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COMPETITIVENESS OF THE LATIN AMERICAN CAPITAL GOODS INDUSTRY*

Prepared by

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* The views expressed in this paper are those of the author and do not necessarily reflect the views of the Secretariat of UNIDO. Mention of firm names and commercial products does not imply the endorsement of the United Nations Industrial Development Organization (UNIDO). This document has not been edited.

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Table of content

Introduction

The paper presented here will serve as a framework for a discussion of the competitiveness of Latin America's capital goods industry. Experts from several countries will discuss this paper and contribute to an examination of the subject (25 - 27 March 1992 in Sao Paulo).

The points covered in this paper and the results of the discussion will then be incorporated into a background paper, which will be presented at the GAEX-meeting in November in Caracas.

The objective of this paper is to investigate how competitiveness is influenced in a changing world and to support existing efforts to increase the competitiveness of Latin America's capital goods industry.

1. COMPETITIVENESS: THE KEY REQUIREMENT FOR SUSTAINABLE PROFITABILITY

Competitiveness may be measured in different ways: market share, productivity, or by some factor which indicates a preference to buy one product or service over another. Whichever method is chosen, a comparison with competitors is always necessary and it is, therefore, critical to identify the relevant competitors.

A sustainable profitability is the primary objective for every firm, and the basic requirement for this condition is a sustainable competitive advantage. Competitive advantages are based on customers' values, which have to be derived from the relevant success factors in the respective market segment. The better customers' values are matched (the greater their benefit), the higher the relative price or market share and the more profitable the firm.

1.1 Market Definition

The first step to competitive advantage is to target specific markets. The target market(s) must be analyzed and its approach must be planned: marketing expenses, sales forces, distribution networks, advertising, etc. must all be considered. This market may be defined geographically or according to criteria such as target groups or product functions. Further, a particular product may be produced at different levels of quality, directed to different segments of the market.

The definition of the market is a management decision with large implications for profitability. The smaller the market segment, the higher the specialization and the smaller the market volume. In the automobile industry, for example, there are producers of luxury cars (Rolls Royce), sports cars (Ferrari or Porsche), expensive limousines (Mercedes Benz or Jaguar), or recreational vehicles and small cars (Jeep or Hyundai).

These different markets demand different products, use different marketing approaches, have different production tools, different main functions and, therefore, different competitors.

Competitors are relevant within the same market and the same market segment, and to identify the relevant competitors it is necessary to define the target market. But the target market cannot be defined just by looking at the market side. Only the combination of a product/market segment shows the relevant determinants of that segment. This strategic approach is the first step towards a consistent business strategy.

1.2 Building up Strategic Business Units (SBU)

The strategic business unit is an independently manageable business which consists of a relatively homogeneous product/market segment. A firm can have one or more SBU's, allowing an autonomous planning process and plausible cost and investment allocation. The strategies and activities of one SBU can, therefore, be considered independently of other SBU's.

The strategic business unit is the organization to compete with - not a single organizational function. Competitiveness consists of a group of supporting and operating activities with very different ranking in order to best fulfill the customers values. That means that the whole organization has to be directed toward a defined product/market segment and that all activities within the value chain affect competitiveness. Optimizing business processes is more relevant to competitiveness than optimizing single factors.

The SBU gives the basic determinants for the judgement of competitiveness - the definition of a product/market combination within which comparisons with competitors can be made. The question now is: Which firm serves it best, and why?

1.3 Awareness of Relevant Success Factors

There are no standard success factors, but there are important groups into which factors can be classified (quality or price, for example). There is a ranking of the success factors, and this ranking, or the factors themselves, can change in time within a market segment into evident single success factors.

A success factor is not an independent single function but is the result of interrelated activities within an SBU on specific issues.

The following table shows an example of how such success factors can be defined and ranked:

Product/Market Segment: Middle class car

Relevant Success factors		Today's importance			Own position against competitors					Tendency of importance					Strategy priorities
		1	2	3	-2	-1	0	+1	+2	1	2	3	4	5	
Quality	workmanship														
	constance of quality														
	garanty														
	duration of life														
Price	sales price														
	discounts														
	maintenance costs														
	resale price														
Time	delivery time														
	model cycles														

Success factors can, for instance, be found by a market survey, as we have done with a big capital goods producer in Switzerland.

It is very important to have actual data, and results of such a survey may be used as criteria for new product/market segmentations. As an example, a special vacuum pump was used in laboratories or in packaging machines. The customers' needs were completely different and led to completely different market approaches for the same basic product. It was found that in only one of the two segments had the company a real competitive advantage, and should rather concentrate on upgrading these advantages rather than split their forces.

1.4 Definition of Competitiveness

Competitiveness shows the position of a firm relative to defined competitors and is based on the relevant and rated success factors of a defined and actively-served product/market segment (SBU).

2. MARKET CHANGES AND GLOBAL CHALLENGES

Competition has become global in more and more industries and there has been a dramatic change in competition.

The classical theories of Adam Smith and David Ricardo rely on the influence of the so-called factors of production: natural resources, labour, land, and capital, which influence predominantly the flow of international trade. A nation will export those goods of which it has a comparative advantage over other nations.

These differences in factor costs played an influential role in industries which were emerging at the beginning of the industrial age, but they are no longer sufficient to explain today's trade flows. The assumptions upon which those theories were based- increased gain through economies of scale, an unlimited availability of technologies, and the immobility of capital and labour- are no longer entirely valid. The market place has become more complex and can no longer be explained by the classical theories.

In addition, the actual international market situation shows - above all in the capital goods industry - saturated markets and overcapacities. This situation is linked to the high indebtedness of nations, firms and private households. This tendency toward debt accumulation is copied by entrepreneurs, resulting in big challenges to defining a firm's right strategy.

2.1 Decreasing Importance of Traditional Production Factors

Governments and industries have influenced in the past, and still influence, single production factors to improve their competitive position in an international environment. Labour costs are fixed, interest rates are politically influenced, and trade barriers are introduced to become or stay competitive. There are also direct subsidies in many forms, promoted by industries and their pressure groups.

Does all this tampering with factors help a nation become more competitive in an international environment?

We can diagnose a trend towards the globalization of markets where capital and qualified labour have become very mobile, knowing no borders. While immobile factors must concentrate on the best possibility within a country, mobile factors look for the most attractive locations on an international basis.

Single factors, like the cost of capital or labour, are very vulnerable because they can change quickly in relation to other countries. Basing a comparative advantage of an industry on those factors would, therefore, be highly unstable.

On the other hand, there are globally-competitive industries, like the Swiss chocolate industry, which rely neither on cheap labour nor on natural resources. Other explanations have to be sought to explain the competitiveness of such industries. The Swiss chocolate industry, for example, emerged through the know-how imported from northern Italy but above all through process innovations made by Swiss producers.

