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Manual for Small Industrial Businesses

Project Design and Appraisal

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION
GENERAL STUDIES SERIES

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Foreword

The International Development Strategy for the Fourth United Nations Development Decade gives highest priority to the alleviation of poverty This undertaking is, in my view, closely connected with rural industrial development and the promotion of small industrial businesses It is not, therefore, by chance that policy makers and business researchers are paying increasing attention to the development of the small business sector One of the main reasons for this attention is the urgent need for job creation, particularly in developing countries with fast-growing populations There is ample evidence that small enterprises achieve a higher productivity of capital with less investment per worker than larger, more capital-intensive enterprises Therefore, to increase the use of labour relative to scarce capital, an efficient development policy should encourage small businesses

Apart from job creation and positive income distribution effects, small- and medium-scale industries create various benefits related to economic development They produce predominantly for domestic markets, drawing in general on indigenous resources, and they use and develop domestic technologies and skills Also, the more successful firms are likely to grow larger, and in this process they fulfil an incubator function Assistance to small and medium enterprises is therefore one of the priorities of UNIDO

The *Manual for Small Industrial Businesses Project Design and Appraisal* is intended to be an instrument for the promotion of small industrial businesses It provides guidance on the planning, analysis, appraisal and implementation of investment projects, recognizing very well the characteristics of small- and medium-scale businesses and avoiding the trap of treating them merely as replicas of large projects The *Manual* aims at saving scarce financial resources by shifting much of the data assessment work from the enterprise level to the subsectoral level, where profiles of successful small businesses can be created that are then used as a reference when assessing individual projects

The *Manual* is intended to complement the *Manual for the Preparation of Industrial Feasibility Studies* (second edition), and it should be used in conjunction with the new COMFAR *III Expert* software, also developed by UNIDO It is hoped that the *Manual* will find the same acceptance as the other UNIDO publications in the field of project preparation and appraisal

Mauricio de Maria y Campos
Director-General

Acknowledgment

"Special acknowledgment is due to the Government of Austria for its generous financial support, without which this Manual would not have become reality."

Preface

The *Manual for Small Industrial Businesses Project Design and Appraisal* was initiated in response to difficulties experienced in the field and the increasingly felt need for a comprehensive and systematic approach to the development of small industrial businesses and the appraisal of related investments. Such considerations finally led to the formulation of a project to be carried out jointly by the Feasibility Studies Branch of the United Nations Industrial Development Organization (UNIDO) and the Vienna Institute for Small Business Research (Institut für Gewerbe- und Handwerksforschung), which is affiliated with the Vienna University of Economics, with support from the Government of Austria.

The *Manual* is intended to provide guidance for the planning, analysis, appraisal and implementation of small- and medium-scale industrial investments. Drawing on broad-based experience in the field of small business, it seeks to address the complexities and specifics of the sector and to pinpoint the characteristics that distinguish it from the large-scale industrial sector. Attention is paid to the strengths and the weaknesses of small industrial businesses as distinct from large ones, and to sector-specific conditions, including the overall economic, sectoral, interindustry and institutional situation.

When preparing small business projects, it must be understood that small-scale investments should not be viewed simply as miniature versions of large-scale investments but should be evaluated on the basis of their own characteristics and requirements.

Valuable contributions were made by two consultants. Rik Donckels, Director of the Small Business Institute of the Catholic University at Brussels, and Jan Degadt, Dean of the Faculty of Economics of that university. They thoroughly reviewed the first draft, made valuable comments and broadened the spectrum of references. Topical insights into some of the chapters were contributed by experts from the Vienna Institute of Small Business Research. The material for the two cases that form the annex was provided by E. Sammer, Munich, drawing on his international experience in small business management consulting, especially in Asia.

All these contributions and inputs, having greatly facilitated the design and preparation of the *Manual*, are herewith gratefully acknowledged by the authors.

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References to dollars ($) are to United States dollars unless otherwise stated.

The following abbreviations and acronyms are used in this publication.

ASEAN	Association of South-East Asian Nations
COMFAR *III Expert*	UNIDO Computer Model for Feasibility Analysis and Reporting, third generation, released in 1994
DCF	discounted cash flow
GNP	gross national product
IRR	internal rate of return
NCF	net cash flow
NPV	net present value
NPVR	net present value ratio
OECD	Organisation for Economic Co-operation and Development
PB	payback
ROI	return on total invested capital
ROE	return on equity capital
UNCTAD	United Nations Conference on Trade and Development

Introduction

A. Purpose of the *Manual*

In order to design and appraise small industrial business investment projects it is important to understand the characteristics of this economic sector, particularly how the sector and its pre-investment activities differ from the large-scale industrial sector and its pre-investment activities.

The *Manual* is intended to facilitate this understanding and, in so doing, serve as an instrument for the promotion of small industrial businesses. The importance of the small business sector for an economy is widely acknowledged, that does not necessarily mean, however, that the need for its promotion is acknowledged. While field studies provide sufficient evidence of the important role small and medium-sized businesses play in economic development and, in particular, in employment, industrialization policies in most developing countries have shown little real concern for small-scale enterprises. Trade regulations, legislative provisions, investment incentives and the emphasis on public sector investment, which is often financed with foreign aid, have discriminated against small-scale enterprises.

Economic development should not be thought of as something that happens in isolation from the rest of the world. Nowadays, even least-developed economies are part of a dense and interdependent international network, whose elements include communication, trade, technical cooperation and other services. Small industrial businesses typically produce mainly for regional or localized markets and rely on domestic resources. Their promotion is not usually of major concern to foreign investors, for several reasons. First, external links tend to be limited to minor imports of machinery and a relatively small volume of exports. Then, too, small-scale investment projects are generally less attractive and are widely thought to be costly to administer. Furthermore, the return on investment is more difficult to control, owing to accounting systems that are usually less developed.

For all these reasons, small business investment projects frequently do not receive the support they need to offset their disadvantages compared with large projects. The promotion by Governments of small industrial investment projects might even turn out to have negative effects if it is overburdened with administrative procedures that limit rather than enhance entrepreneurial activities.

The *Manual* is intended to provide guidance on the planning, analysis, appraisal and implementation of investments in small industrial businesses and to point the reader to the formidable body of literature on the topic [1]. It draws, as well, upon the broad-based experience of experts in the field of small business and conveys the complexities and specifics of the sector, which differ substantially from those of the large-scale sector. It contains worksheets, schedules and questionnaires for collecting the information needed for the various stages of a project. These worksheets, schedules and questionnaires are found in the appendixes to the chapters in part three: chapter X (worksheets), chapter XI (schedules) and chapter XII (questionnaires).

Finally, the *Manual* seeks to bring out the differences between small and large industrial projects, with emphasis on the characteristics of small business investments and their related pre-investment studies

B. Organization of the *Manual*

The integrated approach followed throughout the *Manual* takes into account conditions at the national level of an economy, continues by analysing the sectoral and regional factors and finally arrives at the enterprise level

Part one delineates pre-investment requirements and activities in the small industrial business sector and assesses its characteristics, as distinct from those of the large-scale industrial sector

Part two covers the identification and analysis of small-scale investment opportunities, with special attention to project preparation and appraisal at the subsectoral level Opportunity studies at this level create profiles of successful small industrial businesses and explore their strengths and weaknesses as well as the prerequisites for, and constraints to, the establishment and operation of viable enterprises The profiles may be based on subsectoral research or on information from similar enterprises and projects Worksheets, schedules and questionnaires have been designed to systematize and facilitate the assessment and processing of data.

Part three addresses issues at the enterprise level, with emphasis on the preparation and appraisal of specific individual investment projects Because opportunity studies and feasibility studies are linked conceptually and because subsectoral data are usually available, it should be possible to minimize the costs of such studies, particularly if they are kept simple In the case of individual projects, extensive research would not be needed nor would data have to be collected by specialized personnel, instead, local agencies and expertise could be relied on

Finally, two cases are presented in the annex to the *Manual* These cases demonstrate that a systematic approach to the preparation and appraisal of small-scale investment projects is not only desirable but can also be made rational and cost-effective

The *Manual* aims at conserving financial resources by shifting much of the data assessment work from the project level to the subsectoral level It avoids the trap of treating small industrial investment projects as merely small replicas of large projects Small industrial businesses, unlike large ones, are usually embedded in a densely knit network of economic, interindustrial and institutional relationships This characteristic of small businesses is the key to understanding the philosophy of this *Manual* Or, to put it differently

> *Just as a small industrial enterprise should not be viewed merely as a smaller version of a large enterprise, a small industrial investment project is not simply a small replica of a large-scale investment project* [2]

References

1 See, among others, J G Covin and P S Dennis, "Strategic management of small firms in hostile and benign environments", *Strategic Management Journal*, No. 1 (1989), pp. 75-87, D A. Curtis, *Strategic Planning for Smaller Businesses* (Lexington, Massachusetts, Lexington Books, 1983), J C. Dilts and G E. Prough, "Strategic options for environmental management: a comparative study of small versus large enterprises", *Journal of Small Business Management*, No. 2 (1989), pp. 31-38, K. Noonan and J E. Van Kirk, "Key factors in strategic planning", *Journal of Small Business Management*, No. 7 (1982), pp. 1-7, C. B Shrader, C. L. Mulford and V L. Blackburn, "Strategic and operational planning, uncertainty, and performance in small firms", *Journal of Small Business Management*, No. 4 (1989), pp. 45-60.

2. J A. Welsh and J F White, "A small business is not a little big business", *Harvard Business Review*, No. 4 (1981), pp. 18-32. See also *Manual for the Preparation of Industrial Feasibility Studies* (United Nations publication, Sales No. E.91 III.E.18)

PART ONE

Pre-investment studies in the small industrial business sector

A. Main characteristics of small industrial businesses

1. Decentralized production and local markets

Small industrial businesses are characterized by their decentralized manufacturing operations and their reliance on local markets This is particularly true for small-scale businesses in developing countries, because most of the population still live in rural areas and small towns, where transport services are poorly developed The small industrial businesses that benefit from decentralized operations are those that process agricultural products and bulky or heavy raw materials or those that manufacture products that are perishable or have to be cooled during transportation Others that benefit are small businesses catering to local needs, such as repair and service, meat and dairy products, furniture, and concrete blocks and other building materials Because small industrial businesses are located close to their sources of supply and sales markets, they usually have a good knowledge of the markets, and their transportation costs are lower than those of their large-scale competitors, this quite often gives them a significant advantage over large-scale operations, even though they do not enjoy economies of scale In addition, small firms, unlike large-scale enterprises, are not burdened with complex and costly marketing research and marketing operations [1]

2. Products and services for differentiated demand

Another important characteristic and potential strength of small industrial businesses is their ability to cater to highly differentiated, individual demand by offering custom-made products as, for instance, built-in furniture or handmade shoes [2] Catering to individual demand is an essential function of the small-business sector in both developing and industrialized countries It implies serving markets with limited volumes, where the possibilities for mass production and economies of scale are modest Typical examples are tailoring, the garment industry, plant construction, specialty foods and handicrafts

To satisfy a differentiated demand requires the manufacture of special products or of small series, which generally calls for a high degree of flexibility Small enterprises have certain advantages because they are free of the bureaucratic procedures that pervade the organization and management of large enterprises and make them far less flexible Catering for individual demand entail developing innovative products and new markets for them [3] and extends to conditions of payment, special forms of delivery and other services

3. The central role of the entrepreneur

The most important functions of entrepreneurship are bearing the business risk (capital risk) and coordinating (managing) the business, i e making things happen The successful performance of these functions by entrepreneurs is indispensable for every country's socio-economic development The capital risk is borne by the owner of the firm or, in the case of a new business project, the potential investor, who

provides the equity (or risk) capital However, in spite of generally growing capital requirements, small industrial businesses remain dominated by labour-intensive and personal elements, as compared to capital-intensive large enterprises the coordinating and integrative function of an entrepreneur therefore predominates over the risk-taking function

> *The personal element is probably the most conspicuous characteristic of small industrial businesses because of the vital role played by the entrepreneur or general manager and by his or her personality, professional education and personal strengths and means* [4] *It is typical for small businesses as compared with the instrumental element, which predominates in large enterprises* [5]

The coordination and integration function of the entrepreneur comprises a number of managerial tasks determining the main business objectives, setting priorities, identifying basic strengths and weaknesses in order to derive appropriate business strategies, and procuring and coordinating the required resources Decisions on these matters are normally critical for the success and survival of an enterprise and may, therefore, not be delegated by the entrepreneur

Coordinating and integrating enterprise activities in line with the main, i e the strategic, objectives of the firm, as well as adapting to market demand and responding to other external factors that influence the success, if not the survival, of the enterprise, is another essential function of the entrepreneur These entrepreneurial activities are normally easier to integrate in a smaller enterprise, by the same token, the possibilities of delegating responsibility are limited, so nearly everything has to be done by the entrepreneur personally, who needs to be an all-rounder, with creative-dynamic talents as well as organizational and administrative-executive talents [6]

4 Entrepreneur, owner and manager of the business

The traditional owner-entrepreneur, whose equity capital is inherited or saved, still predominates in small industrial businesses In such cases the required management capacities and the readiness to risk capital are usually concentrated in one person, who becomes the centre of activity This is also true for cooperative forms of owner-entrepreneurship or family-owned businesses Managers carry out entrepreneurial functions as employees of the firm they manage, unlike owner-entrepreneurs, they do not normally risk their own capital They do not have the same degree of freedom in business decisions but are, instead, accountable to the owners

However, the managerial functions as such, whether they are carried out by the owner-entrepreneur or the manager of the small business, remain the decisive and overriding factor, quite apart from the form of capitalization It is therefore important that the owner-entrepreneur should possess managerial skills, while the manager should be given incentives to assure his or her participation in both the risks and benefits of the business It appears that in a successful business, the personal management and leadership aspects are more important than the financing and liability aspects Special emphasis must therefore be given to management training and the application of personal strengths and capacities The lesser importance of risk capital is in line with the tendency nowadays in businesses in industrialized

countries for capital intensity to be increasing at the same time as the share of equity or risk capital is decreasing. This is also true in family businesses.

5. *Collective entrepreneurship and family business*

The entrepreneur cannot be expected to be a universal genius [7] and to be his own chief executive officer, personnel and finance manager, marketing expert, salesman, purchasing officer, designer, foreman, cost accountant and often even more. Such universality would almost necessarily lead to mediocrity in at least some of the functions. The sharing of entrepreneurial and managerial functions, particularly in a so-called family business, is common in the small business sector, probably because it offers various advantages over individual entrepreneurship.[1]

Family businesses outrank all other forms of business. Worldwide, about 90 per cent of all enterprises are small businesses, and 80 per cent of them are family businesses. As can be seen in figure I, typical for family-owned small businesses is collective ownership and management by couples or relatives, who share the tasks of entrepreneurship according to their personal motivation, skills and experience. Quite often, the partners in a family business have no legally binding agreements or contracts. The most common form is the sharing of a business by two partners, whereby one is responsible, for example, for accounting, sales and personnel, while the other manages apprentice training, purchase, production and product development. Such division of work is efficient, taking into account different values and attitudes, levels of training and skills. Where women with both family and business duties are involved, careful consideration has to be given to appropriate organization and distribution of the workload.

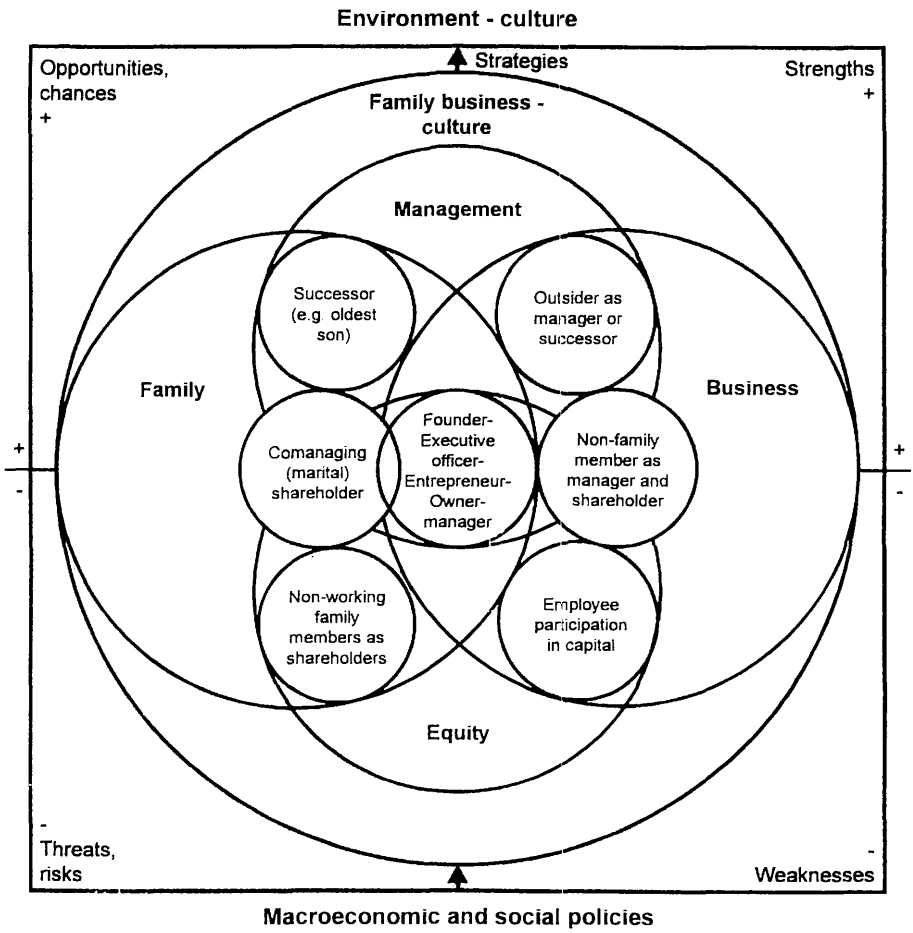
Strengths of family businesses

One acknowledged strength of family businesses is that they are in a good position to cope with social change and challenges, owing to their flexibility and ability to combine entrepreneurial drive and efficiency with social responsibility and motivation. As opposed to more analytical approaches, which tend to separate and eliminate family aspects, regarding them as negative, the family-centred, integrated approach tries to focus on the positive contributions of the family. Thus, it would seem to be an essential social function of entrepreneurial families to motivate and foster young people not only with an eye to the succession in their own businesses but also to promote an entrepreneurial climate at the public, institutional and administrative levels. For a country's socio-economic development, intact family businesses can be a model for ethical standards in business and in daily life. For example, apprentices in well-managed small businesses frequently find a family atmosphere, with personal engagement, help and consultation, when problems arise.[2] Another strength of family businesses—supported by research, including empirical

[1] Examples of successful as well as less successful forms of business cooperation can be taken from economic history. They include credit, sale, purchase, storage and similar cooperatives, which have been able to make use of economies of scale without sacrificing their specific strengths. Small production cooperatives, as promoted by utopian socialists (like Saint Simon, Luis Blanc and Charles Fourier) have been tried again and again during the last 150 years but have only rarely been successful.

[2] Such family business may compensate the social deficits of an employee by providing a second chance through improved education or incentive-oriented work. Also, socially more acceptable values and behaviours may be passed on by family businesses, as demonstrated by empirical investigations [8] and data from the United States of America. The Family Firm Institute, for example, points out that the divorce rate of small business entrepreneurs in general and of family business entrepreneurs in particular is significantly lower (about 7 per cent) than average nowadays in industrialized societies (up to 30 per cent).

Figure I. An integrated approach to family business



studies—is their ability to cope with successor problems better than non-family businesses. This is because an entrepreneur is normally in a better position to judge the entrepreneurial and managerial talents of a young potential successor at an early stage (for example, the predominance of innovative-pioneering or administrative-organizational talents and behaviour) [3]

Weaknesses of family businesses

Family businesses also have their weaknesses, which will have to be kept in mind when analysing the enterprises in a subsector. Typical is the often overwhelming amount of work and the relatively long working hours as compared with large enterprises. Almost unavoidably, this workload causes other important spheres of life—cultural, social, personal and spiritual—to be neglected by family members. This heavy focus on the business, which in its extreme form can result in an obsession with material gains and a fanatical devotion to work, frequently discourages the sons and daughters of small business families from taking over the family business.

[3]For a typology of entrepreneurs, see Fröhlich and Pichler [6]

Several strategies and remedies could overcome these weaknesses.[4]

- Clearly defined and appropriate public policies and actions, including legal provisions and incentives, would create a positive climate for starting family businesses, which are acknowledged to be beneficial for society. Subsidies are no substitute for such policies.
- Emphasis on indirect economic and fiscal policies, such as fostering the formation of risk capital and encouraging small business consulting and research. Direct bureaucratic involvement tends to be much less efficient, owing to the characteristics of small businesses in general and of family businesses in particular.
- Greater attention should be given to inter- and intrafirm cooperation, including the creation of networks. This requires appropriate codes of behaviour or business conduct (see also chapter III).

6. *Cooperation strategies*

Cooperation with other firms may also offer some opportunities to small businesses that have grown so rapidly that the entrepreneur can no longer take on all the professional tasks. Traditional examples of cooperation strategies are export, purchasing and storage cooperatives, production cooperatives have been successful in exceptional cases only.

Joint ventures are another form of cooperation, and expectations for this strategy are high, especially for joint ventures between small industrial enterprises in developing and industrialized countries.[5] The cooperating entrepreneurs may benefit, for example, from the access to new markets and from the transfer of modern technology. To be successful, joint ventures need to be established by creative-dynamic small businessmen.

7. *Subcontracting*

Subcontracting may be a strategic option for ensuring the survival of an enterprise. Goods or services might be produced, for example, for a customer who would be responsible for selling them. This option is found especially in the field of capital goods or in the production and assembly of agricultural tools and machines like electrical water pumps. Reports of experience with subcontracting, especially for small industrial businesses in Japan, have been published worldwide. The reports mainly document the commercial orientation of small enterprises and their strong ties to other industrial entities. The reasons for the growing role of subcontracting are as follows [9]:

- Better capacity utilization in those parts of the production process that are irregular or not standardized
- Fewer labour conflicts in times of recession, since it is politically easier to reduce orders than to reduce the number of workers
- Avoidance of high labour costs in those categories where wages are subject to government regulation or are influenced by pressure groups

[4]These strategies and remedies are not limited to family businesses but extend to the entire small business sector.

[5]Case 1 in the annex involves an entrepreneur in an industrialized country looking for an appropriate joint-venture partner in a developing country, with emphasis on technology transfer and market access.

- "Wages are significantly lower in small than in large firms in developing countries, even allowing for age and skill differentials" [10]

Recent studies [11] have shown that it is wrong to think that subcontracting is limited to the metalworking industries or to industries that produce components for cars. Subcontracting activities can be found in all sectors. It is true, however, that subcontracting is generally recommended for enterprises that already have an appropriate organizational structure, and enterprises with 20-100 employees have the highest proportion of subcontracting activities.

B. Definition of small industrial business projects

Production is frequently divided into a primary sector (agriculture, mining, oil production and other raw materials), a secondary sector (industrial) and a tertiary sector (individual and small-scale manufacturing of higher quality products and services) [12]. Services include not only repair, service, maintenance and physical care but also finance, trade, transport, tourism and consulting, as well as the provision of public services such as education, public health, legislation and social security.

In industrialized countries, the only sector in which employment rates are steadily growing is the tertiary sector. Because of increasing mechanization and automation in the primary and secondary sectors, employment there is declining or stagnant. The tertiary sector is dominated by small-scale enterprises, large enterprises are the exception. But small businesses also play a very important part in the manufacturing or secondary sector also, accounting for more than 90 per cent of the enterprises and over 50 per cent of employment in most industries. It should be mentioned that most small manufacturing businesses in manufacturing also provide some kind of service (repair, trade), so the line between the secondary and the tertiary sector cannot be drawn too rigidly.

1 Definition of small business

One approach to distinguishing small-scale and medium-scale operations uses fixed assets or the number of persons employed as a measure. The criteria differ from country to country, and there is no universally accepted standard definition. In dealing with small- and medium-scale manufacturing, referred to as a small industrial business, this *Manual* defines its subject by characteristics rather than by value of assets, volume of sales or number of employees, although such quantitative figures are still needed, and are dealt with in the *Manual*, for the appraisal of projects or enterprises.

An enterprise can be defined as small if the entrepreneur is involved in the production process as well as in administrative and commercial tasks, which are frequently also carried out by family members. Large enterprises have been defined as companies in which the entrepreneur heads the administration and organization but is not involved in production. This definition is applicable at the sectoral level but is difficult to apply in general statistical research and in the field of political economy [6]

[6]Definitions of "small" differ not only by country [13] but also by purpose and industry, for instance, in the context of tax, trade or credit policies [14]. In the context of development policy, the use of different criteria for the definition of "small", "medium" or "large" does not pose any problems [13]. In the context of economic structure and development, however, especially in international comparisons, the comparability of data is more important. This is also why industrialized and developing countries refrain from using criteria susceptible to inflation (turnover, capital and so on) and use figures such as the number of employees in terms of full-time equivalents.

Distinction by value of assets and number of employees

Worldwide, statisticians and economists refer to criteria that are easy to measure, for instance, number of employees, sales and capital investment. In developing countries, even energy input is a size criteria, but the most frequent criterion is the number of employees. If the value of assets or investments is taken as the criterion, the $50,000-$500,000 range may be considered typical of small enterprises in labour-intensive subsectors and $100,000 to $1.5-2.0 million in subsectors where more sophisticated machinery is required (e.g. printing). Defined by number of employees, "small" in industrialized countries most often means fewer than 500 employees, in developing countries, it means not more than 20-100 employees. Small enterprises of this size clearly belong to the formal industrial sector of the economy but differ in character from large enterprises, which are dealt with in the *Manual for the Preparation of Industrial Feasibility Studies* [15]. In developing countries, "large" means more than 100 employees, but in Japan it means more than 200, in Europe, more than 500, and in the United States, more than 1,000 employees.

More sophisticated quantitative characteristics

One argument in favour of small industrial businesses in connection with economic development is their more efficient use of scarce capital. Small industrial businesses usually produce their output with less capital and a greater labour input than large enterprises. If capital is scarce, small industrial businesses may as well produce more output and provide more employment [16]. On the other hand, investigations into factor intensity and productivity show that capital goods often cannot be used to capacity in most small enterprises, which reduces capital productivity.

Large enterprises use expensive machinery to replace cheap labour, which affects labour intensity but does not always increase capital productivity as measured by the output/input ratio.[7] Additional evidence of the benefits generated by small industrial businesses can be found in many countries. One benefit is that they train apprentices [18]. Other benefits relate to their disproportionately large share of innovations (in the United States, it is 74 per cent) [14] or to the quick transfer of innovations in small industrial businesses. In Austria, for instance, the average length of time between the development of a product and its introduction on the market was less than two years in 83 per cent of the cases of small industrial businesses and in only 74 per cent of those of large enterprises (500 and more employees).

2 *Formal and informal sector*

There are often no statistics to register activities in the manufacturing, trade and service sector that is known as the informal sector. These activities are especially important in many developing countries, where they offer opportunities for entrepreneurial talents, but they are rarely large enough to achieve efficient production or to ensure medium-term survival. Sometimes they are not even the main profession of the individuals concerned.

The informal sector in developing countries can be compared to the "shadow economy" in industrialized countries. Both are by no means unimportant for develop-

[7]For instance, enterprises in India with 10-49 employees were more labour-intensive than larger enterprises, according to an investigation of 32 industries over a period of four years. A number of studies confirm that capital productivity is generally higher in small and medium-sized enterprises [17].

ment. According to Muegge [19], it is estimated that in Peru, for instance, 60 per cent of the entire estimated domestic production is manufactured by the informal sector. In Italy the shadow economy is estimated to produce some 25 per cent of the gross domestic product.

It should be kept in mind that in many countries statistics do not even regularly, if at all, include enterprises in the formal sector below a certain size, that is, businesses with fewer than 10 or 20 employees, known as household manufacturing or cottage industry. Although such firms may be registered and may operate legally, they cannot, owing to their limited scope, be easily compared with modern small industrial enterprises and are therefore not a target of this *Manual* [20].

3 *Definition as adopted for this* Manual

Based on the literature and on the practical considerations mentioned in the preceding sections, an operational definition of the business and investment size can be formulated for this *Manual* (see box).

An investment in a small- to medium-scale manufacturing enterprise is considered to be a small industrial business project if the following are true

- *The entrepreneur and his or her family or partner(s) play a central role by making things happen*
- *Production is mainly for local markets and/or differentiated demand.*
- *The value of assets, or of total initial investment in the case of a new enterprise, is less than $2 million but more than $50,000*
- *The number of employees, unless defined otherwise in a country, is in the range of 20-100 or, if part-timers or apprentices are employed, 20-100 full-time equivalents*

The *Manual* does not, therefore, take into account the following categories of businesses:

- Very small, or so-called "small small", businesses (small enterprises with fewer than 10 employees as well as businesses in the informal sector)[8]
- Medium-sized enterprises (firms with 100-500 employees)
- Large corporations (firms with more than 500 employees)[9]

[8]Most characteristics of small businesses are shared by small enterprises with fewer than 20 employees, so it should be possible to apply the concepts outlined in this *Manual* to these very small manufacturing enterprises as well. However, some of the questions in the questionnaires would have to be dropped for both opportunity studies and feasibility studies. The application of this concept to very small businesses will be subject to continuing research.

[9]For the design and appraisal of projects in the medium-scale and large industrial sector, the *Manual for the Preparation of Industrial Feasibility Studies* [15] is recommended.

C. Share of the small industrial business sector in the economy

The generally large share of small businesses in both industrialized and developing countries is reflected by the data in tables 1 and 2.

Table 1. Structure of enterprises in Austria and Bolivia: employees and gross manufacturing output, 1983

	Share of total (%)					
	Enterprises		*Employees*		*Gross manufacturing output*	
Size of enterprise	*Bolivia*	*Austria*	*Bolivia*	*Austria*	*Bolivia*	*Austria*
Small (0-4 employeees)	81	58	27	6	2	6
Medium (5-49 employees)	17	37	30	32	21	24
Large (49 employees)	2	5	43	62	77	70
Total	100	100	100	100	100	100

Sources: Vienna Institute for Small Business Research, *Small Industrial Business Structure Report* (Vienna, 1988); R. Gomez, J. Espejo and C. Machicado, *Elementos para una estrategia industrial en Bolivia* (La Paz, Ministerio de Industria, Comercio y Turismo and Deutsche Gesellschaft für Technische Zusammenarbeit, 1988).

Table 2. Size structure of the manufacturing sector in Austria, 1988

	Share of total (%)		
Number of employees	*Enterprises*	*Employees*	*Gross output*
0	20.9	0	—
1-4	37.0	6	4
5-9	18.1	8	6
10-19	11.3	10	8
20-49	7.0	14	12
50-99	2.6	12	12
100-499	2.1	27	28
Total <500	99.7	77	71
500 and more	0.3	23	29
Total	100.0	100	100

Source: *Österreichisches Statistisches Zentralamt (ÖSTAT)*, calculations by the Vienna Institute for Small Business Research.

If the upper limit for medium-sized enterprises is set at 500 employees and that for small enterprises at 20, as is commonly done in industrialized countries, small firms clearly dominate, as shown in table 3.

Table 3. Small enterprises (<20 employees) as a share of small and medium-sized industrial businesses (<500 employees)

(Percentage)

Sector	*Switzerland*	*Former Federal Republic of Germany*	*Austria*	*Netherlands*
Manufacturing	85	88	86	88
Construction	87	90	82	93

Source: Vienna Institute for Small Business Research.

Because this size distribution is typical in many countries, it can serve as a first approach in the preparation of feasibility studies or opportunity studies at the subsectoral level

D. The environment of small business investment projects

When the main characteristics of small industrial business are recalled, it becomes clear that investments in fixed assets, such as land purchase and the construction and installation of complex production machinery, are not as important for project appraisal as in the case of large-scale industrial projects First of all, the appraisal of small industrial investment projects will have to put greater emphasis on non-physical capital goods, particularly the entrepreneurial potential of the investors or the managers of the business Secondly, the success of small-scale business projects depends heavily on the business environment, the infrastructure, the availability of critical inputs and the absence of discriminating factors These differences are more important than they are for large-scale industries because they determine the concept of project design and appraisal

Another difference is the smaller amount of money involved in small business investments This aspect must not be overlooked, as the cost of detailed project design and appraisal work would be too high in relation to the size of the investment and the benefits investors and finance institutions could expect from such studies Only when project data can be shared by a large enough number of similar projects does it become feasible for the parties involved, such as banks, promotion agencies and consultants, to base investment and financing decisions on detailed and reliable studies If such data do not already exist, the projects would have to be seen as pilot projects or studies, in which project data and subsector-typical success factors are assessed with a view to building up databases for the design and appraisal of similar projects in the future

1 Impact of the sociocultural environment

Sociocultural climate and entrepreneurship

The central and vital role of the entrepreneur is one of the main characteristics of small businesses, and there is no doubt that the entrepreneurial potential of a country or place is one of the key success factors for small business investments

Entrepreneurial culture and image

In practically all countries some entrepreneurial tradition can be found, be it in trading or manufacturing or both Where such tradition is little developed or where it has disappeared in the course of history, it is very difficult to build up the entrepreneurial potential Tradition is in many ways an important factor, particularly for the development of small enterprises Take, for example, Swiss watchmakers, Gablonz glassware makers or Indian producers of medical instruments, whose products are world famous as a result of entrepreneurial talent and motivation embedded in family tradition

Whether or not there is a pool of sufficiently talented local entrepreneurs depends to a considerable extent on the business climate and on how favourable it is for entrepreneurial activities The success of entrepreneurial activities is strongly linked with the image of entrepreneurship, the social status of the entrepreneur and

the adoption of management objectives and techniques appropriate to the socio-cultural milieu. Where entrepreneurial activities face constraints and are discriminated against, e.g. by legal regulations restricting them, as was and has been the case in centrally planned economies for several decades, the entrepreneurial potential is poorly developed. This situation usually exists together with a negative image of entrepreneurship. In some countries entrepreneurship is not seen as an option because society does not recognize it as a valuable, honourable profession. Quite often it is identified with making a profit, accumulating power and other predominantly materialistic and, thus, minor motives. Such an image prevents many potentially talented small businessmen from pursuing such a career.

In such a climate, it is unlikely that small enterprises (say, up to 10 or 20 employees) will grow into medium-sized operations (say, between 20 and 500 employees), which is a necessary development to bridge the gap between very small and very large manufacturing firms. Ethical principles for entrepreneurial behaviour, which in some countries are explicitly formulated and laid down in subsector-specific codes, will help to improve and maintain a favourable image.

It is interesting to note that the traditional individualistic belief that ethical principles are not only unnecessary in business but also impede success matches the negative image of entrepreneurship. However, the successful entrepreneur appears to contradict this negative image, according to an international small business research project carried out only a few years ago [11].

Two entrepreneurial aspects of investment promotion in the small industrial business sector should receive special attention:

- What is to be done to foster entrepreneurial careers?
- Which entrepreneurial tasks, including the preparation and evaluation of investment projects, are to be adapted to local cultural conditions and which not?

It may be assumed that the social components of management, such as behaviour, motivation and leadership, are particularly sensitive to cultural conditions. The technical components of management, such as the calculation of investment and other costs and finance planning, may be treated as indifferent to the culture (the universalist-culturalist controversy of Braun [21]).

Sociocultural environment and investment projects

The design and appraisal of investment projects, whether small or large, must not be limited to quantitative commercial, technological, financial and economic factors. Qualitative or "soft" success factors, such as those related to the sociocultural environment, need to be carefully assessed and included in the study. Particularly in the case of small business investments can factors such as tradition, family and tribal allegiance, customs, religion, art, law, know-how and ethics have a significant impact on the success of an investment [22]. The culture-dependent aspects of management, e.g. language and communication, which reflect history and tradition, can hardly be appreciated by outsiders [23]. Other factors that should not be neglected in a study are modes of perception and thinking that have been acquired since birth [24] and that can be only understood by one who shares similar experiences.

Other culture-dependent factors with possible impacts on the success of an investment project are traditional values, norms and attitudes [25] on such matters as time, performance and work, economic well-being, change and social relationships,

these values and attitudes are a consequence of a particular history, social structure and distribution of wealth, to name only a few of the possible influences

2 *Impact of sectoral and regional development policies*

Over almost three decades, from the 1950s well into the 1970s, industrial development efforts focused on the creation of large-scale operations The model that was adopted, particularly in eastern Europe and in the industrialized countries of the West, featured large, integrated plants, a multiplier effect and a spur to economic development was expected from these investments To business leaders, government planners and managers in the developing countries, this concept seemed the best way to catch up quickly, and technology and turnkey projects were imported with the expectation that they would stimulate other investments, including those for small and medium-scale businesses, and lead to rapid economic growth This strong belief in the unconditional advantage of large enterprises dominated until the 1970s Only a few countries recognized the role of small industrial business in their development policies

First attempts to create favourable legal conditions for the development of small industrial businesses were made in the 1950s and 1960s by some industrialized countries, such as the United States, the Federal Republic of Germany and Austria, and by a few developing countries, such as Bolivia, Pakistan and Indonesia

Promotional policies have been adopted for the small business sector to offset the weaknesses and strengths that are typical for this sector of the economy

- The equal treatment of small and large enterprises in administrative matters often leads to discrimination against the former, particularly in bureaucratic procedures such as tax and customs regulations, in access to public utilities and in access to financing and factory inputs [26]
- Development of the small business sector depends to a considerable extent on the appropriateness of the socio-economic infrastructure
- There is a strong case that the small industrial business sector has a greater employment generation effect than the large-scale sector [10]
- Evidence from a number of developing countries reinforces the point that small enterprises with less investment per worker tend to achieve a higher productivity of capital than do larger, more capital-intensive enterprises [28], industrial enterprises with 50-200 employees, often referred to as medium-scale industries, appear to come out best
- A characteristic of small industrial businesses is that they produce predominantly for the domestic market, drawing in general on indigenous resources Decentralized production for local markets would thus create employment and income in rural areas and could limit the rural exodus
- The more successful small firms are likely to grow larger, and in the process they serve as incubators, contributing to economic development
- Small industrial businesses use and develop predominantly domestic technologies and skills

From an overall economic point of view it can therefore be said that the small industrial business sector combines economic efficiency and low import intensity with a positive impact on job creation and income distribution

[10]Research shows that labour-intensity is from 4 to 10 times higher for small firms [27]

Promotional measures

Typical measures for promoting industrial investment projects are long-term tax and tariff reductions, generous subsidies and free sites or premises. In most developing countries, however, only large industrial projects benefit from such promotional measures, small industrial businesses are still trying to avoid discrimination or have it abolished. For instance, where the supply of raw materials, machines, parts, information, consultation and training is highly bureaucratized and centralized, small industrial businesses, which are typically located away from the centre, often find it very difficult to obtain the input necessary to operate their production units. Furthermore, they do not have administrative staff who know how to obtain information about government subsidies, tax exemptions, licences and other promotional measures. Research has proved that this is a serious problem for small businesses, even in industrialized countries [29]. Thus, those who provide business consulting and management services for small industrial enterprises, including the design and appraisal of investment or rehabilitation projects, will have to be acquainted with existing promotional measures. This holds true no matter what view they take of the overall effectiveness of the measures.

The most important administrative measures in business policy and promotion at this intermediate level of the economy are as follows:

- Providing incentives for investment, such as accelerated depreciation of assets, financing guarantees, grants and subsidized interest.
- Promoting innovation, including research and development of new or improved products and/or procedures, by, for instance, transforming loans into grants in case of failure.
- Creating and subsidizing socio-economic and natural science research institutions.
- Creating decentralized industrial and technological advisory boards and institutions.
- Creating and supporting cooperative ventures, in particular financing, marketing and purchasing cooperatives.

These instruments are used not only by industrialized countries [30] but also by most developing countries, having been recommended by international organizations [31]. Besides these rather common policy measures, some other instruments have been successfully applied in developing countries in recent years. Such instruments include encouraging subcontracting and providing training, information and technical services. Physical infrastructure is also sometimes provided in the form of small business estates [32]. Nowadays there is hardly a country that has not applied or at least tried to apply some of these instruments of small business promotion.

3 Competition and cooperation

For small businesses generally, cutthroat competition is not necessarily the most desirable environment. The promotion of cooperative elements and related institutionalization within a basically competitive setting has been shown to lead to an environment that is favourable for small businesses. Competition within such a framework is not merely a struggle for market share, because for competition to be economically beneficial, equitable starting conditions must prevail and must be

guaranteed and regulated by appropriate rules Such rules and regulations exist in even the most liberal Western-type economic systems In fact, the success and relative strengths of these systems seems to rest, in part at least, on a balanced mix of competitive as well as cooperative structures

4 *Small business dependence on institutional infrastructure*

Decentralized institutional support

Whether national or international, most measures to promote the development of a decentralized small industrial business would never reach their target without a decentralized institutional infrastructure The so-called *corps intermédiaires*, represented by various forms of professional associations, including chambers of industry and commerce, are the backbone of a developed institutional infrastructure for small businesses Besides complementing the governmental agencies concerned with sectoral and regional development, these professional associations provide services needed by their member firms, e g representation *vis-à-vis* government bodies, vocational education and training and consulting services, including marketing support They exist at various levels of the economy and should be consulted when opportunity studies at the subsectoral level are being prepared and appraised, because apart from their role in implementing development policies, they are usually also a valuable source of information Sometimes such institutions also provide financial support for the preparation and appraisal of project proposals and for the establishment of new firms

Often overlooked is the fact that decentralized small industrial businesses need decentralized support Little or nothing can be achieved, for instance, by centralized facilities for small business research and promotion, professional education and management consulting in regard to purchasing, marketing, founding a business or advising on taxes Particularly in developing countries, special efforts should be made to bridge the gap between small businesses on the one hand and public authorities and the supporting institutional infrastructure on the other [29]

Expertise and specialized skills are not usually as readily available in the small industrial business sector The entrepreneur in a small firm is frequently his own designer, finance manager, engineer, foreman, quality controller, assembler and service man One writer at the beginning of this century dubbed the typical entrepreneur "Mr Microcosmos" [7] Obviously, most entrepreneurs lack talent in at least some areas, so a supportive environment is of utmost importance for the success of small business

Consulting services

Because of the limited ability of an entrepreneur to solve all the economic and technical problems of the business, he or she must frequently turn to outside experts, for instance, when trying to improve training, production processes, organizational patterns and quality control Enterprises in the large-scale sector, by contrast, have their own internal experts in charge of the most important corporate departments (business planning, accountancy, personnel organization, research and development, finance, marketing, sales, purchasing, production), and these departments are sometimes further differentiated according to product group, profit centre or cost centre

5 *Resource requirements*

Small industrial businesses in most cases draw on indigenous resources for materials input, human resources and finance. The volume of resources required by individual small firms is, in general, considerably lower than that required by large-scale industrial operations, and such firms can utilize resources that would be insufficient for larger operations [11]. This consideration may be very important for the design of economic development programmes in countries with limited natural resources (mineral deposits, agricultural production, water resources etc.) and limited human and financial resources. Another characteristic of small industrial operations is that they require less capital investment per employee than large-scale industries and usually use less sophisticated and less expensive technologies [12]. The issue of appropriate technologies is not, however, limited to the availability and use of machinery or installations or licences but also includes the use of indigenous or imported equipment, raw materials and factory supplies, including energy, the need for national or foreign experts, infrastructure requirements, technology absorption and adaptation capacities, and, last but not least, the cultural, socio-economic and ecological impacts of the technologies, also in the light of development objectives and policies.

