7

DEVELOPING STRATEGIC PLANS FOR OPERATIONS

INTRODUCTION

Operations strategy must fit in with business strategy. A useful approach for formulating a consistent strategy is to involve different managerial groups in prioritizing the four competitive factors: Quality, Cost Efficiency, Time-based Capability, and Flexibility.

Based on the competitive analysis and the strengths of the firm, each managerial group is asked to provide relative weights for the four criteria. It

should be noted that the sum of the weights is 100. **Exhibit 7-1** shows an example of analysis, assigned by the production and marketing groups.

Exhibit 7-1: The Priority weights for operations criteria

	Quality	Cost	Time	Flexibility
Operations Group	50	20	20	10
Marketing Group	20	30	10	40
Consensus	35	25	15	25

A more comprehensive way to perform the competitive analysis is to indicate the degree of importance to the Strategic Business Area (SBA) in competing in the market place over the next 5 years by rating the following competitive abilities by degree of importance.

Exhibit 7-2: The Degree of importance in competition

	Not Important						Very Important
A. PRICE							
1. Ability to profit in price competitive markets	1	2	3	4	5	6	7
2. Ability to set target price to grasp volume	1	2	3	4	5	6	7

B. QUALITY							
1. Ability to offer conformance quality	1	2	3	4	5	6	7
2. Ability to provide reliable products	1	2	3	4	5	6	7
3. Ability to provide high-performance products or product amenities	1	2	3	4	5	6	7
4. Ability to differentiate product by design quality	1	2	3	4	5	6	7
C. TIME-BASED CAPABILITY							
1. Ability to provide fast delivery	1	2	3	4	5	6	7
2. Ability to make reliable delivery promises	1	2	3	4	5	6	7
3. Ability to provide effective after-sales service	1	2	3	4	5	6	7
4. Ability to provide product support effectively	1	2	3	4	5	6	7
5. Ability to make product easily available (broad distribution)	1	2	3	4	5	6	7

	Not Important						Very Important
D. FLEXIBILITY							
1. Ability to customize products and services to customer needs	1	2	3	4	5	6	7
2. Ability to make changes in design and introduce new products	1	2	3	4	5	6	7
3. Ability to make rapid volume changes	1	2	3	4	5	6	7
4. Ability to offer a broad product line	1	2	3	4	5	6	7

The second step in analyzing the SBA competitive abilities is to evaluate the current status of a number of factors relative to competition, and the degree to which previous investments in new technology or practice have paid off.

Exhibit 7- 3: The Degree of Strength Relative to Best Competitor

	Weaker						Stronger
A. PRICE							
1. Ability to profit in price competitive markets	1	2	3	4	5	6	7

2. Ability to set target price to grasp volume	1	2	3	4	5	6	7

B. QUALITY

1. Ability to offer conformance quality	1	2	3	4	5	6	7
2. Ability to provide reliable products	1	2	3	4	5	6	7
3. Ability to provide high-performance products or product amenities	1	2	3	4	5	6	7
4. Ability to differentiate product by design quality	1	2	3	4	5	6	7

C. TIME-BASED CAPABILITY

1. Ability to provide fast delivery	1	2	3	4	5	6	7
2. Ability to make reliable delivery promises	1	2	3	4	5	6	7
3. Ability to provide effective after-sales service	1	2	3	4	5	6	7
4. Ability to provide product support effectively	1	2	3	4	5	6	7

5.	Ability to make product easily available (broad distribution)	1	2	3	4	5	6	7
D.	**FLEXIBILITY**							
1.	Ability to customize products and services to customer needs	1	2	3	4	5	6	7
2.	Ability to make changes in design and introduce new products	1	2	3	4	5	6	7
3.	Ability to make rapid volume changes	1	2	3	4	5	6	7
4.	Ability to offer a broad product line	1	2	3	4	5	6	7

There are four steps in the process of developing SBA plans for the operations function:

1. The operations audit — analyze the present situation.
2. Analyze the planned status of the operations function.
3. Identify the capability gap.
4. Formulate action plans and budgets to implement the strategy.

Operations strategy at the corporate level should not be simply the accumulation of the plans made for individual SBAs in a multi-unit corporation. Corporate-wide strategies and policies need to be reviewed,

along with individual SBA strategies related to them. Some of the elements of the operations can be changed in a short period of time, others may only be changeable in the longer term. The linking of short-term decisions with long-term objectives is a part of the strategic and organizational coordination of the operations strategy.

All of the activities in the line of material flow from suppliers through fabrication and assembly and culminating in product distribution must be integrated for operations strategy formulation. In addition to materials the other crucial input of labor, job design, and technology must be part of the integrated strategy. The six components of operations strategy are:

- Positioning the productive system
- Capacity / location decisions
- Product and process technology
- Workforce and job design
- Supplier and vertical integration
- Strategic implications of operating decisions

Except workforce and job design, most of the elements are normally recognized as long-term decisions that are difficult to reverse and therefore more likely to be considered strategic issues.

1. Positioning the Productive System

There are basically four kinds of productive systems, which are :

- Job-shop system : low volume, custom product.
- Batch system : low volume, multiple product.
- Line system : large volume, multiple product.

- Continuous system : high volume, product-focused.

Given that there is a band of feasible strategies, one cannot say that there is a single correct positioning for a given situation. In fact, many systems are the combination of product-process situations. Besides, it is unlikely that a system can remain static over long periods. As a product or service develops though its life cycle, the productive system goes through a life cycle of its own, from a job-shop system (process focused, to order) when the product is in its initial stages through intermediate stages to a continuous system (product focused, to stock) when the volume is high.

