

Study Unit ①

logistics : Satisfying customer expectations by ensuring required quantity of product (raw materials, semi-finished / finished) is available at the place & time required at lowest total cost.

logistics \Rightarrow creates value by timing & positioning inventory at lowest total cost.

* order management

* inventory

* transport

* warehouse / storage

+ * materials handled

* packaging.

Supply chain \rightarrow consists of various firms & processes in movement & positioning goods

vs

Logistics \rightarrow actual work required to move & position inventory throughout supply chain.

Supply chain has to be created by logistics to correctly position inventory from start to end user.

\rightarrow Increase overall efficiency

\rightarrow improve markets

\rightarrow competition.

Goal of logistics

- service & cost
- support procurement
- manufacture
- customer accommodation requirements

logistical competency: business level of performance
 : essential for business success
 : competitive advantage create.
 : value

Relationships between each part within supply chain & logistics

→ trade offs = minimise cost.

↑ cost ~~vs~~ ↑ low cost = total lower cost

eg

increase packaging + decrease holding
 = lower overall cost.

pg 6

Trade offs.

- ① Inter organisational
- ② Inter functional (departments)
- ③ Inter activity
- ④ Intra activity.

Summary:

horizontal supply chain - process from original to end user
 - products, services & information.
 required. logistics - move & position inventory.

- | | |
|-----------|----------------------------|
| ① product | ④ cost + customer service, |
| ② place | ⑤ quantity. |
| ③ time | |

Text Book - Supply Chain Logistics Management.

Chapter ①

Integrated Management = Create Value.

* Economic value

high quality @ low cost.

- lowest cost
- product / service creation (quality)
- Economy of scale efficiency (apply - doing it well @ lowest cost)
- procurement & manufacture.

* Market value

assortment.

- presenting / attracting
- * assortment / choice.
- right time & place. ↔
- Economy of scope effectiveness
- Market & distribution.

* Relevance value

Value adding services

- customization. of adding value.
- ready made / fashionable appeal.
- increase functionality as per customer desire. - segmental diversity.
- product / service positioning
- supply chain strategy.

Activity

1.1 Supply Chain - to be created,

- consists of various firms, and processes in order to manufacture, create and then movement & positioning of goods as per economy of scale.

- original to end user

- consists of products, services & info.

1.2

Supply chain process of original to end user of products & services

Created

various firms/processes to leverage positioning & improve operating efficiency, channel & business organisation

arrangement = dependency & collaboration

logistics,

move & position inventory

vs Work within SC framework, actual work to position.

geographically position inventory.

subset

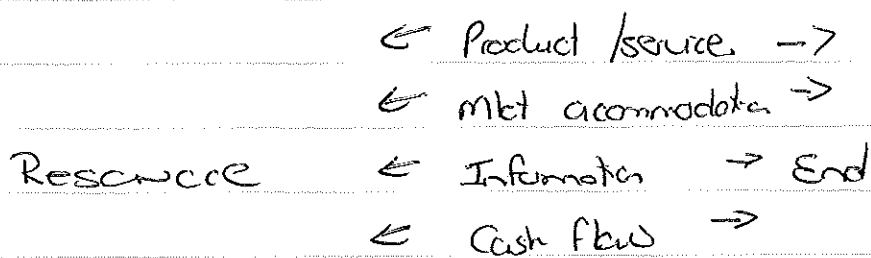
Process that creates value by timing & positioning
Order management, inventory, transport, storage, packaging & handling.
links the SC as a continuous process for efficiency & connectivity.



Activity 1.3

logistical Competency. - provide superior customer service
& lowest total cost.

Flow Diagram



Activity 1.4

logistics = service attribute → balance of service & cost
→ customer requirements = availability
performance
service reliability

Cash to Cash Conversion

(Dwell Time. - ratio of time assets sit idle to the
time required to satisfy supply chain demand

Cash Spin - reduce overall assets committed to supply chain
performance.

- eg purchase a warehouse or dollar inventory,
extra income invested in other projects.

∴ benefits from fast cash to cash conversion, reduce
dwell time and cash spin = ↑ financial attractiveness
= increase global operations.

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Study Unit 2

Basic Logistics Activities

* Network design

* Information

* Transport

} ① Basic work of logistics activities.

* Inventory

* Warehousing

* Material handling

* Packaging

} ② Basic work of logistics activities

- ① Network Design - allows stock to be kept
- orders to be picked up
- dispatch

All above in good time, consistency and low cost = value.

The facility network design - primary function
- facility (type)
- facility (structure)
- facility (size)

⇒ number (to obtain lowest cost)

⇒ location

⇒ ownership of facilities

⇒ stock capacity

⇒ handle facilities

⇒ location / geographic - market

- cost

- distance.

Value added = result in ownership transfer of finished products to customer

The location of customers and suppliers is fundamental to a company's network of facilities.

The network of facilities forms a structure - enable logistical operations to be formed.

Examples of logistic facilities / warehouse
depot
retail stores.

Factors that influence number of facilities:

- Inventory costs increase \Rightarrow costs to retain stock levels.
= thus more facilities = high costs.
- Warehouse cost increase = more space rented
= negotiation of rentals and
choice of rental space is created.
- Transport Costs: = these decrease as shorter distances to warehouses but
when too many warehouses, transport costs increase as more deliveries required,
= One product, transport costs can increase as few quantities delivered to several destinations
= Fewer facilities, thus higher volume delivered = negotiation of transport.
= no facilities - deliver small quantities direct to customer results in minimum delivery costs.

(2)

- Purchasing patterns.
- Competition
- Computers / technology (online shopping direct from manufacturer)

The size of warehouses:

↑ Number of warehouses = ↓ size of warehouse.

Measured in square metres or cubic space (vertical storage)

Influences of warehouse size:

- customer needs = level of demand & demand patterns
- mkt size
- product range
- size of products
- handling systems
- through put rate.
- production lead time
- aisle requirements.
- office / admin space required.
- The large mkt sourced predicts the space required and what stock levels to be kept for flow of logistics.

Location of facilities

Alfred Weber = model (1929) = Facility location based on cost minimisation.
= site based on ↓ transport costs.

Factors that influence location:

- Close to market: → maximise customer service
→ cost saving in transport based on high volume demand
but delivery time from placing order to deliver, competition and order size (cash flow) can affect
- Close to point of production → serve as collective point.
→ ↓ customer service.
→ perishable raw materials.
→ variation of product manufactured.
- Intermediate location → inbetween
→ maintain ↑ customer level and still ↓ transport costs.

Main factors that affect location overall:

- ① Availability / quality of transport carriers.
- ② Quality and quantity of human resource.
- ③ Cost of land
- ④ Expansion potential
- ⑤ Tax structure. (municipal levies)
- ⑥ Building regulations
- ⑦ Construction costs.
- ⑧ Availability and cost of utility services.

③

② Information.

- important accurate information forecasting / order management.
- importance of speed of communication = online / email orders can overcome despatch / transport duration to enable goods to be delivered on time.
- Customer delivery requirements (communication)
- influence inventory levels.
- reliability, and speed.

③ Transport.

- Transport options: are available / Mode
- Quality for selecting suitable transport
 - How transport influence = superior service vs lower cost.
 - Mode

An operational area = geographically moves & positions goods.
Three types of transport supply

- ① Private fleet
- ② Contracted, that are dedicated transporters
- ③ wide variety of carriers: as per shipment.

Three fundamental factors:

- ① cost
- ② speed - faster = high rates
- faster = shorter time intervals.
- ③ consistency & dependability.

Modes of transport:

- * Road transport: - high variable vs low fixed costs, because limited capital invested in roads.
- readily available
- highly competitive (negotiate rates & services)
- indispensable.

Road Transport:

Advantages

- Accessibility.
- less time in consolidation of load.
- short lead times.
- small quantities despatched quicker.
- reduces inventory stock costs.
- less handling / shunting = less packaging.
- safer than rail / sea.
- low staff required.

- ### Disadvantages
- freight rates higher.
 - reliability
 - consistency.
 - Traffic congestion.

- * Rail Transport:
- high investment in terminals, tracks, equip.
 - maintenance responsibility of investment.
 - limited number of companies / choice.
 - transport higher consignments. economically.
for low value items / high density.
 - large volumes over long distances.
 - mining, agriculture, forests.

Advantages

freely available in
metropolitan areas & small communities.

Disadvantages.

Not accessible everywhere
Not flexible only
source b/n terminals.
Delay & holding at
terminals.

④

- * Air transport - high variable costs vs Fixed costs
- no investment = air
- air carriers do not invest in airlines.

Advantages

Speed

- Short delivery times over long distances.
- Transport urgent consignments
- " perishable goods

Disadvantages

high cost.

- accessibility is restricted,
- depend on road
- transport to/from airport.

