Driving Global Trade Success with ERP-Enabled Inter-Company Operations

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ABSTRACT

This paper talks about the possibilities of better business process in global trade. Multi-national business organizations design, manufacture and sell their products across different regions in the world. During the logistics and distribution business process organizations failed to optimize the process and end up paying more on taxes. This paper presents one of the most effective and recommended business process approach in an ERP landscape, highlights its potential benefits and complexities. SAP is a leading ERP product for providing flexibility in advanced business process. Global trade is a complex business process for goods transfer between 2-company codes and 3- company codes business scenario.

General Terms

Supply Chain Logistics, Distribution Center, Warehouse, Carrier/Shipper, Consignment Stock, Unrestricted Stock, Blocked Stock, Free Trading Zone.

Keywords

ERP, EDI IDoc, Inbound logistics, Outbound logistics, Inter-Company Transfers (2- Co.cd & 3- Co.cd), SAP, SCM, TMS, BRF+, Transfer Price, Global Trade Management.

1. INTRODUCTION

In today's global business landscape, organizations operate across countries and continents. Products are sourced from different regions and sold globally. This creates the need for a highly efficient supply chain with enhanced visibility and healthy profit margins. This paper will discuss a key business process that organizations can leverage for global trade benefits [5].

Traditionally, companies purchase goods locally and sell them with a profit margin. For example, if Company A buys a product for $100 (after import tax), adds a $100 profit margin, the final sales price becomes $200. The company must pay taxes on that $100 profit margin.

However, a different approach can bring tax benefits. When a group company in a Free Trade Zone [7] procures product, the profit margin is added within that zone. This allows the organization to avoid taxes on the profit margin, creating a tax advantage and improving overall profitability [6]. This process allows organizations to increase profitability while optimizing their global supply chain strategy.

2. BUSINESS PROCESS & SYSTEM DESIGN

In this step, design a solution for the proposed business process. Identify all stakeholders involved, including the logistics business team, finance teams, vendors, carriers, warehouse teams. Additionally, IT teams responsible for various system setups will be engaged. These IT teams will cover areas such as master data management, logistics execution, materials management, sales and distribution and transport management [8].

3. DEFINE PROCESS

Draw a high-level proposal flow diagram to outline the proposed business process. This should map the logistic flow of a goods shipment, from procurement to till it reaches the end customer. A detailed discussion with all relevant stakeholders will help finalize the process. At this stage, the primary focus is on the business finance team, materials management and logistics execution teams [10].

Key questions to address include [1]:

- How to handle procurement?
- What could be the stock type?
- Who will own the stock and the responsibility at each stage of the shipment?
- What are all the relevant documents required for border crossing?
- Are there any import or custom taxes on the products? If so, what percentage?
- Are there any region-specific customs clearance documents needed?
- Identify the transfer price of the product when it transfers from group company codes to local company codes. Pricing of the product in local company code based on the market conditions.
- When will the stock conversion happens? Etc.,

Once all the key points addressed and business inputs are gathered, prepare a basic flow diagram covering i) Procurement of consigned (K) stock for group company code, ii) Transfer of stock from group company code to local company code, iii) Carrier determination for the shipment iv) Handover of goods to carrier, v) Delivery to the final destination [2][10].

4. HIGH-LEVEL FLOW DIAGRAM

The first part of the flow diagram illustrates the movement of goods from procurement to the final destination. In this scenario, a local company code purchases goods from a foreign vendor. The product's purchase price, including import tax, is $100. By adding a profit margin of $100, the sales price becomes $200. In this case, the local company code has to pay a tax on entire profit gain of $100.

The second part of the flow diagram presents an optimized approach. A group company code, established in a region with free trade zones or lower corporate tax countries (e.g., few EU region countries), purchases the same product. The product's base cost, including import tax, remains $100. An additional profit margin of $90 is added at the group company code level, making the sales price $190. This sales price becomes the purchasing price for the local company. By adding a smaller profit margin of $10, the final sales price in the local company code reaches $200.