The Just-in-time system is a productive system which is most suitable between the product focused and process focused extremes. It is a system which aims to produce the necessary units in the quantities needed at the time they are needed. Accomplishing the just-in-time objective rests on systems for determining production methods and the Kanban system. Both of these concepts contribute to reaching the objective of having the right number of parts at the right place at the right time. It requires more control at the micro-process level, such as fast setup time, fast cycle time, and standard quantity of work-in-progress. The major strength of JIT system is in production of high quality products with lower operations costs.

2. Capacity/Location Decision

Capacity and location decision is a longer term strategy. These kinds of decisions are the most significant ones made in terms of the amount of capital involved and their strategic implications.

The appropriate capacity moves can be rather obvious when new products are in their rapid growth phases. Since the potential

costs of lost sales are so great in these instances, capacity expansion is usually clearly justified.

In later phases of production, capacity planning should take consideration of: (1) future demand, (2) technological impact, and (3) financial flow. Overcapacity carries with it both higher overhead costs per unit and lower industry prices. The result is a cost-price squeeze. Therefore, forecasting competitors' behavior is even more important than predicting demand.

Advanced technology now available can make production capacity more flexible and therefore less subject to the effects of product and schedule changes. Those firms that develop the facilities with the greatest flexibility will have a competitive edge in adapting to major shifts in product design and demand.

The issue of capacity expansion immediately raises the companion issues of where to expand in order to get close to the customers. The strategic location of activities in multinational settings is an important element in operations and marketing strategy. There are three kinds of strategies for locating production facilities:

- Central location
- Multi-domestic form
- Nationalized exchange

The central structure establishes one basic location for production and ships the product from it to all markets. It provides scale advantages and experience effect, but does not deal with local content rules that exist in many countries.

The multi-domestic form is established in each of the countries in which the company competes. The marketing advantages are in

having a presence in a country, in easily meeting local content rules, and in providing easy access to service. The disadvantages are small-scale plants and the less experience effect.

Rationalized exchange is particularly applicable to complex assembled products and involves allocating component manufacture to the countries in which business is done. The advantages are each specialized plant is of a large enough scale for efficient operations and experience effect, and each plant is focused on a limited set of activities and management.

3. Product and Process Technology

Product and process technology planning includes research, design and development. Product development may be pursued via a number of research strategies:

- *Offensive strategy*: market leaders tend to beat the competition the first time, to control patents for possible licensing to other firms.
- *Defensive strategy*: market followers tend to let others do the R & D and focus on new and improved processes.

Concurrent engineering teams up the marketing personnel, designers, manufacturing engineers and quality engineers to better understand and meet customer needs. One goal is to provide what the customer wants with fewer parts or operations, thereby cutting costs and prices. It includes value engineering, value analysis and design review.

Advanced process technologies and automation can be costly, such as Flexible Manufacturing Systems (FMS). It is better to first look for ways to eliminate the non-value-added activities. The Just-in-time system is now recognized as the most effective

productive system to eliminate waste or non-value-added activities, while maintaining high quality of production.

Quality improvement and process improvement are the first operations strategy for world-class manufacturers nowadays, before advanced process technologies and automation.

4. Workforce and Job Design

There is a strong tie between workforce and job design and operations strategy. The worker's role in the system is crucial to the success of an organization. Therefore, work rules, job design, team organization, wage rates, and the labor-management relationship are extremely important elements in operations strategy.

In managing workforce, there has been a tendency to follow fads, such as these:

- Human relations of the 1930s and 1940s
- Participative management of the 1950s
- T-group of the 1960s
- Job enrichment of the 1970s
- Quality circles of the 1980s

The workforce manager's primary objective should be performance (quality, cost, flexibility, time). The principles of workforce management are:

1. Match the worker and the job
2. Set standards of performance
3. Define responsibility

4. Insure communication and employee involvement
5. Provide adequate training
6. Reward people for performance
7. Develop a climate of openness and trust
8. Ownership of process and quality

Job design refers to the assignment of specific tasks and activities to an individual or group of workers. Job design affects productivity and quality. Job enrichment is an approach to job design which stresses the motivating potential in the work itself. There are several methods to improve quality and productivity:

- Combining tasks
- Forming natural work units
- Establishing client relationships
- Adding vertical loading
- Opening feedback channels
- A flat organizational structure and lean staff
- Fewer job classifications
- Use of work team structure
- A highly skilled, flexible, coordinated and committed workforce

5. *Supplier and Vertical Integration*

Purchasing and relationships with suppliers must be formulated to be part of operations strategy. The result should depend on

the operations strategy's relative emphasis on quality, cost, product availability and flexibility / service. One of the principles of quality management is to develop long-term relationships with suppliers. This is especially important in the Just-in-time environment.

In choosing suppliers, it is important to examine each from the view point of how that supplier regards your organization, such as:

- How does that supplier view you as a customer?
- Is your business significant to the supplier?
- Are you a costly customer for the supplier to service?
- Is the supplier quality conscious?
- Is the supplier long-term oriented?

Since supplier processes are really an extension of manufacturing processes, the question of whether or not to integrate backwards and develop internal capacity to produce a component or a semi-finished product must be considered. This is basically different from the concerns dominating the mergers and acquisitions craze that held sway in the 1980s. In vertical integration decisions, the emphasis is on the logic of a change within the firms' strategy of production. It is not an investment portfolio concept.

6. *Strategic Implications of Operating Decisions*

The strategic approach to operations differs from the traditional approach on almost every count. Operating decisions are made on the basis of their strategic impact and their contribution to long-term competitive advantage, not on narrow financial criteria. The role of operations is to support and enhance the

business strategy, not singly to provide capacity. Quality, cost, on-time delivery, and flexibility become inherent in the basic strategy of the firm.

