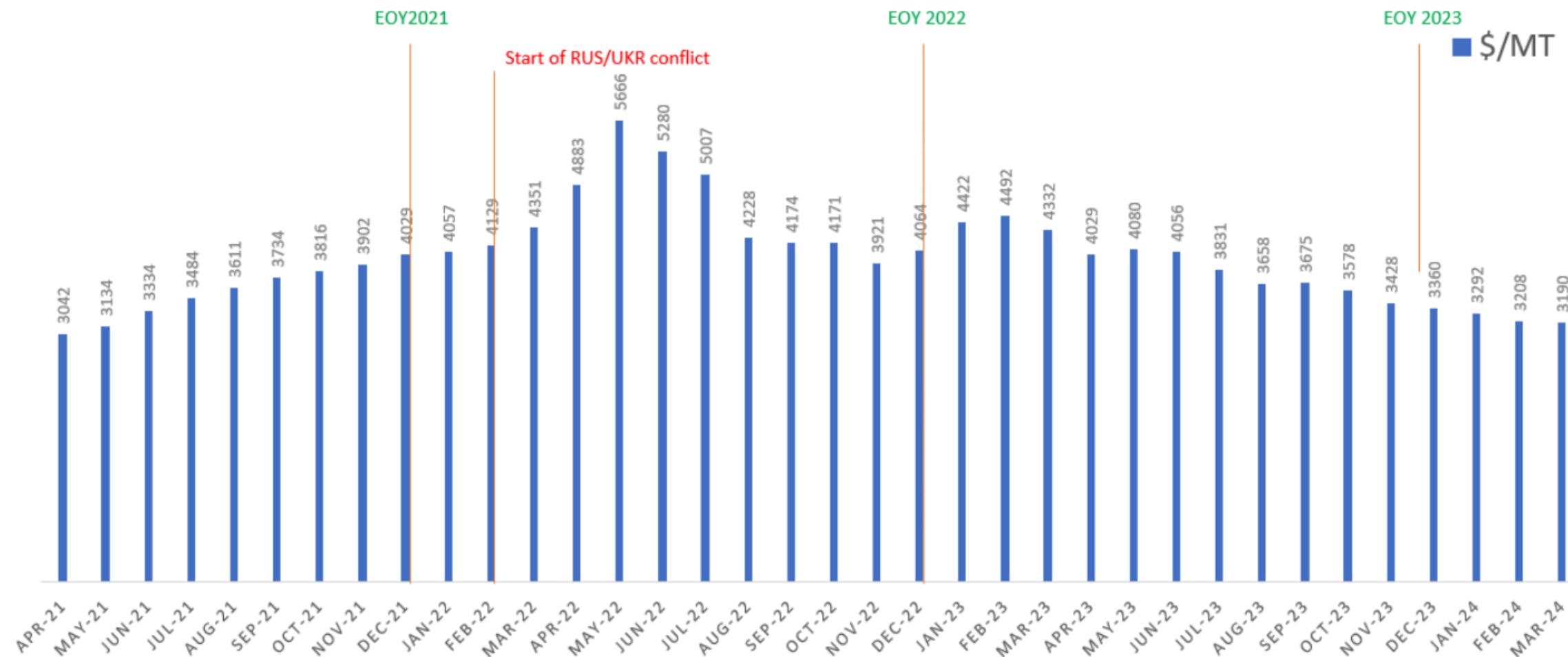


The Vacuum Insulated Pipe (VIP) market is projected to grow from \$1.2 billion in 2024 to \$2 billion by 2034, with a CAGR of 5.1% during 2025-2034.

The standard vacuum segment will surpass \$1 billion, while the cryogenic vacuum segment is expected to grow at a 4.5% CAGR.

STAINLESS STEEL PRICE

US - Stainless Steel 304 - Hot Rolled Coil



STAINLESS STEEL PRICE

Price Fluctuations (2021-2024): Prices started at \$3,042/MT in April 2021 and showed a steady rise, peaking in mid-2022. Prices then gradually declined towards \$3,190/MT in March 2024.

Impact of Global Events: The Russia-Ukraine conflict in early 2022 led to a sharp price increase, with prices reaching over \$5,566/MT by June 2022.

Peak Pricing: The highest recorded price was in June 2022 at \$5,566/MT, influenced by supply chain disruptions and geopolitical instability.

Recent Trends: After the peak in 2022, prices have steadily declined, reflecting market stabilization and better supply chain conditions into 2024.