In this structure, the local company code only pays tax on smaller profit margin of $10, while the group company code pays a lower tax on the larger profit margin of $90, resulting in overall tax-efficient process [4].
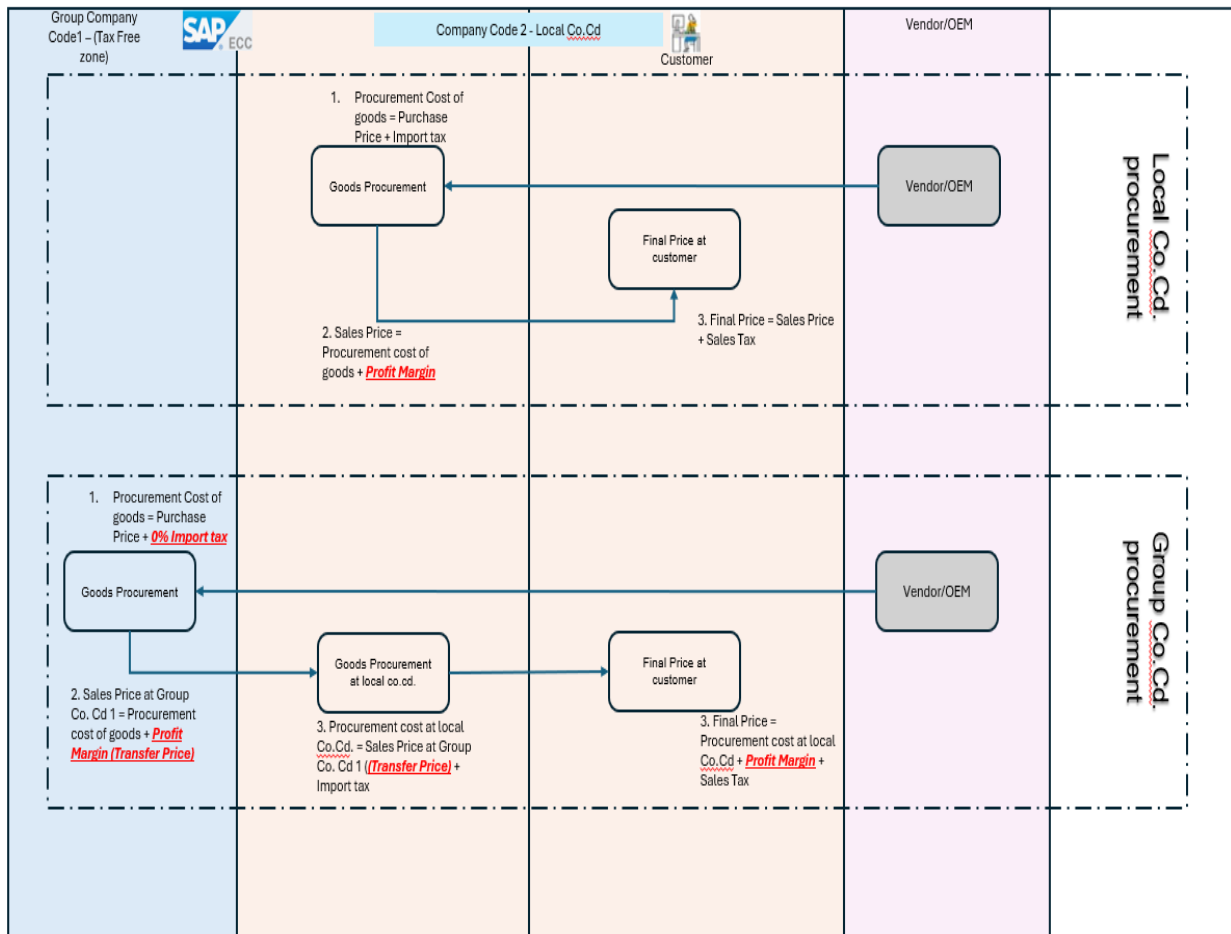
Fig 1: Local Co. Cd. Procurement vs Group Co. Cd Procurement

5. DEFINE SYSTEMS

The next step is to identify the required systems based on the data flow, covering the entire process from procurement order creation to final delivery. This includes all logistics-related systems used by key stakeholders such as warehouses (plants), carriers, and third-party integration software.