The Japanese have been particularly successful in creating effective operating systems that have strategic significance in reducing costs and controlling quality. The 'driver' of the operating system is the reduction of 'non-value-added' activities, which includes the reduction of inventory, set-up costs and lot sizes. Further-more, reduction in production lot sizes triggers a more important chain of events involving improved motivation and a focus on scrap and quality control and on just-in-time (JIT).

For companies which set quality as the competitive priority, this is called the 'quality-based strategy'. To maintain high quality, the choice of processes, the nature of control procedures for quality of products and services, the maintenance function, and the role of repair and preventive maintenance must be carefully designed. The companies must set policies regarding the desired quality in relation to market and needs, investment requirements, return on investment, potential competition, and so forth.

This design process is an interactive one in which the productive system design is both considered in and influenced by the design of products and services. For manufacturing systems, the design of products in this interactive fashion is termed production design. The interaction affects quality considerations because equipment capability must be good enough-to produce at least the intended quality.

Out of the process of the design of products, services and the productive system come specifications of quality standards. Here we are dealing with a system of quality standards for materials that are consumed in processes as well as raw materials;

standards for the output of processes, such as the specification of dimensions, tolerances, weights, and performance standards for components and products. Given standards, we can set up controls for incoming materials and for the processes and performance of products and services.

Exhibit 7-4 shows the relationships among policies, design of products and services, design of the productive system, and the maintenance of system reliability for quality and quantities.

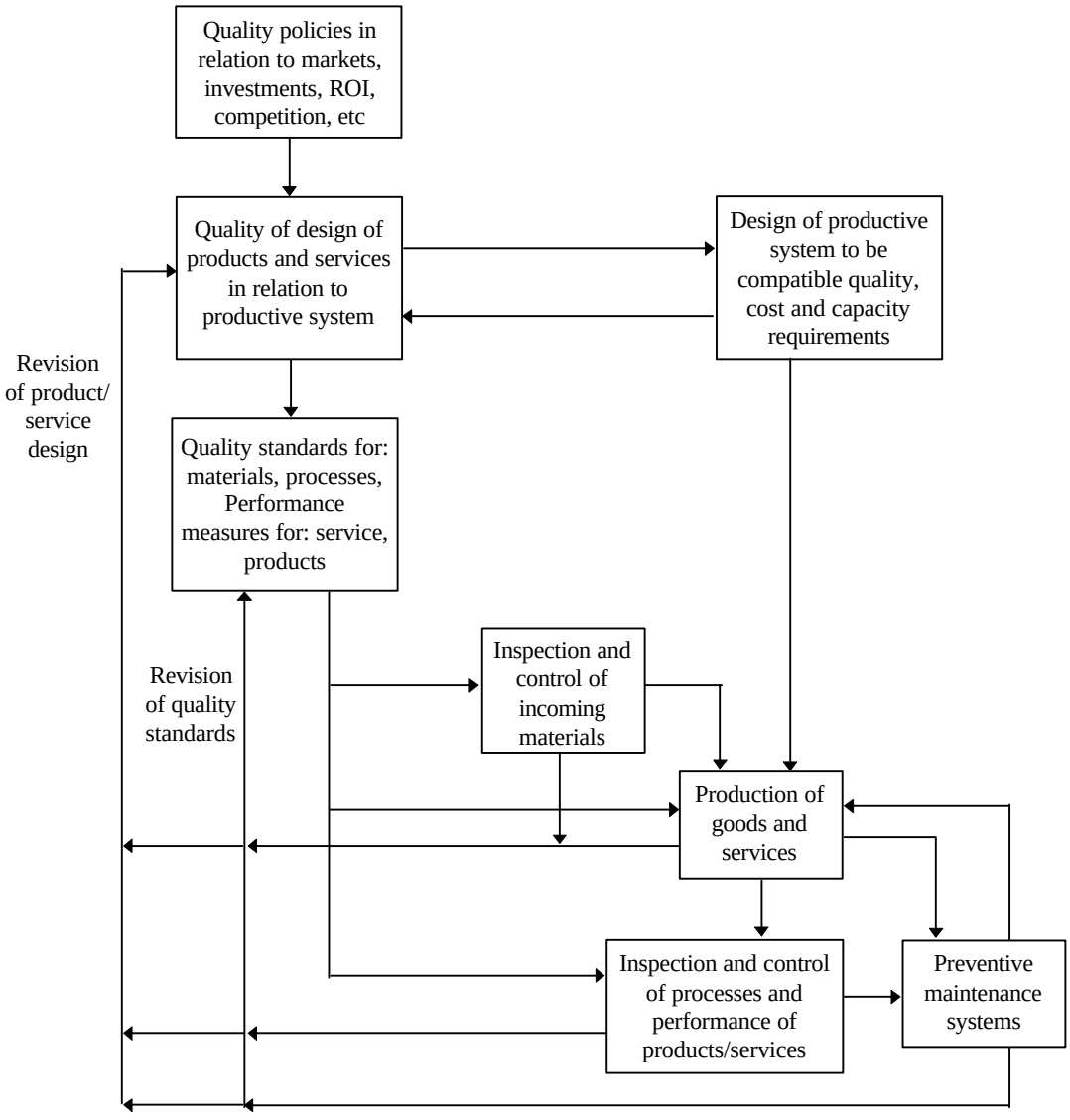
STRATEGIC INTENT

A critical issue for any firm is where to emphasize improvement. Overall improvement is desired, but scarce resources, customer needs, and market forces dictate that choices be made with respect to quality, cost efficiency, delivery time and flexibility.