Human resource requirements

For small enterprises, human capital (and this includes entrepreneurial skills as well as well-trained, ambitious, motivated and reliable employees) is more essential for business than other forms of capital. The smaller an enterprise, the less emphasis there is on physical (or real) capital. More important are investments in social, human or intellectual capital, for example, investments in professional education and training. However, such investments also require a certain level of sociopolitical and economic infrastructure, for example, adequate constitutional and legal provisions as well as favourable economic, monetary and trade policies [35]. Important for small industrial businesses is a proper balance between physical and human capital.

The assessment of something as complex as human capital requires the analysis of factors such as the values and behaviour of key persons and the forms of organization. In the context of development it is particularly important that the educational system be capable of imparting the skills that correspond to business and technological requirements. The indicators that emerge from such analyses go beyond the classical factors of labour and capital, they include literacy, social security, democratic maturity and a tradition of collective bargaining. These indicators play a more important role in evaluating the sociocultural environment than does the value of investments in physical capital, especially for developing countries and for small industrial businesses in particular [36].

Financial resource requirements

Access to financing is one of the more serious constraints to the development of small business. While it is generally accepted that specialized small business credit facilities and appropriate credit guarantee systems are needed to cope with the

[11] The quantity and quality of natural resources, including energy, available at a certain location is generally one determinant of the size of a business. This is especially true in developing countries.

[12] The question of appropriate technology [33] for small industrial businesses and of technology transfer between industrialized countries and developing countries [34] has been the object of intensive research by engineers, scientists and economists since the late 1970s.

problems of lending to small firms, there is no universal model that can be applied everywhere. Government development banks and agencies play a greater role in developing countries than in industrialized countries, as was emphasized at the conference "Financing of Small and Medium-Sized Enterprises", held at Belgrade in 1988. This is true in India, which set up the National Equity Fund in 1987, and Nigeria, where the Government initiated a programme called Bank's Equity Ownership in Small Industrial Business, in 1988. Self-financing, especially in the form of retained profits, was found to be of "high" or, in some subsectors, of "very high" importance for small businesses [11]. Next in importance were short-term financing, bank loans and, to a lesser extent, suppliers' credits.

Even where banking and cooperative credit systems are well developed, the following forms of financing were found to be less important to small businesses than to large ones: *(a)* medium- to long-term financing from public institutions, loans from partners, equity from new partners, credits from or participation of employees and leasing and *(b)* short-term financing through bills of exchange, advance payments, subsidies and factoring.

6 *Market potential for small industrial businesses*

It has already been mentioned that small enterprises do not need large markets to be successful. One of their advantages is that they can operate in markets with only limited potentials, for instance, in highly decentralized local markets, in market segments not readily accessible to larger firms or in market niches. To achieve their marketing objectives despite limited marketing capabilities, small enterprises need competitive advantages. Such advantages will be easier to come by in home markets and when market size and other factors correspond to the size and capacity of the small businesses. In this context it is interesting to note that small businesses generally expand their activities when markets open up and become more easily accessible, that is, when roads and means of transport are developed. The correspondence between business size and market size and the orientation to local markets are confirmed by research [37].

Easier access to other than local markets may in some cases open up new business opportunities for small enterprises. However, exports to more distant markets are not typical for small industrial businesses except in the case of subcontracting or joint ventures, because export marketing requires highly specialized staff and therefore remains the domain of large enterprises. Exporting becomes a strategic option for small industrial businesses only if they can cooperate with larger businesses, suitable agencies, export houses, export cooperatives, export rings and the like or if they specialize in a certain product-customer target group.

7 *Strategic orientation of small industrial businesses*

Strategic orientation means thinking in terms of long-range objectives and then planning measures to achieve these objectives, while taking into account internal strengths and weaknesses as well as external opportunities, in particular market opportunities and threats [13]. The strategic orientation of management and of business decisions has been developed to cope with a rapidly changing business environment, as it is typical nowadays. If properly applied, it may be a success factor, and not only

[13] Such an orientation is known as SWOT (for strengths, weaknesses, opportunities and threats).

for large firms, it is, however, still rather exceptional for small enterprises Often, managers and planners think that strategic orientation is not desirable, assuming it diminishes flexibility

The question then arises, is strategic orientation a feasible management tool for small industrial businesses? Recent studies on this subject [11] confirm that in small business, written long-term plans are rarely a management tool, even though modern management theories strongly advocate such planning

One of the strongest arguments against formalized strategic planning in small businesses is that its costs are greater than its benefits On the other hand, there is wide agreement that some sort of planning, perhaps less formal, that takes a strategic approach is necessary for small enterprises, especially in rapidly changing business environments Furthermore, if adapted to the needs and potentials of small business, strategic orientation should increase rather than diminish flexibility and allow management to realize business opportunities and cope with future challenges [38]

E. Project identification, preparation and promotion

The need for pre-investment studies in the form of opportunity and feasibility studies is obvious for large-scale industrial investments, where project failures and the misallocation of resources would be very costly The need is less obvious for small investment projects, where the additional costs of pre-investment studies might be high in relation to total project costs This cost relation can be substantially improved, however, if the studies cover a number of similarly designed projects Multi-user opportunity studies would assess subsector-typical success factors, strengths and weaknesses, as outlined in part two, and could be drawn on when appraising individual investment projects, described in part three

The principal arguments for pre-investment studies for small industrial businesses are as follows

- Optimal allocation of resources
- Reduction in the failure rates of young enterprises
- Avoidance of unbalanced growth
- Project promotion with information for potential investors and financiers

1 Identification of business opportunities

The identification of business opportunities starts with the exploration of markets to determine market potentials (unsatisfied customer needs) Especially in developing countries, the idea of substituting imported products has been a starting point for many investment projects, including new plants as well as expansions of domestic production capacities Conventional economic arguments in favour of import substitution are that it alleviates pressure on the balance of payments, reduces international indebtedness, better utilizes resources, creates employment, enhances the formation of skills, promotes self-reliance, increases value added, diversifies production and improves economic structures

Such considerations are typically relevant at the sectoral rather than the enterprise level However, import substitution as a means of developing domestic capacities also has its limitations

- Consumer behaviour, e g traditional product preferences and demand patterns, is hard to change

- Trading patterns may be entrenched
- The necessary resources (raw materials, energy, skills and technologies) may not be available
- Trade liberalization, regional integration and exposure to larger markets increase competitive pressures

Additional opportunities and market potentials for small industrial businesses can be identified by taking stock of the following

- Unsatisfied local demand (local supply concept)
- Entrepreneurial potentials (personal capabilities, initiative, know-how)
- Possibilities for the introduction or adaptation of new technologies (technology transfer)
- Chances of exploiting personal contacts
- Benefits of business agglomerations or sector-specific industry clusters

2 *Project preparation and analysis at the subsectoral level*

Once an idea for a small business investment project has been born—by analysing external trade with a view to possible import substitution, by monitoring technical journals or by identifying customer demand—the next steps in preparing the project are usually taken at the sectoral or subsectoral level or for a limited geographical area. At this intermediate level, i.e. above the level of the individual firm, various institutions specialized in small business may assist in project preparation and analysis, quite often they are linked to business organizations or promotional agencies, universities or public organizations concerned with small business. Some promotional institutions are independent entities, most report to ministries. In developing countries, project preparation and various kinds of analyses are frequently carried out, by development banks, public agencies or ministries. Institutions for technological research and development, quality testing etc. are often found even at the subsectoral level.

Project preparation and analysis at the sectoral, subsectoral or area level, as described in part two of the *Manual*, will not only serve for the selection and promotion of investment projects but will also provide information and offer suggestions useful for a comprehensive small business research and development programme.

Objectives of pre-investment studies

To reduce the risks connected with project implementation, pre-investment studies should follow a systematic approach to project identification, preparation, promotion and appraisal. The first focus is on project preparation, with the identification of strategic objectives and project alternatives. The strategic objectives relate to major business decisions such as location, size and lines of production. Pre-investment studies also should delineate the organizational framework, including the managerial and technical functions, and should offer suggestions for the size and composition of the project team, supported by organization plans and time schedules. Most of these studies or other preparatory project activities include the determination of financial parameters and cost-benefit analyses of the project. For the project appraisal, it is important to consider external factors and overall sectoral

economic conditions as well as conditions at the enterprise level The financial analysis has to take into account all costs, present and future, including those at the pre-investment and project preparation stage, which tend to be neglected without such formalized activities The proper assessment of benefits must include estimates of future periodic returns

Pre-investment studies at the sectoral, subsectoral and area levels are instruments for the attainment of objectives that may be stated and defined in economic development plans Large projects frequently dominate in such plans, with objectives for small industrial investment projects tending to be less clearly formulated When several appropriate small industrial investment studies are available, the projects may be included in national development plans and budgets

Nowadays development policies recognize that a balance between small, medium and large enterprises is a stabilizing factor that leads to growth Thus, the promotion of small industrial investment projects is increasingly emphasized in development planning policies, and project objectives must be compatible with these policies

Data sources and instruments of analysis

The use of micro-, meso- and macroeconomic analytical methods to prepare pre-investment studies is always restricted by cost considerations With a view to containing costs, rough estimates and overall projections may have to suffice Data on subsector-typical average costs, cost differentials by region and so on might be used Such approaches can be supported by the development of data banks

Such data as time consumed per unit produced, by weight or volume, can also be derived from similar lines of products By using relative figures (percentages or ratios), problems of comparability caused by inflation and by different currencies can be avoided

When appropriate data are not available, they have to be obtained from firms or estimated by experts based on experience

As data banks are developed, data from ongoing or past projects will increasingly form the basis for projecting costs and revenues Such data banks need to be adjusted to take into account expected trends and changes caused by the impact of exchange rates, inflation, interest rates, labour legislation and so on The reliability, availability and verifiability of the data must be considered when they are used for project preparation and appraisal Data that will be published and used as indicators or standard data have to be generalized in order to comply with regulations that protect data Databases for small business projects need to include the following topics

- Entrepreneurial profile, key personnel and staffing
- Environment and institutional infrastructure
- Characteristics of subsector-specific locations and premises
- Market analysis and marketing concepts
- Production capacity, requirements for and availability of inputs
- Management functions organization, coordination and control
- Project implementation, phase management
- Availability of financial services, access to financing and financing terms
- Macro- and micro-economic project analyses and appraisal

Instruments and methods have to be chosen taking into account the target group, so they should be as simple and understandable as possible. For opportunity studies especially, alternatives have to be calculated with regard to potential changes in costs and by identifying likely cost ranges. For feasibility studies, regional costs may be available, if not, estimates can be based on the underlying opportunity study. The choice of a given alternative should be justified by clearly stating the criteria used.

Gathering data in structured worksheets and calculating and compiling them by a modified version of the COMFAR *III Expert* software[14] serves to increase the comparability of data and ratios not only for small business projects but also for medium-sized ones.

Scope of pre-investment studies

Pre-investment studies comprise both opportunity and feasibility studies. Opportunity studies, dealt with in part two of the *Manual*, normally relate to a number of projects and tend to be more general in their design than feasibility studies, dealt with in part three, which pertain to a given project. The form and content of opportunity studies are largely determined by the scope of the intended projects. The fundamental characteristics of such projects are the principal focus of this *Manual*, which applies to small projects. The *Manual for the Preparation of Industrial Feasibility Studies* [15], by contrast, focuses on medium- and large-scale projects.

Opportunity studies for small industrial investment projects can be prepared for geographical regions and for specified sectors. Unlike opportunity and pre-feasibility studies for large industrial projects, opportunity studies at the subsectoral level for small industrial businesses concentrate on factors typical for a subsector rather than on single projects. In their detail, comprehensiveness and reliability, however, they tend to resemble pre-feasibility studies for large industrial projects.

Opportunity studies thus differ with respect to overall scope, project size, level of concretion and complexity. Apart from support studies that deal with specific aspects such as markets, location, technology and resources, those differences do not affect the structure of the studies. They can, however, mean a change of emphasis.

Feasibility studies should provide all the information needed to realize a given project, including implementation schedules.

Types of opportunity study

Area studies deal with the overall development of a region without singling out a particular sector. They might refer to one (preferably homogeneous) region that is clearly circumscribed or to a number of regions of similar socio-economic and cultural features. Differences result from the size of the areas chosen: the smaller an area, the more specific and limited the opportunities for investments and projects.

Sectoral studies generally refer to a specific industry or a group of related industries. In the context of opportunity studies they concentrate on markets, human resources and technology- or raw-material-based opportunities for specific industries, as well as on the possibility of translating them into successful projects. Analogies derived from interregional or international sectoral or subsectoral comparisons need to be adapted to sectoral and regional conditions.

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[14]A user licence for COMFAR (Computer Model for Feasibility Analysis and Reporting) may be obtained from the Investment and Technology Promotion Division of UNIDO.

Support studies normally concentrate on a functional aspect. They frequently provide additional in-depth information at the regional or sectoral level. Cultural, socio-economic, market, resource and infrastructural conditions are typical subjects for support studies. The costs of such support studies are in most cases included in the overall cost calculation for an opportunity study. If studies with relevant data and information are already available, it might be possible to reduce costs for the preparation of opportunity studies.

3. *Institutional support*

The role of institutional infrastructure and information systems

For the preparation, appraisal and promotion of small industrial business projects, appropriate institutions are needed. The business data required for opportunity studies at the subsectoral level, as well as for individual feasibility studies, can be assessed and stored in subsector-oriented project data banks. They may be retrieved by authorized promotional agencies or by financing and other agencies working in small business development. Such institutionalized project data banks for small business development may be organized and maintained at the national, regional and international levels, with the assistance of international and national organizations, some of which have extensive experience in this field. As mentioned earlier in the *Manual*, the sharing of data will reduce the costs of pre-investment studies and increase the quality and efficiency of investment appraisal. In the absence of institutionalized data banks, information may be obtained from consultants, however, the cost of their services may be prohibitively high and may not be justified unless data can be shared by a number of similar projects.

Specific project data, particularly technological or technical data, may also be obtained through partnerships between cities, business associations and professional societies (non-governmental organizations). Within the framework of such partnerships, technical and managerial assistance, including professional training, is often provided for developing countries by experts who are only partly remunerated. These experts, often small business entrepreneurs themselves, may be members of so-called technical advisory boards, many of which have contributed significantly to the success of small business projects. Such technical advisory boards usually consist of entrepreneurs and representatives of research institutes, professional associations and professional education and training centres. Technical advisory boards usually help with technology transfer, solving technical problems, professional education, the development of skills, product quality management and the acquisition of machinery, tools, spare parts, raw materials or industrial supplies [39].

Of the institutions concerned with small business promotion in developing countries, non-governmental organizations play an important role, and their contribution to the small business sector probably exceeds that of multinational and national development agencies, whose technical assistance is still oriented towards large-scale industries. The non-governmental organizations assisting small businesses usually collaborate with national financing agencies, chambers of commerce and industry, or small business research and development institutes. They mainly use national management consultants and technical experts.

Project databases

This *Manual* tends very much to rely on earlier, similar cases that are well-documented and stored in the databases of UNIDO. The questionnaires contained in

part three have been designed to facilitate data assessment and access to information Data assessment and analysis requires expertise and is a crucial part of preparing opportunity and feasibility studies The more general the project, the more difficult the evaluation of the data.

Information obtained in the course of project preparation and project operation will influence development plans and will be an input into further planning This requires the systematic collection of data and information, since very little information on small industrial businesses is available, even in developed countries

Because it is difficult to make international comparisons and because there is no empirical proof of the greater labour intensity of smaller enterprises, further research on factor intensities and the productivity of different industries should be encouraged Two indicators, employees and equity capital, are discussed next In neither industrialized nor developing countries is it easy to collect data on employees many employees are engaged only part-time or are being trained, others are absent because of sickness or for other reasons Some employees work only when there is peak demand (entrepreneurs or family members, on the other hand, often work twice as many hours as normal) The costs of personnel, including the opportunity costs of entrepreneurs and family members, are often a suitable substitute for the number of employees in the calculation of labour intensity and other ratios Such a substitution facilitates inter-firm comparisons, since the costs of personnel are easier to determine than the number of employees Indicators should facilitate international and structural comparison, particularly as labour/capital and labour/output ratios are important parameters for investment decisions and the design of promotional programmes.

Another problem is the assessment of equity capital in small business For example, when capital intensities and related indicators are being calculated, the evaluation of hidden assets (reflecting, e g inflation and accelerate depreciation) turns out to be difficult, especially in the small industrial business sector The majority of firms are family businesses, where enterprise property and private property are not clearly separated and dual use is made of buildings, cars etc

In private enterprises, the evaluation of capital input (installations, machines, vehicles etc) at the actual market price is relatively simple for new investments In evaluating fixed assets as contained in the balance sheet, various methods are used to adjust book values to obtain more accurate replacement or market values Among the proper methods are revalorization by adjusting for accelerated depreciation and revalorization based on original purchase prices, insurance estimates or projected return on investment However, since capital indicators and capital input do not carry so much weight in a labour-intensive sector, the problems of evaluation should not be overemphasized

Promotion of investment opportunities

While small businesses will always and under almost any condition account for the bulk of all enterprises and provide some of the regionalized, decentralized or local supply needed in any country, it would be difficult for them to turn into professionally managed small industrial businesses without promotion, support or assistance However, continuous and stable economic growth can be achieved only when a fair number of modern, healthy and thriving small industrial businesses exist in a mix with medium and large manufacturing enterprises, providing a solid basis for self-sustained development.

Strong small industrial businesses catering for local, regional and domestic markets are less endangered by business cycles and structural changes in the economy

They develop a supply of skilled labour not only for their own purposes but also for other parts of the economy Some small industrial businesses even grow into large international operations, and if they can maintain their strong domestic position, their countries become less sensitive to the fluctuations of international finance On the other hand, entrepreneurs of small industrial businesses, especially if there is no entrepreneurial tradition, have to be given incentives and supported

To improve the chances of survival for small industrial businesses and, even more crucial, to stimulate the establishment of such enterprises, the following favourable conditions are needed

- Uncomplicated and appropriate legal facilities (e g the court system)
- An economic order (system) promoting ownership and access to self-employment
- Simple and modest tax and social security systems (tax laws etc)
- Regulations promoting cooperation while hampering monopolistic concentration
- Appropriate, that is, neither insufficient nor exaggerated, social and technical infrastructure, such as education, health systems, transport facilities and waste disposal
- Basic development of the institutional infrastructure (cooperatives, professional, management, education, training and research facilities, consulting services, credit and specialized financing institutions)

Identification of potential investors

Potential entrepreneurs often do not have enough equity capital at their disposal and have to look for business partners who want to participate in a venture financially but do not want to interfere in management

Opportunity studies at the subsectoral level can be a means of identifying potential investors and raising risk (equity) and loan capital It may be worthwhile to note that in industrialized countries small business entrepreneurs tend to look for capital, whereas in developing countries capital tends to look for entrepreneurs In an industrialized country, if someone wants to invest, say, $100,000, he or she will normally buy securities, stocks or shares in an investment fund rather than invest in a small- or medium-scale project In developing countries, on the contrary, because capital is relatively scarce, short-term profitability tends to take precedence over capital investment, with entrepreneurial objectives and long-term business development being less important

Consulting services for investors

Usually, the dependence of investors on consulting services constitutes a serious weakness For small industrial businesses, with the exception of technical assistance rendered by non-governmental organizations and Governments, local consultants may be a primary source of services In exceptional cases, international consulting services may be indispensable in the small industrial business sector, e g for joint ventures with partners from industrialized countries (see case 1 in the annex) In such instances, the most important service required by investors is the search for an appropriate partner

4. Cost and financing of pre-investment studies

Feasibility studies for large investment projects cost up to 3 0 per cent of the total investment, according to the *Manual for the Preparation of Industrial Feasibility Studies* In the case of small industrial business projects, however, the cost of preparatory activities, including a feasibility study and a project appraisal, could easily amount to more than the final investment costs

5 Feasibility studies for individual projects

Feasibility studies for small industrial business projects are available in exceptional cases only Accordingly there is little experience to show which criteria are decisive for small industrial investments For this reason, the questionnaires, worksheets and schedules in part three have been designed to systematize and facilitate the assessment and processing of the data required for sound investment decisions, in line with the concepts delineated in part two This should ensure that the information available to decision makers for small industrial investments will be as comprehensive as that for large industrial projects

Opportunity studies, if sufficiently comprehensive, should provide a sound basis for investment decisions, however the applicability of a study in a given case needs to be carefully scrutinized Because there is growing interest in international joint ventures, a feasibility study of that type has been included in the annex (case 1)

F. Suggested structure for pre-investment studies

1 Chapter I Executive summary

The executive summary should provide an overview of the basic project idea and objectives and the main results of the study, culminating in project appraisal, conclusions and recommendations The project description should contain the principal conclusions, in particular those relating to the entrepreneur and personnel (for instance, the need for training), the location of the business (for instance, an industrial estate), product and market strategies (for instance, concentration of efforts on one or a few products and customer groups), the choice of technology (high or medium), the size of the plant and the operation, the sourcing of material inputs (domestic or foreign) and financing in conformity with cash flow requirements

Project idea and objectives

A clear definition of the project idea and objectives is needed to enable a potential investor to obtain a quick understanding of the project and its basic characteristics, including costs and revenues and related cash flows and rates of return

Description of project

The project description should follow the outline of the study Factors that are pertinent and generally of importance for similar projects should be emphasized

The executive summary should have the same structure as the study

- Entrepreneurial profile and human resources
- The role of the business environment

- Location, site and environmental impact
- Market analysis and marketing concept
- Production process and input requirements
- Organization and controlling
- Project implementation
- Financial and economic analysis (economic evaluation at the subsectoral level only)

Conclusions and recommendations

The executive summary should also contain a final assessment of the project. As either an *ex ante* appraisal or an *ex post* evaluation, it should delineate the possible range of results and the conditions under which they can be achieved. The final assessment, conclusions and recommendations should be well explained and justified.

The macroeconomic appraisal should assess the compatibility of the project with external objectives and its potential to contribute to the local, regional or national economy, and it should also assess the extent to which government promotional policies are justified. Detailed pre-investment studies should emphasize appraisals at the micro level as a basis for the decisions of potential investors and entrepreneurs.

The final sections on economic and financial analysis of the project should contain brief recommendations on organizational design, risk management, cost schedules and detailed budgeting.

2 *Chapter II Entrepreneurship and human resources*

Because the human factor is so important in small industrial businesses, it should be given special attention in all types of pre-investment studies and for all projects in that sector. The main topics are human resource requirements and the availability of the necessary skills and talents, presented in the form of profiles.

3 *Chapter III The business environment*

It is also important to investigate the business environment and to assess the relevant policies and programmes and the institutional infrastructure. These factors are particularly important for the small industrial business sector because small-scale operations have certain disadvantages, constraints and deficiencies.

4 *Chapter IV Location, site and environmental factors*

In dealing with locational factors in pre-investment studies, there are cases where market analysis and marketing concepts should be given priority. But there are also good reasons to describe locational factors typical for the sector. A factor not to be overlooked is the preference of an entrepreneur and his or her family for a certain town, village, region or country. This preference may stem from a good knowledge of the local markets or the short distance to consumers or a similar advantage.

5 *Chapter V Market analysis and marketing concepts*

Chapters V deals with marketing, which comprises market analysis and the formulation and assessment of objectives and strategies, taking into account the relationship to supplies and production as well as organization and management.

6 *Chapter VI The production process and input requirements*

Chapter VI deals with production capacity and programmes, choice of technology, engineering design and investments, as well as the assessment of supply markets for all material inputs and services.

7 *Chapter VII Organization and controlling*

Chapter VII deals with the organizational activities necessary for managing and controlling the operation of small businesses. It covers the formal structure for controlling and reporting and the information system. It also addresses costing and budgeting from an organizational point of view, as well as questions of management style, which will be an important factor in organizational design.

8 *Chapter VIII Project implementation*

Chapter VIII refers to phase management (business preparation, setting up, growth, rehabilitation etc.), including all the particularities of cases like national and international joint ventures for cooperation projects, contracting, scheduling and budgeting.

9 *Chapter IX Financial and economic feasibility*

A pre-investment study must end with an analysis and appraisal from the financial and economic point of view. In opportunity studies at the sectoral level, financial and economic assessments are typically based on sector-specific ratios and indicators developed from former studies, statistics or other databases. In feasibility studies also, individual estimates are partly based on subsectoral data and partly assessed case by case. In this chapter, the critical "soft" or qualitative factors that can only barely (or not at all) be quantified have to be considered.

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PART TWO

Identification and analysis of investment opportunities: preparation and appraisal of projects at the subsectoral level

I. Opportunity studies

A. Objectives

The main objective of opportunity studies prepared in accordance with this *Manual* is to identify and promote investment projects in a particular subsector. Such studies should not be limited to individual projects but should draw up profiles of successful small industrial businesses, rating their strengths and weaknesses as well as the prerequisites for and constraints to the establishment and operation of viable enterprises. They should not be a theoretical exercise but should identify and define existing opportunities and conditions for success, providing complete information on markets, entrepreneurial input, locational conditions, the business environment and other factors affecting project implementation. The studies should investigate the prevalence of conditions for success and provide cost ratios and other project-related data, which can be used as input in any resulting feasibility studies. Accordingly, opportunity studies should be structured like feasibility studies, which are dealt with in part three of the *Manual*.

The subsector and the group of projects to be researched are selected either by the agency or by the institution concerned, bearing in mind, however, the industrial strategy and priorities set out by Governments in their national development plans. Opportunity studies should do four things:

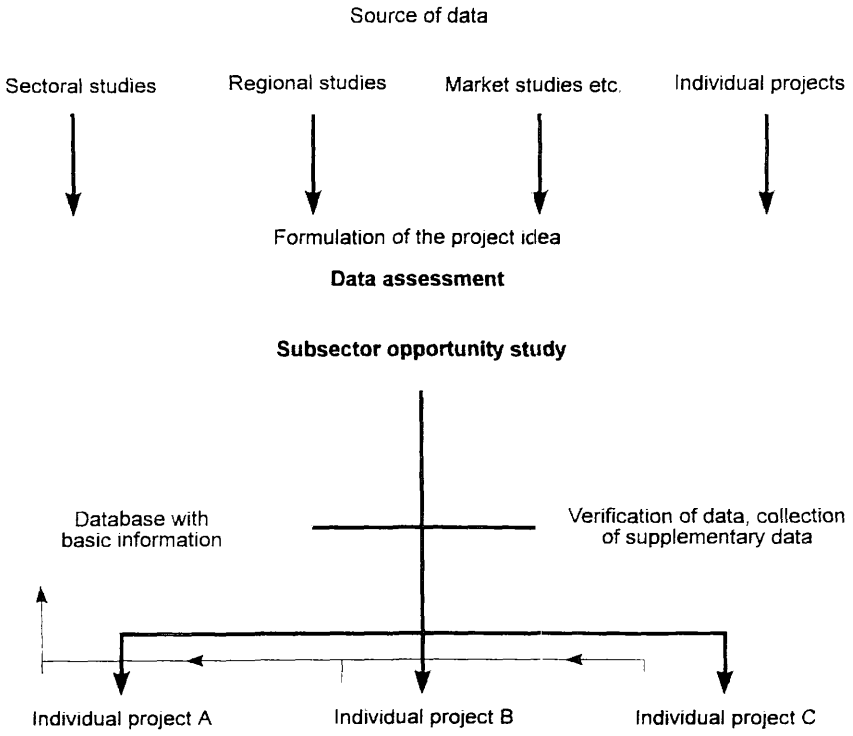
- Provide essential information on the subsector as a whole and on factors influencing the performance of projects, irrespective of whether the factors are internal or external to the subsector;
- Provide critical background information as well as specific data for each opportunity selected, with emphasis on subsector-typical factor inputs and project characteristics, including critical variables, risks, competitiveness, profitability and other conditions for success;
- Enable an entrepreneur or investor to select the single most attractive opportunity for further elaboration into a feasibility study. The feasibility study would only need to verify critical data and to assess project-specific data that deviate significantly from subsector averages;
- Lower the cost of preparing feasibility studies, as the information and data collected and analysed at the subsector level could be shared by a number of prospective investors and a number of similar individual projects. In other words, one subsector opportunity study would serve a number of feasibility studies.

The preparation of opportunity studies will reduce the cost of specific feasibility studies because much of the data required for the design and appraisal of the latter would already have been collected and stored in appropriate data banks and could be made available to investors at little or no cost. This would be especially important in the case of feasibility studies for small industrial projects, where cost

could discourage potential sponsors from sponsoring such studies However, institutions providing advisory services might charge for the preparation of an individual feasibility study, to partly recovering the expenses of an earlier subsector opportunity study and the building up of a data bank.

Specific investment proposals identified through opportunity studies could be included in national and regional development plans, as well as in promotional material issued by public and private institutions Figure II shows the position of an opportunity study within the flow of project related data and the process of project preparation.

Figure II. Subsector opportunity studies within the project cycle



B. Scope and contents

The scope of an opportunity study will depend on the size of the subsector in question and the number and heterogeneity of the projects falling within the subsector [15] There are also some external factors having an impact on the business conditions of a subsector as, for example, the general business environment. Therefore, the scope of a study usually will also have to consider external factors to the extent they could be critical for the success of the project.

[15]The structure of a subsectoral opportunity study is basically the same as that of a feasibility study, which was described in part one, section F

Agencies or institutions concerned with the preparation of opportunity studies for small- and medium-scale projects always face the problem that the time and cost involved in the preparation, analysis and appraisal of studies are too great in relation to the scope of investment. Furthermore, in many developing countries budgetary provisions for project preparation and appraisal are meagre, and scarce funds are used instead for large-scale pre-investment studies, while small industrial projects are not prepared adequately or at all. Efforts must be made to overcome this problem, since neglecting pre-investment studies could have serious consequences. Once prepared, an opportunity study should be continually updated to reflect developments in the subsector.

The lack of data, due partly to the lack of opportunity studies, renders the preparation of feasibility studies a costly exercise. The cost aspect is also reflected by the degree of accuracy of data assessment, the scope of field and desk research and the reliability of subsectoral data. Empirical studies are usually expensive to conduct, and when deciding on whether and to what extent empirical research should be included in an opportunity study at the subsectoral level, the cost element should be weighed against the anticipated benefits to be derived from such information.

C. Sources of data

In the case of opportunity studies at the subsectoral level, the primary sources of data will be published or easily accessible information, as well as data that can be obtained from private and public sources, such as statistics published by government agencies, publications of trade and industrial associations, and research institutions. Information may also be obtained from banks and the business community. Existing sectoral and regional studies or feasibility studies for particular projects may be another source of data. Data sources should be evaluated according to qualitative and quantitative criteria, such as method of data collection and processing, synoptic structure of data and cost of access. Some of these data sources may provide standard ratios applicable to specific subsectors which can be used for ratio analysis as part of the appraisal exercise. In any case, methods of collection and processing must guarantee that the data used in a study are reliable, representative and well defined.[16]

D. Institutional and consultancy services

While feasibility studies for small industrial business projects, probably with the exception of international joint ventures, are usually carried out by local consultants and public institutions, subsectoral opportunity studies are frequently prepared by a public development institution set up for the purpose of industrial promotion or by industrial banks, research institutes and other organizations working at the national and international levels.

It is clear that subsector studies prepared by these agencies are used for promotional purposes in that they provide essential information and data on individual projects to enable prospective investors to go ahead with a feasibility study and, in some cases perhaps, to take a decision to invest based on the opportunity study. Therefore, the participation of a prospective investor may not always be necessary at this stage.

[16]Such methods include proper sampling, structuring of samples, correlation and trend analysis. See also *Manual for the Preparation of Industrial Feasibility Studies*, annexes VI, VII and VIII.

E. Organization of work

Management of the preparation of opportunity studies at the subsectoral level comprises the organization and supervision of data collection, including the integration of information, data and expertise obtained from different sources, as well as the coordination of the work of experts. As a major objective, management deals not only with the provision of accurate information and with communication, data processing, forecasting and reporting but also with organizational matters, e.g. meeting deadlines and remaining within the budgetary limits.

The preparation of opportunity studies requires input from a team of experts, such as marketing experts, technicians and financial analysts. The teamwork usually needs to be organized under the leadership of an opportunity study manager, who will direct the work of the specialists. Depending on the complexity of the study, the responsibilities of the manager could be split among a number of project managers, each supervising the work of a single project within the group. In developing countries, there is a serious problem with finding qualified management staff and specialized experts. For this reason, resort is made to international expertise, including consulting firms. In this way, the problem is temporarily resolved. For a long-term solution, however, training and education should be attempted.

F. Data bank for subsectoral and project data

Opportunity studies in the small industrial business sector are designed to provide information and data that are applicable at the local level, in order to lower costs for ensuing feasibility studies and to provide sufficient support to local personnel who have to prepare individual feasibility studies. In the case of a particular project deviating from typical subsectoral and (sub)regional patterns, an opportunity study still does serve as a valuable background and source of data if such subsector-typical data can be stored in a data bank and then used for other opportunity studies or related purposes. Consecutive feasibility studies will not only draw on this data bank but will also enrich the data bank by reporting additional local data. Thus the data bank will constantly grow and develop the more it is used.

G. The executive summary

The executive summary of an opportunity study at the subsectoral level should be a concise abstract of the entire study, pointing at subsector-typical project characteristics, such as typical successful strategic options and key success factors and their relative importance, representing the basic requirements of small industrial business. The summary should also refer to the current business environment (scenario) as related to a subsector and given locations. The executive summary should evaluate the impact of business conditions and expected developments in a subsector. The following structure should be observed when preparing the executive summary of a study:

1 Project idea and objectives

The summary should provide the following in a concise and clear form

- The basic idea and objectives of the project, such as import substitution and reduced dependency[17]
- The facts, figures and assumptions considered significant for the appraisal by decision makers
- Overall sector-specific information with regard to country, region, socio-cultural and technical aspects, as typical for the business sector

2 Description of the project

The executive summary should describe the main aspects as dealt with in the individual chapters and highlight what is typical for the subsector or sector To facilitate the verification of data, conclusions and recommendations, references should be made to each chapter and its supporting annexes The structure of the summary should correspond to the structure of the study itself and of the *Manual* entrepreneurship and human resources, business environment, location, site and environmental impacts, marketing analysis and output planning, production planning and input requirements, organization and controlling, and project implementation, followed by an overall financial and economic analysis of the project, recapitulating essential aspects of the overall feasibility

3 Conclusions and recommendations

At the subsectoral level, data assessment, project appraisal and recommendations should be geared not so much to the implementation of an individual project but should serve to promote a number of similar small business projects, with a possible multiplying effect in the long run Standardization and schematization should therefore always be maximized to enable easy access to the results As far as planning, references and suggestions for promotion are concerned, a division into target groups or stakeholders should be considered, because entrepreneurs, joint venture partners, banks and institutions set up for promotion have different ideas and draw different conclusions Therefore, the executive summary should consider these individual criteria

[17]For instance, the reduced dependency, not only of a single enterprise but of the entire economy, on the import of certain moulds and tools vital for production

II. Entrepreneurship and human resources

Introduction

One of the main characteristics of the small industrial business sector is the decisive role the entrepreneur has with regard to the success of the enterprise, which means that the feasibility of an investment depends very much on the entrepreneurial and managerial capabilities of the person or persons responsible for a business. Therefore, it is important for the opportunity study to identify and assess those entrepreneurial and managerial characteristics that are typically relevant for the successful operation of a small industrial business in a given subsector. Various concepts have been proposed to describe and qualify entrepreneurial potentials, strengths and weaknesses. This *Manual* adopts a concept for assessing entrepreneurial values and success potentials that has been tested empirically in a study on the strategic orientation of small-scale businesses in eight European countries.[18] The questionnaires contained in the appendix to chapter XII allow the assessment of subsector-typical profiles of entrepreneurial skills and attitudes required for a successful business operation. Although the entrepreneur can be considered the centre of activities, quite often he or she will rely on a few key persons whose skill requirements are assessed using the same questionnaires.

The entrepreneurial functions and forms of entrepreneurship, including family business, were discussed in part one, section A. The present chapter explains the background and assumptions underlying the questionnaires to allow interpretation of the data collected and assessed. It covers entrepreneurial and managerial requirements, other human resource requirements (staff, workers), the determination of training needs and typical cost structures of human resources.

A. Entrepreneurial and management requirements

Entrepreneurial and managerial talents, apart from professional, technical and commercial skills and experience, are essential for the success of any business venture, whether undertaken alone or with a partner. This holds true for small industrial businesses in developing as well as industrialized countries. When preparing an opportunity study it is necessary to identify such subsector-typical requirements as a basis for assessing the entrepreneurial and managerial qualifications of individual investors. These subsector-dependent and most probably also country-dependent entrepreneurial profiles will then be the yardstick for the appraisal of individual persons and their projects, applying the concept presented in part three of the *Manual*.

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[18] Austria, Belgium, Finland, France, Germany, Netherlands, Switzerland and United Kingdom of Great Britain and Northern Ireland.

Recent findings of entrepreneurship research about the characteristics of entrepreneurs and related success criteria have been taken into consideration in designing the questionnaires on entrepreneurial profiles. Flouting the widely held view that entrepreneurial characteristics are not to be generalized in cross-cultural terms [1], the *Manual* proposes to apply a standardized set of criteria to derive typical profiles of entrepreneurs based on attitudinal aspects and values, as determined or reflected by different sociocultural backgrounds. The proposed typology of entrepreneurs, based on measuring values and attitudes on the more deeply rooted spiritual forces or talents, appears to be a sufficiently effective method, particularly on the opportunity studies level, for determining entrepreneurial requirements. The characterization of typical entrepreneurial requirements will be of help on the feasibility study level in assessing individual entrepreneurs and identifying management training needs. This approach is backed by empirical results from international entrepreneurial research carried out in eight European countries, focusing on the strategic orientations of businesses [2].

1 Types of entrepreneurs

The instruments developed to obtain a better understanding of the personal strengths and weaknesses of entrepreneurs allow their behaviour to be assessed with regard to its creative-dynamic or administrative-executive characteristics, based on which typical entrepreneurial profiles may be obtained for the various subsectors. Such profiles constitute valuable indications for feasibility studies, as described in part three of the *Manual*.

The four types of entrepreneurs, tested successfully in the STRATOS study [3], are as follows:

- The all-rounder, with both strengths mentioned above
- The pioneer, with dynamic-creative strengths
- The organizer, with administrative-executive strengths
- The *routinier*, with no special strength but going by acquired experience and inherited capital

This finding is based on a comprehensive questionnaire with 85 value statements, by factor analysis, the number of questions had been reduced to 12.[19] Four value- or attitude-based types of entrepreneurs emerge:

- The typical pioneer, who strongly disagreed with these statements:
  "Changes in business should be avoided at all costs."
  "A firm should not leave the region where it is established."
- The typical organizer, who agreed or fully agreed with these statements:
  "Jobs should be clearly described and defined in detail."
  "Firms should plan rather than follow their intuition."
- The typical all-rounder, who combined the attitudes of both types, the pioneer and the organizer
- The typical *routinier*, who behaved in an undecided manner and was neither a pioneer nor an organizer

[19] See questionnaire II-1

The statement, "firms should only introduce proven office procedures and production techniques" can serve as a control question. Typically, organizers and *routiniers* agree, pioneers disagree and all-rounders are undecided.

This typology can be useful in identifying personal constraints to entrepreneurial success in a subsector. It can also identify typical success potentials and show how to improve such potentials in order to promote small industrial business development by posing questions such as the following:

- Which personal profile is typical for entrepreneurs successful in a given subsector, and which talents and behaviour are typical?
- If enterprises in a given subsector do not perform well, which basic talents would need to be developed, and how can personal profiles be improved?
- How can training and job counselling be directed?
- Can models of cooperative leadership be recommended?

2 *Entrepreneurial qualifications and abilities*

Various concepts have been proposed to assess entrepreneurial qualifications and abilities. The most recent approach, also adopted here, is based on the correlation between entrepreneurial values and success in business, as applied by the STRATOS and INTERSTRATOS projects in Europe [4].

A similar concept developed by the St. Gallen Business School, Switzerland, evaluates an attitude called "willingness to change and to innovate", using indicators such as risk-taking, intuition, dynamic behaviour, initiative, decisiveness, courage and opportunity-seeking. Ideally, the successful entrepreneur would show a moderate profile in which extremes are avoided. It can also be expected that the profiles of qualifications and abilities are typical not only of successful entrepreneurs but also of different subsectors. If typical profiles are available, potential entrepreneurs may be evaluated against them, allowing personal strengths and weaknesses as well as training needs to be identified and thus increasing the success potential of small business projects (see questionnaires II-2/1 and II-2/2).

Another approach addresses strategic orientation, planning and administrative aspects. For example, McClelland Management Systems International and McBer and Company use 67 behavioural indicators, representing entrepreneurial potential, as reflected by specific Personal Entrepreneurial Characteristics. Of these 67 indicators, the most typical are opportunity-seeking, information-seeking, persistency, risk-taking, demand for efficiency and quality, goal-setting, systematic planning and monitoring, persuasion and networking, and self-confidence. These indicators have also been tested and validated on a selective cross-cultural basis country by country.

A more pragmatic approach than the typification described above is used by Austrian bankers for assessing the strengths and weaknesses of entrepreneurial and leadership behaviour in persons applying for business start-up credits. Emphasis is put on manager-employee relations, which if excellent represent an essential strength in small industrial enterprises but if inadequate can easily become a severe weakness. This approach concentrates on the assessment of entrepreneurial self-image and staff relations.