(See pg 18 for Ballou 1985:188)

- * water-transport - limited in SA (not inland waterways).
- limited to sea transport for international shipments.
- coastal for coastal shipments.
- high variable and low costs = no investment (water)
- low value high density goods.
- large quantities over long distance.

Advantage

lower freight rates than land.

more suitable in handling certain kinds of bulk commodities.

Disadvantage

slower

less frequent

tied up inventories.

serve only major points.

adverse weather delays.

extra handling

oncarriage / pre-carriage.

- * Pipelines
- limited to crude oil & refined petroleum prod.
 - others cargoes (coal) to be processed into liquid form first & at destination separated from the water.
 - high fixed cost (infrastructure) - high investment

Advantage

lower cost.

more reliable & safe for liquids.

→ flow monitored & controlled by computer

→ minimal risk of loss / damage

→ minimal climate effects.

→ not labor intensive.

Disadvantage,

must be suitable.

accessibility.

slow speed

Intermodal transport

- two or more carriers
- shipments handled as a whole.
- ease of interchanging modes of transport.

see pg 20
Trailer or flat car (TOFC)

- two types ① Piggy backing (TOFC)
- ② Containership.

- Utilise the modal services to meet shippers needs
- results lower costs to shippers

* Intermediaries - freight forwarders / agents / freight brokers.

- freight forwarder = collects small quantities
- = consolidates
- = transport.
- = distribution door to door.

- freight brokers = arrange / book suitable carriers.

5

Product Related factors. = Selection of transport

- ① Shelf life / perishability. / temperature control
- ② Density. (weight : volume ratio) - steel, canned food, building materials
- ③ Stowability.
- ④ Value. = generally high value : weight = high cost transport mode.

Market Related factors.

- ① Rate of sale and sales volume.
- Fast moving require frequent delivery in high levels.
- ② Seasonality. - growing time = more frequently with minimum time.
- ③ Customer size & location.
- ④ Market share / competitive status

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Study Unit 3

Basic Logistics Activities (Inventory & Warehousing)

Inventory (stock)

- safety net = 'just in case'
- inventory is though minimised to extent low levels are kept and term 'just in time' is used \Rightarrow
- lowest logistics costs achieved.

Types of Inventory - raw, work in progress, semi / finished goods

- ① In transit - moving from ① \rightarrow ② in cycle
- ② Cycle stock - minimum inventory required / working stock
- ③ Safety / buffer stock - allows variance.
- ④ Speculative stock - held because of expected changes.

Purpose of Inventory

- ① Customer service
- ② Production flow process
- ③ Protect against uncertainties in mkt (buffer)
- ④ Reduce production costs
- ⑤ better utilisation of human resources & equipment
- ⑥ reduce purchasing costs = bulk discounts / transport.
- ⑦ Negotiate better quantity discounts.
- ⑧ Transport costs
- ⑨ Assisted with seasonal fluctuations

TWO CONSEQUENCES OF HOLDING NO / TOO LITTLE STOCK

- ① Procurement & purchase costs \uparrow
- ② IF customer demand not met \downarrow SALES = LOSS OF CUSTOMERS

Inventory carry costs:

- ① Invested capital costs
- ② admin costs = record keeping
- ③ warehouse / storage costs
- ④ handling costs
- ⑤ insurance costs
- ⑥ depreciation & obsolescence.
- ⑦ damage / pilferage.

Optimum inventory levels

3 types of inventory = in transit / cycle / safety stock.

In transit - moving stock from one level to another
- long = high transit stock.

Average formula used:

$$I = S T$$

Total in transit stock Average sales per period x average transit time.

eg

$$I = 200 (\text{average demand for prod}) \times 2 (\text{2 week delivery time})$$

$$I = 400$$

- Cycle stock. - working stock / base stock
- demand & performance cycle (lead time) is predicted perfectly
 - minimum inventory required to meet demand

Trade offs used to way up inventory carry costs

- discounts on quantity
- transport savings

Trade offs = simple economic order quantity ~~formula~~

∴ balance determine from order costs & holding costs to find optimum lot size

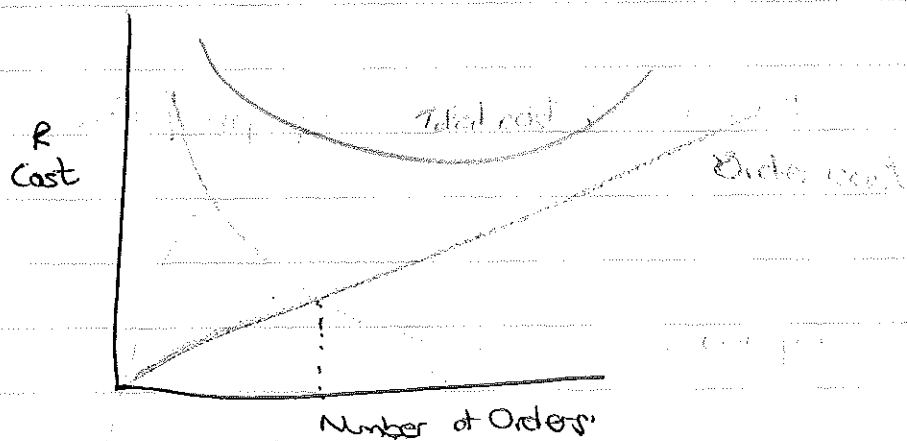
$$EOQ = (2AC/i)^{1/2} \text{ or } \sqrt{(2AS/i)}$$

economic order quantity

A - fixed cost per order

S - sales (annual) units

i - inventory holding cost annually per unit.



TWO CONSIDERATIONS.

① LEAD TIME

② EXPECTED SALES DURING LEAD TIME

TWO CONSIDERATIONS

LEAD TIME (L)

EXPECTED SALES DURING LEAD TIME.

Reasonable accuracy, Replenish time & expected sales during the time of ordering can be found through following formula:

$$P = SS + DK$$

Reorder period (units)

Safety stock units \times average sales units
+ average daily sales units \times lead time (days)

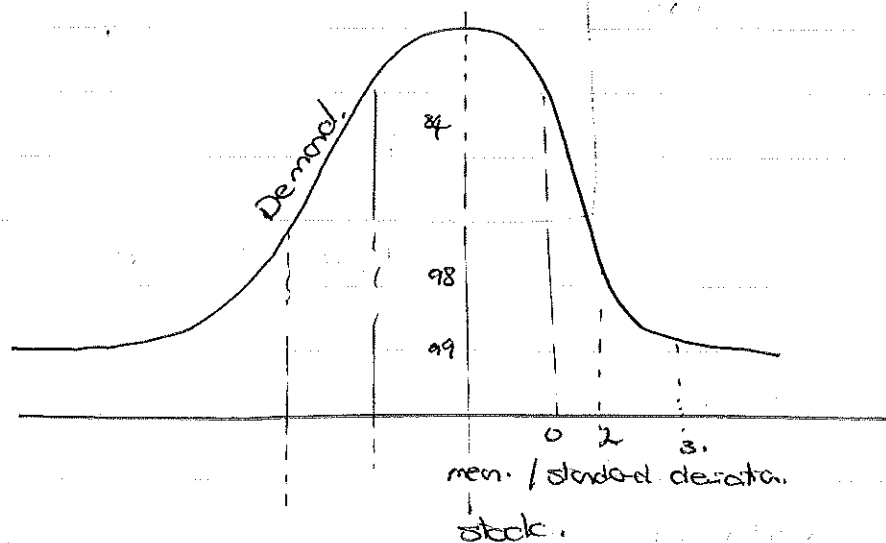
Safety stock - buffer

- allows for variance & uncertainty in demand & lead time.

Demand varies = higher (\uparrow) safety stock.

Greater lead time = higher (\uparrow) safety stock.

Normal Distribution Graph / Curve



\therefore to offer 99% customer service, (3) std deviations of safety stock to be kept

Formula for calculating standard deviation.

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \mu)^2}{n}}$$

Standard deviation. $n \rightarrow$ number of observations
 $x_i \rightarrow$ value of observations
 $\mu \rightarrow$ average of all observations.

Inventory deployment.

Product line profitability is essential in developing a selective inventory policy.

Aim to offer high availability, & consistent delivery of most profitable products.

(35)

Avoid high service performance on less profitable items.

Inventory strategies \rightarrow sufficient range / assortment of products.

\rightarrow assist in consolidated shipments.

\rightarrow large shipment less transport but

is high volume required - space / capital

transport saving could offset storage costs.

\rightarrow consistent & reliable deliveries to customers.

\rightarrow correct positioning of inventory.

\rightarrow apply a strategy to gain customer / competitive

* Sound inventory policy = customer segmentation, product requirement, transport integration, time based, competitive performance

32 Warehousing, Materials handling and packaging.

- Effective & efficient product flow
 - storage
 - material handling
 - packaging.