Strategy decisions at the top management level and within the operations function affect how well the operations function will contribute to the competitive effectiveness of a firm. The essence of an effective strategy is the development of those competitive capabilities that will best position the firm for sustainable competitive advantage. Positioning establishes the extent to which the production system will emphasize component characteristics in order to achieve greatest competitive advantage.

Regardless of how desirable it may sound, a firm cannot simultaneously achieve highest in quality, lowest in cost, fastest in delivery, and greatest in flexibility. Distinctive competence leads to competitive advantage. The top competitive capabilities or priorities (in terms of quality, cost, delivery, and flexibility) guide the choices that complete the formulation of an effective operations strategy and continuous improvement plans. To the extent that these priorities are future oriented, they reflect the strategic intent of the firm.

Exhibit 7-4: The Strategic implications of operating decisions



EVALUATION OF PERFORMANCE OBJECTIVES

	Not Important						Very Important
A. QUALITY							
1. Improve conformance quality	0	1	2	3	4	5	6
2. Improve safety record	0	1	2	3	4	5	6
3. Reduce number of vendors	0	1	2	3	4	5	6
4. Improve vendor quality	0	1	2	3	4	5	6
5. Increase product or materials standardization	0	1	2	3	4	5	6
6. Raise employee morale	0	1	2	3	4	5	6
7. Improve customer focus	0	1	2	3	4	5	6
Average: _____							

	Not Important						Very Important
B. COST EFFICIENCY							
1. Reduce unit costs	0	1	2	3	4	5	6
2. Increase capacity	0	1	2	3	4	5	6
3. Reduce materials costs	0	1	2	3	4	5	6
4. Reduce overhead costs	0	1	2	3	4	5	6
5. Improve direct labor	0	1	2	3	4	5	6
6. Reduce inventory	0	1	2	3	4	5	6
7. Reduce break-even points	0	1	2	3	4	5	6
8. Maximize cash flow	0	1	2	3	4	5	6
Average: _____							

	Not Important						Very Important
C. TIME							
1. Reduce manufacturing lead time	0	1	2	3	4	5	6
2. Reduce procurement time	0	1	2	3	4	5	6
3. Reduce new product development cycle	0	1	2	3	4	5	6
4. Increase throughput time	0	1	2	3	4	5	6
5. Increase delivery reliability	0	1	2	3	4	5	6
6. Increase delivery speed	0	1	2	3	4	5	6
7. Reduce setup/changeover times	0	1	2	3	4	5	6
8. Improve interfunctional communication	0	1	2	3	4	5	6
9. Improve pre-sales service and technical support	0	1	2	3	4	5	6
10. Improve after-sales service	0	1	2	3	4	5	6
Average: _____							

	Not Important						Very Important
D. FLEXIBILITY							
1. Improve ability to make rapid product mix changes	0	1	2	3	4	5	6
2. Improve ability to make rapid volume changes	0	1	2	3	4	5	6
3. Increase range of products produced by existing facilities	0	1	2	3	4	5	6

4. Change culture of organization	0	1	2	3	4	5	6
5. Improve communication with external partners	0	1	2	3	4	5	6
6. Reduce absenteeism / turnover	0	1	2	3	4	5	6
7. Increase flexible workers	0	1	2	3	4	5	6

Average: _____

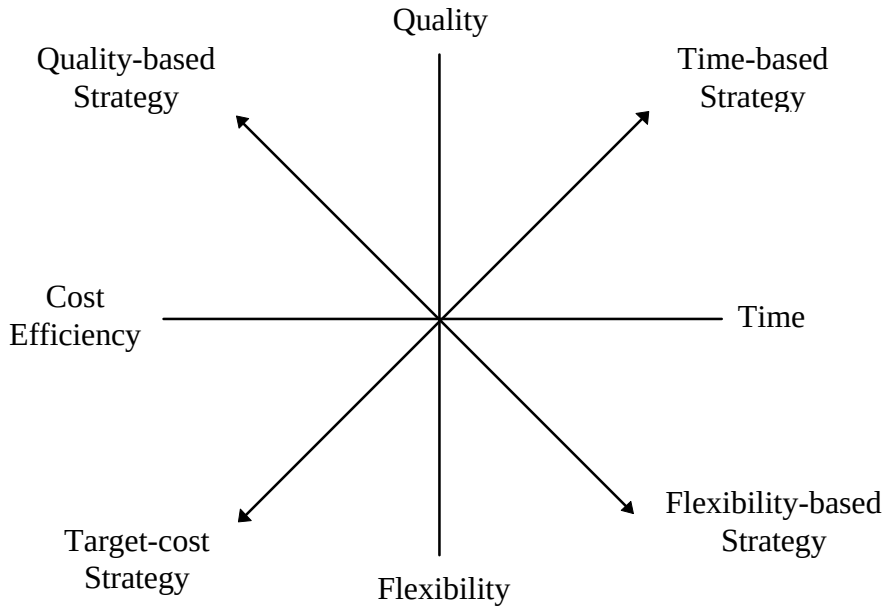
STRATEGIC POSITION AND ACTION EVALUATION

Strategy decisions at the top management level and within the operations function affect how well the operations function will contribute to the competitive effectiveness of a company. One broad strategy decision that is important in guiding and coordinating the actions of operations is related to positioning. Positioning establishes the extent to which the operations system will emphasize certain characteristics in order to achieve the greatest competitive advantage.

Strategic position and action evaluation (SPACE) is used to determine the appropriate strategic posture for a firm and each of its individual businesses. The major competitive factors: (a) quality, (b) cost efficiency, (c) time, and (d) flexibility will be the determinants of a firm's strategic position. In the SPACE chart, these factors are rated on a scale of 0 to 6.