Identification of the RISK, main cause and main consequences

Exchange Rate Risk

- **Cause:** Currency fluctuations from global economic changes and speculation.
- **Impact:** Increased costs, budget uncertainty, reduced profit margins.

Price Volatility Risk

- **Cause:** Demand-supply shifts, speculation, geopolitical factors.
- **Impact:** Cost fluctuations, renegotiation with suppliers, pricing instability.

Supply Chain Disruption Risk

- **Cause:** Transport delays, geopolitical tensions, supplier issues.
- **Impact:** Delays, loss of trust, inefficiencies, missed deadlines.

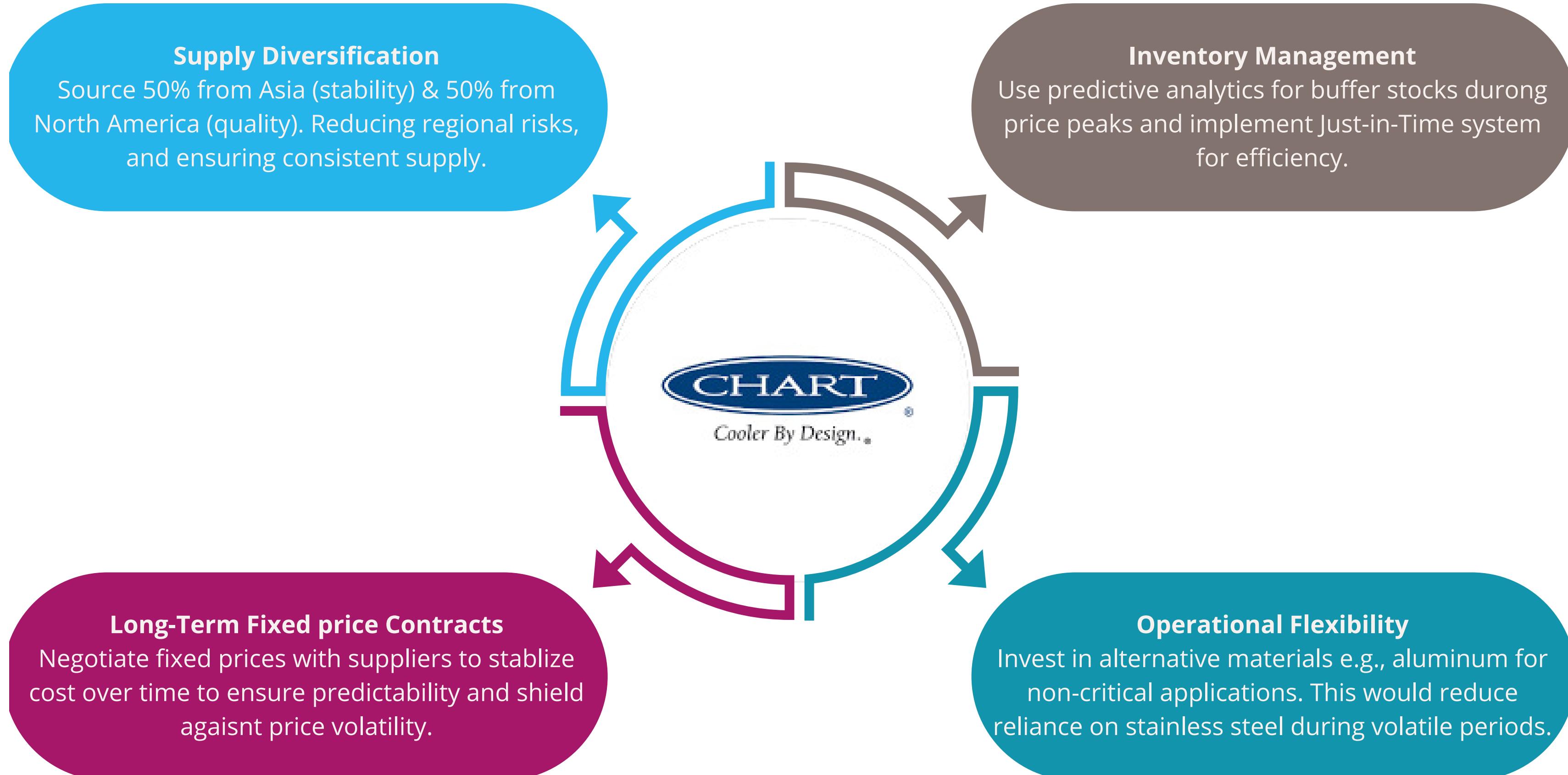
Regulatory & Geopolitical Risk

- **Cause:** Tariffs, sanctions, export restrictions, regulations.
- **Impact:** procurement costs, compliance challenges, sourcing difficulties.