Today, the importance of knowledge and skill have increased dramatically to match quality requirements.

2.2 Saturated Markets and Overcapacities

Many markets show signs of saturation (for instance, the Italian automobile market). This market was already saturated by well over 90% in the mid-eighties and future growth will, therefore, be very limited. The automobile industry is a major industry and has a great impact on the economy as a whole. We notice today the same saturation in the automobile market in other European countries and an overcapacity in that production sector. Overcapacities have always created a high pressure to rationalize and increase productivity, as well as pressure to lower prices. Entrepreneurs normally first try to reduce costs and to push up productivity on existing plants rather than look for innovations and new products.

Since today's situation is similar in all industrial countries there is no possibility to substitute losses in one market by gains in another. Of course, there are not saturated markets in developing countries but, due to the lack of finance, these countries cannot relieve the problem.

History shows that every fifty to sixty years, technologies fundamental to the industries of developed nations undergo a drastic change. One example of this phenomena would be the progression of wood, coal, oil, and gas as the primary energy source in the US.

In the early forties, crude oil emerged, strongly linked with other industries like the automobile or chemical industry and now gas is becoming more and more important. The same trend can be shown in shipbuilding, where sailing boats have been substituted by steamers and now motorships are substituting steamboats.

New forms of technology are usually known a long time before they become dominant, or even reach a market share of 50%.

Most entrepreneurs are attached to well-known technologies in use and are unwilling to invest at an early stage in new technologies. Once the market is saturated, prices come under pressure and the uncertainity of the market places an additional obstacle to investments in new technologies. Furthermore, entrepreneurs are often unwilling to accept a structural decline of a well-known and broadly-accepted technology, extrapolating more or less the growth rates of the past. In a situation of saturated markets and structural unemployment due to rationalization, a minor recession is all that would be necessary to produce a deep crisis. It is often in such situations where entrepreneurs take their last chance to invest in innovations and start a new trend. In such a development, investments are necessary. The availability of necessary finances are vital for new potential, whereas availability of new technology is of secondary concern.

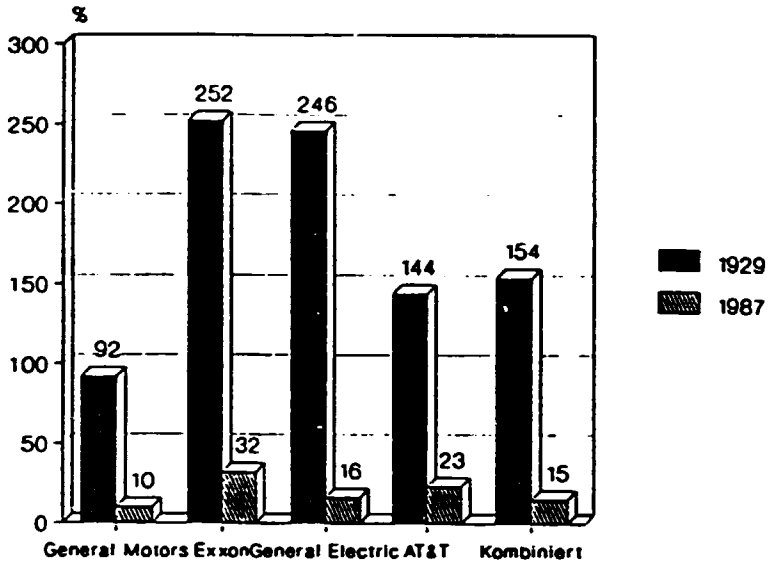
2.3 High Indebtedness of Nations, Firms and Private Households

Never before have the debts of nations been as high as at present. And if we are talking of indebtedness we are not concentrating only on developing countries but on the industrialized world. In spite of the good economic situation, the indebtedness of most western countries has increased significantly. Even in countries where the government has tried to realize a restrictive household policy (for instance, Germany), the interest share has increased from 9% of GNP in 1982 to 11% in 1989. The expected share for 1992 is 12.8%.

The consequence of high indebtedness of nations is a lack of investments necessary for its future prosperity. In times of high inflation rates, high interest rates, and declining consumption, investments are difficult to justify.

Not only nations, but firms and even private households, have increased their indebtedness. Whether we look at the saving and loan banks in the United States, or at the degree of bankrupty in Switzerland, both are indications of problems in the global economy. A comparison of the liquidity of big US companies between 1929 and 1987 shows a dramatic difference.

Liquidity of US companies 1929 and 1987
(in % of short term liabilities)



Private households show a similar situation, because in the 80's it was cheap and easy to get credit for consumption.

In such an economic situation, competition and the rules of the market place in the nineties will no longer be those of the previous years.

2.4 Changing Competition

Some of the traditional factor costs can shift from one nation to another, the importance of labour has declined in favour of knowledge and skill, and natural resources have partly been substituted by new materials. Of course natural resources remain important for industries depending on it but in many industries - above all in those demanding highly skilled employees and sophisticated technology - the position of traditional factor costs has weakened significantly.

Competition is no longer based solely on traditional factors which are similar only among advanced nations, but also between advanced nations and many developing nations.

Competition has also changed because firms compete more on an international basis, buying and selling outside their own markets and forming alliances with firms in other countries to strengthen their export position. The access to comparative advantages of other nations has been lowered. By forming free trade areas, market entry barriers have been lowered.

Under these circumstances, can we deny an influence of a nation on the competitive position of a firm? Our competitive advantages are surely the result of a firm strategy?

If we are looking at certain industries or certain product/market segments, we can state that some leading industries are concentrated in specific nations and for years defend their competitive advantages out of that environment. There must be an explanation why Japan is a leading producer of copiers, Switzerland dominates the market of vitamins, and the United States is number one in commercial airplanes. To answer that question, Porter has designed four groups of determinants at an industry level which result in the so-called "diamond" of competitive advantage.

It assumes that competitive advantages cannot be explained just by the consequences of traditional production factors, that competition is a dynamic evolutionary process, that innovation is a main source of competitiveness, that national conditions allow the strategic positioning of activities on different sites, and that firms do not adapt themselves just on given conditions, but play an active role in building up competitive advantages.

3. THE "DIAMOND" OF INTERNATIONAL COMPETITIVENESS

3.1 Determinants of Competitiveness

Much of what follows will rely heavily on material from the book "The Competitive Advantage of Nations", by Michael E. Porter, Professor of Harvard Business School.

Porter has developed a new paradigm of competitive advantage, based on industries and related to the national environment on one hand, and the firm's strategy on the other.