Types of warehousing.

① Private \Rightarrow independent.

\Rightarrow owned / leased

\Rightarrow operations carried out by staff.

② Public \Rightarrow services for profit

\Rightarrow professional services = specific products they store

- * General merchandise - manufactures, distributors, retailers
- * Refrigerated / cold storage. - perishable / pharmaceutical.
- * Domestic goods - personal property
- * Special commodities - agriculture - specific handling equip
- * Bulk - liquids, dry, open
 - sometimes for mixing products to form compounds.

③ Contract \Rightarrow specific shipper's logistic system

- software

- labour management.

- storage space.

Warehouse operations:

① Movement

Receiving - raw - equip - ~~transfer~~.

↓
handling - transfer & selection.

↓
shipping (despatch).

② Storage.

Normal - day to day. - regular customers.
- replenishment cycles.

Extended / special - longer periods
- depend on supply & demand.

* Seasonal

* Erratic fluctuations

* part of production with storage - bonuses.

* speculative purposes - advertising,

* Special discounts - large/early storage.

Materials handling & packaging.

- Unitisation - most suitable & economically viable size units
can be packed.

- Pallets

- Containers

- Cartons

- Crates

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Study Unit 4

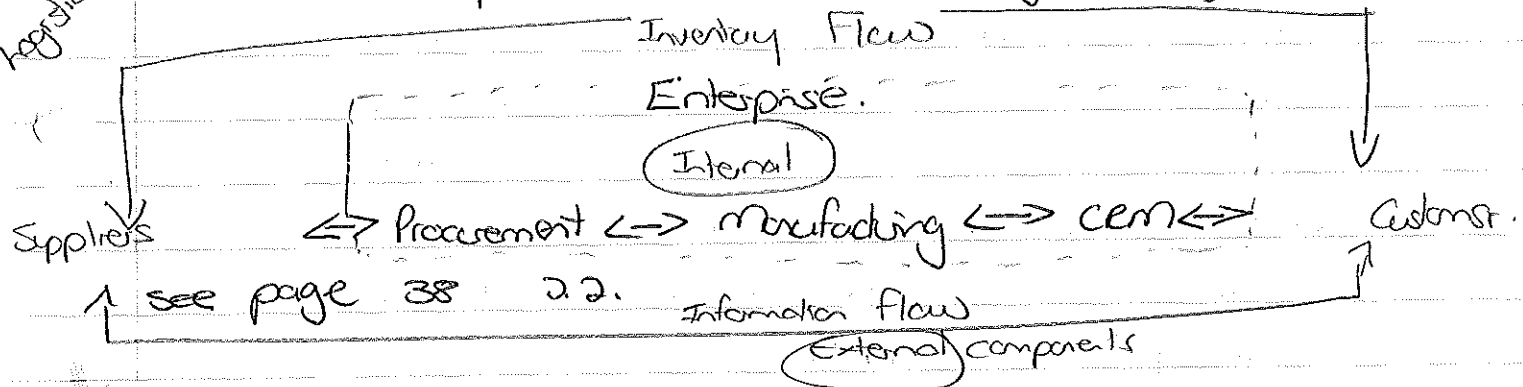
Frame for Integrating Logistics Operations.

- Minimise total logistical costs
- customer accommodation
- manufacturing support
- procurement.

Integrated Logistics

Coordinating components of logistics operations.

Internal operational scope of integrated logistics



- * * Integrated logistics serves to link and synchronise the overall supply chain as a continuous process and is essential for effective supply chain connectivity.

Framework for Operational integration. 2 elements.

① Information - flow from \hat{e} to customers as a result of sales, forecasts & orders.

- information is directed to manufacturing & purchasing

② Inventory - flow of finished products to customers

- Above assists in competition
- Position of logistics in broader aspect of supply chain.

40 Table 2.2.

Inventory flow

Operational management of logistics is with movement & storage of ^(materials) inventory from raw, work in progress to finished products.

As it is moved from raw to final product delivered to customer so logistic process adds value.

- ∴ Individual part has greater value as finished product
- ∴ As finished product has greater value when delivered to customer.

Logistical components & operations → CRM (Customer Relationship Management)
→ Manufacturing
→ Procurement

Customer Relationship management ⇒ align manufacturer, wholesaler, retailers into supply chain arrangements to provide customer with product availability.

Customer receipt of product completes the supply chain destination.
CRM is dealing and monitoring customer relationships and timing and geographic placement of inventory.

Manufacturing ⇒ managing work in progress.
⇒ production schedules & implementation. ()
⇒ what, when & where products will be manufactured.

Procurement ⇒ arranging inbound movement of from suppliers to manufacturing / assembly plants, warehouse, retailers
⇒ Purchasing / Procurement / buying / supply management
⇒ Primary objective is to support manufacturing & resale by timely purchasing at lowest cost.

Information flow

⇒ identifies specific locations within logistical system

① Information flow: for logistics & planning & coordination is within a company for overall performance.

Provides information concerning planned activities, operational requirements & day to day

② Operation information flows provides data for integrated performance measurement of CRM, manufacturing & procurement.

Operational Activities

Six operation objectives = logistical performance.

① Responsiveness - respond in timely manner. / delivery

② Variance reduction - failure to perform.

③ Inventory reduction = asset commitment / velocity

④ Movement consideration ↓ hazards. Superior service at

⑤ quality - TQM lowest cost.

⑥ life cycle support - after-sales, support

⑤ Value

* Economic value - high quality at low price.

* Market value - assortment of products @ right time & place

Convenient product / assortment & choice.

* relevancy value - adding value over & above basic product
- making a real difference to customer.

Barriers to Internal Integration.

Barriers that serve to inhibit process integration.

- ① organisation as a whole
- ② measurement & Rewards
- ③ Inventory leveraging
- ④ information structure
- ⑤ knowledge hoarding.

Measures to overcome obstacles.

- having departments. - perform specific functions.
- each dept has operational responsibility.
- performance goals: achieved at ^{lowest} total cost expenditure.
- Reward systems: (measurement - balanced scorecards)
- content & flow of information. = command & control.
- Enterprise Resource Planning.
- Cross function integration.
- Sales & operations planning.

Study Unit 5

node - link - node
managed & comm.

Logistics Performance Cycles: Base unit of supply chain design & operational control = framework

To contribute to minimising lowest total costs

understand performance cycle studies

describe

- link b/n suppliers/customers.
- transport & comm.
- node link relations

characteristics

- fundamental unit.
- link & nodes relation.
- control processes necessity.

differences

overview.

↓
supply chain.

Performance Cycle - framework for implementation

- Primary unit - represents logistic components to link (nodes) relating to customer accommodation, manufacturing or procurement, specific performance (logs) to ensure product delivery.

To ensure performance cycle = directly relates to stock
Base stock → held (stationary) = ± 1/2 of average shipment
safety stock → At end b/n nodes - safety net for demand
Inventory is stocked & flows through nodes

holding / storage / in-transit

Supply chain Integrator = Multi firm ops integrate

Input

- Demand
- varies on product / supply chain / volume.
- through puts.

Output

- Supply
- level of performance, expected
- supply chain effective: accomplished
- supply chain efficiency: ^{right expenditure,} accomplished.
- supply chain relevancy: serves customer need.
- " " sustainability: ability to match overtime.

Key concerns: {

Other characteristics:

Can be completed individually or multiple firms

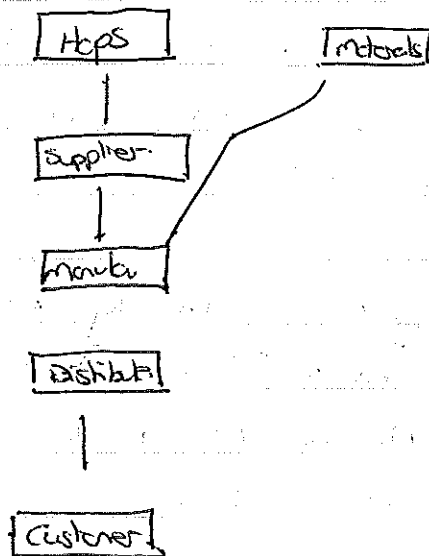
Frequency & intensity.

Once off

Regular.

- Each Node could be participating in several other supply chains.

- Notional / intentional.



Performance Cycle characteristics & differences.

Procurement

- many activities - flow of materials into manufacturing & distributing.

- limited scope of activities

- longer than acc/performance cycles = shipments longer & more time required.

- raw materials inventory less expensive than finished goods, (less sensitive)

- suppliers less than customers \therefore direct procurement.

- economic flow of materials to support production schedules

- goal to support manufacturing.

- internal cycles thus not affected by behavioral uncertainty.

- firm has control.