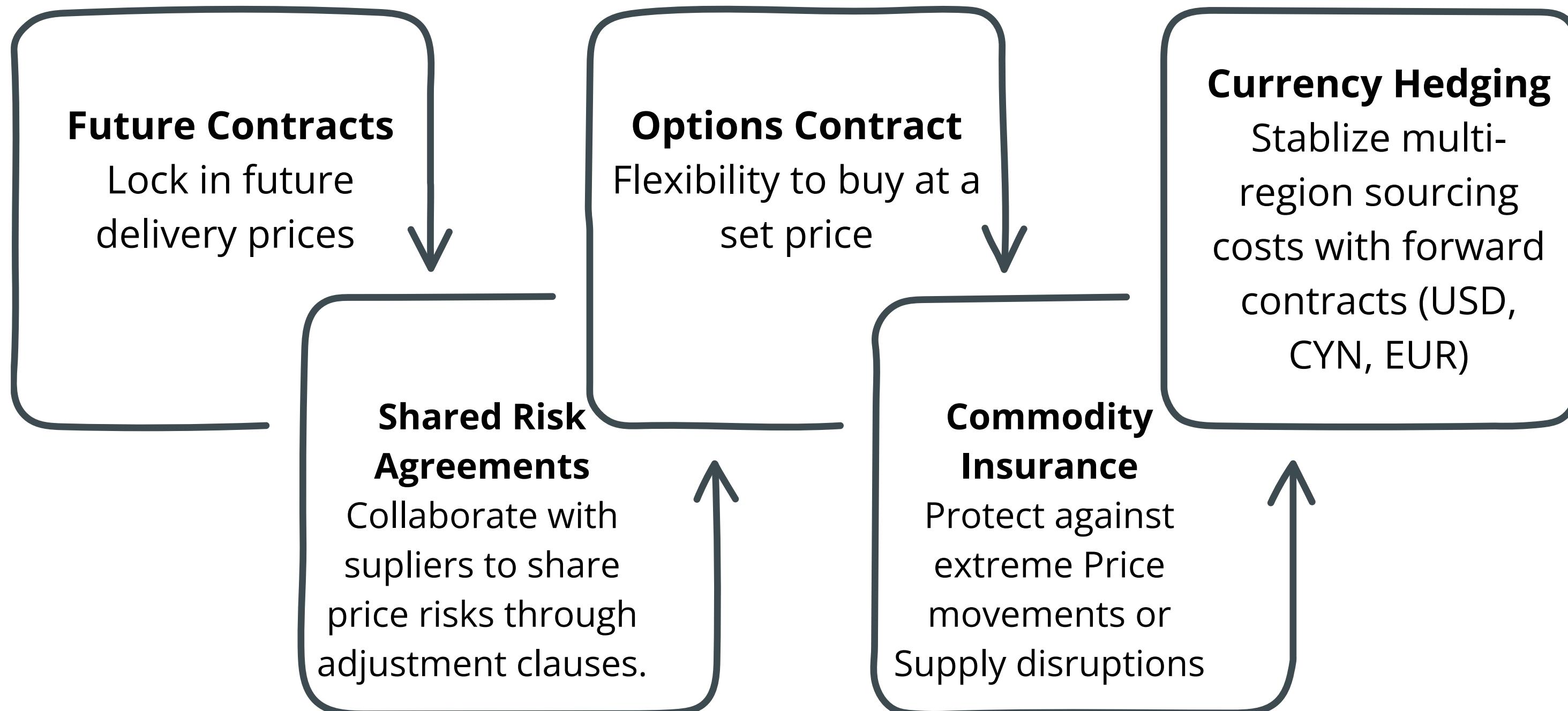
Operational Risk

- **Cause:** Inefficient processes, poor forecasting, manual operations.
- **Impact:** Cash flow issues, Overstocking or under stocking, inefficiencies.

INTERNAL STRATEGIES



EXTERNAL STRATEGIES



STAINLESS STEEL PRICE

Case Study: Strategic Procurement of Cold Rolled Coil 316 Stainless Steel for Vacuum Insulated Pipes (VIPs)

1. Procurement Plan

- Core Quantity: 100 tonnes to meet immediate production needs.
- Contingency Reserve: 20 tonnes secured via a call option for flexibility against unforeseen demand surges.
- Rationale: Ensures uninterrupted supply and provides operational agility crucial for VIP production.