Warehouses managing Consigned (K) stock may leverage systems like SAP EWM, MAWM, or other warehouse management solutions [1]. Carriers responsible for shipping goods from warehouse to customer premises need to be integrated, as well as customs agent who are involved processing custom clearance documents when moving the goods between borders [5][9]. Most of the systems typically use web-based applications, often supported by integration tools such as SAP PI, ALE IDOC, EDI Idoc, file transfers, or simple XML file exchanges [8].

A critical interface requiring enhancement in this business process is the EDI IDoc 940. This interface facilitates the Transfer Price of the product to warehouse, while transitioning goods from the group company code to the local company code. It is a conversion of stock from 'Consignment' to 'Unrestricted use' and transfer of goods from group company code to local company code [9].

Transfer Price: - This refers to the updated price of the product, which includes the profit margin added to the purchase price within the group company code before being transferred to the local company code [3].

List down of systems involved (Here SAP ERP used as an example) [Fig 1].

Process/Data	System
Material Master	SAP ECC
Vendor Master	SAP ECC
Customer Master	SAP ECC
Web Order	Online Website
Sales Order	SAP ECC
Delivery	SAP ECC
Purchase Order	SAP ECC
Goods Receipt	SAP ECC
Invoice	SAP ECC
Warehouse Order	SAP EWM, WM or 3rd Party WMS
Communication	EDI – IDoc1
Middleware	WebMethods / SAP PI

5.1 Main points to be considered

- All key stake holders should involve in designing the solution for the business process to ensure alignment and clarity.
- Conducting a high-level process flow discussions and playback sessions with business stakeholders is crucial for identifying and addressing any design gaps early on.
- Integration points and triggers should be clearly defined for each system to enable seamless and efficient data flow across platforms.

- Robust protocols and security models are required when integrating external systems. This ensures data security and compliance with industry standards.

products, while picking strategies ensure efficient retrieval of goods for shipment based on sales orders received from the ERP system [10][9][2].
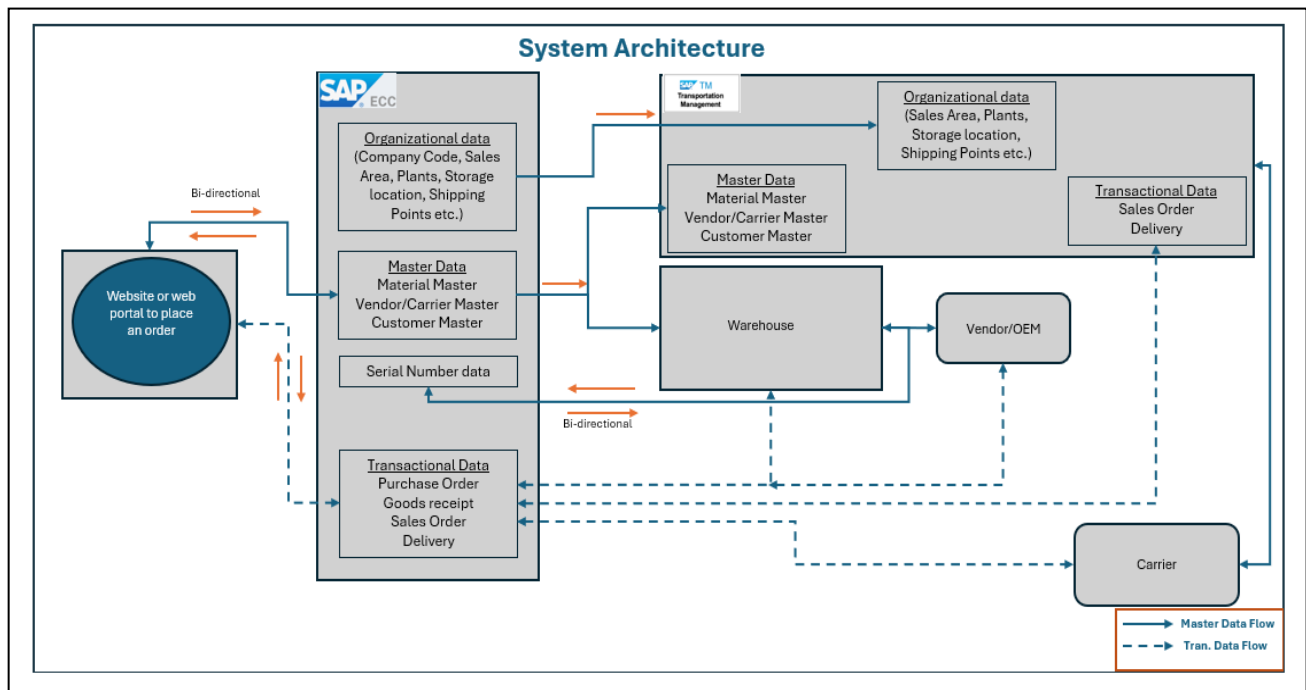