Several qualifications and abilities are assessed:

- Entrepreneurial skills and involvement, such as the following:

  The ability to consider in advance the consequences of actions for the whole enterprise and to include cost-benefit considerations when setting up business objectives

The readiness to act in the interest of the whole enterprise and to make personal skills available to the firm at any time

- Staff development
- Employment of staff according to talents and skills
- Motivation of staff
- Formulation of objectives
- Staff information and communication
- Readiness and ability to delegate
- Readiness and ability to coordinate and supervise
- Staff assessment, recognition and critique
- Staff relations and cooperation

3 Assessment of human success factors

Assessment of entrepreneurial values

Questionnaire II-1, on entrepreneurial values and attitudes, is based on the correlation between personal orientation, as represented by values, and success as an entrepreneur Results obtained from empirical research suggest that personal entrepreneurial characteristics also depend on the social and cultural environment [5] Therefore, it is important to assess subsector typical data for a country or region before using the value and behaviour profiles to evaluate individual projects

Assessment of entrepreneurial behaviour

Questionnaire II-2/1[20] is used to obtain subsector-typical profiles for entrepreneurial talents and behaviour (creative-dynamic vs administrative-executive) in accordance with the typification of entrepreneurial behaviour On the level of the opportunity study, this profile of entrepreneurial behaviour will be assessed for comparable enterprises, to obtain a good understanding of the talents and behaviour typical of successful entrepreneurs These profiles will then be the basis for assessing individual entrepreneurs, as outlined in part three of the *Manual* The data will also serve to give a better understanding of the entrepreneurial requirements that are typical for a subsector However, when applying this concept, it should always be borne in mind that a person will usually not be a pure all-rounder (dynamic-creative and administrative-executive talents) or a pure pioneer type (dynamic-creative strengths) or an organizer (administrative-executive strengths) or a pure *routinier* (no special strength, but going by acquired experience), instead, one or the other talent may dominate If such entrepreneurial characteristics are found to be a success factor in a given subsector, a person having the required talents is more likely to establish and run a small business with success than a person with a profile clearly deviating from the requirements

[20]Questionnaire II-2/2 contains the same items as questionnaire II-2/1, except that it is used to carry out a self-evaluation rather than a general evaluation

Assessment of personal professional background

When used in relation to subsector analysis, questionnaire II-2/2, on the personal background and general qualifications of entrepreneurs, will provide statistical data on the correlation between professional experience, family involvement and business success. Once sufficiently accurate data are available from a representative sample, the use of this questionnaire will add to the reliability of the evaluation of an individual's entrepreneurial potential and the probability of business success.

B. Sociocultural differences in entrepreneurial characteristics

It is not surprising that the characteristics of successful entrepreneurs are not the same in different sociocultural environments, although some fundamental talents and behaviour are probably very much alike. The differences have to be taken into account when comparing entrepreneurial profiles drawn up in different countries or regions. Entrepreneurial profiles differ, for example, from the United States to Continental Europe.

1 Comparison of entrepreneurial profiles in Continental Europe and the United States

In Europe, the small-scale entrepreneur typically has a dominating attitude and strongly identifies himself or herself as the owner of the business. A strong family orientation can be observed, combined with an emphasis on tradition and continuity, the firm is the entrepreneur's "castle". The European type of entrepreneur, particularly in small businesses, largely represents the "centre of activity" in a comprehensive sense.

This means, for example, that cooperation with other enterprises and interrelationships between entrepreneurs and institutions such as research institutes are, in general, little-developed or non-existent. Banking services, including advisory services, are more substantial, comprehensive and readily accessible than in the United States, and legal arrangements and procedures are relatively straightforward and probably less complex and cumbersome. In Continental Europe, particularly in the small business sector, there is a tendency towards more pronounced public and institutional interference in business, through regulations often combined with incentives, e.g. subsidies.

For the small business entrepreneur in the United States, the identification as the owner of a business is, in general, less prevalent than for the European counterpart. The enterprise is, rather, considered a vehicle to earn income and to get rich, preferably quickly, therefore, growth orientation, combined with a greater readiness to accept risk, is rather typical. The entrepreneur in the United States is quite amenable to going public and to selling a part of his or her equity, or even the whole business, in good time. This entails mobility and, typically, emphasis on short-term outlook and strategies rather than on continuity. The role of the entrepreneur is more venture-oriented as distinct from management-oriented, i.e. in the United States a manager typically takes over after the innovative and ground-breaking initiative of an entrepreneur has shown an interesting success potential. In contrast to European entrepreneurs, United States entrepreneurs are more open to cooperation with, for example, research institutions and universities, which for their part strive to reach out to the business community, trying to get involved in promising businesses.

Banking services and advice, on the other hand, are comparatively lacking and in general less professional, leaving this role to be taken on by a venture capitalist. Compared to Continental Europe, legal aspects and arrangements are rather complex and the procedures lengthy, voluminous and costly. On the other hand, entrepreneurs in the United States face relatively little public or institutional interference with their business, which means less regulative influence but also fewer subsidies.

These differences are summarized in table 4.

Table 4. Comparison of entrepreneurial characteristics in Europe and the United States

Europe	*United States*
Strong ownership identification (family-oriented, with emphasis on continuity and long-term perspective), *Herrenhaus* notion, firm as entrepreneur's castle.	Ownership identification less prevalent; enterprises (especially small firms) seen as a means of getting rich, preferably quickly. Thus, more growth and venture- or risk-oriented, with a willingness to go public and sell off parts or whole in good time, emphasis on mobility and, typically, on short-term outlook and strategies rather than on continuity
Particularly in small businesses, the entrepreneur is the centre of activity	Role of entrepreneur more specifically venture-oriented, as distinct from traditional managerial functions. The manager typically gets into the act after innovative/ground-breaking initiatives by the entrepreneur
Few, if any, links between (small business) entrepreneurs and universities or related institutions, with concomitant underutilization of potential innovative resources and know-how	Widely established, lively and quite natural links between entrepreneurs and research institutions/ universities, which for their part strive to reach out to the business community and try to get involved.
Banking services and related consulting and advice more substantial, comprehensive and readily accessible, legal arrangements and procedures relatively straightforward, less complex and cumbersome.	Banking services and advice less readily available and less professional, with this role typically being taken on by the venture capitalist. Legal aspects and arrangements rather complex, procedures lengthy, voluminous and costly
Tendency, especially in small business, to more pronounced public/institutional interference, regulations and related setting of conditions (linked, in part, with subsidies)	Relatively little public/institutional interference or regulative influences and practices, also fewer subsidies.

2 *Intercultural comparison of entrepreneurial characteristics*

While profiles of entrepreneurial characteristics cannot be easily transferred from one sociocultural environment to another, it is still possible to apply the concept of questionnaires, provided the entrepreneurial characteristics and success factors can be related to three things *(a)* personal motivation and values with regard to the business as such, *(b)* personal attitudes and behaviour with regard to entrepreneurial and management functions and *(c)* management principles and instruments.

Personal motivation

The motivations of entrepreneurs for establishing a business (one of which, for example, would be creating wealth and personal development) is one of the topics most frequently addressed in recent literature from entrepreneurship research. With

regard to the motivations of small business entrepreneurs, considerable differences have been found [6]

Entrepreneurial attitudes and behaviour

When comparing the entrepreneurial attitudes and behaviour of persons coming from or working in different sociocultural environments, it is first of all important to differentiate between entrepreneurial and managerial functions as such and the entrepreneurial and managerial attitudes and behaviour that are typically successful in a given sociocultural environment and in the subsector under investigation Here again the typification by entrepreneurial creative and administrative talents will be useful for identifying the entrepreneurial profiles best suited for given sociocultural environments

Management principles

When comparing the application of management principles and instruments, researchers usually distinguish between the technical or operational aspects of these principles and instruments on the one hand and their social aspects on the other [7] The first group comprises, for example, the corporate image, the aims and fundamental strategies of the enterprise, planning and organization, information and innovation, marketing, financing and accounting, purchasing, storage, production and external assistance The social aspects of management comprise personal attitudes, motivation and leadership behaviour, particularly with regard to personnel administration, guidance of staff and participation of staff [21] The technical aspects of management principles and instruments are, in general, invariable and valid for different sociocultural environments However, their social components depend very much on sociocultural factors and vary greatly from country to country, even within countries, management principles and instruments may have to be adapted to different social environments (urban-rural, highlands-lowlands etc)

C. Human resource requirements

Assessing human resource needs, particularly entrepreneurial or management requirements, is very important for small businesses, because for them qualified staff and workers are the main resource in contrast to large industrial businesses, which are typically characterized by higher capital intensity Entrepreneurial and managerial requirements have already been discussed, and subsector-typical entrepreneurial profiles, including success factors, may be assessed using questionnaires II-1 and II-2/1 and II-2/2 In many countries, an entrepreneur or general manager may need to provide proof of qualifications in order to obtain approval from the authorities for establishing a business If there are such requirements (e g certificates or licences) for establishing or operating a business, these requirements should be included in the profiles of requirements

Besides the success factors related to entrepreneurial and managerial functions, there are a number of success factors related to the employees of an enterprise

[21] There are three types of participation participation in decision-making, equity participation and profit-sharing

responsibility, carefulness, diligence, loyalty, job discipline, punctuality and reliability are particularly important for small industrial businesses.

If not already available, profiles showing the required skills of qualified staff and workers should be developed. These profiles should also describe the possible forms of professional education and training. Quite often it will be difficult to find staff and skilled workers with the required qualifications. This gap between required and available skills occurs not only in developing countries but also in industrialized countries.

Requirement profiles are needed for key personnel and may be prepared by job category (e.g. senior administrative staff, foreman, salesman, apprentice) and by profession (e.g. electrician, mechanic). The profiles would also be useful for differentiating salaries and wages by specifying responsibilities, special skills required, job hardships, job-related impacts on cost of living etc.

Examples of job categories are as follows: entrepreneur, general manager, administrative staff (senior, junior/assistant, clerk etc.), technician, sales force, skilled labour, apprentices and unskilled labour. Criteria for salary and wage differentiation include age, family status, education, professional background, expertise, duration of work with the enterprise, number of persons supervised, responsibilities, productivity, job-related hardships and job-related impacts on the cost of living.

Besides formal education and professional experience, a number of so-called secondary qualifications, such as the ability to communicate and cooperate, practical experience, self-reliance, ability to accept criticism and to be critical, are of great value for many small industrial businesses and may have to be considered when recruiting and employing people.

Of course, neither primary nor secondary qualifications nor working morale should be seen in isolation but should be assessed in the context of the requirements of the business. These qualifications have to be seen together with primary education, motivation, wage levels, unions and protective labour legislation.[22]

1 Subsector-typical job profiles of key personnel

Job descriptions, requirement profiles and job classifications, including salary or wage category, should be prepared in the course of an opportunity study, at least for key personnel. They can be referred to when appraising an individual project or an existing enterprise. Small enterprises, however, rarely use job descriptions, which are likely to become obsolete very quickly, simply because job patterns in small industrial businesses tend to be more dynamic and to require flexibility on the part of the incumbent.

Job profiles for key personnel should indicate their participation in the information and decision-making process. Table 5 shows how personnel are usually involved in the decision process and in the execution of decisions. Functions as well as qualifications are ranked according to their priority. (Organizational aspects are discussed in more detail in chapter VII.)

[22]This is illustrated by an Austrian-Mexican study showing that a combination of low educational level, low motivation, low wage level and strong unions results in a low rate of strikes but a high rate of theft and sabotage, which are seen as an alternative form of worker protest [8].

Table 5. Typical example of participation in the decision-making process[a]

Subject	*Entre-preneur*	*Family members*	*Adminis-trative staff*	*Technicians*	*Salesmen*	*Skilled workers*	*Apprentices and unskilled workers*
Strategic objectives	D, E	(D), E	P	P	I	I	I
Enterprise strategy	D, E	(D), E	P, I, E	P, I, E	I	I	I
Operational planning	D, (E)	(D), E	P, E	P, I	I	I	I
Accounting/ information	D, (E)	(D), E	P, E	I	I	I	I
Innovation/ development	D, (E)	P, I	P, I	(D), P, E	P, I	P, E	I
Personnel matters	D, (E)	(D), E	P, E	P, E	P, I	P, I	I
Financing and risk policy	D	(D)	P, E	P, I	P, I	P, I	I
Marketing and sales	D	(D), E	P, E	P, I	P, I	P, I	I
Procurement, storage, transportation	D	(D), P, E	(D), P, E	P, I, E	P, I, E	P, I, E	P, I, E
Production	D	P, I	P, I	(D), P, E	P, I	P, E	P, E

Key:
D Makes decisions
(D) Substitute decision maker
P Participates in decisions
I Provides information on which decisions are based
E Executes decisions
(E) Substitute executor of decisions

[a]Also see worksheet II-3

2 *Subsector-typical profile of personnel requirements*

To determine the overall personnel requirements of typical small industrial businesses, a functional personnel matrix (worksheet II-2) may be used to show the total of persons needed by job category and organizational function or unit This worksheet will also serve for the computation of subsector-typical costs of personnel

D. Availability of human resources

1 *Small business entrepreneurs and managers*

As far as entrepreneurial freedom and bureaucratic procedures and constraints are concerned, the economic system of a country has a major impact on the decision to start and run one's own small business Field studies carried out in various countries have come to the conclusion that quite often socio-economic conditions pit the small- and medium-scale business sector against the large industrial sector,

particularly in countries with less-developed economies. In countries with a favourable entrepreneurial climate, the number of small industrial business entrepreneurs and managers is increasing, particularly where incentives and other promotional measures are used to speed up entrepreneurship development.

Although studies at the subsectoral level will focus primarily on the assessment of typical entrepreneurial characteristics and behaviour as success factors in small industrial businesses, the various limitations and constraints to entrepreneurial development, together with other obstacles to subsector development, will be identified in the process of project design and appraisal.

2. *Key personnel and manpower*

Similarly, the problem of availability of skilled workers or apprentices can usually be solved in time, for example by making the subsector more attractive to young people after primary or secondary school or to immigrants. To assess the availability of key personnel and manpower, population forecast data are needed. The statistics should be differentiated by region and by age group, in order to produce a reliable quantitative base for assessing the medium- and long-term availability of human resources. Short-term availability in most countries can be determined from unemployment statistics. Experience teaches, however, that unemployment figures usually reflect the number of unskilled workers only, and this is not the category small industrial business needs most.

3. *Foreign personnel*

Except in the case of international joint ventures, differentiation between domestic and foreign human resources is less important for small businesses than for large industrial enterprises. When certain skills and foreign professional experience are required in a subsector, it is most likely for these to be acquired through employment or training abroad. It should be mentioned that persons with higher professional qualifications and experience also belong to the group of persons with entrepreneurial potential, and if the business environment in a subsector is favourable, many of them may establish their own small businesses. These enterprises are, as experience shows, the basis for the development of the so-called "missing middle" in developing countries, that is, medium-scale enterprises that employ 20-100 people.

E. Entrepreneurship development: training needs and related institutions

Entrepreneurial skills, comprising a person's overall education and skills in a vocational-technical sense as well as in the sense of business administration and personnel management, cannot be expected to develop from experience only, that is from what is called learning by doing. What is required is a dual vocational training system as has been created in several countries, for example Austria, Belgium, Germany and Switzerland. These countries have a long tradition in managing small business development. The vocational training system, which differs slightly among these countries, is termed "dual" because it is based on two pillars of education. One pillar is the workshop, where the apprentice is trained while being confronted with the business world, and the other pillar is professional education and training at

specialized schools [23] This approach can be adopted as a model for developing countries The training programme for the majority of the professions in question (food processing, textiles, construction, wood- or metalworking) is practically the same for trainees hoping to become employed and those hoping to start their own businesses (self-employment) This is true for all three stages of training, namely, apprentice training, higher professional training and entrepreneurial programmes, particularly where certificates or licences are needed to run a business This vocational education and training system also fulfils an important integrating social function, providing preconditions for social mobility and chances for advancement

Training centres for apprentices and employees are established and maintained within the development programmes of international and national organizations Unless established explicitly for the professional training of the personnel of small enterprises and linked to governmental or non-governmental organizations such as chambers of commerce or town or enterprise partnerships, these training centres have little impact on professional education in the small business sector, because their services are used predominantly by large enterprises

In an opportunity study, professional requirement profiles should be compared not only with the skills available but also with the system of professional education in the country and at given locations, if such skills are essential for a certain type of small business If requirements for formal institutional training in vocational schools or training programmes are identified, representatives of the subsector should be involved in the design of training programmes to assure that they satisfy practical needs and keep up with technological developments Without close contact with the enterprises, vocational schools and training programmes would fail to fill such needs and would lag behind technological change

With respect to the technical assistance provided by industrialized countries for the development of small industrial businesses in the form of training courses, it should be noted that not always are the most qualified personnel made available, because the industrialized countries themselves lack skilled labour Study tours for staff from developing countries to industrialized countries are another form of professional education and training However, creating conditions conducive to local training should be given preference, in order to avoid a draining of skills For identifying training needs, worksheet II-4 should be used

F. Human resource costs

When preparing an opportunity study at the subsectoral level, it is important to determine typical costs of staff and workers not only for projecting budgets but also for analysing the structure of manufacturing costs and assessing the commercial and financial feasibility of the various types of enterprise in a subsector If a small industrial business is particularly labour-intensive, human resource costs may be a decisive criterion for the choice of location, technology and production capacities As human resource costs will be assessed by category and location rather than by enterprise, the applicability of the cost data will usually not be limited to a subsector but will be applicable for any type of business that requires professional qualifications

[23] A third pillar of professional education is emerging in a number of subsectors, namely, apprentice training centres, which have been established in various countries to provide training programmes that impart special skills

In the determination of wages and salaries to be paid, the levels of local wages and salaries by job category will provide a suitable framework for further differentiation according to personal characteristics and job-related criteria. The job categories and criteria enumerated in section C of this chapter may be useful for projecting the costs of personnel.

The main sources of quantitative figures and indicators are accounting statements of existing enterprises, from which subsector-typical cost data may be deduced by comparing the figures from several firms. It is important to identify any deviations as well as the reasons for them.

To obtain statistically reliable data it is necessary to gather the data from a great enough number of small industrial businesses. Data and relevant background information may also be available from banks or other credit institutions, such as guarantee funds. Others that have access to the data needed are tax advisers, management consultants or development agencies and, last but not least, small industrial business research institutes, which are frequently in contact with professional associations and universities that collect and process data. A major problem for data assessment in the context of costs and net incomes of small industrial businesses is the absence of sufficiently detailed profit and loss accounts, frequently observed for this type of enterprise. An equally important problem is that the personnel costs of entrepreneurs, as well as of family members who are paid but not formally employed, are usually not included in the accounting statements or in the cost calculations of the enterprise. If these are not shown in the payroll of the enterprise, the missing personnel costs would have to be adjusted for; otherwise, production costs would be distorted as compared to companies where managers are employed, which is the case for large-scale industries and, sometimes, small industrial businesses. Therefore, it is quite common to calculate opportunity costs for entrepreneurs, if they are not on the payroll (as accepted by some tax authorities, e.g. United Kingdom) [24]

As far as other personnel costs are concerned, an enterprise should not base an investment strategy on the availability of cheap personnel, because in the long run and with the development of the economy, the qualifications and income levels of workers will rise.

The assessment of total personnel costs has to include surcharges on wages and salaries, such as fringe benefits, participation in training programmes and social security. After grouping and aggregating the costs of personnel, the costs should be related to the gross value of production before sales tax, and as such they are fairly independent of inflation and exchange rate fluctuations. If such indicators or ratios are not available from interfirm comparisons or from pertinent studies or projects, it will be necessary to develop corresponding manning tables.

For assessing and projecting the costs of human resources, use schedule II-1.

References

1 See I. MacMillan, *The Geo-Ethnic Differences between Entrepreneurs' Motivations to Start a Firm* (Pennsylvania, 1988).

2 E. Fröhlich and J. H. Pichler, *Werte und Typen mittelständischer Unternehmer* (Berlin, Duncker and Humblot, 1988).

[24] This has nothing to do with the return on equity paid to the investor, usually the entrepreneur and his partners in the business, which is discussed in chapter IX.

3 STRATOS Group, *Strategic Orientation of Small European Business* (Aldershot, Gower Publishing, 1990)

4 See European Institute of Advanced Studies on Management, *First Descriptive Results of the INTERSTRATOS Project,* EIASM Working Paper Series (Brussels, 1993) and STRATOS Group, *Strategic Orientation*

5 Fröhlich and Pichler, op. cit.

6 S Alänge, *What Motivates People to Start Their Own Business?* (Göteborg, 1988)

7 G F Braun, "Der Einfluß der Kultur auf die Unternehmensführung Der Kulturvergleich im Management", dissertation, University of Innsbruck, 1985 See also G Hofstede, *Culture's Consequences International Differences in Work-related Values* (Beverly Hills, Sage, 1990)

8 F Kolland, *Soziale Bedeutung des Technologietransfers nach Mexiko* (Vienna, 1987)

III. The role of the business environment

Introduction

The social and economic environment within which a business operates has a significant impact on the efficiency and the success of the operation At the same time, business activities also have an impact on their socio-economic environment, to a greater or lesser extent, which means that the business and socio-economic environments are interdependent This is particularly true for large-scale industries, which, owing to their relative importance for local and national markets, are usually more able to influence business environments in favour of their operations and do not always need to adapt their business to existing unfavourable environments Small, unaffiliated enterprises, however, have to cope with existing socio-economic conditions, so their success largely depends on how favourable the climate is for the establishment and operation of small businesses One task of a study at the subsectoral level is to identify and assess those factors, both supportive and constraining, that may have a significant impact on the success of small business in the subsector or in a geographical area with a relatively homogeneous business environment These aspects and endogenous factors for a country or region will then serve as a yardstick for appraising new investments or the rehabilitation of existing firms These endogenous factors also co-determine development policies and promotional measures for a subsector and thus will be valuable information for governmental bodies and agencies responsible for the promotion of regional and subsectoral development

General considerations of small business, entrepreneurship and the business environment were introduced in part one In this chapter a systematic approach is proposed for the assessment and evaluation of success factors typical for a subsector and related to the business environment The sociocultural environment and national economic development policies represent the framework for small business operations (the macro-environment) On this more general level, the study should identify comparative advantages and disadvantages, as well as incentives and constraints to starting, operating or expanding a small business in a given sociocultural environment and a certain subsector The empirical assessment of obstacles to developing small- and medium-scale enterprises, carried out in a number of developing countries, has shown that regulatory constraints, apart from limited access to finance and input constraints, are common in these countries Cumbersome bureaucratic procedures and difficulties with sales and income tax authorities, licensing requirements and procedures, labour regulations and relations with providers of public utilities were mentioned by most of the entrepreneurs interviewed, often these represented serious obstacles to the expansion of small businesses [1]

The assessment of the business environment for small businesses in general and for a given subsector in particular also considers the social status and acceptance of small business entrepreneurship, sectoral and regional policies and programmes on entrepreneurship and enterprise development, and the availability of a proper

institutional infrastructure to implement such policies and programmes Another aspect of the general business environment is the impact cooperative and competitive strategies could have on the success of small business operations

A. Assessment of the socio-economic environment

1 Stable business climate, privatization and deregulation policies

The development of small industrial businesses is linked to, and correlates with, a politically stable business climate that supports long-term commitments and gives entrepreneurs autonomy to make the decisions they need to make to conduct a successful business Only when there is sufficient "macro-economic stability regarding prices, fiscal and exchange matters" [2] are business conditions conducive for entrepreneurs to take on financial, market and technological risks Experience shows that the right balance between the public and private sectors, and between bureaucratic regulations and free, unregulated areas of business, is essential for the development of the sector Consequently, in many developing countries there is a trend towards liberalization of trade and foreign investments Deregulation, that is, the reduction of lengthy and complicated administrative and legal procedures to an absolute minimum, is another means of fostering the development of small businesses, which find it much more difficult than do large firms to deal with such constraints

Another important aspect of the economic system, as determined by a country's constitution, is the attitude of a society towards property that is, whether private property is tolerated, permitted or promoted and what legal organizational forms apply to domestic and foreign investments, licensing agreements and joint-venture contracts Moreover, the legal framework regarding liability, arbitration and bilateral or multilateral treaties with other countries has to be examined to assess the opportunities and risks connected with a project

Any measures taken by a country to create and maintain a favourable climate for small business, including entrepreneurship development, should be assessed in view of their impacts on subsectors and regions Questionnaire III-1, on government policies and programmes, serves to assess how significant such policies and programmes may be for the success of small businesses, for the assessment of capital regulations, taxes, duties and allowances, worksheet III-1 should be used

2 Entrepreneurial culture and image

Important for small business and part of the entrepreneurial culture in a country are the customs and rules developed by professional associations and similar societal groups, such as the way contracts are established, rules on the forms of competition and cooperation and the organization of vocational education and training (apprenticeship, for example) At the subsectoral level the study should identify and evaluate the strengths and weaknesses of the existing entrepreneurial culture and their likely impact on the success or failure of small enterprises It is important to understand that a specific culture or business tradition could also have negative impacts, for example, if it hinders the innovations necessary to cope with market and technological developments

Empirical research also shows that the personal attitudes of the entrepreneurs *vis-à-vis* society in general, as well as *vis-à-vis* their families, customers and business partners, correlate with their potential to be successful as entrepreneurs [3]

These personal attitudes and behaviours can be described by profiles of the ethical or moral values practised by a person, which have been developed and tested on the basis of a representative sample for various subsectors in a number of European countries. Once data from a representative sample of entrepreneurial profiles have been collected from a number of countries and subsectors, it will be possible to assess the success potential of entrepreneurial and managerial characteristics for a given subsector. The elaboration and evaluation of such personal profiles can also be useful for partnerships, particularly in joint ventures where the partners come from different cultural environments.

Closely related to the entrepreneurial culture is the image or standing of entrepreneurship and entrepreneurs in a given sociocultural and economic environment, which has a strong impact on the development of small business. Where entrepreneurship has a negative image and entrepreneurs have to work under this handicap, the first step should be to improve the image.

A study at the subsectoral level should identify and assess the principles and rules guiding entrepreneurial behaviour, strengths and weaknesses, as well as the advantages and disadvantages of given entrepreneurial cultures and images in so far as they are significant for entrepreneurial success.

3 Entrepreneurship development programmes

In recognition of the need for the development of entrepreneurial potential in many countries, entrepreneurship development programmes are being conducted by national institutions, such as regional or local government, corporative or professional organizations, often in cooperation with bilateral or multilateral development agencies [4]. These programmes in many cases include free or subsidized consulting services and assistance in setting up small enterprises, including low-cost industrial sites and premises, financial assistance, marketing support (for instance, promotional activities for an entire subsector) and support for research and development work. Another equally important programme component is entrepreneurial education and training, particularly the upgrading and development of skills. The study should identify and assess the available programmes.

As entrepreneurship development programmes are normally institutionalized in one way or the other, their success depends largely on their acceptance by individual entrepreneurs. This may often pose a problem, because small business entrepreneurs tend to keep a mental and physical distance from institutionalized entities. It is therefore important that the agencies and institutions offering their services to small business are located close to their customers and that they market these services and programmes. The needs cannot be served if the development agencies are located in the central metropolitan areas only. Unless they are decentralized and located where they are needed, their impact on entrepreneurial development will remain limited [5].

B. Policy framework and constraints

The following areas of government policies and programmes usually have an impact on the performance of industrial subsectors:

- Labour market and labour protection
- Education, human resource development
- Consumer protection and other consumer-related policies

- Market organization, competition and market performance
- Cultural identity and development
- Sector development
- Regional development
- Economic development
- Industrial administration and development
- Development of innovative capacities, research and development
- Taxation and subsidies
- Foreign exchange administration
- Banking sector (credit availability and conditions)
- Trade and customs
- Transport and communication sector
- Energy sector (saving, conservation etc.)
- Environmental impacts

When the effect of policies at the national as well as the sectoral and regional levels is being assessed, attention should be paid to the weaknesses and constraints affecting the development and performance of small industrial businesses. The identification of such constraints might be more important than the identification of beneficial measures, because it would allow the development of project strategies to overcome the shortcomings [6] Typical weaknesses are discussed next.

1. Fragmented policies

Many of the policies on small businesses are fragmented instead of comprehensive. They are not integrated with development policies at either the national level or the sectoral level Such policy formulations do not have clear and long-term views of the role of small businesses In some countries, the frequent revision of small business policies reveals a degree of intuitive decision-making, perhaps even a lack of conviction about the role of the small business sector

2 Overprotection and overassistance

Some of the policies appear to provide too much protection or assistance to small-scale enterprises For example, India's policy of reserving a great many products for small-scale businesses tends to segment product markets and to reduce the element of competition not only for the protected sector but also for large firms It tends to freeze the industrial structure and inhibits the growth of firms beyond the protected size In Malaysia, some small industrial businesses have been provided with so much assistance that they may never develop any self-reliance, since the vital entrepreneurial role of the individual will be smothered by assistance programmes that are too comprehensive or too generous

External assistance should try to reinforce and supplement private sector initiatives An example of a policy that tries to assist small business but ends up being counterproductive relates to financial assistance In several countries, financial institutions are directed to set aside a certain percentage of overall financing for

small-scale businesses at subsidized interest. Experience shows, however, that this measure does not lead to adequate commercial bank financing for small businesses, on the contrary, it may help to impede the efficient allocation of funds. As a matter of fact, limited access to financing at terms small enterprises can afford is a typical constraint to small business development.

3 Domination of public administration

In a number of countries, business policies are formulated without the participation of the private sector, especially of small businesses. Consequently, their interests may not be sufficiently considered by small business advisory or policy formulation bodies, especially when these bodies are dominated by government representatives. The private sector should be also involved in policy formulation, because experience has confirmed that it can play an important and useful role in small industrial business promotion, especially where representative organizations of small businesses exist, able to promote their interests and to help their Government in formulating and implementing small business policies.

There is often, moreover, a wide gap between the small business policies that have been announced and the policies that are implemented. various guidelines for the promotion of small business are outlined in development plans, but they remain just words on paper.

4 Lack of policy balance

Even if a variety of policy measures exists in support of small business, there may be a lack of balance among them. Small business policy measures can be categorized as stimulative, supportive or sustaining. Stimulative measures aim at entrepreneurship development, whereas supportive measures help small business entrepreneurs to establish and run their enterprises. Such measures usually also include financial, marketing and technological assistance. Sustaining measures ensure the efficient and profitable functioning of small businesses and include measures relating to modernization and expansion. An analysis of small business policy measures in various Asian developing countries revealed that the measures focused on support activities, especially financial support, but neglected stimulative and sustaining activities.

5 Insufficient analysis of measures

Frequently policies on small business ignore or do not sufficiently take into account experience gained in other countries under similar conditions. There is a general lack of exchange of information and experience in small business development. Significant benefits could be achieved through regional cooperation. Exchanges of information and experience could be organized by bilateral and multilateral institutions.

C. Macroeconomic conditions

1 Monetary, fiscal and trade policies

For any investment project it is clear that one cannot ignore completely the risk associated with fluctuations in the value of money, nor can one ignore exchange

rate policy, monetary policy, interest rate policy and credit policy. One difference between small and large projects, however, is that such aspects are of relatively minor importance in small projects, since capital input is of secondary significance owing to the more modest capital requirements and the minor weight of capital cost.

As far as taxation policy is concerned, the most widely applied criterion for residency is the place the taxpayer is domiciled, citizenship and domestic or foreign ownership are of secondary importance. Also, national differences in income taxation systems must be considered. Continental Europe, for example, stresses the principle of taxation at the source, based on mutual agreements on double taxation. In other countries, the total income earned globally is subject to taxation, in which case tax paid in foreign countries is usually credited.

While external trade policy is generally less important (except for international joint ventures) for small businesses than for large industrial investment projects, since small businesses usually buy most of their material inputs on the domestic market, the impacts of duties and non-tariff barriers on capital equipment and other necessary imports should none the less not be underestimated or neglected when assessing projects at the subsectoral level. Experience has shown that even for very small projects, at least some foreign inputs are needed and that time and energy must be expended to cope with administrative problems and regulations, such as obtaining tariff reductions or getting import clearance and foreign exchange.

Also, different countries set up different kinds of non-tariff barriers to trade: quotas, certificates of origin, entry formalities and other bureaucratic procedures. As a rule, however, such requirements eventually affect overall project design and appraisal and should be kept in mind.

2 *Limits to import substitution*

Import substitution may be desirable but it has its limits. In any case, efforts to curb imports, whether to improve balance of payments and employment or to promote self-sufficiency or structural diversification, require careful monitoring and policy formulation with a view to macroeconomic conditions and measures. When assessing strengths and weaknesses, prevailing consumer habits and the availability of endogenous resources have to be kept in mind.

If import substitution is not based on local raw materials, energy or other natural resources and on appropriate labour and technologies, it is widely considered to be of little value. Therefore, the identification of investment opportunities with a view to import substitution requires an integrated approach. Any substitution strategy for small businesses should be accompanied by specific economic policy measures at the sectoral level. Promotional measures that are not primarily trade oriented, such as tax incentives, support to research and development and consulting or marketing support, are to be assessed with respect to their indirect impacts within the context of overall and sectoral trade policy.

Under a broader, more recently developed concept, that of the competitive advantages of nations, it is less important whether production is geared to the domestic market or to exports, a more important determinant of competitiveness is the existence of related complementary or supporting industries.

D. Competition and cooperation

As was pointed out in part one, cooperation is usually as important as competition for the development of small business, and probably even more important.

Cooperation is of particular relevance in opportunity studies at the subsectoral level. However, given a certain propensity to cooperate, two conditions must prevail before such cooperation can be realized.

- A large enough number of small businesses in the subsector
- Private ownership of businesses, combined with a sufficient stock of risk capital to assure entrepreneurial autonomy

The question then to be answered in an opportunity study is whether such conditions do prevail. Cooperation requires a network of professional associations and related institutions, which provide the necessary economic, legal and technical information and offer consulting and other services to members. Such institutionally backed forms of cooperation go beyond cooperation between individual enterprises and may constitute success potentials in all areas, from research and development through financing and marketing to procurement and manufacturing.

Inter-firm cooperation within a country as well as cooperation with entrepreneurs from other countries may foster business development. When entrepreneurs seek cooperation to expand and internationalize their business activities and to gain access to favourable supply conditions, for such cooperation to be successful both parties will have to benefit. Entrepreneurs, particularly those from developing countries, will try to benefit from advanced technologies, know-how and capital.

Conditions for a competitive and cooperative environment do not come about by themselves, they need to be nurtured and attended to. While competition is no doubt essential for a sound business environment, there must be rules that prevent discrimination, particularly against small business. Without such rules, competition may become economically destructive.

E. Assessment of institutional infrastructure

Assessing the institutional infrastructure for small business entails ascertaining the existence and regional distribution of any such institutions and the types and quality of the services rendered. The institutions relevant for the development of the small industrial business sector are the *corps intermédiaires*, which include professional and vocational associations and institutions. Their importance lies in their role as a kind of intermediary between national authorities and individual small enterprises. It is quite obvious that without them, most centrally designed political and promotional measures would never reach the more decentralized business structures. Such *corps intermédiaires* can be organized on a regional or sectoral basis, forming an interrelated institutional framework that individual entrepreneurs can turn to for advice, information, funds and services in several areas.

- Legal aspects
- Business administration and management
- Research and development
- Marketing
- Procurement
- Vocational and management training
- Technological aspects

Sector-specific research institutes, which usually have strong ties to universities or other entities of higher learning, have successfully provided technical

assistance in a variety of countries. These institutes should also be able to assist, if asked, in the selection of appropriate external expertise.

The assessment of the strengths and weaknesses of such services, with respect to availability and quality, form an essential part of an opportunity study. To cover all these aspects, questionnaires III-2 (importance of institutional infrastructure and cooperative environment) and III-3 (importance of information and consulting services) should be used.

F. Assessment of costs related to the business environment

Costs related to the subsectoral business environment, such as the cost of institutional services, are discussed in the respective chapters of this *Manual* (on location and site, marketing etc.).

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IV. Location, site and environmental impact

Introduction

The terms "location" and "site" are frequently used synonymously In this *Manual*, however, location means the general area in which a project is to be located and site means the plot of land on which it is to be placed An opportunity study at the subsectoral level determines and assesses typical locational factors and typical site requirements that may be significant for the feasibility of projects It is also essential to identify locational factors that could have a greater impact on small businesses than on large ones This chapter not only will refer to location and site criteria but will also take into account the environmental impacts of a project Manufacturing firms may emit noise, tremors, smells or polluted air or they may generate toxic and other wastes They may also affect their surroundings by virtue of the traffic to and from the site generated by customers and suppliers

After a brief introduction to locational aspects, the factors that determine the strategic objective, the site characteristics and the process of choosing a site and location making are discussed The results of the assessment of local factors and site characteristics are summarized in a requirement profile and a budget typical for the location of a firm or project is prepared

Many of the factors that influence the decision on location and site, such as human resource and market-related questions, business environment, production planning and choice of technology, are interdependent They will be discussed here only in so far as they affect the choice of location

A. Factors specific to small businesses

While the locational decision on small business investment projects will usually be dominated by either input- or output-related criteria, size-related differences also need to be considered One important locational factor for a small enterprise is the personal preference of the entrepreneur, another is the more limited availability of funds If all the business-related requirements can be satisfied by two or more alternative locations or sites, the personal tastes, experience and convenience of the entrepreneur may become decisive in the final choice Further, because of limited funds, small firms are dependent on the existing technical, environmental and economic infrastructure They are not able to create such infrastructure or to develop a site in the same way and to the same extent as large firms frequently do

The scope of search for a suitable location and site, will thus to some degree be limited by the know-how, the personal preferences and the personal connections of the entrepreneur or investors It will be further determined by the strategic orientation of the project, which is a consequence of its products or services Other determinants, as in large projects, are potential markets as well as production-related issues

B. Strategic aspects of the locational choice

The choice of a suitable location should be governed by those locational factors that could have a significant impact on the success of the project. Such factors, or key requirements, are usually oriented to resources (inputs) or markets (outputs). For small and medium-sized enterprises, in addition, the existence of related businesses within a geographically limited area can be decisive for locational choice. Typically, related businesses are concentrated in so-called agglomerations, or industry clusters, as well as in small business parks and industrial estates (figure III).

It is evident that the choice of a location has to be based on a combination of key requirements, not on a single locational factor. Only in rare cases will a single factor dominate the locational decision. Key requirements may be related, for instance, to the market and marketing considerations, to the availability of raw materials, factory supplies and services, to technical and technological project requirements or to the type of industry. A suitable location usually has to satisfy a combination of criteria, in particular those bearing on the strategic objectives of the enterprise.

The opportunity study should not go into unnecessary detail but should aim rather at an understanding of the background and relevance of the aspects identified. Since the key requirements vary from industry to industry, project analysts will have to use their professional skills to identify those requirements that are relevant in a particular industrial subsector.

C. Locational factors

Subsector-typical locational factors are linked to strategic orientations. They can be of different importance for assessing project feasibility for technical, economic, legal or personal reasons, related requirement profiles may be referred to, if available. Furthermore, the assessment of location factors has to take into account foreseeable developments and the possibility of factor substitution, including qualitative aspects, as well as related costs.

1 Input-oriented location factors

The choice of location will be input-oriented if the following considerations are critical for business success:

- Inputs for a project are available at a few locations only
- There is a need to contact suppliers of such inputs personally and frequently
- Suppliers are not willing or not able to deliver or provide services over greater distances

Typical input factors are as follows:

- Human resources (management, skilled and unskilled labour)
- Raw materials and supplies
- Technical services (maintenance and repair)
- Banking and other economic services (consulting etc.)
- Infrastructure services (waste disposal services, transport facilities etc.)

Human resources

The availability of human resources may be a major factor in deciding on location. In this case the availability of skills and of related training facilities has to be assessed from both the quantitative and qualitative standpoints (the cost of skilled and unskilled labour, including local or regional differences). A shortage of skills may be partly compensated for by appropriate training, supported by adequate and easily accessible training facilities.

Another aspect of personnel availability that may be important for the choice of location is the attractiveness of the location to key personnel and potential employees. The attractiveness of a location, as characterized by its overall image, by environmental conditions, by transport and communication and by social and cultural amenities, often becomes a factor in choosing a location.

Also, labour relations can be decisive. Particularly important is the prevailing work ethic, as reflected by absenteeism, strikes or labour unrest.

The following factors have to be considered.

- The labour market in the region, including the unemployment rate, wage levels and regulations on working time, holidays etc.
- Availability of skills, for instance, the existence of certain traditional crafts or industries in the area
- Training and educational possibilities provided by the State or the local community
- General working behaviour and organization of labour: work ethic, mobility, frequency of strikes, time employees stay with the same enterprise, organization and impact of trade unions etc.

Raw materials and supplies

The availability of raw materials and supplies can be decisive for the locational choice, particularly if the production process or limited storage capacity or special quality requirements call for frequent deliveries and close personal contacts. Such requirements can more easily be satisfied if there are several local suppliers, otherwise they would have to be backed up by more costly communication and transport arrangements.

The cost of transporting raw materials can be another important factor, especially if the quantity (weight or volume) of the raw materials processed is high compared to that of the final products. Also, firms that process perishable goods must be close to their suppliers. Essential factory supplies, such as auxiliary materials, electricity and fuel, can also be a decisive locational factor. Apart from the availability and costs of such supplies, the reliability, efficiency and capacity of the suppliers have to be considered. If sensitive technologies are used, the availability of certain necessary inputs needs to be considered. For example, a site that had only polluted surface water would not be a suitable location for an enterprise that needed clean (tap) water for cooling.

Technical services

Input-oriented technical services, although frequently a less important locational factor, include maintenance, regular check-ups and troubleshooting. Usually they are provided by the suppliers of the machinery (or, in the case of electronically controlled machinery, the software). If the suppliers are distant and not represented

locally, such services may become very expensive unless appropriate substitute services are locally available. However, the impact of the technical service factor on decisions about location depends on the frequency with which such services will be needed, technical service considerations will also influence the choice of technology

Infrastructure services

Infrastructure services include services usually provided by public authorities, for example, energy and water supply, sewerage and sewage treatment, waste disposal, roads, railways, ports and other traffic and communication systems (telephone, facsimile, telex, postal services etc), they are generally more readily available in urban than in rural areas. Deciding on a location or choosing between alternatives necessitates differentiating between those infrastructure services that are critical for the successful implementation and operation of a project and those that are not.

Infrastructure services should be assessed as to their reliability, quality and availability in adequate quantities and at reasonable costs. The following characteristics of the services need to be considered.

- Capacity of the systems (adequacy for future expansion)
- Reliability
- Efficiency
- Cost of installation
- Compatibility with technology in use
- Restrictions due to environmental considerations

Other business-oriented services

It is important for small businesses that services of adequate quality, such as banking, insurance, legal, consulting and auditing services, and services provided by forwarding companies and trading agencies, are available locally at a reasonable cost.

2 *Output-oriented location factors*

The choice of location will be dominated by output-oriented factors if an enterprise is market-oriented, that is, if its success depends primarily on its location with respect to its customers, be they other producers, wholesalers, retailers or end-users. The buying behaviour and demand patterns of customers may also be of importance. For enterprises selling directly to consumers, as small firms usually do, it is easier to establish personal contacts if an enterprise is located near its customers. If customers are spread over a large area, contacts have to be established by sales personnel or by telephone, facsimile or telex, giving a different weight to locational criteria. Other criteria apply in the case of services such as repair, maintenance and personal services, the cost of which tends to rise with distance and urgency.

