



School: Campus:

Academic Year: Subject Name: Subject Code:

Semester: Program: Branch: Specialization:

Date:

Applied and Action Learning (Learning by Doing and Discovery)

Name of the Experiment :Build a Use Case – Tokenized Supply Chain

* **Coding Phase: Pseudo Code / Flow Chart / Algorithm**

Introduction:

1. Participants Identification:

Define all key stakeholders involved in the supply chain — **Manufacturer, Supplier, Transporter, Distributor, Retailer, and Customer.**

2. Token Generation:

Create **digital tokens** to represent goods or product batches. Each token includes essential details such as **Product ID, origin, and value.**

3. Smart Contract Configuration:

Deploy **smart contracts** to manage token transfers, trigger **payment settlements**, and verify **product conditions** throughout the supply chain.

4. Product Registration:

The **manufacturer** registers each product on the blockchain by assigning **unique tokens** that digitally represent the shipped items.

5. Tokenized Transfer Across Supply Chain:

As the product moves through various stages, **ownership of tokens** is transferred between participants — from **Manufacturer → Supplier → Transporter → Distributor → Retailer → Customer.**

6. Verification and Validation:

Each transaction is **validated by the blockchain network**, ensuring **authenticity, traceability**, and the **prevention of double-spending** of tokens.

7. Automated Settlement:

Upon successful delivery to the customer, **smart contracts automatically release payments** to the respective stakeholders based on predefined conditions.

8. Immutable Record Maintenance:

All **transactions and transfers** are securely recorded on the **blockchain ledger**, ensuring **transparency, traceability, and tamper-proof audit trails.**

* **Softwares used**

1. Chrome Web Browser
2. Tokenization Website

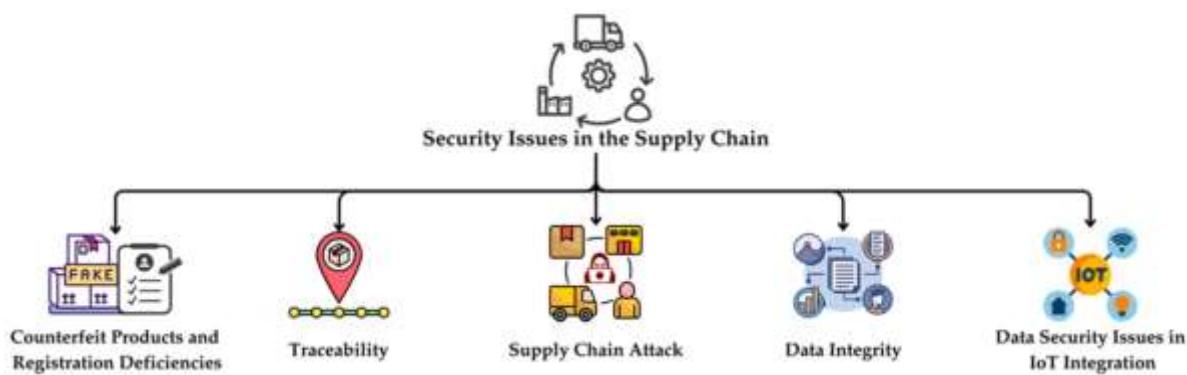
<https://www.antiersolutions.com/blogs/tokenization-of-supply-chain-and-inventory-management-the-future-of-transparent-commerce/>

* Implementation Phase: Final Output (no error)

Benefits of Supply Chain Tokenization:

1. Ensures **end-to-end transparency** by giving every product a verifiable digital identity on an immutable ledger.
2. **Eliminates manual paperwork** and delays by automating transactions through smart contracts.
3. **Reduces processing time** by up to 80% via automated payments and compliance checks.
4. **Enhances liquidity** for SMEs by enabling tokenized assets to be used as collateral or traded instantly.
5. Promotes **trust, efficiency, and financial flexibility** across the entire supply chain network.

Asset Tokenization Process - Essential Steps



Overcoming Implementation Challenges:

1. Encourage adoption through **pilot programs, phased rollouts**, and focus on **high-value, high-risk industries** for quick ROI.
2. Tackle scalability by adopting **Layer 2 solutions, sharding, and hybrid blockchain architectures**.
3. Manage regulatory uncertainty by **collaborating with compliance experts** and **engaging regulators proactively**.
4. Build **flexible, future-ready systems** that adapt to evolving legal and operational requirements.

*** Observations**

1. Tokenization greatly enhances **transparency and trust** across the entire supply chain.
2. **Automation through smart contracts** significantly reduces delays and manual inefficiencies.
3. Successful adoption depends on **scalability, regulation readiness, and stakeholder collaboration**.

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	50		

Signature of the Student:

Name :

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Signature of the Faculty: