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SCHOOL OF MANAGEMENT STUDIES

UNIT – I – OPERATIONS STRATEGY – SBAA7027

Contents: Meaning of Operations Strategy - Concept - Definition - Importance and Linkage with Corporate Strategy, Strategies, Values and Services in Operations Management. Operations Strategy Formulation -Hill framework for Operations Strategy Formulation. Strategic Fit - Concept - Classification - A framework for Operations Strategy in Manufacturing

Introduction

Operations strategy is only one part of overall business or corporate strategy, but it's crucial for competitiveness and success. Without a strong operations strategy, companies fail to keep up with changing markets and lose out to more strategic competitors. Many companies, big and small, have struggled with operations strategy, often lacking in comparison with technologically savvy competitors.

For example, Amazon, while constantly advancing technology such as drones for delivery, has pushed aside myriad brick-and-mortar retailers.

To be effective and competitive, all parts of a company must work together. All departments should contribute to the company mission and have strategies underlying the overall corporate/business strategy. In addition to having an operations strategy, they should also have functional area strategies in finance, IT, sales, marketing, human resources, and possibly other departments, depending on the type of business.

"An operations strategy should guide the structural decisions and the evolution of operational capabilities needed to achieve the desired competitive position of the company as a whole," says Tim Laseter in his article "An Essential Step for Corporate Strategy

Core Operational Strategy Areas

Different sources use different terms to describe strategy areas. Here's one way to categorize core strategies:

Corporate: Overall company strategy, driving the company mission and interconnected departments

Customer-Driven: Operational strategies to meet the needs of a targeted customer segment

Core Competencies: Strategies to develop the company's key strengths and resources

Competitive Priorities: Strategies that differentiate the company in the market to better provide a desired product or service

Product or Service Development: Strategies in product design, value, and innovation

A company's key success factors (KSFs) pertain to competitiveness, such as a company's attributes, resources, capabilities, and competencies. By identifying these, a company can focus on the issues that matter most and measure them with key performance indicators (KPIs).Another way to frame strategic areas is by these "distinctive" competencies:

Price, Quality, such as performance, features, aesthetics, and durability, Service, Flexibility, Tradeoff

Operations Strategy Examples

With the rapidly changing marketplace in recent years, some companies have excelled in part due to their strong operations strategies. Here a few examples:

Amazon: Once known for books, Amazon is now known as the go-to platform for online shoppers of any product. Its distribution network is widely touted and even includes experiments with drone delivery.

Apple Computers: Apple is long recognized in operations circles for its operational excellence and supply chain management.

Walmart: This retailing giant managed to undercut many competitors on the price and variety of a wide range of products.

FedEx: FedEx made speed of delivery its calling card, achieving it with excellent operations.

IKEA: The world's largest furniture retailer undercut many home good

The 'operations' is the part of the organization that creates and/or delivers its products and services All operations use their resources and processes to transform inputs into outputs that satisfy some customer need is called the 'input-transformation-output' model of operations. The role of operations management is to manage the transformation of an organization's inputs into

finished goods and services using processes. Processes are actually present in all of the areas HRM, finance, marketing etc of the organization.

- The two main types of transforming resources are: Facilities, such as building, equipment and process technology. Staff, all the people involved in the operations process. In services the customer may well be involved as a transforming resource.
- The three main types of transformed resource are: Materials, these can be transformed either physically (e.g. manufacturing), by location (e.g. transportation), by ownership (e.g. retail) or by storage (e.g. warehousing), Information, this can be transformed by property (e.g. accountants), by possession (e.g. market research), by storage (e.g. libraries), or by location (e.g. telecommunications),
- Customers, they can be transformed either physically (hairdresser), by storage (e.g. hotels), by location (e.g. airlines), by physiological state (e.g. hospitals), or by psychological state (e.g. entertainment).

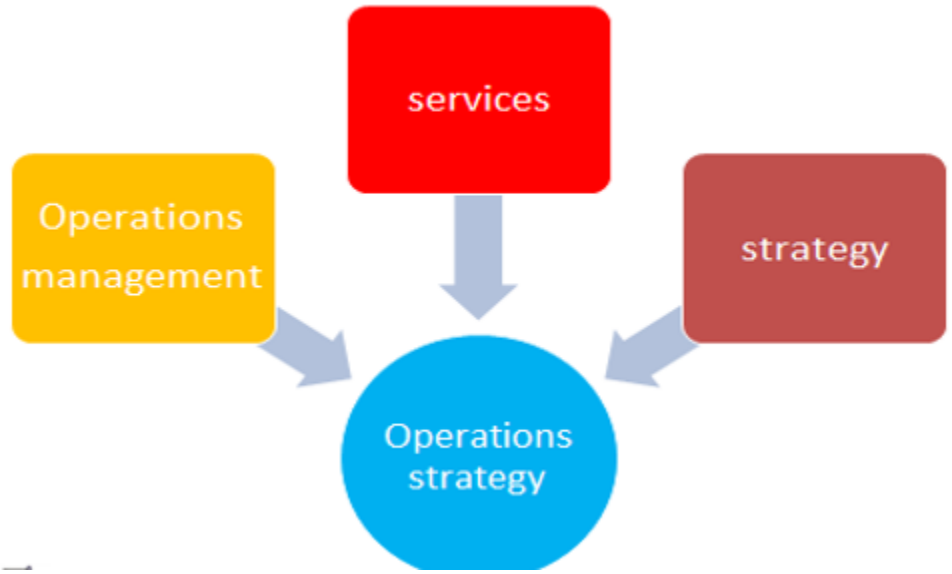

Fig-1

- Services can be classified by their tangibility, while the way they are delivered can be classified by their simultaneity

Tangibility

- This is the most commonly used distinction between goods and services. Goods are tangible, they are a physical thing you can touch demand.

  Simultaneity

  The amount of interaction is termed the degree of customer contact.

  Strategy

Is the direction and scope of an organisation over the long term: Ideally, which matches its resources to its changing environment, and in particular its markets, customers or clients so as to meet stakeholder expectations

Definition of Operations Strategy

Operations strategy is the total pattern of decisions which shape the long-term capabilities of any type of operation and their contribution to overall strategy, through the reconciliation of market requirements with operations resources

Operations strategy is concerned with the reconciliation of market requirements and operations resources. It does this by: Satisfying market requirements (measured by competitive factors) by setting appropriate performance objectives for operations taking decisions on the deployment of operations resources which effect the performance objectives for operations

Using a market-based approach to operations strategy an organization makes a decision regarding the markets and the customers within those markets that it intends to target.

The organization's market position is one in which its performance enables it to attract customers to its products or services in a more successful manner than its competitors. Factors are how a product/service wins orders (for example price, quality and delivery speed).

A resource-based view of operations strategy works from the inside-out of the firm, rather than the outside-in perspective of the market-based approach.

Here there is an assessment of the operations decisions regarding: factors are how a product/service wins orders (for example price, quality and delivery speed).

- ✓ **Structural decisions** - physical arrangement and configuration of resources.

- ✓ **Infrastructural decisions** - activities that take place within the operation's structure.

The nature and complexity of formal and informal processes and tangible and intangible resources is central to the resource- based view of strategy; that is externally unobservable (within firm) factors are at least as important as observable industry market (between firm) factors in determining competitive advantage.

It has been found that not all companies pursue strategy in accordance with a pure market-based approach and it has been found that competitiveness is not just a matter of simply improving performance along specific competitive dimensions in response to market needs, but incorporates the development of capabilities that provide specific operating advantages.

Thus the resource-based view of strategy is that an operation takes a more active role in providing long-term competitive advantage What makes the development of operation strategy particularly challenging is that not only should the market-based and resource-based views of strategy need to be considered at a point in time, but the changing characteristics of markets and the need to develop operations capabilities over time means a dynamic as well as a static view of strategy is required.

Process of operations Strategy

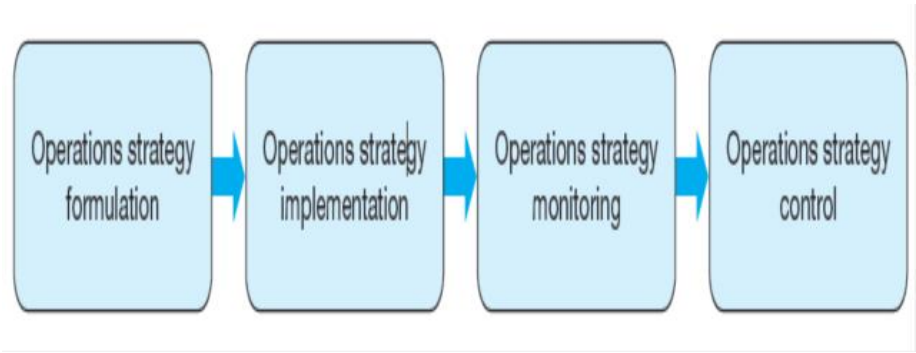

Fig-2

Formulation of operations strategy is the practical process of articulating the various objectives and decisions that make up the strategy.

- ➢ It is essentially about different ways of aligning plans, activities and objectives.

- It will be a relatively occasional activity, although operations strategy consideration may form part of the annual planning cycle. Many detailed formulation models have been developed.

Monitoring and control involves tracking performance, scanning the environment,

Interpreting the information that it detects, and responding appropriately.

Controlling risk through prevention strategies (where an operation seeks to prevent an event occurring), mitigating strategies (where an operation seeks to isolate an event from possible negative consequences) and recovery strategies (where an operation analyses and accepts the consequences from an event but undertakes to minimize, alleviate or compensate for them).

Operations Strategy Decision Areas

Capacity Strategy

- This concerns how capacity and facilities in general should be configured.
- It includes questions such as 'What should be the overall level of capacity?'; 'How many sites should the capacity be distributed across, and what size should they be?'
- 'Should each site be engaged in a broad mixture of activities, or should they specialize in one or two?'
- 'Exactly where should each site be located?'; 'When should changes be made to overall capacity levels?'
- 'How big should each change in capacity be?'
- 'How fast should capacity expansion or reduction be pursued?'; and so on.

Supply Network Strategy

- This concerns how operations relate to its interconnected network of other operations,
- Including customers, customers' customers, suppliers, suppliers' suppliers, and so on. Should we attempt to manage the network in different ways depending on the types of market we are serving?'; 'How many suppliers should we have?'
- 'What should be the nature of our relationship with our suppliers, purely market-based or long-term partnerships?'; 'What are the appropriate ways of managing different types of supplier relationships?'

Process Technology Strategy

- This concerns the choice and development of the systems, machines and processes that act directly or indirectly on transformed resources to convert them into finished products and services

Development and Organization

- This concerns the set of broad- and long-term decisions governing how the operation
- is run on a continuing basis. How do we enhance and improve the processes within the operation over time?'; 'How resources should be clustered together within the business?'; 'How reporting Relationships should be organized between these resources?'
-

Table 1 shows Hotel and manufacturing industry (operational strategy decisions)

How many rooms and other facilities should each hotel have? Should each hotel have the same set of facilities? Where should our hotels be located? How do we manage the long-term expansion or contraction of capacity in each region?	Capacity	How big should each plant be? Should we focus all production on one model on a single site? Where should each site be located? How do we manage the long-term expansion or contraction of overall capacity?
What activities should we be performing in-house and what should we buy in? Do we develop franchise opportunities on our sites? Should we form alliances with other vacation or travel companies?	Supply networks	What parts should we be making in-house and what should we buy in? How do we coordinate deliveries from our suppliers? Should we form long-term supply alliances? How many 'first tier' suppliers should we have?

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To what extent should we be investing in multi-functional information systems? Should all information systems be linked to a central system?	Process technology	What processes should be receiving investment for automation? How can investment in technology increase our flexibility while keeping costs low? Should our process technologies be integrated?
What activities should we be performing in-house and what should we buy in? Do we develop franchise opportunities on our sites? Should we form alliances with other vacation or travel companies?	Supply networks	What parts should we be making in-house and what should we buy in? How do we coordinate deliveries from our suppliers? Should we form long-term supply alliances? How many 'first tier' suppliers should we have?

Difference between operations management and operations strategy

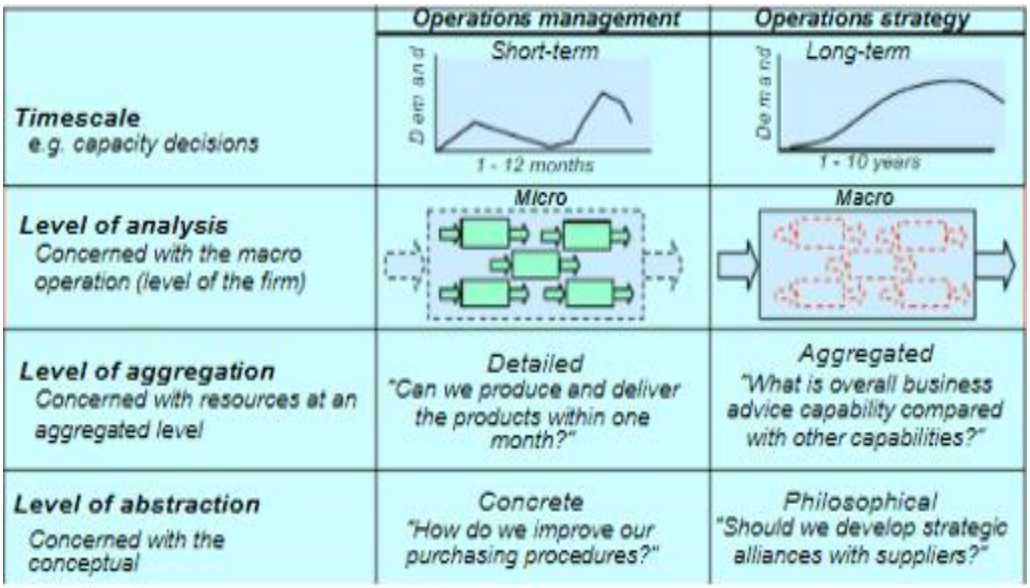

Fig- 3

Four Perspectives on Operations Strategy

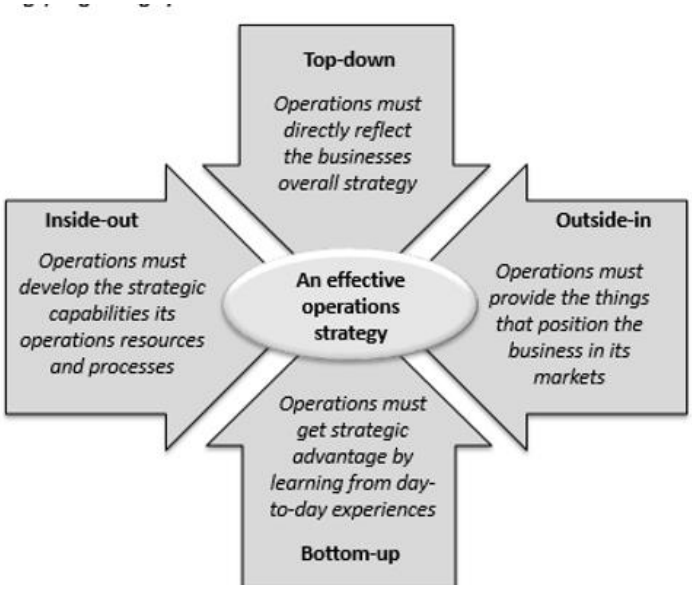

Fig.4

Operations strategy is a *top-down* reflection of what the whole group or business wants to do. An operations strategy (or functional strategy) must reflect the decisions taken at the top of the organization and which set the overall strategic direction of the organization.

This is called a 'top-down' approach to operations strategy. So, if the organization is a large, diversified corporation, its corporate strategy will consist of decisions about what types of business the group wants to be in, in what parts of the world it wants to operate, what businesses to acquire and what to divest, how to allocate its cash between its various businesses, and so on. Within the corporate group, each business unit will also need to put together its own business strategy, which sets out its individual mission and objectives, as well as defining how it intends to compete in its markets.

Operations strategy is a bottom-up activity where operations improvements cumulatively build strategy.' shape the operation's objectives and action, at least partly by the knowledge it gains from its day-to-day activities'.

Philosophy of continual and incremental improvement that is built into the strategy-making process.

- Operations strategy involves translating *market requirements* into operations decisions.
- The organization itself usually has some influence over what its markets demand, if for no other reason than that it has chosen to be in some markets rather than others.
- Therefore, by choosing to inhabit a particular market position, the organization is, to some extent, influencing how easy it is for the operations function to support the market position.

- Operations strategy involves exploiting the capabilities of *operations resources* in chosen markets.
- How different resources, such as processing centers, are positioned relative to each other, how staff are organised into units and so on.
- These arrangements of resources constitute the processes of the operation that describe the way things happen in the operation. To return to the automobile analogy, processes are the mechanisms that power, steer and control its performance.

The Role of Operations Strategy

The role of operations strategy is to provide a plan for the operations function so that it can make the best use of its resources.

Operations strategy specifies the policies and plans for using the organization's resources to support its long-term competitive strategy.

Operations function is responsible for managing the resources needed to produce the company's goods and services.

- Operations strategy is the plan that specifies the design and use of resources to support the business strategy.
- This includes the location, size, and type of facilities available; worker skills and talents required; use of technology, special processes needed, special equipment; and quality control methods.
- The operations strategy must be aligned with the company's business strategy and enable the company to achieve its long-term plan.

Importance of operations strategy

- The number, type, size and location of operations facilities
- Type of equipment that will be utilized (focused and specific or general-purpose and flexible, automated or principally manual)
- Decision buying or decision making
- Organizational structure (whether it is suitable to accomplish and coordinate all the necessary efforts)
- The workforce selection, employment security, compensation methods and management style.
- The information systems that will be used to collect, analyse and distribute information on production, purchasing, inventory, quality, personnel, etc.
- Production planning, scheduling and control, system and inventory policy
- The quality of control and improvement methods that will be used
- machine man power

Linkage with Corporate Strategy, Strategies, Values and Services in Operations Management. Strategy can be seen to exist at 3 main levels

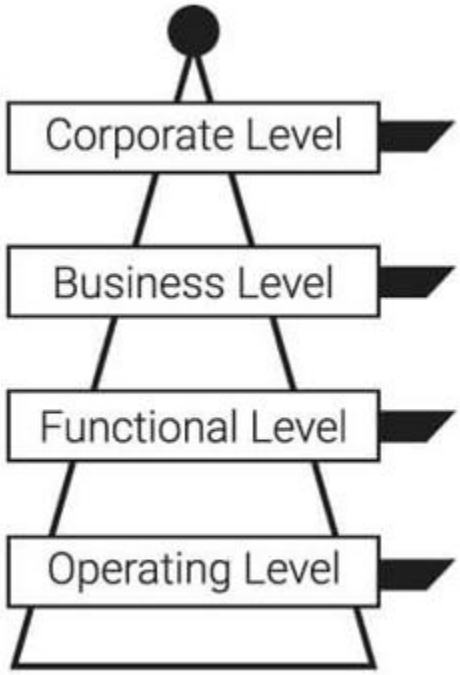

Fig -5

- **Corporate level Strategy**
- At the highest or corporate level the strategy provides long-range guidance for the whole organization – What business should
- **Business Level Strategy**
- Here the concern is with the products and services that should be offered in the market defined at the corporate level – How do we compete in this business?
- **Functional Level Strategy**

Linkage between Operations Management with Operations Strategy

- This is where the functions of the business (e.g. operations, marketing, and finance) make long-range plans which support the competitive advantage being pursued by the business strategy- How does the function contribute to the business strategy?

- The relationship of operations management with other functional areas in the overall organizational strategy is important to consider. The cost of goods sold is not the only area where costs controls take place. The business leaders need to consider all levels of costs from operations, sales, administrative and distribution. Strategies must match the overall mission and vision of the company.
- For example, if the wallet manufacture's mission is to provide higher quality handmade wallets, then bulk automation with machines doesn't feed into this strategy. The COGS may be more expensive because the labor costs in operations go up. If that is the case, the company needs to consider increasing the price of the products or to reduce costs elsewhere in the company, perhaps in administrative areas.
- Another example is that if the company is expanding and needs to increase production. In this instance, costs will increase, but with proper operations management, double production won't mean that the COGS pricing will not double. The organizational strategy here is to scale up the production and sales in a way that enables a greater profit-per-unit ratio, because production has achieved greater efficiency. Every step must consider the effect of that strategy to the COGS; it must also consider what the effect of that strategy is on the overall bottom line of the company. Every company's goal is to be as profitable as possible. Having good operations management provides the efficiency to achieve that.

Operations StrategyFormulation

There are many alternative procedures for developing an operations strategy for a particular organization. These will generally require an analysis of market requirements (marketing) and the operation’s resource capabilities (operations).

Hill framework for Operations Strategy Formulation

- Hill (2005) provides an iterative framework that links together the corporate objectives; which provide the organisational direction, the marketing strategy; which defines how the organisation will compete in its chosen markets, and the operations strategy; which provides capability to compete in those markets.

  The framework consists of five steps:

1. Define corporate objectives
2. Determine marketing strategies to meet these objectives
3. Assess how different products win orders against competitors
4. Establish the most appropriate mode to deliver these sets of products
5. Provide the infrastructure required to support operations

Step 1 Corporate Objectives

Involves establishing corporate objectives that provide a direction for the organisation and performance indicators that allow progress in achieving those objectives to be measured. The objectives will be dependent on the needs of external and internal stakeholders and so will include financial measures such as profit and growth rates as well as employee practices such as skills development and appropriate environmental policies.

For example

Switzerland based Rolex_ watch companies are facing a threat from smart watches so switz watch companies are offering around 85 %of price value to clear unsold watches until to generate revenue, to keep their sales volume and keep their profitability in much lower way. These kind of strategies will evolve reduction in sales volume finalized goods industry as well as to revive an clock watches prices at par with smart watches Analog watch incorporates digital version along with added value features compete with smart watches

Step 2 Marketing Strategy

- This involves identifying target markets and how to compete in these markets.

For example

Adidas covers the market for youngsters sport persons are the target market so their strategy evolves a product range pricing comfortless and value for money which attracts the

target segment their advertisement and promotional strategies where used sport personalities to attract the target age group .

Step 3 How Do Products Win Orders in the Market Place

This is the crucial stage in Hill's methodology where any mismatches between the requirements of the organization's strategy and the operations' capability are revealed. This step provides the link between corporate marketing proposals and the operations processes and infrastructure necessary to support them.

This is achieved by translating the marketing strategy into a range of competitive factors (e.g. price, quality, delivery speed) on which the product or service wins orders. These external competitive factors provide the most important indicator as to the relative importance of the internal operations performance objectives.

The five basic internal operation's performance objectives allow the organization to measure its operation's performance in achieving its strategic goals. The performance objectives are Quality, Speed, Dependability, Flexibility and Cost. At this stage it is necessary to clarify the nature of the markets that operations will serve by identifying the relative importance of the range of competitive factors on which the product or service wins orders. Hill distinguishes between the following types of competitive factors which relate to securing customer orders in the marketplace.

- ✓ **Order-winning factors** – They are key reasons for customers purchasing the goods or services and raising the performance of the order-winning factor may secure more business
- ✓ **Qualifying factors** – Performance of qualifying factors must be at a certain level to gain business from customers, but performance above this level will not necessarily gain further competitive advantage.

From the descriptions above it can be seen that it is therefore essential to meet **both qualifying and order-winning criteria in order to be considered and then win customer orders.**

Step 4 Delivery System Choice (Structural Decisions)

Process Types are ways of describing the general approach taken to designing and managing processes. They are based on two important factors in process design: the volume and variety of the products and services that an organisation processes.

Step 5 Provide the infrastructure required to support operations

Planning and Control in Operation is about reconciling market requirements (demand) with the operation's resources (supply). Planning determining the timing and nature of actions that should take place in the future. Control is when as the operation is ongoing, determining what action to take if there is a significant deviation from what should be happening. In reality planning and control activities are intertwined in an ongoing organization. Competitive strategy and customer prioritizes

Competitive Strategy and Customer Prioritizes

A company's competitive strategy defines, relative to its competitors, the set of customer needs that it seeks to satisfy through its products and services. For example, Wal-Mart aims to provide high availability of a variety of products of reasonable quality at low prices.

For example

Most products sold at Wal-Mart are commonplace (everything from home appliances to clothing) and can be purchased elsewhere. What Wal-Mart provides is a low price and product availability. McMaster-Carr sells maintenance, repair, and operations (MRO) products.

It offers more than 500,000 products through both a catalog and a Web site. Its competitive strategy is built around providing the customer with convenience, availability, and responsiveness.

With this focus on responsiveness, McMaster does not compete based on low price. Clearly, the competitive strategy at Wal-Mart is different from that at McMaster In each case,

the competitive strategy is defined based on how the customer prioritizes product cost, delivery time, variety, and quality.

A McMaster-Carr customer places greater emphasis on product variety and response time than on cost. A Wal-Mart customer, in contrast, places greater emphasis on cost.

Customer prioritizes product cost, delivery time, variety, and quality A McMaster-Carr customer places greater emphasis on product variety and response time than on cost. A Wal-Mart customer, in contrast, places greater emphasis on cost.

Strategic fit

Requires that both the competitive and supply chain strategies of a company have aligned goals. It refers to consistency between the customer priorities that the competitive strategy hopes to satisfy and the supply chain capabilities that the supply chain strategy aims to build. For a company to achieve strategic fit, it must accomplish the following:

1. The competitive strategy and all functional strategies must fit together to form a coordinated overall strategy. Each functional strategy must support other functional strategies and help a firm reach its competitive strategy goal.

2. The different functions in a company must appropriately structure their processes and resources to be able to execute these strategies successfully.

3. The design of the overall supply chain and the role of each stage must be aligned to support the supply chain strategy.

How Is Strategic Fit Achieved?

To achieve strategic fit, a company must ensure that its supply chain capabilities support its ability to satisfy the needs of the targeted customer segments. There are three basic steps to achieving this strategic fit, which we outline here and then discuss in more detail

1. Understanding the Customer and Supply Chain Uncertainty: First, a company must understand the customer needs for each targeted segment and the uncertainty these needs impose on the supply chain. These needs help the company define the desired cost and service requirements. The supply chain uncertainty helps the company identify the extent of the unpredictability of demand, disruption, and delay that the supply chain must be prepared for.

2. **Understanding the Supply Chain Capabilities**: Each of the many types of supply chains is designed to perform different tasks well. A company must understand what its supply chain is designed to do well.

3. Achieving Strategic Fit: If a mismatch exists between what the supply chain does particularly well and the desired customer needs, the company will either need to restructure the supply chain to support the competitive strategy or alter its competitive strategy.

Strategic fit could be classified into

1. Market related Fits.

2. Operating Fit

3. Management Fit.

Market related fit arises when value chains of different businesses overlap so that the products can be used by same customers, marketed and promoted in a similar way and have a common distribution channel (common dealers and retailers)

Market related fit could be of following types:

1. Common sales force to call on customers

2. Advertising related products together

3. Use of same brand names

4. Joint delivery & shipping

5. Joint after-sale service & repair work

6. Joint order processing & billing

7. Joint promotional tie-ins

8. Cents-off couponing, trial offers, specials

9. Joint dealer networks

Operational Fit:

Operational Fit arises when different businesses work along in order to explore opportunities for cost-sharing or skill transfer.

Types of Operational Fits are:

1. Procurement of purchased inputs

2. R&D/technology

3. Manufacture & assembly

4. Administrative support functions

5. Marketing & distribution

Benefits of Operating Fits.

As both businesses tend to work together they often save lot on cost. The companies are able to tap into more economy of scale and/or economies of scope. Both the businesses often tend to increase operation efficiency through sharing of related activities.

Management Fit:

This fit revolves around a comfort that is built among both the businesses in terms of some comparable units like Entreasures, Administration and various administrative activities , operating problems. It allows accumulated managerial know-how in one business to be used in managing another business.

It is necessary that business management should take actions to capture benefits as they don't just happen. Benefits with sharing potential must be recognized so that activities to be shared are merged and coordinated. When skill transfer takes place a means must be found to make it effective.

A Frame Work For Operations Strategy in Manufacturing

Manufacturing strategy • Manufacturing strategy as a concept was first recognized by Skinner (1969), referring to a manufacturing strategy as to exploit certain properties of the manufacturing function to achieve competitive advantages.

• Hayes and Wheelwright (1984) describe manufacturing strategy as a consistent pattern of decision making in the manufacturing function linked to the business strategy.

• Swamidass and Newell (1987) describe manufacturing strategy as a tool for effective use of manufacturing strengths as a competitive weapon for achievement of business and corporate goals. Competitive Priorities • Link between market requirements and manufacturing.

• Hill (1995) presented the concept of order winners and qualifiers related to the importance of competitive priority dimensions. • Competitive priorities defines the set of manufacturing objectives and represents the link to market requirements .Dimensions commonly used are; cost, quality, flexibility, and delivery

• **Qualifying criteria** (dimensions) are those that a company must meet for the product to even be considered in the market place. Common criterions considered qualifiers are conformance quality and delivery reliability.

• **Order winning** criteria are those that differentiate the manufacturer from its competitors and "win" the order

Decision categories •

The operationalization of manufacturing strategy comes through a pattern of decisions. • Decisions within the manufacturing functions determine which resources to use, what routines to use, i.e. what practices to employ and emphasise in order to achieve the manufacturing objectives. • The set of practices, resources, routines used ultimately determine the operating characteristics of the manufacturing system, i.e. the manufacturing capabilities.

Case study (Galanz)

The largest microwave oven manufacturer in the world. Competed based on lowest cost through efficient utilization of capacity and process improvement. Combining OBM, OEM and ODM to achieve economy of scale. 60%-70% of the domestic in 2002 and 50% of the international market share in 2007.

Past Growth Strategy

- ✓ Opportunity sizing (domestic) and stable technology.
- ✓ Cost arbitrage (labour and assets).
- ✓ Transfer of production lines and 4x operating time.
- ✓ Adoption of penetration pricing strategies leveraging economies of scale.
- ✓ Actualization of R&D investments.
- ✓ Collaboration with large retailers, as K-Mart and Wal- Mart.
- ✓ Development of overseas R&D facilities.

Recent Challenges

- ✓ Low brand awareness in overseas markets.
- ✓ Antitrust (Anti-monopoly) lawsuits.

Prioritization of the business models.

- ✓ Conflicts of interest of OBM and OEM businesses (Sales and Service networks).
- ✓ Centralized decision making body and compliance governance.
- ✓ Customization production capabilities and capacity challenges for magnetron production.
- ✓ Inefficient production planning

Case Analysis

Galanz most important objective was cost, it only had an abundant supply of labour and land. Delivering quality product. became the leading company of the market. The supplier refused to supply the most important component magnetron to it. It develop its own design, innovation. In 1997, the company initiated major invest in magnetron. By 2000, the company was able to design and produce its own magnetron. The company was able to produce only 16 million units where the demand was 25 million units in 2003. Galanz found itself outsourcing

part of the magnetron production to other companies. The problem was solved by outsourcing with the Japanese company. It produced oven for the domestic market with its own brand name, while production technology was produced from Japan. It produced microwave ovens at low cost, combined with its enhanced R&D ability had allowed it to compete with major successful players like Panasonic, Toshiba and LG.

Galanz's Operation's Strategy Introduction Identification of potential product. Blueprint purchased from world leader (Toshiba) in microwave oven equipment and Technology producer in early 1990's. Factory set up with professional engineers with ample knowledge of this technology. Advantage of abundant supply of cheap labours and land. Cost leadership strategy to increase the market share.

Growth Cost leadership strategy.

- **Strategic alliance with other big appliance companies and its suppliers.**
    - Full utilization of resources.
    - Shift toward product oriented process.
    - Increase its production scale and reduce production cost.
    - Tactics of price war to dominate to competitors in domestic market.
    - Focus on enhancing the distribution of product.
    - Existing product's improvement and design & development of new product.
    - Strategic partnerships with multinational companies.

OEM business in the international market

- Employing OEM method was proven to be success factor of Galanz

 Reasons

- Galanz went into global market using OEM business.
- Enabled the company to use its own manufacturing equipment's.
- Galanz exceeded other chinese manufacturers.
- OEM microwave ovens- the primary exports. No brand recognition to the end users.
- Investment in R&D and import of new technologies allowed to cost reduction and differentiation.

- ❖ Transfer from OEM to ODM after production of magnetrons in own company.

OBM Dilemma

Increase demand for branded products because of competition in MNCs.

Galanz's produced products at low cost with good quality.

Exported products without any idea about brand name to the end users. Exploration of brand name to the users can be possible through OBM business.

The company doesn't have to change its cost leadership because price reductions increased sales by about 100%. The purposes of this price war were to consolidate the industry by marginalizing small, inefficient players before they had a chance to grow and discourage new entrants. A high profit margin in the industry would encourage excessive entry.

Galanz may concentrate on a certain part in the value chain and form strategic alliance to do sales, production, R&D and market together. the first benefit is the Cost, second is the Low Risk and third could be merger and acquisition.

Priorities to achieve competitive advantage

 High Quality **Fast Delivery** **Reliable Delivery** Flexibility

Problems and Solutions Problem Solution

Increase in demand Outsourcing of Magnetrons Retrenchment by suppliers Transfer from OEM to ODM Handling of customer complaint Company had to invest in enhancing customer service capabilities Difficult in handling cultural difference in overseas market should adopt global marketing strategy

In order to lead the company to greater success execute a joint venture. Venture into wholly-owned subsidiary types to international expansion. should try to setup a link Joint Venture with another house appliances manufacturer such as GE or its competitors like Sharp and/or Panasonic. forming a Joint Venture would present Galanz with various advantages. they may also look for merger and acquisition.

Future competitive strategy for the combination of OEM, ODM and OBM businesses.

 Effective sharing of value chain activities. Effective resource allocation for competitive advantage. Vertical relationship to adopt for magnetron production.

Conclusion

- ✓ Started with the concentration strategy at the initial stage of establishment.
- ✓ Followed a total cost leading strategy.
- ✓ Carried out a corrective diversification strategy on the precondition that it had gained absolute competitive advantages in the original field.

- ✓ Main disadvantage is the lack of clear brand strategy. No value description and plan for its brand.

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SCHOOL OF MANAGEMENT STUDIES

UNIT – 2 – OPERATION STRATEGY – SBAA7027

Contents - Value as business concept - strategic issues in manufacturing - Value Chain concept Focus, core competence and distinctive capabilities - stake holders & strategy, Checking markets, Outcome of Market debate - Linking manufacturing to Markets - strategic integration - why products sell in the markets - Order Winners, Order Qualifiers.

Business value as the entire value of the business; the total sum of all tangible and intangible elements. Examples of tangible elements include monetary assets, stockholder equity, fixtures, and utility. Examples of intangible elements include brand, recognition, good will, public benefit, and trademarks.

In business valuations, the value of a business or company will depend upon the concept of value, which have been defined to enable common comparison and analysis between the different concepts of value.

In simple terms, it simply covers both the monetary and non-monetary values of a firm. It can be manipulated by managing the current project efficiently. All organizations run business-related activities even if they aren't business driven like a government agency or a nonprofit organization. All organizations aim for attaining business value for their activities.

The concept of business value is fairly subjective and it depends on the needs of the organization. For example, the business value for an investor aiming solely on financial benefits would be different than of an entrepreneur aspiring personal goals and development.

- **Book Value**
- Book value is the amount at which an asset or liability is recorded on the entities books of accounts.
- **Depreciated Value**
- Depreciated value or written down value is the net amount after deducting depreciation or amortization.
- **Going Concern Value**
- Going concern value is the value of an asset to the enterprise as a going concern or the value of an asset 'in use'. Most business valuations will be prepared on the basis of a going concern.

- **Liquidation Value**
- Upon winding up, the assets of a business are realised in a shorter timeframe which results in the assets on achieving their full value. It would generally equal the amount that could be achieved at public auction.
- **Fire Sale Value**
- Fire sale value is the price at which an asset could be sold in the shortest possible time regardless of how low a price is obtained.
- **Intrinsic Value**
- Intrinsic value is a concept based on the theoretical 'true worth' of an asset and is determined by its past record and potential earning power. The intrinsic value of an asset may be much higher than the market value as the market may under value the asset due to doubts about the ability of the entity to achieve its intrinsic value.
- **Fair Market Value and Market Value**

The concepts of fair market value and market value have a common thread in terms of their definition and in many situations used interchangeably.

Measure Business Value

The subjective and dynamic nature of business value may land you to the question that whether business value can be measured or not and the answer is yes. Following factors can help you determine the business value of a particular organization:

- Revenue
- Profitability
- Market share
- Brand recognition
- Customer loyalty
- Customer retention
- Share of wallet
- Cross-selling ratio
- Campaign response rate

- Customer satisfaction

Steps to deliver Business Value

- Understand the Vision
- Be clear about the business value of the project

  Evangelize the vision and business value to the project team
- Foster a team environment to effectively deliver value
- Measure the realization of the business value

Value chain analysis

- A value chain is used to describe all the business activities it takes to create a product from start to finish (e.g., design, production, distribution, etc.). And a value chain analysis gives businesses a visual model of these activities.
- With this analysis, you can take steps to create a competitive advantage, improve efficiency, and increase profit margins. Let's take a deeper look into value chain analysis and learn how you can analyze your business activities.

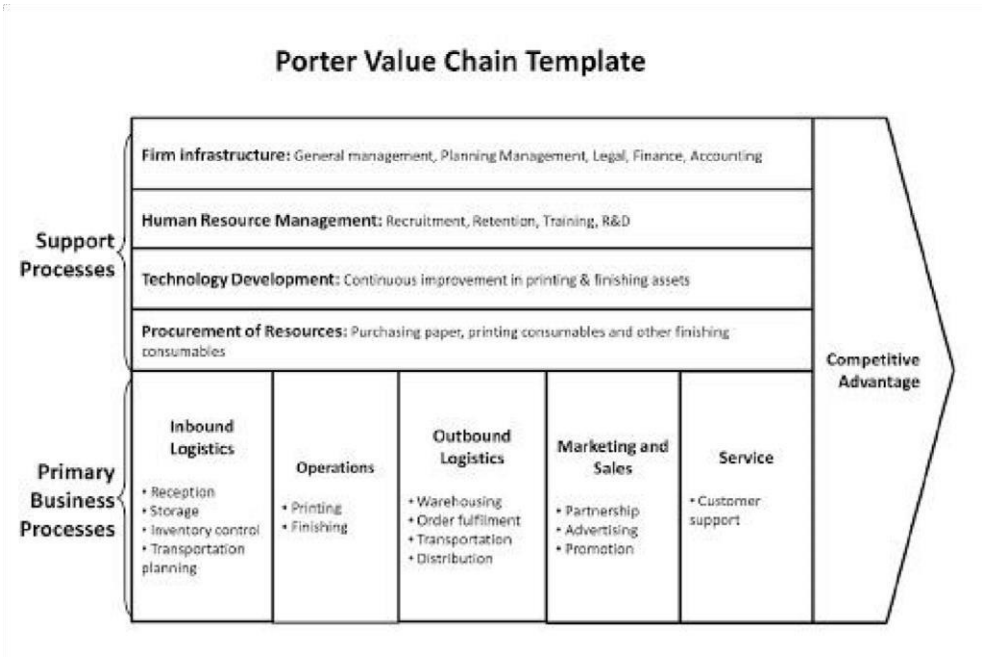

Fig.1

- **What Is Value Chain Analysis?**

  Value chain analysis is a way for businesses to analyze the activities they perform to create a product. Once the activities are analyzed a business can use the results to evaluate ways to improve its competitive advantage.