Porter identified four major attributes which create the context for competitive advantage in an industry. This context is considered to be a national one (for instance currency, laws) but could also be a local or regional basis. These four determinants are:

(1) Factor Conditions:

- the availability of labour and its level of skill, infrastructure, etc. for a given industry

(2) Demand Conditions:

- demand for the industry's product or service

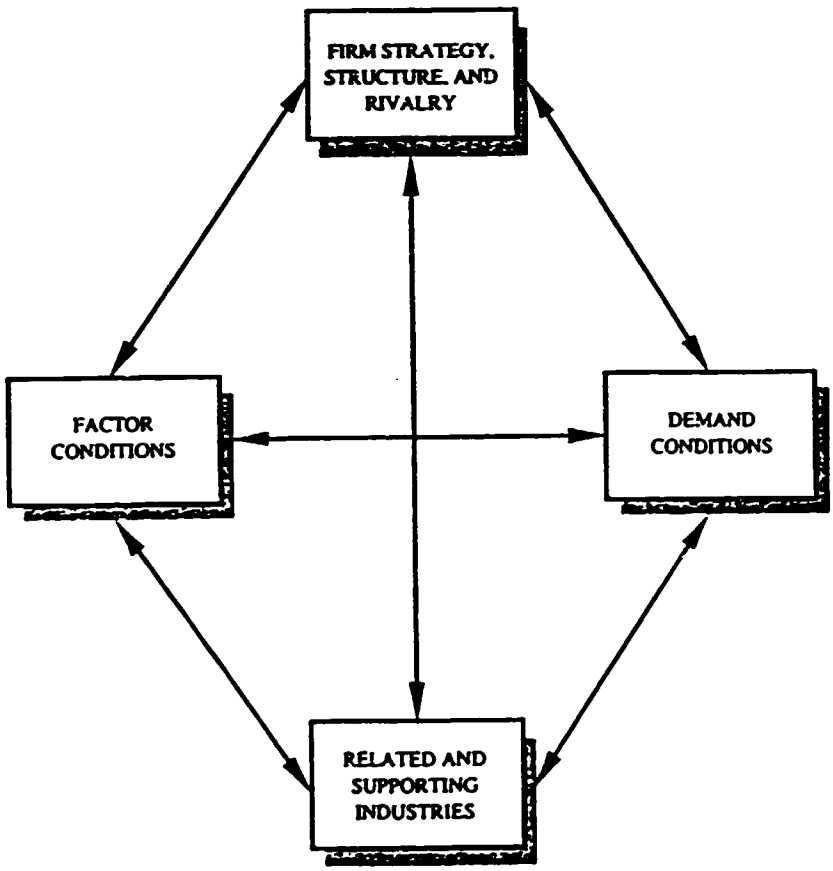
(3) Related and Supporting Industry:

- presence/absence of related and supporting industries that are internationally competitive

(4) Strategy, Structure and Rivalry:

- the nature in which companies are created, organized, and managed, and the nature of domestic rivalry.

Those four attributes may be placed as shown below, to form the determinant "diamond".



The Determinants of National Advantage

Each of the four determinants has an influence on competitiveness and all reinforce each other. Every competitive advantage based only on one or two of these determinants often proves unsustainable, because international competitors can circumvent it. On the other hand, it is not necessary to achieve advantages in every determinant. The interplay of advantages in different determinants causes benefits which are hard to overcome by foreign competitors.

Beside these four determinants, chance and government influence an industry's competitiveness. Chance is outside the control of industries and includes technological breakthroughs, the influence of conflicts, or a change in behaviour on the part of customers.

The government can influence the different determinants by regulations, investments, purchases, or supports in different ways. Only a planned influence of the government, however, will likely support the national diamond.

In the following, we shall explain the different determinants as single influence factors and as a whole system.

3.2 Factor Conditions

Factor conditions refer to the presence of the traditional production factors such as human resources, natural resources, capital and infrastructure. It is further useful to make a distinction between basic and advanced factors.

Basic factors: natural resources, unskilled labour, location, and capital, among others.

Advanced factors: highly-trained human resources, sophisticated communication networks, and research facilities, among others.

In the capital goods industry, basic factors tend to be less important for competitive advantage than advanced factors. Advanced factors, on the contrary, require large and sustained investments to develop and are, therefore, much harder to copy. As a result, such advantages are more sustainable and more important for competitive advantage. Advanced factors have to be continually upgraded to maintain such advantages.

3.3 Demand Conditions

Demand conditions have a strong influence on a firm's activities and Porter distinguishes three significant attributes:

(1) The composition of demand in the company's home country.

This composition influences a firm in three ways:

- by demanding particular varieties of a product
- by anticipating buyer needs
- by pressuring firms to meet certain standards and to innovate constantly

(2) The size and pattern of growth in the whole market.

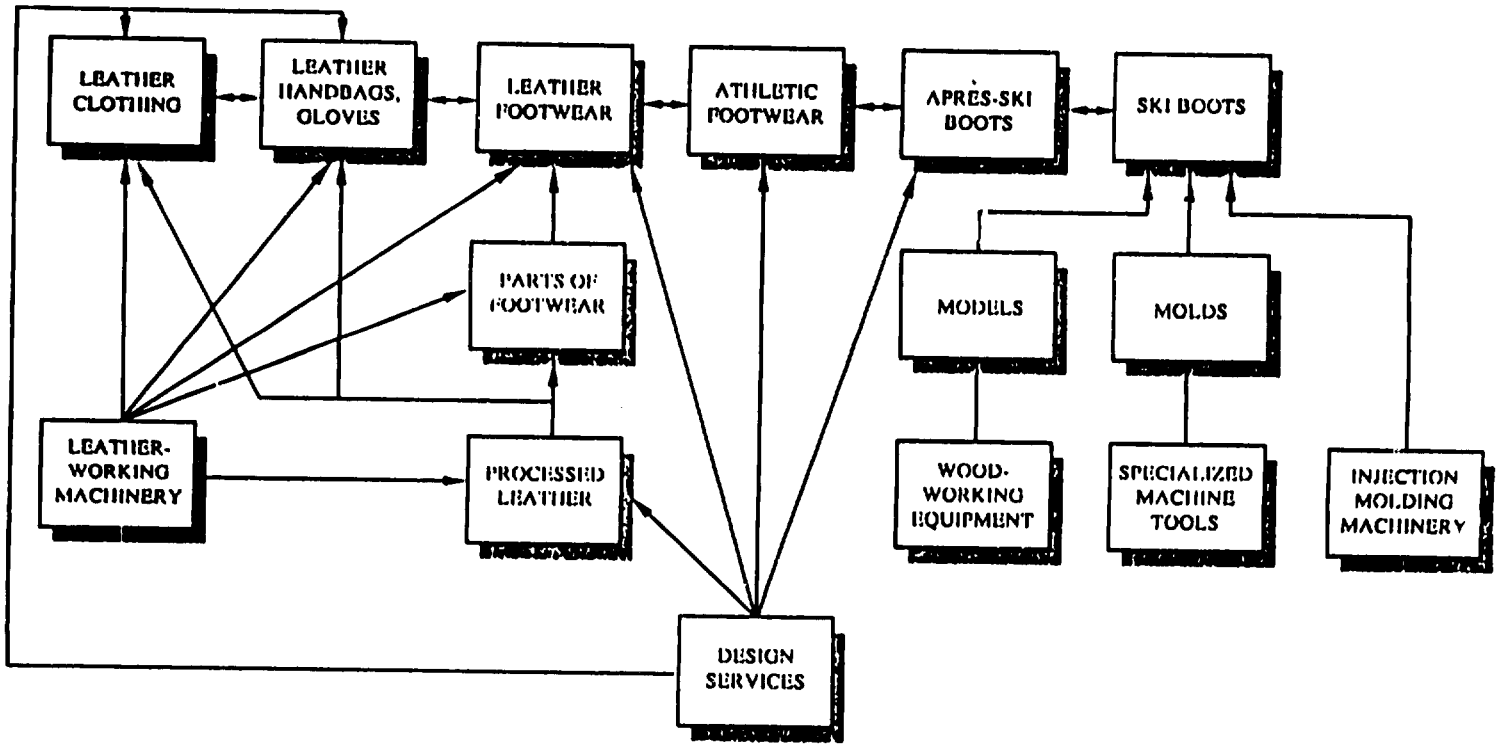
(3) The mechanisms by which a preferences of the home country are transmitted to foreign markets.