Fig 2: System Architecture

5.2 System Architecture

The Central ERP application (e.g., SAP) serves as the primary system for managing master data and transactional data. It acts as the single source of truth. It houses complete product master data, covering all aspects from purchasing, sales, production, MRP, warehouse operations, inter - International trade (import/export), to quality management. This critical data shared with other systems based on their specific needs [Fig.2].

Similarly, Other master data for vendors, customers, and organization structures are distributed across connected system to ensure consistency and alignment throughout the enterprise.

Transport Management Systems (TMS) play a pivotal role in logistics. TMS maintains carrier information and real-time carrier pricing. It communicates key master data with core ERP system, such as source and destination locations, shipment sizes, and quantities. TMS assists in selecting the most efficient route and carrier by analyzing real-time data, including carrier rates. Once a carrier is determined, this system updates the carrier information in the partners tab of the sales order or purchase order [11].

Logistics execution works in tandem with TMS, proposing shipment stages if required and generating freight orders for the chosen carrier [11][2].

Warehouse management systems when integrated with the core ERP system (e.g., SAP EWM, SAP WM, MAWM), receive master data, including serial number information and other organizational data. Transactional data, such as purchase orders, are sent to the warehouse system, triggering internal processes to store physical goods. Put away strategies are used to identify optimal bin locations for storing

6. BUSINESS SCENARIO - PROCESS FLOW [Fig.3]

The process begins with a cross-company consignment order initiated by a group company for a local plant (warehouse under local company code) [2][1].