Customer Orientation

- processing & delivering products

- links customer with product availability

- Physical distribution

- Integrates marketing & manufacturing

- more erratic as deals direct with customer

- forecast summaries / planning to reduce uncertainty,

- Firms exercise flexibility based on forecast methods.

- responsiveness to deal with uncertainty

Multi firm operational integration across the supply chain

↓ ↓
supply chain synchronization

(47) (timing) → coordinates flow of materials, prod & info

↓ ↓
(demand) reduces duplication & redundancy,

↓ ↓
advocates reengineering of internal ops

↓ ↓
leverage overall supply chain capability.

inventory dwell time (idle)

Benefit : speed of performing specific movements &
timing of supply arrival @ destination based
on demand requirements

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idea of the "classical" has been developed

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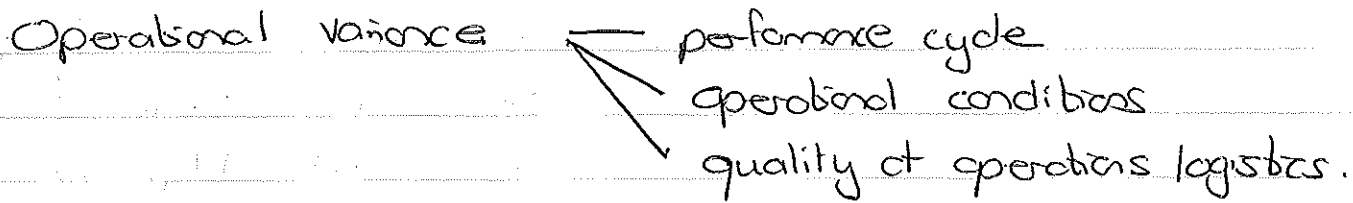
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Managing Operational Uncertainty

Operational variance



Variance - depends on nature of work involved

Electronic / Internet Comms assist to days times compared to telecoms / mail. But regardless techno op variance still occur due to daily changes

Processing

- time / variance = workload.

= degree of automation

= credit approval policies

Order

= selection speed

= capacity

= material handling sophistication

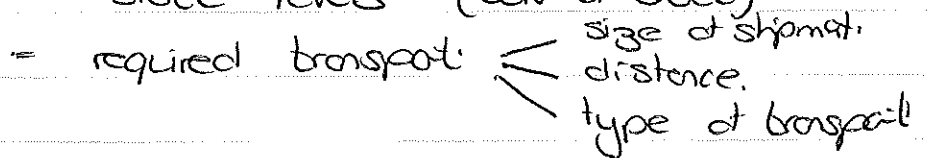
= human resources available.

Selection

= stock levels (out of stock)

Transport

= required transport:



Delivery

= receiving times

= delivery appointment times.

= HR available

= traffic congestion

= machinery available. / unloading.

Goal => to achieve the planned time performance.

=> Consistency.

=> Reduce risk. / Uncertainty.

logistics - links supply chain participants into integrated operations.

- measured - availability

- operational performance

- service reliability.

- major expenditure in chain.

} Customer expectations / forecast

Three commitments { service
satisfaction
success

Study Unit 6

Customer Accommodation

- ① Identify customers
- ② Formulate customer strategies
- ③ Marketing.

integration with logistics.

performance.

meeting needs

Marketing - satisfy the customer requirements.
- meeting expectations.
- motivation for activities within a company.

Marketing Four Policy Instruments

- ① Product / Service
- ② Promotion
- ③ Price
- ④ Place



logistics = right place
= right time
= right quantity } availability.



logistics provides time and place utility.



Provide superior service at lowest cost



customer service is measured in performance.

- ① Who is customer
- ② Logistics vs mkt
- ③ customer service.

Identifying Customers / Consumers:

Manufacturing Plant → Car → Family purchase family
of Cos → Co → Consumer
Product → Consumer

→ Tools → Purchase by → workers
Co for workers

Product → Customer → Enduser

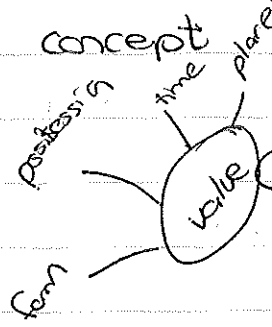
∴ Supply chain management = focus on mtg needs of
end users

laundry detergent → Supermarket → Customer.
Product → intermediate customer → customer/user.
→ any location
→ ownership of
product

Customer / Focus Marketing

Logistics & Marketing

Knowledge of mkt → adjustment can be made. Relationships



- ① Customer needs
- ② Different customers & diff needs.
- ③ Products become meaningful when available & positioned
- ④ Sales volume then profit.

matching products with needs.
define diff mkt required

Marketing = matching needs of customers
= opportunities for business.

Markets are composed of different segments, each market has different needs & targets.

PS6 Mtg the customer needs = profitability as long as customer willing to pay for the satisfaction of the need.

= profitability degree based on customer relationship.

Traditional = successful exchanges to drive revenue & profit.

Transactional vs relationship marketing.

Transactional marketing ⇒ short term interaction.

⇒ focus on creating successful transactions.

Relationship marketing ⇒ long term relationship, joining supply chain participants

⇒ retain customers = larger share in mkt
= attract new customers

Ultimate → micro marketing / one to one marketing

= unique.

= can reduce transactional costs.

= better customer accommodation

= regular individual transaction routine.

Supply chain Service Outputs.

of the mechanism for exchanging of goods & services

③ problems

- ① space

② time

③ quantity & assortment.

Space discrepancy is the location of production
vs location of consumption = not the same.

↓
Transport.

Time discrepancy is difference in timing of production
vs consumption.

Quantity / assortment discrepancy is firms produce is
large quantities of 1 product but consumer wants
small quantities in variety.

Bucklin.

high quantity
= lower cost

number of
units purchased.

① spatial

② lot size

③ waiting / delivery time.

④ product variety.

stepping access / convenience to obtain product in number of steps vs limited edition.

additions ⇒ product info, product customization,
after sales support,

The Perfect Order = with Customer Service.
Full complete - right place - time - quantity - price - quality - documents

= TQM
= Six Sigma

Six Sigma Performance (zero defect)

high service level

- * Doing everything right the first time.
- * zero defect. (low tolerance for error)
- * Delivered complete, on time, right location, perfect condition, accurate documentation
- * Total order cycle is executed with zero defects.
- * Perfect executed support activities & ops performance.
- * Only certain customers / selective
- to those who are loyal
- willing to pay price for high service level.

strategic advantage over competitors

Customer Success.

If a firm (supplier) can contribute to customer's success then firm (supplier) will become more successful,

Value Added Service = unique / tailored & specified activities offered to improve efficiency & effectiveness

= customer specific.

= can offer competitive advantage.

Four stage Process

① Cost effectiveness - provide basic services consistently & at cost effective.

② market access - high level commitment to customers who willing to cooperate.

③ mkt extension - move towards zero defects & add value added services - build / strengthen relationships

④ mkt creation - creative arrangements for longer term commitment = total commitment

Study Unit 1

Customer Service & Efficiency.

Minimising Total logistics costs — trade customer services against costs of customer accommodation.

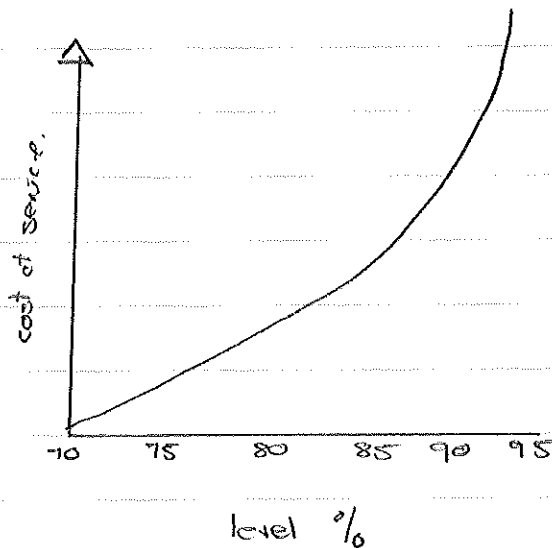
Basic service level = requires trade offs b/w cost of rendering services & benefiting. (avoiding lost of sales)

logistics function costs:

- = costs are
- availability
 - right product
 - right place
 - right time
 - right quantity.

↑ service level = ↑ costs.

Service Cost Function Graph.



∴ service level increases over ± 80% = costs increase even more in proportion.

Slight increase in service = slight increase / effect on customer but higher logistical costs.)
could lead to vast amt of safety stock!