If local buyers are sophisticated and demanding, they will pressure companies to have high standards and to continually improve their products. Asking for the best quality encourages firms to match these objectives. Beside, if home buyers anticipate needs in other countries, home firms may get the jump on foreign competitors. If, on the other hand, home buyers are slow to accept new ideas, firms may, in fact, be at a disadvantage in such a market segment.

The particular needs of a nation may promote and encourage certain industries. Finland is, for instance, a world leader in the market segment of ice breakers but does not compete in the world market for other ships. Being recognized in a defined market segment makes it harder for competitors to overcome this advantage. Home market size is important as a starting point for establishing an international reputation, based on R & D expenses, production and process technologies, or high frequencies of innovation. Even more important than the size is the growth rate of the home market. A high growth rate stimulates investments and innovations.

3.4 Related and Supporting Industries

Industries tend to succeed, not in isolation, but in groups of related and supporting industries called clusters. A group of supplier industries, for example, competing with one another, provides efficient, rapid and convenient access to their products. Buyers, in turn, are attracted by these advantages and stimulate the suppliers. This relationship of mutual stimulation helps all companies in the cluster: the efficiency of supply channels are dramatically increased; access to information, ideas, and innovations is quick and convenient; and markets gained by one firm often make it easier for another to enter (for example, the success of the computer hardware industry was closely followed by computer software industry). The coordination between industries raises efficiency and spreads the results of research faster. R & D in one industry, for example, usually benefits others and, by being part of a cluster, this process is quicker and more efficient. The bottom line is that clusters improve the process of innovating and upgrading, giving competitive advantage. The following page shows an example of a cluster.



Internationally Successful Italian Industries Related to Footwear

3.5 Firm Strategy, Structure and Rivalry

The strategy and structure of a company are determined by the people within that company and, hence, by their goals and by the society which formed them. In other words, the structure of industries within a nation will be affected by the values of that nation's society: attitudes toward authority and education, for example, or the prestige of certain professions.

Nationally prestigous professions always attract the highest quality human resources. Attaching prestige to science and engineering is the best way to upgrade industry, because these professions provide the greatest boost to innovation.

Rivalry is also an important boost to innovation. Industries are pressured to upgrade and develop new products. A wider range of products and processes is, therefore, available to other industries at the lowest available costs and highest quality.

3.6 Interrelations Among Determinants

All determinants influence each other but not necessarily to the same degree. Domestic rivalry, in fact, seems to have the largest impact on the other three determinants: it stimulates development of human resources and technologies (factor creation), continual product development (creating sophisticated purchaser demands), and provides a wide range of products and technical support to related and supporting industries.

The influences of the other three upon each other are not as great. Supporting and related industries stimulate new products and ideas (factor creation), create inroads for demand (i.e. - Swiss watchmakers provided a reputation that improved demand for Swiss precision mechanical goods), and stimulate competition. In fact, related and supporting industries often enter certain markets and increase rivalry in these markets.

Factor conditions usually stimulate the other three by factor creation mechanisms. Universities, for example, attract students who later use products and techniques with which they are familiar (demand), and also develop knowledge and technology (supporting and related industry).

Demand draws resources into factor creation, creates competition, and supports many related industries.

4. BUILDING UP SUCCESSFUL CLUSTERS FOR THE CAPITAL GOODS INDUSTRIES OF LATIN AMERICA

4.1 Basic Requirements for Sustained Competitiveness

The fundamental requirements for sustained competitiveness are:

- basing the strategy on actual and relevant success factors;
- continual improvement, innovation, and change;
- including the entire value chain;
- upgrading and defending advantage sources; and
- having an international approach to strategy.

If these requirements are not present, competitive advantage will not be sustained. Identifying the relevant success factors is crucial to a strategy.

Continual innovation must be applied to every activity in the value chain: marketing, production, training, organization, etc., not just the adaption of new technologies.

Involving the entire value system means close contact with suppliers and channels. Competitive advantage arises through the reconfiguration and management of the entire value system. Modifications must be continually made within an overall strategic context. Additionally, advantage sources must be upgraded. Basic factor costs, such as labour costs, are not long-lasting advantages.

Advantages can only be maintained by upgrading (by using newer processes or producing higher quality goods, advantages that cannot be so easily copied). Finally, an international approach to strategy must be taken. Merely operating internationally is not an international strategy. Rather, having an international strategy refers to international sales, having activities in other nations, and coordinating activities on an international basis.

4.2 Identification of Competitive Clusters

The home nation of a firm has a strong influence on how the firm operates and the markets it pursues. A nation, for example, may have a large market for a certain product, thereby giving local firms an advantage in industries built around such a product. Other ways in which the home nation affects an industry include the presence or absence of sophisticated suppliers and buyers, research facilities, and relevant factor costs.

Nations with low cost advantages will be home to industries built around natural resources or which are not capital-intensive. Nations with a large pool of specialized human resources, sophisticated local buyers, and world-class supplier industries will be home to high-technology industries which produce high-quality goods and services. Identifying the benefits of a nation, and thus the industries its environment favours, may be assisted by answering the questions posed on the following page. It should be kept in mind that those questions should be answered with an eye to future, rather than past, conditions.

Choosing Industries and Segments for Which the Nation Is a Favorable Home Base

FIRM STRATEGY, STRUCTURE, AND RIVALRY

- Does the style of management and prevailing types of organizational structures in the nation match industry needs?
- What types of strategies exploit national norms of organization?
- Does the industry attract outstanding talent in the nation?
- Do investor goals fit the competitive needs of the industry?
- Are there capable domestic rivals?