The weight of output oriented criteria for locational choice depends on the importance of marketing strategies compared to that of other functional strategies. If factors other than output-oriented factors dominate the choice of location, the definition of potential markets or customer groups, as well as of specific products, prices, distributional and promotional strategies, will be strongly influenced by the

location of an enterprise (see chapter V) In such cases, however, it is important to find an optimal combination of functional strategies for the location under consideration

3 Other locational factors

The locational choice may be dominated by other than input or output-oriented considerations Some typical considerations for small businesses are as follows

- Agglomerations, which offer benefits in the form of contacts and mutual business relations
- Programmes to promote the establishment of businesses in business parks, business incubators or technology centres
- Regulations, which may constrain or even deter the setting up of certain types of businesses at a particular location
- Climate, topography and ecology
- The real estate market

Agglomerations

Some agglomerations are on a small scale (for example, business parks and industrial estates) Others, known as industry clusters, are on a large, regional scale An industry cluster is a concentration of businesses in the same or related sectors, usually catering to similar customer groups Frequently, agglomerations go along with a relatively well-developed economic and technical infrastructure Enterprises benefit from the synergistic effects and mutually reinforcing complementarities of such agglomerations (see figure III)

Promotional programmes

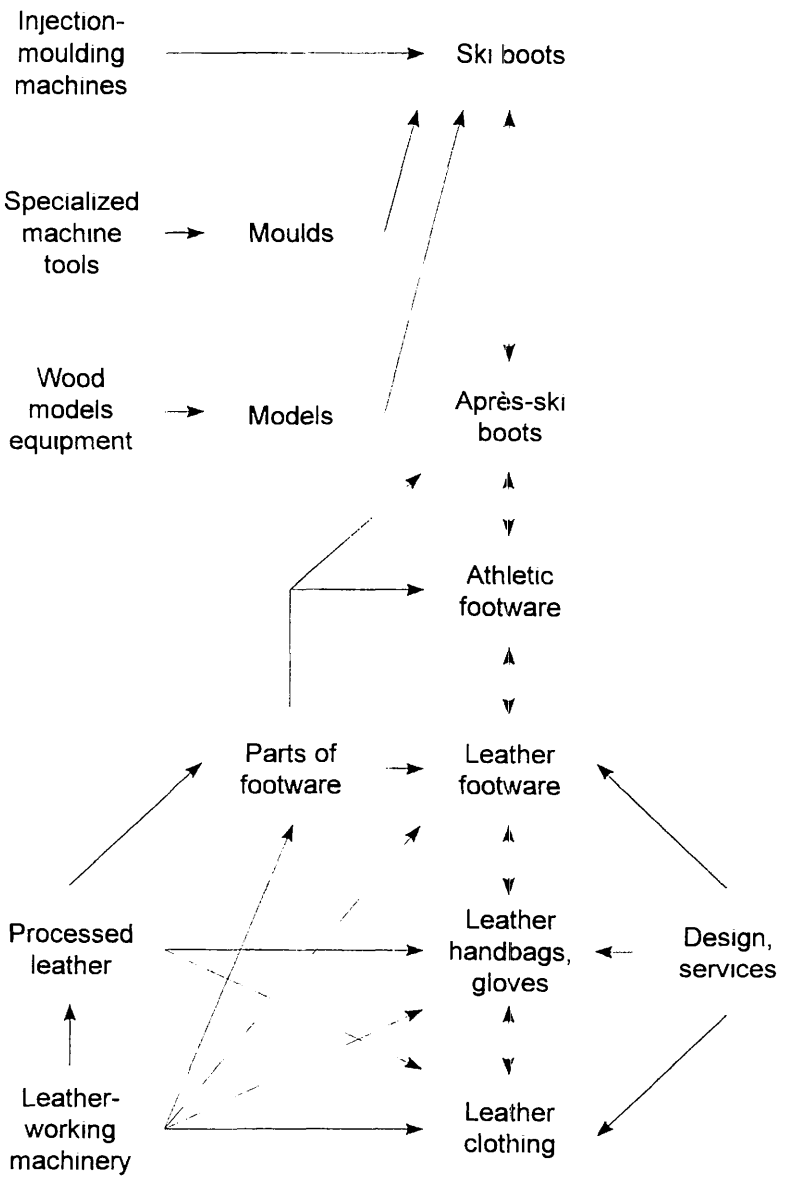
Programmes to promote the establishment and development of small business parks, business incubators and technology centres[25] may be combined with incentives such as financial subsidies, tax holidays and allowances, the provision of land and concessionary credit facilities Several types of projects are promoted by such programmes, including the following

- Incubators, which offer start-up facilities at reduced cost for a limited period of time
- Technology centres for similar industries, which offer support for the application of new technologies in order to promote the dissemination of these technologies
- Research parks, which focus on innovative firms and offer easy access to research and development facilities, frequently there is cooperation with technical universities or research institutions

Such programmes may offer central data processing, consulting, accounting, secretarial and conference services Enterprises in such locations can benefit from agglomeration effects, helping to keep initial costs low and providing access to markets, banking institutions and subsidies

[25]Small business parks usually have an infrastructure that is supported by the public authorities

Figure III. The Italian Footwear Cluster



Source: Michael E. Porter, "The competitive advantage of nations", *Harvard Business Review*, No. 2, 1990, p. 80

Regulations

Zoning restrictions, building codes and administrative requirements may constrain, or even deter, the setting up of certain types of businesses at a particular location or may entail prohibitive costs. Restrictions on future expansions of an enterprise, including restrictions that aim to protect the environment, have to be taken into account. Administrative requirements, especially those that apply for establishing a new firm, may involve varying degrees of red tape and cost, depending on location.

Climate and topography

Climate and topography are relevant mainly to production and storage and could include extreme climatic conditions and ecological hazards (heat, dust, risk of floods, earthquakes etc.) that adversely affect the availability and quality of the process inputs. As the public becomes increasingly aware of the environment, environmental impacts are more subject to regulation, entailing additional costs to the firm.

Availability of land and buildings

The availability of land and buildings suitable for a particular business may be a critical factor for the locational choice. An overall assessment of costs also has to take into account the fees and taxes related to the acquisition as well as the costs of property development, adaptation and financing. These costs usually vary with location and can become decisive.

D. Site characteristics

A site is a piece of land where a manufacturing plant and associated offices will be erected. It may include one or more existing buildings, and it is not unusual in the case of small business projects for such buildings to have to be adapted to project needs. Site characteristics and costs may vary within a location. Such variations are the result of different site conditions and different amounts of preparatory work, influencing costs and type of construction. The characteristics that may be decisive in the choice of a site include the following:

- The work-related features of an existing building include temperature control (heating, air-conditioning etc.), lighting, ventilation and sanitary conditions
- Technical requirements and specifications will have a significant impact on the choice of location and site, as well as on the costs involved
- Legal provisions such as building codes may affect adaptations by regulating or restricting the appearance or height of buildings and/or by laying down other specifications, which may even preclude the choice of a specific site
- Marketing requirements may necessitate the redesign of existing space to form selling areas and other customer facilities, visibility and acceptability should also be considered.

Questionnaire IV-1 may be used for assessing location and site characteristics.

E. Environmental impacts

Environmental quality is of growing public concern and, therefore, of increasing importance in decisions about location and site. It has become a worldwide issue, with scientific, political and legal problems still unresolved and open to debate and with uncertainties about the relevant standards, legal provisions and procedures. Where standards and provisions are relevant, they have to be complied with and the corresponding costs have to be assessed. Furthermore, if reactions by the population affected by the project have negative impacts on project implementation, on the image of an enterprise or on the production process itself, resulting in higher costs or lower sales revenues, the feasibility of an entire project will be in danger. Environmental factors, therefore, can be decisive for the choice of technology, type and scope of production and raw materials (in so far as this affects requirements for emission control). Emissions of noise, odours, vibrations or dust may have an impact on the choice between alternative sites and locations. Regardless of environmental regulations, the generation of noise in an industrial zone or a still-uninhabited area might be acceptable at first but could lead to problems if the surrounding area becomes settled later on. Such eventualities need to be anticipated and addressed during the process of choosing a location.

The following production-related environmental impacts need to be taken into account:

- Generation of traffic (exhaust)
- Emission of noise (traffic, loading, production)
- Emission of smells
- Emission of hazardous chemicals
- Emission of light
- Emission of smoke or dust
- Generation of vibrations, which can affect neighbouring buildings or structures,
- Emission of hazardous or toxic wastes
- Generation of recyclable and non-recyclable wastes

Environmental and ecological impacts may come not only from production but also from the use and final disposal of the products. Consumers may become aware of these impacts and alter their buying behaviour accordingly. In response, an enterprise might decide to offer recycling or disposal services for its products. This could give it a strategic advantage and improve its image, but it would also entail additional costs.

F. Choice of location

Location planning and the siting of projects meshes with all the other plans and concepts, in particular the marketing concept and the production plan (choice of technology and process). Further constraints are imposed by the personal preferences and behaviour of the entrepreneur.

For an opportunity study at the sectoral level, a profile reflecting the sector-specific requirements on location and site should be formulated. If a study is at the regional level, it might go a step further in delineating alternative locations. Profiles of location and site characteristics will serve as a guide for feasibility studies for

further specific projects (questionnaire IV-1) The steps in choosing a location in opportunity and feasibility studies are described in figure IV

Figure IV. Steps in choosing a location

Opportunity study	Feasibility study
Identification, assessment and ranking of subsector-typical factors determining choice of location and site	
Preparation of typical requirement profiles	Assessment of requirement profiles with regard to the characteristics of an individual project
Search for potential locations	Identification of locational alternatives, suitable according to subsector-typical requirements profile
Description of potential location	Description of suitable location alternatives
Evaluation and projection of locational costs	Projection of locational costs and evaluation of alternatives
Search for potential sites Description of potential sites	Assessment of alternative sites, description of site, projection of costs related to site
Site evaluation and cost estimates	Choice of location and site

The relevant factors should be selected based on the assessment of strategic aspects and of location factors (discussed in sections B and C, respectively, of this chapter), combined with an assessment of such factors according to their sector-specific importance (questionnaire IV-1) or, in case of an individual feasibility study, their project-related relevance. Factors should be assessed and ranked according to their significance and projected contribution As proposed in the questionnaire, factors should be weighted on a scale from 1 to 5 in order to obtain requirement profiles for location and site. Such profiles will support the search for suitable locations and sites

Different locations and sites will have different costs owing to variations in real estate values, rents, construction and adaptation costs, taxes, legal fees and costs for the creation of in-house transport, power generation or waste disposal Both initial investment costs and operating costs have to be taken into account.

G. Locational costs

Depending on the subsector or location, locational costs may form a significant part of the estimated fixed investment and must be assessed in an opportunity study. Estimated operating costs related to location and site also influence the financial feasibility of a project. Typical investment costs related to a site would include the following:

- Cost of land
- Cost of building
- Down payment for rental or leasing contracts
- Brokers' fees
- Real estate taxes related to purchase or rent
- Cost of civil engineering
- Cost of site clearance and preparation
- Construction and adaptation costs
- Costs of installing utilities and infrastructure services
- Costs of supervising the construction.

Typical operating costs for a site would include costs for the following:

- Land lease, rent, depreciation of building
- Real estate taxes
- Insurance
- Maintenance
- Repairs
- Heating
- Cleaning

These cost items, if significant, would influence the choice between alternative locations and sites. Projected location- and site-related costs are inserted into the investment costs schedules (schedules IV-1 and VIII-1), costs arising during operation should be inserted into schedule VI-6.

V. Market analysis and marketing concepts

Introduction

To achieve its final economic objective an enterprise needs to generate income by selling products or services to a market.[26] Enterprises rarely offer only one product or service to one market but are usually engaged in several markets competing with other sellers and buyers.[27] In these markets, each firm has to achieve a certain turnover in order to generate the value added necessary for the further existence of the firm. For this reason, the literature on management frequently underlines the importance of the firm-market relationship for the success or failure of business activities.

A. Marketing research, market analysis and market position

The term "marketing" generally comprises all business activities that are related to the market. Thus, it comprises more than "sales", which pertains only to the immediate relationship between the firm and individual customers and is usually characterized by a short-term view of such relations. Marketing, unlike sales, is concerned with the long-term position of an enterprise in a market *vis-à-vis* all parties acting in the market and with the general business environment (figure V). Marketing, as a consequence, aims at the long-term development of the business, entry into markets, development of markets and the formulation of strategies to satisfy consumer needs and to secure the profitability of the enterprise. Because such tasks and the related strategies are likely to influence all the activities of a firm, marketing may also be characterized as market-oriented management focusing on producing, storing, distributing and selling products demanded by customers.

Marketing in the strategic sense is reflected in the development and formulation of a marketing plan or marketing concept that will integrate the various activities necessary to achieve the medium- and long-term goals of an enterprise. In the case of an existing firm, the development of a marketing concept requires the following steps:

- Analysis of the market
- Description and assessment of the company's position, strengths, weaknesses and potential in relation to the market
- Marketing objectives, given the constraints of the market and the limits to the resources of the firm[28]

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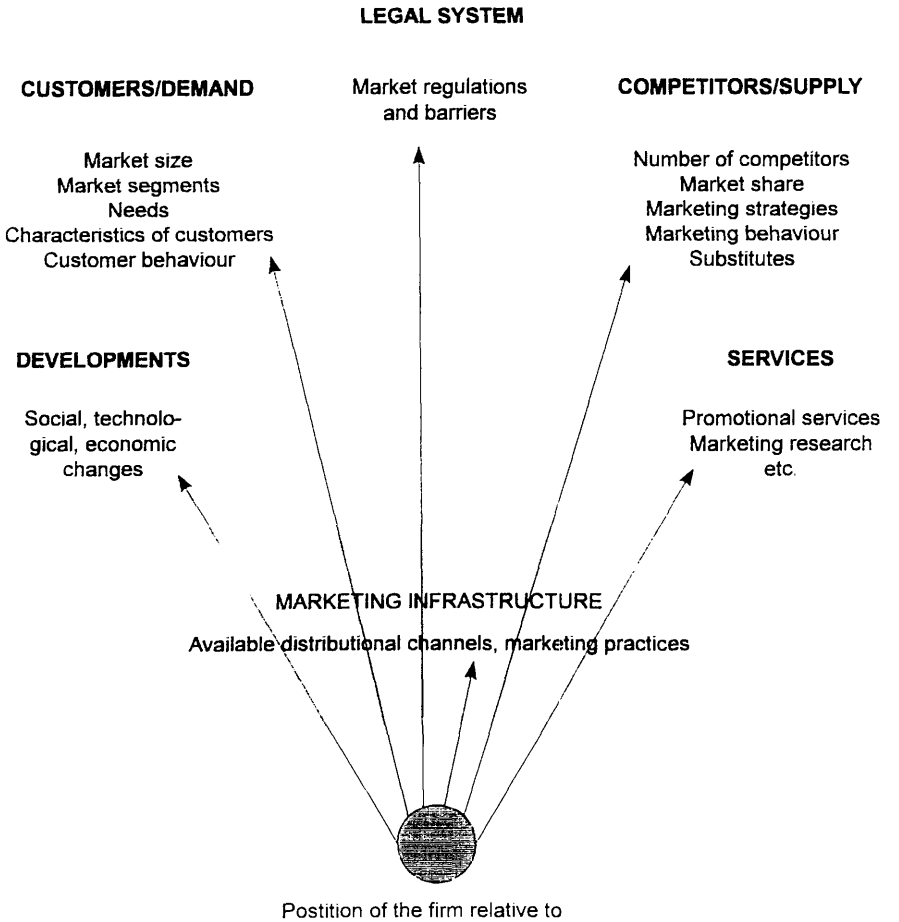
[26]The term "market" implies the interrelationship of demand and supply for goods or services.

[27]As buyers they are also competing on the supply market to acquire necessary inputs such as raw materials, capital, human labour and technology.

[28]Marketing strategies and marketing objectives are defined in section E of this chapter.

Figure V. Aspects of marketing research, market analysis and market position of the firm



- Marketing strategies (what can and will be done, and when it will be done and by whom, to achieve the objectives)[28]
- Implementation (implementing the strategy and controlling and adapting it)

The scope, design and contents of a marketing concept are to some extent determined and limited by the basic business decisions These decisions include the adoption of basic business principles, as, for example, the undertaking that the firm's competitive behaviour will be non-aggressive The marketing concept also interacts with other plans, such as financial plans and production plans Thus its formulation will not be an isolated, linear process but will reflect these interactions and interdependencies

Take, for example, the determination of plant size and the production programme from the marketing strategy point of view, the desired volume and production programmes are defined However, usually the available technology and the requirements of the production process will suggest a different plant size, and it might happen that marketable quantities are lower than the minimum plant size

under which economic production is feasible. With the inclusion of such factors as availability of investment capital, of personnel and of suitable raw materials and other inputs, it is possible to define an optimal plant size and production programme from the technical as well as manufacturing costs viewpoint. This production plan may require that a minimum quantity of a product is to be sold at a certain price. However, market research may reveal that the market cannot accept this quantity at that price level, unless the product is somehow altered. Thus, the production programme will have to be modified in line with a reformulated marketing concept that reflects a compromise between technical and market requirements. Conversely, the marketing concept will have to be changed if it is technically impossible to produce the required quantity and quality economically.

The importance of marketing depends on the characteristics of a market, the position of the enterprise in this market and the particular product. This is especially true for small and medium-sized enterprises. The more competitive a market or the more producers compete for customers, the more important marketing becomes. Such a situation will frequently occur in saturated and mature markets, where supply exceeds demand. For example, a suitable marketing strategy would be to identify comparative advantages a firm might have *vis-à-vis* its competitors and to exploit such advantages.[29] However, marketing may also play a decisive role if a firm enters a new market with no or few competitors. This usually means that the customers themselves are not yet very clear about their needs and preferences. Furthermore, customers might not be aware that a product or service is available or offered by the particular firm. If an enterprise wants to market a new product, it will need to design a marketing strategy to define the needs of customers and to increase the visibility of the enterprise or the product. The same is true for a new enterprise trying to enter a market. Such strategies will include promotional activities as well as policies on price, distribution channels and product development, they will always entail additional costs.

B. Marketing research at the subsectoral level

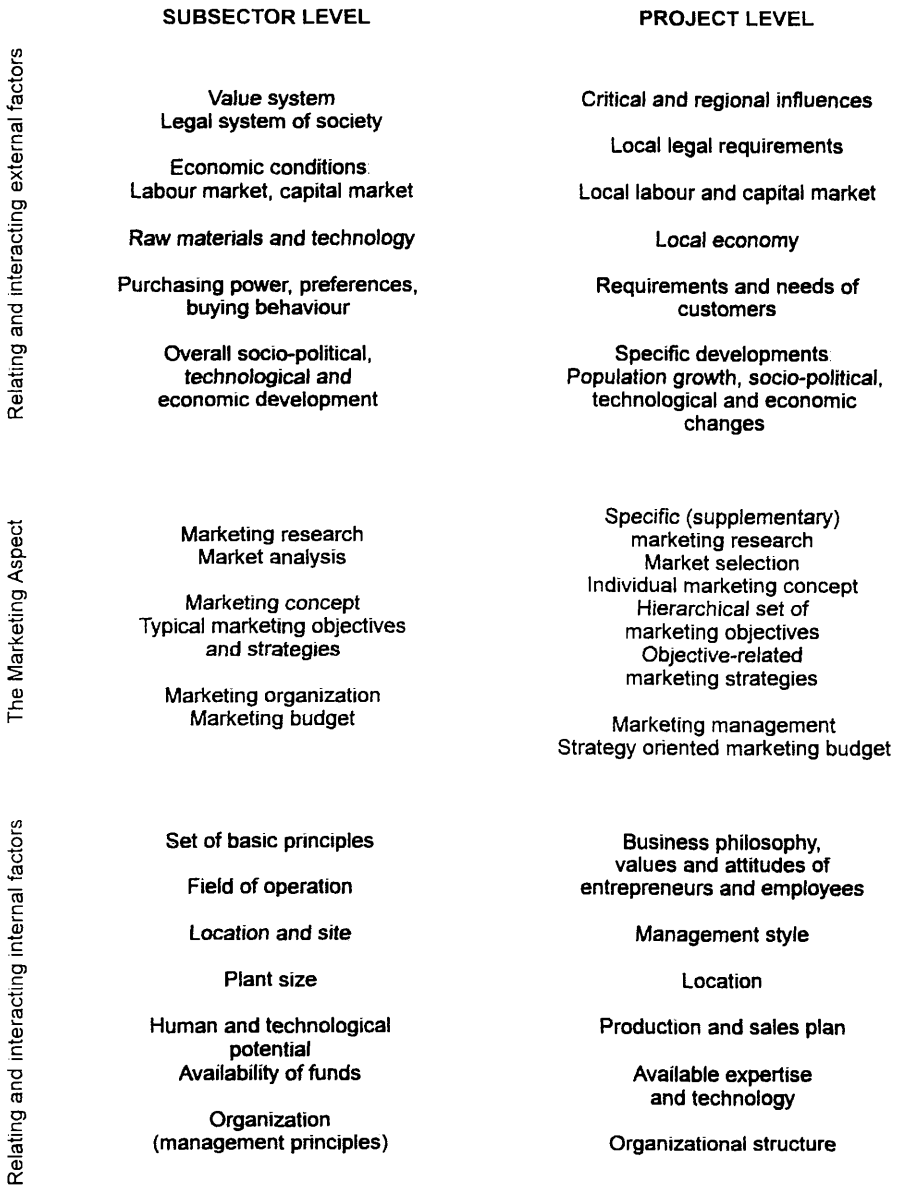
As mentioned already, a study at the subsectoral level can serve as a source of information and basis for the preparation and appraisal of a number of similar individual projects. It should therefore provide general information from which project-relevant specific information can be extracted. In the context of marketing, it should include a fairly detailed characterization and analysis of related markets as well as marketing data significant for the design and evaluation of individual marketing concepts. The focus of marketing research at the subsectoral level is different from the focus at the project level, as shown in figure VI.

Marketing research at the subsectoral level should, first of all, define the market (product groups, regions, customer groups) and analyse its structure (supplies, customers, channels of distribution). Next, it should assess market characteristics. For this, it needs to collect both quantitative and qualitative data. Examples of the former are as follows:

- Market volume
- Position in the market life cycle (growth, saturation etc.)
- Growth rates (absolute values and percentage per annum)

[29]For example, better after-sales service, owing to its location closer to consumers, higher quality, owing to personnel skills, or new product design, owing to innovative capacity.

Figure VI. Focus of marketing research at the subsector and project levels



- Partial markets
- Stability of demand
- Projections of market size, considering competitive behaviour, changes in consumer values and possible technological developments, e.g. substitution
- Geographical distribution of consumers, who might, for instance, be clustered in certain areas or dispersed over a region.

Examples of qualitative data are as follows

- Structure of consumer needs by consumer group
- Purchasing motives and characteristic consumer behaviour
- Product characteristics, i.e. type, quality, design, brand name, material, price level etc
- Typical applications/use of products
- Income level of consumers and price elasticity of products [30]

The competitors then need to be assessed

- Number of competitors, size, potentials
- Competitive behaviour and marketing strategies
- Description of competing products, including substitutes

Finally, the availability of a marketing infrastructure needs examination

- Distribution channels
- Communication infrastructure
- Infrastructure for promotional services
- Cultural and legal conditions determining marketing strategies

The purpose of marketing research at the subsectoral level is not only to collect and analyse specific subsector marketing data but also to allow the formulation of one or more feasible and typical marketing concepts as well as the assessment of alternative marketing strategies. Based on the information, individual projects can be prepared and appraised by potential investors (financiers), entrepreneurs and promotional institutions. At the same time, the data may serve as a basis for formulating economic development policies.

When marketing strategies and concepts are proposed, estimates of marketing costs and sales revenues should be included to allow arriving at a marketing budget.

C. Scope of marketing research

The principal objective of marketing research is to examine a project idea from the market point of view in order to evaluate its feasibility and allow the development of strategies suited to market characteristics. However, at the subsectoral level the scope of the research will be determined by the need to evaluate a more general project idea and to develop typical marketing concepts rather than proposals for an individual project.

The process of marketing research begins with the identification of the basic problem [31] To limit the scope of the marketing research, parameters have to be

[30]The income level of consumer groups will influence the market potential, spending also depends on total income available. Low income earners, for instance, after covering subsistence needs (food, housing and clothing), will have little money left to spend on items not essential for living (books etc.). Price elasticity describes the relation between product price and quantities sold: for low (high) price elasticity, price policies are less (more) important marketing instruments.

[31]Although "basic problem" and "project idea" are related, they are by no means identical: for example, a producer of jigsaw blades of excellent quality may find it increasingly difficult to compete in export markets owing to high manufacturing costs (the problem), therefore, he or she wants to establish a production unit in a country with comparative advantages (project idea). On the other hand, a producer of low quality blades in a developing country might enhance his or her market chances if the quality of the blades could be improved (the problem). A joint venture project (the idea), as demonstrated in case I in the annex, might be a feasible solution for both producers.

defined, for instance a geographical area and/or possible customer groups. According to the research objectives, data sources have to be identified and selected. After collection, data have to be analysed and processed.

A distinction should be made between data coming from primary and secondary sources. Most marketing research relies more on secondary data, such as general statistical data and existing marketing studies, than on primary data acquired by empirical research. The secondary data may have been collected in connection with a sectoral or regional study. Data assessment can be focused on a particular commodity, product group or consumer group.

Data should be collected and assessed in line with the following subject areas:

- Definition of market structure and size
- Analysis of consumer demand, behaviour and characteristics and of regional distribution
- Analysis of competitors and their behaviour
- Analysis of the existing marketing infrastructure
- Analysis of socio-economic trends, technological developments etc.

There are many sources of secondary data:

- International agencies
- Government agencies
- Research organizations (universities, non-profit organizations and commercial entities)
- Trade and other business associations
- Trade press, general business newspapers and professional journals
- Business reports and publications of competing firms.

An existing enterprise can also use information that is available internally (various statistics, qualitative information gathered through experience, and so on). International organizations such the Statistical Office of the Department of International Economic and Social Affairs of the United Nations, the United Nations Conference on Trade and Development (UNCTAD), the World Bank, UNIDO or the Organisation for Economic Co-operation and Development (OECD) can serve as a source for data on export markets and international trade. Government institutions (a statistical office, for instance) will usually provide data on population, number of firms, employees, gross product and value added by business sector and economic indicators such as inflation rates, growth of GNP and import/export ratios. The data will, in general, also allow some regional differentiation.

National development plans might include statistical projections of, for instance, consumer and public spending and information on major infrastructure projects. Similar information may be available from the statistical units of international organizations as well as from the large development banks. Research organizations, some of which will be closely connected with government agencies, provide information in the form of annual reports or reports on specific projects. Often it is also possible to obtain information from commercial marketing research firms. Such information can include cultural data as well as information on consumer behaviour, competitors, the marketing strategies of competitors, the marketing infrastructure etc. Such firms may not, however, exist in some developing countries.

Publications of professional organizations or trade associations, as for instance a chamber of commerce, might be another valuable source of data. Of particular interest to marketing researchers are supply-market surveys and full-fledged marketing studies. Such publications are likely to reveal important information on competitors and their competitive behaviour and even their future plans, as well as on technological and economic trends.

It might also be necessary to collect primary data through empirical research. Empirical research generally relies on a sample of potential consumers, retailers or related producers, who will be questioned in personal or telephone interviews or by means of questionnaires sent through the post. Interviews with opinion leaders or well-informed persons (insiders) are another, albeit more informal, approach to the collection of information. Primary data may also be obtained from experienced marketing researchers and product or market tests.

The information collected has to be properly systematized according to the research objectives before it can be processed and evaluated. Data evaluation is necessary because most statistical data have serious defects, and their uncritical use could lead to wrong decisions as to the feasibility of a project. If such defects are known, the data can be adjusted to assure correct interpretation of findings. Varying degrees of reliability also have to be reflected in the weight of arguments based on such data. The most frequent defects of statistical surveys are incomplete samples, overlapping samples (double-counting) or changes of definitions over time, which may influence the reliability and comparability of time series.

For example, most surveys in developing countries cut off at a certain size of enterprise (enterprises with less than 10 or 20 employees are not usually included). In other cases, only the data for the headquarters location will be included, data for regional branches may not show up at all. Certain products might be accounted for in different product groups at the same time (double-counting) or appear in one group (say, "foods") in one year and another group (say, "pharmaceuticals") in the following year. Sometimes, product groups are broken up in several subgroups or merged with others, so that time-series data will not be comparable over the minimum observation period.

Empirical research, on the other hand, may be faulty owing to a bias that could originate in the sampling process, the enumerator or the interviewer, or the time at which the research was conducted. For sales projections, schedule V-1 may be used. Sources of information are described in figure VII.

D. Market definition and analysis

While marketing research comprises project strategy aspects as well as the outline of the marketing concept, market analysis covers only a part of marketing research, namely the assessment of the market potential (expected demand), the market volume (current sales) and the market share (current or planned share of the enterprise or project). According to the *Manual on the Preparation of Industrial Feasibility Studies*, the first step in demand and market analysis is to determine the target market and to describe and analyse its structure.

Unlike for a single individual project (which is discussed in part three), market analysis at the subsectoral level will rarely deal with one target market only, instead it deals with a number of typical target markets. Therefore, the main task of market definition and analysis in an opportunity study is to structure the overall market of a subsector and to segment it by customer groups, their needs and behaviour

Figure VII. How to obtain market data

Sources of information/ technique of inquiry	Information on: market volume, market distribution potential	customers	competitors	marketing mediator	suppliers	applicant for a post	financier	sectors	business cycles	new technologies	natural environment	population	jurisdiction, economic and consumer policy	possibilities to act; private resources	success of marketing-strategies	NOTES:
SECONDARY (DESK) RESEARCH																
INTERNAL SOURCES																
sales statistics	x	x		x											x	
field service report	x	x	x	x				x						x	x	
accounts		x		x	x		x							x	x	
customer index	x														x	
correspondence		x	x	x	x	x	x	x							x	
cost accounting for sales	x													x	x	
already existing marketing research	x	x	x	x	x			x		x		x		x	x	
EXTERNAL SOURCES																
official national and international statistics	x	x	x	x	x	x		x	x			x				
enterprise or sector related manuals	x	x	x	x	x			x								
publications of economic associations	x	x	x	x	x											
publications of economic institutions	x	x	x	x	x	x		x	x	x	x	x	x			
specialized literature, papers and journals	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
external data banks	x	x	x	x	x		x	x	x	x	x	x	x			
catalogues, leaflets,			x	x	x						x					
business reports, register of cooperations		x	x	x	x		x									
FIELD RESEARCH																
PRIVATE RESEARCH																
interviews with the field service	x	x	x	x				x	x					x	x	
customer observation		x													x	
private shop testing		x													x	
small scale customer interviews	x	x	x	x					x	x					x	
interviews of experts	x						x	x	x	x	x	x	x			
visiting exhibitions		x	x	x	x			x		x						
interviews of suppliers			x		x					x				x		
product comparisons			x	x	x					x				x		
EXTERNAL RESEARCH																
exclusive inquiry	x	x	x	x					x	x	x	x			x	
panel inquiry	x	x	x	x					x	x	x				x	
standard opinion poll	x	x	x	x					x			x				
multiple subject poll	x	x	x	x					x			x			x	
regional test market	x	x	x	x										x	x	
local test market	x	x	x	x										x	x	
labour test market	x	x												x	x	
store test	x	x		x										x	x	
cooperative market research	x	x	x	x	x	x	x	x	x	x	x	x				

Source: Fritz Wolfgang, "Was nützen Informationen, was kosten sie", *Praktisches Marketing für mittelständische Unternehmen* (Munich, GAW, 1986)

Subsector-typical aspects should be analysed by asking the following questions, as posed on page 71 of the aforementioned *Manual*:

- What is bought?
- Why is it bought? (purchasing motive)
- Who are the buyers? (decision makers)
- When is it bought? (purchasing habits)
- How much is bought? (quantity and frequency)
- Where is the purchase made?

After the overall market of a subsector has been defined and typical target markets identified, a preliminary definition of demand and customer needs will usually suffice to start the analysis. For certain projects a rather rough description of customer needs may suffice as, for instance, demand for clothing. For others, it will be necessary to identify the needs in greater detail. for instance, if the envisaged product would constitute an industrial input for other manufacturers, to be supplied in the context of a subcontract agreement. For an analysis at the subsectoral level it will usually not be necessary to differentiate between product qualities or designs, even though this may be necessary later, when the target market for an individual project is being analysed (feasibility study). However, effective and latent (potential) demand should be differentiated.[32] Effective demand exists when potential customers are conscious of their needs and able to articulate them. Latent demand is articulated only if customers are confronted with a product or service. With latent demand, the marketing concept has to be based on a hypothetical demand, to be tested by empirical research. International comparisons will increase the reliability of demand projections and reduce the risks associated with using only hypothetical data.

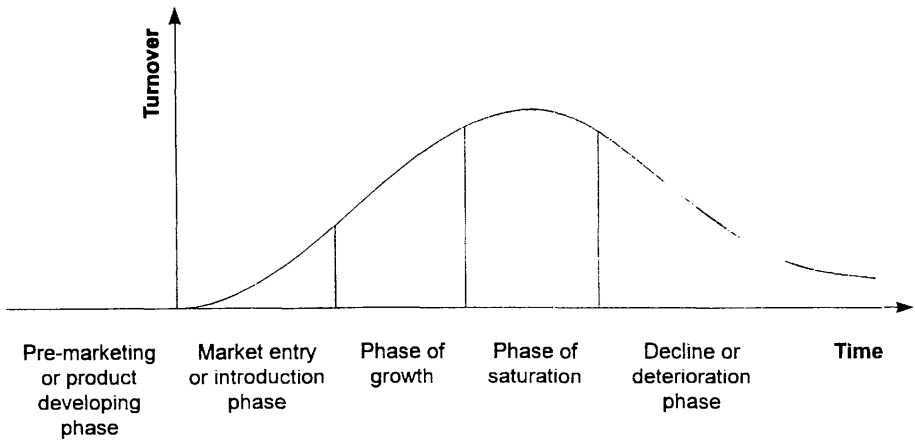
Markets should be thought of as constantly changing dynamic systems. Thus, market analysis should include forecasts of probable changes in market size and structure as well as changes in the socio-economic environment or in technology, which may lead to the production of substitutes. It should also assess changes in consumers' or competitors' behaviour, in the marketing infrastructure and in socio-political and legal conditions.

1 Product life cycle

Various methods of forecasting, including trend calculations, are used to project market data. Such data should not be used blindly but should be cross-checked against, for instance, the judgement of market insiders or should be compared with information from other cultures. Forecasts should also be assessed from the point of view of product and subsector life cycles. The life cycle concept differentiates between four phases: the introductory phase, in which a new product is introduced to the market; the growth phase, signalled by a rapid increase in volume and increasing profitability, the stagnation or saturation phase, when the market is saturated or the product cannot increase its market share, and the deterioration phase, signalled by decreasing volume and the appearance of newer, better products or substitute products (figure VIII). Each phase of the cycle requires a specific set of marketing strategies.

[32]Assessment of demand is important for estimating market size.

Figure VIII. The product life cycle



2. *Market size*

Market size can be defined in various ways The terms market potential, market volume, market share and sales potential all refer to quantitative demand and usually are expressed in tonnes, number of pieces or monetary units Market potential is the total estimated demand for a product per unit time, while market volume represents that part of the market potential satisfied by the various producers The market share of a firm is the relation between its present sales and market volume, expressed as a percentage

The sales potential of an individual firm is made up of its actual annual revenues, plus that part of its competitors' sales which it might be able to capture plus that share of unexploited or expanding market which it might realize through successful marketing.

Small and medium-sized firms are mostly concerned with sales potentials and do not think in terms of market share for the obvious reason that their actual market share usually constitutes a very small percentage of the total market Thus, they frequently consider only the sales required for profitable operation and analyse the market just to find out whether that quantity can be sold and under which conditions In this case it might suffice to identify a group of customers or a limited geographical area and restrict marketing research to this market segment The advantage of such an approach is that detailed market analysis would deal with small and probably more homogeneous market segments only

To quantify demand, research should concentrate on the following questions

- How many customers need the products?
- How many products do customers need, on average, and how frequently?
- When do customers need a product and how urgently? How often do they replace it?
- Which products do customers use at present?

This information should allow an estimate of the market potential as well as market volume and should indicate fluctuations in demand

3 *Market segmentation and characterization of markets*

During initial assessment of market size it is necessary to structure the market by identifying different regional areas or consumer groups. Breaking up a large and usually heterogeneous market into several more homogeneous submarkets is called segmentation. Its objective is to define segments clearly differentiated from other segments but still large enough to warrant finding specific strategies for entering and developing them.

Marketing strategies targeted at a single customer or a small user group and based on their preferences and personal characteristics, are normally very effective. If a single customer is important enough, such strategy is sometimes realized through "key account management". However, to make the best use of their resources, even small firms usually need to target larger groups of customers.

Markets can be segmented using a combination of regional, personal and economic criteria. Typical regional criteria would be as follows:

- Distance between the market and the firm
- Sociopolitical factors as relevant for communities, districts, states
- Cultural characteristics such as language, religion, race or tribe
- Geographical features (mountains, rivers, climate)

Regional criteria are applied when consumers are agglomerated in geographically distinct areas or distributed evenly over the whole market area. Cultural differences between regions, significant differences in the existing infrastructure or different legal conditions would be bases for regional segmentation.

Local markets are of particular importance to small and medium-sized firms. Because of the close contact with customers, costs of distribution and promotion are lower, which suits the frequently limited funds of such firms. Knowledge of local conditions as well as personal contacts with customers provide an additional advantage over competitors from outside. The local market in most cases becomes the home base from which a firm may later on expand.

The relevance of the local market to the achievement of marketing goals also depends on the kind of products and potential customer groups. For products sold directly to final consumers, local markets are more important than for products distributed through wholesalers or retailers or sold directly to other firms. Another important factor is product standardization. The less standardized a product is, the greater the need for personal communication, and the more important are face-to-face contacts between the supplier and its customers, despite the availability of modern communication systems.

A market segment may also be defined using economic criteria, such as type of subsector or firm size. The personal characteristics of customer groups could include religion, language, personal preferences (a propensity for foreign products, for example), buying behaviour, age, sex, employment status (student, employee, self-employed), income level, marital status and lifestyle (snob, image-oriented). At the subsectoral level, marketing research usually covers a number of different market segments.

If marketing research were to reveal that the local market volume was too small to support even the smallest plant, additional market segments would have to be identified. For market segmentation, worksheet V-1 should be used.

Once market segments have been identified, customer demand should be examined in even more detail. This can be done by asking the following questions

- Which products are demanded?
  Quality, format (thickness, width), tolerance levels, resilience (technical specifications)
  Colours, design, packaging
- Which quantities are demanded?
  Order size
- Which related services are required and typical for the market segment?
  Delivery, storage, pre-partitioned packages
  Displays, technical instructions for use, complementary tools
  Guarantees, maintenance service
  Regular visits by salesmen
  Training of personnel
- What prices are customers willing to pay?
  Price level of competing products
  Terms of payment.

At this stage, marketing research aims at a clearly defined group of customers, so it is possible to approach customers directly to collect the necessary information The research must include the assessment of competition and of the marketing system in the target markets. Competitor analysis may extend from quantitative information (number of competitors, turnover, number of employees, profitability) to marketing strategies (kind of distribution system, customer satisfaction, marketing development and expansion plans (growth orientation, marketing plans)) and competitive advantages (technology, personnel, capital, customer relations) It is important to identify the strengths and weaknesses of potential competitors in relation to customer needs, for developing marketing concepts on which the preparation and appraisal of individual projects can be based.

A good indicator of the intensity of competition is the number of competitors and their respective market shares. If there are only few suppliers, market structures are monopolistic or oligopolistic. Such markets may promise high profitability for newcomers but may be difficult to enter if actively defended by already established competitors taking advantage of their customer relations. In addition, larger enterprises with a greater financial potential may use their position to raise the entry barriers for new competitors by means of pricing, advertising or terms of payment. On the other hand, competitors in markets with a large number of small suppliers are not usually in a position to prevent the entry of new firms. If market analysis shows considerable untapped market potential, it is likely that this market segment will yield little profit even though competition may be minimal.

The competitive behaviour of suppliers, i.e. aggressive or defensive, is defined by their marketing strategies (low price, rebates, long-term delivery contracts), which in turn may reflect their customers' purchasing behaviour. Worksheets V-2 (market description) and V-3 (analysis of competition) may be used to analyse customer requirements and competitors

The detailed description of markets should include information on marketing infrastructure, advertising practices, and the availability of distribution channels, media and promotional agencies.

Market entry and development may be greatly influenced by legal provisions such as licences or proficiency requirements. Customs regulations, quotas, duties or taxes may prevent firms from entering a potential market or require specific strategies to overcome such barriers. Market analysis thus has to assess existing regulations and related administrative procedures.

E. The strategic position of the enterprise

Strategic position is determined by the strengths and weaknesses of an enterprise as related to its competitors and a particular market. New enterprises will attempt to find their most favourable position, usually constrained by limited funds and often, in developing countries, by limited skills or technology. For marketing research at the subsectoral level it is not normally relevant to assess the strategic position of a single enterprise. What should be assessed is the extent to which consumer needs are being satisfied by existing suppliers, and the strengths and weaknesses of competitors, as well as of the overall marketing system, should be identified. The study may also highlight particular strengths of successful competitors, thus pinpointing factors especially important for business operations.

The concept of success factors assumes that, for a given market or product, a set of factors exists that is decisive for achieving strategic objectives. While neglecting such factors might not necessarily result in business failure, considering them might contribute to successful performance. If marketing research, for example, reveals that customers do not buy a specific product unless points of sale are close enough to their homes or workplaces, the enterprise either has to be located in a local market large enough to guarantee required minimum sales or, in the case of a more dispersed market, has to use distribution channels such as retailers or wholesalers or resort to direct sales by way of catalogues and postal delivery. Some examples of success factors are as follows:

- Quality
- Delivery on time
- Product guarantee
- Design of products
- Correspondence with consumer trends (fashion), trend-setting
- Addressing special consumer wishes
- After-sales service.

Before a marketing concept can be evolved, potential success factors must be identified. If an existing enterprise plans an investment, its success potential should be assessed by internal analysis, which includes the strengths and weaknesses of the enterprise compared to those of its competitors.

Success potentials usually are found in the following areas:

- Technical know-how
- Management expertise

- Experience and training of employees
- Quality of sales personnel
- Financial structure
- Location
- Technical equipment
- Transport facilities

At the outset, competitive advantages can be built up based on local demand, and once these are secure, the scope of marketing efforts can be broadened. The existence of local industry clusters may provide advantageous, mutually reinforcing linkages, reinforced by a free flow of information and a more rapid diffusion of technology. The example known as the Italian Footwear Cluster (figure III) illustrates how an agglomeration of supporting industries creates advantages for a range of interconnected industries, strengthening their overall competitiveness.