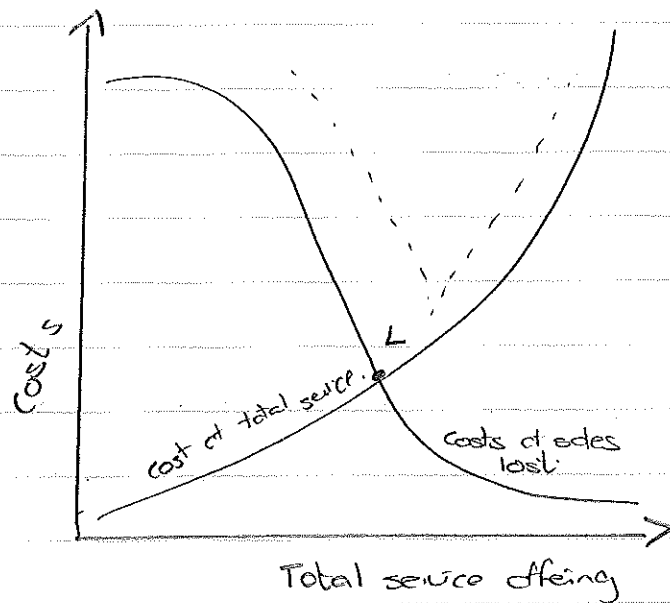
TOC Total Distribution Cost = more costs incurred through availability, than just transport & storage.
= costs of handling / packaging / admin / management also to be included in TOC

TOC = Transport + Storage + Comms + stock + handling + packaging + management.

Penalty / Cost of lost sales: - not having right product / location / time / qty
- poor service.

- ① Bad order costs.
- ② Cost of a lost sale
- ③ Cost of a lost customer.

Costs & Benefits of Service.



It is reached some time before maximum level of service reached. Trade offs = total logistics costs considered.

= opportunity costs of lost sales + costs offering the service.



Cost vs benefit appraisal.

Problems ① Gaining accurate data.

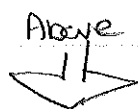
② Determine responsive in mkt at service levels

* Customer service very competitive *

Cost minimisation Approach \Rightarrow set specific objectives

\Rightarrow determine how objectives met at minimum cost.

Service Maximisation Approach \Rightarrow fixed budget = maximising service within budget.



With customer service strategy.

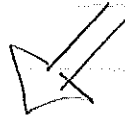
Customer Profitability analysis - evaluates the impact of price

terms of trade

offering to various customer groups.

servicing individual customers.

take decisions
on price & service
level.



* CAP (Customer Account Profitability) - Cost A/c System

① Customer order is profit centre

② Profitability = effectiveness of management costs incurred after product is manufactured.

③ Costs after manufacturing are customer & events of servicing customer

④ How costs vary from one customer to next.

Net sales revenue - less manufacturing costs - less services customer costs (Admin & finance included)

ABC

Some customers & products are more profitable than others

∴ justify higher expenditure & customer service.

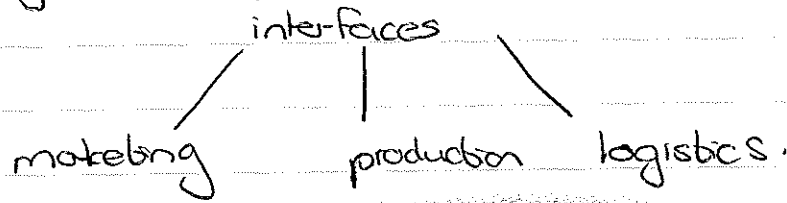
Profitability measured on contribution.

Draw CAP Model

Study Unit 8

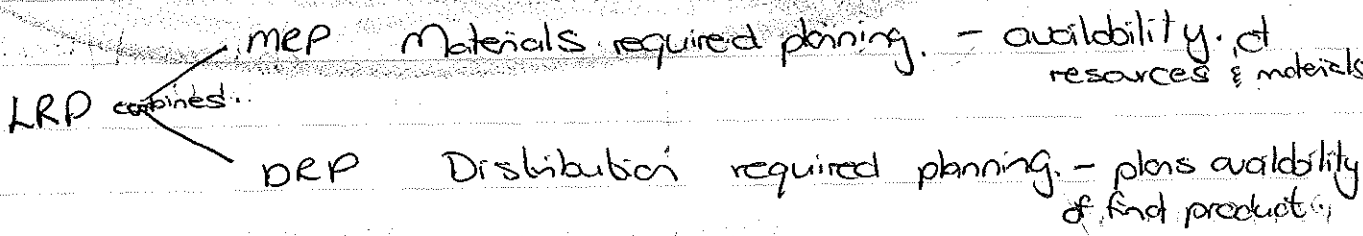
Logistics Requirement Planning - LRP

• Scheduling technique facilitates



implemented correctly
save company
money!

- technique to ensure - right goods are available
 - right place
 - right time
 - right quantity.



Dependent and Independent Demand.

Dependent - raw materials - dependent on the demand of final product

No Forecast.

as calculated on

demand of final product.

at final product

- can be calculated (based on demand of final product)

Independent - finished good / maintenance spares - forecasted

→ forecast demand.

as cost be calculated.

ensures supplies are available when needed
not allocated after becoming available

Process

① Forecast

DRP

Independent

Plan resource
space
HR
Capital
transport

CUSTOMERS

DISTRIBUTION CENTRE

PLANT WAREHOUSE

① Demand / location
SKU

PLANNING / Comms

FACTORY FINAL ASSEMBLY

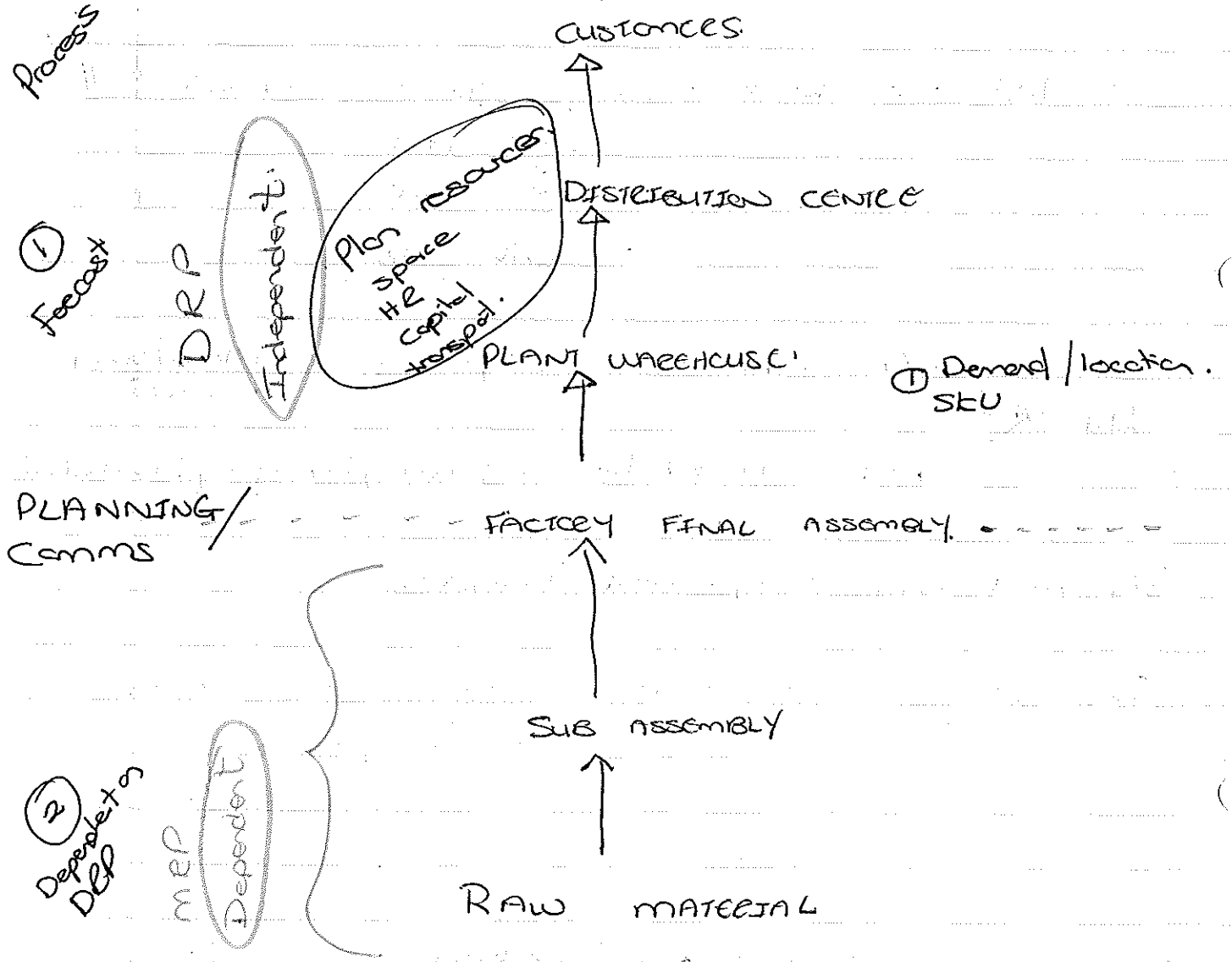
② Dependent
DRP

MRP

Dependent

SUB ASSEMBLY

RAW MATERIAL



MRP - Materials Requirement Planning (i)
- Manufacturing Resources Planning (ii).