FACTOR CONDITIONS

- Does the nation have particularly advanced or appropriate factors of production? In what segments? For what strategies?
- Does the nation have superior factor creation mechanisms in the industry (for example, specialized university research programs, outstanding educational institutions)?
- Are selective factor disadvantages in the nation leading indicators of foreign circumstances?

DEMAND CONDITIONS

- Are the nation's buyers for the industry's products the most sophisticated or demanding? In what segments?
- Does the nation have unusual needs in the industry that are significant but will likely be ignored elsewhere?
- Do buyer needs in the nation anticipate those of other nations?
- Are the distribution channels in the nation sophisticated, and do they foreshadow international trends?

RELATED AND SUPPORTING INDUSTRIES

- Does the nation have world-class supplier industries? For what segments?
- Are there strong positions in important related industries?

4.3 Support of Associations and Government to Industry

Industry is supported in many ways: education and training, science and technology, infrastructure, information, and government subsidies. Governments play a role in all kinds of supports. For the most part, however, government's role should be kept indirect, mainly as a stimulus and support for industry activities.

Education and training is one aspect of industrial support in which governments play a leading role. To attain more sophisticated (sustainable) advantages, human resources must be continually upgraded, standards of training must be high, training must be promoted (i.e. - apprenticeship programs), and there must be close contact between industry and research centers or universities.

Science and technology must also be promoted. Because pay-offs on investment on R & D do not come soon, government encouragement is vital. An effective science and technology policy would include the following:

(1) A good match between the nation's competitive advantages and its efforts in science and technology. If a nation's world-class industries are in the optics sector, research related to optics would be more productive than research in waste management.

(2) Emphasis should be placed on research universities rather than government laboratories. In this manner, new graduates have been exposed to the latest developments. Also, the more casual atmosphere of the university allows information to be diffused more readily.

(3) Research within firms should be promoted. They know the industry's needs best and are better able to direct innovations.

Good transportation and communication are prerequisites for competitiveness. Of more importance is the presence of an adequate supply of low cost capital for upgrading investments. In addition, this capital must be directed to investments with the highest productivity. At the same time, information identifies opportunities and threats. It takes many forms, technical publications, conferences, government statistics, and allows trends to be recognized and firms to react.

Finally, subsidies are generally harmful to competitive advantage. Adjustment and innovation are usually delayed rather than promoted. And subsidies usually come with conditions (i.e. - plant location). Consequently, flexibility is limited and innovation dampened.

5. STRATEGIC APPROACHES FOR SUSTAINING COMPETITIVENESS

Balance sheets and profit/loss statements are the most popular means of judging the financial performance of a firm. But a firm's financial standing gives no idea as to its strategic position. They generally reflect past performance, whereas strategic position should give an indication of how competitive the firm will be in the future.

Being under the pressure of daily operations, managers do not devote enough attention to planning strategies to secure their firm's future. Strategic management, therefore, needs time, commitment, and reliable, relevant information.

Strategically-relevant information is often not systematically collected and analyzed. A survey in Switzerland shows a substantial information deficit regarding markets and new technologies.

Most firms know their direct competitors quite well but are not aware of technological developments outside their markets and their industries. Here, industry associations can help by providing reliable and relevant information. In the following, we concentrate on firms' strategies and deal with methods for strategic thinking.

5.1 Guidelines for Strategic Management

There are well-recognized guidelines to follow in planning and implementing strategic management. These guidelines do not depend on specific methods of strategic planning but are valuable generally and are valid independent of what method is used.

Strategic management is different from

- inflexible long range planning which extrapolates trends of the past into the future.

- uniform and so-called "fair" dispersion of finances to all activities of a firm.

Strategic management bases on

- an accurate judgement of the situation and development in the relevant product/market segments and the firm's environment (for instance, market growth, technological trends, competitor situation, and so on).

- a market-oriented judgement of strengths and weaknesses based on knowledge of the relevant success factors.

- a realistic judgement of future expectations in the different product/market segments (SBU's), and a timely recognition of new chances and risks.

Strategic management concentrates forces

- to determine so-called "points of crystallization" which are crucial for the development of a firm.

- to recognize declining product/market segments with unattractive profit potential from which the firm must divest.

- to identify new product/market segments with attractive growth rates and profit potential.

Strategic management gives product/market-oriented guidelines

- for an active adjustment of the firm and their products and services to the changing markets.

- for the concentration of activities toward a common goal.

- for a dynamic operative management.

Strategic management focuses on the relevant success factors of the strategic business units and dedicates high attention to the continual monitoring of these factors.

Strategic Management uses state-of-the-art strategic planning methods. For instance

- learning curve and portfolio method
- PIMS concept (Profit Impact on Market Strategies)
- generic Strategies and analysis of the value chain (Porter)
- Time-based competition
- "Diamond" of Competitive Advantages

In the following, we concentrate on the basics of the above-mentioned strategic methods. It will be one of the tasks of the round of talks of experts to determine further work to be done in relation to the available strategic methods.

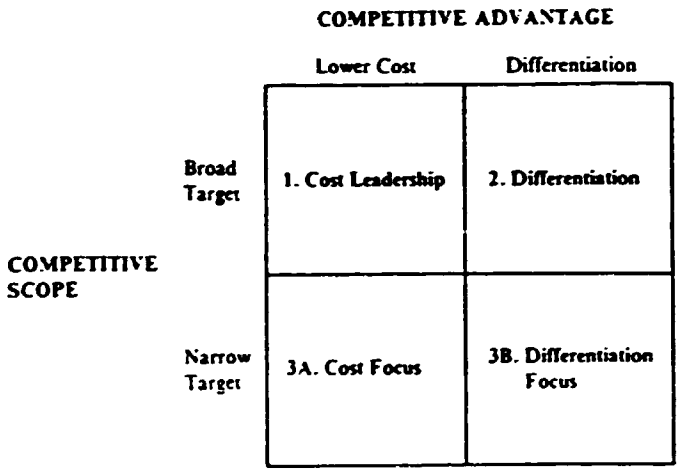
5.2 Methods for Strategic Thinking

5.21 Generic Strategies of Porter

In his book "Competitive Advantage" (1985), Porter relies on the so-called "generic competitive strategies". These strategies consist of a matrix based on "competitive scope" and "competitive advantage". Porter sees two basic types of competitive advantage, relying on either cost advantages or on differentiation. All the relevant success factors ultimately have an impact on cost or differentiation.

These two basic functions are combined with the scope of activities, which can be broad or narrow. Broad or narrow scope is equal to a broad or narrow definition of the market. A narrow target will be a specific product/market segment whereas the broad target will be an overall market (which ultimately must be properly defined as well). A narrow target will result in a focus strategy, either on cost or differentiation.