To apply the SPACE approach, a manager assigns appropriate numerical values to each of the factors. The averages determined for each group of factors are then plotted in the SPACE chart. By connecting the average values plotted on each axis, the manager obtains a four-side polygon displaying the weight and direction of the particular assessment. **Exhibit 7-5** shows the SPACE chart for each group of factors.

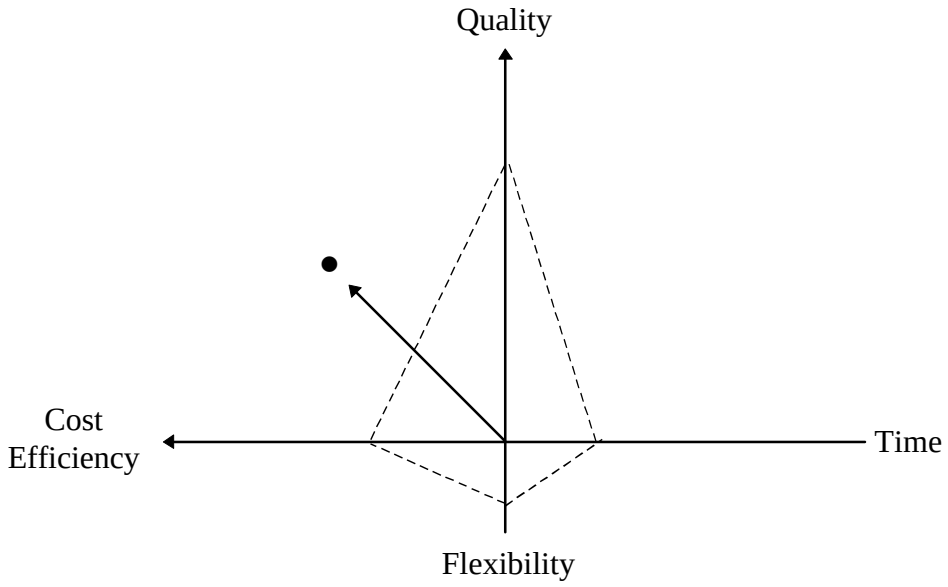
Exhibit 7-5: The SPACE Chart



The basic strategic postures associated with the SPACE techniques are illustrated and described as follows:

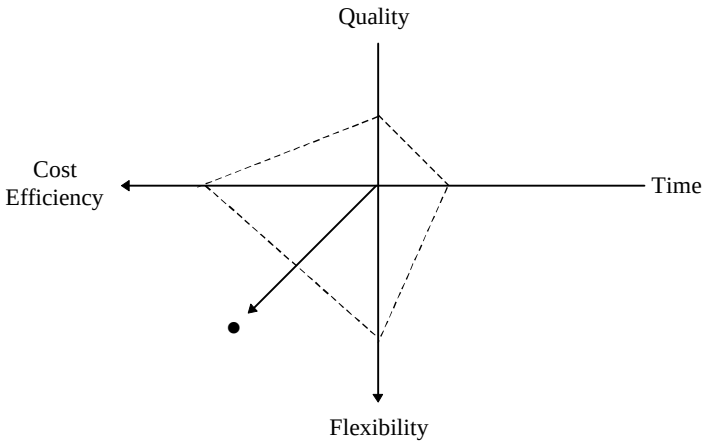
1. Quality-based strategy

Quality becomes the company's number one business strategy priority; and through controlling processes to prevent defects better quality is achieved. These actions reduce the cost of screening and repairing defective work in the plant and the cost of warranty work in the field.



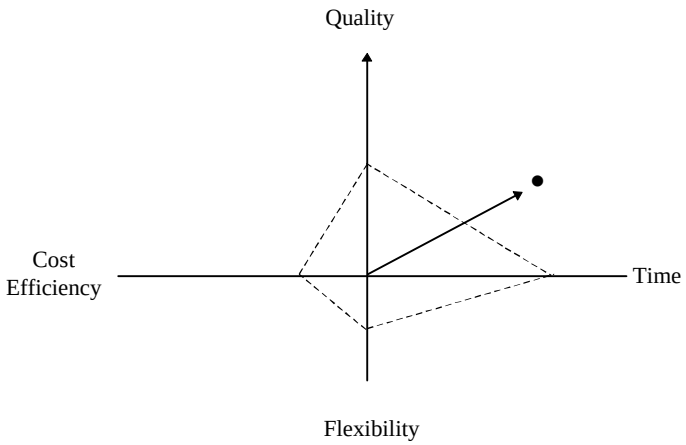
2. Target-Cost Strategy

The primary objective of Target-cost Strategy is to grasp volume. Target prices are established so as to stimulate market demand. Having achieved the requisite market share, costs are lower because the company has learned how to make the product efficiently. Many Japanese manufacturers have been using the Target-cost Strategy in the consumer products field. The critical success factors for this strategy is the ability to reduce design cost, to streamline the internal operations system so as to reduce inventory and non-value-added activities. A versatile workforce, coupled with plant arrangements and equipment that can easily be changed over from one product to another, provides greater flexibility without a significant increase in cost.