-
- **Competitive Advantage**
- A business can gain a competitive advantage in one of the following areas.
-
- **1. Cost Leadership**
- The goal of a cost leadership strategy is to become the lowest-cost provider in your industry or market. Companies who excel with a low-cost strategy have extreme operational efficiency and use low-cost materials and resources to reduce the overall price of their product or service.
- **Cost leadership examples: McDonald's and Walmart**

- **2. Differentiation**
- With a differentiation strategy, the competitive advantage is gained by offering a unique or highly specialized product or service. The business needs to dedicate time and resources to innovation, research, and development. A successful differentiation strategy allows the business to set a premium price for its product or service.
- **Differentiation examples: Starbucks and Apple**
- It's best to pick a single competitive advantage to focus efforts on. Depending on which competitive strategy you choose the goal of your value chain analysis will be to either reduce costs or differentiate to improve margins. Then you'll have a clear idea of your business' goals, how you plan to provide value, and it narrows the scope of changes that might need to be made to improve efficiency.
- **porter's Value Chain Analysis**
  Harvard Business School professor, Michael Porter, introduced a simple value chain model in his book, "Competitive Advantage". He developed the steps to perform a value chain analysis and split business activities into two categories: primary and support.

- **Value Chain Analysis Steps**
- Value chain analyses require research and can take time to develop. Below are the general steps it takes to create a value chain analysis:
- **1. Determine the business' primary and support activities.**

- Together, the primary and support activities make up the value chain. And they include each action required in the development of a product or service, from raw material to final product.
- **2. Analyze the value and cost of the activities.**
- The team tasked with creating the value chain analysis should brainstorm ways each activity provides value to customers and the business as a whole. Compare the activity to the competitive advantage you're trying to achieve (cost leadership or differentiation) and see if it supports the goal.
- After the value analysis is complete, take a look at the cost of the activities. Is the activity labor intensive? How much does X raw material cost? Asking questions similar to these will help identify which activities are cost-effective and which are not.
  This where areas for improvement can be identified.
- 3**. Identify opportunities to gain a competitive advantage.**
- Once the value chain analysis is complete, the primary stakeholders in the business can see an overview of where the business is excelling and where improvements can be made operationally.
- Begin with the improvements that take minor changes and provide high-impact results. After the easy wins are identified and actioned, you and your team can tackle the bigger challenges that might be hindering efficiency.
  The value chain analysis gives businesses a clear idea of how to adjust their actions and processes to provide the most value to their target market and increase profit margins for the company.
- **Primary and Support Activities**
- Identifying the primary and support activities is the first step in creating a value chain analysis. These are the key processes and systems a business uses to develop is product or service.

Primary Activities

There are five primary activities and they include all the actions that go into the creation of a business' offering.

1. **Inbound Logistics**

This is how materials and resources are gained from suppliers before the final product or service can be developed.

2. **Operations**

Operations are how the materials and resources are produced, resulting in a final product or service.

3. **Outbound Logistics**

Once a product or service is finished, it needs to be distributed. Outbound logistics describes this delivery process.

4. **Marketing and Sales**

This is how your product or service is presented and sold to your ideal target market.

5. **Services**

This is the support a business provides for the customer which can include support and training for the product, warranties, and guarantees.

Support Activities

Support activities help the primary activities in creating an advantage over competitors, and they include:

1. **Firm Infrastructure**

This entails all the management, financial, and legal systems a business has in place to make business decisions and effectively manage resources.

2. **Human Resource Management**

Human resource management encompasses all the processes and systems involved in managing employees and hiring new staff. This is especially important for companies that provide in person service, and excellent employees can be a competitive advantage.

3. **Technology Development**

Technology development helps a business innovate. And technology can be used in various steps of the value chain to gain an advantage over competitors by increasing efficiency or decreasing production costs.

4. **Procurement**

This is how the resources and materials for a product are sourced and suppliers are found. The goal is to find quality supplies that fit the business' budget.

Value Chain Analysis Example

- Value chain analysis allows businesses to examine their activities and find competitive opportunities. For example, McDonald's mission is to provide customers with lowpriced food items. And the analysis helps McDonald's identify areas for improvement and activities that add value to their products and services or activities
- **Example of a value chain analysis for McDonald's and it's cost leadership strategy**.

Inbound Logistics

McDonald's has pre-selected, low-cost suppliers for the raw materials for their food and beverage items. It sources supplier's for items like vegetables, meat, and coffee.

Operations

The business has is a franchise and each McDonald's location is owned by a franchisee. There are more than 37,000 McDonald's locations worldwide.

Outbound Logistics

Instead of formal, sit-down restaurants, McDonald's has fast-casual restaurants that focus on counter service, self-service, and drive-through service.

Marketing and Sales

Its marketing strategies focus on media and print advertising, including social media posts, magazine advertisements, billboards, etc.

Services

McDonald's strives to achieve high-quality customer service. And it provides its thousands of employees with in-d

Key's Distinctive Capabilities Framework

Kay's Distinctive Capabilities Framework

Fig.2

Distinctive capabilities– they are capabilities that are unique to your business, which give you a competitive advantage over the rest of the market. All business owners and managers understand that they need a unique selling proposition, or USP, in order to make a dent in a competitive market. However, that USP can be hard to find, unless you have the advantage of leveraging one or more distinctive capabilities that are held by your company.

While a distinctive capability is not, in and of itself, a competitive advantage, it is what gives you the opportunity to create a competitive advantage that can be taken to market. Think about distinctive capabilities in the same way you would think about talent for an individual – it is a differentiating factor, and it provides the opportunity to succeed down the road.

The Non-Capabilities

One of the most interesting parts of this framework is what it leaves out – in other words, the factors that are not seen as being distinctive capabilities. While you might think of some of the points below

as being things that would fall into this category, the creator of the framework, Taking better products to market than the competition

Selling products more efficiently

Using better methods to produce, market, or sell products

These points are certainly cornerstones of running a good business, so why aren't they considered to be distinctive capabilities? Mostly because they are not unique and will not be an advantage over other businesses in the long run. Kay considers these parts of business to be 'easy' – in other words, they can be copied quickly by the competition.

. Distinctive capabilities need to be, by definition, things that remain unique to the company over the long haul. Only then will they truly be advantages, and only then will they be able to lead the business to success.

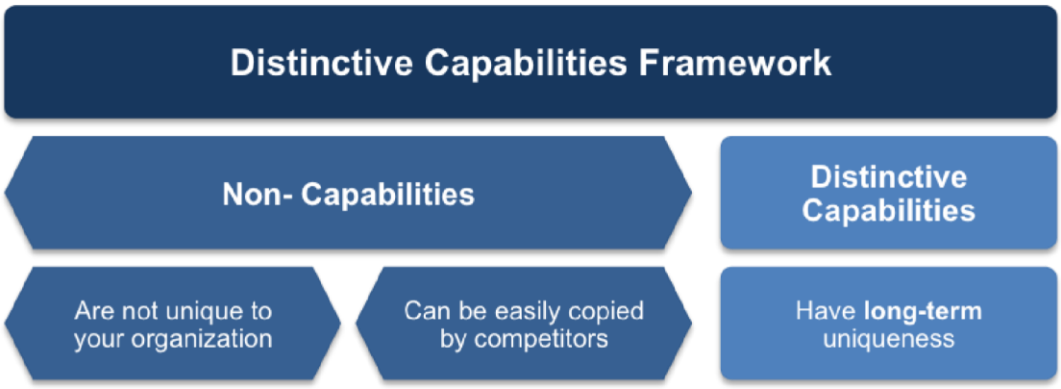

Fig 3

Three Distinctive Capabilities

According to Kay, true distinctive capabilities fall into one of three categories. Those categories are listed below, along with a quick definition.

Reputation

To build a brand reputation that evokes feelings of trust and confidence in the consumer, you have already won the battle. It is not easy to develop a positive reputation for your brand, but when you do, that reputation should be treated like gold because it is an incredibly valuable commodity.

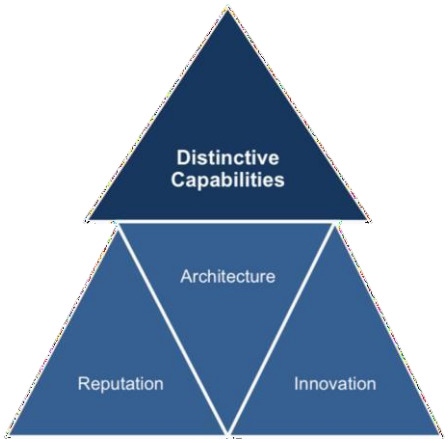

Fig.4

A good reputation can rise above everything else to make the buying decision easy for the consumer. Rather than picking an item based on cost or marketing, the buyer may select your product on the strength of your reputation alone – which is a unique competitive advantage that cannot be easily replicated by your competition. Although they may be able to create a product that is similar, or even identical, to what you offer, the competition cannot take your brand name, and it is that brand that contains a great deal of your distinctive capability.

Architecture

The structure of your business is unique, and can therefore become a distinctive capability when it is formed in such a way that it provides value to the business. The connections you have with suppliers, the people you have working for the company, the list of customers that you have accumulated to this point – all of those groups come together to form the architecture of your business.

Fig.5

Sure, there is going to be some overlap with your competition on these points, specifically with regard to customers and suppliers, but the specific structure of your organization is still going to be unique. Taking the time to build this part of the business with great care could lead you to having a big competitive advantage in the marketplace.

Innovation

It is often the most innovative companies who are proven to be the most successful in the long run. Why is that? Because they can remain one or two steps ahead of the competition on an ongoing basis. The products that they innovate may not remain unique for long, because there will always be competition doing what it can to copy the successful products that are on the market, but that is okay because an innovative company is always moving on to the next big thing. By consistently innovating with new products and ideas, you can leave your competition struggling to keep up.

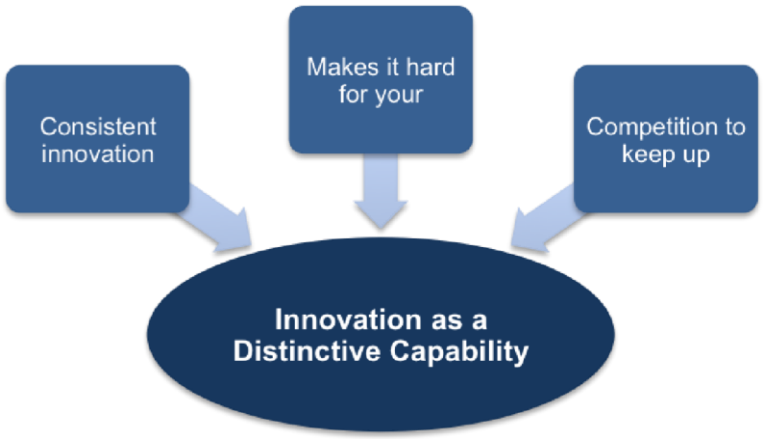

Fig.6

Another benefit of innovating is building up your reputation as was mentioned in the first capability. When consumers realize that you are consistently innovating within your field, you may build up a degree of brand loyalty and trust that can carry you to a large market share. Even when other **'copycat'** products hit the shelves, you may still come out on top because of your reputation as an innovator in the industry.

Using Kay's Distinctive Capabilities Framework will allow you to think about your business in a way that may be new and revealing. Work through the three capabilities that are defined in this framework to find where you might be able to stand out from the competition.

Stakeholder and strategy

"A stakeholder is any person or organization affected by or with the power to influence a company's decisions and actions"

Stakeholder is any person or organization affected by or with the power to influence a company's decisions and actions" (Blowfield and Murray, “Corporate Responsibility”)

 A take holder in an organization is... “Any group or individual who can affect or is affected by the Achievement of the organization’s objectives” (European Business Ethics Network)

 From a business perspective, we’ve gone from: "A stakeholder is anyone that can screw up my business" (2002) to: "Stakeholders are source of innovation and risk management for my company" (2015) But most organizations still live within the first paradigm

What strategies or actions should our organization take to best manage stakeholder challenges & opportunities?

Principles of stakeholder management

Acknowledge

Monitor

Listen

Communicate

Adopt

Recognize, Work, Avoid, and Acknowledge conflict

Principles of stakeholder management

1. Managers should acknowledge and actively monitor the concerns of all legitimate stakeholders
2. Managers should listen to and openly communicate with stakeholders about their respective concerns and contributions, and about risks that they assume
3. Managers should adopt processes and models of behaviour that are sensitive to the concerns and capabilities of each stakeholder
4. Managers should recognize the interdependence of efforts and rewards among stakeholders, and should attempt to achieve a fair distribution of the benefits and burdens of corporate activity among them, taking into account their respective risks and vulnerabilities
5. Managers should work cooperatively with other entities to ensure that risks from corporate activities are minimized, and where they cannot be avoided, appropriately compensated

6. Managers should avoid altogether activities that might jeopardize inalienable human rights or give rise to risks which, if clearly understood, would be unacceptable to relevant stakeholders

7.Managers should acknowledge the potential conflicts between (a) their own role as corporate stakeholders, and (b) their legal and moral responsibilities for the interests of stakeholders, and should address such conflicts through open communication, appropriate reporting, incentive systems, and, where necessary, third-party review

Strategic integration

Strategic integration is the carefully controlled combination of what the student already knows with what he or she has to learn so that the relationship between these two elements is clear and results in new or more complete knowledge

Strategic integration involves more fully exploiting growth potential by combining resources and competencies from business units and directing those units toward new business opportunities that extend the existing corporate strategy

Definition "It is the process of acquiring or merging with competitors, leading to industry consolidation." "Horizontal integration is a strategy where a company acquires, mergers or takes over another company in the same industry value chain."

  For example, Disney merging with Pixar (movie production)

Vertical integration

Vertical integration is a competitive strategy by which a company takes complete control over one or more stages in the production or distribution of a product.

A company opts for vertical integration to ensure full control over the supply of the raw materials to manufacture its products. It may also employ vertical integration to take over the reins of distribution of its products.

A classic example is that of the Carnegie Steel Company, which not only bought iron mines to ensure the supply of the raw material but also took over railroads to strengthen the distribution of the final product. The strategy helped Carnegie produce cheaper steel, and empowered it in the marketplace.

Horizontal integration

Horizontal integration is another competitive strategy that companies use. An academic definition is that horizontal integration is the acquisition of business activities that are at the same level of the value chain in similar or different industries.

In simpler terms, horizontal integration is the acquisition of a related business: a fast-food restaurant chain merging with a similar business in another country to gain a foothold in foreign markets.

Types of vertical integration strategies

As we have seen, vertical integration integrates a company with the units supplying raw materials to it (backward integration), or with the distribution channels that carry its products to the end-consumers (forward integration).

For example, a supermarket may acquire control of farms to ensure supply of fresh vegetables (backward integration) or may buy vehicles to smoothen the distribution of its products (forward integration).

A car manufacturer may acquire tyre and electrical-component factories (backward integration) or open its own showrooms to sell its vehicle models or provide after-sales service (forward integration).

There is a third type of vertical integration, called balanced integration, which is a judicious mix of backward and forward integration strategies.

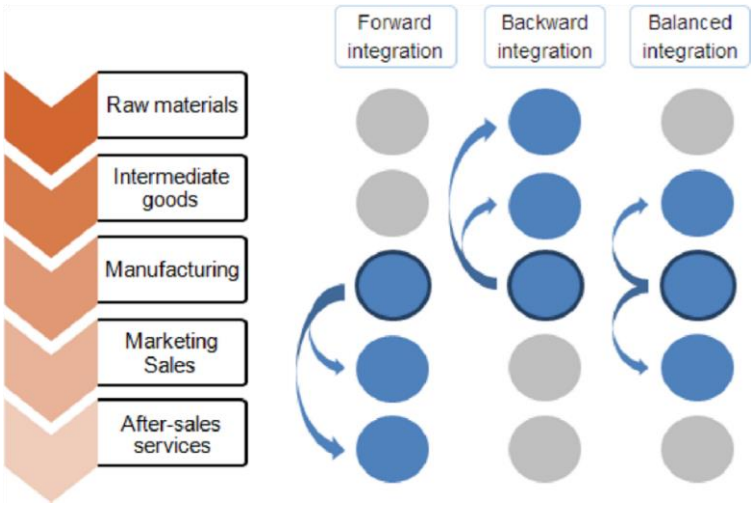

Fig .10

When is vertical integration attractive for a business?

Several factors affect the decision-making that goes into backward and forward integration. A company may go in for these strategies in the following scenarios:

- The current suppliers of the company's raw materials or components, or the distributors of its end products, are unreliable
- The prices of raw materials are unstable or the distributors charge high fees

- The suppliers or distributors earn big margins
- The company has the resources to manage the new business that is currently being taken care of by the suppliers or distributors
- The industry is expected to grow significantly
- Horizontal integration, as we have seen, is a company's acquisition of a similar or a competitive business—it may acquire, but it may also merge with or takeover, another company to strengthen itself—to grow in size or capacity, to achieve economies of scale or product uniqueness, to reduce competition and risks, to increase markets, or to enter new markets.

  Quick examples of horizontal expansion are Standard Oil's acquisition of about 40 other refineries and the acquisition of Arcelor by Mittal Steel and that of Compaq by HP.

When is horizontal integration attractive for a business?

A company can think of acquisitions and mergers for horizontal integration in the following situations:

- When the industry is growing
- When rivals lack the expertise that the company has already achieved
- When economies of scale can be achieved
- When the company can manage the operations of the bigger organisation efficiently, after the integration

Why products sell in the market

The marketing plan section of the business plan explains how you're going to get your customers to buy your products or services. The marketing plan

- Products and services and your unique selling proposition (USP)
- Pricing strategy
- Sales and distribution plan
- Advertising and promotions plan

Products, Services, and Your Unique Selling Proposition

Focus on the uniqueness of your product or service and how the customer will benefit from what you're offering. Use these questions to write a paragraph summarizing these aspects for your marketing plan

Examples of Unique Selling Propositions

Unique selling propositions should be short (no more than a sentence) and concise. Here are a few great examples:

- **Domino's Pizza**: "We deliver hot, fresh pizza in 30 minutes or less, or it's free."
- **FedEx Corporation**: "When it absolutely, positively has to be there overnight."
- **M&Ms**: "The milk chocolate melts in your mouth, not in your hand."
- **Dollar Shave Club:** "Everything you need in the bathroom—from razor blades to grooming products—automatically delivered to your door. It doesn't get any simpler than that."
- Pricing and Positioning Strategy
- The pricing strategy portion of the marketing plan involves determining how you will price your product or service. The price you charge has to be competitive but still allow you to make a reasonable profit.

Distribution Methods

The product or service goes directly from the manufacturer to the consumer. In a one-stage distribution channel, it goes from manufacturer to retailer to consumer. The traditional distribution channel is from manufacturer to wholesaler to retailer to consumer. Outline all the different companies, people and technologies that will be involved in the process of getting your product or service to your customer.

Advertising

The best approach to advertising is to think of it in terms of media—specifically, which media will be most effective in reaching your target market. Then you can make decisions about how much of your annual advertising budget you're going to spend on each medium.