Depend closely

MRP (i) - computer based (first developed) = minimise inventory, but have adequate supply of materials.

MRP (ii) - includes all activities involved in planning & control of production operation.

- MPS - production planning, schedule.
- resource requirement
 - production scheduling
 - MRP.
 - shop floor
 - purchasing.

DRP - final product meets demand.

Create effective comms b/n manufacture & distribution.

PLANNING.

DRP - Distribution Requirement Planning.

Mirror Image of MRP - planning backwards =
determines inventory required for distribution.

Effective communications required.

Planning that links with manufacturing and production.

SKU. Determining when and where stock is required.
→ Stock keeping units.

location.

time requirement schedule, at

location (depot / warehouse / factory)

communicates back to / via MRS

DRP (II) = planning of key resources (space), (personnel)
(transport), (finances)

LRP

Variable Required to drive LRP process.

- Forecasted independent demand ← trends
seasonal
variables.
- SKU - variability of independent demand
- Lead time.
- order quantity. (EOQ) Economic Order Quantity
- SKU determined, / safety stock levels.

Procedure for implementing LRP.

- ① Independent Demand & DRP (Planning) / Distribute.
- ② Forecast (shortest time) → weekly
- ③ Calculate current stock (days) will last
- ④ Deduct SKU.
- ⑤ Add stock in transit.
- ⑥ Calculate date SKU will be reached. (new batch arrives)
- ⑦ Date of shipment (receipt of final product)
- ⑧ Plan production via MPS / Master Production Schedule
- ⑨ Calculate delivery of raw materials
- ⑩ Calculate date of shipment (receipt of raw materials).

Advantages & benefits of MRP

12

Marketing

- Planning \uparrow service levels \Rightarrow timely deliveries
- plan ahead for sales / promotions.
- know which products will not be available
- Intra functional relationships within production / departments = working off same schedule / plans.

Logistics

- \downarrow transport costs.
- improved load planning.
- lower inventory levels.
- less storage required.
- Improved comms & know when stock levels will be low
- \downarrow costs for overdue / back orders.
- improved coordination
- improved relationships b/n distribute and manufacturer.

Study Unit 9

Supply Chain Integration.

- reduces waste / duplication.
- reduces inventory investment & risk.
- cross operational programmes.
- facilitates ops, technology, planning
- encourages relationship management collaboration.

Achieving supply chain competitiveness through supply chain collaboration.

- nature of supply chain
- risk
- power
- leadership.

Supply chain integration & relationships.

- competencies
- supporting capabilities.

Supply chain Competitiveness.

- Drive force is providing superior service at lowest total logistic costs.
- combination of distributing & participants competencies can result superior service vs lowest logistics costs.

Supply Chain Management : encompasses the planning & management of all activities - sourcing

- procurement

- conversion

- logistics management

Coordination & collaboration b/n all partners - suppliers

- intermediaries

- 3rd parties

- customers

Integrates supply & demand management within & across companies.

Brings products & services to the market

Improving competitiveness within a supply chain:

① Cooperative behaviour / willingness and sharing of information to develop future plans to satisfy customers
Joint participation - faster & efficiency improved

② eliminate waste and duplication.
Traditional methods can be eliminated & collaboration at all parties to reduce risk with inventory levels.
Inventory driven by economy & source necessities.

③ Collaborate practices.

④ achieve competitive superiority

⑤ Commitment to create & maintain unique supply chain.
/ / /
risk / power / leadership.

Risk, power leadership.

Perceived dependency = willingness for firms to enter supply chain relationships. (negotiate exchange / transfer of factors / services)
= share information
= Participate.

Risk. - leverage of competency.

↑ = High competency = ↓ risk of performance.
low competency = ↑ risk, = has to be more active in roles with supply chain

make it work.

eg wholesaler - assortment of products. = less risk
less reliant on 1 supplier.

manufacturer - one specialised product - higher risk.

- high reliance on collaboration relationship.

Power - Manufacturer vs Distribution/Retail

- Growing range of products
- Specialised products
- Tradition reliable products
- Selected distribution channels
- Selected higher classed customers

- trend
- profitability (points scoring)
- credit costs
- easy access.
- market penetration
- on line
- limited offers
- discounts.
- timing
- conclusion of supply chain

Pg 356
Textbook.

- Leadership:
- maturity
 - size
 - Economic power
 - customer patronage
 - product portfolio

less obvious reasons = mutual dependency = ^{respect on} ~~desire~~ participating in supply chain.

Relationships sometime exists when leaders have excess power = rewards & expertise. \therefore partners much leave relationship and seek alternative.

Impact = Unity

Willingness to share to make overall successful

Assist, especially financial market intelligence.

Share responsibility

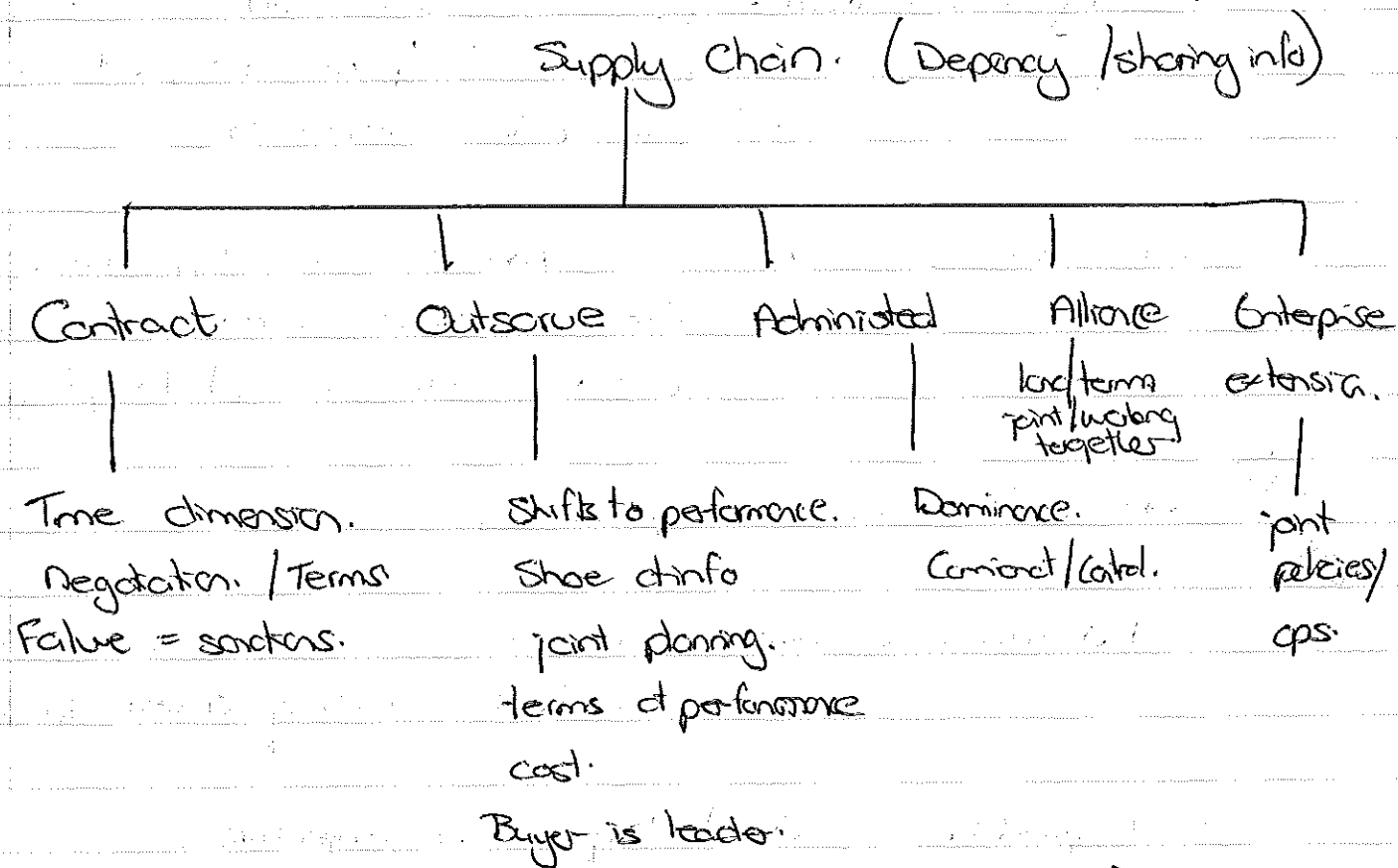
Share attempt to make more efficiently

Help each other with risk.