3. Time-based Strategy

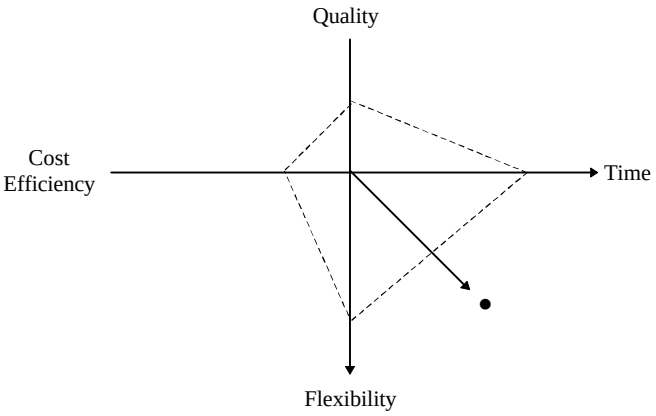
The way in which manufacturers measure their own time-based capabilities, as well as their competitors', is important in a Time-based Strategy. When manufacturers are turning to time as a way of differentiating their products and services, the nature of competition is entirely changed — cost becomes secondary to response time. Time is not just manufacturing time, it is the total order cycle time from the moment the order is placed until it is shipped to the customer. This requires a closer look at order entry processing and engineering time.



4. Flexibility-based Strategy

Flexible means “responsive to change; adaptable, capable of variation or modification”. There are five primary sources of variability that may require a manufacturing organization to be flexible — demand variability, supply variability, new product introduction or product variability, new process introduction or process variability, and workforce and equipment variability. The Flexibility-based Strategy develops the ability to respond effectively to changing circumstances, and includes:

- Design-change flexibility
- Operation flexibility
- Volume flexibility
- Routing flexibility
- Machine flexibility
- Parts flexibility
- Job flexibility
- Mix flexibility
- Process flexibility
- Program flexibility
- Product flexibility
- Expansion flexibility



It should be noted that Quality-based Strategy will always be the first priority for companies which aim to improve customer satisfaction by delivering higher quality of product and service. After the successful implementation of the Quality-based Strategy, the company can go for Target-cost Strategy or Time-based Strategy, depending on the nature of business. Flexibility-based Strategy, however, will go along with other strategies. It is unlikely that a company's competitive strategy would coincide completely with the principles embodied by any one of those strategies. Practical application often represents a compromise between these choices.

Once a company has selected its intended position and internally communicated this intention, all parts of the company can be more consistent in their decisions. Once the intended position is identified, numerous decisions within the operations function should be linked up with the strategic decision.

THE OPERATIONS AUDIT

The purpose of an operations audit is to analyze the present situation of the operations functions and how effective it is in giving life to the business

strategy. The six basic elements of operations strategy must be evaluated in the following manner:

- What technology is employed by competitors?
- What quality standards are being maintained by competitors?
- What are their prices/costs?
- What kinds of delivery times can customers obtain from competitors?
- What are the locations of competitor capacities, and how are they related to markets?
- Are there structural differences in product lines, scale of operations, and markets that give certain competitors operational advantages?

One approach to assessing the operations strategy is to set up a cross-functional team and ask managers to specify how well each of the six elements of operations strategy are currently performed. **Exhibit 7-6** shows an example of such an assessment. The numbers in this assessment are based on a 100-point scale and indicate the level of attainment for a specific criterion.

There are two ways to think about these ratings. One is to assign ratings with respect to competitors. For example, a rating of 100 may denote the highest attainment on a criteria, i.e. the company is the industry leader. A rating of zero denotes the worst performance in the industry. A rating of 50 denotes a median performance, a rating of 75 may denote performance within the top twenty-five percent, and so on.

A score of 90 for the impact of element No. 1, system positioning, on the quality criterion signifies that the company's productive system is capable of producing high quality products and services, i.e. 90 percent of the competitors have a poorer quality than the company.

Exhibit 7-6: Operations Audit Relative to the Operations Strategy

(Priority Weights)	(35)	(25)	(15)	(25)
Elements of Operations Strategy	Quality	Cost	Time	Flexibility
1. System Positioning	90	50	50	75
2. Capacity / location decisions	75	90	75	25
3. Product / process technology	80	75	75	30
4. Workforce and job design	25	100	30	30
5. Suppliers and vertical integration	90	20	75	25
6. Operating decisions	90	80	50	25

For some cases, the ratings may be based on a relative comparison with what can be achieved by the organization. For example, for the operating decisions element, a rating of 25 on the flexibility criterion signifies that the company places low emphasis on this criterion when planning for inventory, production, and capacity decisions. However, a rating of 90 on the quality criterion indicates that the company places extremely high emphasis on the quality implications of its operating decisions.

THE CAPABILITY GAP

The need and the extent of capability changes required by the firm can be determined by means of the strategic diagnosis, the firm's present capability and determining the capability gap. A firm's performance potential is optimum when the firm's capability matches the aggressiveness of its strategy.

It is clear that this company is set up for low cost production but emphasizes high quality (or conformance quality). However, there are some capability gaps in the element of operations:

Capability Gaps	Quality	Cost
System positioning	—	50
Workforce and job design	25	—
Supplier and vertical integration	—	20

The *first capability gap* is the workforce and job design in the quality factor. It means that the workforce lacks quality awareness and skills. The action plan should be set up, such as training and education.

The *second capability gap* is in the system positioning element, where the rating of cost is 50. The top management should change the production system so as to meet the objective of cost efficiency.

The *third capability gap* is in the supplier and vertical integration, where the rating of cost is 20. This mismatch undoubtedly produces strains on the quality-cost strategy. Since there is no problem in the quality of supplies, the firm must find ways to reduce the cost of incoming materials. In such situations, the firm has to consider vertical integration to produce something of economic value to lower the costs of incoming materials.

STRATEGY FORMULATION

Operations strategy formulation must be a part of business strategy and must have ‘strategic fit’. The difficulties with organizational fit commonly occur with new and emerging technology-product, process, or operations control — where existing personnel or organizational structure is not well adapted to the strategy.