The following matrix shows the position of the three generic strategies:

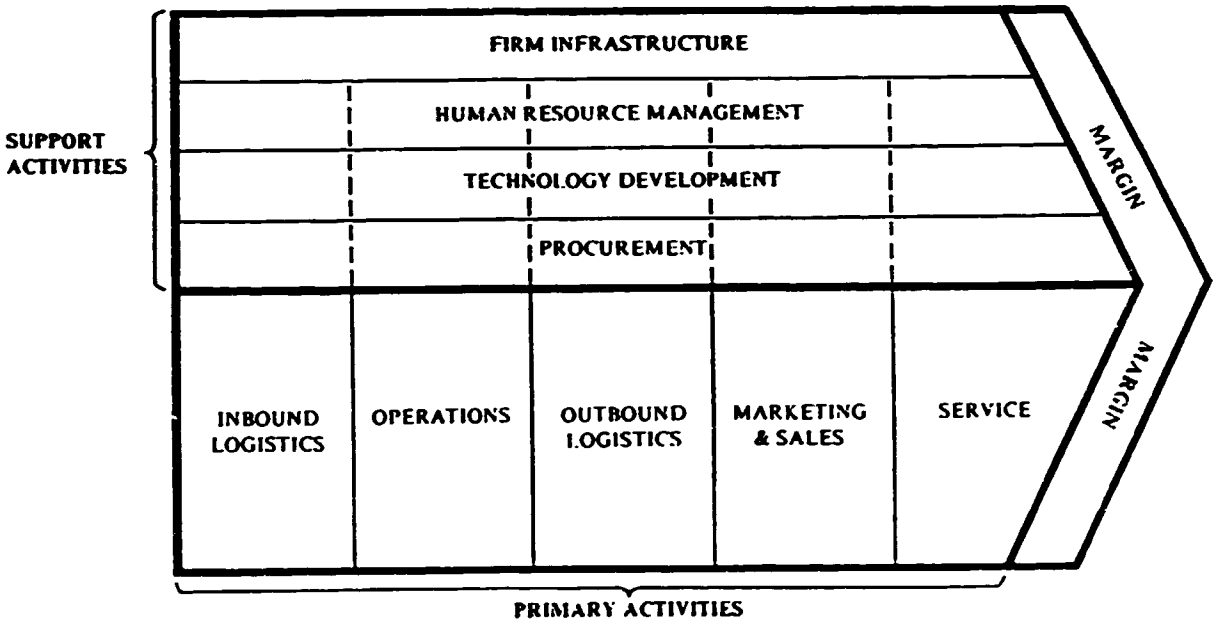


Three Generic Strategies

Due to the specific actions to be taken to follow a generic strategy, actions vary widely between industries. The message of this model is that a choice must be made between concentrating on costs or concentrating on quality.

These two basic strategies demand different company cultures and, therefore, a mix of the two is not recommended.

To have cost and differentiation advantages at the same time is inconsistant. It all comes down to a definition of the target market and the influence of other activities along the value chain. A company can have a cost advantage but lose that advantage through higher marketing costs in specific markets or higher infrastructure costs in other markets. The generic value chain can be structured in support and primary activities:



The Generic Value Chain

The basis of a value chain is the strategic business unit. Within airline services there are big differences between, for instance, a national carrier and a charter company. The difference between competitors is the main source of competitive advantage. The following table shows alternative value chains for airlines:

	Ticket Counter Operations	Gate Operations	Aircraft Operations	On-Board Service	Baggage Handling	Ticket Offices
Trunk Airlines	Full service	Full service	Purchase new aircraft Union pilots	Full service	Free baggage checking	Ticket offices in downtown locations
No-Frills Carriers	Secondary airports and terminals No ticket counter (or check-in only) Purchase tickets on board the aircraft or from machines No interline tickets Few fare options	Secondary airports and terminals First come, first served seating No ticketing at gates	Used aircraft High-density seating Nonunion pilots Smaller crews and more flying hours per day	Nonunion flight attendants Snack only or no meals Charge for food and drink served	Provide carry-on space Charge for checked baggage No interline baggage	None

In analyzing cost advantages, the dynamism of the cost factors have to be taken into account. So the size and growth of the related activities have to be analyzed, including the cost behaviour of the activity.

In addition, it is useful to analyze the types of costs and to identify the development of fixed and variable costs.

A differentiation strategy depends first on identifying the buyer and the relevant success factors. The purchasing criteria of the buyer should be linked with the possible influences in the value chain. Then existing and potential sources of differentiation can be identified and the configuration of value activities which creates the most value for the buyer can be chosen.

5.22 Experience curve and portfolio analysis

By the end of the sixties, the Boston Consulting Group had developed the so-called "Boston effect" which is based on a learning curve. The learning curve has an influence on all value-added activities and today - after a lot of further investigation - it is generally agreed that each doubling of production leads to a cost reduction of about 15% in the value added.

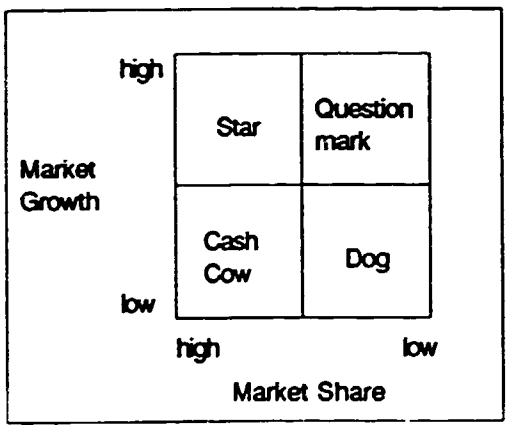
The effect of that learning curve can be applied to an industry as a whole or to a single firm.

The Boston Consulting Group identified two influence factors on a learning curve: the growth rate of a product and the market share.

The growth rate is of importance because, in a saturated market with low growth, the doubling of production is only possible over a long time period and the respective cost reduction is, therefore, less important. The larger the market grows, the stronger the influence on cost reduction.

The market share is important because the market leader has the advantage to double his production in shorter time intervals than his competitors. He has then the choice to have higher actual earnings or to invest in future market share.

The following portfolio shows this relation between market growth and market share, and the positioning of the four basic positions. These positions we can refer to the product life cycle concept, where the question mark products are in the phase of market introduction, the star products are in a high growth phase like the question marks but with the difference of high market share. Cash cows rely to saturated markets and are the cash producer of a strategic business unit. Dogs are in a declining phase and have to be sorted out earlier or later.

