SWP 39/90 AFTER SALES SUPPORT STRATEGY

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Abstract

For some time there have been models for considering manufacturing strategy which focus on the product but which essentially ignore dimensions of after sales support. This paper presents a framework for an after sales support strategy and links this to a manufacturing strategy model to produce a comprehensive strategy for customer satisfaction over the life time of a manufactured product.

Introduction

Manufacturers of many products are increasingly realising that unless a product is either so reliable its does not require support during its operating lifetime or the cost of repair is much greater than the cost of replacement a product requires support. The support may be at the time of purchase, during installation, in operation, under repair and maintenance or upgrading. If the two activites of manufacture and support are treated in isolation without recognising the interaction between them an objective of overall customer satisfaction is unlikely to be achieved.

The most important factor appears to be customer up-time (Clark, 1988) which we would see to be influenced by three factors, design, manufacture , and support . The philosophy of Total Quality Management would have a firm link the three areas but mechanism for deciding on the best routes are still not well developed.

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A number of authors (Skinner 1985, Hayes and Wheelright 1984, Hill 1985, New 1988) have written on the subject of manufacturing strategy and presented models which identify critical success factors for the manufacturing operation, called by Hill order winning criteria. All of the models link the marketing and the maunufacturing strategies in an attempt to achieve congruence between the two. We would not differ from this approach with regard to manufacturing but assert that this is insufficient for a many manufacturing companies who are attempting to gain competitve advantage via a mixture of product and support. We need models which will handle more than the isolated dimensions.

The supply chain model of managing the flow of materials within and between business units has been extended into a game plan for the delivery of customer service in the a view presented of global logistics (Christopher 1989). The extension of the original concept of the flow of materials to one which encompasses other aspects of the delivery of service delivery is one to which we would ascribe. However we feel the present models in this area are not well enough developed to assist those responsible for the management of after sales support operations and the subsequent ideas are an attempt to establish more concrete frameworks. The starting point must be with the competitive strategy of the firm.

Developing a Competitive Strategy

A common approach to the development of the manufacturing strategy by way of a definition of the manufacturing task follows the sequence outlined in Figure 1 (Collins, 1989). First there must be an understanding of the external environment of the firm and second of its competitive position with respect to the area of business with those it perceives to be its competitors; here the five forces model suggested by Porter (1980, 1985) is useful. The third stage is the development of the competitve strategy for a business unit and the fourth the translation of this strategy into functional strategies with their operational systems.

The development of the competive strategy has been suggested by Porter to be on the basis of differentiation, cost leadership, or focus. Mathur (1988) has suggested an extension of the Porter model for competitive strategy. Mathur's approach is one of building a model around differentiation and undifferentiation with respect to the two components of a product-service package, namely, the *merchandise* and the *support*, Figure 2. This device results in four generic strategies depending on whether the *merchandise* and *support* dimensions are differentiated or not which are given the terms of *service*, *system*, *product*, and *commodity*. In the commodity position being undifferentiated in both dimensions price is the only competitive tool, (which is not to say that the other positions cannot include price as a differentiating feature).

Mathur develops his model further by subdividing on the basis of differentiated or not the support dimension into *expertise* and *personalisation*, and the *merchandise* into *content* and *image*, Figures 3&4.. The terminology for the *support* and *merchandise* split are as follows:

Support

* *Consultant*: Differentiated on *Expertise* and *Personalisation*

* *Specialist*: Differentiated on *Expertise* but not on *Personalisation*

* *Agent*: Differentiated on *Personalisation* but not on *Expertise*

* *Trader*: Undifferentiated on both dimension so can only compete on price.

Merchandise

* *Exclusive*: Differentiated on *content* and *image*

* *Augmented*: Differentiated on *image* but not *content*

* *Special*: Differentiated on *content* but not *image*

* *Standard*: Undifferentiated on both dimensions

The relevance of the two matrices to a business may be considered on the simple model of a continuum between goods and services with the mechandise and the support model being at the poles. Most service firms will consider a high level of *support* but may also contain degrees of *merchandise* in the offering. The division between *merchandise* and *support* can also be seen as that between manufacturing and after sales support and strategies should be developed to deliver the competitive aspects of each in the areas of manufacturing and after sales support.

Manufacturing Strategy

Manufacturing strategy has been suggested (New, Hill 1985, Skinner 1985, Hayes and Wheelright 1984) as the route to matching the marketing strategy with the manufacturing competence of the firm. While this must be true to the extent of the satisfying demand aspects it does not make the essential link to the way the firm competes entirely, and so may miss causes of success or failure. The route for establishing the manufacturing strategy is by way of manufacturing task and the competitive or order winning criteria and hygiene or order qualifying criteria which are derived directly from the competitive positioning on the *merchandising* model. The criteria given for manufacturing are quality, product range, product reliability, price, and delivery in terms of speed and reliability. While delivery factors may at first sight be seen as support criteria they form part of the manufacturing remit because they depend in part on the management of manufacturing lead time.

After Sales Support Strategy

Frameworks for the development of service operations strategy have been suggested by Armistead (1990) by first developing a service operations task which would deliver the competitive strategy position on the *support* matrix. This forms the basis for the after sales support strategy with the success factors describes as customer catching and competitive status criteria. The dimensions for these critical factors are timing (including MTBF, MTTR, and response time), fault freeness, flexibility to recover from mistakes, style , safety, and steering (ie the level of control the customer has over the process). The after sales support delivery system must be capable of matching the service operations task.

Customer Confidence Index

If a manufacturing firm is to deliver on both the *merchandise* and the *support* dimensions the capabilities of the manufacturing system and the after sales support system need to be congruent with the critical success factors in each domain. Furthermore attainment in the after sales support area is dependent to some extent on the success of the manufacturing strategy and also the design capability. The interdependence of the two delivery systems and the inability of the customer often to make any distinction between the two parts of the package suggests that we should be looking at a combination of the two sets of deliverables and monitoring them to give a customer confidence index.

Choice of Delivery Process

The product process matrix of Hayes and Wheelright, Figure 5 is a well known model for matching the manufacturing process to the various critical success factors for manufacturing. The axes for the matrix are reducing uncertainty of material flow and decreasing product variety and/or increasing volumes. A diagonal is established on which can be positioned of the main types of production, job, batch, assembly lines, transfer lines, and continuous flow. The process capabilites must be matched to the needs of the order winning and order qualifying criteria in order to deliver the competitive manufacturing advantage.

There is no generic equivalent to the product/ (manufacturing) process matrix for service delivery systems. However in the specific area of after sales support we see a pragmatic equivalent for a product/after sales support system matrix, Figure 6. The axes for the matrix are deceasing level of in-house control over the support process against decreasing rate of change of product design and/or decreasing complexity of the product.

The factors which will influence the level of in-house control will include:

* Warranty
* Quality feedback
* Customer Relationships
* Differentaition strategy on the *support* dimension
* Safety
* Geography
* The position on the product life cycle.

The types of after sales support operation which can be positioned on a diagonal are identified through analogies to military units and we have identified four of them:

* The SAS: Highly skilled, able to tackle a wide range of tasks, good at problem solving, who will stay with a job until it is completed. Their team working builds on specific skills. The after sales equivalent are highly trained engineers.

* The Regular Army: Skilled personnel but with no one person able to cover a wide range of tasks. They are visible to the customer and often 'on parade'. The after sales equivalent are the support engineers who are capable of standard tasks and also face to face contact with the customer. We would also include authorism dealers in this category.

* Territorials: Essentially civilians who have been trained by the regular army and who do the job of the army part time. The after sales equivalent are staff in the customers organisation who have been trained by the product supplier to carry out support activites.

* Mercenaries: They may in some cases have been trained by the regular army and they may not be as good as our own regular troops. The after sales equivalent are the third party or independent operators.

The result of moving down the diagonal should be to reduce the in-house cost of the operation and therefore should be the preferred direction of movement so long as the critical success factors for the after sales support package and the nature of the task are compatable with the position on the matrix diaganol.

The Effect of Product Life Cycle on the After Sales Support Process

The concept of a product life cycle is well known as is the process life cycle (Chase and Aquilano 1981) but as yet there have been no models for an after sales service life cycle. It is possible to postulate a linking of the competitive strategies for *merchandise* and *support* through a manufacturing and an after sales support strategy, Figure 7. Taking the four main phases of a product life cycle of *launch*, *establishment*, *maturity*, and *decline* they would seem broadly to align with the competitive positions , manufacturing processes, and after sales support processes, Table 1.

Clearly different products are at different stages in their life cycle and this variety factor may push the aftersales support process more towards the SAS or the regular troops rather then down the diagonal of the after sales process matrix. This exemplifies the difficulty of getting the benefits from moving down the diagonal. There is a danger for companies in moving towards the use of terratorials, or mercenaries too early before the product design is steady and the fault history is well established. This action may result in increased costs as there may be fall in customer service standards and subsequently it may also mean using the SAS, and regular army to support or to retrieve situations. On the other hand if the move along the diagonal is delayed there is the risk of opportunity costs being lost through using over skilled and expensive engineers where they are not necessary. However the latter may be the safer and preferred route when account is taken of a customer confidence index.

The way in which the after sales support matrix operates can be illustrated by reference to a number of case examples. The Trend Setters in the area we would see as the computer manufacturers and the Followers the capital and consumer goods manufacturers

Case Examples

Computer Manufacturer and Support Company

This company is one of the main computer manufacturers operating on a worldwide scale. They have for some years been top of the industry international Datapro survey for customer support. Their customer support service is run as a separate business and the nature of the operation can be illustrated by reference to the UK business.

The customer support service in the UK provides services which have traditionally aligned with hardware and software although this differentiation is becoming more blurred. The operation is centrally coordinated from a Customer Response Centre which takes calls from clients in the UK. Calls are screened and dealt with either by engineers in the centre and/or by the the despatch of an engineer from a regional centre to the customers premises. Response times are determined by the the level of warranty or customer service contracts.

The service product package which is offered by the company is essentially in the *standard* quadrant on the Mathur *merchandise* matrix and consequently they are attempting to gain competitive advantage from the *support* dimension by either the *consultant* or *agent* positions.

The after sales support operations task contains very specific customer satisfaction factors as well as strong productivity demands. The resulting process delivery for the after sales support corresponds with the SAS and the regular army delivery. This is consistent with the need to maintain a high level of in-house control because of the warranty and customer service contracts and because of the realtively short product life cycles. The productivity gains while meeting the customer satisaction needs come from the management of the process between the highly skilled SAS element and the less knowledgable regular army. The first contact call handling proceedure and escalation processes only use the SAS when necessary if the regulars cannot cope.

It is unlikely that the company could move down the the after sales support process matrix diaganol while still maintaining their competitive position for support and consequently the high added value comensurate with high their pricing structure. It is interesting that in the area of cheaper products they are acting as mercenaries as well. It remains to be seen whether this results in loss of focus.

A Consumer Goods Manufacturer

This company produces largely high volume consumer goods with the addition of some more specialised equipment for the professional market. Their product base is standard (perhaps differentiated in the professional market) and their service function was, at best, average.

Immediate contact with consumers is limited as most products are purchased through High Street retailers or discount stores. The company had a limited range of repair workshops to handle repairs, but these were mostly to be found in back street locations. Other service activities were handled by appointed agents and some repairs can be effected by the customer.

A three year plan was put together to raise the image of customer service, moving the repair shops on to the High Street and renaming them Service Centres. This became one element of the company's drive towards Total Quality Management, with awareness of the final consumers' requirements being emphasised throughout the organisation.

In so doing, they are attempting to increase the level of in house control over customer contact, possibly decreasing the number of *mercenaries* used, and raising the morale of the *regular troops* already employed.

A vital element of their strategy is the awareness of the role of service throughout the organisation. Quality circles in manufacturing are called Customer Service groups and the service quality message is preached at every opportunity.

In order to increase the level of customer service, a clear plan with service targets was developed. It was recognised that this improvement could not be achieved without also achieving higher levels of productivity. Therefore, service and productivity targets were set, specifically in the area of increased inventory turns.

This company has developed an integrated approach to developing manufacturing and service strategies, and in so doing has recognised the need to increase control over customer support.

Capital Goods Manufacturer A.

This company is recognised as a leader in its industry both in terms of design and support. The corporate belief is very much one of "providing a quality product backed by quality service", major quality targets are set for all business areas, including design and customer support, and there is a clear understanding within the company of the interrelationships between the functions.

In the support area, the company is moving towards the *Consultant* position, being differentiated on both *Expertise* and *Personalisation*. In order to maintain this position they have established an impressive international network of *Regulars* in the form of dealers and agents. Even if these dealers are not owned by the company, it devotes substantial resources to developing and supporting them.

The end result is the ability to supply spares throughout the world within 24 hours in the vast majority of cases and the input from dealers into the company database provides invaluable quality feedback for product improvement.

The company is fully committed to improving both the reliability and serviceability of their products to the extent that target "scores" for serviceability are set at increasingly demanding levels for each new design.

In order to maintain its market leadership, the company must retain control of its *Regular troops* and not give opportunity to *mercenaries*. The excellence of its parts availability and speed of distribution underpin the service function. Their logistics network is developed to the extent that it is used by other major manufacturers on a third party basis.

Capital Goods Manufacturer B.

This company supplies a wide range of precision instruments to research and other professional institutions. Its products are to some extent differentiated on *content* and less so on *image*. Its Service function is differentiated on *expertise*, but finds it hard to differentiate on *personalisation* as there are often many users within their customer organisations but these are not usually involved in repeat purchase decisions.

This company's after sales service operation is, therefore in the area of the *SAS*, highly skilled and often specialised in particular ranges of products or in problem solving related to the microprocessors that are part of the more sophisticated equipment.

The threat to this company comes from *mercenaries* who at one stage were possibly employed and trained by the company and who in the short term may offer a low cost service to a narrow range of customers. This may be potentially dangerous to the customers as their equipment may not be fully maintained, but this is not immediately visible to decision makers who are largely driven by cost constraints.

This company must maintain control of service activities because there are safety implications if the equipment is faulty. One option is to ensure that the strong image of the product is transferred to the support making sure that the perceived value of service given i high. In this case the *SAS* troops need other combat skills than purely technical expertise!

A White Goods Manufacturer.

Some years ago this manufacturer was under significant cost competition and saw an opportunity to cut in house costs by allowing service agents around the country to take responsibility for customer support. The company service function was cut to a minimum.

It was soon discovered that leaving service to be controlled by almost totally by *mercenaries* although cheaper in the short term was disastrous for customer service, and therefore led to a greater long term quality cost. One example of this was the fact that most service agents no longer held the more expensive spares and therefore customer downtime was dramatically increased.

This company has moved to bring the *mercenaries* back into the role of *regular troops*, recognising that the *merchandise* is undifferentiated, and therefore the company must compete on the excellence of its service.

Conclusions

The frameworks and case studies which have been presented in this paper demonstrate the need for a company to make strong linkages between manufacturing, design and after sales service strategies. The delivery of the service is clearly affected by product design, for example by the ease of problem diagnosis or component replacement, and by manufacturing in the cost and availability of spares or capacity for in-house repair.

It has been recognised for some time that service may be the means of differentiating an otherwise standard product offering. Indeed, there are cases where a company has retained customer loyalty in a period by delivery service excellence when its products are inferior to the competition until such time as a new product can be brought to market.

There is a need for this "gut feeling" that service may be a competitive weapon to be formalised to be brought alongside the work that is being carried out in manufacturing strategy. Clearly, the question "What do you need to do well?" applies equally to After Sales Service or Customer Support. Also, it would appear that the answer to this question will change as products move through their lifecycles.

Improvements in product reliability are also shifting the emphasis away from "spares and repairs" towards Ease of Use and more general Customer Support, but the dream of the product which does not fail within its economic lifetime is far from reality for the vast majority of companies.

In evaluating the cost and benefits of increasing the level of service delivery, a company must consider overall quality costs. The case of the white goods manufacturer above is an example of a short term cost cutting decision which brought about a major long term increase in Quality Costs.

The work presented in this paper should enable the company to evaluate the role that service should play in its overall competitive positioning and to identify the changes required in its operations to deliver as required.

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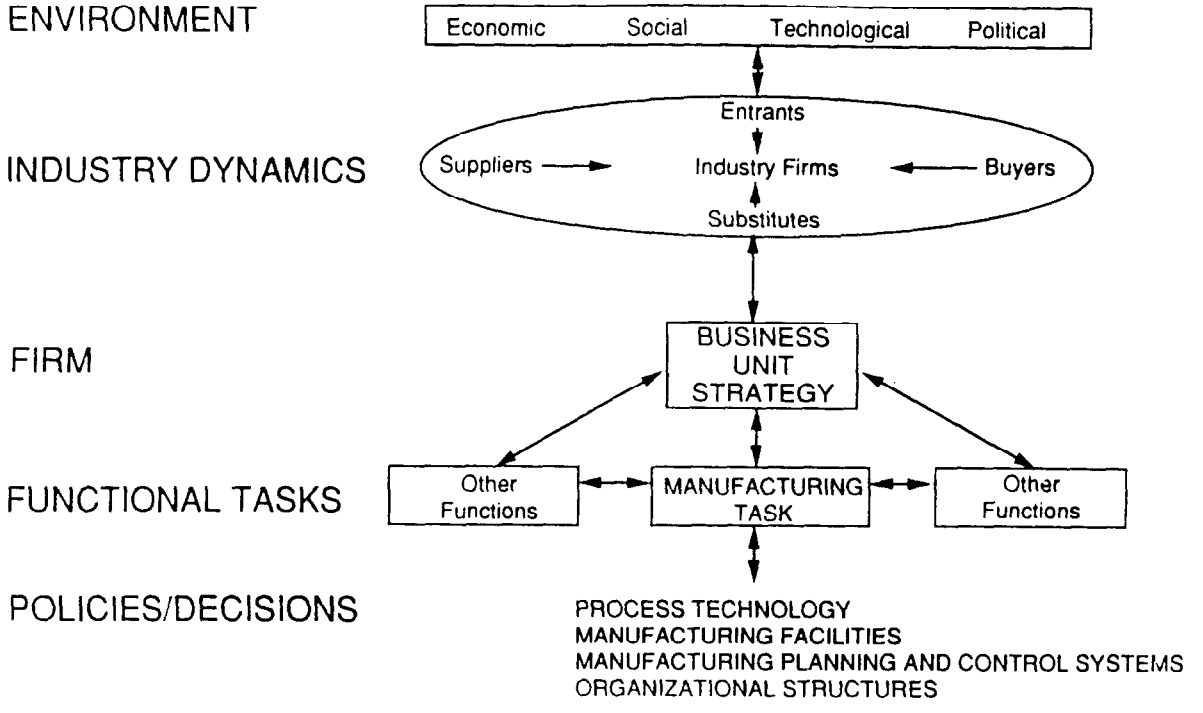
Phase	Mechandise	Support	Manufacturing	After Sales Support Process
Launch	Content	Consultant	Job/Batch	SAS
Establishment	Special	Specialist	Batch/Flow	Regulars
Maturity	Augmented	Agent	Flow	Terratorials
Decline	Commodity	Trader	Batch/Flow	Mercenaries