What percentage of your annual advertising budget will you invest in applicable methods of advertising, such as

- The internet (including business website, email, social media campaigns, etc.)
- Direct mail
- Door-to-door flyer delivery
- Cooperative advertising with wholesalers, retailers, or other businesses
- Radio
- Newspapers

- Magazines

Sales Promotion

If it's appropriate to your business, you may want to incorporate sales promotional activities into your advertising and promotion plan, such as:

- Offering free samples
- Coupons
- Point of purchase displays
- Product demonstrations

Case analysis

Finding a suitable site for any operation can be a political as well as an economic problem. It certainly was when Tata, the Indian company, unveiled its plans for the Nano in 2007. Named the '1 lakh' car (in India 1 lakh means 100,000), it would be the cheapest car in the World, with the basic model priced at 100,000 rupees, or $2,500, excluding taxes. The price was about half of existing low-cost cars. And the site chosen by Tata was equally bold. It was made at Singur, in the Indian state of West Bengal, a populous state with Calcutta (now Called Kolkata) as its capital. Although the Communist Party had the state for four decades, the West Bengal government was keen to encourage the Nano plant. It would bring jobs and send a message that the state welcomed inward investment. In fact, it had won the plant against stiff competition from rival states. Controversially, the state government had expropriated land for the factory using an old law dating from 1894, which requires private owners to sell land for a 'public purpose'. The government justified this action by pointing out that over 13,000 people had some kind of claim to parts of the land required for the new plant. Tata could not be expected to negotiate, one by one, with all of them. Also financial compensation was offered at significantly above market rates. Unfortunately about 2,250 people refused to accept the offered compensation. The political opposition organized mass protests in support of the farmers who did not want to move. They blocked roads, threatened staff and even assaulted an employee of a Tata supplier. In response, Ratan Tata, Chairman of the Tata Group, threatened to move the Nano plant from the state if the company really was not wanted, even though the company had already invested 15 billion rupees in the project.

Eventually, exasperated with being caught in the ‘political crossfire’, Tata said it would abandon its factory in the state. Instead, the company selected a location in Gujarat, one of India’s most industrialized states, which quickly approved even more land than the West Bengal site.

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SCHOOL OF MANAGEMENT STUDIES

UNIT – 3 – OPERATIONS STRATEGY – SBAA7027

Contents: Technology strategy Issues in New Product development Time to market - strategic nature of process -Business implication of Process choice - Hybrid Process. Change management and Sustainability procedure - company or plant based profiles - decisions for product reallocation - downsizing – Capacity decisions Progression & Regression. Evaluating various tradeoffs alternatives - Focused manufacturing - Product or process focus - Lean concept in operation strategy.

Introduction

Barack Obama started his election campaign with a plan to renew America's promise withthe words "Change we can believe in". His Presidential campaign was marked by changes. He wanted to change a nation and its way of acting. Throughout the campaign, Obama's changes were aimed towards bringing a rapid end to the war in Iraq, decreasing energy dependence, and providing universal health care. In his victory speech Obama said "change has come to America". Up to now, not all his plans and ideas have proven successful and only the future will reveal their full potential. The U.S. election was a change of the governmental position which was decided by the nation. In an admittedly smaller world, every person in his or her life as well as every manager of an organization is faced with changes or the requirement to make changes every day

Change is an alteration of a company's strategy, organization or culture as a result of changes in its environment, structure, technology or people. A manager's job would be very straightforward and simple (not to say boring) if changes were not occurring in these areas. Good managers have a competence to manage change in the company's environment. These changes can be alterations in *structure* (design of jobs, span of control, authority relationships or coordinating mechanisms), in technology (equipment, work processes or work methods) as well as in people (behaviours, perceptions, expectations or attitudes).

Reasons for Change

- Market situation or market place
- Technology
- Government laws and regulations
- Economics

✓ The global marketplace has created a huge need for change because of

internationalization and the more dynamic situation. Some of this could not have occurred without the various and dramatic changes in technology.

✓ An example of the changing marketplace is the deregulation of the telecommunications industry in the domestic market. By deregulation, the competitive pressure was put on telephone companies such as the German Telecom which has minimized monopolistic emplacement. Regarding this point, advances in technology have had a big impact on the market. Affordability of equipment and software allows greater competition in the IT-sector.

✓ Government laws and regulations can have a large impact on an organization such as with deregulation. Organizations have to change because it is now prescribed.

✓ The new tobacco taxes and the legislation requiring tobacco manufacturers to disclose the harmful effects of tobacco smoking have created huge pressures on some large organizations. These organizations now have to change to ensure their economic viability.

Finally, these economic ups and downs have a dramatic effect on organizations as well on domestic markets as the worldwide economic influence continues on organizations. This phenomenon could be seen during the last financial crisis. The effects were recognized in the USA first; then they hit Europe, Japan and finally the rest of the world. As a consequence, several automobile manufacturers have announced production cutbacks and reduced employment.

- Corporate strategy
- Workforce
- Technology and equipment
- Employee attitudes

It is not unusual for an organization to change its strategy. It can lead e.g. to a large number of changes if the organization decides to adopt a new distribution methodology or a new logistic strategy. Also a merger will change an organization's way of acting. (For example, a

company decides to enter the e-commerce business).

- The introduction of new equipment or new technology is another internal force for change which affects an organization.
- The composition of an organization's workforce never stays static because it changes in terms of gender, age or education. New employees join the organization and other people leave. With these changes, managers may need to redesign work and work groups in order to ensure the job requirements match the skills of the people.

- Lastly, employee attitudes such as the level of job satisfaction can lead to either negative or positive forces for change. If employees are dissatisfied, then there can be an increased level of employee absenteeism which can lead to changing practices or management of staff.

The Change Process

A .Initiating a Top-Down Change

- Accelerated by global competition, the pressure to change business strategy is a worldwide phenomenon. Industrial activities are shifting from manufacturing to service, localization of markets, political realignments, technical advances in management information systems, corporate alliances and downsizing of organizations are changing the structures of corporations and projects.

Organizations are faced with global competition. This competition is becoming more and more obvious in automobile manufacturing, consumer electronics, computers and communications and household manufacturing. Increasingly, the global heavyweight players of the world economy are large corporations involved in international or multinational projects.

There is a global market and competition for most products and services. In order to effectively compete in it, organizations must use creativity and transform their cultures, structures and operations.

Technology is changing at a rate greater than at any time in history. One of the most dramatic technological changes affecting the work environment is the rapid expansion of information system technology.

b. initiating a Bottom-Up Change

- Managing organizational change from the bottom-up will be more successful if some simple principles are applied. Change management entails thoughtful planning and sensitive implementation and, above all, consultation and involvement of the people affected by those changes. If change is forced, problems will arise. Change must be realistic, achievable and measurable. These aspects are especially relevant to managing personal change.
    - At all times involve and agree support from people within the system (system = environment, processes, culture, relationships, behaviours, etc., whether personal or organizational).
    - Understand where you/the organization is at the moment.
    - Understand where you want to be, when, why, and what the measures will be for getting there.
    - Plan development towards No. 3 above in appropriate, achievable measurable stages.
    - Communicate, involve, enable and facilitate involvement from people, as early, openly and as fully as is possible.

Change management process

- Phase 1 – Preparing for change (Preparation, assessment and strategy development)
- Phase 2 – Managing change (Detailed planning and change management implementation)
- Phase 3 – Reinforcing change (Data gathering, corrective action and recognition)

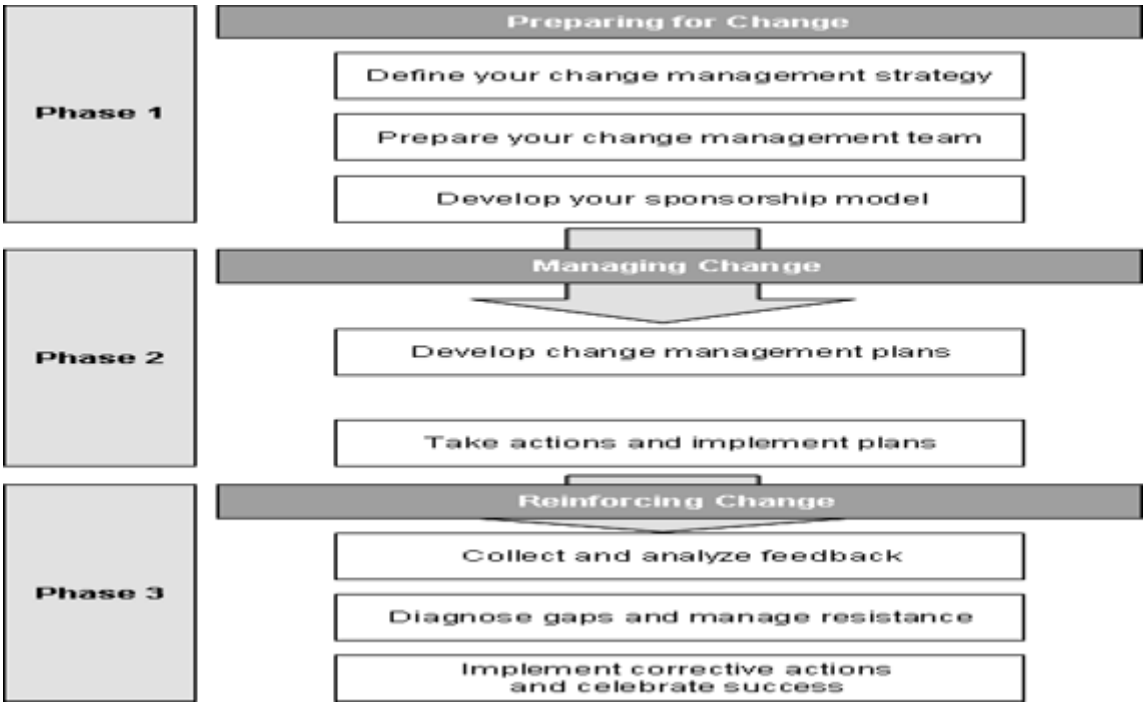
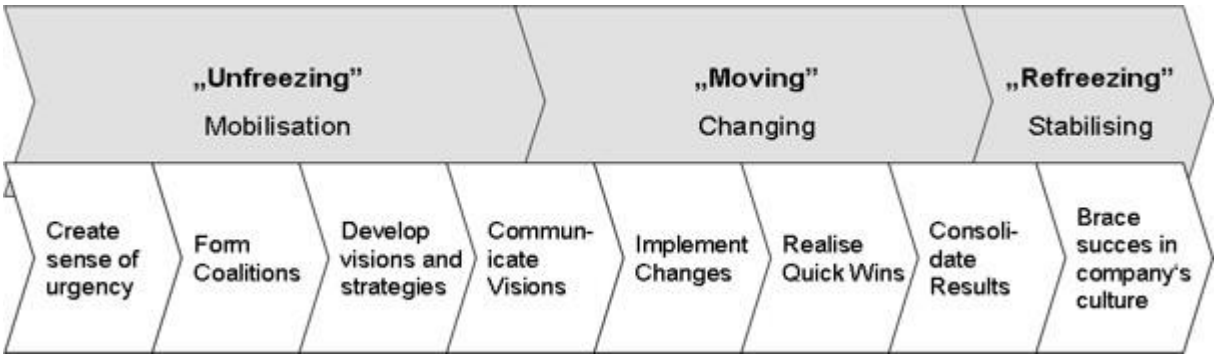


Fig.1

Kurt Lewin, a prominent researcher, proposed the unfreeze/change/refreeze model. According to his approach, firstly, staff must be convinced that change is actually necessary. Managers need to highlight the areas of concern, or perhaps point out where things are better in rival businesses. Next, the change itself requires a range of solutions to be acted upon as soon as possible (before resistance builds up). Finally, refreezing involves reinforcing and formalizing the change (written down, repeated, and disseminated).

Unfreeze

A basic tendency of people is to seek a context in which they have relative safety and feel a sense of control. In establishing themselves, they attach their sense of identity to their environment. This creates a comfortable stasis from which any alternatives, even those which may offer significant benefit, will cause discomfort.



Fi g.2

Talking about the future thus is seldom enough to move them from this 'frozen' state and significant effort may be required to 'unfreeze' them and get them moving. This usually requires Push methods to get them moving, after which Pull methods can be used to keep them going.

The term 'change ready' is often used to describe people who are unfrozen and ready to take the next step. Some people come ready for change whilst others take a long time to let go of their comfortable current realities.

Refreeze

- At the other end of the journey, the final goal is to 'refreeze', to put down roots again and to establish the new place of stability.

  In practice, refreezing may be a slow process as transitions seldom stop cleanly, but go more in fits and starts with a long tail of bits and pieces. There are good and bad things about this.

In modern organizations, this stage is often rather tentative as the next change may well be just around the corner. What is often encouraged, then, is more a state of 'slushiness', where freezing is never really achieved (theoretically making the next unfreezing easier).

The danger with this is that many organizations have found that people fall into a state of 'change shock', where they work at a low level of efficiency and effectiveness as they await the next change. 'It's not worth it' is a common phrase when asked to improve what they do.

Technology Strategy issues in new product development

Fig.3

Idea generation – The New Product Development Process

✓ The new product development process starts with idea generation. Idea generation refers to the systematic search for new-product ideas. Typically, a company generates hundreds of ideas, maybe even thousands, to find a handful of good ones in the end. Two sources of new ideas can be identified:

✓ Internal idea sources: the company finds new ideas internally. That means R&D, but also contributions from employees.

✓ External idea sources: the company finds new ideas externally. This refers to all kinds of external sources, e.g. distributors and suppliers, but also competitors. The most important external source are customers, because the new product development process should focus on creating customer value.

Idea screening – The New Product Development Process

The next step in the new product development process is idea screening. Idea screening means nothing else than filtering the ideas to pick out good ones. In other words, all ideas generated are screened to spot good ones and drop poor ones as soon as possible.

While the purpose of idea generation was to create a large number of ideas, the purpose of the succeeding stages is to reduce that number. The reason is that product development costs rise greatly in later stages. Therefore, the company would like to go ahead only with those product ideas that will turn into profitable products. Dropping the poor ideas as soon as possible is, consequently, of crucial importance.

Concept development and Testing – The New Product Development Process

- ✓ To go on in the new product development process, attractive ideas must be developed into a product concept. A product concept is a detailed version of the new-product idea stated in meaningful consumer terms. You should distinguish
- ✓ A product idea à an idea for a possible product

- ✓ A product concept à a detailed version of the idea stated in meaningful consumer terms

- ✓ A product image à the way consumers perceive an actual or potential product.

Concept development

- ✓ Imagine a car manufacturer that has developed an all-electric car. The idea has passed the idea screening and must now be developed into a concept. The marketer's task is to develop this new product into alternative product concepts. Then, the company can find out how attractive each concept is to customers and choose the best one. Possible product concepts for this electric car could be:
- ✓ Concept 1: an affordably priced mid-size car designed as a second family car to be used around town for visiting friends and doing shopping.
- ✓ Concept 2: a mid-priced sporty compact car appealing to young singles and couples.

✓ Concept 3: a high-end midsize utility vehicle appealing to those who like the space SUVs provide but also want an economical car

Concept testing

✓ New product concepts, such as those given above, need to be tested with groups of target consumers. The concepts can be presented to consumers either symbolically or physically. The question is always: does the particular concept have strong consumer appeal?

✓ For some concept tests, a word or picture description might be sufficient. However, to increase the reliability of the test, a more concrete and physical presentation of the product concept may be needed. After exposing the concept to the group of target consumers, they will be asked to answer questions in order to find out the consumer appeal and customer value of each concept.

✓ The next step in the new product development process is the marketing strategy development. When a promising concept has been developed and tested, it is time to design an initial marketing strategy for the new product based on the product concept for introducing this new product to the market.

✓ The marketing strategy statement consists of three parts and should be formulated carefully:

✓ A description of the target market, the planned value proposition, and the sales, market share and profit goals for the first few years

Business analysis – The New Product Development Process

✓ Once decided upon a product concept and marketing strategy, management can evaluate the business attractiveness of the proposed new product.

✓ The fifth step in the new product development process involves a review of the sales, costs and profit projections for the new product to find out whether these factors satisfy the company's objectives. If they do, the product can be moved on to the product development stage.

Product development – The New Product Development Process

- ✓ The new product development process goes on with the actual product development. Up to this point, for many new product concepts, there may exist only a word description, a drawing or perhaps a rough prototype.
- ✓ But if the product concept passes the business test, it must be developed into a physical product to ensure that the product idea can be turned into a workable market offering. The problem is, though, that at this stage, R&D and engineering costs cause a huge jump in investment

Test marketing – The New Product Development Process

The last stage before commercialization in the new product development process is test marketing. In this stage of the new product development process, the product and its proposed marketing programme are tested in realistic market settings.

Commercialization

- ✓ Test marketing has given management the information needed to make the final decision: launch or do not launch the new product. The final stage in the new product development process is commercialization.
- ✓ Commercialization means nothing else than introducing a new product into the market. At this point, the highest costs are incurred: the company may need to build or rent a manufacturing facility. Large amounts may be spent on advertising, sales promotion and other marketing efforts in the first year.

A strategic process is concerned with making decisions. Decisions are made only after data from various sources is received. This data is received from both within the organization as well as from the environment outside the organization.

Multiple Sources of Data

A strategic process is concerned with making decisions. Decisions are made only after data from various sources is received. This data is received from both within the organization as well as from the environment outside the organization. To add to this, it is the job of the management to ensure that athe data is relevant and credible. Hence strategic processes face a data overload and also a possibility that the data may be incorrect. It is this decision making in the face of uncertainty

that makes designing a strategic process challenging.

- ✓ **Converting Data to Information**
- ✓ It is quite possible that an organization may have all the data related to the decision at hand, but it may not have the expertise to make sense of the data. For instance, in hindsight everyone sees the Sub-prime mortgage crisis as inevitable, but some of the brightest managers in the world could not see it coming despite the obvious signals in the data.
- ✓ Strategic processes therefore must also ensure that the relevant skills are present in the system in the form of human or artificial intelligence that will help convert data into actionable information. A big leap forward in this regard is the idea of business intelligence systems.
- ✓ **Taking Decisions**
- ✓ Even when actionable information is available in front of the management in the form of alternatives, the payoffs are unknown and uncertain. This is what makes it difficult to create a science of decision making which is right now an art. Converting Data to Information

✓ **Hybrid** production **processes** different forms of energy or forms of energy caused in different ways are used at the same time at the same zone of impact. The combination of processes **result** various advantages that often occur at the same time: lower **processes** forces, higher precision, higher productivity.

Capacity is the first of the operations strategy decision areas to be treated and, for operations managers, it is a fundamental decision. After all, the purpose of operations strategy is to provide and manage the capacity to supply demand. Also, capacity strategy decisions affect a large part of the business (indeed capacity decisions can create a large part of the business), and the consequences of getting them wrong are almost always serious and sometimes fatal to a firm's competitive abilities.

✓ Capacity strategy of an operation defines its overall scale, the number and size of different sites between which its capacity is distributed, the specific activities allocated to each site and the location of each site. All these decisions are related.

- For example, an air conditioning servicing operation will have sites with relatively

✓ Small individual capacity if it chooses to have many sites located no more than 30 minutes' travelling time from any customer. If it relaxed this 'response time' to 60

✓ Minutes, it could have fewer, larger sites. Together these decisions determine

the Configuration of an operation's capacity, its overall shape, size and deployment. An appropriate configuration of capacity for one set of products or services, and pattern of Demand, will not necessarily be appropriate for another. So when the nature of

✓ Competition shifts in some way, companies often need to reconfigure their capacity.

✓ This process of changing (or reconfiguring) capacity is also part of capacity strategy.

- It usually involves deciding when capacity levels should be changed (up or down),
- How big each change step should be and overall how fast capacity levels should change.