Relationship:

- ① Contracting
- ② Outsourcing
- ③ Administering
- ④ Alliances
- ⑤ Extension in Enterprises.

Supply Chain Relationships Framework & Classification.



Limited → Acknowledge dependency
share info → Defense.

- acknowledged dependency.
- time dimensions
- focusing price, service & performance.

adversarial ↓

- expectations
- negotiations
- terms

failure • penalties / sanctions / re-negotiate.

• risk power leadership = collaborative / degree of dependency.

relationships - administered by contract & control by

leader's power.

joint planning.

Building & Developing Trust → to be clear for supply chain collaboration

Reality based trust → perception that partner willing to perform & capable to perform their role within relationship.

Character based trust → Partners within supply chain look after & interest in each others welfare, culture, leadership, philosophy.

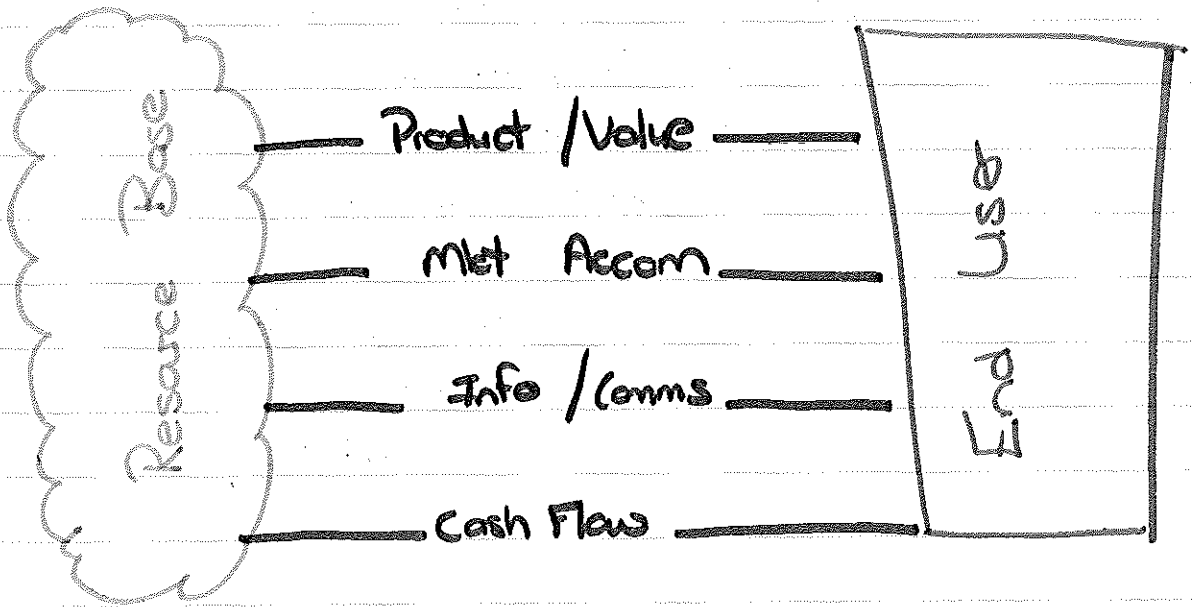
Eight 'I's

Criteria for successful partnerships

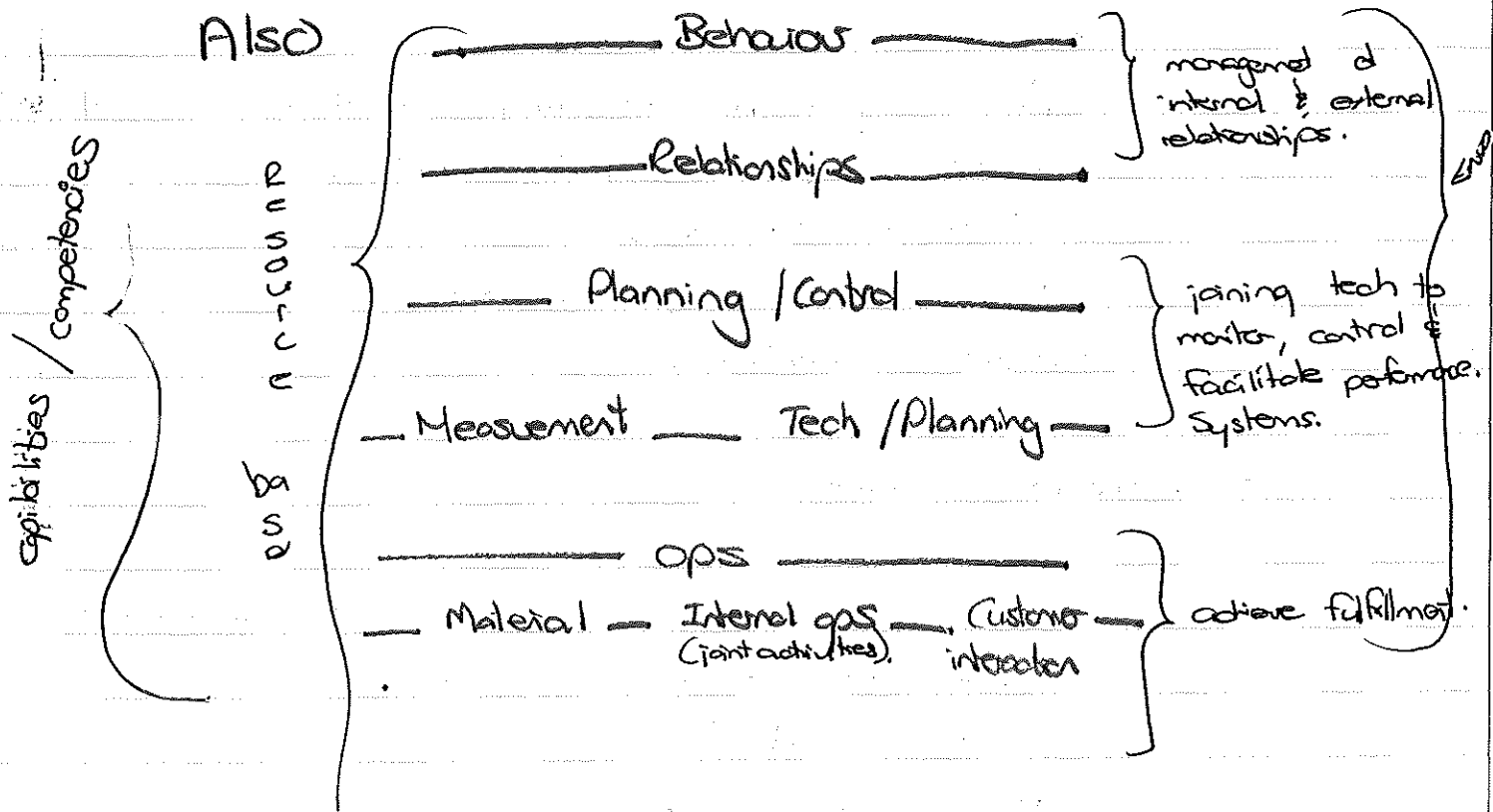
- Individual excellence - Partners are positive & strong - have something of value to contribute.
- Importance - dual / long term objectives.
- Interdependence - Compliment & depend on each other.
- Investments - tangible signs for long term commitment - devoting financial, + other resources.
- Information - Share data & open comms.
- Integration - link into each other, both teach & learn - build stronger & broader connections.
- Institutionalism - given status (relationship) with clear responsibilities, accountabilities & decision processes.
- Integrity - behave honourable, gain mutual trust.

Supply chain flow = to create value with framework.

Integration Framework.



Also



Supply Chain Collaborative Framework

• Supply Chain Flows:

- Capability
- Competency

• Operational Context:

Customer & Internal Integration. → Competency

- Customer focused
- Internal coordination
- process performance
- Relevancy
- Segmentation
- Response
- flexibility

• Planning & Control Context

- Design, application and coordination
- Purchasing, manufacturing, customer order fulfillment
- Resource planning / coordination
- Sharing information
- Measurement of performance
- Monitor standards

• Behavioral Context:

- Quality of business relationships
- Managers to have defined roles, guidelines, share info, risk and gains.
- Resolve conflict
- Managerial skills

Capability & Competencies.

To achieve integration adv. is required.

Capability - knowledge & achievement level to develop integration performance.

Competency - linked by capabilities / blending in coherence & manageable factors to achieve & maintain.

high levels



customer loyalty. \Rightarrow competitive advantage.

see pg 359
Table 14.1.

1870

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Study Unit 10

Global Supply Chain Integration

Domestic logistics vs Global logistics.

Stages of International Development

Global Trade = from National \Rightarrow international ops.