i. **Cross-company consignment PO:** A purchase order will be created to hold consigned stock at local warehouse.
ii. Vendor/OEM stores the consigned stock in the local warehouse. **At this stage, the Stock is still owned by the vendor**.
iii. When a customer places a sales order, it generates demand in the local warehouse.
iv. The warehouse will fulfill the sales order demand by transferring the stock from consigned stock to unrestricted stock and shipping the goods to customer. **Stock ownership changes from vendor to own stock [10].**
v. A material document needs to be created with a custom movement type to convert the consigned stock from vendor to own stock.
vi. After the goods are shipped, the customer receives the invoice.
vii. An end of day purchase order will be created for the consumed consigned stock, which will be sent to the vendor at group company code level.
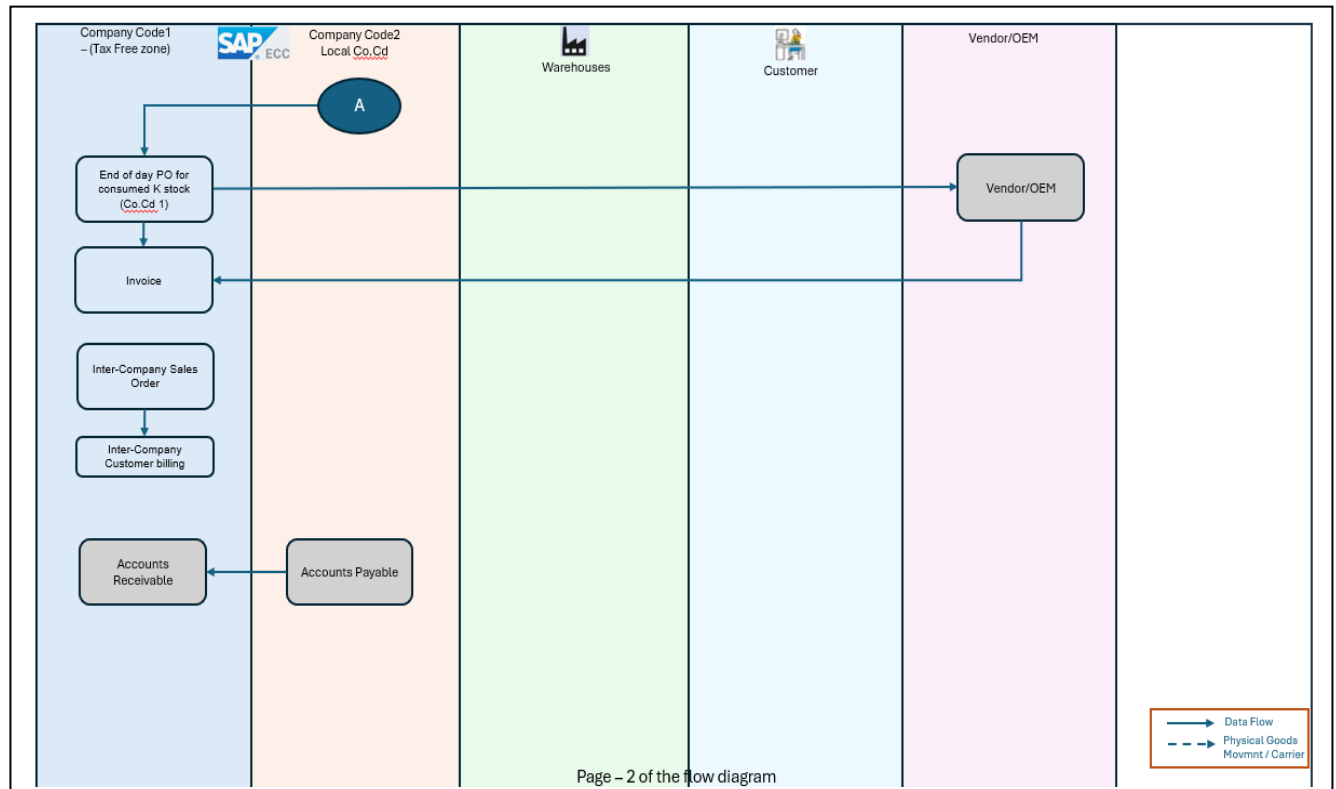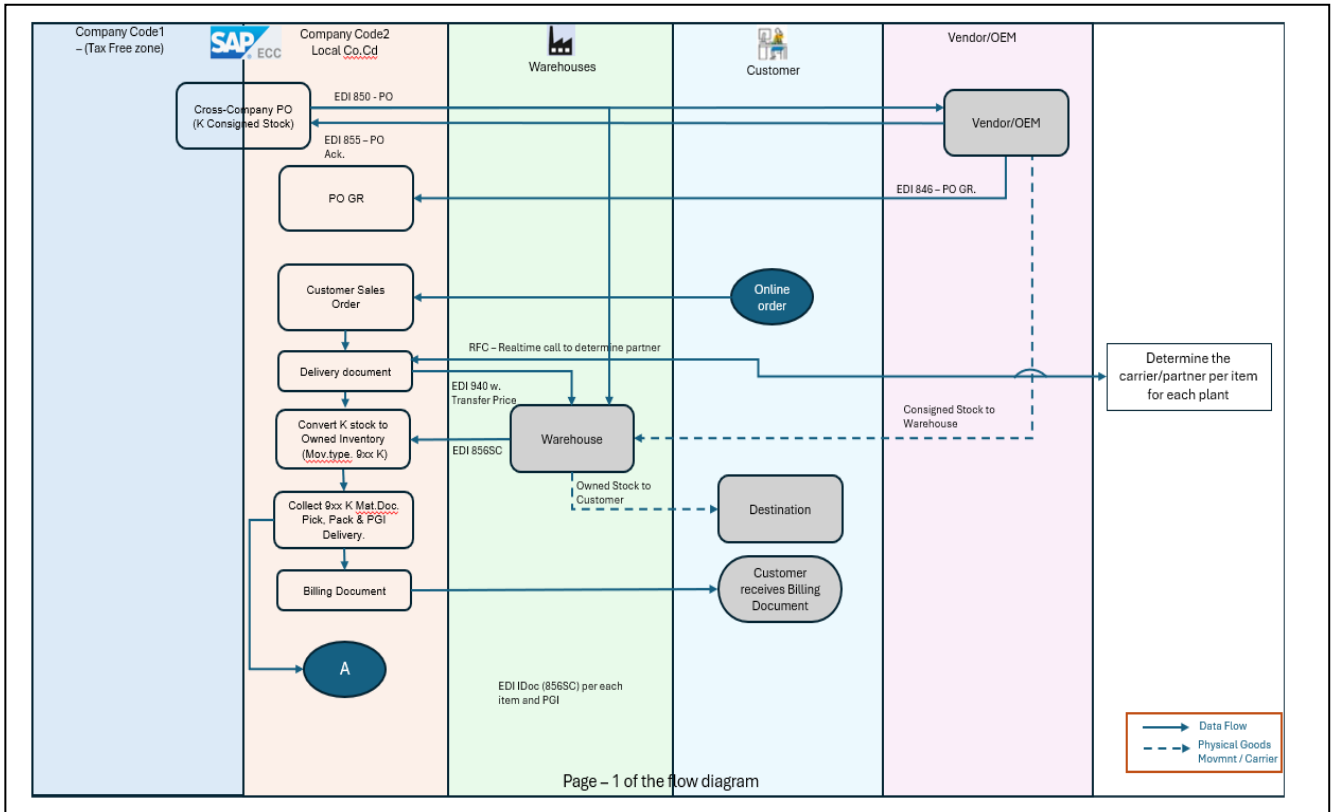
Fig 3: Business Process Flow Diagram