Table 1 shows level of strategic level

Level	*Time-scale*	*Decisions concern provision of . . .*	*Span of decisions*	*Starting point of decision*	*Key questions*
Strategic capacity decisions	Years–Months	Buildings and facilities Process technology	All parts of the process	Probable markets to be served in the future Current capacity configuration	How much capacity do we need in total? How should the capacity be distributed? Where should the capacity be located?
Medium-term capacity decisions	Months–Weeks	Aggregate number of people Degree of subcontracted resources	Business – site	Market forecasts Physical capacity constraints	To what extent do we keep capacity level or fluctuate capacity levels? Should we change staffing levels as demand changes? Should we subcontract or off-load demand?
Short-term capacity decisions	Weeks–Hours–Minutes	Individual staff within the operation Loading of individual facilities	Site Department	Current demand Current available capacity	Which resources are to be allocated to what tasks? When should activities be loaded on individual resources?

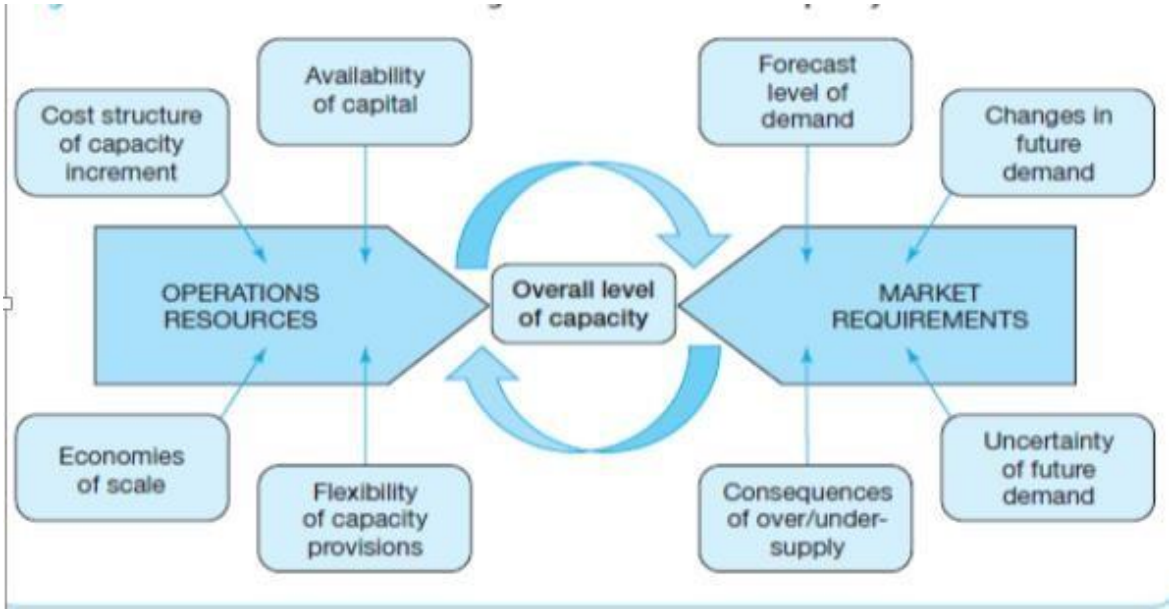


Fig 4

A business decide to invest in a level of Capacity that is exactly equal

- ✓ To its expectation of future demand. However, it is a starting point in trying to understand

- ✓ Why operations finish up the size they are. So, for example, if a leisure business

- ✓ believes there is likely to be a demand for 500 rooms per night at a newly developed

- ✓ Resort location, then it may build a 500-roomed hotel. If

✓ Even when the demand for an operation's products or services can be reasonably well forecast, the uncertainty inherent in all estimates of future demand may inhibit the operation from investing to meet the most likely level of demand.

Changes in demand – long-term or short-term demand

✓ In addition to any uncertainty surrounding future demand, there is also the

question of the time-scale over which demand is being forecast. For example, short-term expected demand may be higher than expected long-term sustainable demand.

The availability of capital

✓ Operations choose to meet demand fully is their ability to afford the capacity with which to do it. So, for example, a company may have developed a new product or service that it is convinced will be highly attractive in the marketplace. Sales forecasts are extremely bullish, with potential revenues being two or three times higher than the company's present revenue.

The cost structure of capacity increments – break-even points

One of the most basic, and yet most important, issues in capacity strategy is concerned with the relationship between the capacity of an operation, the volume of output which it is actually processing, and its profitability. Simple break-even analysis can illustrate the basics of this.

Economies of scale

If the total cost of the output from an operation is its fixed costs plus its output multiplied by its variable costs per unit, then we can calculate the average cost per unit of output simply by dividing total costs by the output level.

Flexibility of capacity provision

 Committing to an investment in a particular level of capacity may be managed in

 Such a way as to facilitate later expansion. Effective capacity requires all the required

 Resources and processes to be in place in order to produce goods and services.

Tradeoff is an exchange where you give up one thing in order to get something else that you also desire. An example of a tradeoff is when you have to put up with a half hour commute in order to make more money.

- The next step involves evaluating these trade-offs and making value-based

choices. For example, it may be possible to deliver different levels of environmental protection (environmental flows for example) at different levels of investment, or it may be necessary to set priorities among different development objectives (e.g., irrigation versus rural electrification or drinking water provision).

- These trade-offs will be exposed and efforts will be made to gain an understanding of how the people most affected view them. Who is consulted and who participates in making choices may vary by the decision – with the involvement of senior government officials and national/international civil society organizations for strategic decisions and with their local counterparts for project-level decisions.
- Under SDM, it is not the method (SDM) or some external analysis that does the evaluation, but those seen as legitimate stakeholders, based on their own values and their understanding of the values of those affected.

The SDM process requires that decision makers make explicit choices about which alternative is preferred. This can be done holistically by reviewing the trade-offs in the consequence table and assigning ranks or preferences to the alternatives directly.

In this approach, participants implicitly think about which impacts are more or less important, and which set of trade-offs is more or less acceptable. Alternatively, structured methods for more explicitly weighting the evaluation criteria, making trade-offs, and scoring and ranking the alternatives may be used.

The SDM process is designed to support, but not require, such structured preference assessment methods. When they are used, they should be designed to provide insight and guidance to decision makers, rather than to prescribe a formulaic answer

- They can be used to focus deliberations on productive areas and maintain a performance- based dialogue, rather than a positional one. Structured methods can be demanding, but participants are generally enthusiastic about exploring their own trade-offs, learning about the values and choices of others, and knowing that (in the case of stakeholders) their input has been systematically recorded and taken to decision makers.
- At minimum, an emphasis on deliberative quality requires that stakeholders and decision makers involved at this stage should be expected to

Lean is a process of eliminating waste with the goal of creating value for enterprise stakeholders. The removal of muda

Muda- Is a Japanese word for waste

Waste- any activity that absorbs resources & creates

Lean manufacturing was developed by the Japanese automotive industry, with a lead from Toyota and utilizing the Toyota Production System (TPS), following the challenge to re-build the Japanese economy after World War II.

The concept of lean thinking was introduced to the Western world in 1991 by the book "The Machine That Changed the World" written by Womack, Jones, and Roos. Lean is a philosophy that seeks to eliminate waste in all aspects of a firm's production activities: human relations, vendor relations, technology, and the management of materials and inventory.

- Considers an 'end to end' value stream that delivers competitive advantage. Seeks fast flexible flow. Eliminates/prevents waste (Muda). Extends the Toyota Production System (TPS).

- Lean is historically and principally associated with manufacturing industries but can be equally applicable to both service and administration processes.
- The next Lean movement will focus on service industries where achieving waste elimination is a priority. It's not a new phenomenon, Japanese auto manufacturers have been developing Lean for over 50 years

Fig .5

Specify value: Value is defined by customer in terms of specific products & services
Identify the value stream: Map out all end-to-end linked actions, processes and functions necessary for transforming inputs to outputs to identify and eliminate waste
Make value flow continuously: Having eliminated waste, make remaining value-creating steps flow
Pull value: Customer pull cascades all the way back to the lowest level supplier, enabling Just-in- time production
Pursue perfection Pursue continuous process of improvement striving for perfection

- Visual Representation of Every Process in the a Products Path from Order to Delivery

- includes: Information and Materiel Flow Integration Product Through-Put and Cycle Times Resources Utilized Value Added Times Location of Significant Waste
    - Visualize the Entire Product Flow • Identifies the Sources of Waste • Basis of an Lean Implementation Plan • Determine Future Operating State

Why is VSM a Useful Tool?

- Helps visualize interactions and flows
- Helps identify not only wastes but their sources as well
- Provides a common language for talking about a process
- Makes decision flows apparent

Forms the basis of an implementation plan

- Shows the linkages between information and material flows

- Identifies the constraint - any resource whose capacity is less than customer demand

- 1.Define the boundaries

- 2. Define the value

- 3. Walk the process Identify tasks and flow s of material and information between them

- 4. Gather data Identify resources for each task and flow

- 5. Create the Current State map

- 6. Analyze current conditions Identify value added and waste Reconfigure process to eliminate waste and maximize value
- 7. Visualize Ideal State

- 8. Create the Future State map

- 9. Develop action plans and tracking

Process

- involve entire team Actually walk the process -follow the material and

information through the process, starting at the beginning Use post-it notes and butcher paper Use symbols or icons that are meaningful to the process Letting the Customer Pull Value from the Enterprise Don t Make Anything Until It Is Needed Then Make It As Quickly As Possible

- **Pursue perfection**

- Continuous radical and incremental improvement Continuous Banishment of muda Pursue Perfection, Not the Competition There Is No End to the Process of Reducing Efforts, Space**, Costs and Mistakes** but common enough to be understood by all involved

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SCHOOL OF MANAGEMENT STUDIES

UNIT – 4- OPERATIONS STRATEGY – SBAA7027

Contents: Strategic Resource Management - Concept - Importance, issues involved - organizational issues operational approaches to improving, delivery system. Controlling operations - key performance Indicators, PQCDSM (Productivity, Quality, Cost,Delivery Time, Safety, Morale)

.Why You Need Effective Resource Allocation

Resource allocation is a process of planning, managing, and assigning resources in a form that helps to reach your organization's strategic goals. It can make a project manager's work effective and significant. Even though it sounds simple, it is vital in delivering project efficiently.

Flexible for all size:

Large organizations might be dealing with multiple projects. Effective allocation of resources helps project managers to plan to assign resources to project and manage them effectively.

So whether it is about 1 project or 10 projects, if you are allocating resources properly, then you can handle them all without any hassle.

2. Save money:

Effective resource allocation leads to no waste of money. It lets you know the performance of team members in a project. Hence it can be easier for you to assign tasks to the resource according to their skills.

3. Boost productivity:

It is the first and foremost reason to choose resource allocation.
If you have finished a project or task before the deadline without compromising the quality, then definitely it will enhance your business productivity. No more time loss, no more extra efforts, and no more extra labor charge.

Resource allocation helps you to know who is overloaded and who is free at that instant. So you can assign tasks to the available resource without much workload.

4. Improve time management:

To run a project efficiently, it is important to know how long it takes the resources to complete the projects or tasks. Sometimes resources lag actual time. But this deficiency can make a large difference. Proper allocation of resources can set the actual estimate hours to complete the tasks.

5. Improve staff morale:

By allocating resources wisely, you can see who is leading and who is lagging.

In most cases, project managers can't be able to figure out which team member is putting his/her best effort.

But if you are allocating your resources wisely, then you can identify who is doing what, who is lagging or leading, who is taking more time to complete a project as compared to the estimated hour(s). By filtering these factors, you can easily get the most deserving.

So without harming their self-confidence, you can encourage them to work better.

6. Predict the future project plan:

Proper resource allocation can help you to identify the presence of the team member(s) or employee(s) in a particular task and it makes easier for you to assign tasks as per their availability.

Seeing the project requirement and deadline, sometimes one resource can be assigned to multiple tasks. By allocating resources, employees can prioritize their tasks and execute them based on their priorities.

The project can be completed without much hassle and the future planning of the project can be done flawlessly.

7. Strategic planning:

When a company sets its vision and goal, resource allocation plays a vital role. Proper allocation of resources can help to achieve and fulfill project needs. So ultimately vision and strategic goals can be done effectively by eliminating existing risks.

8. Manage team workload:

Let a project is running over schedule and you need to adjust the team's workload to deliver the project on time without any obstacle.

Here, resource allocation can help you in managing team workload. It can help you to check the task list of team members and let you know who is overloaded with tasks and whose schedule has more capacity.

Now you can rearrange the task to balance the workload and no one will get overloaded.

As a result, it increases the team's effectiveness and later it leads to successful project completion.

9. Maintain accurate time log:

Knowing exactly how long it takes team members to complete a task is a vital part in running project efficiently. Sometimes team members run-out actual working hour(s). In those cases, business growth suffers a big loss.

By allocating resources you can draw an accurate picture of actual time taken by the team members to complete the project.

10. Eliminate risk:

Identifying the potential risks beforehand can definitely bring amazing results to the project. By taking preventive actions, you can eliminate all the risks and complete projects on time.

Over to you:

It is cleared that resource allocation can be beneficial for your business growth. Proper allocation of resources is vital in project management as it offers a clear report on the amount of work has to be done. It helps to show a clear insight into the team's progress with allocating the right time to every team member.

Basis for Resource Allocation

While allocating the resources, an organization may take two alternative steps: (i) resources should be allocated at a place where these have their maximum contributions, or (ii) resources should be put according to the needs of various organizational units/subunits. Both these alternatives may become complementary to each other if there is an objective evaluation of the resource requirement of various units.

Budgeting is the means through which resources 'are allocated to various organisational units. However, the traditional budgeting which focuses just on the past resource allocation as the basis is not useful for resource allocation in any way because of the conditions, both external as well internal, change making the past practices of resource allocation meaningless. Therefore, when budgeting is used as a tool for resource allocation, it has to be oriented to the objectives of the organisation and the way each unit of the organisation will contribute to the achievement of these objectives. From this point of view, following types of budgeting are more relevant:

1. Capital budgeting
2. Performance budgeting
3. Zero-base budgeting
4. Strategic budgeting.

Strategic Resource Management

- ✓ Procuring the market place and having the competitive advantage is the most intrinsic aim and objective that an organization seems to possess.
- ✓ Employees are considered to be the most vital gem for an organization in this process of intrinsic growth of the organization.

- ✓ Recruitment of the efficient and skilled employees, providing training to them, assisting with performance appraisal, all these factors are very much related and unique for the utmost development of the organization.

- ✓ The SRM strategy is an internal document that defines our ambition for a specific supplier relationship and the means and approach by which we propose to realize this.
- ✓ It encapsulates all key insights and outputs from the first three stages of the SCR process and provides a key decision point at the end of stage 3 for the business to either agree to, or support implementing, the strategy. Developing an SRM strategy for a supplier relationship serves several purposes:

A basis for agreement and therefore a basis to secure resources and support to progress to develop the relationship.

• A basis for internal communication.

• A means for internal knowledge sharing.

• A catalogue of all the work done to analyse and understand the relationship and basis for the relationship.

• A basis to demonstrate a structured, transparent and rigorous approach to a supplier relationship.

Strategic resource management is regarded as an activity for larger corporates delivering hundreds of projects with thousands of resources.

However, there is a place for Strategic Resource Management in any size of business, especially those looking to bring innovative products to market, or deliver projects or services with a profitable outcome.

Methods for Improving Strategic Resource Management

A single, central tool for managing resources across every project and every team is essential. It allows anyone within the business to see who is scheduled to work on what projects, where – and how long they are committed to them. Having the same information

available to all your users is the essential foundation of more strategic resource management.

Plan around existing commitments

With a single central repository of future commitments, it becomes far easier to plan around those commitments. You can see when specific resources will be available, and either build your schedule to accommodate the current workload, find an alternative resource or identify who best to approach regarding reallocation. Professional Services Automation tools, simplify the scheduling and resource planning process further by helping you learn from past projects: if team A habitually completes a week after schedule, then you can build appropriate contingency in.

Cope with change

By taking a more strategic view of change requests, you can assess the resource impact of agreeing to a scope change – not only on your project, but across the entire portfolio. Then the business can judge whether to accept or even prioritize the change, or reject it, based on clear evidence of the likely costs and benefits.

Pick projects you can deliver

Avoid pitching for – and winning – problem projects through more effective resource analysis. By reviewing existing commitments before you invest time and effort into bidding, you can weed out the projects which will put extra strain on already over-stretched resources. Instead, you can focus your efforts on improving the pipeline for teams that have gaps that are likely to be available.

Match your workforce to your workload

Workforce planning typically rests on gut instinct and budgetary constraints. Through strategic resource management, you can identify precisely what resources you will need over the coming months – whether to ensure you meet existing commitments or to give you the capacity to respond to new opportunities. You can pinpoint where there are shortfalls, where it will be critical to retain talent, and where it may be possible to build

up skills over the longer term. That can then inform decisions about recruitment, retention and development.

Many orgainzations try and fail at strategic resource management, mainly because initial efforts utilize MS Excel or Home Grown solutions which are prone to error. There are alternatives though, like KeyedIn Projects, which provides project management software designed specifically for professional services teams.

Top three strategies for effective resource management:

1. Better define business goals and priorities. It's difficult to hit an invisible target. So if the business can't articulate a vision beyond "sell more and spend less

Resources are working toward a common goal--and they are supportive of that goal. Transparency is key here, and the more can share with the team and gain support of the people working toward that goal, the better chance you will have of achieving that goal.

Motivating resources starts with keeping them in the loop as to what they are working toward and giving them say of what that goal should be. Involving key individuals in the planning process gets them on board to achieve what you plan.

Be wary though: it is a fine line, and you do not want too many cooks in the kitchen. But early support can make a big difference to long-term satisfaction and, ultimately, success.

Get smarter about what IT can actually accomplish. Demand and capacity is an age-old battle as stakeholders outside of the organization seem to think the capacity is larger than those inside the organization. Clearly defining what resources can actually accomplish--and delivering on that promise--helps to set the stage for continued support and acknowledgement it is also important to keep the flow of communication open both to stakeholders and the resources deploying the projects so everyone is on the same page about expectations. This creates a culture of trust, enables you to address problems as they arise and avoid unnecessary escalation.

It is important for people to care about the projects they are working on, and only by communicating can you understand what they care about--and what you can do about it.

3. Invest. Invest in your resources. Understand they are your lifeline and embrace their efforts. Resources will always be your No. 1 asset, and the only way to leverage that is to empower them, communicate their importance and appreciate their efforts. Projects do not get completed on their own, and it is important to recognize the effort that went into them.

Strategies for effective resource management

- ✓ using interchangeable resources
- ✓ adopting sustainable behaviours
- ✓ accessing support
- ✓ developing personal management skills
- ✓ engaging in education or training

SRM model

The SRM model was developed at the University of Oklahoma in 1980s. The tool was developed to access the performance of a retailer, in terms of how it uses its three major inputs, i.e., inventory, space and people.

This tool is a useful tool for benchmarking, as it aids the retailer in making many informed decisions like, for a multi-store retailer, which store is doing the best on each of the three parameters, namely inventory, space and people.

The less efficient stores can then be benchmarked with the efficient ones to improve their performance. The model facilitates answering questions like, how much space should be allocated to each merchandize category to maximize profit.