Lack of organizational-fit does not mean that the strategy is poor, but it may mean that it cannot be implemented now, and some organizational development is necessary before one can hope for implementation. One of the most common difficulties faced by operations managers occurs during the growth phase as the process technology evolves. If staff members have grown up with a system requiring customization, they often have difficulty adapting to the needs of a higher volume, more standardized system.

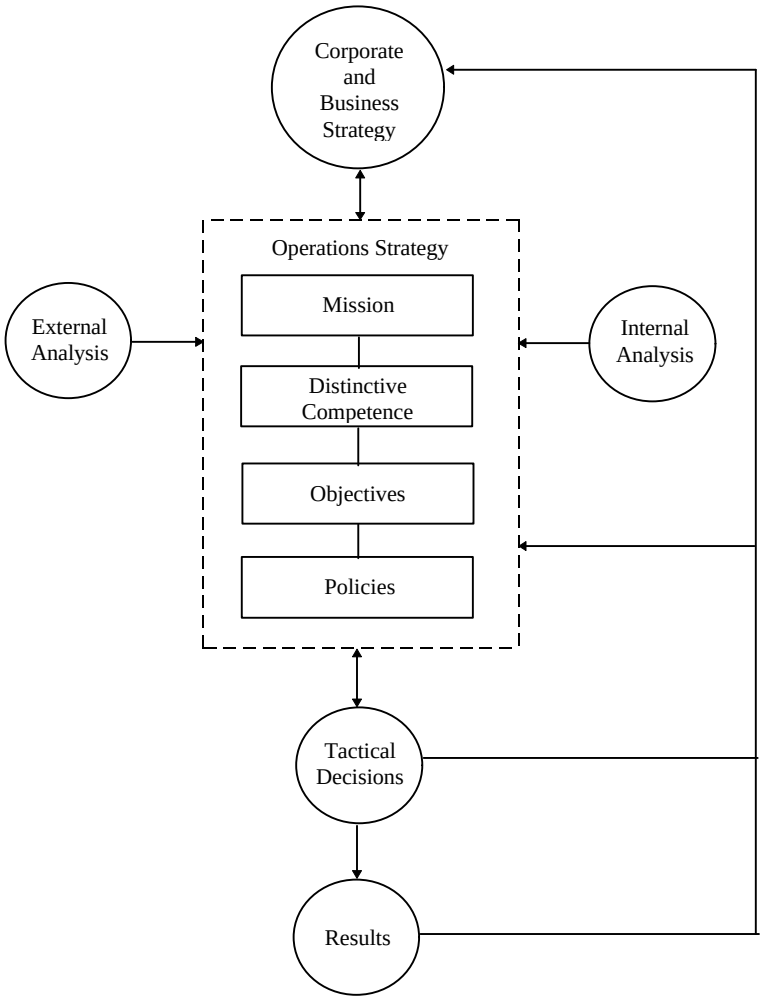
The operations strategy is a vision for the operations function that sets an overall direction or thrust for decision making. This vision should be integrated with business strategy, and is often, but not always, reflected in a formal plan. The operations strategy should result in a consistent pattern of decision making in operations and a competitive advantage for the company. **Exhibit 7-7** shows the relationships of the operations strategy and business strategy.

In formulating an operations strategy, an analysis should be made of the external and internal environments. The external environment includes competition, customers, economics, technology, and social conditions. The internal environment which affects the operations strategy includes the six elements as described before. The mission of operations is to state the priority among the operations objectives of quality, cost, delivery and flexibility.

The distinctive competence of operations is what operations must excel at relative to the competition. The distinctive competence should match the mission of operations. Distinctive competence leads to competitive advantage and can be on a variety of forms: lowest cost, highest quality, best delivery, or greatest flexibility.

Objectives in operations should be stated in specific quantitative and measurable terms. They are the goals that operations is expected to achieve in the short and long run. **Exhibit 7-8** shows an example of the operations objective of a company.

Exhibit 7-7: The Operations Strategy Model



After the operations objectives are identified, operations policies should be developed alongside the five elements of the operating decisions. These choices should be made by senior management and will involve strategic considerations. **Exhibit 7-9** shows some of the major operations policy choices.

Exhibit 7-8: The Typical operations objectives

	Current year	5 years in the future	Current world-class competitor
A. **Cost**			
Manufacturing cost as percentage of sales	55%	48%	50%
Inventory turnover	4.1	5.2	5.0
B. **Quality**			
Customer satisfaction	75%	85%	75%
Scrap and rework (%)	15%	5%	10%
Warranty cost as percentage of sales	1%	0.5%	1%
C. **Delivery**			
Orders filled from stock	90%	95%	95%
Lead time to fill stock	3 weeks	1 week	3 weeks
D. **Flexibility**			
No. of months to introduce new products	10 months	6 months	8 months
No. of months to change capacity by 20%	3 months	3 months	3 months

Exhibit 7-9: An Example of the operations policies

Policy Type	Policy Area	Strategic Choice
System Positioning	Process flow	Project, batch, line or continuous
	Distribution	Centralized or decentralized warehouse
	Quality control system	JIT or ISO 9000
Capacity / Location	Facility size	One large or several small facilities
	Location investment	Near markets, low cost or foreign
		Permanent or temporary
Product / Process	Span of process	Handmade or machine-made
	Automation	Flexible or hand automation
Workforce / Job design	Job specialization	High or low specialization
	Supervision	Centralized or decentralized
	Wage system	Type of compensation
	Staffing	Many or new staff
		Set work standards
Supplier / Vertical integration	Supplier	Make or buy
	Quality	The quality level
		Decide on amount of inspection

TYPES OF OPERATIONS STRATEGIES

One of the most important considerations is that operations strategy be linked to business strategy, and to marketing, human resources, research and development, and financial strategies. Functional strategies are devised by specialists in each functional area of a business. Collectively, functional strategies spell out the specific tasks that must be performed to implement the business strategy. Business-level and functional-area managers must coordinate their activities to insure that the strategies all are pursuing are consistent.