When, for instance, shoe producers consult with leather manufacturers on new styles and manufacturing techniques, they learn about new leather textures and colours early on. Leather manufacturers, in turn, gain insights into fashion trends, helping them to develop new products. While such interaction needs to be stimulated initially, it tends to be self-reinforcing once started.

Questionnaire V-1 is used to identify marketing success factors. Worksheet V-2 is used to describe the markets.

F. Formulation and assessment of marketing concepts

The formulation of a marketing concept is determined by external and internal conditions.

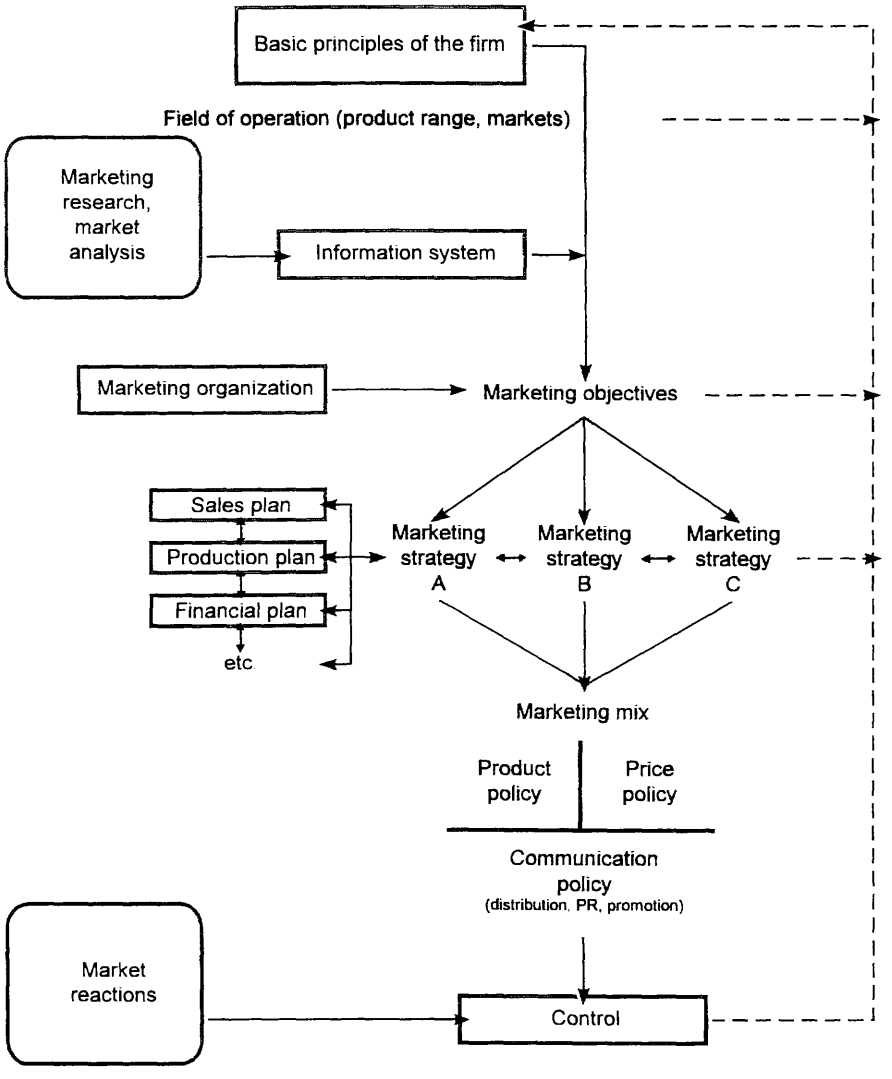
External conditions	*Internal conditions*
Society, value system, tradition	Business philosophy
Business situation, environment	Objectives, strategies, means
Market analysis (segments)	Strategic position, firm potential

The marketing concept has a strategic and an operative dimension, it comprises marketing strategies as well as the means for their implementation (figures IX and X). The marketing strategy is determined by the strategic objectives, as reflected in the overall business philosophy, being understood as a set of basic principles governing business conduct. In small and medium-sized enterprises, unlike in large ones, the business philosophy is dominated by the personal values and attitudes of the entrepreneur.

1 Marketing objectives

Marketing objectives are part of the hierarchically structured business principles and objectives of a firm, which are determined by its strategic orientation. Basically, two strategic orientations prevail, which may be characterized as innovative and conservative. Innovative orientation aims at introducing new products or developing new markets. Starting a new business requires a good measure of innovative orientation. Conservative orientation aims at increasing sales of products that have been on the market for some time with little or no modifications.

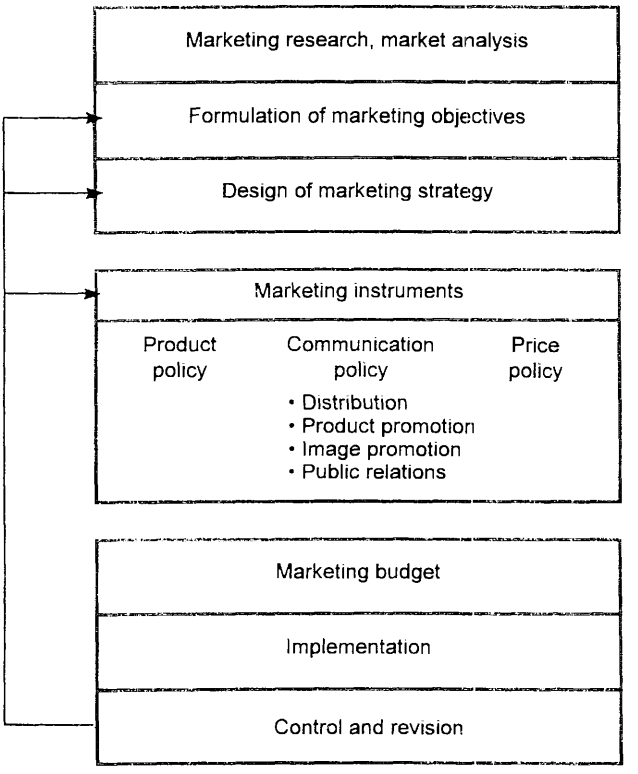
Figure IX. The marketing concept



Growth-oriented marketing objectives may entail aggressive marketing with a pronounced tendency to enter new markets or the diversification of production by adding new products. Sales may increase at the expense of a competitor or owing to an expanding market. If a small or medium-sized firm takes up an investment project intending to penetrate a market with an already well-known product, it does not aim at market share but rather looks at market attractiveness in terms of profitability, growth potential and competition. Sales targets and related marketing costs dominate the marketing decision in such a case.

An opportunity study at the subsectoral level should identify and evaluate typically feasible marketing objectives. It is not sufficient to state targets for sales, turnover or profits in general terms. Rather, the marketing objectives also need to concern themselves with product image, establishment of a brand name, training of a sales force and presence and visibility in the market.

Figure X. Steps in formulating a marketing concept



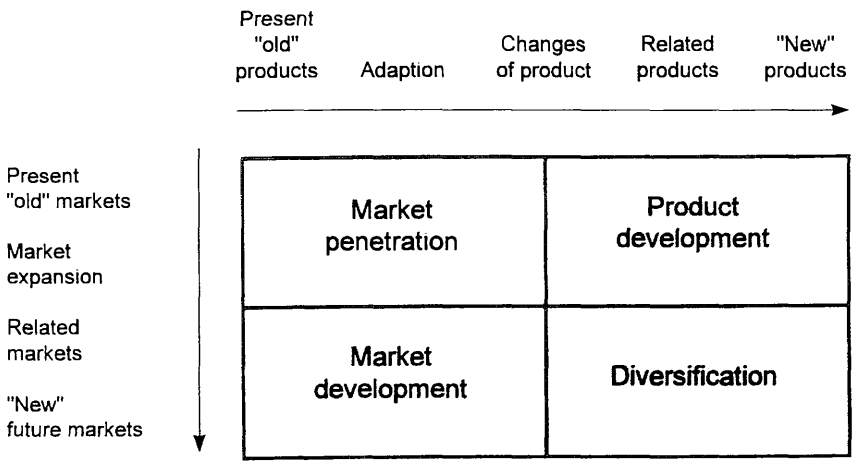
2 *Marketing strategies*

Enterprises can pursue different marketing strategies at the same time, but for different products and markets. The definition, description and evaluation of market segments on the basis of marketing research should lead to the identification of alternative product strategies. Based on this subsectoral information, appropriate marketing strategies can then be recommended for individual projects, as outlined in part three.

Diversification of products and penetration of different markets make an enterprise less dependent on market developments and fluctuations. However, the efforts required for diversification may overstrain the financial, personnel or technical capacities of an enterprise, particularly if it is small.

The well-known Ansoff matrix (figure XI) illustrates basic product/market strategies. On the market side, the degree of diversification depends on the familiarity of potential customers with products or services, if they are already available and established in the market. On the product side, the degree of product diversification depends on the novelty of the products or services being marketed. The greatest degree of diversification would be represented by the production and marketing of a new product not yet produced or offered in any market.

Figure XI. Basic product/market strategies (Ansoff matrix)



Source. H. J. Ansoff, "A model for diversification", *Management Science,* 1958, p. 392.

Specialization rather than diversification strategies are pursued if market conditions offer chances for firms concentrating on particular strengths. While too much diversification can lead to mediocre performance and diminish the competitiveness of a firm, specialization can lead to dependence on developments in highly specific customer groups or small market segments.

Intensive research and development, as well as innovative product policies, will serve to protect against the negative effects of specialization. Small firms, especially if they act in geographically dispersed markets, tend to specialize in particular customers or products, thereby exploiting market niches. If, on the other hand, they confine their economic activities to a small, local region, they tend to diversify.

An innovation-oriented enterprise is likely to follow marketing strategies different from those of a more conservative enterprise. The former tends to improve its market position by diversification, the latter tends to achieve a competitive advantage through cost leadership. Decisions on price and communication strategies determine the competitive behaviour. Aggressive behaviour is usually reflected by a low-price strategy and intensive promotion. A strategy not untypical for small and medium-sized enterprises is that of "friendly" competition. Friendly competitors concentrate their promotional activities on a description of the products and the firm and tend to avoid price competition and aggressive promotion such as comparative advertising.

Marketing strategies require that instruments should be combined with organizational measures. This combination is called the marketing mix. For optimal results, the selected instruments should be harmonized, their application and design should be functionally and chronologically coordinated. The isolated application of marketing instruments as for instance, the introduction of a new distribution system without the support of an appropriate product policy or promotional measures, is unlikely to succeed.

Worksheets V-4 and V-5 should be used for describing marketing objectives and strategies.

3. *Product policy*

Product policy should be based on a given project idea and the related market analysis. At the subsectoral level, however, alternative product strategies need to be assessed for different market segments. Product policy also comprises permanent product development and research, including the development of new products as may be required with a view to the life cycles of both products and markets. The shorter the life cycle of the product, the more product development is necessary, as in the case of fashion goods.

Product development includes the systematic search for and testing of new product ideas. Such testing should not be limited to technical exercises such as the production of prototypes but must also assess market opportunities, preferably in isolated markets.

Studies at the subsectoral level may indicate the need to establish product development units within an enterprise. For many small companies, however, this is bound to exceed their financial capabilities. They may therefore wish to undertake product development on a recurring rather than a permanent basis and to cooperate with other companies or research institutions. Alternatively, product policy may entail searching for new products and acquiring production licences for them.

4 *Price policy and conditions of payment*

Price policy is an important marketing instrument. It consists of setting the price and determining terms of payment. Prices are normally set within a range founded by required cost coverage and the limits set by the market. Product pricing is closely related to the number of units sold. The relationship between potential sales volume and price is expressed in terms of price elasticity. High price elasticity means that consumers react strongly to price changes [33] According to the *Manual on the Preparation of Industrial Feasibility Studies*, whenever practicable, marketing research at the subsectoral level should provide information not only on the possible effects of price elasticity but also on the buying behaviour of customers, which is a function of income level related to prices (income elasticity).

Low or high price strategies may be applied generally or limited to specified periods only (annual sales, market introduction of products). If an enterprise operates in separate markets it may employ different pricing strategies. Differentiation in pricing may also take the form of discounts for large quantities (bulk rates) or rebates for regular customers, practised in many markets.

Pricing strategies also specify the terms of payment, such as payment in advance, deposits, instalments, bills of exchange, letters of credit, suppliers credit, discounts and rebates, as well as special currency arrangements in the case of exports or imports.

Except for advance payments or cash on delivery, the terms of payment involve interest and administrative costs. Favourable terms of payment in effect constitute a discount but may be more desirable than straightforward price reductions because they allow for flexibility without affecting overall pricing policy.

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[33] Any price increase for a highly price-elastic product is associated with a sharp decrease in the number sold. Under special circumstances, however, customers may react in the opposite way, for instance, if buying such products is prestigious (snob appeal), elasticities may also be affected by complementarity of products (tennis rackets, balls and shoes, machinery and spare parts etc.).

5 *Communication and distribution*

Communication and distribution strategies are in many respects closely connected. The main purpose of a communication strategy is to assure, organize and maintain the flow of information between an enterprise and its customers, sales agents and competitors. Since an enterprise also interacts with its social environment, its communications are not just for business and marketing purposes.

Distribution strategies are related to physical transport, the design of sales rooms, the organization of sales units and the choice of distribution method (e.g. direct sales, sales through wholesalers or retailers). The organization of sales and distribution, as well as of sales personnel, depends greatly on the type of product or service and the characteristics of the market or target group addressed. Depending on the type of product and service offered, sales personnel may need special technical knowledge, for which they in most cases need to be trained, alternatively, personnel with technical know-how may be taught sales skills. The costs of such training are to be accounted for as marketing costs and may be activated in the balance sheet and written off over a certain period.

It is a particular strength of small and medium-sized enterprises that the entrepreneur himself frequently is also the most important salesman, based on his central position, personal competence and image as owner.

In developed markets, it may be possible to use already existing outlets or channels of distribution, if there are no such outlets, they have to be created, and small firms need to cooperate with other enterprises to increase points of sale (retail shops, sales offices etc.). Cooperation also needs to be established with firms providing installation and maintenance or transport and storage to facilitate timely delivery.

Thus, distribution strategies as assessed at the subsectoral level should address the following issues:

(a) Where will the product or service be offered (acquired/ordered)?

(b) Will the product be offered at one place only (for instance, at the location of the enterprise) or at different places?

(c) Will it be necessary to have a sales department with travelling salesmen?

(d) Will company salesmen or independent agents sell the products and visit customers?

(e) Is it necessary to establish a network of branch offices or can existing distribution channels be used?

(f) Will the outside selling function be restricted to selected retailers or will wholesalers be used?

(g) Will cooperation with independent intermediaries have a contractual basis (long-term contracts, franchise systems)?

(h) Will the product be marketed through intermediaries (exclusive representatives, specialized traders, trading houses) or directly to consumers?

The choice of a distribution channel cannot be easily reversed without considerable cost and the possible loss of customers. Distribution channels have an impact on the image of a firm and contribute to its "visibility" in the market. Even without promotional measures, a firm's products may gain recognition if certain channels are used regularly, because customers become attuned to a product source and normally respond slowly to any changes.

Once firms have succeeded in building up a stock of customers, they tend to neglect communication and active selling. It should be recognized that maintaining continuous and good customer relations is important and will reduce the need for possibly cost-intensive distribution channels and promotion measures, especially when concentrating on local markets. Many small and medium-sized firms hesitate to cooperate with retail organizations because they are afraid of being dominated in such a relationship and losing autonomy. If, for instance, a manufacturer sells a considerable part of the output to one distributor only, he or she clearly becomes dependent on this distributor, with the dependency increasing as cooperation goes on.

The sales organization of a firm can be a powerful medium for communicating with the market and for actively selling products and services. Promotional activities are an important element of communication, they can be related to the image of the firm or to its products and services or both. Promotional activities are part of the strategy to present a product or enterprise to the market with the intention of attaining a unique selling position, whereby customers recognize the firm as a distinct supplier. Such a position can be achieved by various strategies (product policy, specific distribution) but in most cases must be supported by appropriate promotional measures.

One form of promotion is direct mailing: promotional material is personally addressed to potential customers, with the specific objective of selling a product or a service directly. It is an alternative to personal selling or other forms of direct marketing, such as telephone marketing or mail-order catalogues.

Although it is not the purpose of an opportunity study at the subsectoral level to develop promotional strategies, such a study should none the less identify and recommend available means of promotion (advertising, prospectuses, brochures, radio, television etc.) and discuss their appropriateness to the markets and products selected as well as their costs. The study may also assess the need for public relations and related instruments.

Product promotion should support the selling of the products and services offered. It may describe, for example, how a product serves the customer and why it satisfies his or her needs better than other products or possible substitutes.

Once it has been decided to promote a product or a company's image, decisions must also be made on the media and the design, content and frequency of the advertisements. The available media should be judged to determine if they are appropriate for the character of the products and the specifics of the market segments. Image promotion aims at positioning an enterprise as a producer of distinctive products or services. This may be achieved by standardizing the way in which the firm presents itself to the public, i.e. by creating a so-called corporate identity. This standardization may extend from the design of buildings and office stationery to the appearance of company cars and uniforms for personnel. For firms intending to create their own brands, image promotion is valuable especially because consumer satisfaction with one product may carry over to other products.

Public relations for a long time was seen as part of image policy. While image policy primarily relates to the enterprise as a producer of specific products or services, public relations more generally attempt to paint a positive picture of the company as part of a local community. If a firm's interest and the public interest collide, as can happen in matters of the environment, the labour market or other sensitive areas, a good reputation and close cooperation with the community may prove especially valuable. Thus, public relations can be seen as a form of lobbying the local community and its representatives.

6. *Marketing organization*

Marketing activities entail not only the application of marketing instruments but also the institution of organizational measures, such as the installation of a marketing management system and a sales department as well as the assignment of duties necessary to carry out the planned activities. As in many other functional areas of an enterprise, some of these activities may be undertaken by outside experts or consultants. The identification and description of outside expertise is connected to personnel planning, especially the recruitment and training of a sales force.

Since marketing research is not only part of the business plan but also an ongoing activity, the marketing concept should specify which marketing information is to be collected and how it should be stored, processed and disseminated within the enterprise.

The flow of information does not generally pose a problem for smaller enterprises. However, even they have to decide what kind of information to gather, where to get it from, how much data to collect and how to process it. The data would include quantitative information from external sources such as official statistics and from internal sources such as sales statistics. Information is also needed to allow controlling and evaluating the effects of marketing activities. This information can be qualitative (for instance, consumer response) or quantitative (for instance, customer contacts per salesman). The information system entails costs that need to be assessed in the opportunity study at the subsectoral level.

Schedule II-1 can be used to assess the costs of marketing personnel.

7. *Marketing budget*

Marketing costs are estimated on the basis of the measures and activities proposed under the marketing concept.[34] An opportunity study does not usually contain detailed cost projections at this stage of the analysis, the most that should be done is to assess the costs of alternative marketing concepts that would be typical in a subsector. Such an assessment should contain enough information to allow reliable cost projections for individual projects to be prepared later on (feasibility study).

The marketing cost schedule differentiates between two kinds of costs:

- Marketing costs that are part of the start-up cost of a project, including for instance, the costs of organizational measures, of training personnel, of pre-production marketing and of start-up promotion (mainly fixed costs),[35]
- Running expenses varying with the number of production units sold (variable costs).

Schedules II-1 and V-2 may be used for estimating and projecting marketing costs.

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[34]The implementation of a marketing concept usually precedes the start-up of production (pre-production marketing), therefore, these costs have to be activated in the balance sheet, along with other pre-production expenditures.

[35]For an explanation of various accounting terms, see chapter IX.

G. Sales volume and revenues

Sales volume and revenues depend on the sales potential, which is assessed by taking into account marketing objectives and strategies, technical equipment and personnel, and financial and management capacities. The marketing concept should come up with a sales plan that projects unit sales and expected revenues. The opportunity study should also indicate typical sales volumes and revenues, particularly the required minimum turnover and break-even sales volumes for different production programmes and marketing strategies. It should consider the various products and the markets and distribution systems that prevail in a subsector. Later on, in the operational phase, sales projections will serve as targets for controlling and monitoring the application of marketing instruments.

Projections of sales revenues should be conservative rather than optimistic and should be made for different scenarios, allowing for deviations and possible failures. Revenues in a given period may differ from sales[36] if payments have been deferred in accordance with agreed terms of payment or with general practice.

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[36]Revenues correspond to cash flow resulting from customer payments. The terms sales and revenues are usually used synonymously; more strictly speaking, however, sales figures also include outstanding payments (accounts receivable).

VI. Production process and input requirements

Introduction

Chapter VI deals with the production process proper and the immediate preconditions for starting and maintaining it. These preconditions, as well as certain input requirements, have a direct impact on the choice of a process and may be typical for a product or a group of products in a subsector. Of particular interest are the choice and acquisition of an appropriate technology in the form of equipment and know-how (productive assets), the logistics (purchasing, stock-keeping, transport) and the material input requirements (raw materials, factory supplies, services). Guidelines are presented below for assessing production processes, including critical preconditions and input requirements at the subsectoral level. They include a standardized concept to facilitate the comparison of technologies and the storage of subsector-typical data in an appropriate database system.

It is not always self-evident that the manufacturing process is not the starting point for preparing a pre-investment study. Often investors and consultants concentrate on the technical and technological aspects, failing to recognize that it is the marketing concept that should determine the products and therefore—within the supply, locational, financial and technological constraints—the production process proper. To facilitate the preparation and appraisal later on of individual projects (feasibility study), the study at the subsectoral level should pay particular attention to the interdependencies between the various functional strategies (marketing, supplies, locating of a project, financing) when assessing typically successful production systems (plant size, choice of technology, investment and operating costs). Figure XII shows the linkages between the production process and the other functional areas of an enterprise.

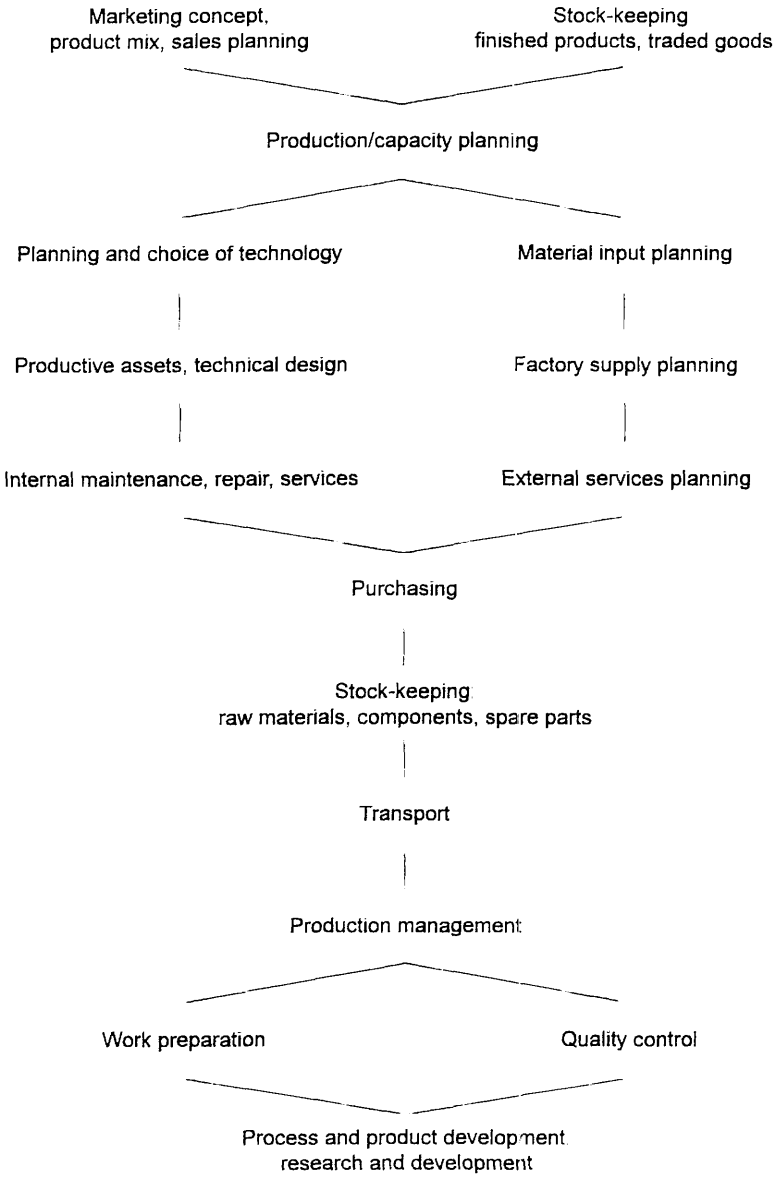
Production may be understood as a process directed by man that generates (produces, manufactures, fabricates)[37] products and services by combining the so-called "productive factors", namely, human labour, technical equipment, materials, energy and services, organization, information and know-how, and capital (in the widest sense), as well as legal regulations and other socio-economic factors.

A. Scale of production

The required scale of production is derived from the product mix and sales plan, which are in turn determined by the marketing concept. Particularly if there are seasonal fluctuations in sales or production, it may not always be possible to fully utilize the installed production capacities. Keeping stocks of finished or semi-finished products or of factory inputs—if not precluded for reasons of durability in storage—may help to optimize capacity utilization.

[37]Although the terms production, manufacturing and fabrication have a slightly different meaning, they are often used synonymously, and no distinction will be made between them in this *Manual*.

Figure XII. Interdependencies between the various functional areas of an enterprise



At the subsectoral level, the study should assess typical feasible production units and relate them to marketing concepts, as well as to the typical patterns of inputs required to achieve the production targets. Production technology and know-how, as well as the machinery and equipment, are directly related to the scale of production and to the quantities and types of material inputs and the external services available. To facilitate the subsequent preparation and appraisal of individual

projects, an attempt should be made to identify—combinations of product, scale of production, technology and material input that have competitive advantages. It should be noted, for example, that each technology is usually feasible for a certain range of production capacities only

When assessing or designing a production system at the subsectoral level, it is important to identify the areas that are critical in terms of strengths and weaknesses or potentials for success and failure. For example, the review of a project design may reveal that for a certain type of industry the required product quality can be achieved only with carefully maintained machinery and equipment and by purchasing materials from specialized suppliers These potentially critical areas may not be so critical at locations with the required infrastructure and access to identified suppliers Such locations would have a competitive advantage over locations with less favourable conditions.

1. Economic size

For practically every production system there exists a technically and commercially feasible size range Below and above the limits of this range (always assuming the full utilization of installed capacities) it may be necessary to turn to systems that use other manufacturing techniques or technologies, other production equipment or new forms of organizing the purchasing, stock-keeping, production, transport etc When production systems are assessed at the subsectoral level, it is important to cover typically feasible scales of production as well as minimum economic size from the technological and market point of view.

2. Types of production processes

For statistical purposes, particularly to allow small industrial enterprises to be compared within and between subsectors, it may be useful to distinguish between four types of production processes

- The production and processing of raw materials, as, for example, building materials
- Substance-changing transformation of raw materials, as, for example, bread and pastries
- Substance-maintaining transformation of raw materials and component parts, as, for example, metal products
- The joining/mixing and disassembling/selecting of component parts, groups of components, raw and artificial materials, as, for example, the assembly of car components or electric appliances

When small industrial businesses are being described, it is useful to differentiate product, factor and process types (production to order or mass production) and process mode (batch or continuous production) (see questionnaire VI-1)

B. Production programme and capacity utilization

The assessment of successful production programmes should allow the determination of successful product combinations typical for a subsector Such programmes are determined not only by marketing concepts but also by the raw

materials and by the technology applied, by-products are sometimes difficult to market unless they are processed further

Assessment of the capacity utilization typical for a subsector or for a region helps to identify weaknesses that will put an enterprise at risk in the long run. Lower-than-planned output figures may be due to lack of entrepreneurial talents and skills, non-competitive products (design, quality, life cycle, changing consumer behaviour etc.) or a poor business environment. Identification of the more common weaknesses will, first of all, allow determining which of them is/are critical. It will also be important for development planning by regional and national institutions.

C. Technology availability, selection and acquisition

The purpose of assessing the technologies that are typically applied in a subsector, as well as of describing their requirements and the means of acquiring the technology, is to facilitate the preparation and appraisal of individual projects. In particular, having identified the advantages and disadvantages of various technologies, it becomes possible to advise potential entrepreneurs and investors on the choice and to suggest suitable processes.

Particularly in developing countries, the technologies generally applied in a subsector may not always satisfy the requirements of the market (product design and quality), especially if there is competition with imported products, or they may be inappropriate (efficiency of production, low waste, clean technology etc.). The opportunity study should assess such requirements, together with the strengths and weaknesses of the technologies in use, and identify needs for technology adaptation and development. Developing countries often need to acquire foreign technologies and production know-how, although this is more common for large-scale industries. Imported technologies should be evaluated particularly with regard to their appropriateness to local conditions, the absorptive capacity of local enterprises and possible adaptations. Such an assessment can only be done by specialized institutions or consultants, because small industrial enterprises usually lack the technological information and capacity to do this on their own.

For small businesses in developing countries it is recommended that appropriate and less complex technologies be given preference. Usually assessment will concentrate on well-known, simple, low-cost process technologies, applying the following criteria.[38]

- Technical and economic viability at low levels of output,
- Flexibility, which means the process can be used not only for a single, specific product but can be adapted to other products as well,
- Relatively low capital intensity (investment per employee). In certain subsectors, e.g. production for export of car components, relatively capital-intensive technologies have to be applied, even by small industrial enterprises. In such cases, however, it may be possible to adapt the capital-intensive technologies, for instance, by increasing the labour component, especially in countries with low skilled labour costs but high capital costs,
- Ability to absorb technology, i.e. which skills and training are required (training on the job, costs of training etc.)

[38]These criteria were developed on the basis of the Technology Transfer Profile, developed in 1979 by the Vienna Institute of Small Business Research and UNIDO.

Three points have to be kept in mind when assessing technologies:

Domestic demand As it seems unreasonable to start out by gearing production to penetrate the more difficult export markets, preference should be given to domestic technologies, provided the products meet the quality requirements of the domestic market.

Domestic economic resources The dependence of certain technologies on foreign resources often constitutes a serious weakness, particularly for developing countries Hence, technologies that use domestic raw materials, energy sources etc. may be advantageous and may be supported or enforced by public policies and regulations. The size of the domestic labour market and the qualifications of the workers as well as training facilities at the workplace usually will influence the ease with which technologies are absorbed and applied.

Socio-economic conditions Many countries cannot afford to pay for an imported technology, so enterprises may not have access to the most economic alternative. However, even if foreign exchange and price are not a constraint, it may not be feasible to transfer a technology because the technology may be difficult to absorb or adapt. Therefore, it is important for the study to systematically assess the socio-economic conditions that prevail in a subsector and to identify and recommend only those technologies that are compatible with local socio-economic conditions

Technology is by no means the only factor determining optimal plant size. Economic and financial considerations and constraints play an equally important role. It is obvious that marketing tasks (expected sales) and the risk evaluation made by investors and potential financiers will also have to be considered when the scope of a project and the production capacity to be installed are being determined.

The opportunity study should therefore identify and assess technological alternatives from the point of view of the success potential of each alternative, giving particular attention to the following

- Commercial feasibility, with regard to local demand, local know-how and skills and human and other resources
- Financial feasibility, with regard to management skills, marketing potential and personnel, as well as purchasing and inventory management.

These should be expressed in terms of net cash flows generated by the enterprise.

At the same time as the commercial and financial feasibility is being assessed, strengths and weaknesses, opportunities and threats should also be analysed (SWOT analysis), taking into account the capital intensity of the various alternatives.

The opportunity study should indicate the sources (public domain, patent rights etc) of the technologies found appropriate for the various enterprises of a subsector and should state how and under what conditions they may be obtained and at what cost. Examples of contractual arrangements for technology acquisition and transfer should be given whenever appropriate.

The international transfer of technology, including the transfer between developing countries, is critical, even more for small industrial enterprises than for large enterprises, because small enterprises, particularly in developing countries, have to cope with a number of constraints:

- Very often the number of technological options for the development of a subsector is limited.
- The technology market is dominated by large enterprises that have the financial and management capacities and often also dominate the market for raw materials, prefabricated products and other means of production.

- If a technology suitable for a small business is available from a large, dominating enterprise, the smaller partner is usually too weak to negotiate satisfactory conditions for the acquisition and transfer In particular, most of the risk of the transfer and absorption is borne by the enterprise acquiring the technology or know-how A joint venture or licensor participation in the venture may reduce this risk, however, it may also limit the independence of the licensee.

Opportunity studies should not only assess alternative technology choices but also identify technological know-how that is no longer patented and may be acquired without cost from, for example, suppliers of machinery and equipment or that may be provided by enterprises willing to enter into cooperation, including joint ventures.

D. Environmental impacts

Serious environmental problems arise less often in the small industry sector because the locations are decentralized and there is a lower concentration of emissions and pollution Nevertheless, even when used by a small industrial firm, some technologies can cause environmental damage that may be ignored for a while but will have to be taken into consideration in the long run The casual use of poisonous and otherwise dangerous materials in a production process requires close adherence to safety standards, including increased attention to the prevention of water pollution (sewage treatment) and to air purification (filters), noise reduction and the disposal of special waste. Safety zones between production plants and residential areas may become necessary, and a deliberate mix of small industrial enterprises and residential areas may not be advisable Special attention should be given to technological processes that use the least possible amount of raw materials and to closed cycles as well as to the possibility of recycling certain means of production, for example, process and cooling water, heat and exhaust air

Questionnaires VI-1 and VI-2 may be used for describing the production process and for evaluating the criteria used in the choice of a technology

E. Engineering design and investment requirements

1 Characteristics of the production plant

The opportunity study, by definition, will not concentrate on a single alternative but will show typical plant layouts for alternative technological processes and scales of production The layout should show the main machinery and equipment as well as the space requirements and should be sufficiently detailed to allow estimation of a budget for investment and operating costs For the subsectoral assessment, the plant layout should indicate, for each production alternative, the minimum area of the industrial site, the volumes and main characteristics of buildings, the positions of the main plant items and infrastructure requirements, for example, space for in-plant transport, loading platforms, connections to the supply network and possibilities for further expansion.

A more detailed technical layout will be needed, however, for an individual feasibility study, to verify the preliminary estimates and to obtain the reliable projections of capital and operating costs that will be needed for the final investment decision For a feasibility study, prices of basic and auxiliary equipment and

machinery should be obtained from suppliers or manufacturers, whereas for the subsector study it may be adequate to rely on published sources, data banks and financing institutions.

2 *Characteristics of the production process*

The opportunity study should briefly describe the production processes typical for the subsector, stressing those processes that have comparative advantages under conditions prevailing in that socio-economic environment. The description should cover the entire process, including material inputs, material flows (raw materials, factory supplies), labour inputs, quality control and critical emissions (effluents, noise etc.) The efficiency of production may be expressed by coefficients such as specific material and energy consumption, output per worker, material costs per unit produced and specific investment costs. In so far as possible, the study should also examine the strengths and weaknesses of alternative production programmes and processes. Essential inputs of materials and other factors should be listed, along with critical quality requirements and the degree to which inputs are proportional to outputs.

3 *Internal infrastructure and services*

Small industrial enterprises usually do not have the capacity to establish and maintain the same internal infrastructure services as larger enterprises (e.g. maintenance and repair, laboratory and quality control, R and D) but have to rely on external services. In developing countries, specialists are rarely available at short notice and their services are usually expensive. Therefore, in-house workshops may be much more important than in industrialized countries, where such services are readily available. The opportunity study should identify the internal infrastructure and services critical for the subsector and advise on how to overcome related problems (e.g. by locating where external services are available, by establishing in-house workshops or by sharing services with partners).

F. Material inputs and supplies

Although material inputs are usually much the same within a subsector, their quality and origin may vary considerably depending on the engineering design and the production technology applied. For an assessment at the subsectoral level, it is sufficient to describe the quality and quantity requirements for the most appropriate technological alternatives and the availability of those inputs and factory supplies.[39] Special attention should be paid to critical inputs, that is, to inputs that are likely to affect the choice of location, technology and scale of production. For such critical inputs, alternative procurement strategies should be identified. If, for example, a subsector relied on a single supplier, the purchaser/supplier relationship would need to be quite different from that where a number of suppliers were competing in the market. The risks and advantages of each purchasing strategy should be compared.

To facilitate the assessment of alternatives at the subsectoral level, inputs should be differentiated according to main categories, as described below

[39]A feasibility study for an individual investment project, however, will have to develop a supply programme, with details on suppliers, purchase and supply conditions, quality, quantities and total cost of supplies.

1 Raw materials

Raw material requirements are dictated by the type and quality of end-product and also by the technological process to be applied, although the latter may more often be true for large industrial enterprises. In assessing the raw materials needed, it is important to examine suitability, availability, cost and reliability.

Suitability

In the manufacture of glass, for instance, the silica sand must possess a specific chemical and physical composition, otherwise, the final product will not be able to satisfy market requirements. Similarly, parts and components purchased from suppliers must meet quality standards.

Availability

The raw material must be available whenever it is needed by the plant, in order to minimize storage costs and avoid interrupting plant operations.

Costs

The cost factor should not be underestimated. Sometimes a domestic raw material cannot be used because it is too expensive compared to the market price of the final product. Some raw materials may be substituted for others, e.g. copper for aluminium alloys (substitution of a raw material may, however, change the appearance and use of the final product).

Reliability

The reliability of the sources of supply and the risks of not obtaining the qualities and quantities required must be evaluated. If there are no alternative suppliers, sociopolitical factors or natural disasters could interrupt supplies and jeopardize production, it might, therefore, be wise to diversify the sources of supply.

2. Factory supplies

Factory supplies comprise auxiliary materials such as chemicals, packaging materials[40] and lubricants and utilities such as cooling water, electric power and fuel. Critical supplies should be identified in the opportunity study, and typical costs as well as sources of supply should be assessed for the subsector. In addition, the costs of environmental protection measures should be determined. In determining typical production costs, the main supplies should be identified, minor costs may be estimated using appropriate ratios.[41]

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[40]Packaging and wrapping materials, containers and boxes have two functions: storing the goods and protecting them against damage during transport, as well as presenting an image of the product or the enterprise. The cost of wrapping materials may be quite high in relation to the production cost, especially in the case of export goods to be transported over great distances.

[41]For example, if the costs per unit produced are $5.00 for raw materials and $1.60 for energy, with factory supplies amounting to 12 per cent of the raw materials and energy cost, then the total cost of the material inputs is ($5 + $1.60)1.12 = $7.39.

Questionnaire VI-3 should be used for assessing the material inputs and services as well as purchasing and logistics. Worksheets VI-1, VI-2 and VI-3 may be used for the description of typical machinery and equipment and the outline of the production process and of specific main inputs and supply characteristics.

G. Quality assurance

Product quality has frequently been identified as the most important success factor for a small industrial business [1]. If quality and quality control are important in a subsector, the study should identify and describe the requirements and typical related costs. The testing of end-product quality may require special knowledge and equipment. Quality assurance may also require technical and organizational measures and the definition of standards. While quality control will hardly cause problems for products being produced in large quantities, as these may be tested at in-house laboratories, quality control for small production volumes may be more costly. It is unlikely, therefore, that small businesses will be able to maintain adequate quality assurance programmes of their own; if, however, quality assurance is important for success, cooperation with other enterprises or the use of services provided by professional associations or specialized cooperative institutions would be a suitable solution.

H. Research and development

For an enterprise to survive in a rapidly changing and competitive environment it must be creative and innovative. Not only must it have innovative ideas but it must also have the research and development capacity to realize them, whether they involve a new product, a new marketing concept or a new technology. This is true for large as well as for small and medium-sized enterprises. While the business environment is quite supportive of research and development in industrialized countries, many developing countries do not have the resources or capacity to develop advanced technologies appropriate to their needs, so they depend on technologies and know-how imported from industrialized or more advanced developing countries. The identification of the research and development needs of a subsector and the assessment of the strengths and weaknesses of a country should be part of an opportunity study at the subsectoral level. To hasten industrial development and growth, developing countries should not only seek to import technological know-how but should also build up their domestic research and development capacities, including the adaptation and improvement of available technologies. Development of domestic research and development capacities requires the support of, and funding by, local governments and may be backed by bilateral or international development programmes. Because small enterprises, particularly in developing countries, are unlikely to be able to spend much on research and development to implement innovative ideas, they need support by specialized institutions [2].

I. Supply marketing

If the assessment of requirements for and availability of raw materials and factory supplies reveals that certain supplies could be critical for the small industrial enterprises in a subsector or a region, it should also indicate how such deficiencies

and supply risks can be overcome. Such information is essential for the preparation and appraisal of individual projects (see part three)

Supply marketing as a management activity should ensure that all the material inputs and services required for the orderly operation of a plant are available in time, at the right place, in the right quantity and quality and at the lowest possible cost. The costs should include handling, transport and storage.

The management and purchase of supplies entails the following

- Optimal stock-keeping that takes into account daily requirements and the durability of supplies
- A strategic decision as to the source, i.e. whether established suppliers will be dealt with regardless of price or whether the cheapest offer will be sought
- Assessment of critical order quantities and minimum quantities to be kept in stock
- Deadlines and timely ordering[42]
- Optimal supply quantities related to cost of transportation.

To allow the assessment of storage capacities and costs, typical order volumes and minimum quantities in stock should be identified at the subsectoral level.

J. Investment costs

A study at the subsectoral level should identify and estimate the total investment costs and assess their structure for proven technologies and various production capacities. Such estimates may be based on costs in studies prepared for similar projects, which should be adjusted for inflation and changes in exchange rates, or on supplier quotations.

Analogous studies in industrialized countries show that the f.o.b. cost of machinery and equipment[43] does not usually exceed 50 per cent of the overall fixed investment costs (excluding net working capital), that shipment, plant erection and contingency costs amount to another 15 per cent, that about 25 per cent of the cost is related to the cost of land, site preparation, civil works and construction of buildings, and that the remaining 10 per cent pertains to engineering and consultant fees and pre-production and start-up costs. These percentages are subsector-typical, particularly if technological processes and site conditions are comparable. They may vary considerably, however, by subsector, region and country.

It is frequently a problem to estimate investment costs because the scope of a project has not been clearly defined (battery limits are unclear or the list of plant machinery and equipment, including auxiliary installations and equipment, is incomplete). The subsectoral study should, therefore, state exactly what is included in the cost estimate and what is not. Such cost estimates at the subsectoral level usually

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[42]The critical moment for placing an order is determined by the minimum quantity in stock that will guarantee continuous production until the newly ordered goods are delivered. This minimum quantity is computed on a daily basis as follows:

$$Q = D(I + H) + RF(I + H)$$

where Q = minimum quantity in stock requiring a new order, D = daily requirement, I = days elapsing between order and delivery, H = days for handling the order by purchaser and supplier, R = reserve quantity, F = risk factor.