How many people should be allocated to a category to maximize sale and service? How much inventory should be maintained to provide enough variety to the customer, which ultimately enhances sales? The framework also supports a multi-firm comparison where one can study, how different firms are managing their

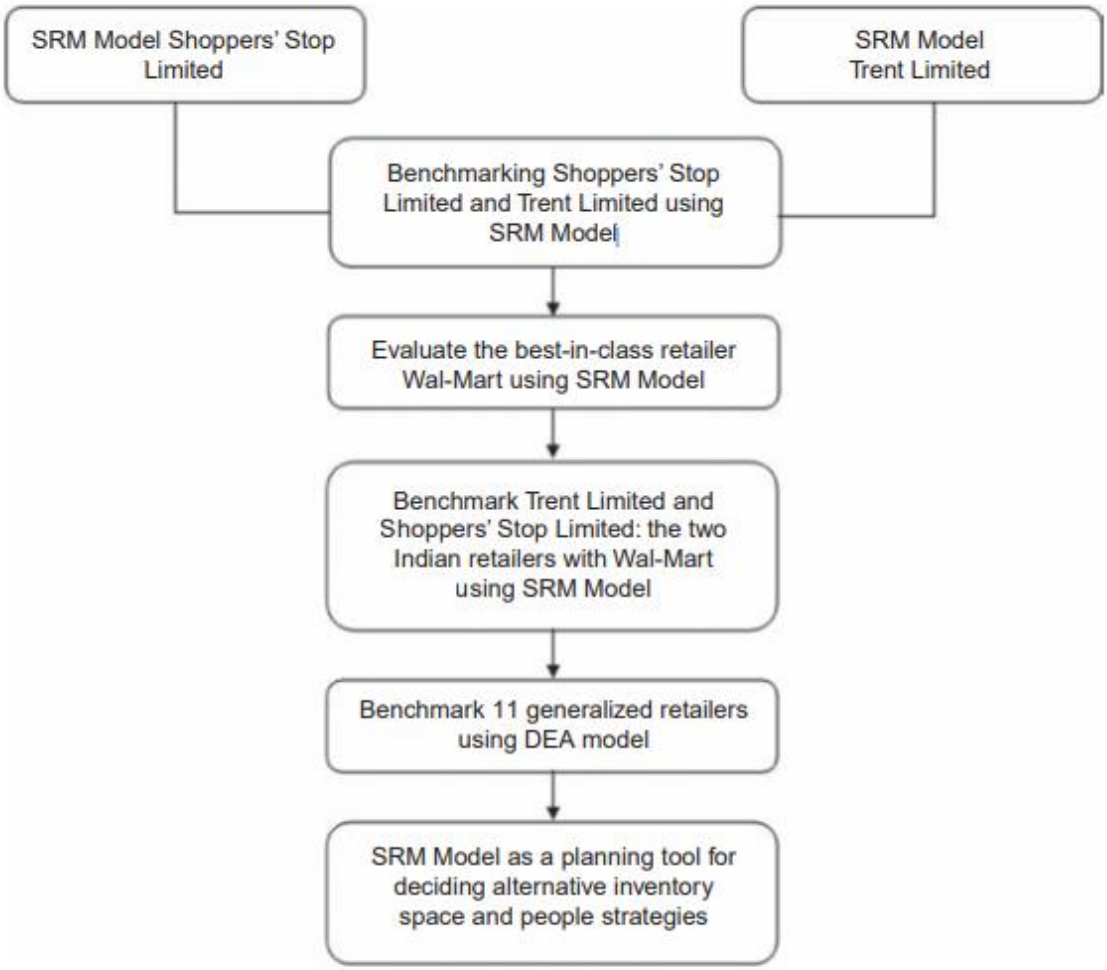

Fig1

Merchandise, space and people. This benchmarking exercise helps in focusing the company's strategy, toward better utilization of its input resources. Retailers who have stores at prime locations in metro cities have to pay very high rentals and therefore it becomes very important that they utilize the available space in such a way, as to maximize per selling feet margin, which is called as (GMROF), i.e., GMROF.

Retailers also aim to generate substantial sales per employee and therefore the model provides a framework to capture (GMROL), i.e., GMROL.

The higher, the sales per employee, it would be a favorable situation for the retailer. Retailers also would aim to achieve a high (GMROI), i.e., GMROI, which measures the ability of the retailer to hit a target margin and a target sales turnover number. Figure 2 summarizes the calculations of the SRM model. The model is efficient as it aids in ascertaining the performance at company level, store level, department level, category level and finally SKU level. Thus, the

model is a flexible tool, which can facilitate in planning and controlling in an organization Gross Margin Return per Full Time Equivalent Labor (GMROF)

Strategy - supplier relationship

The extent and content of an SRM strategy depends upon the relationship, the supplier and the circumstances. Every situation is unique so every strategy will be unique also depending upon what is needed to fulfil the points above. The SRM strategy should therefore be designed with the purpose in mind. If securing internal resources and buy-in is of primary concern, then the strategy should sell benefits and present a clear and compelling business case. If the need is to document work done then the document might be structured so to do this.

Fig.2

SRM strategies require time and effort to compile and are therefore most relevant where intervention is most needed, where we need clarity about how we need to manage a relationship and where we need to secure buy-in and investment to do this. SRM strategies

are therefore most relevant for suppliers we have identified as strategic, but could equally be used for other important suppliers as needed or appropriate.

An SRM strategy will typically deal with commercially sensitive information as well as true intention for a relationship that we would not wish the supplier to know. SRM strategies should therefore be considered highly confidential with a very limited circulation internally and strictly not for sharing with the supplier. Whilst we may be advocating a close collaborative relationship of sharing and joint working, it still remains a commercial relationship with a degree of 'arm's length' necessary, so we should never completely reveal our position or thinking; the supplier will be doing the very same.

The strategy is a key supplier-specific document, and forms part of a number of documents we might need to create and maintain for each important relationship

The standard is designed to help firms avoid the pitfalls of partnership through investing in collaborative business relationships. It provides a framework for all the things that an organization needs to put in place, defines roles and responsibilities and maps out how to make collaborative decision making a reality. Furthermore, companies wishing to adopt such a framework can also obtain certification to the standard by a recognized accreditation body.

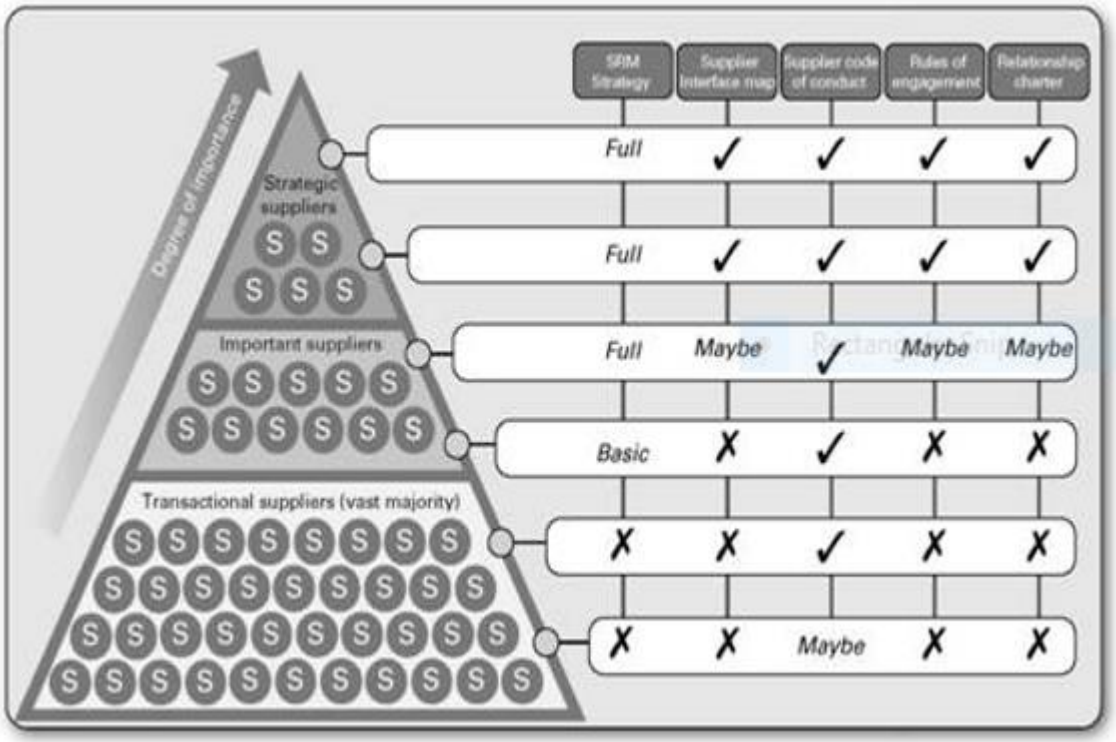

Fig.3

It is perhaps curious that there should be the need for such a standard, after all success in important inter-firm engagements depends upon how good the relationship is. Having a standard for how a relationship must work feels somewhat odd and misses the point of what a relationship is and how it should be developed. Yet it could be argued that if firms were about to develop effective inter-organization collaboration then there would be a vast array of knowledge and success stories out there for us all to learn from, and there are not; these are hard to find. So perhaps an international standard can help stage manage the process.

New Paradigm: Resource-Based Theory

The currently dominant view of business strategy - resource-based theory - is based on the concept of economic rent and the view of the company as a collection of capabilities. This view of strategy has a coherence and integrative role that places it well ahead of other mechanisms of strategic decision making.

Traditional strategy models, such as Michael Porter's five forces model, focus on the company's external competitive environment. Most of them do not attempt to look inside the company. In contrast, the resource-based perspective highlights the need for a fit between the external market context in which a company operates and its internal capabilities.

Fig.4

In contrast to the Input / Output Model (I/O model), the resource-based view is grounded in the perspective that a firm's internal environment, in terms of its resources and capabilities, is more critical to the determination of strategic action than is the external environment. "Instead of focusing on the accumulation of resources necessary to implement the strategy dictated by conditions and constraints in the external environment

(I/O model), the resource-based view suggests that a firm's unique resources and capabilities provide the basis for a strategy. The strategy chosen should allow the firm to best exploit its core competencies relative to opportunities in the external environment".

Sustainable Competitive Advantage

According to this view, a company's competitive advantage derives from its ability to assemble and exploit an appropriate combination of resources. Sustainable competitive advantage is achieved by continuously developing existing and creating new resources and capabilities in response to rapidly changing market conditions.

Creating Economic Rent

The resource based view of strategy emphasizes economic rent creation through distinctive capabilities. Economic rent is what companies earn over and above the cost of the capital employed in their business. It is the measure of the competitive advantage, and competitive advantage is the only means by which companies in competitive markets can earn economic rent.

The objective of a company is to increase its economic rent, rather than its profit as such. "A company which increases its profits but not its economic rent - as through investments or acquisitions which yield less than the cost of capital - destroys value".4 The perspective of economic rent forces the question 'why can't competitors do that?'

Resources and Capabilities

Each organization is a collection of unique resources and capabilities that provides the basis for its strategy and the primary source of its returns. In the 21st-century hyper-competitive landscape, a firm is a collection of evolving capabilities that is managed dynamically in pursuit of above-average returns4. Thus, differences in firm's performances across time are driven primarily by their unique resources and capabilities rather than by an industry's structural characteristics.

Resources are inputs into a firm's production process, such as capital, equipment, the skills of individual employees, patents, finance, and talented managers. Resources are either tangible or intangible in nature. With increasing effectiveness, the set of resources

available to the firm tends to become larger.5 Individual resources may not yield to a competitive advantage. It is through the synergistic combination and integration of sets of resources that competitive advantages are formed.

A capability is the capacity for a set of resources to integratively perform a stretch task or an activity. Through continued use, capabilities become stronger and more difficult for competitors to understand and imitate. As a source of competitive advantage, a capability "should be neither so simple that it is highly imitable, nor so complex that it defies internal steering and control."

Strategic resource planning: This encompasses the long-term planning of staff qualifications and capacities. Its aim is to master current and future projects in line with the company's strategic focus. In most cases, portfolio managers take on this task – together with Projekt managers (skill-requirements) and team leaders (staffing projects).

Tactical resource planning: By this, we mean the medium-term formation of project teams. It in-cludes the ongoing coordination between project manager and team leader for the employment of staff in projects and operations. The team leaders commit resources with the corresponding qualifications at project level to the project managers as requested.

Operational resource planning: This we define as the project managers' ongoing detailed task planning for the assigned resources. It is done in the individual projects at task level.

Capacity planning: the types of resource management

Benefits of Strategic Resource Planning

Strategic resource planning can yield multiple benefits. With capacity planning, you:

make sure you reserve the most resources for the most important projects – rather than for unimportant ones obtain a complete overview of all resources and their assignments to projects and basic load; this will keep you informed about the overall resource utilization at all times

know which additional projects you can start and carry out identify resource bottlenecks in good time and are able to react to them according to corporate strategy avoid resource conflicts, as they do not even arise Inadequate planning, on the other hand,

carries numerous risks: Due to inadequate resource allocation, projects are not finished on time Project costs rise, as there are too few appropriate resources Some business opportunities you cannot exploit, as you are unable to obtain the required skills in good time

Resource Planning in Project Management

4 Steps to Successful Capacity Planning in Project Management

Step 1: Establish the Necessary Processes with the Right Staff

The strategic planning of capacities depends on: Dynamics at your company

- ✓ Your industry
- ✓ Number of projects
- ✓ Number of resources
- ✓ Duration of projects
- ✓ Different companies tend to undergo the strategic capacity planning process at different intervals:

One to four times a year for companies developing and making products

Possibly monthly for companies offering services

Only on occasion for companies planning few major projects

Those involved in the strategic planning process are:

Management with strategic targets

Team leaders and heads of department who have to provide resource information

Project managers who have to update running projects by the due date

PMO preparing new projects properly and controlling the overall process of capacity planning

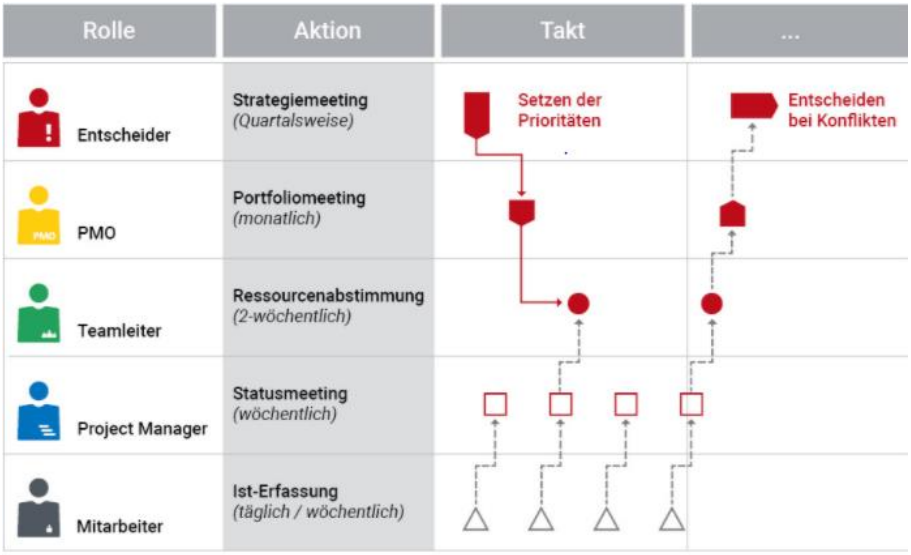

Fig.5

Make sure all data are complete and up to date by the due date. For this, all involved have to pull together in unison. To achieve this, you need a PMO that has the relevant competencies.

The PMO:

- defines processes
- trains the people involved
- motivates them to perform their tasks in good time

The PMO may also support the project managers and team leaders in executing their tasks. This depends on the type of PMO you have.

2: Ensure Complete and Up-to-Date Project Data

First, you register all projects with the essential information in a central database. This requires details such as:

- name
- project manager
- sponsor

- start
- finish
- traffic light indicators for status and resource requirements

For running projects, the realistic remaining effort is most relevant – based on the current situation.

For new projects, it is necessary to meet the minimum requirement for resource planning. This means you have to plan all required skills – not necessarily persons – per month or quarter.

It is definitely not enough to look only at the total work without the distribution over time.

This is exactly where it starts to get complex.

Find out your optimum specificity by beginning with the roughest possible but still complete planning.

Everyone asks for detailed planning, as it appears to be the better basis. But consider that this requires a higher planning effort. This effort will have to be made again and again in the future.

Step 3: Identify the Actually Available Capacities

It does not make sense to analyze each person individually. While this would be desirable, it would be too much effort. It would be confusing, too. Displaying the total capacity of all employees in one chart is not wise either. Employees have different skills which you have to deploy as required. A clear and sensible level of detail can be obtained by consolidation at skill level. Some companies also form teams according to skills. In some circumstances, this permits planning at the level of these teams. In most cases, this is easy to implement.

STEP 4: Consolidate Capacities and Requirements

Both the capacities of the skills and the requirements from the projects are at hand. Now, you have to examine how these fit together.

IN order to control them, all skills and their utilization have to be viewable on one page in an appropriate way. After all, a project usually involves various skills.

With every change you make, the effect on all skills should be visible at once. This requires the appropriate resource diagrams showing multiple skills on one screen.

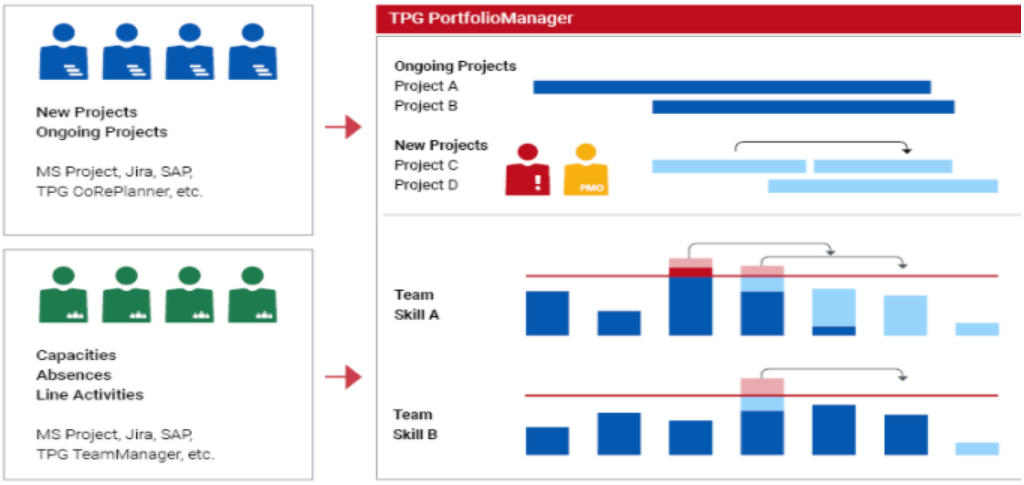

Fig.6

Then you add new projects to the portfolio, this has to be in line with the priority and the remaining availability.

Your approach has to be similar to filling a glass with stones and sand. You add the large stones first, then the pebbles and at last the sand. Shaking and rattling helps the sand to fill all the gaps.

In times of ever-changing environments, this is a valuable insight – if it comes at the right time.

A more common problem will be resource or skill overload. There are some simple and logical ways of resolving these:

- Compensate for the missing capacities with the aid of internal or even external resources
- Change the priority of the projects or drop some projects altogether
- Postpone the projects far enough into the future that they fit into the given resource situation

For all three options, you will need an optimum database at any rate.

But always be aware that the database is based on personal estimates. And that it is exposed to political currents.

One difficulty you will face time and again when communicating about the workload of the teams. You have to make it clear to all involved that the glass is full and nothing new can be taken on.

Key Performance Indicators (KPIs) are the critical (key) indicators of progress toward an intended result. KPIs provides a focus for strategic and operational improvement, create an analytical basis for decision making and help focus attention on what matters most.

As Peter Drucker famously said, "What gets measured gets done." Managing with the use of KPIs includes setting targets (the desired level of performance) and tracking progress against that target. Managing with KPIs often means working to improve leading indicators that will later drive lagging benefits. Leading indicators are precursors of future success; lagging indicators show how successful the organization was at achieving results in the pass

Fig.7

KPI is simply" Measure your performance against key business objectives."(KPI) is a measurable value that demonstrates how effectively a company is achieving key business objectives.

Organizations use key performance indicators at multiple levels to evaluate their success at reaching targets. High-level KPIs may focus on the overall performance of the

enterprise, while low-level KPIs may focus on processes or employees in departments such as sales, marketing or a call center.