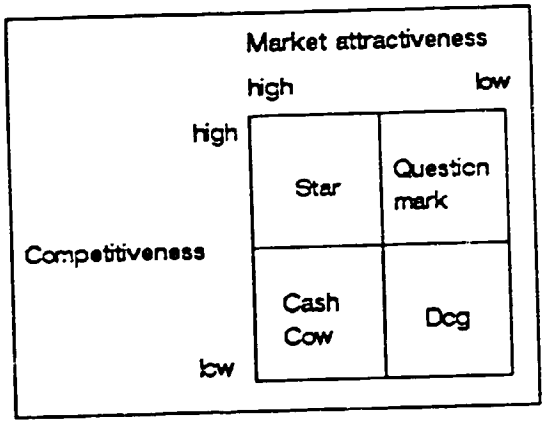


In developing the portfolio method further, the term "market growth" has been substituted with "market attractivity" and "market share" has been substituted with "competitiveness". This substitution implies a future-oriented view of a business and also includes a dynamic aspect.

Market attractivity includes, for instance, market growth, market volume, competitive structure, innovation potential of that market, and market entry and exit barriers.

Competitiveness includes the firm's market share and its relevant strengths and weaknesses in comparison to competitors. These advantages and disadvantages have to be judged from the point of view of potential buyers.

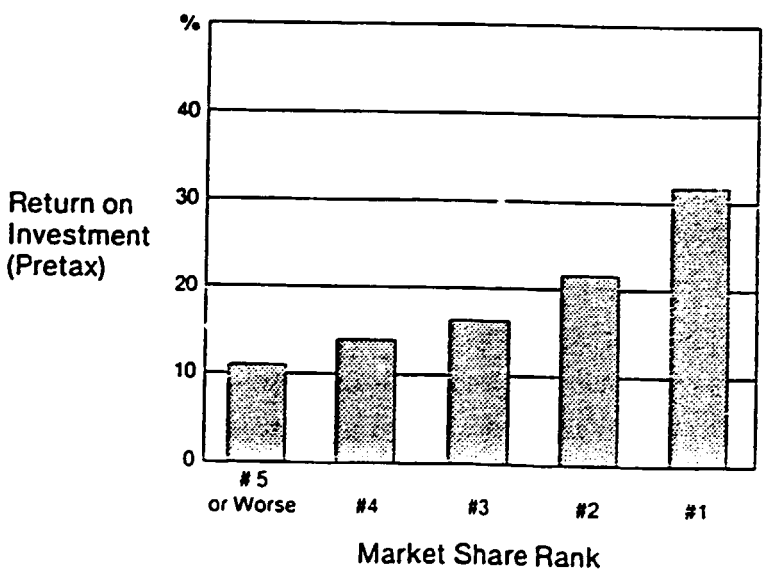
In this portfolio of market attractiveness and competitiveness we can now compare different strategic business units and draw conclusions upon the promotion or deletion of strategic business units.



52.3 PIMS

The PIMS method has been developed by the Strategic Planning Institute and relies on empirical data from a large data base. Over the last 20 years, PIMS has analyzed the influence of more than 30 basic factors on the profitability of firms.

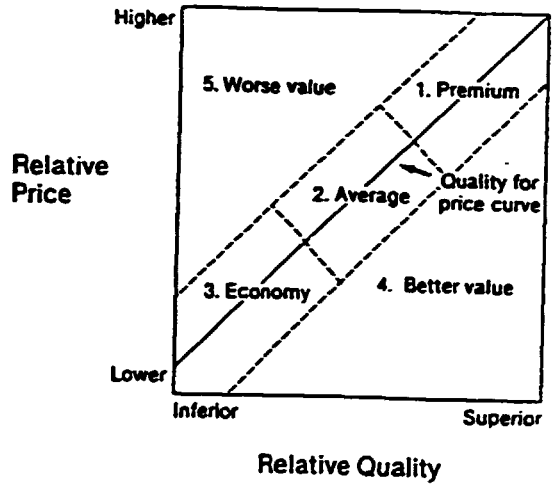
The PIMS data base shows a close relation between market share and return on investment, as can be seen in the following graph.



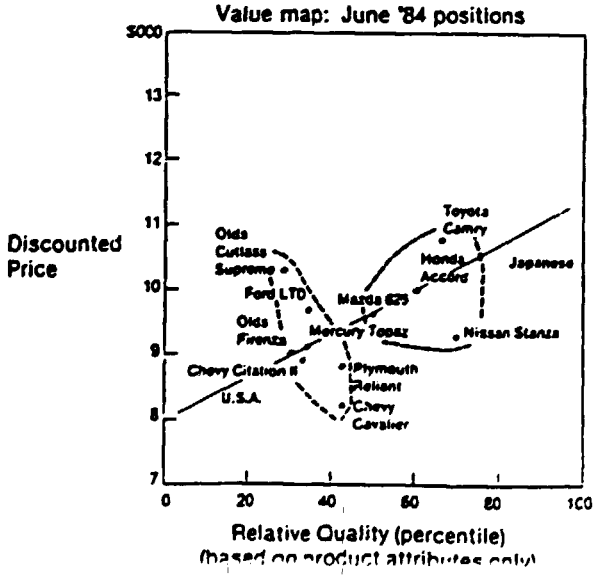
ROI Increases with Market Share Rank

Reasons for such higher profitability include, for instance, market power, the economies of scale and the lower "personal risk" of a buyer. A common underlying factor could also be the quality of the management which is responsible for the result of that high market share.

Another strong relation has been found between quality and profitability. The higher the relative quality - the quality against competitors in a defined product/market segment - the higher the profitability. This leads to the conclusion that differentiation strategies or focus differentiation will, for most industries, pay out more than cost leadership. The following graph shows generic positions within a relative price/relative quality matrix:



The following value map shows the relative positions of American and Japanese cars in the American market. The US auto makers probably wanted to get higher customer benefit only by price discounts, a strategy which turned out to be not very successful. This result underlines again the risk of basing a strategy solely on price advantage.