Stage ① - Importing & Exporting.
Optimal for Domestic. \leftarrow local supply carriers alliances } local decisions.
Suboptimal for Global - \downarrow influence by government restrictions.

Stage ② - International operations: local presence.

Internal Ops: (Marketing / Sales / Production / Logistics)

\downarrow
establish ops in other country.

\downarrow
increase market awareness / sensitivity.

Stage ③ - Globally integrated

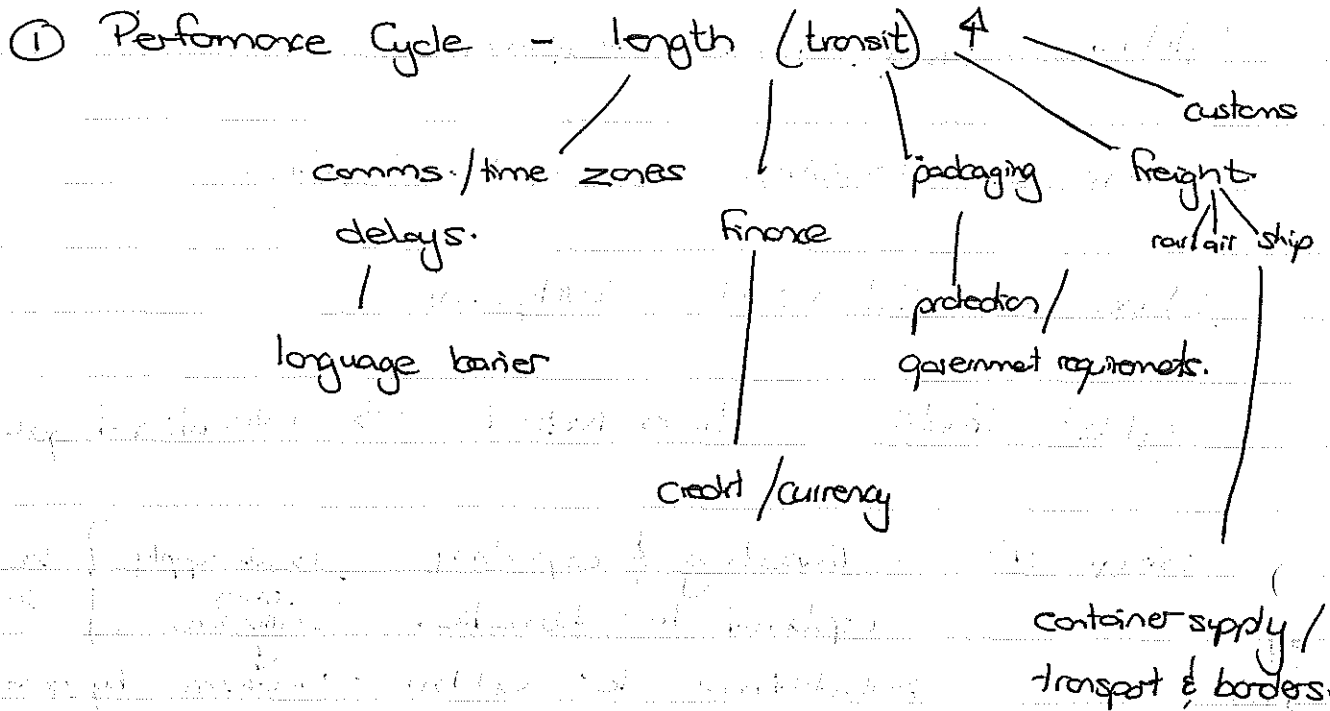
Providing unique, cost-effective, value-added at global level

Global resources provided = to the best for the customer.

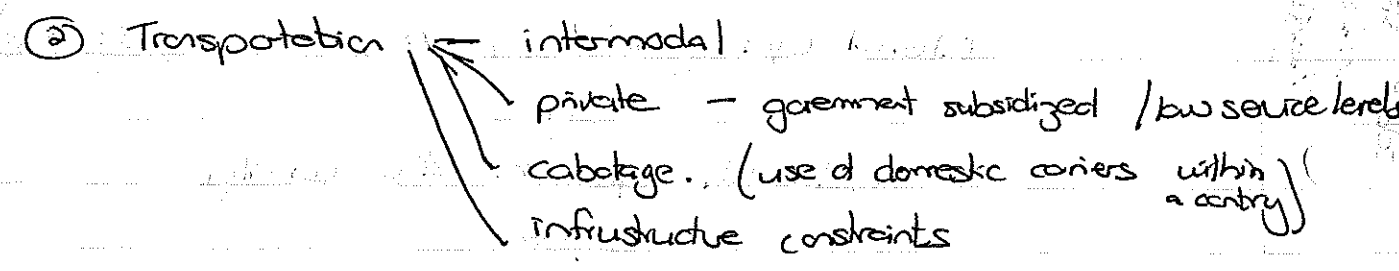
\uparrow logistical demand & management = decision making = national bound.
Implementation of evaluating strategies & authority.

adapt strategies perspective.
Challenges.
Flexible - by type / packaging
pricing & ops.

Five Major Differences b/n Domestic & International

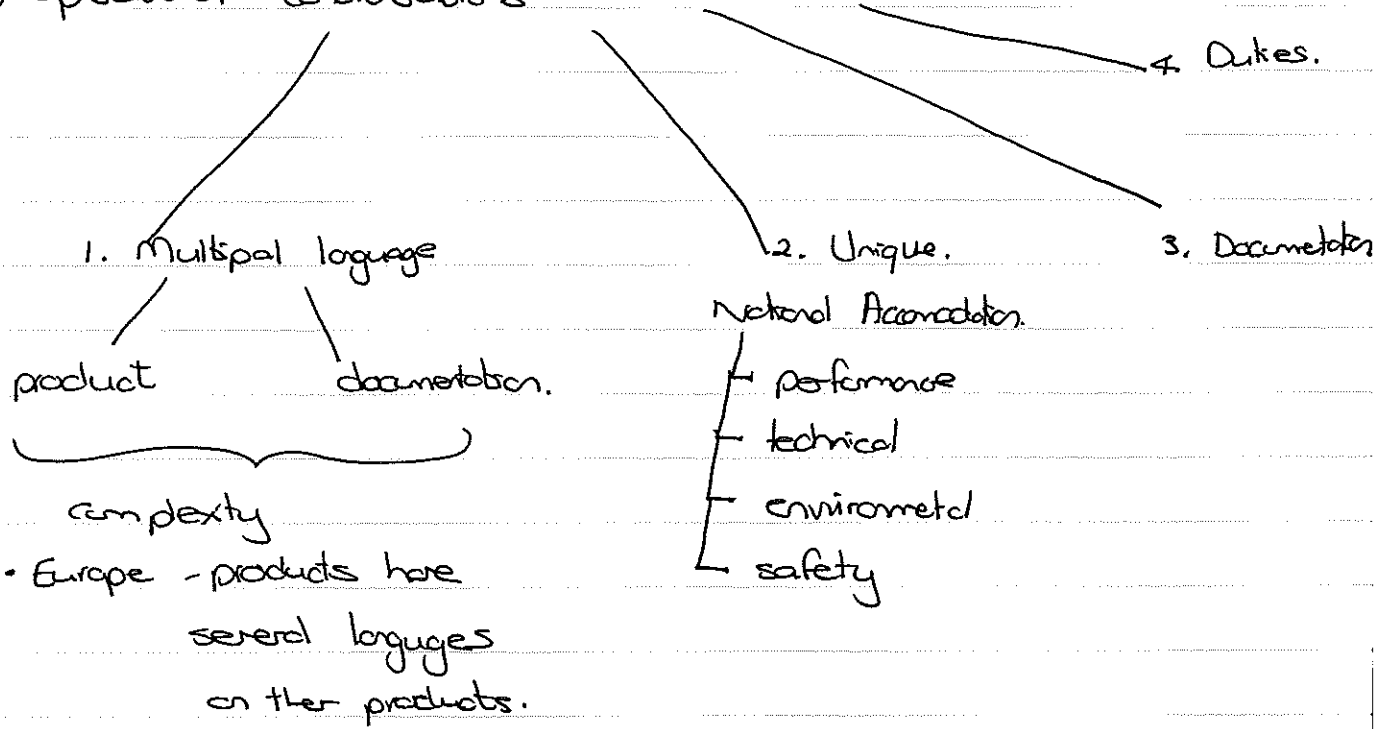


less consistent and less flexible.



- pricing agreements
- government agreements
- marketing & alliance relationships

③ Operational Considerations



④ Information Systems Integration.

- Ability to route orders
 - Manage inventory.
 - capital investment in technology & Comms.
- Global (ERP) Planning.

- ### ⑤ Alliances.
- market access & expertise.
 - reduce risk

∴ Position vital to take advantage
Overcome barriers of distance, demand, diversity &
documentation.

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