Who uses KPIs?

- ✓ individuals to keep tracking health care as an example
- ✓ Organizations or businesses for tracking bigger goals
- ✓ Departments for tracking their own objectives

Types of KPIs:

Depending on your industry and the specific department you are interested in tracking, there are a number of KPI types your business will want to monitor. Each department will want to measure success based on specific goals and targets.

Example : Marketing ,sales, customer service, finance, HR, social media,…

How do you develop KPI using SMART KPIs?

KPIs need to be customized to your business situation and should be developed to help you achieve your goals. One way to develop the relevance of a performance indicator is to use the SMART criteria. The letters are typically taken to stand for Specific, Measurable, Attainable, Relevant, Time-bound.

Strategic resource management involves creating plans to source, store, use and dispose of the materials needed to do business. Manufacturing businesses face unique challenges in strategic resource management, as they often use basic raw materials and natural resources as inputs rather than finished or semi-finished components.

Understanding the unique challenges manufacturers face in this area can help you to address strategic resource management issues in your organization or to more fully understand the issues that your suppliers face.

Supplier and Sourcing Ethics

All companies can benefit from applying strict ethical guidelines to their supplier selection process, but manufacturers can face additional challenges in this area. Manufacturers' suppliers are often raw material harvesters, such as logging companies, stone quarries and oil refineries. Sourcing materials such as lumber can have direct negative impacts on the

environment, regardless of how ethically a supplier treats its employees or how honest it is in its business dealings.

Using Number as an example, a manufacturer can choose to only do business with suppliers that replant a tree for each one they harvest, or a manufacturer can choose to regularly donate money to tree-planting nonprofits to compensate for the lumber it consumes.

Pricing

The price of raw materials can fluctuate more wildly than finished or semi-finished components. Consider computer-chip manufacturers that use gold or silver in their production processes, for example. Gold prices tend to rise as general economic conditions worsen, making materials more expensive for chipmakers at the same time as demand decreases.

Manufacturers can deal with this unique challenge by negotiating time-bound price contracts with suppliers, stipulating a single purchase price in the future in return for guaranteed purchases.

Supply Issues

Supply issues can present distinct challenges for manufacturers, as their production inputs may not always be available in reliable quantities. Consider a processed-food manufacturer relying on a local fishing economy, for example. Local fisherman rarely bring in the same size catches every time they come to shore, and different years and seasons can affect catch sizes in different ways.

If a manufacturer cannot obtain sufficient quantities of raw materials from a supplier with whom it has a price contract, the manufacturer may be forced to meet their excess need through a supplier who charges a higher price or provides lower quality materials. On the other hand, a supply shortage can lead manufacturers to discover more reliable and cost-efficient suppliers to work with.

Human Resources

Manufacturers can realize significant financial benefits from international outsourcing or by setting up wholly owned subsidiaries in different countries. This introduces new

challenges to strategic resource management decisions by forcing companies to operate within multiple legal environments governing the employment relationship.

Spreading human resources across the globe also introduces distribution challenges for raw-material inputs and finished-goods outputs. If a manufacturer locates a production facility in China while sourcing lumber from Guatemala, for example, the lumber has to be shipped across an ocean before it can be used in production, introducing additional costs and negative environmental impacts.

seven basic tools of quality

Quality pros have many names for these seven basic tools of quality, first emphasized by Kaoru Ishikawa, a professor of engineering at Tokyo University and the father of "quality circles." Start your quality journey by mastering these tools, and you'll have a name for them too: indispensable.

Cause-and-effect diagram (also called Ishikawa or fishbone diagrams): Identifies many possible causes for an effect or problem and sorts ideas into useful categories.

Check sheet: A structured, prepared form for collecting and analyzing data; a generic tool that can be adapted for a wide variety of purposes.

Control chart: Graph used to study how a process changes over time. Comparing current data to historical control limits leads to conclusions about whether the process variation is consistent (in control) or is unpredictable (out of control, affected by special causes of variation).

Histogram: The most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs.

Pareto chart: A bar graph that shows which factors are more significant.

Scatter diagram: Graphs pairs of numerical data, one variable on each axis, to look for a relationship.

Stratification: A technique that separates data gathered from a variety of sources so that patterns can be seen (some lists replace stratification with flowchart or run chart).

Cost of Quality (CoQ)

According to CIMA Official Terminology, CoQ is the difference between the actual cost of producing, selling and supporting products or services and the equivalent costs if there were no failures during production or usage. The cost of quality can be analysed into:

Cost of conformance – cost of achieving specified quality standards

Cost of prevention – costs incurred prior to or during production in order to prevent substandard or defective products or services from being produced

Cost of appraisal – costs incurred in order to ensure that outputs produced meet required quality standards

Cost of non-conformance - cost of failure to deliver the required standard of quality

Cost of internal failure – costs arising from inadequate quality which are identified before the transfer of ownership from supplier to purchaser

Cost of external failure – costs arising from inadequate quality discovered after the transfer of ownership from supplier to purchaser.

THIS PILLAR AIMED TOWARDS

- CREATE SAFE WORK PLACE AND SAFE WORK PRACTICE
- THIS PILLAR PLAY VITAL ROLE WITH OTHER PILLARS ON REGULAR BAISI

BENEFITS

- ZERO ACCIDENT
- ZERO FIRES
- ZERO HELATH DAMAGES
- SAFE WORKING CONDITION
- SAFE WORK PRACTICE

Morale. The ongoing and proven success of TQM, and in particular the participation of employees in that success can lead to a noticeable improvement in employee morale, which in turn reduces employee turnover, and therefore reduces the cost of hiring and training new employees.

EMPLOYEE WELLBEING The human resources focus of performance excellence has as its main components: work systems, employee education, training and development, as well as employee wellbeing and satisfaction

Employee wellbeing can therefore not be ignored when discussing elements that quality-focused companies must mobilise in order to achieve excellence. The mental capacity to do productive work is under attack from a complicated network of social, economic, biological and genetic forces.

Employee wellbeing is thus an important business productivity weapon. Organisations that promote employee wellbeing enhance their own competitive position by promoting the mental output of workers.

Emotional work hazards, like loss of control over one's job, haphazardly altered priorities at work, office politics, uncertainty about jobs, high performance expectations but low rewards, are psychosocial factors which have more impact on employee health than given credit for. Stress can have a detrimental effect not only on the health of employees but also on their capacity for physical and mental output. When exploring the role of employees in promoting TQM, therefore, it is imperative that some time is spent in establishing that stress is indeed an enemy towards the achievement of its main principles.

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SCHOOL OF MANAGEMENT STUDIES

UNIT-5– – OPERATIONS STRATEGY – SBAA7027

Contents: Role of Technology in Operations Strategy: Automated production system with Robotic systems. Use of IT and ITES enabling the effective strategy and resource implementation. ERP/SAP for decision making.

Introduction

Technology and Operations Management

The scope of Technology and operation management has evolved over a period of time and has moved from development of products into design, management and improvement of operating system and processes.

Usage of technology in operation management has ensured that organizations are able to reduce the cost, improve the delivery process, standardize and improve quality and focus on customization, thereby creating value for customers.

Integration of Technology with Production System

Technology drives efficiency in organization and increases' productivity of the organization. However, bringing technology in the production system is highly complex process, and it needs to following steps:

Technology Acquisition: technology acquired should align with overall objectives of the organization and should be approved after elaborate cost-benefit analysis.

Technology Integration: technology affects all aspects of production i.e. capital, labour and customer. Therefore, a solid technology integration plan is required.

Technology Verification: once technology integrated, it is important to check whether technology is delivering operational effectiveness and is been used to its fullest.

Technology in Manufacturing and Design

Technology is getting extensively used in customization of design products and services. The usage of computers and supporting electronic systems is integral part of modern industrial and services industry. Current techniques can be broadly classified into following categories:

Computer-Aided Design (CAD): CAD facilitates linking of two more complex components of design at very high level of accuracy thus delivering higher productivity.

Computer-Aided Manufacturing System (CAM): Precision is very essential in operating any machines and therefore, Computerized Numerically Controlled machines are used, thus ensuring highest level of accuracy.

Standard for the Exchange of Product Data: As the name suggests product design is transmitted among CAM and CAM in three dimensions. Standard for The Exchange of Product Data process sharing of product across all phases of product life cycle and serves as neutral file exchange.

Software Systems in Manufacturing

There are various software systems available to integrated operations and manufacturing functions with other business functions of organization. Some of the common software systems are Enterprise Resource Planning (ERP), Supply-Chain Management (SCM), New-Product Development (NPD) and Customer Relationship Management (CRM).

Enterprises Resources Planning (ERP) links all business functions like manufacturing, marketing, human resource and finance through a common software platform. The main benefits of the ERP solution are that it not only reduces database errors but also delivers value to customer through faster delivery and order fulfillment.

Automation in Production and Operations

Automation reduces manual intervention in the manufacturing process. It increases productivity and reduces margin of error thereby facilitating economies of scale. There is this-advantages of automation also, such as unemployment, high breakdown cost and initial capital investment. Therefore, automation may not be suitable in all situations and in the end alignment with an overall organization objective is important.

Challenges

Technology can be facilitating factor in bringing about change in operations and production management. But it may not be feasible to use technology in all aspects with challenge coming through high initial cost of investment, high cost of maintenance and mismanagement.

How Technology Affects Operations • Traditional Tradeoffs – Low costs – Speed of delivery – Quality of product/service – Customization • Technology's Impact on Traditional Tradeoffs – Tradeoffs are no longer valid—technology allows firms compete on several dimensions at once.

Technology in Manufacturing Automation Development Machining centers Operations where tools are change automatically as part of the process. Numerically controlled (NC) machines manufacturing equipment that is directly controlled by a computer. Industrial robots Programmable machines that can perform multiple functions. Computer-aided (or –assisted) design designing a product using a specially equipped computer. Computer-assisted design and manufacturing system (CAD/CAM) Integration of design and production of a product through use of a computer

Technology in Manufacturing (cont'd) Automation Development Flexible manufacturing system (FMS) Manufacturing facility that is automated to some extent and produces a wide variety of products. Computer-integrated manufacturing (CIM) Integration of all aspects of manufacturing through computers. Islands of automation automated factories or portions which include NC equipment, automated storage/retrieval systems, robots, and machining centers.

Information Technology Software Systems Enterprise Resource Planning (ERP) provides a common software infrastructure and database. Supply Chain Management (SCM) Controls interaction with suppliers in the overall supply chain. New Product Development (NPD) Links the engineering function with the operations function. Customer Relationship Management (CRM) manages the interface between the firm and its customer

Technology Trends in Services • Increase in Self-Service – Reduces labor costs – Speeds up service • Decrease in the Importance of Location – Lower costs for delivery of products and services increases remote points of access and reduces the need for specific service locations

Technology Trends in Services (cont'd) • Shift from Time-dependent (Synchronous) to Non-time Dependent (Asynchronous) Transactions – More economical (for the firm) and efficient (for the customer) forms of service • Increase in Disintermediation – Technology brings buyers and sellers closer together, eliminating intermediate steps or organizations.

Integrating Technology into Services • Integration Benefits – Efficiency in operations – Effectiveness in serving customers • Areas for Integration – Strategic planning – Improved performance • Faster service • Improved customer knowledge • Increased product customization 24. Integrating Technology into Services (cont'd) • Areas for Integration (cont'd) – Increased

efficiency • Economies of scale in consolidating operations. • Reduced labor costs through replacement of manpower and increased labor productivity.

Categories of E-Services Category Function Internet World-wide web presence with open access to all. Intranet Internal network providing limited access by individuals within an organization. Extranet A resource-limited network open only to specified internal and external users Electronic Data Interchange (EDI) A network designed to support the exchange of data between the organization and its vendors and suppliers. Value-added network (VAN) A third party service that is used in conjunction with EDI to provide the link to customers and suppliers.

Types of E-Services Broad Categories Specific Service Types Business-to-Consumer (B2C) E-tailers (Goods and Services) Consumer-to-Consumer (C2C) Customer Support Business-to-Business (B2B) Network Providers Government-to-Business (G2B) Information Providers Government-to-Consumer (G2C) Application Service Providers (ASPs)

Challenges for E-Tailers • Infrastructure – Developing the structure to efficiently and quickly deliver goods to customers. • Lack of tangibility – Having no physical presence to which customers can turn with problems. • Differentiation – Creating a unique on-line presence that sustains growth.

Technology Issues • Overcoming Barriers to Entry (Customer) – "Fear of the unknown" – Lack of knowledge by the customer • Training and Support – Worker skill development through hands-on training in the new technology. – Customer familiarization with technology.

Using Robotic Technology

No human could operate at the same speeds with the same amount of accuracy.

Robots are efficient; no need for toilet breaks, cigarette breaks, absences due to illness

No risk of productivity decreasing due to morale, or disputes.

Competitive advantage over rivals through capacity utilisation, quality and lower unit costs.

Basic concepts of CAD Computer Aided Design (CAD) involves the use of computer in • Creating • Analyzing • Modifying • Optimizing • Drafting/ Documenting

A product data so as to achieve its design goal efficiently and effectively. The various phases of CAD section are presented in the following form: As per the above figure, there are four

phases of CAD process. A geometric model is generated first. It is analyzed for the desired design conditions and is optimized before finally getting documented and drafted.

CAD tool includes the following three elements.

(i) Computer modelling and computer graphics Geometric modelling and computer graphics help to generate and visualize models on which the analysis is done subsequently. Modelling and designing are being used as synonyms now a day's. The kind of analysis which can be done on a model is controlled by the type of model used. Hence the computer aided model must be made only after confirming the kind of analysis which is to be performed on the model. Eg. Some model may not work for fluid dynamics and vibration analysis.

(ii) Analysis and optimization tools these are the algorithms and programs for exclusive application which are applied on to the virtual product already modelled. This section can predict the behaviour of the model under the loading condition when all constraints are simulated using boundary conditions. The analysis process is iterated number of times with varying attributes to optimize the results. The results so obtained from the model can be anticipated from the behavior of actual model in real situation.

Drafting and documentation the model already created, analyzed and optimized guarantees a safe model under the real conditions. This safe model drawing is to be communicated to production floor with technical illustrations. The tool used for this application is called Computer Aided Drafting or called Computer Aided Design and Drafting (CADD).

Computer Aided Modelling/Designing and Computer Aided Drafting represent two different concepts. Their differences are presented in the following

Sl.No.	Computer Aided Modelling/Designing	Computer Aided Drafting
1.	This is done before analysis is performed on the geometric model.	This is done after analysis is performed on the geometric model.
2.	This provides dimension which may/maynot be safe.	The dimensions are safe since these are obtained after the analysis.
3.	This is 2D drawing/3D model	This is generally 2D drawing.
4.	This model is used for design analysis	These are made basically for conveying the production design.

Basic concepts of CAM (Computer Aided Manufacturing)

CAM is defined as a process of use of computers in planning, manufacturing, inspecting and controlling the manufacturing operation directly or indirectly. CAM includes those activities which manufacture the product with the product drawing and technical illustration as a input from the CAD and then make the product ready for shipment after inspection and packaging. The various phases of CAM section are shown below.

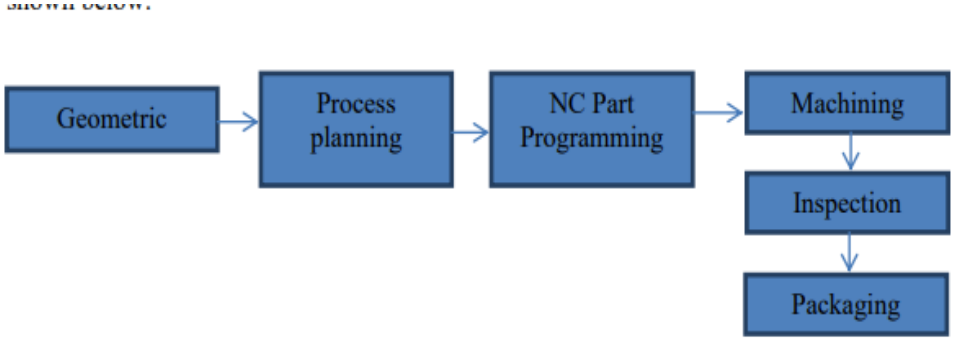

Fig.1

CAM Processes In CAM, the basic information required is actually geometrical information which is supplied to the CAM processes through the CAD model already generated and analyzed. Interface algorithm extract that necessary geometrical information from the CAD model and feed it for process planning, part programming, machining, inspection and packaging.

CAM tool includes the following three elements: (i) CAD Tool: The basic geometric information of the model is extracted from the geometric model created in the CAD phase of the product cycle. From the model necessary information regarding the shape, contour and sizes is extracted so as to implement in the manufacturing tool.

(ii) Manufacturing tool: The fundamental of manufacturing process which are used defines the manufacturing tool. It describes the method in which the product can be manufactured. This includes generation of part programming and manufacturing and computer aided process planning (CAPP) and tool and cutter design, etc.

(iii) Networking tools: The knowledge of networking and interfaces is required for communication capability between various machines and computers.

e.g. transferring a part program from one computer to 04 different machines, controlling a robot from a computer etc. a communication or networking tool is a must for CAM to be operational effectively.

CAM employs computers for basic purposes:

(a) Computer monitoring and control: Where computers are used to control and monitor the applications. The major applications include in this category are: controlling machines and robots.

(b) Manufacturing support application: It includes those applications which are not controlled directly by computer but are used to support the primary and direct operation. Such applications include numeric part programming, CAPP, generating computer aided schedules and all other kinds of planning.

(c) Flexible Manufacturing System (FMS): A FMA integrates all major elements of manufacturing into a highly automated system. FMS has born in the latter half of 1960's as a means to improve productivity of small and medium volume production.

The major components are:

(a) Automated m/c tools: In order to achieve the system flexibility, NC/Computer controlled general purpose m/c tools are normally used.

(b) Work transportation device: These devices are used to carry parts between loading area and machining station. Individual conveyors are used for high degree of flexibility.

(c) Material handling device: These devices transport work in process or tolls to assigned positions.

(d) Loading and unloading station: The raw materials and/or finished parts are loaded/unloaded in this area by robot.

(e) Tool room and storage: All the tools used in this system are stored in the tool room and transported to machining centers when required.

(f) Auxiliary equipment: Besides m/c tools, an FMS can also include cleaning online inspection, automated measurement and gauging equipment.

(g) System controller: The system controller oversees the operation of entire FMS. It coordinates the operation of variety of equipments in the system.

