ROOT CAUSE ANALYSIS

Problem:

Despite the implementation of the real-time supply chain visibility platform, users report that shipment tracking updates are delayed by several hours, causing operational inefficiencies, missed delivery deadlines, and customer dissatisfaction.

Root Cause Analysis Using 5 Whys Technique:

1. Why is shipment tracking information delayed in the system?

- The system is receiving updates from external carriers only once every 6-8 hours.

2. Why are updates from external carriers being received infrequently?

- External carriers are sending batch updates instead of real-time updates via API integration.

3. Why are carriers sending batch updates rather than real-time updates?

- Some carriers’ legacy systems are not fully compatible with the API requirements of the new visibility platform, so they resort to batch processing.

4. Why are the carriers' systems incompatible with the API requirements?

- During the integration phase, not all carriers' system capabilities were assessed thoroughly, and their legacy limitations were overlooked.

5. Why were the carriers' system limitations overlooked during the integration phase?

- The initial requirements gathering and stakeholder engagement processes focused mainly on internal systems, without a comprehensive assessment of external partner systems, especially smaller carriers.

Root Cause:

The root cause of the shipment tracking delays is the incomplete assessment of external carriers' system capabilities during the integration phase. The real-time visibility platform’s API requirements were not compatible with all carriers' systems, leading to reliance on batch updates.

Detailed Root Cause Analysis (Ishikawa Diagram):

1. **People:**
    a. Lack of adequate collaboration with all external partners during the initial integration phase.
    b. Insufficient training or technical support provided to the carrier partners to adopt real-time API updates.
2. **Process:**
    a. Incomplete requirements gathering process, focusing primarily on internal systems and

neglecting thorough evaluation of external carrier systems.

b. No fallback mechanism or alternative process in place to handle carriers with legacy systems that are unable to provide real-time data.

3. **Technology:**
    a. Some carriers operate legacy systems that do not support real-time API integration, leading to batch updates.
    b. The platform’s API design didn’t include flexible configurations for carriers with varying technical capabilities.
4. **Data:**
    a. Data exchange occurs in batch processing due to the incompatibility of API standards between the platform and certain carrier systems.
    b. No data validation mechanisms to flag outdated or delayed information from carriers, resulting in operational inefficiencies.

5. **External Factors:**
    a. Limited technical resources and investment by smaller carriers to upgrade their systems for real-time API integration.
    b. Regulatory and compliance constraints might also restrict smaller carriers from upgrading their systems.

Steps to Address and Resolve the Problem:

1. **Conduct a Comprehensive Reassessment of Carrier Systems:**
    a. Re-engage all external partners (suppliers and carriers) to assess their system capabilities thoroughly.
    b. Identify which partners are using legacy systems that cannot support real-time API updates.
2. **Implement Flexible API Configurations:**
    a. Redesign the platform's API to support both real-time and batch processing for carriers unable to send real-time updates.

b. Ensure that the platform can differentiate between real-time and batch updates and flag delays to internal users.

3. **Provide Carriers with Technical Support and Solutions:**
    a. Offer carriers technical guidance and support to upgrade their systems for real-time API integration.
    b. Where upgrading is not feasible, work with the carriers to minimize batch update intervals (e.g., from 6-8 hours to 1-2 hours).
4. **Establish Fallback Mechanisms:**
    a. Implement fallback mechanisms, such as manual overrides or alternate data sources, for critical shipments where real-time updates are essential.
    b. Notify internal users when real-time updates are not possible and provide the latest available data with timestamp annotations.
5. **Enhance the Data Validation Process:**

a. Set up data validation rules within the platform to flag outdated or inconsistent information.
b. Provide alerts to users when delayed shipment updates are received, allowing for better operational planning.

6. **Improve Communication with External Partners:**
   a. Establish continuous communication channels with suppliers and carriers to ensure they remain aligned with system requirements and performance expectations.
   b. Set up periodic review meetings to address any ongoing integration issues and update partners on technological advancements.

The delay in shipment tracking updates is a result of incomplete system integration with external carriers, many of whom rely on legacy systems incompatible with the platform's API requirements. Addressing the root cause involves a comprehensive reassessment of external partner systems, flexible API configurations,

technical support, and improved communication with partners. By implementing these solutions, the platform can achieve real-time supply chain visibility across all partners and improve overall operational efficiency.