In the following we show the main influence factors on profitability and therefore on competitiveness:

The eight strategic main factors:

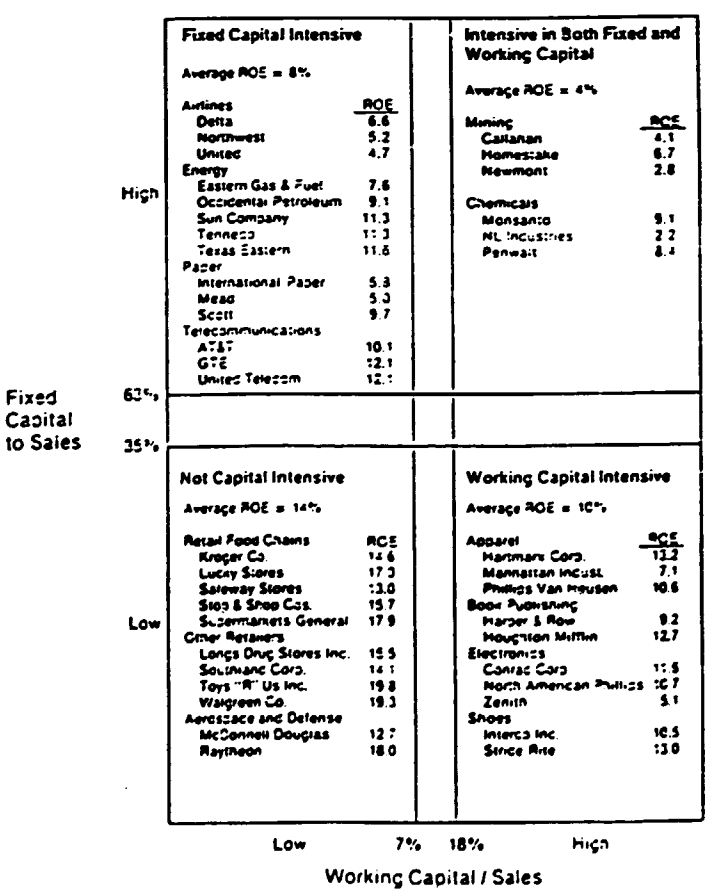
1. Investment intensity

   Definition: investment/value added

   High investment intensity is alway negative for profitability.

   The following table shows the capital intensity for selected companies, comparing fixed capital to sales to working capital to sales. Note how the average ROE is highest in industries which are not capital intensive.

Capital Intensity Can Upset the Applecart



Capital Intensity and Aftertax Profitability for Selected Companies

Note. The data are four-year averages taken from the Compustat data base, 1952-1985.

2. Productivity
   Definition: Value added per employee

   High productivity is always positive, it is absolutely necessary in businesses with high capital intensity.

3. Relative market share
   Definition: The firm's market share compared to the market share of its three main competitors

   High relative market share is always an advantage. It is especially important in businesses with high market expenses, high R & D expenses, or in times of recession.

4. Growth rate of the served market

   A high growth rate is positive for absolute profit, neutral in relation to relative profit, and negative in relation to all cashflows.

5. Relative quality
   Definition: Share of sales for products of superior quality minus share of sales for products of inferior quality to competitors.

   A high relative quality is positive for all financial data and it is compelling in low market share businesses.

6. Frequency of innovation
   Definition: Share of turnover of products not older than three years.

   A positive impact on turnover but usually only in high market share businesses.

7. Vertical integration

   Definition: Value added/sale
   Positive in stable and saturated markets, negative in markets with high growth or decline.

8. Profile of buyers
   Definition: Share of direct buyers which account for 50% of sales

   Depends upon the industry. A small number of buyers is generally more profitable, but depending upon their bargaining power.

The PIMS experiences are a very useful tool to define strategies and to allocate resources for the highest possible impact on competitiveness.

5.24 Time-based competition

Georges Stalk jr. and Thomas Hout show in their book, "Competing Against Time", the impact of time on competitiveness. More and more, time becomes a decisive instrument in competition.

This new dimension in strategy includes faster lead times and faster time to market with a high flexibility and reduced costs.

The result of time-based competition is shown in the following table in a comparison between the lead times of two big automobile factories, a Japanese one and a western one:

The New Pace of Competition: World-Class Automobile Companies

Value Provided	*Representative Cycle Times*	
	Western	*Japanese*
Sales, order and distribution	16–26 days	6–8 days
Vehicle manufacturing	14–30 days	2–4 days
New vehicle design and introduction	4–6 years	2½–3 years
Median age of product offering	5 years	3 years

The average age of the models shows that the Japanese are much faster in developing new models. The Japanese automobile factories need 2 1/2 to 3 years, the western ones need 4 - 6 years. The result of such a strategy can be easily appreciated by the well known proverb "time is money". The development of a new car model needs an intensive cooperation with many suppliers. It is, therefore, more and more important to cooperate strongly with efficient suppliers and to set standards in terms of quality and time.

What can be reached by "Just In Time" concepts can be shown with a few examples:

Time and Business

Typical Improvements in Production Flow Times

	Before	*After*	*Percent Reduction*
Japan			
Washing machines (Matsushita)	360 hours	2 hours	99
United States			
Motorcycles (Harley-Davidson)	360 days	< 3 days	99
Motor controllers	56 days	7 days	88
Electric components	24 days	1 day	96
Radar detectors	22 days	3 days	86

These results have not been reached just by improvements in manufacturing. In a few cases the lead time in manufacturing is less than 10% of the total lead time. This implies the reduction of total lead time, which indicates a high flexibility in all functions of a business.

Faster lead time is, above all in the capital goods industry, of growing importance and is not only a significant advantage in the market place, but is also a significant cost reduction factor. Success in time-based competition goes to the company which can offer a good performance within the least possible time. This leads to higher productivity, higher prices (due to additional functions), reduced risk, and higher market share.

A strategy based on faster lead times needs an adequate organization and investments. Only with an integrated structure - which could be based on CIM (computer integrated manufacturing) - is it possible to improve significantly the lead times and flexibility at the same time.

A time-oriented competitor has to concentrate on buyers, which are ready to pay higher prices for faster delivery. The advantages against competitors must be significant in terms of time, and the ranking of time in the chosen market segments must be given priority.

6. Ideas for Action

The ideas for action will be the results of the discussion at the expert meeting. Relying on the above, we have to analyze the existing and emerging industries in the capital goods sector in Latin America and to judge their competitiveness on an international level. To do this we need the assistance of the respective industry associations and the cooperation of entrepreneurs and managers. No nation can be internationally competitive in all industrial sectors and, therefore, we have to decide on what industries we are going to concentrate - and whether on a national or regional basis.

The next step could be to implement strategic planning processes in individual firms and to assist and support managers in making the right decisions.

The implementation of strategies and the management of strategic business units could be another point of concern.

This is not a sequential plan to follow but a list of subjects of major concern which should be treated on the whole and on different levels.

In a short form these activities could be defined as

(1) choosing the right industries
(2) choosing the right strategies
(3) implementing and managing sustainable and competitive advantage

The main target group for all these works is the industry. Industry associations have the possibility to involve single firms and government in the planning process necessary to build up and improve sustainable competitive advantages.

* * *

Thesis to improve the competitiveness of the capital goods industry in Latin America:

1. Concentrate on competitive industries

2. Build up and support industry clusters on sustainable competitive advantages

3. Promote segmentation and differentiation strategies on the basis of relevant success factors

4. Put emphasis on high quality and environmental requirements

5. Avoid high investment intensity without very high productivity gains at the same time

6. Think in process chains and not in functions

7. Consider time as a significant competitive force

8. Be flexible and organize to manage change

9. Invest in new technologies and products rather than in rationalization of declining technologies

10. Promote human resource management and interdisciplinary team work to improve productivity

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