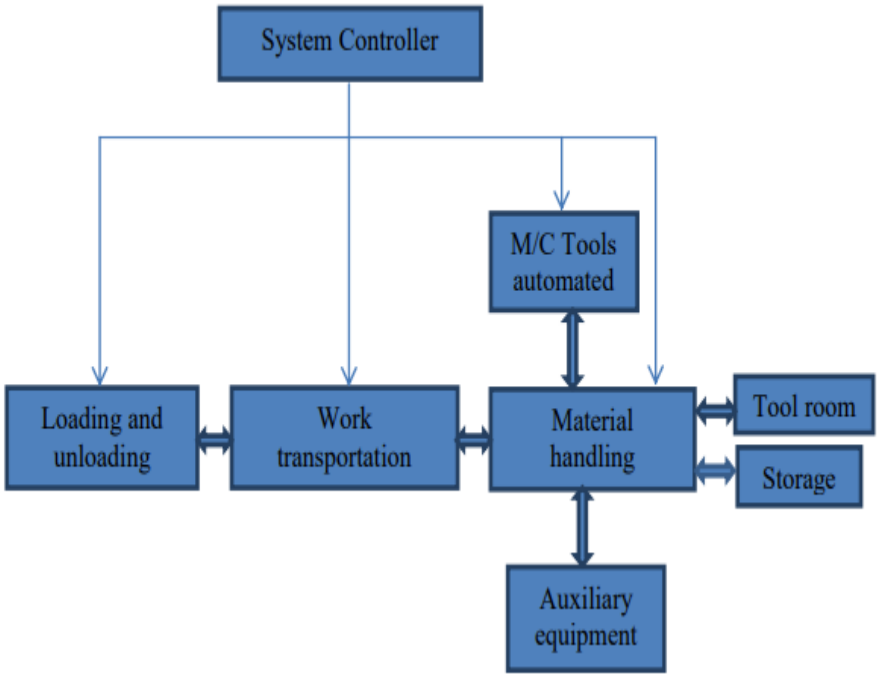

Fig.2

The system controller oversees the operation of entire FMS. It coordinates the operation of variety of equipment's in the system. M/C Tools automated Storage Auxiliary equipment Tool room System Controller Loading and unloading station Work transportation device Material handling equipment Material flow Information flow Structure of FMS 89 Advantages of FMS

1. There is a greater potential to make changes in terms of product, technology.

2. It reduces both direct and indirect labour cost because of automatic handling, gauging and inspection facilities.

3. It provides reduced manufacturing lead time, reduced inventory of parts (both stock and work in progress).

4. It improves the utilization of equipment's. In this case, utilization is 85% compared to 50% in conventional method.

5. It provides a better management control by integration of computers.

6. It provides better and more consistent products.

Computer Integrated Manufacturing (CIM) •

CIM is defined as a process of integration of CAD, CAM and business aspects of a factory and it attempts to describe complete automation with all processes functioning under computer control.

• CIM includes Management Information System (MIS), sales marketing, finance, database management system, design, manufacturing, monitor and control and bar code software etc., which helps to manage and control the overall factory environment. CAD, CAM and CIM basically involve fundamental principles of these underlying branches with hardware and software to operate and utilize them effectively.

ERP is an information system that aims to manage the large amounts of data in an organisation. ERP integrates sales, order, inventory, manufacturing and customer service activities. ERP systems provide software, databases, procedures and job descriptions for organisation wide processes. The characteristics of ERP are:

- Provides a cross-functional process view of the organisation.
- ERP applications include a set of inherent processes for all organisational activities. These processes may be documented in the form of a diagram, sometimes called a process blueprint.
- Generally organisations must adapt their processes to the blueprint, although it may be possible to adapt ERP software to organisational procedures.
- ERP stores information in a centralised database.
-

The history of ERP is as follows:

1. Materials Requirements Planning (MRP) (1970's)

   A method of translating a statement of required output into a plan for all activities that must take place to achieve the required output in the operations function.
2. Manufacturing Resource Planning (MRP 2) (1980's)

   Extends MRP across related departments; operations, marketing, finance and engineering 3. ERP (1990's)

   Integrates across all parts of the organisation; operations, finance, HRM, IT etc.

   4. Web Integrated ERP (2000's)

   Integrates ERP using the web platform with other business systems

   Manufacturing Requirements Planning (MRP)

MRP can calculate the requirements for component materials needed to produce end items. These components have what is called dependent demand. A dependent demand item has a demand which is relatively predictable because it is dependent on other factors. The components of an MRP system are the:

- Master production schedule (MPS)
- Bill of Materials (BOM)

Inventory Status File (ISF

Master Production Schedule(MPS)

The master schedule provides a plan for the quantity and timing of when orders are required. The MRP system will use this information and taking into account delivery, production and supply lead times and will indicate when materials are needed to achieve the master schedule. The MPS will usually show plans based on time 'buckets' based on for example a day or a week. The MPS will usually contain a mix of both plans for customer ordered items and plans to produce to forecast sales.

Bill of Materials(BOM)

The Bill of Materials (BOM) identifies all the components required to produce a scheduled quantity of an assembly and the structure of how these components fit together to make that assembly. The BOM can be viewed as a product structure tree, similar to an organisation chart. The accuracy of the BOM is vital in generating the correct schedule of parts at the right time.

Inventory Status File(ISF)

The Bill of Materials (BOM) indicates the quantity of components needed from the product structure, but this will not be directly translated into demand for components because it is likely that some of the components will be currently held in inventory. The inventory status file (ISF) provides information on the identification and quantity of items in stock. The MRP system will determine if a sufficient quantity of an item is in stock or an order must be placed. The inventory status file will also contain the lead time, or time between order and availability, for each component.

MRP Calculations

The following calculations are made by the MRP program.

- *Gross Requirements*. This is the estimated requirements for the item described.

- *Scheduled Receipts*. This indicates when the item becomes available for use, from a previously released order.
- *Projected On Hand*. This is the number of units to be available at the end of each time bucket based on the balance of requirements and receipts.
- *Net Requirements*. If the projected on hand is negative it is called a net requirement and means there will not be enough of this component to produce the quantities required to meet the master production schedule.
- *Planned Order Release*. The planned order release (POR) row indicates when an order should be released to ensure that the projected-on-hand figure does not become negative.

MRP Reports

A number of reports can be generated by the MRP program which include information on the quantity of each item to order in the current and future time period, indication of which due dates cannot be met and showing when they can be met and showing changes to quantities of currently ordered items. The system can also show the results of simulation of scenarios for planning purposes.

Limitations of MRP

The success of the system depends on the accuracy of the data but lead times and capacities are just static estimates and do not reflect dynamic nature of the operations system. Process times are variable so difficult to predict when work will arrive at a particular location so lead times are variable and depend on the utilisation of upstream resources. Therefore if lead time calculations are wrong then planning system cannot allocate capacity correctly.

Manufacturing Resource Planning (MRP II)

Manufacturing Resource Planning (MRP II) extends the idea of MRP to other areas in the firm such as marketing and finance. Thus central databases hold information on product structure (i.e. the Bill of Materials (BOM) file) which can be updated due to design changes by engineering for example. By incorporating financial elements into item details, inventory cost information can be utilised by finance

departments. At a wider level information provided by the MRP II system from simulations of business plans can be used to estimate plant investment needs and workforce requirements. This information can then be used to co-ordinate efforts across departments including marketing, financing, engineering and manufacturing.

ERP

ERP extends MRP and MRPII across the organisation and takes a process perspective, so how does ERP improve process performance? An example is given of the procurement process which involves acquiring all the resources needed by an organisation in the form of purchases, rentals, contracts etc.

Manual Procurement Process

1 Create Order

Physically check for stock levels

Gather forms with previous purchases and potential suppliers

2 Get Quotes

Prepare forms requesting availability and pricing information Collate quotation letters

3 Approve Order

Transfer requisition information to purchase orders and send to selected suppliers

4 Receive Products and Services

Match purchase order to delivery list when delivered Generate goods receipt form

5 Make Payment

Match invoice from supplier with purchase order and goods receipt document Authorise and send payment

ERP Procurement Process

ERP supports the procurement process by:

1. Supporting the execution of the process

   Documents can be quickly and easily created and stored in the system

2. Capture and store data

   For example all stock levels and supplier information displayed on purchase requisition screen All forms (goods receipt, purchase order, invoice) held on database for checking

3. Help monitor performance

   Automatically generate exception reports if problems occur Provides a variety of reports in response to queries

Implementing ERP

ERP ensures all processes work to a template so potentially increasing efficiency. A centralised database increases data visibility and so improves communication and helps decision making. However working to the standard process design could mean some loss of flexibility.

Web-integrated ERP

This involves using the web to integrate ERP systems with outside stakeholders such as customers and suppliers. Many ERP systems have been found to offer only limited integration with Internet systems. The ideal is to integrate ERP with the internal systems of other businesses (not just connecting ERP to other customer and

suppliers). This is difficult but these web-integrated ERP (also called c-commerce) applications are beginning to make an impact

Examples of ERP system modules include: product lifecycle management, supply chain management (for example purchasing, manufacturing and distribution), warehouse management, customer relationship management (CRM), sales order processing, online sales, financials, human resources, and decision support system

Fig.3

ERP implementation is broken up into three phases: discovery, implementation, and results. In the initial phase, we install the software, build a prototype, and train your staff. Then we test the ERP system, create reporting templates, and run more targeted training sessions. Finally, we finalize the model of your ERP system, conduct readiness assessments, and go live.

COMPETITION

It's true that ERP software requires a major investment, but there's also an even bigger cost in not making the investment. While some manufacturers choose to stick to the tried and true methods of the past, others seek technology solutions. Manufacturers cannot afford to put off an ERP implementation while their competition invests in ERP and starts reaping the many benefits we'll touch on below. ·

EFFICIENCY An ERP solution eliminates repetitive processes and greatly reduces the need to manually enter information. The system will also streamline business processes and make it easier and more efficient for companies to collect data, no matter what department they're working in

FORECASTING Enterprise resource planning software gives your users, and especially managers, the tools they need to create more accurate forecasts. Since the information within ERP is as accurate as possible, businesses can make realistic estimates and more effective forecasts.

· COLLABORATION nobody wants to run business with each department functioning separate from the other. Collaboration between departments is a crucial and often necessary part of the business. With the data entered into ERP systems being centralized and consistent, there's no reason why departments can't work together. The software also touches on almost every aspect of a business, thus naturally encouraging collaborative

SCALABILITY Did you know? Structured ERP systems allow the addition of new users and functions to grow the initially implemented solution over time. When your business is ready to grow or needs more resources, enterprise resource planning software should be able to facilitate that growth

INFORMATION No more issues with data spread across separate databases; all information will be housed in a single location. This means you can integrate platforms like your CRM software with the ERP system, keeping data consistent, accurate, and unique. Know your customer, their orders, and your inventory, all in one place.

MOBILITY An advantage of ERP solutions like Work Wise ERP software is having access to a centralized database from anywhere you work. Home, office, wherever, through our mobile-friendly solution and application

. · REPORTINGERP software helps make reporting easier and more customizable. With improved reporting capabilities, your company can respond to complex data requests more easily. Users can also run their own reports without relying on help from IT, saving your users time to use toward other projects.

· PRODUCTIVITY Save time and increase productivity levels. Sound too good to be true? It's not with ERP software. By having redundant processes automated, users have more time to work on other pressing projects and tasks. They'll also be able to work easier since the solution was designed for ease-of-use.

REGULATORY COMPLIANCE A benefit of ERP software which sometimes goes unnoticed is how it ties well into regulatory compliance in the manufacturing

industry. Powerful ERP solutions will keep track of regulations within the industry and monitor changes in compliance.

· FLEXIBILITY Modern ERP software systems are robust, flexible, and configurable. They are not a onesize-fits-all proposition but can be tailored to the unique needs of a business. ERP systems also can adapt to the ever-changing needs of a growing business, ensuring you won't have to buy a new solution once your needs change or your business grows.

CUSTOMER SERVICE It's easier to provide high-quality customer service using an enterprise solution, especially when you're using one as well-equipped as Work Wise ERP. Sales and customer service people can interact with customers better and improve relationships with them through faster, more accurate access to customers' information and history. You'll also have access to marketing automation and contact center software, ensuring your customers are being interacted with consistently.

ERP Industry Applications: ·

Engineering · Manufacturing · Automobile / Automotive · Die Casting · Plot Developers / Builders · Construction · Retail · Food and Beverage

Features of ERP

The following diagram illustrates the features of ERP −

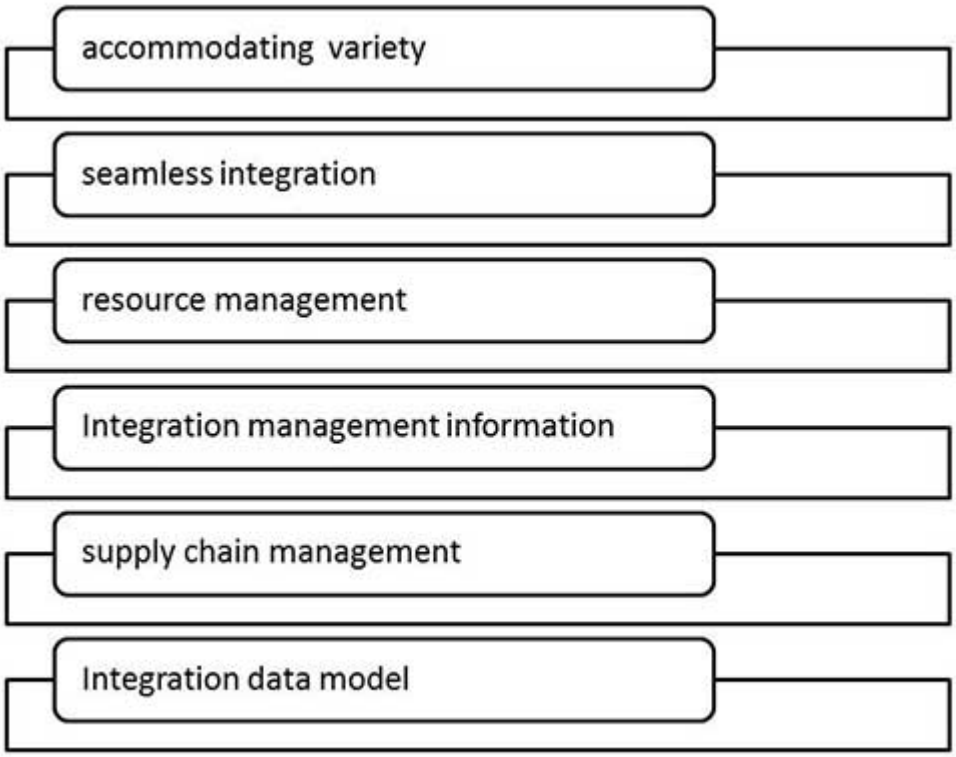

Fig.4

Scope of ERP

- **Finance** − Financial accounting, Managerial accounting, treasury management, asset management, budget control, costing, and enterprise control.
- **Logistics** − Production planning, material management, plant maintenance, project management, events management, etc.
- **Human resource** − Personnel management, training and development, etc.
- **Supply Chain** − Inventory control, purchase and order control, supplier scheduling, planning, etc.
- **Work flow** − Integrate the entire organization with the flexible assignment of tasks and responsibility to locations, position, jobs, etc.

Disadvantage of ERP

- Expense and time in implementation

- Difficulty in integration with other system
- Risk of implementation failure
- Difficulty in implementation change
- Risk in using one vendor

What are the emerging trends in ERP? • ERP platforms • Open source ERP • Supply chain management • Customer relationship management • Business analytics • Extended ERP

How the internet used in Cloud computing process? Cloud computing can be defined in simple terms as the delivery of a software product to a user via the Internet. The user typically accesses the cloud product through a Web browser or a lightweight (meaning small and simple) application for a computer or mobile device. Cloud computing is not a completely new concept, rather it simply represents the latest stage of the development of computing and the Internet. To better understand how cloud computing will impact ERP system development, it is useful to review the development of SAP's ERP systems with the advent of the Internet.

SAP and the Internet In 1996, SAP introduced its joint Internet strategy with Microsoft. The core of SAP's first effort to integrate the Internet with its products was the Internet Transaction Server (ITS) a serverbased software system that enabled efficient communication between an SAP ERP system and the Internet. To provide some context for the state of the Internet at this time—in 1996, Amazon.com was only one year old, and the online travel agencies Expedia and Travelocity were both just being founded. Many other Internet services we take for granted today did not exist at this time. In May 1999, SAP announced mySAP.com, a new strategy designed to completely realign the company and its product portfolio. The goal of this initiative was to combine e-commerce solutions with SAP's existing ERP applications, using cutting-edge Web technology. In 2000, SAP began building on the mySAP.com vision by adding the capability for electronic marketplaces and corporate portals.

How the ERP systems enabled with internet?

E-commerce needs are driving companies to connect their business applications, such as ERP systems, both internally and externally through the Internet. Software designed with an SOA can be quickly deployed and reconfigured as business conditions require changes to the applications, databases, and other infrastructure hosted in data centers owned by a company. The combination of software tools that enables an organization's various systems and applications to communicate with other applications is called Web services.

What do you mean by open source ERP? Open source ERP provides the users with free versions of software programs without license, other rules and regulations. open source erp platforms the user is able to access the source code and know how the applications work and can change the code as per the business needs. This has been commented as one of the main reasons for small and medium sized orgainsations to select open source ERP platform rather than outsourcing the developing applications that suit the business requirements.

What are the factors affecting the post implementation process of ERP? • Customization • Post implementation training • Top management support or influence • Post implementation benchmarking • Change management • Maintenance of ERP • Introduction of additional features at the post implementation phase • Success of activities at pre-implementation stage.

Write down the impact on implementing ERP systems in Organization.

- Enhanced operations
- Easy upgrade
- Improved productivity
- Reporting made easier
- Improved accuracy and consistency
- Better integration

- User friendly • Improves Communication
- Reduces cycle time
- Decreased operating costs
- Supports daily activity
- Aligned process
- Strategic planning support.

State the process of ERP Maintenance in detail?

01. Preventive Maintenance

02. Emergency Maintenance

Software updates

04. Upgrading during maintenance a. Competitive Advantage b. Global Access c. Integration option d. Best practices e. Cost Reduction

Explain the issues of ERP Implementation? ERP implementation is expensive (with costs ranging between $10 million and $500 million, depending on company size). The costs of an ERP implementation include the following:

Software licensing fees—ERP software is quite expensive, and most ERP vendors charge annual license fees based on the number of users.

✓ Consulting fees : ERP implementations require the use of consultants with the skills to configure the software to support the company's business processes. Good consultants have extensive experience in the way ERP systems function in practice, and they can help companies make decisions that avoid excessive data input, while capturing the information necessary to make managerial decisions.

• Project team member time: ERP projects require key people within the company to guide the implementation. These are team members who have detailed knowledge of the company's business. They work closely with the consultants to make sure the configuration

of the ERP software supports the company's needs, which means these workers are frequently taken away from their daily responsibilities.

• Employee training: Project team members need training in the ERP software so they can work successfully with the consultants in the implementation. Those team members also frequently work with training consultants to develop and deliver company-specific training programs for all employees.

• Productivity losses: No matter how smoothly an ERP implementation goes, companies normally lose productivity during the first weeks and months after switching to a new ERP system.

To justify the costs associated with an ERP system, a company must identify a significant financial benefit that will be generated by the use of the software, but the only way a company can save money with an ERP system is by using it to support more efficient and effective business processes.

This means that an implementation project should not just re-create the company's current processes and information systems, although that is a possibility since SAP provides the source code with its ERP package. A company could choose to alter the package through SAP's internal programming language, called

Advanced Business Application Programming (ABAP)—which access to the SAP ERP source code, it is possible for a company to spend a significant sum of money on software code development to avoid changing a business process to the best practice process designed into the ERP software. Many companies have difficultly handling change and prefer to continue doing business as they always have

Other than adopting the best practices built into the ERP system. As part of the implementation, a company must also manage the transfer of data from its old computer system to the new ERP system. In addition to managing master data such as materials data, customer data, vendor data, and so on, a company must also transfer transaction data, which includes sales orders and purchase orders, many of which are likely to be in various stages of processing—a challenging task.

What are the limitations of ERP?

- Managers cannot generate custom reports or queries without help from a programmer and this inhibits then from obtaining information quickly, so that they can act on it for competitive advantage

- ERP systems provide current status only, such as open orders. Managers often need to look past the current status, to find trends and patterns that aid better decision-making

- The data in the ERP application is not integrated with other enterprise or division systems and does not include external intelligence

What are the factors that are critical for the success of the ERP implementation?

- Selection of the right package

- Commitment of top management

- Participation and dedication of the system's future users • Backing, support and cooperation of the IS/IT personnel

- Development of interfaces with current operational systems and with those under development

- Effort of consultants, who have respect for the company's know-how and work culture •

Spirit and collaboration on the part of all

What are the direct benefits of ERP systems?

- Business Integration

- Flexibility

- Better analysis and planning capabilities

- Use of latest technology