viii. The vendor invoices the group company code for the consumed consigned stock.

ix. An Inter-company settlement by Inter-Company Sales Order (ICSO) will be created between the group company code and the local company code to settle the transaction. The sale price reflects the profit margin added at the group company code level.

x. **Corporate Tax:** This business process helps optimize corporate tax by leveraging inter-company transactions and profit margins between the group and local company codes [4][3].

7. CONFIGURATION STEPS (Ex: SAP ERP)

These steps highlight the required configuration to achieve the business process. Regular configuration will remain as per standard SAP configuration [2][3][8][9][10].

7.1 Create a virtual plant

Create a virtual plant under group company code.

End of day Purchase order for vendor settlement will be created using virtual plant (End of day purchase order will have all consumed consigned stock at local company code plant).

Transaction Code	SPRO
IMG Menu	SAP Customizing Implementation Guide -> Enterprise Structure -> Definition -> Logistics – General -> Define, copy, delete, check plant

7.2 Create a Purchase Organization

- Create a standard purchase organization

End of day Purchase order for vendor settlement will be created using the standard purchase organization.

- Create a consigned purchase organization for creating a consigned purchase order.

Cross-company Purchase order will be created using the consigned purchase organization for a local company code plant.

Transaction Code	SPRO
IMG Menu	SAP Customizing Implementation Guide -> Enterprise Structure -> Definition -> Material Management -> Maintain Purchase organization

7.3 Assign Purchasing Organization to Plant

- Assign a standard purchase organization which is responsible for regular procurement, can be assigned to group company code virtual plant.

- Assign a consigned purchase organization which is responsible for procuring consignment stock, can be assigned to local company code plant.

Transaction Code	SPRO
IMG Menu	SAP Customizing Implementation Guide -> Enterprise Structure -> Assignment -> Materials Management -> Assign Purchase Organization to Plant

7.4 Source list – IMG Activity

- Maintain source list for the virtual plant.
- Maintain source list for the local company code plant.

Transaction Code	ME01
SAP Easy Access	SAP Menu -> Logistics -> Materials Management -> Purchasing -> Master Data -> Source List -> Maintain (ME01)

7.5 Purchase Info Record

- Maintain Standard Purchase Info record for purchasing price from vendor.
- Similarly, Maintain Consigned Purchase Info record.

Transaction Code	ME11
SAP Easy Access	SAP Menu -> Logistics -> Materials Management -> Purchasing -> Master Data -> Info Record -> Create (ME11)

7.6 Create a custom movement type (9xx)

- Custom movement type is required to convert the consigned stock to own stock. We can use standard movement type 411K as a reference.

This movement type will be used to create a material document for stock conversion.

Transaction Code	SPRO
IMG Menu	SAP Customizing Implementation Guide -> Materials Management -> Inventory management and Physical Inventory -> Movement Types -> Copy, Change Movement Types

7.7 Inter-Company Sales Order and Inter-Company Billing

Standard configuration can be used to create a Inter-Company Sales order for inter-company settlement.

8. BUSINESS USE CASE: LEVERAGING GLOBAL TRADE BUSINESS PROCESS FOR CORPORATE TAX SAVINGS ACROSS INDUSTRIES

Business organizations from various sectors – such as consumer electronics, medical and automotive, can optimize their global trade operations to reduce tax liability by strategically utilizing the group company codes in low-tax or tax-free zones. This process enables higher profit margins while ensuring compliance with local tax regulations.

- **Consumer electronics** – A global consumer electronics company can establish a group company in a low corporate tax countries such as Ireland, UAE etc., They can procure goods from vendors across the globe and sells them to local company codes in Europe, the Middle East and Africa (EMEIA). Profit margins are realized at the group company level, where the corporate tax rate is lower. This results in significant tax savings while maintaining competitive pricing in local markets.
- **Medical Sector –** A multinational medical device company can purchase medical equipment and pharmaceuticals from manufacturing companies across the globe. These goods can be routed through a group/internation company codes (where the corporate tax is low or tax-free zones) before selling them to local markets in various regions. By holding profit margins at the group company code, the organization can reduce its tax burden while ensuring the distribution of critical medical supplies across different markets.
- **Automotive Sector –** An automotive giant based in the U.S. procures automotive parts from Asian suppliers. The parts are sold to a group company code, which is strategically located in a low-tax country, before being sold to the U.S. company code at a marked-up price. The profit margin is held at the group company level, allowing the U.S. division to benefit from tax-efficient procurement and sales while maintaining regulatory compliance.

9. CONCLUSION

By the adoption of a comprehensive global trade business model is proving transformative for industries such as consumer electronics, medical devices, and automotive manufacturing. By leveraging such a model, companies can significantly enhance profitability while simultaneously minimizing corporate tax liabilities. The key to this success lies in combining the strategy with efficient supply chain and logistics management, ensuring a seamless flow of goods across borders. This integration reduces delays, minimizes costs, and provides a strong foundation for maintaining competitiveness in a globalized economy. Organizations that embrace these elements and adopt forward-thinking business models will not only excel in their respective industries but also contribute to building a resilient and inclusive global economy. By strategically leveraging technology, fostering partnerships, and addressing emerging challenges, businesses can unlock new opportunities and thrive in an increasingly interconnected world

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