[43]F.o.b. free on board at the point of shipment, excluding cost of freight and insurance.

allow for a margin of reliability of about 30 per cent. However, when a proper feasibility study for an individual project is being prepared, detailed cost estimates and checks should be carried out to narrow this margin to 10 per cent.

K. Production costs

Production costs should be assessed on the basis of product type and manufacturing process. They should be calculated as standard costs per unit product and as total costs per year, under conditions of normal capacity utilization. To allow the identification of critical cost items, standard production costs should be broken down into the following categories:[44]

(a) Factory costs.
  (i) Material inputs
  (ii) Direct labour and supervision costs
  (iii) Products rejected or returned
  (iv) Effluent and waste treatment, if applicable

(b) Factory overheads.
  (i) Services (repairs and maintenance, quality control, consulting services etc.)
  (ii) Utilities (electric power, fuel, water)
  (iii) Royalties
  (iv) Packaging materials
  (v) Rents, leasing fees for production buildings, machinery and equipment
  (vi) Major supplies (chemicals, lubricants etc.)
  (vii) Research and development costs, if applicable

(c) Administrative overheads (indirect costs)
  (i) Salaries, wages (management, administrative staff etc.)
  (ii) Office supplies, materials
  (iii) Rents, leasing fees for office buildings and equipment
  (iv) Services (communication, transport etc.)
  (v) Insurance

(d) Operating costs (*(a)* + *(b)* + *(c)*)

(e) Depreciation charges (usually as indirect costs)

(f) Cost of financing

(g) Production costs (*(d)* + *(e)* + *(f)*).

To arrive at the total cost of the products sold, marketing costs have to be added to total production costs.

For the financial analysis it is important to distinguish between production costs such as supervision and cost of financing, which are unaffected by changes in the production volume (fixed costs), and costs such as raw materials and packaging costs, which are directly proportional to the output (variable costs).[45]

[44]This breakdown of production costs is compatible with the concept in the *Manual for the Preparation of Industrial Feasibility Studies* [3] and with the COMFAR *III Expert* software.

[45]Certain cost items may be assumed to be fixed even though they may vary with very drastic changes in output (for example, labour costs).

The calculation of factory costs, which are mainly variable, is also important for any decision on the degree of vertical integration,[46] that is, on whether to rely on internal production or on external supply for components.

For details on cost accounting and financial feasibility for small industrial enterprises, see chapters VII and IX.

Schedule VI-6 may be used for calculating factory costs and schedules VI-1, VI-2 and VI-3 and VI-4 may be used for estimating investment and technology costs

L. Technically feasible production capacity

Empirical research at the subsectoral level has shown that it is almost impossible to generalize about optimal plant size. However, technically feasible minimum plant sizes can be identified for different technologies. This information and the assessment of production capacities typical for a subsector should be covered by the study

The technically feasible production capacity and, thus, the size of a plant are determined mainly by two factors.

- The skills, knowledge or abilities required of managing, controlling and supervising staff
- The capacities of the machinery and equipment, which cannot usually be customized but require a certain minimum production level for technical and economic efficiency

The size of auxiliary installations can also determine the technically feasible size of a plant. At first, for example, the invention of the steam engine gave rise to larger enterprises, later, the invention of the diesel and the electric engine again opened up technological possibilities for smaller businesses. Similarly, first-generation computers were used only by larger entities, but subsequent technological breakthroughs have brought computers to even the smallest businesses.

The minimum economic production volume is determined by sales revenues net of marketing and variable operating costs (variable production costs less depreciation and cost of financing) The difference between the two divided by the units sold is called the contribution per unit, this figure multiplied by the units sold in a year gives annual contribution, which would have to exceed the fixed costs arising over the period (for details, see chapter IX, section K, on sensitivity analysis) Ideally, the minimum economic production volume is greater than or at least equal to the technically feasible minimum production and at the same time well below the probable sales volume (projected market share)

References

1 See K. C. Brannen and J. A. Hranac, "Quality control circles for small business", *Journal of Small Business Management*, No. 1 (1983), pp. 21-27

2. On innovation and research and development, see Z. J. Acs and D. B. Audretsch, "Innovation in large and small firms: An empirical analysis", *American Economic Review*,

[46] A high degree of vertical integration of production means that an enterprise produces most components and parts of a product; the degree of integration is low if the components and parts are mainly purchased from outside.

vol. 78, No. 4 (September 1988), pp. 678-690; W. Bornett and H. Neubauer, *Innovationshemmnisse in Klein- und Mittelbetrieben* (Vienna, Signum Verlag, 1985), J. Doctor, R. Van der Horst and C. Stokman, "Innovation processes in small and medium-sized companies", *Entrepreneurship and Regional Development*, No. 1 (1989), pp. 33-52, P. Drucker, *Innovation and Entrepreneurship* (New York, Harper and Row, 1985), R. Rothwell, "Innovation and firm size: case for dynamic complementarity Or, is small really so beautiful?", *Journal of General Management*, No. 3 (1983), pp. 5-25, R. Rothwell and W. Zegveld, *Innovation in the Small and Medium-Sized Firms* (London, Frances Pinter, 1982), K.-H. Schmidt, "Innovationsneigung kleiner und mittlerer Unternehmen", *Internationales Gewerbearchiv*, No. 2 (1986), pp. 73-84, G. P. Sweeney, *Innovation, Entrepreneurs and Regional Development* (London, Frances Pinter, 1987).

3 See United Nations Industrial Development Organization, *Manual for the Preparation of Industrial Feasibility Studies*, 2nd ed. (UNIDO publication, Sales No. E.91.III.E.18).

VII. Organization and controlling

Introduction

Organization means the creation of order, which allows streamlining procedures and establishing clear-cut responsibility for decision-making and assignment of duties. Firms need organization for economic and cost-effective operation. The larger or the more complex a firm is, the more formal (explicit and documented) an organization it needs. However, the more a firm is organized, the less flexible it becomes. Small firms are generally less complex and their operations are easier to coordinate and control. They also tend to have simpler and more flexible organizational structures, with centralized authority for control and coordination, less standardization (the tasks are usually not repetitive), fewer units and multifunctional positions. The assignment of tasks and establishment of coordination mechanisms is a function of management, not only of top management but also of lower level management, such as the foreman or the first-line supervisor.

To manage and control a small business, it is necessary to have a formal organizational structure and to assign functions and responsibilities, because controlling, reporting and information functions are closely connected to organizational structure. This chapter addresses costing and budgeting from an organizational point of view, as well as questions of general management style, which will be a major factor in the organizational design. In a subsectoral study, the chapter on organization should describe important organizational functions and propose organizational designs that are typical for the sector. The subjects discussed below are closely linked to other parts of the *Manual*, in particular to chapter II, "Entrepreneurship and human resources".

A. Organization and management

Designing the organization of an enterprise is not an isolated and independent task, it has to be undertaken in the context of the strategic objectives of an enterprise and the means available to achieve these objectives within a given business environment. An opportunity study at the subsectoral level will therefore have to assess the organizational design in relation to both business strategies and the business environment. It is important to have a formal structure that assigns business functions and day-to-day activities, as well as competencies, obligations and responsibilities, to organizational units or positions, which are put into a hierarchical order.

The process of planning organizational structures is called organizational design. The structure is usually presented in the form of an organizational chart, which provides a quick insight into functions and hierarchical positions. The content of single positions, that is, their related responsibilities, competencies, obligations and relations to other positions, are documented in job descriptions. Once an enterprise has started up, an informal structure evolves that is seldom identical to the formal structure laid out in the organizational design. One reason for this is that it

is almost impossible to find employees whose personal characteristics and professional skills correspond exactly to the requirement profile. Another reason is that an organization is a living organism that changes constantly owing to internal and external influences. If the differences between the formal and informal organization become too great it will be necessary to re-evaluate certain positions or to choose informal, direct channels of communication.

The organizational design is important with respect to the communication system of an enterprise. The lines between the various organizational units or positions can also be understood as the formal channels of communication. Usually, an organizational position is characterized by a combination of organizational functions, which normally do not vary significantly from one company to the other. However, differences in products or services, special market requirements and differences in management capacities may lead to quite different organizational designs.

The following list of organizational functions, while not exhaustive, may provide some guidance:

- General management (entrepreneurship)
  - Organization
  - Strategic planning
  - Control
  - Representation
- Business management
- Marketing management
  - Sales
  - Promotion
  - Distribution
- Personnel management
  - Recruitment
  - Evaluation
  - Career development
  - Training
- Accounting and calculation
- Controlling and budget planning
  - Financing
  - Supplies management
  - Data processing (EDP)
  - Secretarial services
- Production management
  - Technical planning
  - Maintenance and repairs
  - Production planning
  - Production control
  - Production
- Research and development
- Logistics
  - Storage
  - Transport

A simplified organizational chart may serve to highlight fundamental functions at different levels

General management/entrepreneurship	
Business management	Production management
Operational level/workforce	

B. Organizational functions

Before an organizational design is developed in the course of project planning, it is necessary to evaluate organizational functions in relation to project-specific criteria and to identify and weigh the principles of organization and management. As shown above, one can differentiate between functions at the managerial or entrepreneurial level and those at the operational level. This differentiation is important for the purposes of accounting and cost calculation. Production costs can usually be directly attributed to a product or service provided, while supervision, management and entrepreneurial costs can only be indirectly attributed and are usually added as overhead costs in the form of a fixed amount per unit (piece, man-hour) or as a percentage of direct costs. In general, business and production management are the basic organizational functions (and organizational units) of an enterprise.

1 General management and entrepreneurship

The general management of a small business, usually in the person of the entrepreneur, bears the final responsibility for the enterprise. Apart from their legal responsibilities and contractual commitments for reporting to creditors or the capital owners, the entrepreneur and/or the general manager are independent, meaning that they have no further obligation of reporting.

The main functions of entrepreneurial and general management are the formulation of the basic business principles, the general long-term business plan (basic targets), the basic design of the organization, long-term planning and all the strategic decisions that affect or change the character of the organization. Their functions also include principal control of the enterprise and its representation *vis-à-vis* the public. In small businesses the entrepreneur or the general manager will also be in charge of several other functions, including business management, personnel management, production management and research and development, depending on his or her personal abilities and interests. It is not uncommon to find entrepreneurs and general managers of small businesses overloaded with several management or even production activities, with the result that they do not have time to carry out their tasks of strategic planning and controlling. This heavy workload can sometimes be alleviated by competent administrative staff and by in-house experts or outside consultants.

2 Business management

Business management includes all administrative functions such as accounting and cost calculation, controlling and budgeting, financing, data processing and secretarial services, as well as marketing, personnel and supplies management. All business managers report to the general management. It is essential for the opportunity study to identify and assess the business management systems that are usually successful in a given subsector.

Accounting, cost calculation, statistics, budget planning and communication, which are administrative functions, will be dealt with in greater detail in section F.

Marketing management

Marketing is described in detail in chapter V of this *Manual*. The importance of marketing management, the size of the organizational unit and the number of positions in the unit vary according to the nature of the products, the size and characteristics of the markets, the distribution channels and the sales approach. Although marketing management is a function of business management, it needs to cooperate closely with production management to establish feasible production and price policies and to ensure that products and services will be available according to market demand.

Personnel management

Personnel management [1] is an organizational function dealing with all subjects related to human resources, such as recruitment, training, career development and the planning of personnel capacities. Since most small businesses will not have separate personnel departments, the functions of personnel management need to be shared by the management of other units. However, as human resource management is crucial for the successful realization of most investment projects, final responsibility rests with the general manager. Some functions of personnel management, such as recruitment and training, could be entrusted to outside services. Personnel management is very sensitive to the sociocultural environment and has to adapt to local conditions, including special labour laws, cultural habits and religious practices and beliefs.

Supplies management

Supplies management is, in short, the timely provision of necessary inputs of materials and services. If there is no separate department for transport or storage, this function might also include the logistics of inputs (as well as outputs), storage, inventory control and quality control of supplies. Small enterprises in general do not establish separate purchasing departments. The supply management function is usually divided between production management and business management. If an enterprise depends, for instance, on technology or raw materials of foreign origin, the supply function may be left to an intermediary, such as a local trader or broker.

Data processing and secretarial services

Data processing and secretarial services can be split up and assigned to other organizational units. The extended use of modern technology in the office organization as well as the production process may make it necessary to set up a separate unit for electronic data processing.

Production management

Production management includes all the functions necessary to plan, support, execute and control the production process. These functions also include investment planning from a technical point of view, planning and further development of production processes and maintenance and repair of machinery. Installation, repair,

logistics (if done in-house) and research and development are also functions of production management. Production management provides data to the relevant units of business management but is usually responsible only to general management.

C. Organizational principles

The principles of organization and management can also be understood as factors critical to success. The principles are not necessarily compatible, some may even be contradictory. Their importance for a particular sector or project depends on cultural influences as well as on the type of sector or project, the personality of the entrepreneur and entrepreneurial values and attitudes.

1 Span of control

Span of control refers to the number of persons who will be supervised by a single person. The number that should not be exceeded was set at 6 by one organization expert; other experts suggested as many as 20. How many employees can be controlled by a single manager depends on the personal capacity and abilities of the manager and the employees, the type of work and cultural influences and the work ethic. However, the span of control should not be overextended.

2 Hierarchical structures, responsibilities and obligations

The assumptions underlying the organizational principle of clear hierarchical structures, responsibilities and obligations are that the activities of an enterprise become more economic and effective and employees will be more satisfied if their obligations and responsibilities are unambiguous and clear. This includes a fairly complete and clearly formulated job description and clear and unambiguous instructions by superiors. The principle can be best put into practice if an employee has only one supervisor to whom he is responsible and who has the competence to give orders. However, this supervisor might lack technical competence and not be able to formulate orders clearly.

Complete job descriptions and clear hierarchical structures will seldom be the case in young, dynamic enterprises. They might develop in mature organizations that are fairly stable and that tend to apply bureaucratic procedures.

3 Flexibility

Flexibility, defined as the ability to react rapidly to changing conditions, can be more easily achieved if employees are not deterred by a formal organization. To facilitate flexibility, an organization should be "flat", that is, it should have few hierarchical layers and allow a free flow of communication between the various positions. To be successful, such a strategy should be accompanied by efficient control mechanisms and careful selection and training of staff, and all staff must understand the principles of the business and its main targets.

4 Delegation of decision-making authority

Delegation refers to the temporary transfer of a certain task and the related decision-making capacity from a higher to a lower organizational position, freeing

the higher organizational position (e.g. the entrepreneur) from certain responsibilities and giving him or her room for other activities. Delegation may also enrich the lower position and lead to greater job satisfaction.

The principle of delegation underlies the management concept of "management by delegation", according to which decisions should be delegated to the lowest possible hierarchical layer of an organization. This would mean, for instance, that the supervisor of a work group should have the competence and power to approve the individual vacation schedules of members of the group, as long as production targets are achieved. This organizational principle widens the decision-making capacity of the various positions and organizational units, increases the speed of decision-making and promotes decentralization within an enterprise. However, the delegation of competencies and tasks also requires considering whether the person being granted such power is sufficiently competent and informed to make decisions.

One disadvantage of delegating decisions is that decentralized decisions may sometimes contradict the more general business objectives and plans, which would not happen when the decision-making is centralized. For example, the supervisor of a work group may make a decision without taking into account its impact on another unit or at a higher hierarchical level, e.g. the level of production management. To avoid such problems, formal and informal communication between decision makers is necessary.

5. Substitution

By the principle of substitution, a company attempts to secure the stability of its operation. For every organizational position, there should be a substitute who can temporarily or permanently take over the functions of that position if the original incumbent is temporarily absent, has an accident or leaves the firm unexpectedly. Especially in small firms with few employees, substitutes with technical know-how may not be available, and it is unlikely that the functions of the entrepreneur can be taken over by someone else.

6. Standardization

Standardization is a management tool that is applied to increase the efficiency of business operations. It refers to the standardization of administrative procedures, of production processes and of inputs and outputs. In the case of administrative procedures, standardization mainly involves the application of standardized forms and channels of communication and decision-making. In the case of production, the focus is on the coordination of production and the selection of equipment and tools. The concept of standardization can also be applied to human resources: employees with a certain educational background, technical knowledge and personal profile are recruited or trained and are then expected to provide services and achieve results that accord with the business principles of the enterprise. For example, in the manufacture of products characterized by a varying design it might be useful to standardize the skills rather than the production processes.

D. Management style

The organizational structure will depend largely on the management style of the entrepreneur and or general manager [2]. Traditionally, three styles may be distinguished: authoritarian, *laissez-faire* and cooperative.

An authoritarian management style can be characterized by its adherence to hierarchical structures and its tendency to regulate behaviour or procedures in great detail. The communication flow runs from top to bottom, and decision-making is concentrated in the top positions of the company, with little delegation of responsibilities.

In mature organizations an authoritarian management style tends to overorganize and to leave little room for personal creativity. The *laissez-faire* management style is more informal than the authoritarian style. It gives considerable freedom to employees, who are expected to make decisions within their field of competence, to choose their own procedures and to exercise self-control. Carried out to the extreme, a *laissez-faire* style might cause employees to become detached, lose direction and feel the lack of decisions from higher management. Frequently, there will be a lack of communication if management is not responsive. The typical flow of communication is from bottom to top with this management style.

Less archetypal than these two management styles is the cooperative management style, which is based on extensive communication, discussion of strategies and objectives and democratic decision processes. However, the managers do have to decide, and they bear the responsibility for their decisions. In its extreme form, this management style could lead to overlengthy discussions and slow the decision-making process on vital questions.

None of these management styles is, in itself, good or bad. Their effectiveness can only be judged against the background of a specific activity and the personal characteristics of the firm's employees and managers [3]

E. Organizational design

The organizational design of an enterprise consists of the following steps:

- Assigning functions to organizational units
- Assigning positions to organizational units
- Arranging the positions in a hierarchical order
- Designing the basic organizational procedures
- Designing the forms needed to implement these procedures

The first three steps result in an organizational chart, the fourth deals with the organization of day-to-day activities and the fifth involves determining the instruments needed to make the organization operational.

1. Organizational structure

The attribution of organizational functions to organizational units or positions, particularly in small businesses, should strive for a minimum of positions, as every position will later on need to be filled and will thus incur a cost. On the other hand, the functions attributed to a position should not overburden the position, and the different organizational functions attributed should be compatible. The basis for this procedure should be a list of organizational functions, which have to be evaluated in terms of their importance to the enterprise and the time needed to accomplish them.

2. *Organization of procedures and instruments*

The organization of procedures is not usually examined in detail in a subsectoral study. However, production needs to be described in detail. This can go so far that each step in the handling of materials and the use of tools is strictly prescribed (Taylorism). When procedures are being organized, positions should be referred to and responsibilities defined (see the example in the appendix to this chapter). Nowadays, telecommunications (telephone, post, facsimile, telex), filing systems and computers are the most common organizational instruments.

3. *Description of functions*

The functions to be fulfilled in an enterprise should be described in detail as to content and responsibility. In small businesses, a given position often combines a number of functions, that is, there is less job specialization. Formal job descriptions are therefore usually of more limited value or may quickly become obsolete, as changing job requirements need more flexible use of personal skills. In larger firms, by contrast, the job requirements are usually more specialized and have a more stable functional content. Flexibility implies a lower degree of specialization and requires employees to perform many different functions. Such flexibility is characteristic of small businesses and constitutes a potential strength. A lesser degree of organization is typical for a small business with fewer formally defined positions, units and procedures, this may, however, be seen as a weakness, because it limits the possibilities of formal substitution and can lead to greater dependence on employees with specific skills.

Job descriptions can none the less be useful in the search for employees besides describing functions, they may refer to personal characteristics (behaviour, age, interests), which are relevant not only to the job itself but also to social interaction with people inside and outside the firm. In small businesses they normally need to be less elaborate and formalized than in large firms.

Worksheets II-1 and II-2 may be used to get a picture of the different types of workers required. Worksheet VII-1 may be used to assess the organizational setup.

F. Controlling and reporting

Controlling and reporting refer to the functions of accounting, statistics, cost calculation, budgeting and communication. They are all part of business management.

1. *Financial accounting*

Financial accounting aims at providing management with the financial and accounting information required for efficient control of an enterprise. National business laws and fiscal regulations also require that the financial situation of the enterprise be documented and reported regularly and in line with standards determined by the authorities.[47]

[47]The application of accounting standards and regulations varies between developing countries: in some, the law is applied to a greater or lesser degree; in others, only barely or not at all.

In particular, it provides management with information on the financial standing of the firm and its financial structure, and it also serves as the main basis for the cost calculation system of the firm. Accounting, which is required by law, involves assigning costs and revenues to the relevant categories in the balance sheet and in the profit-and-loss account. To facilitate the transfer of information from financial accounting to the cost accounting statement, some accounts may be further broken down and attributed to cost centres.

2 *Business statistics*

Business statistics refer to the systematic collection and processing of the data of an enterprise. These data may be required by management and also, as in the case of statistics on working hours, by law. Business statistics should also provide the information necessary for calculating costs. They usually show the number of employees, the hours worked per week or month, the hours worked in certain functions or for certain orders, and absences. Statistical information also reports the utilization of machine capacities and output produced and serves as an important basis for marketing activities when it reports, for instance, sales by customer group or individual customer, by size of order or by product.

3. Cost calculation

Because the profit (or loss) reported in accounting statements needs to comply with formal legal requirements, it may not always show the real financial results of business operations. It is therefore usually necessary to adjust these figures by adding costs not included in the statements because they are legally not recognized and by deducting any costs not referring to the period accounted for (e.g., for the purchase of materials used the following year) or costs included for tax purposes only (as, for example, accelerated depreciation and allowances). To gain more information about the real cost situation, it may be necessary to divide the enterprise into different profit and cost centres.

A profit centre is an organizational unit of an enterprise to which revenues as well as costs can be attributed. A cost centre is a unit to which only costs can be attributed. A further distinction may be made between productive cost centres, which are cost centres producing services or goods that are sold, and service (auxiliary) and administrative cost centres, whose costs have to be finally borne by the productive cost centres. Referring to the example in the appendix, the different production and assembly units could be designated as productive cost centres. The production centres could be aggregated into one profit centre and the two installation units could form a second profit centre. The administrative cost centres would embrace administration, distribution, storage and transport. A profit centre shows product-related income and costs and gives an overview of the cost situation, whereas a cost centre only accounts for costs being attributed to it, based on which costs per unit (for example, per piece or tonne or working hour) can be computed. These unit costs form the basis for the calculation of price offers.

Indirect costs, by definition, are costs that cannot be directly attributed to a cost centre, they are either allocated according to a selected key (for example, the number of square metres in the case of costs of building space) or accounted for as administrative cost. Administrative costs include general management costs, the costs of accounting and statistics and other administrative costs (overheads). The costs of sales and distribution fall under marketing costs and are either directly

attributed to a product or allocated to profit centres in the case of marketing overhead costs. For subsectoral studies it usually suffices to identify the profit potential by product and to identify the different types of costs that can be attributed or allocated to profit and cost centres. It would exceed the scope of this *Manual* to discuss here the intricacies of cost calculation and the assumptions and schools of thought underlying the various costing concepts. For the purpose of subsectoral and feasibility studies, UNIDO has developed a computer software package, COMFAR *III Expert*, that contains a cost accounting module. This software may be obtained from UNIDO under a user licence.

Schedule VII-1 may be used for investment cost estimates and schedule VII-2 for overhead costs.

4 Reporting

To assure that management obtains the information it needs to make decisions and control a business, a proper reporting system is required. The type of information to be provided for the different organizational positions must be determined, along with the frequency with which it has to be provided and who has to provide it. Reporting usually refers to written, formalized information. It may, for example, include monthly turnover statistics by customer group for the general manager. Another typical example of information might be a monthly statistic on the capacity utilization of machinery, prepared for the production manager.

5. Communication

Apart from reporting, which is understood as written information, it may be necessary to develop formal instruments for regular communication among the various units of an enterprise. Weekly meetings of the general manager, the main secretary and the production manager are, for instance, a typical instrument of formal communication, at such meetings, problems may be discussed, as well as the production plan for the week. In general, small businesses tend to minimize formal communication, and liaison between units is less formalized. This contrasts with larger enterprises, where it is necessary to install a number of formal communication instruments to ensure that information flows to the relevant management positions.

6 Budgeting

In contrast to cost calculations that process past data, providing a picture of what has happened in terms of costs and incomes, budgeting is future-oriented and provides target figures for business planning. Thus, it is based on past cost calculations, corrected by indices reflecting cost increases, production increases and strategic decisions of management. Budgeting is one of the tools to support decision-making in the different cost and profit centres, it is usually done once a year, but projected figures may be corrected at any time.

G. Projection of organizational costs

Ideally, subsectoral studies should provide information on the typical (organizational) requirements of comparable projects. Such information might relate to the number of staff or (organizational) units to achieve a certain turnover or to the ratio

of administrative to productive personnel that is typical for such projects. Furthermore, there may be average figures showing the ratio between different costs and turnover. Such information could be stored in a database and used for other opportunity studies at the subsectoral level or for individual feasibility studies.

Organizational design and job descriptions will allow the assessment of human resource costs (See also chapter II, "Entrepreneurship and human resources") as well as organizational costs as such, i.e. investment costs and running costs related to business organization. It will also be necessary to assess the organizational design as it relates to the marketing and technical requirements of a project. The organizational cost as well as estimated expenses for personnel will be incorporated in the overall financial evaluation.

A check-list of organization costs would contain the following items[48]

- Storage costs
- Transport services (internal and external)
- Insurance
- Communication and personnel travel
- Office supplies
- Maintenance of office equipment
- Depreciation charges for office equipment
- Rents
- Leasing costs
- Property taxes.

Schedule VII-2 may be used for projecting the overhead costs.

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[48]The overhead costs of administrative personnel are included in schedule II-1.

APPENDIX

EXAMPLE OF AN ORGANIZATIONAL SET-UP

This example is based on a firm producing steel structures, such as custom-made steel frames for shop fronts. First, the following organizational functions were identified.

- Strategic planning
- Overall control of the business
- Selection, evaluation and general control of personnel
- Representation of the firm
- Sales visits to potential customers
- In-house sales
- Promotion
- Accounting
- Calculation of offers
- Invoicing
- Cost control
- Secretarial services
- Production planning
- Supplies of raw materials and parts
- Investment planning
- Preparation of orders for production
- Production
  - Supervision and control of production
  - Production processing
- Installation (construction)
  - Supervision
  - Construction
- Storage of materials
- Transport
- Product development.

These organizational functions were attributed to the following organizational positions.

General manager (entrepreneur) Responsible for strategic planning, overall control of the business, selection, evaluation and general control of personnel, representation of the firm, sales visits, promotion, in-house sales, investment planning, and product development. Especially in small firms it is necessary not only to assign several functions to one position but also to break up the functions, particularly the selection of personnel, sales visits and in-house sales, and assign them to several positions.

Assistant or secretary to the general manager Responsible for secretarial services, in-house sales for smaller customers, and accounting, costing and statistics of the enterprise. The secretarial services unit, including accounting and cost control, comprises two more positions one for accounting, cost control and statistics and the second for secretarial services and invoicing.

Production manager Responsible for selecting technical personnel, customer visits, in-house sales, general production planning, including the planning of capacity utilization, calculating offers (pricing) and investment planning. May also be involved in product development.

Administrative clerk/accountant. Responsible for processing orders, calculating manufacturing costs (costing), preparing a production schedule and internal orders for production. The position has no line function and reports to the production manager and/or the general manager.

Three supervisors for production units. Responsible for supervision and control of production, which is organized into three different departments. (A supervisor may also be involved in investment decisions and in the preparation of investment proposals for his or her department.) Two skilled workers and one helper are assigned to each production unit, forming the organizational positions for the production function.

Two construction supervisors. Each construction crew consists of two skilled workers and one helper.

Storage clerk. Responsible for storage of materials, control of raw materials and parts in storage. This position also included keeping track of goods in stock and logistics.

Transport clerk. Responsible for the vehicles of the enterprise, deliveries and messenger service.

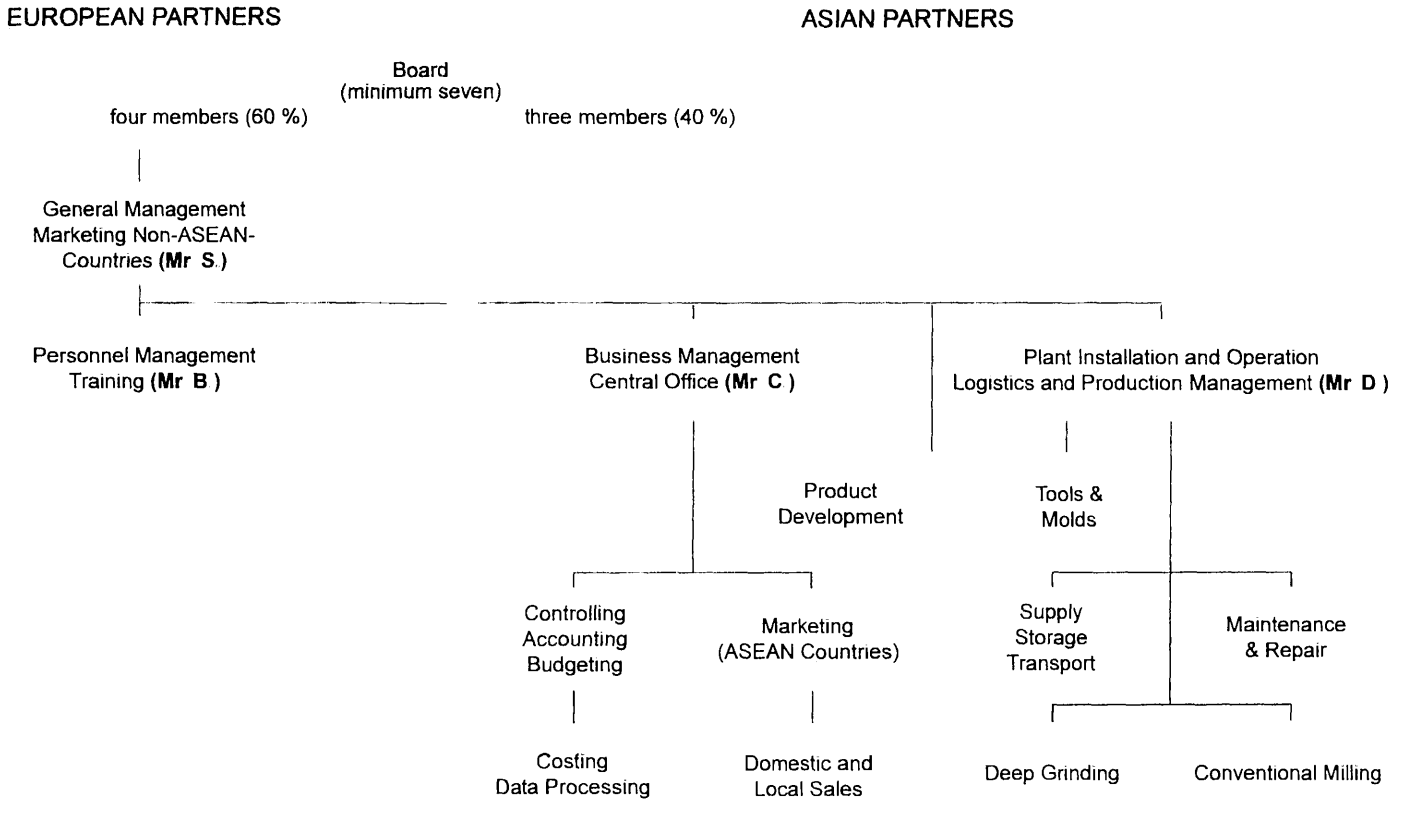
Figure XIII shows the organizational structure of the firm in this example.

For illustrative purposes, the organizational procedure that would be followed by a structural steel firm for ordinary orders is presented below:

- Customer asks for an offer.
- The administrative clerk usually calculates the offer, but the production manager or the entrepreneur may also be involved.
- The secretary writes the offer and sends it to the customer.
- If the customer does not place the order within five days, he is called by the entrepreneur, the production manager or the assistant/secretary.
- If the order is placed, the production manager will fit it into the production plan and prepare the internal order for production.
- The production manager will control the timely fulfilment of the production steps.
- After delivery, the administrative clerk will recalculate the order on the basis of the information received daily from the production unit and cost control.
- Based on the offer and the results of the cost calculation, the customer will be invoiced.
- The administrative clerk will control whether payment is made in time and remind the customer if payment is overdue.

To facilitate organizational procedures, the enterprise will probably need to use electronic data processing to calculate offers and determine effective production costs, and to prepare accounting and business statistics. Statistics include employee time sheets and profit-loss calculations for each order or production job.

Figure XIII. Typical organizational chart for a structural steel firm



VIII. Project implementation

Introduction

The period of project implementation covers the time from the investment decision to the effective start of production activities. During this period the entrepreneur as an investor is confronted with a number of management tasks, such as the preparation of an implementation plan and the organization of the activities necessary to establish the enterprise and to put it into operation. The opportunity study should identify the critical phases and activities typical for a subsector, in order to provide guidance to investors and to assess typical costs arising during the implementation phase. It is very important for time and cost estimates to be realistic and for critical cost factors to be highlighted.

Some examples of critical phases or activities include the following: the definition of the scope of the work or project and the identification of personal responsibilities, the foundation or acquisition of an enterprise, the detailed design of a project, including the selection and transfer of technology and the acquisition of the necessary plant equipment, the contracting of suppliers and consultants, the projection of capital requirements and assurance of financing, the planning and implementation of plant erection and start-up, including plant commissioning.

Newly established small businesses may be especially vulnerable, and wrong decision-making could have serious consequences for them because they usually do not have enough financial means to overcome unexpected financial problems.

A. Project management

In the implementation period the entrepreneur usually functions as the project manager. This means that he is responsible for organizing and managing the project. In this function the entrepreneur may be assisted by an associate or a partner; however, unlike in large industrial projects, he or she cannot usually rely on a team of in-house experts or staff. Therefore, the opportunity study should suggest sources of external expertise (legal advice, engineering services, auditing and tax consultancy, marketing and general business consultants) and indicate the usual costs of such services.

Implementation planning should cover financial planning (securing liquidity during project implementation and start-up of production), planning the internal marketing organization, procurement and stock-keeping, and internal transport as required for a smooth production. The study should also give examples of realistic time schedules that would be typical for a subsector and for different locations.

B. Establishing a new business

In establishing a new business [1] an entrepreneur will have to take a number of key decisions on matters such as the form of its ownership. This could be a

private ownership by a single person or by two or more business partners. The legal form of an enterprise determines the liability of the owner(s). The most appropriate forms depend on the size of the business (number of employees, volume of investment and turnover) and the constitutional and legal conditions at a location. The study at the subsectoral level should assess the various typical forms of business, their strengths and weaknesses, and describe the process of establishing a new business, i.e. the procedures required and the related costs. Data may be obtained from tax authorities, social security agencies, financing institutions, entrepreneurial associations, environmental protection agencies, agencies supervising the health and safety of workers, local authorities administering public utilities (telephone service, water authority, power supply company etc.). Often, a new business cannot be established without certain licences. The study should therefore list the permissions required and the conditions under which these may be obtained, as well as the time required and related costs.

The recruitment of skilled personnel may be another critical activity when establishing a new business. The availability or non-availability of key personnel at potential locations, as dealt with in chapter II of the *Manual*, would then be decisive for the establishment of a new business.

For assessing legal forms of business, questionnaire VIII-1 should be used.

C. Business expansion

In a business expansion [2], including a merger or a plant purchase, an existing enterprise increases the scope of its business considerably. Experience tells us that enterprises are usually vulnerable during this phase, primarily because they need additional finance, a new organizational structure and new marketing concepts. In a growing subsector, business expansion may be a promising strategy, and an opportunity study should assess the strengths and weaknesses of expansion strategies. Business expansion aims at increasing output by one or more of the following means:

- Making better use of already existing capacities, for example, by increasing the number of shifts
- Applying a more efficient technology
- Expanding production capacity by such means as additional machinery and equipment
- Other alternatives, such as business acquisition, joint ventures and various forms of business cooperation, which are dealt with below

The merging of enterprises is a special case of business expansion whereby two or more businesses form a new legal entity. This always constitutes a kind of concentration process under special economic circumstances and can also serve as an instrument for business restructuring and rehabilitation. Mergers, however, are not an appropriate subject for an opportunity study at the subsectoral level, rather, they are assessed in an individual feasibility study.

1. Business acquisition

In a business acquisition [3] it is necessary to assess the value of the enterprise assuming that production will continue. Objective criteria and methods of assessment such as cash flow analysis may be applied (see chapter IX). Other methods,

such as the determination of the sales value of assets that would apply if the enterprise was closed down, will usually result in different values.

Apart from estimating the net present value (see chapter IX) of an enterprise, the following aspects should be given further consideration:

- Which obligations are being transferred to the new owner?
- Which liabilities are to be taken over?
- Which existing contractual obligations are being entered into (working contracts, rental agreements, landlord and tenant relationships)?
- Which tax liabilities ensue?

2. *Cooperation*

Before cooperation can take place, the business behaviour of the partners must be harmonized [4]. This is especially true in the case of small businesses, where specialized knowledge is often lacking, particularly in developing countries, export cooperatives or export houses play an important role in facilitating the entry of small enterprises into international markets. In assessing opportunities for successful cooperation, the following tasks need to be carried out:

- Assessment of the partners' willingness to cooperate
- Analysis of the positions of the enterprises concerned and their business environment
- Analysis of the strengths and weaknesses of potential partners
- Identification of typical entrepreneurial objectives
- Assessment of the strengths and weaknesses of cooperation
- Determination of the areas in which cooperation would make sense
- Formulation of common cooperative objectives
- Examination of alternative forms of cooperation.

Cooperation can take on different degrees of intensity. It can range from a mere exchange of experience, to joint statistical surveys and evaluation of data to the integration of entrepreneurial functions, intensified by a partnership, a joint venture or, finally, a full business merger. When opportunities of cooperation are being identified, it is useful to distinguish between horizontal and vertical cooperation.

In horizontal cooperation, two or more enterprises work together on the same level, usually with the objective of improving their market position. Vertical cooperation exists when two or more enterprises work together on different levels (suppliers, producers, traders), large and small enterprises often cooperate in this way. Some types of cooperation that have particular relevance for small business are the extension of a product range; research and development, financing, marketing (sales, market research, service, promotion), procurement, transport and storage, production, administration and electronic data processing.

3 *Joint ventures*

There is no commonly accepted definition of a joint venture. For the purpose of this *Manual*, joint ventures are defined as legal entities established by two or more enterprises. Apart from financing, partners in a joint venture quite often provide

technology, machinery, distribution, marketing, sales outlets and other services. Joint ventures are entered into to gain advantages from this type of cooperation. However, they can also have disadvantages, which should not be overlooked, for example, possible conflicts regarding sovereignty, impairment of autonomy and control and inefficiency in decision-making.

In any case, an opportunity study should assess how the inputs of the various partners will contribute to the business. Principal management functions should be described and assigned to the joint-venture partners, according to the typical practice in a given subsector. A step-by-step approach to assessing a joint venture should be followed, starting with an examination of the possible forms of cooperation as a basis for more detailed discussions on the realization of a potential project. The joint venture contract should be drafted carefully to avoid inconsistencies and misunderstandings. Partners should agree in principle on the objectives of the joint venture, how to achieve them and how to share costs and benefits.

D. Rehabilitation

Rehabilitation comprises the reorganization and restructuring of an enterprise and is not limited to the financial aspects. Rehabilitation might be necessary for internal as well as external reasons, for instance, inappropriate production capacities, unfavourable market conditions or wrong marketing strategies, managerial deficiencies, lack of skills, and inappropriate financial structures combined with liquidity strain. Rehabilitation should start with an internal analysis of strengths and weaknesses. Based on the findings, rehabilitation measures can be defined and planned in terms of cost and time requirements.

E. Capital sources and financing

Capital requirements and possible sources of financing [5] are determined by an individual feasibility study. An opportunity study, however, should identify typical capital requirements for projects in a subsector and should also identify typical capital structures and analyse the strengths and weaknesses of such structures. Furthermore, potential sources and conditions of financing should be identified.

The task of financial planning is to assure that an enterprise is able to fulfil its financial obligations whenever required. Critical phases in the life of an enterprise are the foundation and expansion phases, when financial requirements are considerably greater than during normal plant operation. It is a characteristic of small industrial businesses, in contrast to large enterprises, that the main source of equity is the owner and his or her family. Additional capital (for new investments, for example) would have to be obtained from outside sources. In the case of existing operations, internally generated funds may be available.

1. Equity financing

The possibilities of raising equity capital depend on the legal form of the business, that is, on its liability. Limited liability might make it easier to find investors than unlimited liability, which involves higher risks for investors. Small industrial businesses frequently raise equity capital through undisclosed partnerships, in which case the liability of the partner is limited to the capital invested. Equity capital can also be raised by various forms of disclosed partnerships as governed by prevailing legislation (private company, public company).

2. *Outside financing*

Outside financing through credits can take the form of long-term and short-term loans. Such loans must be serviced in accordance with the agreed terms for interest and capital repayment. Investment financing usually is medium or long term. Typical forms of short-term capital are accounts payable, down payments obtained from customers and bank overdrafts. A specific characteristic of outside financing is the fiscal treatment of interest payments as interest paid on loans is usually accepted as a cost item in the calculation of taxable profits. Outside financing is mainly provided by banks, suppliers, development finance companies and similar promotional institutions (see also chapter III).

3. *Inside financing*

Inside financing is a source of capital available only to existing firms from the cash surplus of operations, and it is closely related to profits retained, depreciation and built-up reserves. Frequently, firms set aside funds for future investment and for retirement or pension payments as a form of social capital.

4 *Alternative forms of financing*

Leasing

The attractiveness of leasing, as an alternative to other forms of financing [6], depends largely on the relevant country-specific tax laws. A firm might also enter a leasing agreement because it can obtain such financing more easily. Leasing is defined as a way to utilize capital goods on a rental basis with the option of buying them later on. Basically, two kinds of leasing agreements can be distinguished, operating leasing and financial leasing. Operating leasing agreements can be terminated after a stipulated period, allowing technological or economic risks to be partly externalized. These agreements are similar to rental agreements and may include further services by the lessor, such as maintenance, repairs and the supply of materials the leased equipment consumes during operation. Financial leasing, by contrast, can be seen as a form of loan financing over a certain period of time. This period is usually shorter than the expected life of the fixed assets leased, and when the contract expires the lessee normally has the option to buy the assets at a predetermined price. Leasing rates cover acquisition costs, financing costs and overheads, including the profit margin of the lessor. For the lessee, leasing can quite often be an attractive alternative to loan financing, because the acquisition and financing costs of the lessor are usually lower owing to its strong market position or to the allowances it enjoys.