Functional strategies focus on such issues as innovation versus imitation in the research and development function, controlling costs and boosting efficiency in the operations function, the planning and controlling tasks of the financial specialists, the marketing function's responsibility for selecting markets and developing effective marketing mixes, and the need for the human resource function to manage employees effectively.

Quality-Based Strategy

1. Market Conditions

- Conformance and performance quality are essential.
- The number of new and improved products continues to grow at an explosive rate.
- Customers demand high quality products and services.
- Markets become broader in scope and yet more functionally specialized in the products and services offered.
- Product life-cycle becomes shorter.

2. Operations Mission

- Quality is the number one business strategy priority.

3. Distinctive Competence Operations

- Customer-driven quality pulls requirements through the firm and serves as the focal point of the total business effort.

4. Operations policies

- Improve conformance quality (reduce defects).
- Improve customer-supplier relationship.
- Reduce number of vendors.
- Improve vendor quality.
- Improve process capability.

5. *Marketing Strategies*

- Improve customer-relationship.
- Locate close to customers.
- Maintain market share with quality products.
- Identify the customer's requirement details.

6. Research and Development Strategies

- Design for marketability (customer's requirements).
- Design for predictability (less parts and fitness for use).
- Design to process capability.

7. Human Resources Strategies

- Institute explicit job descriptions.
- Maintain high level of employee participation.
- Mix of individual and group criteria for performance appraisal.
- Extensive and continuous training and development of employees.

8. Financial Strategies

- Reduce costs resulting from poor quality.
- Reduce break-even points.
- Increase capital allocation in people and production facilities.

Target-Cost Strategy

1. Market Conditions

- Price and quality sensitive.
- Mature market.
- High volume.
- Standardized product.

2. *Operations Mission*

- Emphasize low cost while maintaining acceptable quality and delivery.

3. Distinctive Competence Operations

- Low cost through superior process technology and vertical integration.

4. Operations Policies

- Implement superior processes.
- Conformance quality (reduce defects).
- Reduce unit costs.
- Reduce material costs by vertical integration.
- Reduce overhead costs by less waste.
- Improve direct labor productivity.
- Reduce inventories.

5. Marketing Strategies

- Mass distribution.
- Enter new markets with existing products, or improved products.
- Set target price to grasp volume.

6. Research and Development Strategies

- Design to target cost.
- Minimize part counts or number of operations.
- Use standard materials, parts, and procedures with already-known quality.
- Work closely with the marketing people.

7. ***Human Resources Strategies***

- Identify the productivity area of any element in production.
- Change the methods or equipment which personnel use in their work.
- Eliminate idle time, overlapping work, overtime and duplicated work.
- Train personnel in problem-solving skills.

8. Financial Strategies

- Increase capital allocation on systems.
- Aim at low profit margins but high volume.
- Increase flexibility in making capital expenditures at the operating level.
- Increase the external and internal financing.

Time-Based Strategy

1. ***Market Conditions***

- Faster deliveries and better after-sales services.
- Faster new products introduction.
- Faster total customer cycle time.

2. ***Operations Mission***

- Emphasize time-capabilities while maintaining quality.

3. Distinctive Competence Operations

- Fast and reliability product delivery and better after-sales service.

4. Operations Policies

- Reduce new product development cycle.
- Reduce manufacturing lead time.
- Increase throughput time.
- Reduce setup / changeover times.
- Improve after-sales service.

5. Marketing Strategies

- Selective distribution.
- Increase market share by entering new markets with new products.
- High promotion budget.
- Frequent communication with customers.

6. Research and Development Strategies

- R&D is the top priority.
- Seek to lead industry innovation.
- Use concurrent engineering technique.

7. Human Resource Strategies

- Require close interaction and coordination among groups of individuals.

- Performance appraisals reflect long-term and group-based achievements.
- Multi-skill training.
- Institute leadership and ownership.

8. Financial Strategies

- Aim at low-volume high profit margins.
- Require numerous major investment in facilities, projects, acquisition and people.
- Increase flexibility in making capital expenditures at the operating level.

Flexibility-Based Strategy

1. *Market Conditions*

- Customers require more customized products and services.
- The new challenges are numerous, discontinuous, diverse and complex.
- Change becomes less predictable and surprise more frequent.

2. Operations Mission

- Emphasize flexibility while maintaining quality and delivery.

3. *Distinctive Competence Operations*

- Ability to make rapid design, volume and product mix changes through autonomous group and flexible systems.

4. Operations Policies

- Fast reaction to changes in design.
- Fast response to modify the mix of resources (material, labor and capital).
- Fast response to changes in production volume.
- Fast response to the quality of purchased materials.
- Flexible manufacturing systems.

5. Marketing Strategies

- Differentiate the market segment by customized products and services.
- Delight the customers with modular-structure, custom-built products and services.
- Treat customers as long-term partners.
- Serve ever-smaller niche markets, even quantities of one, without increasing costs.

6. Research and Development Strategies

- Design for disassembly.
- Design for recyclability.
- Design for reconfigurability.

7. Human Resource Strategies

- Increased emphasis on knowledgeable, highly trained and empowered workers.
- Increased emphasis on creativity and skills.
- More cross-functional task forces.
- Institute leadership and process ownership.

8. ***Financial Strategies***

- Aim at very low-volume and high profit margins.
- Increase flexibility in making capital expenditures at the operating level.
- Require numerous major investment in computer networking, projects, acquisition and people.
- Aim at higher returns and higher risk projects.