Table 1

The Needs of the Product Life Cycle in Different Phases



The Position of Manufacturing Strategy

Figure 1

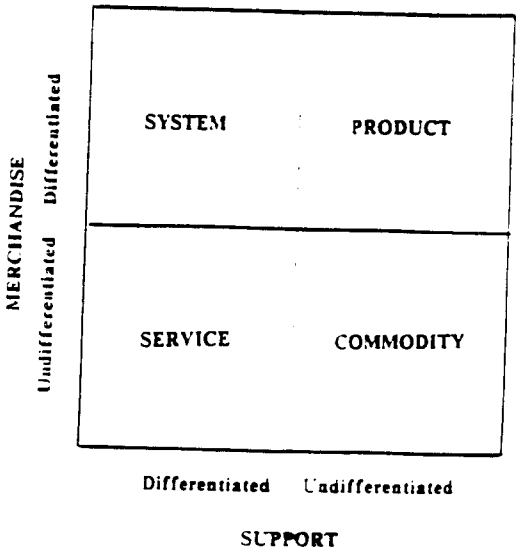


FIG 2

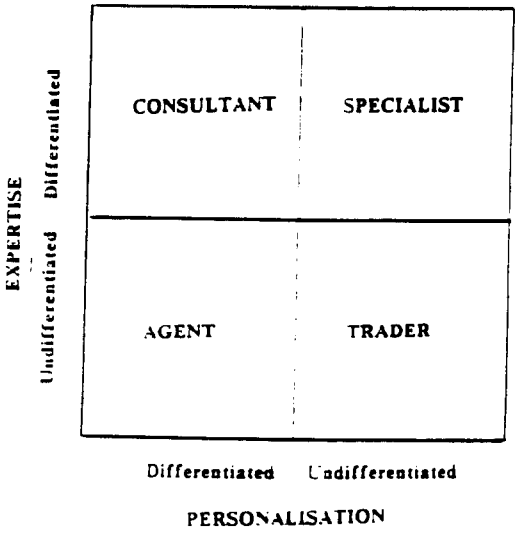


FIG 3

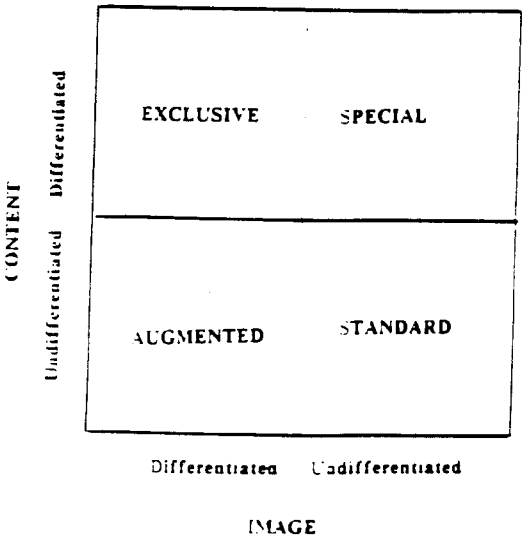
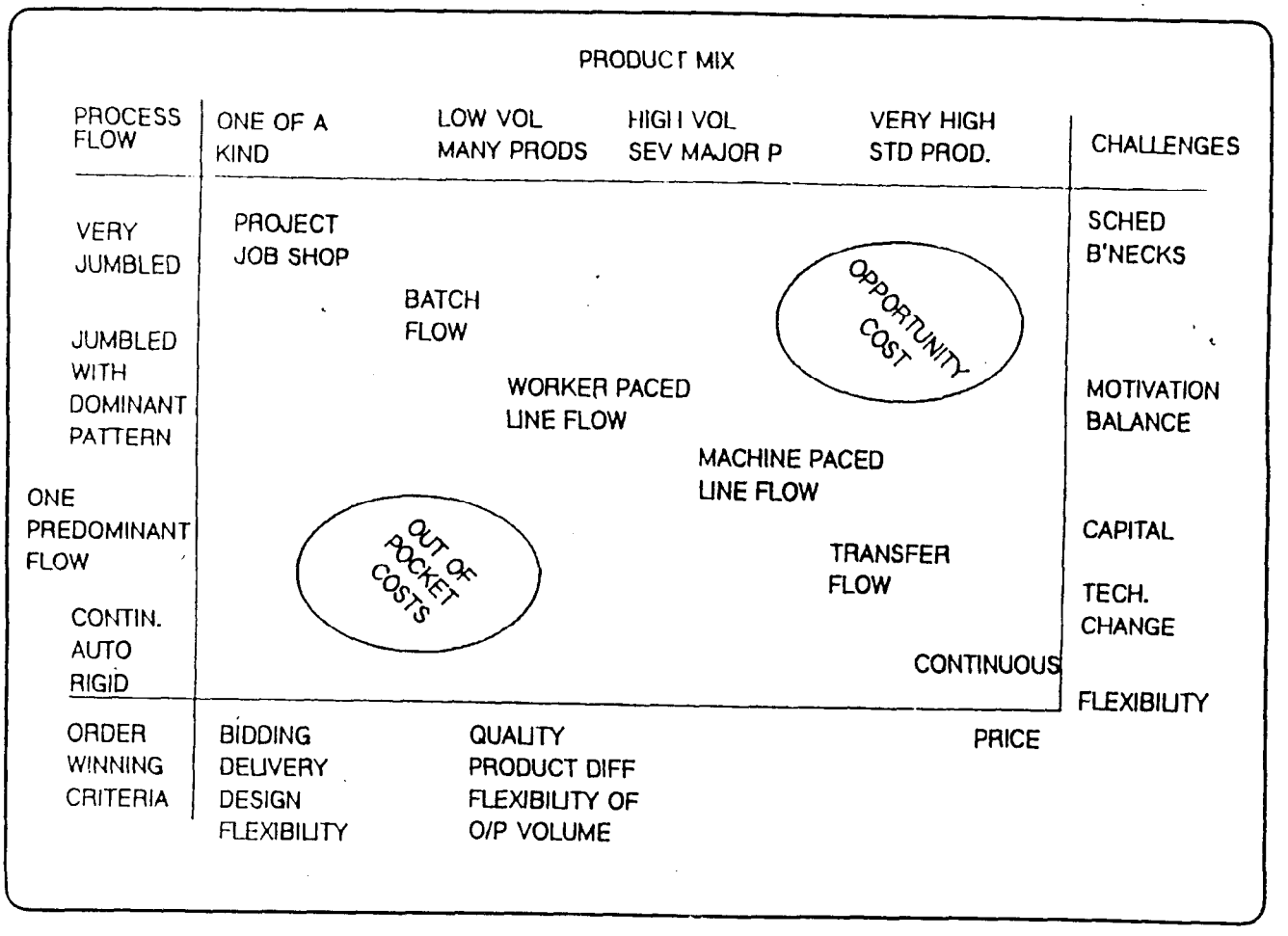
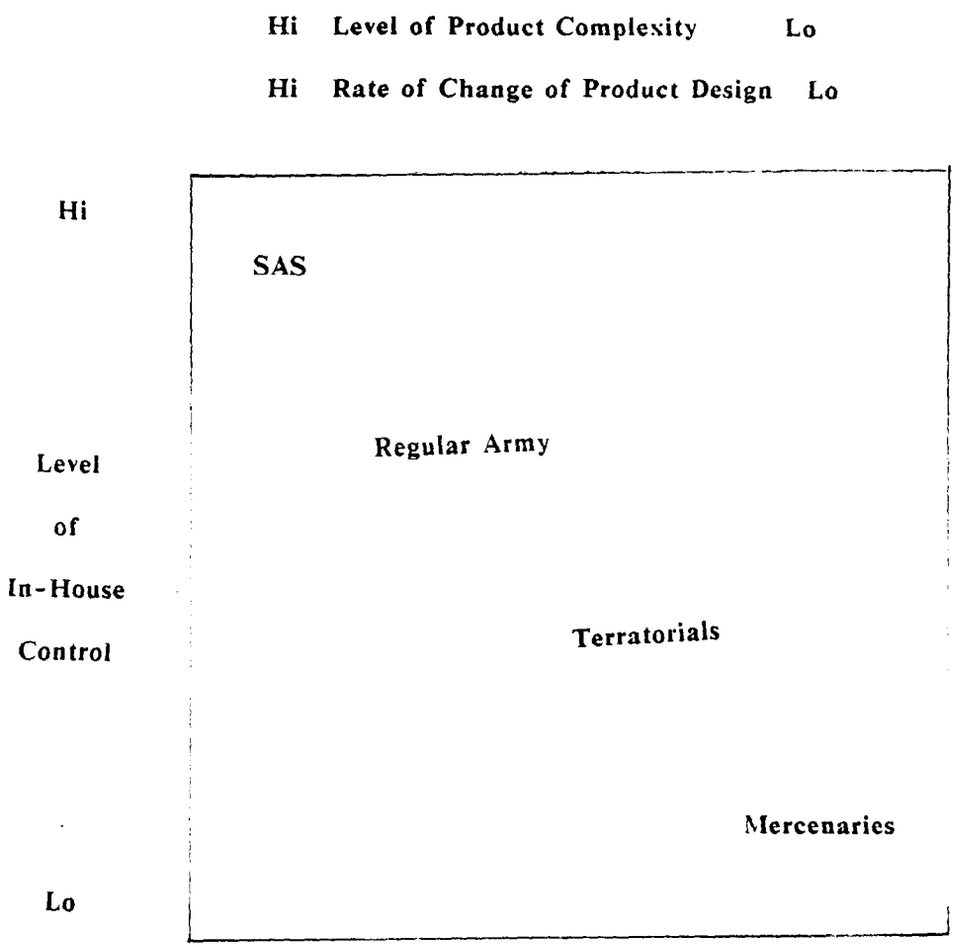


FIG 4



The Product/(Manufacturing)Process Matrix

Figure 5



Product/After Sales System Matrix

Figure 6

Manufacturing	Content	Special	Augmented	Commodity
After Sales Support	Consultant	Specialist	Agent	Trader
Phase	Launch	Establishment	Maturity	Decline

Product Life Cycle and the Competitive Delivery

of

Manufacture and After Sales Support

Figure 7