Factoring

Factoring [7] is a form of financing that is primarily related to the liquidity of a business and that can only be applied in the operation phase. Factoring means that accounts receivable are either acquired or advanced by a so-called factor at a corresponding amount less a discount. The factor usually manages the accounts receivable, collects the debts due and takes all necessary steps to ensure payment. In the pure form of factoring, the factor bears the full risk of nonpayment, and this is reflected in a higher discount rate. Very often, however, the factor does not assume

this risk and claims repayment of the advance instead. The benefits of factoring, such as ready availability of cash, have to be compared to the difference between its costs and those of alternative short-term financing.

Venture capital

Venture capital [8] as a special form of financing is to be understood as a form of limited participation in equity for a limited period of time. This period, usually three to five years, is followed by a period of gradual exit. A venture capitalist usually insists that the business be monitored closely by auditors or consultants. To attract venture capital, in particular for small businesses, opportunity and feasibility studies with reliable projections of costs and revenues are important instruments. Questionnaire VIII-2 may be used to evaluate the different sources of medium-, long- and short-term financing.

F. Project management and organization

In the case of small businesses, the entrepreneur—alone or together with partners—will manage the project and be liable for its efficient and timely implementation. This requires an intimate knowledge of and familiarity with local conditions and is not limited to the implementation stage. It involves recruiting and training required human resources before the start-up. The salaries of staff and workforce employed in the implementation phase account for a major part of pre-production expenditures.

G. Pre-production marketing

Pre-production marketing aims at shortening the period between production and actual sales in the operating phase. It includes the preparation of markets, particularly by setting up distribution channels and by promotional activities. Cost estimates should include costs for the training of sales personnel and dealers, the provision of sales facilities (for instance, show rooms), contractual agreements with independent distributors, advertising and the preparation of product information and catalogues. Sales activities can start once product samples are available, which may be particularly important in the case of subcontracting.

H. Site acquisition, detailed engineering and contracting

The technical requirements of a project and its basic design (see chapter VI) must be available before embarking on detailed engineering, which includes the preparation of drawings, technical descriptions, equipment specifications and the related time schedules and detailed cost estimates. Detailed engineering is frequently contracted to external specialists, such as architects, engineering consultants and suppliers of technology. Early in the implementation phase, tender documents have to be prepared for potential contractors to submit their bids as a basis for negotiations and the awarding of a contract. Similar steps must be taken when acquiring land (see chapters IV and VI).

I. Construction and installation

A subsectoral study should assess typical time requirements and related costs for land acquisition, including contractual agreements for site preparation, construction or adaptation of buildings, as well as the installation of equipment. For civil works, external specialists are usually contracted to supervise activities and to assure that time schedules for construction, adaptations and the delivery of building materials and equipment are met.

J. Plant commissioning, supply of materials and services, and test runs

The commissioning of the plant is one of the most critical stages in the implementation phase. It comprises the following activities, which assume more or less importance depending on the subsector:

- Pre-operational checks
- Trial runs
- Performance tests
- Acceptance and take over

Commissioning, if required for plant operation, may be conducted by public authorities or by the project management proper. The project manager verifies that contractors have fulfilled their obligations and that the plant is operational. Commissioning requires that the necessary inputs, materials and manpower be available. This means that not only do arrangements have to be made during the implementation phase for future delivery of material inputs and services but also that the material inputs are available by the end of the implementation phase for trial runs and performance tests.

K. Implementation scheduling

The interrelation of implementation activities means that they must be carefully planned and coordinated. Related activities and tests must be identified and scheduled accordingly, indicating the approximate starting dates and time limits. The description of each activity should specify work to be done, resources needed, time required for its completion, information needed, allocation of responsibility and expected results. A general description of such activities within the subsectoral study should be adaptable to individual project studies.

L. Implementation budget

Pre-production expenditures comprise costs for pre-investment studies to the extent they have to be borne by the project, the cost for preparatory investigations and planning and manufacturing costs. Pre-production costs should be capitalized and form a part of the total initial investment cost. The cost estimates will be based on available reference costs as well as on offers obtained from potential contractors. Estimates should include contingencies for price increases, cost deviations and miscellaneous. Schedule VIII-1 can be used for estimating the total investment and implementation costs.

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IX. Financial and economic analysis

Introduction

The objective of financial analysis is to determine whether an investment proposal described and analysed under certain assumptions will render a return acceptable to the investors or the entrepreneur and financiers. Hence, it is a crucial part of project evaluation to check on the assumptions that form the basis for the estimates and forecasts in the study Such assumptions could, for instance, relate to the availability of workers, raw materials and technology and the prices and costs of these and other inputs Cost projections and sales forecasts should be analysed to determine how much they can deviate from projected values and what impact such deviations would have on the financial feasibility of a project

An opportunity study at the subsectoral level usually also includes an economic evaluation that assesses such overall impacts as the contribution of a subsector to the regional or national economy, its sociological effects, its ecological impact and its compatibility with the overall development policy of a country. The feasibility study for a single small project does not normally deal with macroeconomic considerations, because its economic impact, if indeed it has one, is limited to the local area or region where it is located For financial as well as economic evaluation it is important to understand that an investment is the longer term commitment of economic resources, made with the objective of achieving net gains in the future [1] The main aspect of such commitment is the transformation of financial means into productive assets.[49]

To measure the profitability of a business and its costs and benefits to investors and to the economy, various concepts, methods and instruments—including financial and economic ratios—are used. Financial statements and schedules are compiled to facilitate the analysis and should help to rationalize conclusions Such evaluation should also provide guidance to financial requirements for successful project implemention and should identify institutions ready to participate in financing the investment.

The task of investment appraisal is to assess whether a technically feasible proposal is also financially feasible and whether it can be implemented in the socio-economic environment of a given region or country. The final appraisal should cover the following tasks.

- Analysis of the reliability of projected data
- Analysis of the structure and significance of cost and income projections to identify those critical variables that could have a significant impact on the feasibility of an investment

[49]To achieve or maintain a particular capital structure, a project could obtain funds from retained earnings, leases and loans from banks. The cost of capital is the weighted average cost of each money source. This weighted average considers the joint cost and the desired long-run relative proportions of each type of capital (including inflation's impact)

- Determination and appraisal of financial net benefits, accrued annually as well as over the total planning horizon, expressed in terms of efficiency of investment
- Consideration of the time factor with regard to prices, cost of capital and decisions taken under uncertainty (with a view to both normal business risks and the risks of specific projects)
- Adequacy of the financial structure, considering the conditions under which funds would be available and the optimization of project financing from the point of view of the enterprise and of investors.

While the objectives of investors and financiers are known when appraising individual projects, this is not necessarily so in an opportunity study. Therefore, the approach of financial analysis[50] at the subsectoral level is to assess the financial feasibility of related subsectoral investment opportunities using as a yardstick indicators applicable for the subsector as a whole or for existing projects in the same field of business.

A. Principal aspects and appraisal criteria

The financial analysis of investment projects is undertaken at the level of subsectoral opportunity studies in order to compare the financial performance of alternative projects in a subsector. The alternatives may differ with regard to product mix, production volumes, production programmes, material inputs and technology applied. Another important factor to be considered is that decision makers often give different weight to criteria used for investment appraisal. This compels analysts to identify such criteria[51] and apply adequate methods to prepare the information required by entrepreneurs and investors.

In a subsectoral opportunity study, basic appraisal criteria have to refer to regional, legal and sector-specific characteristics as well as to the possibly different objectives and personal interests of the investors. Regional differences (for example, great disparities in income levels as a result of social and economic conditions) may affect the costs of project inputs as well as sales potentials. Also, legal requirements may vary between regions, sometimes even between subsectors. These factors and others such as choice of technology and equipment necessary to provide environmental protection in a particular location directly and indirectly affect the financial and economic feasibility of an investment. Other requirements may influence the cost of incorporating an enterprise and the administrative steps in the start-up phase.

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[50]The terms financial and economic analysis, as used in this *Manual*, comprise the pure analytical work required to identify the critical variables which are likely to determine the success or failure of an investment. The analysis must not be limited to mathematical computations only, but would have to include the critical interpretation of all relevant data. The term evaluation refers to the determination of the values of project inputs and outputs. In the case of feasibility studies the evaluation of a project is made by the investors and financiers who may approve or reject it. The formalized *ex ante* evaluation corresponds to the term "project appraisal", used by the World Bank. (Evaluation in the terminology of the Bank is an *ex post* evaluation of projects financed by the Bank.) Typical reactions experienced in such situations are for instance to propose an increase in the production capacity, making use of economies of scale, but ignoring the possible consequences for the marketing concept (the demand and market volume may not be large enough, or an increase of supplies may result in a considerable drop in market prices) or any other consequences concerning location, availability and supply of resources, total finance available for a single project, and so on.

[51]For example, fast depreciation at a lower interest rate might be given priority over a high, long-term profitability, or the investor may wish to expand even with marginal returns.

Apart from choice of technology, sector-specific criteria may also be relevant for determining plant size, minimum production volume, infrastructure facilities, material inputs and skills.

The goals of investors also differ, depending on whether a project is financed by capital investors or by owner-entrepreneurs. While investors are interested mainly in rates of return that exceed those of alternative forms of capital investment, owner-entrepreneurs are more interested in creating a source of steady income and may not necessarily want to maximize return on capital invested. Typical investors and entrepreneurs are likely to have different planning horizons. The planning horizon of a decision maker is the period of time taken into account when formulating the business plan. Planning horizons of small businesses are generally shorter than those of larger firms and rarely exceed five years. However, the planning horizon is also determined by the period required for recovering invested funds as well as by the assumed project life.

B. Analysis of investment cost estimates

Reliable cost estimates are fundamental for the appraisal of an investment project, so it is necessary that all cost items that could have a significant impact on the financial viability are checked carefully. If data for similar projects are available, either from existing projects or related data banks, they could be used to verify the costs estimated in the opportunity study. The total investment costs are computed in order to, among other things, give the entrepreneur an idea of the total funds required. Depending on the price basis used in computing costs, price increases and other contingencies must be allowed for. As different uses of the accounting and financial terminology often cause misunderstandings, it is recommended to adhere in the financial analysis to the terms defined and explained below [52]

1 Total investment costs

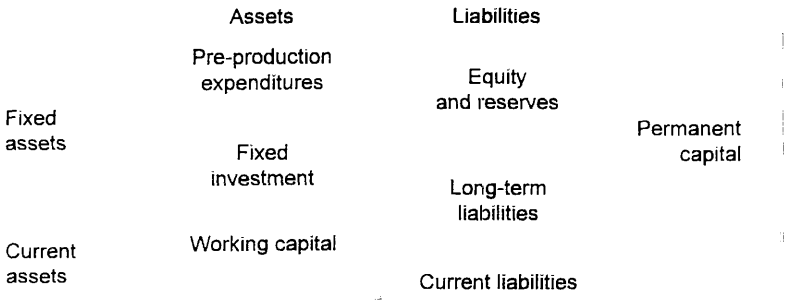
Total investment costs comprise expenditures for fixed assets (i.e. fixed investment costs plus pre-production expenditures before and during the operational phase) and working capital. Investment costs incurred in the construction phase are referred to as initial investment costs and those incurred in the operational phase as investment costs during operations, for example, the costs of replacing fixed assets that have a shorter life than the overall project and that will have to be replaced if the plant is to continue to operate efficiently. Other types of investments might occur during the operational phase due to restructuring, modernization and plant expansion. However, they are normally not known when a subsectoral study is being prepared and are therefore not considered. Fixed assets constitute the resources required for constructing and equipping a project, whereas working capital corresponds to the resources needed to operate it totally or partially.

Figure XIV shows the structure of a balance sheet at a point in time. There are two sides of the status of the business. On the liabilities side are the sources of funds, divided into those contributed by the investors (equity) and those borrowed either long- or short-term (loan capital). The assets side reflects the use of these

[52] The terminology used here is in line with the terminology adopted in the *Manual for the Preparation of Industrial Feasibility Studies*, which has been widely accepted.

funds, classified into fixed assets (fixed investment plus pre-production expenditures) and current assets (inventories, accounts receivable, cash-in-hand and marketable securities) [53]

Figure XIV. Structure of assets and liabilities



The balance sheet also shows the transformation of liquid financial resources into productive assets

2 *Fixed investment costs*

Fixed investment costs should be broken down into the following main items

- Land (purchase and transfer, legal charges) and site preparation (levelling and filling, internal roads and fencing)
- Buildings and civil works (factory, administration, warehouse, parking, sewers etc)
- Plant machinery and equipment, including spare parts, auxiliary and office equipment
- Incorporated fixed assets (industrial property rights and technical know-how, patents and licence fees)

Investment cost estimates should also include packing, transport and insurance, customs duties, taxes and installation charges In preparing such estimates, provision should also be made for physical contingencies Total fixed investment costs should be projected on a yearly basis for the construction period and the operational phase Schedule VIII-3 may be used to add up the different types of investment costs

3 *Pre-production expenditures*

Apart from fixed investments, every project incurs expenditures prior to commercial production These pre-production expenditures cannot, however, be charged to the profit and loss account but must be capitalized and are amortized during plant

[53]Investment in current assets, such as stock of spare parts, building up of stock of raw materials and factory supplies, as required for the start-up of plant operation, is dealt with under "net working capital"

operation. Pre-production expenditures comprise a number of items originating during the various stages of project preparation and implementation.

- Business set-up costs, including registration, legal and administrative charges
- Project management, organization and cost of personnel engaged during the pre-production period including salaries, fringe benefits and social security contributions
- Technology acquisition costs, including training costs, travel, living expenses, salaries and stipends for trainees
- Detailed engineering, contracting and consulting services
- Pre-production marketing and supply marketing costs, including promotional activities, creation of a sales network etc.
- Plant commissioning, trial runs and start-up costs, including fees payable for the supervision of start-up operations, wages, salaries, fringe benefits and social security contributions of personnel employed, consumption of production materials and auxiliary supplies, utilities and other incidental start-up costs, operating losses incurred during the running-in period up to the stage when satisfactory levels of production are achieved
- Interest payable during construction.

Schedule VIII-2 can be used to tabulate the pre-production expenditures

C. Working capital

Working capital[54] is the difference between current assets (inventories, accounts receivable, prepaid items and cash) and current liabilities (accounts payable, short-term loans and bank overdrafts), current liabilities thus finance part of current assets. This balance is also called net working capital and forms an essential part of initial capital outlays, representing the permanent component of current assets, which should be financed by equity or long-term debt. Short-term fluctuations in the level of production or inventories lead to corresponding changes in the levels of current assets and current liabilities and hence in the level of working capital. Any net increase in working capital corresponds to a cash outflow to be financed, and any decrease sets free financial resources (cash inflow for the project).

For calculating the level of working capital, the following scheme may be used: first, the minimum days of coverage[55] are to be estimated for each of the current assets and the accounts payable[56] (current liabilities). Increasing the number of minimum days of coverage of current assets increases working capital requirements, decreasing them, which corresponds to an increase in turnover of inventories, reduces working capital requirements but may increase the risk of production stoppage due to non-availability of materials or delivery problems. Therefore, for each

[54]In the literature, the term "working capital" is often used as a synonym for "net working capital". This term should, however, be mixed up with the net increase or net changes of working capital, which result from changes of current assets and/or liabilities.

[55]The minimum days of coverage represent the volume permanently in stock (permanent working capital), in addition, there is the variable working capital, which depends on seasonal fluctuations and frequency of supplies. The latter is normally financed by short-term credits.

[56]The volume of accounts payable (creditors) depends on the terms of payment granted by suppliers.

current asset the number of minimum days of coverage should be carefully determined by company costs and benefits.

Secondly, the coefficient of turnover for each current asset should be determined by dividing 360 days by the number of minimum days of coverage. The same procedure is applied to compute the coefficient of turnover for accounts payable. In a third step the annual costs of each item of the current assets should be estimated and divided by the respective coefficient of turnover to obtain the amount of working capital needed for financing the particular asset. Finally, to obtain the working capital required in the respective year and at a given level of production, the total amount of accounts payable should be divided by the corresponding coefficient of turnover and deducted from total current assets. This shows that with an increase in capacity utilization, the amount of working capital also rises until full capacity utilization is reached.

The purpose of estimating working capital requirements is to ensure that the enterprise is able to meet its current obligations. While it is prudent to hold an adequate amount of matching current assets, an unnecessarily high proportion of current assets, particularly of cash, reduces profitability.

With inadequate liquid assets, there is a risk of running out of cash. To determine the optimum level of current assets for a given level of production, it is necessary to carefully forecast the cash flow. Schedule IX-1 may be used to get an overview of the annual costs of products sold and for computing the working capital requirements.

D. Composition of current assets

1 Accounts receivable (debtors)

Accounts receivable, or debtors, are trade credits extended to customers as a condition of sale. The volume of receivables depends on the credit terms and is calculated according to the following formula.

$$\text{Debtors} = \frac{\text{Credit terms (months)}}{12} \times \text{Value of annual gross sales}$$

This implies that annual gross sales are calculated as costs of product sold net of depreciation and interest. The annual depreciation and interest are deducted from the value of gross sales with the understanding that they are to be covered by sales revenues and not by working capital.

When comparing projects within an industrial subsector of a country or region, the reciprocal of the turnover rate of debtors, i.e. credit terms in months divided by 12 or credit terms in days divided by 360 (average duration of sales credits), should be used.

2. Inventories

Working capital requirements are considerably affected by the amount of capital immobilized in the form of inventories. Therefore every attempt should be made to keep inventories as low as possible without risking materials or products running out of stock. Inventories may be categorized as follows:

Raw materials. In computing inventories of production materials, consideration should be given to the sources and supply conditions of both raw materials and factory supplies (see chapter VI, section F).

Spare parts. Inventories of spare parts depend on local availability, on import conditions and maintenance facilities in the area and on the nature of the spare parts.

Semi-finished and finished goods. Inventories of semi-finished and finished goods depend on a number of factors, such as the nature of the products and trade practices. Their value should be based on factory costs plus administrative overheads (direct and indirect costs).

Work-in-progress The level of work-in-progress depends on the type of products, the annual volume of production, the type and length of the manufacturing cycle per unit of product and the number of working days per year of the plant. The value of work-in-progress is based on factory costs, i.e. it excludes depreciation, administrative and marketing costs. Use schedule IX-1.

3. Cash-in-hand and marketable securities

An enterprise meets its cash requirements from cash balances and from the marketable securities it holds. If cash payments can be predicted, an enterprise may try to achieve an optimal cash level in order to invest the balance in interest-earning securities. When deciding on investment in securities, the issues to be considered are yield, maturity and marketability.

The required cash-in-hand is calculated separately as an assumed percentage of the working capital (see bottom of schedule IX-1).

E. Composition of current liabilities

1. Accounts payable (creditors)

Accounts payable, or creditors, are short-term trade credits provided by suppliers. This form of short-term financing is an important source of funds, especially for small businesses. Since small businesses normally have less access to credit than large enterprises, raw materials, other supplies and services usually are purchased with suppliers' credit, whereby a discount is granted if payment is made within a specified period. The buyer should assess whether to use such a discount by comparing the implied saving with the cost of normal short-term loan financing.

2 Short-term loans and bank overdrafts

The principal sources of short-term loans are commercial banks and other financing agencies. Interest charged to the borrower depends both on his creditworthiness and on prevailing financing terms. The effective cost of financing is determined by conditions such as whether interest is charged front-end, on a current basis or at the end of a financing period, as well as by additional financing charges and fees imposed. Small businesses generally have more limited opportunities to meet short-term requirements and are usually exposed to higher financing charges.

A widely used form of short-term financing is the overdraft, also known as line of credit, which is based on an agreement between a bank and a borrower by which the latter is entitled to draw up an amount to a specified ceiling over a certain period at fixed or floating interest. As small businesses usually pay higher interest rates owing to their poorer credit standing, specialized financing institutions have been established in many developing countries to meet their specific needs, including collateral support and the provision of advice.

For phasing of the total investment costs, schedule VIII-3 should be used (starting with initial investments, followed by subsequent increments until full capacity is reached).

F. Production costs

Realistic forecasts of production costs for a project proposal are essential to determine its financial viability. All cost items required for the calculation of total production costs have to be projected and scheduled, in line with capacity utilization, over the planning horizon. The reliability and accuracy of cost projections and appraisal of the financial viability of an investment can be improved by analysing cost structures, identifying critical cost items and comparing them with similar projects.

Production costs should be calculated in terms of total annual costs and, preferably, also as unit costs. The computation of unit costs, relatively simple in the case of a single product, may become complicated when complex technologies are applied and a variety of products is manufactured. Once production costs at full output level have been calculated and broken down into variable and fixed costs,[57] it is possible to adjust the variable costs in proportion to capacity utilization, while fixed costs remain constant (see schedule IX-2).

Production costs, as defined earlier and applied throughout the *Manual*, may be divided into four main categories: factory costs, administrative costs, depreciation costs and costs of financing. The sum of factory and administrative overheads is called operating costs.

1. Factory costs

Factory costs include the following items:

- Materials (predominantly variable costs, such as raw materials, other supplies, spare parts)
- Labour (fixed or variable costs, depending on type of manpower and cost elements)
- Overheads (generally fixed costs, they include maintenance and repair and costs of emissions and waste disposal)

2. Administrative overheads

The composition of administrative overheads, as well as procedures for their computation, is covered in chapter VII. They mainly relate to administrative and managerial staff.

[57]Variable costs change roughly in close proportion to the variations in the level of production. Typical variable costs include materials, the majority of production labour and utilities. Variable costs can be divided further into *(a)* proportional costs, which change proportionally with the volume of production (for instance, raw materials), *(b)* degressive costs, which change at a lower rate than the volume of production (for instance, maintenance, repair); *(c)* progressive costs, which change at a higher rate than the volume of production (for instance, overtime), and *(d)* regressive costs, which decrease with an increase in the volume of production (for instance, maintenance costs of machines not utilized). Fixed costs remain unchanged regardless of changes in the level of activity and include mainly overhead (factory and administrative), insurance, rent and depreciation charges, and interest on long-term loans. The response of the last costs depends on the method of calculation. This differentiation is a considerable simplification and is only valid for a specific range of capacity utilization. This simplification should be kept in mind when break-even analysis is discussed later in this chapter.

3 *Depreciation costs*

Depreciation costs reflect the productive use of fixed assets. While depreciation charges are tax-deductible, they do not represent a real expenditure or cash outflow because the investment expenditures are accounted for when investment takes place. They must therefore be added back if net cash flows are calculated from the net profit after tax, as obtained from the net income statement (see schedule IX-8)

Depreciation costs do affect the net cash flow, because they reduce taxable income and, thus, cash outflow. For this reason, accelerated depreciation is often more advantageous to the enterprise than straight-line depreciation, as it defers payment of the taxes.

4 *Financial costs*

Small businesses in large measure rely on equity and personal or family assets (or those of potential partners) for financing. Since the risk is generally considered to be greater in the case of small businesses, financing or institutional lending may be more difficult or more expensive to obtain.[58]

The components of financing are equity and debt. While the cost of equity capital is determined by the investor's opportunity cost of capital, i.e. the income from comparable investment alternatives, the cost of debt mainly depends on the interest charged.

Figure XV shows the origin and structure of costs and revenues, as well as their interrelationships for profitability calculations.

G. Direct and indirect costs

From the viewpoint of product costing and pricing, costs should be divided into direct and indirect costs. Direct costs are costs directly attributable to a specific product, for example, materials, labour and marketing. Indirect costs, such as administrative overheads (management and supervision, communication, depreciation and financial charges), cannot be readily attributed to a specific product, particularly when there are many product lines.

It should be pointed out that direct costs are often confused with variable costs and indirect costs with fixed costs. However, both direct and indirect costs may be variable or fixed. The distinction between direct and indirect costs is necessary to assign costs to products, while variability or non-variability describes the relationship between a cost item and changes in the volume of production. (For break-even analysis, see section L in this chapter)

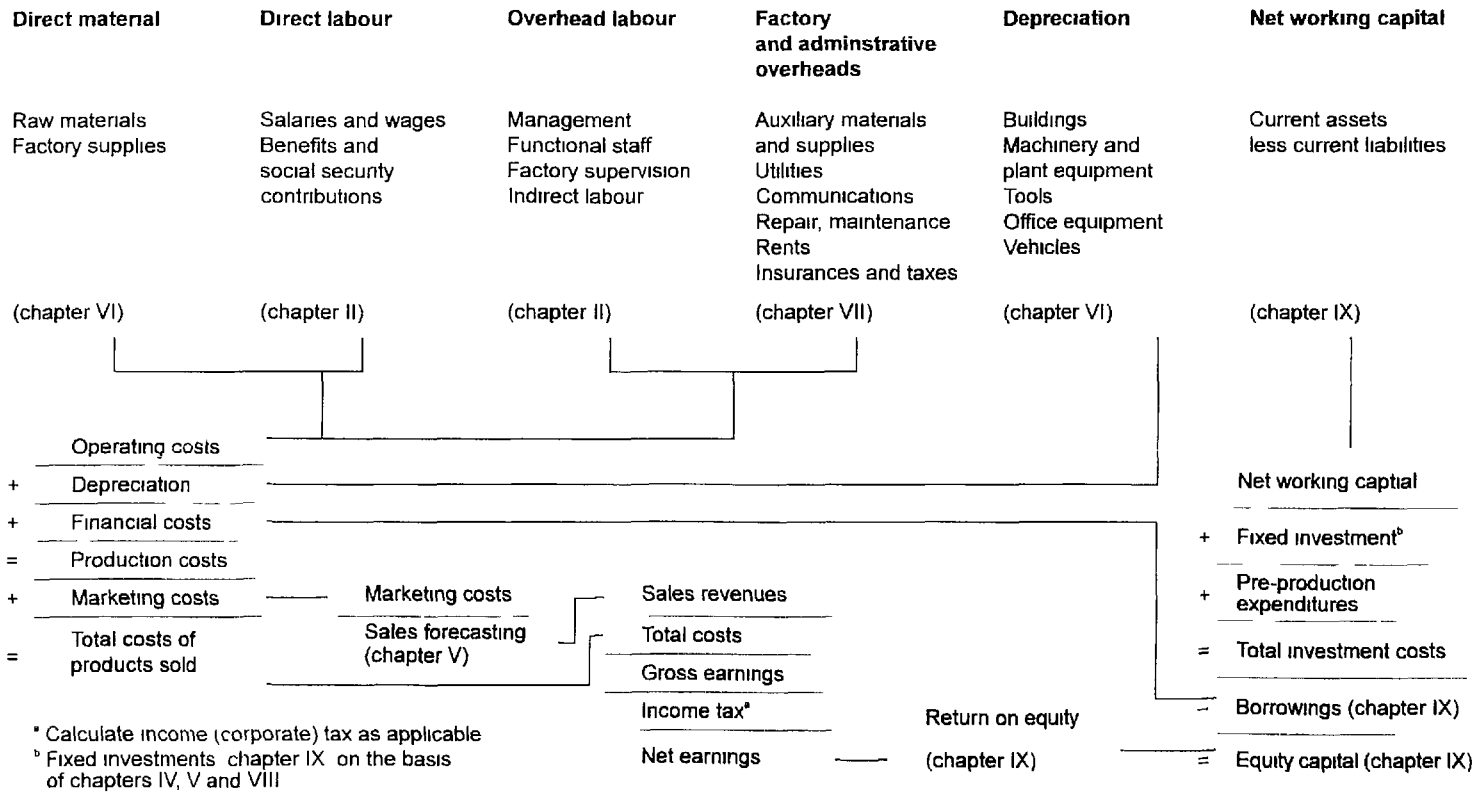
Schedule IX-8 may be used for cost structure and direct costing, including the computation of margins.

H. Accounting and financial statements

Cash flow analysis has generally been adopted as a principal instrument of investment appraisal. None the less for a proper analysis and a rational decision on

[58]Institutions like Women's World Banking, ACCIÓN International and FUNDES report, however, a credit recovery rate of almost 100 per cent, based on close observation of national customs and forms of business behaviour (Workshop on Social Investment, Revolving Funds, Ethic Funds and Microentrepreneurs, Vienna, 26-27 March 1992).

Figure XV. Origin of cost items for profitability calculations



whether to invest in and finance a project, it is necessary to have a basic understanding of accounting principles and statements. Accounting statements are important for analysing the structure of project financing and for calculating the cost of capital and the potential profitability of an enterprise.

Basically, there are two types of accounting statement:

- The balance sheet and the related net income statement or profit and loss account
- The cash flow table for financial planning and the assessment of short-term liquidity

1. Balance sheet

The balance sheet is a statement showing the value of accumulated assets on a given date and how they were financed. Assets are broadly classified into current assets and fixed assets, liabilities into current liabilities, fixed liabilities (long-term debt) and shareholders' funds (equity and retained earnings). From the balance sheet it is possible to determine the status quo of an enterprise, its wealth, its obligations and its financing structure. Financial ratios further allow measuring liquidity at the date of the balance sheet. Schedule IX-9 may be used for preparing the balance sheet.

2. Net income statement

The net income statement is used to compute the net income (net profit) or loss arising from operations during a given period. The following categories of profit are shown in the income statement. operational margin (the operational) balance (before cost of finance); gross profit from operations (also called operating profit), and net profit after tax (also called net income). The profitability of an enterprise can be assessed by computing two commonly applied ratios: return on total investment (equity plus long-term debt) and return on shareholders' funds (equity plus retained earnings).[59] As the operational conditions of an enterprise change over time, it is necessary to project income statements for the given planning horizon. To keep the computation simple, any fluctuation in inventories during the accounting period may be ignored.

The net income statement is linked to the balance sheet in so far as part of the annual profit retained (loss carried forward) increases (reduces) the net worth of an enterprise. Retained earnings increase equity, losses brought forward reduce it. Schedule IX-8 may be used to prepare a net income statement.

3 Cash flow table for financial planning

The cash flow table shows projected cash receipts (inflows) and cash payments (outflows) during a given period. To avoid liquidity crises or insolvency, the net cash balance should never be negative. During project implementation it is essential that equity payments and loan disbursements are arranged in accordance with funding requirements. In the operational phase, liquidity planning should ensure adequacy of funds, with both shortfalls and idle surpluses to be avoided. Proper liquidity planning requires continuous review and adjustment to changing markets, costs and profitability objectives.

[59]For computation and interpretation, see section I.

This may be of particular relevance in start-up periods, when there is a slow increase in capacity utilization combined with lower cash receipts and debt service obligations that have to be met.

A negative cumulative cash flow signals additional financing requirements, either long term or short term, and may prompt a reconsideration of the capital and financing structure.

The cash flow table for financial planning is given in schedule IX-6. Data for the schedule for financial planning are obtained from schedule VIII-3 (total initial investment costs), schedule IX-1 (current assets and current liabilities), schedule IX-4 (flow of financial resources), schedule IX-5 (debt service) and schedule IX-3 (sales revenues).

The cash flow table is closely linked to the balance sheet, as the cumulative cash balance in the cash flow table for financial planning corresponds to the cash balance in the balance sheet. Cash outflow for tax payments, as registered in the cash flow table, is derived from the net income statement, assuming that tax is paid at the end of the same accounting period and no tax credits are granted.

With a view to rationalizing decisions on the financing of investment, appropriate alternatives should be considered. For each financing alternative, a cash flow table, net income and balance sheet projections have to be computed, as well as ratios and indicators of the profitability and efficiency of an investment, which may vary with the structure and costs of financing.

One of the following approaches is generally taken in projecting cash needs:

- A cash flow forecast based on the income statement adjusted for non-cash items. The resulting figure, i.e. the funds provided through operations, is further adjusted for cash flows not recognized in the income statement to show the final cash position.
- A cash receipts and disbursements statement or cash budget reflecting initial cash balance, receipts of the period, expected disbursements and the resulting cash balance carried over. If the cash flow of an existing enterprise is being monitored, this statement may be issued at weekly, monthly or other intervals.

I. Methods of investment appraisal

As far as the investor is concerned, the criterion overruling all other project-related business objectives is the financial viability of a venture. This means that the financial return on both total capital invested and equity capital paid-in must be high enough to at least pay for the cost of capital and capital risk related to the investment. However, the parties involved generally base their decisions not only on return on capital but on other criteria as well. From the point of view of each of the parties in an investment, any gains, direct or indirect, from the investment should be taken into account when deciding whether to participate. For investment appraisal, such benefits should be expressed in monetary terms whenever possible, if decision makers consider them important for the approval of a project. Furthermore, the financial evaluation should be carried out and presented in such a way that all parties concerned with the investment and financing decision obtain the information needed to ascertain their share of projected returns in relation to other parties, as well as in relation to their inputs and expected financial project risks.

Conventional methods of investment appraisal, which will be discussed below, are instrumental for evaluating the expected net profit against capital invested. Other

methods of investment appraisal are based on discounted cash flow techniques (DCF), they differ from conventional methods in two respects. Firstly, they take into account the time value of money, that is, a sum of money is worth more in the present than in the future simply because money earns interest; secondly, they take into account the flows of revenues and expenditures over time. Hence, to apply such techniques it is necessary to estimate future cash flows over a certain period corresponding to the life of the project or the planning horizon of the decision makers.

1 Computation of cash flows

Cash flows are, basically, either receipts of cash (cash inflows) or payments (cash outflows). The net cash flow (NCF) can be calculated on the basis of the net income statement by taking net profit after taxes, adding depreciation and reserve funds and subtracting any use of reserves. For the purpose of financial planning and the determination of net cash returns on investment, it is necessary to distinguish between financial flows, which are related to the financing of an investment, and cash flows (revenues and expenditures) reflecting the performance and operation. Figure XVI shows the major items of financial and operational cash flows.

2. Discounted cash flow

The discounted cash flow concept assumes that a given sum of money is worth more at present than in future. The difference can be expressed as a percentage, representing the discount rate over a given period (usually a year). Supposing that CF_n is the nominal value of a future cash flow in the year n and r represents the annual interest,[60] assumed to be constant, then the present value CF_p of expected cash inflows and outflows is computed as follows

$$CF_p = CF_n/(1 + r)^n$$

or

$$CF_p = CF_n(1 + r)^{-n}$$

3. Main discounting methods

Two main discounted cash flow methods are used in appraising the financial viability of investments: the net present value (NPV) method and the internal rate of return (IRR) method. Another approach, derived from the NPV, is the net present value ratio (NPVR) method.

Net present value

The NPV of a project is defined as the value obtained by discounting the differences of all annual cash outflows and inflows accruing throughout the life of a project calculated for each year at fixed interest. The difference normally is discounted to the year in which project implementation is to start. The yearly NPVs covering the planning horizon are added up to obtain the NPV of the project as follows

$$NPV = NCF_0 + NCF_1/(1 + r)^1 + NCF_2/(1 + r)^2 + \quad + NCF_n/(1 + r)^n$$

$$= \sum_{i=0}^{i=n} \frac{NCF_i}{(1 + r)^i}$$

[60]For an interest rate of 12 per cent, for example, r would be 0.12.

Figure XVI. Types of cash flows

Financial cash flow

Financial inflows	Financial outflows
Paid-in equity capital	Dividends paid
Subsidies, grants	
Long-term loans	Repayments of long-term loans
	Interest paid on long-term loans
Short-term loans, bank overdraft	Interest paid on short-term loans and overdraft
	Repayments of short-term loans and overdraft
Increase in accounts payable	Decrease in accounts payable

Operational cash flow

Operational inflows	Operational outflows
Revenues from selling of fixed assets Recovery of salvage values (end of project)	Increase in fixed assets (investment)
Revenues from decrease of net working capital	Increase in net working capital
Sales revenues	Operating costs Marketing expenses
Other income from plant operations	Production and distribution losses
	Corporate (income) taxes Remuneration of entrepreneur and of any other person not on the payroll

NCF_i is the annual net cash flow of a project in the years i (i is 0) through n, where n represents the last year of the planning horizon.[61] Discount factors $(1 + r)^i$ may be obtained from present value tables. The discount rate r should be equal to either the prevailing rate of interest on long-term loans in the capital market or the actual interest rate paid by the borrower.[62] The discount thus basically reflects the opportunity cost of capital corresponding to the possible return an entrepreneur or

[61]The cash flow in year 0 is not discounted because $(1 + r)0 = 1$. Another concept is to discount all annual cash flows to the beginning of the first year, in which case the values for i are 1 through $(n + 1)$ instead of 0 through n. Under normal circumstances, the difference in NVPs obtained by the two concepts is quite small if not negligible, i.e. within the reliability margin of the estimates.

[62]The market rate for long-term loans is usually applicable for borrowers with the best credit rating. In case additional risks exceeding the normal investment risks are to be expected, financing institutions as well as private investors would raise the costs of finance for the project by adding to the base rate a safety margin, to cover for instance the various country risks and the creditworthiness of the investor.

investor (financier) would earn if the same amount of capital were invested elsewhere, assuming similar risks for both investment alternatives. In other words, the discount rate represents that rate of return below which it would not be rational to invest.[63] If the computed NPV is positive, the profitability of the investment is above a cut-off discount rate, if it is zero, the profitability equals the cut-off rate. A project with a positive or zero NPV may thus be considered financially viable, if the NPV is negative, profitability is below the cut-off rate and the project should be dropped.

Net present value ratio

The NPVR allows comparing alternative investments whenever investment costs differ significantly It is calculated by dividing the net present value by the present value of an investment as follows

$$\text{NPVR} = \frac{\text{NPV}}{\text{PVI}}$$

Thus, the NPVR reflects the accumulated discounted net gains (NPV) per unit of capital invested, discounted to the same point in time.[64]

Internal rate of return

The IRR is the discount rate that equates the present value of cash inflows with the present value of cash outflows In fact, it is the rate of discount that produces an NPV of zero Therefore, an investment proposal may be accepted if its IRR is greater than the cut-off rate, which is the lowest rate of return on invested capital acceptable to investors.

The procedure for calculating the IRR is the same as that for calculating the NPV, however, instead of discounting the project's cash flows at a predetermined rate, several discount rates may have to be tried until that rate is found at which the stream of cash inflows equals that of cash outflows The resulting rate is the IRR, representing the profitability or return of the project.[65] An approximate IRR may be calculated using the linear interpolation formula shown below, whereby two discount rates close to each other are chosen such that one produces a positive NPV and the other a negative NPV·

$$i_r = i_1 + \frac{\text{PV}(i_2 - i_1)}{\text{PV} + \text{NV}}$$

where i_r is the IRR, PV is the positive NPV (at the lower discount rate i_1) and NV is the negative NPV (at the higher discount rate i_2) Absolute values for both PV and

[63]An investor might be willing to invest if the NPV on his paid-in equity is above zero for a shorter period—his planning horizon adopted for the investment decision—than the lifetime of the project. In this case the net cash return on equity is discounted for this shorter period using the investor's cutoff rate. If the value of the plant at the end of the planning horizon is to be considered in the decision, then the net value, in other words, the total value net of all obligations towards others, is taken as a net cash inflow occurring at the end of the discounting period.

[64]Suppose there are two mutually exclusive projects project A with an investment of $95,000 and project B with an investment of $120,000. If the NPV at a given discounting rate is $25,000 for A and $30,000 for B, which alternative would be more profitable? For simplicity, assume that the present values of each investment are also $95,000 (A) and $120,000 (B). In this case, the NPVR of project A = 0.26 and the NPVR of project B = 0.25. Therefore, alternative A should be chosen, although its NPV is lower.

[65]The IRR is known also as the marginal efficiency of capital, interest rate of return, discounted cash flow or financial rate of return (as opposed to the economic rate of return used in economic analysis).

NV are to be inserted in the above formula. It should be noted that i_1 and i_2 should not differ by more than one or two percentage points. The relationship between the discount rate and NPV is not linear, but there are software programs to facilitate the computations.

To summarize, of the various appraisal methods discussed above, the NPV method allows evaluating the accumulated net gains expected of an investment discounted to the specified present time; the NPVR shows the discounted accumulated net gains per unit of capital invested, the IRR reflects the net return or profitability rate per year, expressed as a per cent, but does not allow drawing any direct conclusion about accumulated net gains.[66] These methods have one common drawback in that they do not reflect the pattern of cash inflows and outflows over the planning horizon (increasing, decreasing, constant or fluctuating net flows). Therefore, when applying such methods, the financial objectives and decision criteria of the investors and the financing institutions (with regard, for instance, to repayment periods and risk aversion) must be observed. In addition to these quantitative indicators, many non-quantifiable factors normally influence investors in their decision to pursue a project.[67]

4. *Mutually exclusive projects*

Sometimes an investor must choose between two or more mutually exclusive projects. The project with the highest NPV would be given preference when the NPV method is applied. However, this method ignores the differences in capital investment requirements. To take them into account, the NPVR method may be applied, whereby the project with the highest NPVR would be preferred.

Other projects are mutually dependent, that is, the acceptance of one depends on the acceptance of another. Therefore, it is the joint NPV of the two projects that should be the criterion for selection.

The IRR is a yardstick of profitability when appraising one project at a time without investment alternatives. If, however, a choice is to be made between two or more mutually exclusive projects, the IRR and the NPV may yield contradictory results. This discrepancy arises because actual cash flows are not usually uniform, which has an impact on the IRR. In fact, such a discrepancy always exists, except for the very special case when the discount rate underlying the NPV equals the IRR. This is illustrated in figure XVII, which depicts two alternative investment projects, A and B.

The graph demonstrates that at the discount rate i_2, both projects have identical NPVs at point E, indicating indifference as to the choice between the two projects. If the discount rate is lower (i_1), project A is to be given preference because its NPV (point D) is higher than that of project B (point C). In contrast, if the discount rate rises to i_3, project B is to be selected owing to its higher NPV (point F). When the IRR is the decision criterion, project B (which has the higher IRR) should be chosen (point IRR B, where the NPV is zero). This shows that the choice between mutually exclusive projects should not be rationalized on the basis of the NPV or the IRR alone, and it highlights the importance of analysing the structure of cash flows over the project life or the planning horizon of the decision makers.