2. Timeline

- Shipping Date: January 21, 2025.
- Delivery Date: February 24, 2025.
- Importance:
- Seasonal Alignment: Matches the company's production cycle, ensuring timely replenishment of inventory.
- Buffer for Disruptions: The 4-week lead time accounts for potential transit delays, maintaining operational continuity for VIP manufacturing.

STAINLESS STEEL PRICE

3. Agreed Pricing and Financial Terms

Futures Contract for 100 Tonnes:

- Price: Secured at \$2,115/tonne via the Shanghai Futures Exchange (SHFE).
- Rationale: Protects against price volatility during procurement, ensuring predictable costs for critical VIP materials.

Call Option for 20 Tonnes:

- Strike Price: \$6,700/tonne, expiring February 28, 2024.
- Purpose: Allows the company to purchase additional material if needed, without the obligation to commit upfront.

Payment Terms:

- 30% Upfront (January 19, 2025): Secures supplier commitment and prioritizes production scheduling.
- 70% Final Payment (February 24, 2025): Maintains financial liquidity and aligns with operational timelines.

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4. Supplier Strategy

50% Sourced from Asia:

- *Rationale:* Stable pricing policies and robust supply chains make Asia a cost-effective option for large-volume orders.
- *Benefit:* Ensures affordability and availability for VIP production.

30% Sourced from North America:

- *Rationale:* Superior material quality and shorter transit times.
- *Benefit:* Reduces delivery risks and ensures high production standards critical for VIP manufacturing.

20% Sourced from Europe:

- *Rationale:* Access to advanced technology and specialized suppliers ensures precision engineering and innovative solutions.
- *Benefit:* Enhances product innovation and reliability, providing a competitive edge in VIP production.

STAINLESS STEEL

Stainless steel can be classified by chemical composition into Cr-Mn-Ni, Cr-Ni, and Cr variants, which corresponds to AISI's 200 series, 300 series, and 400 series respectively. For its outstanding corrosion, thermal, and cold resistance, stainless steel is widely used in kitchenware, household appliances, and mechanical manufacturing.

[Futures](#)
[Product Manual →](#)

Business Data

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Stainless Steel Futures Contract

Stainless steel futures was listed on September 25, 2019. Standard deliverables are cold-rolled austenitic 304 stainless steel coils that are 2.0 mm thick and 1,219 mm wide with 2B surface finish and trimmed sides.

Contract	Trading	Settlement	Delivery		
Trading Day:2025-01-22 Update:2025-01-21 20:31:09					
Contract Code	Listing Date	Expiration Date	First Delivery Day	Last Delivery Day	Benchmark Price
ss2502	20240220	20250217	20250218	20250219	13745
ss2503	20240318	20250317	20250318	20250319	13870
ss2504	20240416	20250415	20250416	20250417	14125
ss2505	20240516	20250515	20250516	20250519	14410
ss2506	20240618	20250616	20250617	20250618	14500
ss2507	20240716	20250715	20250716	20250717	14495

STAINLESS STEEL PRICE

5. Insurance and Currency Hedging

Shipping Insurance:

- *Coverage:* Protects against transit delays, weather disruptions, and geopolitical risks.
- *Benefit:* Minimizes financial loss and ensures production continuity for high-value VIP components.

Currency Hedging:

- *Method:* Forward contracts stabilize exchange rates across USD, CNY and EUR.
- *Benefit:* Shields against currency volatility, ensuring procurement costs align with budget forecasts.

STAINLESS STEEL PRICE

6. Risk Mitigation Techniques

Supply Chain Diversification:

- Balancing procurement between Asia and North America reduces dependency on a single region or supplier.
- *Benefit:* Protects against localized disruptions like geopolitical conflicts or regulatory changes.

Logistics Partnerships:

- Established partnerships ensure efficient handling of shipments and timely delivery.

STAINLESS STEEL PRICE

7. Strategic Benefits

Cost Stability:

- The futures contract locks in predictable pricing, protecting against volatile raw material markets.

Flexibility:

- The call option ensures the company can respond to unexpected demand without financial overcommitment.

Operational Resilience:

- Diversified sourcing and robust insurance policies ensure continuity despite potential disruptions.

Risk Mitigation:

- Currency hedging and insurance safeguard against financial and logistical risks.

Enhanced Supplier Relationships:

- Upfront payments and strategic contracts strengthen partnerships, ensuring favorable terms and priority access during critical VIP production periods.



Thank you!



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