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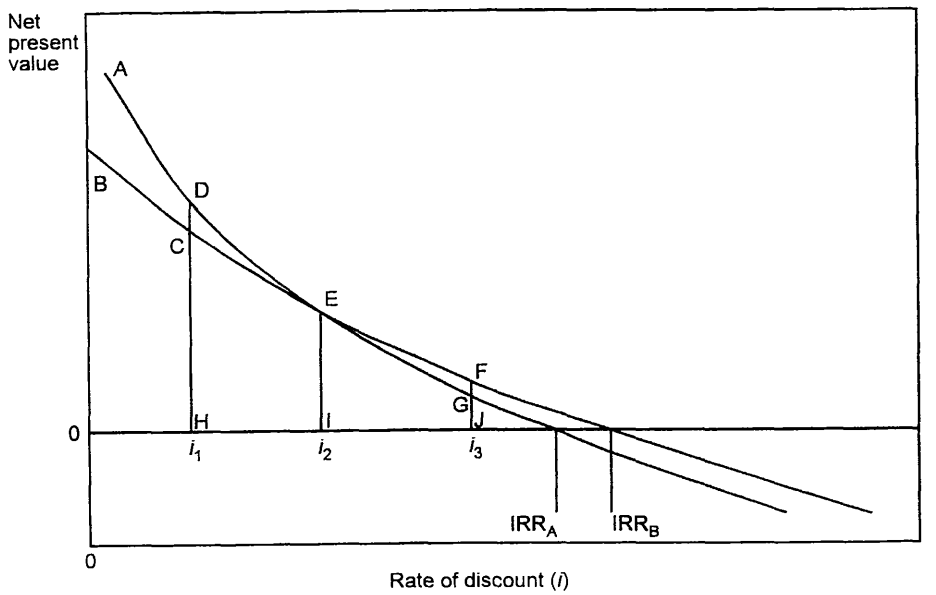
[66]When the assets of a project sufficiently cover all liabilities at the end of the discounting period, only then would the IRR correspond to the highest net-of-tax discount rate, provided that the enterprise has the option to repay its obligations at will.

[67]The IRR should be applied with care in cases where major negative net cash flows occur repeatedly during the later life of the project. A method for overcoming related deficiencies is explained and justified in detail in Merrett and Sykes [2].

Figure XVII. NPV method and ranking problem



5. *Conventional methods*

Payback period

The payback (PB), also called pay-off, is defined as the period required to recuperate the initial investment outlay through the accumulated net cash flows earned by the project. The initial investment outlay should include investments made during plant operation as well. The PB concept is primarily criticized for ignoring the time value of money. To overcome this drawback, it has been suggested that the present value of annual cash flows should be used for computing the so-called dynamic payback period. The PB method further is criticized because it ignores the cash flow earned after the payback period and because it lacks objectivity in determining the maximum payback period.[68]

Nevertheless, the payback method is widely used for assessing small industrial investment projects because entrepreneurs with limited capital try to minimize risks by recuperating their investment within a relatively short time (the more rapidly the outlays are recovered, the lower the risk). Projects may be ranked on the basis of their payback periods; this is not in itself, however, a sufficient appraisal technique and should be combined with other methods, as described above.

[68]While the PB is usually interpreted as a break-even point at which accumulated net cash flows become positive, the method is sometimes adapted to include those assets which could be converted into cash easily, such as working capital being added to the accumulated net cash flows, thus shortening the payback period. This method is not recommended, because it implies that the plant ceases operation at the moment the initial investment outlay is paid back; it would then not be able to earn the necessary return (interest) on capital.

Simple or annual rate of return

The simple rate of return is defined as the ratio of annual net profit to initial investment outlay [69] For purposes of appraisal, this ratio is normally calculated for a year of full production or any other representative year of operation It also may be calculated for various levels of capacity utilization for purposes of sensitivity analysis Usually two rates of return are computed one for total capital invested, the other for equity The respective formulas to be used are as follows

$$\text{Rate of return on total capital invested (ROI)} = \frac{NP + 1}{K} \times 100$$

$$\text{Rate of return on equity (ROE)} = \frac{NP}{Q + RP} \times 100$$

NP is the net profit (after depreciation, interest charges and taxes), I is interest charges, K is total investment costs (fixed assets and working capital), Q is equity capital and RP is retained profits (reserves accumulated) The sum of equity (Q) and retained profits (RP) is also called the net worth ROI and ROE are measures of profitability particularly suitable for appraising small investment projects with relatively short implementation periods and more immediate income generation

A principal shortcoming of the simple, or annual, rate of return is that it does not take into account the time value of the capital investment and of the annual returns on total investment or equity Obviously, income earned earlier is preferable to income earned later Moreover, it may be difficult to choose between projects with different profitabilities over a number of years, even with equal total investment costs, as implied in the example shown in table 6

Table 6. Annual net profit

	Year					
Net profit	*1*	*2*	*3*	*4*	*5*	*Total*
Project A	50	60	120	160	200	590
Project B	170	120	90	80	70	530

In such a case it would be advisable to compute the discounted return on equity as a guide for investment decision

6 Other financial ratios

The figures appearing in the balance sheet, the net income statement and the cash flow tables contain a considerable amount of information in absolute terms For the purpose of financial analysis, however, it would be useful to refer to several well-known ratios reflecting liquidity, creditworthiness, efficiency and profitability

[69] Without going into too much detail, it should be mentioned that the simple rate of return method is based on accounting conventions that change from country to country depending on existing legislation and that do not allow the method to reflect the real profitability of the project. However, existing legislation has to be considered as far as the profitability is concerned, in order to be able to assess the project under prevailing conditions. The net income statement (schedule IX-8) shows the various types of profits (gross, taxable and net) derived by applying accounting conventions. If depreciation allowances are to be shown separately, they should be deducted from the gross profit to obtain the taxable income.

The ratios described in the following are those most frequently used, they should be applied selectively and not automatically Their mere computation serves little purpose if they are not interpreted and commented on. Analysts and decision makers should therefore bear in mind that any ratios have to be evaluated in the light of conditions in the subsector, the type and scope of project and the business environment in general. Indicators available from comparable projects or from existing data banks may facilitate the evaluation of these ratios.

Current ratio and quick ratio

The current ratio is simply the ratio of current assets to current liabilities. It is also frequently used for assessing short-term creditworthiness. A ratio of 2·1 signals a relatively sound position, i.e. the value of current assets is double the value of current liabilities. Somewhat lower ratios may be acceptable for enterprises with a high turnover of inventory and efficient collection of receivables. A ratio below 1:1 would signal a more risk-prone situation with potential liquidity problems.

The quick ratio expresses the relationship of current assets less inventories to current liabilities. It is often considered to be a more suitable measure of liquidity as it excludes inventories, which are not always easily liquidated.

Long-term debt-equity ratio

This ratio relates total long-term debt to equity capital of an enterprise at a point in time,[70] it is usually expressed as a fraction. A ratio of 70/30 means that 70 per cent of the liabilities are financed by long-term loans and 30 per cent by equity capital (any short-term financing is ignored in this computation). In the case of an existing enterprise, retained profits should be added to equity before computing this ratio,[71] which is also used by development banks worldwide. The higher the long-term debt-equity ratio, the less able an enterprise is to borrow more money.

Debt service coverage ratio

An important measure of creditworthiness is the debt service coverage ratio, indicating to which extent the annual net operating cash flows (before interest) cover annual interest payments and amortization of long-term debt. The higher the ratio, the lower the risk that an enterprise will not be able to meet its long-term debt obligations.

Turnover of products in stock

The rate of turnover of products in stock is a measure of inventory control. It is calculated by dividing the cost of products sold by the value of the inventory expressed in terms of operating cost, substituted at times by the sales value. This ratio is used to assess inventory management by comparing similar enterprises. A low turnover rate may mean that there are large stocks on hand, either deliberately or because of marketing problems or other bottlenecks.

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[70]Sometimes the value of total long-term liabilities as shown in the balance sheet is used for the computation. For example, in the case of the rehabilitation of existing enterprises, the balance sheet (after revaluation) may be the only source of information available.

[71]Equity and retained profits represent the net worth of an enterprise; the corresponding ratio is therefore called the "long-term debt-net worth ratio"

7. *Ratios related to employment*

Employment-related ratios should be based on the cost of personnel instead of the number of employees, because the latter can be misleading unless it is expressed in terms of full-time employment equivalents, thereby also taking into account different skills and cost levels. Distortions can be avoided if the number of employees is replaced by the cost of personnel. Typical ratios to be applied are the value of sales and the total capital investment, both of which are related to the cost of personnel. These ratios also provide information on labour intensity and labour productivity, which may affect the choice of strategy (use of resources, financing of fixed assets and working capital and decision as to capital-intensive or labour-intensive production) [3].

Sales-cost of personnel ratio

The ratio between sales and cost of personnel is a typical productivity ratio. Relevant especially for small businesses, it measures efficiency. The lower its value, the less efficient the enterprise, which may be due to pricing policy, overstaffing or wage levels that are excessive in relation to skills.

Total capital-cost of personnel ratio

The ratio between total capital and cost of personnel serves as an indicator in two directions. If it is above subsectoral averages and coincides with a high capital-output ratio and a low labour input, it might signal overcapitalization and, thus, inefficient allocation of resources. If it is below the average, it might signal inadequate capitalization or overstaffing (the latter is typically associated with a low output-labour ratio).

Schedule IX-10 gives an overview of the relevant ratios and indicators.

J. Financial analysis under uncertainty

Forecasts of the business environment, demand, production and sales can only be approximate because of the underlying uncertainties. For project appraisal, the reliability of the data assessed and of the project design is important. To minimize uncertainty, the financial analysis should identify the sources of data and justify the assumptions made.[72] Common causes of uncertainty are inflation, changes in technology and wrong projections of rated capacity and time needed for project implementation and start-up.

In deciding on the desirability of a project, uncertainties have to be assessed by evaluating all the foreseeable risks that may have a significant impact on project viability.[73] Adequate provisions for such risks can be decisive for project profitability and in marginal cases may tip the balance. When aspects of uncertainty are to

[72]For example, assumptions concerning the estimates of production and investment costs, prices or the lifetime of the project may not always be correct, or the decision makers may evaluate a scenario differently.

[73]Risks may be categorized as follows: *(a)* risk from undertaking insufficient number of similar projects, *(b)* risk from misinterpretation of data, *(c)* risk from bias in the data and in its assessment, *(d)* risk from a changing external economic environment invalidating much of the usefulness of past experience, and *(e)* risk from errors of analysis (see [2], p. 144).

be included in the financial evaluation, the following three variables should be examined in particular: sales revenues, costs of production and investment costs.

K. Sensitivity analysis

Sensitivity analysis is an instrument applied to gauge the impact of changes in critical variables on the profitability of an enterprise or its cash flows. The purpose of such analysis is to measure the degree of variation that can be tolerated by the project. Sensitivity analysis should be applied throughout the project planning stage in order to deal with the risks that arise.

The first step in identifying the critical variables is to analyse the structure of cash flows.[74] Variables with the largest share of cash inflows and outflows should then be varied with respect to quantity or price or both. The variable that has the greatest impact on the investment decision should be re-examined to determine ways of reducing risk. Yardsticks for investment appraisal under such an approach are the internal rate of return (IRR) and the net present value (NPV). Sensitivity analysis requires the use of suitable computer software programs, such as COMFAR *III Expert*.

L. Break-even analysis

Break-even analysis shows the relationship between revenues and costs at different levels of output. The break-even point is the production level at which sales revenues equal the costs of the products sold. When sales (and corresponding production) are below this level, the enterprise is making a loss, when total revenues equal total costs, it is breaking even. The sales revenues at the break-even point represent the break-even sales value, the unit price of a product at this level of production is the break-even selling price. If there are many products, a given break-even sales volume corresponds to a variety of combinations of product prices and not to a single break-even price.

The break-even point can be calculated in terms of a break-even volume and a break-even price. To calculate the break-even volume, the following formula applies:

$$U = \frac{C_f}{(P_s - C_v)}$$

where U is the number of units produced and sold per year, C_f is fixed costs, C_v is variable costs and P_s is the selling price per unit.

The above formula may be rearranged to determine the break-even price. Thus,

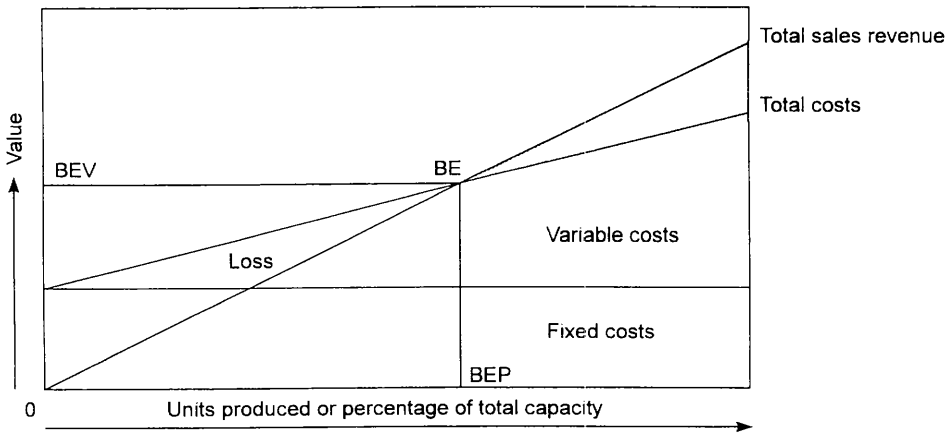
$$P_s = \frac{C_f + C_v}{U}$$

Figure XVIII depicts the relationship between fixed costs, variable costs and production volume. The break-even conditions may be calculated excluding or

[74] When analysing the critical variables, it is also important not only to estimate the confidence levels but also to determine the possible reasons for deviations from the projections. This analysis should also include the determination of critical factors possibly affecting the defined critical variables, for instance transport and supply problems for critical materials, price fluctuations for critical products and/or supplies due to highly speculative, competitive or volatile markets, and so on.

including interest payments and taxes The intersection of the total costs and of the total sales revenue lines represents the break-even point. The vertical line BE-BEP comprises variable costs and fixed costs and the horizontal line BEV-BE the number of units produced and sold at the break-even point. The difference between total sales revenue and total costs represents profits (if above the break-even point) or losses (if below)

Figure XVIII. Illustration of break-even conditions



Notes. All costs and sales are annual values. BEV = break-even value, BEP = break-even production.

M. Adjustment for inflation

When applying current prices to evaluate net cash flows and the profitability of a project, inflation effects may be ignored, provided that the relative prices of major inputs and outputs can be assumed to remain stable over the planning horizon If, however, the relative prices are likely to change,[75] the effect of such changes should be reflected by the projected cash flows Cash inflows are affected by future changes in sales prices and cash outflows by future changes in wages and costs of material inputs It is difficult to project changes in prices for each input and output. None the less, the entrepreneur should allow for them, using at least the current inflation rate as a benchmark.

For an opportunity study at the subsectoral level, and assuming that the relative prices of the main inputs and outputs do not change significantly, financial feasibility should be assessed at constant prices When an individual feasibility study is being prepared and the inflation rate is significant, financial planning (implying project financing and debt service) should make adequate provision for inflation

N. Economic evaluation

Financial analysis aims at appraising the financial and commercial feasibility of a project from the viewpoint of an entrepreneur, investor or financier Economic evaluation deals with the economic contribution and impact of a project at the macro

[75]For example, labour costs may grow faster than raw material costs.

or national level. In the case of small business subsectoral studies, which are frequently commissioned and supported by development agencies and financing institutions, there is a legitimate interest that projects comply with socio-economic policies and objectives. The economic evaluation of a project uses the same financial statements and schedules as a financial analysis. To convert values from market to economic terms, prices and costs have to be adjusted to eliminate distortions resulting from social factors and governmental measures. Elaborate methods of economic evaluation have been developed for larger investment projects. However, the application of these methods requires detailed as well as reliable data, which are lacking in many developing countries. Since individual investment in small business usually has only a very small impact on an economy as a whole (if it has one at all), elaborate subsector-specific surveys to obtain data required for cost-benefit analysis are not needed and are not covered in this *Manual*. It is sufficient to relate the essential structural parameters of small projects to appropriate development objectives and to assess the ensuing costs and benefits (including non-quantifiable qualitative effects) for the economy at the national, the local and, especially, the subsectoral level. Hence, it is suggested that economic analysis concentrate on the following issues

- Contribution to employment (number of jobs by skill level)
- Contribution to the development of human capital (training, professional skills)
- Investment related to wage bill[76]
- Investment per worker
- Taxes (labour-, asset-, profit-, turnover-related etc.)
- Tax incentives, subsidies
- Contribution to regional development (project linkages)
- Enhancing structural diversification, improvement
- Use of local contractors
- Use of indigenous materials, supplies etc.
- Import substitution effects
- Contribution to exports
- Contribution to value added
- Environmental impact (sector- and site-specific)

References

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2. A. J. Merrett and Alan Sykes, *The Finance and Analysis of Capital Projects* (London, Longman, 1974).

3 See J. H. Pichler and E. Fröhlich, "Attempts at international reporting on structures of small European businesses", *Internationales Gewerbearchiv* (Berlin), special edition No. 3 (1990), pp. 32-41.

[76]This ratio is given preference in this *Manual* for reasons of ready comparability.

PART THREE

Preparation and appraisal of individual investment projects

X. Individual feasibility studies

Introduction

The preparation and appraisal of individual feasibility studies and of opportunity studies at the subsectoral level follow the same pattern. Therefore, although the two types of studies differ with regard to objectives and scope, their structure is identical.

1. Objectives and scope

Feasibility studies deal with the ideas of entrepreneurs wanting to expand their business or of persons planning to establish themselves as small business entrepreneurs. Their principal objective is to assess individual ideas using relevant subsectoral data and existing compatible projects, where available, as a reference. In addition, and if investment opportunities can be identified, such studies need to assess local business conditions and personal entrepreneurial characteristics to the extent relevant for business success.

An important component of a feasibility study is the basic design of a project, taking into consideration the prevailing conditions (entrepreneurial potential, local markets, availability of project inputs etc.), however, such a design usually does not go beyond the information needed for appraising the investment and supporting entrepreneurial decision-making.

Feasibility studies also should provide suggestions for staffing, marketing strategies, appropriate technology, organization, management and financing, including mentions of possible risks.

2. Organization, timing and costs

Feasibility studies are prepared when an investment opportunity has been identified and a potential entrepreneur or investor is in need of support and external financing. At this stage, cooperation among interested parties, including public authorities and potential financing institutions, should be initiated by, for example, small business promotion agencies. Ideally, related subsectoral data on investment opportunities or data on similar projects would be available from opportunity studies. If they are not, support from agencies concerned with subsectoral studies for small industrial business would be needed. The parties involved in the project should jointly draw up a work plan, a time schedule and an appropriate financing plan for implementation of the study, also determining the responsibilities of each party and how costs are to be shared.

If a project is implemented by the parties concerned, the costs of a feasibility study will be reflected in the balance sheet as part of the total investment costs (preproduction expenditures). Such costs should not be limited to external services but should also take into account the work provided by, for instance, the entrepreneur (see chapter II).

Clearly, the cost of a feasibility study must not exceed a certain limit determined by the scope of the project, the turnover, the value added or the profits expected over a certain period, say, three to five years.

3 Worksheets, schedules and questionnaires

Chapter X contains various check-lists, and appended to it is a set of worksheets for the specification of project characteristics and for the assessment of project data. Schedules for financial analysis are contained in the appendix to chapter XI and questionnaires for overall project appraisal, in the appendix to chapter XII. Using standardized forms has several advantages.

- The worksheets, related check-lists and schedules guide the user in data collection and assessment, reducing the risk of omitting essential information.
- The project data contained in worksheets and schedules, whether they relate to individual projects or subsector characteristics, can be stored and easily retrieved when similar projects are being prepared and appraised.
- Because the schedules are compatible with the COMFAR *III Expert* software of UNIDO, they facilitate the computer-supported financial analysis of investment projects as dealt with in chapter XI.
- The questionnaires in the appendix to chapter XII draw on the experience of related field research. In appraising small industrial business projects, they cover qualitative criteria important for business success and complement the assessment of projected costs and benefits related to investment.

4 Contents of feasibility studies

The feasibility study should be structured as described in part one, section F, in order to be comparable to pre-investment studies for similar investment projects. The structure should be as follows:

I Executive summary
II Entrepreneurship and human resources
III Business environment
IV. Location, site and environmental aspects
V Market analysis and marketing concept
VI. Production facilities and input requirements
VII. Organization and controlling
VIII. Project implementation
IX. Financial analysis.

A. Executive summary

As the purpose of the executive summary is to highlight the principal results for the decision makers involved, it should concentrate on the following.

- Subsector summary and conclusions to be drawn from the opportunity study or other related studies
- Basic project idea and objectives

- Brief project description concentrating on critical issues:
  Entrepreneurial requirements and skills, training needs and facilities
  Overall business environment and institutional infrastructure
  Location, site and environmental aspects
  Competitive position and marketing concept
  Technology, production, material input, services and logistics
  Management, organization and administrative set-up
  Project implementation schedule
- Cost projections of capital investment, production and marketing
- Projections of revenues and net income
- Assessment of financial feasibility and key success factors
- Conclusions and recommendations.

B. Entrepreneurship and human resources

In part two, the determinants of success for small industrial investment projects were identified as the personal strengths and weaknesses of the entrepreneurs and of managerial and supervisory staff and the skills of personnel, e.g. the sales force. The domination of the human factor over capital and other resources is a characteristic of small industrial businesses. Thus, the assessment of entrepreneurial potential as well as of human resource requirements and availability needs to be given special attention when assessing an individual project.

1. Assessment of entrepreneurial abilities

For assessing individual entrepreneurial characteristics and potentials, as might be reflected by more creative-dynamic or more administrative-executive behaviour, as well as by entrepreneurial and managerial skills, questionnaire II-1 on the assessment of entrepreneurial values and attitudes and questionnaire II-2/2 on the assessment of individual strengths and weaknesses are used. Such personal entrepreneurial and managerial characteristics and skills should be compared with the characteristics and skills important for business success in the subsector of the individual project (questionnaire II-2/1). It is evident that requirements are not uniform, and while some entrepreneurial skills are important for business success independent of the type of small business, others may vary with sociological conditions and with the characteristics of the subsector For example, a dynamic and fast-growing subsector requires different strengths than a subsector in a more mature phase of its life cycle.

If subsector-typical profiles are available, project-relevant requirements should be compared with individual entrepreneurial characteristics in order to identify personal strengths and weaknesses, as well as needs for professional training or external support.

The final assessment of individual entrepreneurial potentials should also include the evaluation of factors relating to the social and economic background of a potential entrepreneur and investor Three such factors are the following:

- Family status with given social and business contacts
- Overall financial situation of the families involved
- Availability of family assets as risk capital.

2 *Assessment of manpower requirements and availability*

Total human resource requirements should be defined by function and wage or salary categories. Worksheet II-1 (total human resource requirements) is used to determine the number of persons employed full-time and part-time, both by function and wage category. Worksheets II-2 and II-3 are used to plan the distribution of functions by organizational unit and job category, including participation in the flow of information and decision-making.

If related subsector-typical data on, for example, job profiles are available from opportunity studies or from similar feasibility studies, they may by used to identify skill requirements important for business success. If they are not available, the analyst has to judge, based on experience, which of the requirements are likely to be significant.

The requirements should be compared to available human resources in terms of entrepreneurial talents and managerial and other special skills of key personnel (marketing/selling, production know-how etc.) at different levels. Such an assessment may reveal functional deficiencies as to leadership, participation in decision-making (worksheet II-3) or communication and execution of management decisions, it may make it easier to identify training requirements (worksheet II-4) and the need for outside expertise (questionnaire III-3).

Total human resource requirements (worksheet II-1) should be assessed in accordance with the needs defined by the marketing concept of the enterprise, the manufacturing processes, the auxiliary services and the administrative requirements (see also chapters V, VI and VII).

The assessment of total human resource requirements must not be limited to the needs during the operational phase, it also has to consider the skills and expertise needed during project implementation (worksheet VIII-1, see also chapter VIII).

The availability of required human resources at the location of an individual project should be assessed together with other location factors. If such information is available from recent studies, the data should be verified before being adopted for an individual feasibility study.

3 *Assessment of training requirements*

The feasibility study for an individual project should identify training needs. Local facilities for professional training should be exploited, particularly if the skills being taught are decisive for the success of a project. In developing countries especially, such facilities and opportunities may not be available locally, so the key personnel often have to be trained abroad or expatriates with the necessary know-how and expertise need to be brought in. Employees and staff generally have to be trained on the job by key personnel. Training needs and the timing of training should be entered into worksheets II-4 and VIII-1, with related costs being entered into schedule VIII-2 (pre-production expenditures).

4. *Allocation of personnel*

The preparation of an estimate of personnel costs is outlined in chapter XI. Cost estimates should be based on the projection of total human resource requirements, determined in accordance with worksheet II-1 for each job or wage (salary) category. A breakdown of functional categories is given in worksheet II-2 (functional personnel matrix). Schedule II-1 is used to enter estimated personnel costs by

wage category and full-time employment equivalents, as well as to specify personnel costs varying with production volume (capacity utilization). Based on these estimates, personnel costs can be projected for the planning horizon underlying project appraisal and can be used to derive total factory, administrative and marketing costs (schedules VI-6, VII-2 and V-2).

C. Business environment

The overall social and economic environment, in so far as it has an impact on business operations and success, may not be homogeneous within a country or region; at times it even may differ from one sector to another. In most cases individual feasibility studies do not require a detailed assessment of the characteristics of the overall business environment, and they may rely on appropriate subsectoral studies or other information. A feasibility study should assess the potential impacts of business opportunities and constraints on the success of a project.

1 Cultural and socio-economic aspects

Cultural and socio-economic aspects are to be assessed comprehensively, not merely in terms of the commercial feasibility and success of a project but also in relation to religious principles and beliefs, the socio-political environment, the educational system, literacy, nutritional patterns and behaviour, health conditions etc., as dealt with in part one, section D, and in chapter III. Such an assessment also should include interrelationships with the primary sector (agriculture, mining) and the tertiary sector (consulting and other services, such as repair and maintenance).

2. Impact of economic policies

Business incentives as well as restrictions due to fiscal, labour, consumer, environmental and other regulatory policies can be decisive for the feasibility of a project. The scope of such policies may vary from country to country and also by sector. For the assessment of government policies and programmes, use questionnaire III-1, the capital regulations, taxes, duties and allowances that apply to a subsector are assessed using worksheet III-1.

3. Competitive and cooperative environment

For the development of small enterprises, business cooperation is usually at least as important as competition, if not more so (see chapter III, section D). Therefore, feasibility studies should analyse the business environment as relevant for an individual project, and if cooperation is recognized as a success factor, the advantages should be assessed and potential partners identified, with particular emphasis on subsector-typical fields of cooperation (questionnaire III-2).

4. Institutional infrastructure

The institutional infrastructure and related services that are important for the businesses in a subsector should be assessed by an opportunity study using questionnaire III-2. The availability and accessibility of the services, as well as their quality and cost, should be evaluated. If important services are not available locally, access to services at more distant places may be difficult and costly.

Many kinds of entities make up the institutional infrastructure:

- Professional associations
- Chambers of trade, industry etc.
- Small-business-related research institutes
- Subcontractor exchanges
- Professional upgrading and training institutions
- Purchasing cooperatives
- Small business financing and insurance agencies
- Marketing cooperatives
- Export cooperatives
- Licensing or patent exchange agencies
- Product quality certifying institutions
- Other promotional institutions

5. *Information and consulting services*

Unlike large firms, small industrial businesses rely more on external consultants for legal advice and accounting and auditing services, so the availability and quality of these services should be assessed, particularly if they are crucial for guiding and rationalizing entrepreneurial decisions. The extent to which these services may even be important for business success should be evaluated at the subsectoral level using questionnaire III-3. The required services may be provided by professional associations or government agencies and even be subsidized if it is desired to promote small businesses.

Typically, consulting and information services offer several kinds of expertise:

- Management (organization, planning, accounting etc.)
- Finance
- Auditing
- Legal advice
- Research and development
- Marketing
- Distribution
- Promotion
- Purchasing and supply
- Production and technology
- Electronic data processing.

Capital regulations, taxes, duties and allowances as relevant for subsector may be taken from worksheet III-1. The costs of infrastructure and consulting services are to be inserted in the respective schedules of chapter XI: II-1, personnel, IV-1 and IV-2, site, V-2, marketing, VI-2, production, and VIII-1 and VIII-2, project implementation. For project appraisal, also use questionnaire III-3.

D. Location, site and environmental aspects

Data on subsector-typical location and site characteristics may be available from opportunity studies carried out in line with part two of the *Manual*. Such information (location profile and site characteristics) facilitates the assessment of locations and sites envisaged for an individual investment project, allowing conditions and the availability of requirements at the project site to be evaluated. In the absence of subsectoral information, location factors and site characteristics may be assessed for a specific project with the help of questionnaire IV-1. Depending on the type of business, such factors would have different weight in the assessment. For example, a business location may be marketing-oriented (close to customers or to shipment facilities), supply-oriented (processing of perishable agricultural or marine products) or oriented to a combination of factors. Typical location factors are the following:

- Input-oriented factors
  - Professional skills (personnel)
  - Raw materials and supplies
  - Technical services
  - Infrastructure services (electric power, water, sewage etc.)
  - Communication, transport (mail, telephone, railway etc.)
  - Other business-oriented services (banking, auditing etc.)
- Output-oriented factors
  - Location of major customers
  - Distance between main customers and location of firm
  - Customer characteristics, e.g. their buying behaviour
- Other location factors
  - Agglomeration of firms
  - Public promotional measures
  - Environmental factors (climate, topography etc.)
- Site characteristics
  - Special requirements on buildings
  - Compliance with technical construction requirements
  - Legal provisions on building construction and adaptation
  - Access/connection to power supply, water supply, sewage system, communication systems (telephone, fax etc.) and others
  - Distance to public transport (bus, rail etc.)
  - Image-related aspects
  - Possibility of future expansion.

1. Adaptation to specific project conditions

Subsector-typical profiles should not be adopted without critically assessing their validity for an individual project, because specific project conditions and requirements may necessitate a deviation from given profiles. Such changes need to be carefully evaluated and justified in the feasibility study. To keep the costs of location and site assessment low, potential investors should participate in the collection and analysis of data.

2. *Choice of location and site*

The feasibility study should identify suitable locations and, within the locations, alternative sites and assess them with regard to existing or potential business opportunities and risks, as well as relative strengths and weaknesses. Factors that would be decisive for the final choice of location and site should be ranked according to their importance for business success, this may be facilitated by relevant subsector data (see also figure IV).

Once suitable locations have been identified, sites may be found through personal contacts or real-estate agents, by consulting local government institutions, banks or insurance companies or by advertising in local newspapers. Potential premises should be inspected and carefully assessed as to their suitability.

Not only must qualitative "success factors" be taken into account when making the final choice, but also the impact of conditions at the location or site on investment and operating costs must be considered. Higher investment costs at one location (cost of premises etc.) may, for example, be more than compensated for by lower operating or marketing costs at another.

3. *Cost estimates*

Cost estimates for a location or site may be available from regional or subsector studies (opportunity studies). When an individual project is being appraised, such data need to be verified and updated. In most cases, however, such data are not readily available and have to be collected. If project-specific costs deviate significantly from subsector-typical profiles, the differences have to be examined and analysed with respect to their effect on the feasibility of the project. Cost estimates should be inserted into schedule IV-1.

E. Market analysis and marketing concept

The formulation of project-specific marketing objectives, strategies and operational measures (the marketing concept of an enterprise) is one of the key elements in the feasibility study for which subsector-typical marketing concepts may serve as a reference, but it can seldom be copied for an individual project. None the less, marketing data and basic strategic options, as assessed in an opportunity study at the subsectoral level, should be used as a basis for the development and evaluation of project-specific strategies and their realization.

1 *Definition and segmentation of markets*

For an individual project the first step is to identify potential markets in terms of product-customer segments and geographical areas. Such markets should be further analysed and evaluated as to structure and size, competitive conditions, patterns of demand, customer characteristics and behaviour and costs of market entry.

When the market is being segmented geographically, the following criteria for the location of large customers may be used.

- Local community
- District
- County

- State, region
- Areas defined by natural barriers
- Areas defined by common language, customs etc.
- Distance from the firm

When customers are being segmented, the following criteria may be applied in the case of enterprises.

- Private individual, commercial firm or public sector
- Sector or subsector of the economy (manufacturing, services, transport, retail)
- Size of firm

In case of individual customers, other criteria would apply

- Age group
- Sex
- Education
- Religion
- Profession (e.g. blue-collar workers, civil servants)
- Marital status (size of household, number of children)
- Disposable income and lifestyle
- Others, such as car owners
- Buying behaviour (where, how, when, how often)

For market segmentation, worksheet V-1 may be used.

2 *Market description and analysis*

The main purpose of market analysis is to provide relevant data on the basis of which feasible alternative marketing concepts can be developed. Ideally, data on the structure of the market—including interrelationships among the various "actors" (suppliers, customers, distributors, related associations etc.), which are usually referred to as the marketing system—will be available from other studies and need only to be verified and updated for the markets selected for an individual project. If such information is not available or if it is outdated, the feasibility study has to define potential target markets and should assess them in terms of size, customer preferences and requirements and identify main competitors and their marketing behaviour, customer relations and distribution channels. Budgetary constraints may, however, limit the ability to carry out such a thorough analysis.

In the case of an individual project, market analysis should provide the following information for describing, analysing and selecting target markets, for estimating market potentials and size[77] and for developing related marketing concepts.

- Customer characteristics
  - Types of customers or customer groups
  - Geographical distribution

[77]Market potential refers to the estimated total demand for a specific product; market size is that part of a market potential already satisfied.

Structure of customer needs (quality, exclusivity, product assortment, design, service, price, reliability, delivery terms, terms of payment, personal contacts)

Purchasing motives and attitudes

Purchasing process

Demand patterns (see figure XIX)

- Market size and potential

  Market volume (by quantity, sales volume, number of customers)

  Degree of saturation (market life cycle)

  Growth in absolute and percentage terms

  Stability and variation of demand

- Competitive structure and marketing environment

  Main suppliers of competitive goods and services (types, size structure)

  Geographical distribution

  Channels of distribution

  Intensity of promotional activities

  Principal means of competition: quality, product assortment, advertising, pricing or terms of delivery

  Intensity of competition

For market description and for analysis of competitors, worksheets V-2 and V-3 may be used.

If detailed product information is not available from studies done at the subsectoral level, marketing research will be required to provide technical product information, such as tolerances in size or measures, specific material requirements, consumer preferences regarding product design (colours, style etc.). Research also should assess future market developments as related to population growth, changing age structure and demand patterns and the dynamics of economic development in general.

3. Market evaluation and selection of target markets

Markets should be evaluated on the basis of their potential (opportunities and risks) relative to the strengths and weaknesses of a project. The strengths and weaknesses may relate to the availability of technical and managerial skills, technology, material inputs and financing. They should be contrasted with the strengths and weaknesses of competitors, focusing on success factors that have been identified.

The evaluation and selection of target markets are important steps in developing the marketing concept of an enterprise and in formulating project-specific marketing objectives.

For the assessment of marketing success factors, questionnaire V-1 may be used.

Figure XIX. Demand patterns

	Frequency of demand	
	Frequent	**Infrequent**
Intensity of purchase		
Regular purchase	Daily, weekly (e.g. bread, beverages)	Seasonal purchase (e.g. spring, summer, Easter, Christmas)
Irregular purchase	Once or twice a week or a month (e.g. sweets, shirts)	Once a year, every 5 or 10 years (e.g. birthday gifts, TV set, bicycle, appliances)
Type of demand	Differentiated	Uniform
Order size	Large orders	Small orders
Customer-firm relationship	Short-term, accidental	Long term • Confidence-related • Convenience-related (e.g. neighbourhood) • Contractually bound (e.g. subcontracted)

4 Formulation of marketing objectives

Marketing objectives have to be compatible with other functional objectives within the framework of the overall strategic orientation of a firm. They determine a strategic combination of measures and instruments to be employed for building up potentials for long-term success or securing an already achieved market position. Such objectives may be image-related or product-related, and they do not necessarily result in greater profitability or higher revenues in the short run but aim, instead, at goals such as improved consumer satisfaction.

Typical marketing objectives are the following

- Development of new markets
- Expanding in an existing market
- Development of a new product
- Adaptation of an existing product
- Upgrading the sales force
- Improving and streamlining the internal marketing organization.

Formulating marketing objectives in greater detail means setting product/market-specific sales and profit targets. Such targets may be reflected in sales plans that forecast quantities and revenues at projected prices over different periods, as shown in table 7.

Table 7. Sales targets by period and market

(Thousands of pounds sterling)

	Period 1		*Period 2*		*Period 3*	
	Increase	*Total*	*Increase*	*Total*	*Increase*	*Total*
Market A						
Units	—	10	30	40	20	60
Price	—	20	2	22	3	25
Sales	—	200	—	880	—	1 500
Market B						
Units	—	15	25	40	5	45
Price	—	15	0	15	5	20
Sales	—	225	—	600	—	900
Market C						
Units	—	0	5	5	10	15
Price	—	—	—	107	3	110
Sales	—	0	—	535	—	1 650
Total sales	—	425	—	2 015	—	4 050

For the formulation of marketing objectives, worksheet V-4 may be used.

5. Design of a marketing concept

The marketing concept comprises the marketing strategies, measures and instruments that are needed to achieve marketing objectives set out in the feasibility study. Based on those objectives, suitable marketing strategies should be determined, taking into consideration their interdependencies with other functional strategies (in particular, supply, location, technology and production and financing strategies). Marketing objectives and strategies typical for a subsector may be found in opportunity studies, however, they should be carefully assessed with an eye to their suitability for a given individual project and, if necessary, adapted to its special needs. Some typical marketing strategies are as follows:

- Market development strategy
- Diversification strategy (product or market diversification)
- Price competition strategy (low-cost producer)
- Distribution strategy (choice of distribution channels)
- Image strategies (company or product image)

For each strategy selected (different marketing strategies may be used for different products), a suitable combination of marketing measures and instruments needs to be designed. However, it is important to understand that such a combination has to be compatible not only with defined marketing objectives and strategies but also with related functional strategies and with the organizational set-up and information system of an enterprise.

The typical marketing measures and instruments available to implement strategies are typically placed in five categories:

- Product- or production-related measures[78]
  - Specializations
  - Adaptation of products
  - Quality assurance, choice of quality levels
  - Product design
  - Product development
  - Product diversification
  - Innovation[79]
  - Services
- Price-related measure[80]
  - High or low price policy
  - Price differentiation, e.g. by order size, market or customer group
  - Seasonal sales (special price offers valid for limited periods)
- Distribution-related measures[81]
  - Selling through trained self-employed representatives
  - Organization of in-house or external sales departments
  - Choice of distribution channels, such as retailers, wholesalers
  - Training of sales personnel
  - Establishment of storage facilities (to improve delivery time)
  - Organization of the transportation system
- Promotion-related measures[82]
  - Selection of media
  - Design of promotional material
  - Pre-production promotion to facilitate market entry
  - Product promotion
  - Image promotion
  - Public relations
  - Direct marketing

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[78]Measures include the adaptation of production programmes made in response to changing customer needs and demand patterns induced by, for instance, technological developments. In the case of a specific product, such as saw blades for industrial use (see case 1 in the annex), it is necessary to specify the various product types by quality, size and design. Thus, product policy—as a set of product-related strategies, measures and instruments—also entails choosing between a specialization or a diversification strategy, the former concentrates on a few specific products, the latter increases the number of products or services offered.

[79]Innovation is not limited to production techniques but also comprises, among other things, new forms of distribution or of marketing products and services.

[80]Price-related measures (price policy) should be applied with care because they usually have an immediate impact on the image of a product and enterprise (see chapter V, section E). The same is true for measures related to distribution.

[81]Alternative forms of distribution should be identified and their costs and benefits compared (see chapter IX, section K).

[82]Promotional measures may be guided by sector-specific recommendations if they are available from related opportunity studies. However, the assessment and selection of locally available media and the design of advertising material geared to project-specific objectives should be made in the course of the feasibility study

- Organizational measures[83]
  Improvement of the information system
  General organizational measures

For the definition of marketing strategies and measures, worksheet V-5 may be used.

6 *Marketing costs and sales revenues*

Marketing costs basically comprise salaries and wages, the cost of office space and equipment and other marketing-related costs such as for advertising and catalogues. Usually these costs cannot be directly attributed to a specific product (profit centre). However, some costs can be directly related to specific products (direct costs), such as discounts, delivery costs and product folders. Direct and indirect marketing costs may be proportional to quantities sold or may remain constant (fixed costs) over a certain period regardless of turnover.

Projected sales should be expressed in terms of physical quantities (pieces, tonnes etc.) and sales prices. Usually sales revenues are computed net of any taxes or duties, if the volume of sales taxes and duties etc. is of interest for project appraisal, this information should be included in the feasibility study.

The costs of marketing personnel are to be inserted into schedule II-1, other marketing costs are inserted into schedule V-2. Sales projections (quantities and sales prices) are to be inserted in schedule V-1.

F. Production facilities and input requirements

This section addresses the scope and type of production, choice of technology, required investment, material inputs and services and related costs.

1 *Scope and type of production*

The scope and type of production depend on the proposed marketing concept, i.e. on the number and type of products, product characteristics (quality, design etc.). They are also determined by the availability of material inputs, factory supplies and appropriate technology, and by locational conditions. To identify and evaluate suitable production processes and to determine the scope and type of production, subsector-typical types of production as governed by demand patterns and related capacities characteristic for small business may be used as a reference. Questionnaires VI-1, VI-2 and VI-3 may be used.

2 *Production capacity*

The production capacity of machinery and equipment needs to be determined in line with marketing requirements (sales plan, distribution of sales over a year), with supply characteristics (processing of seasonally available raw materials such as agricultural or marine products) and with technological or technical constraints

[83]The design and formulation of a marketing concept also requires providing for organizational needs and appropriate staffing, e.g. for marketing management and sales activities. (See also worksheets II-1, II-2 and II-3 and schedule V-2.)

(availability of machinery and equipment etc) It is often difficult for small businesses to select machinery of the appropriate size or capacity, because they generally have to choose among readily available, standardized machinery that seldom precisely suits the overall design of the production unit. Tailor-made equipment, designed and manufactured for a single project, is the exception in small industrial business.

In addition, small businesses in developing countries often find it difficult to obtain machinery and equipment, particularly for replacements or for the expansion of production. In anticipation of such problems, entrepreneurs tend to create reserve capacities, these, however, may lead to overcapacity and endanger the financial viability of an enterprise.

3. *Choice of technology*

The characteristics of sector-typical technologies and related requirements should be assessed, taking subsectoral data as a reference (questionnaire VI-2) The technological alternatives should be evaluated in terms of availability, transferability (technology absorption), adaptability and related costs. Aspects of adaptation and integration, means of transfer, procurement of equipment, services, machinery and tools may be decisive in the choice of technology, particularly in developing countries For the final choice of technology, apart from qualitative aspects, not only the costs of technology acquisition and transfer (training etc.) but also the related investment costs (including special buildings, machinery and equipment, construction and start-up costs etc) and production costs (material inputs, energy consumption and costs and human resource requirements) have to be taken into consideration (see schedules II-1, II-2, V-2 and VI-6)

A detailed technology description covering capacity (throughput or output per unit time), consumption figures, reliability and performance, environmental impacts, safety devices and standards, quality requirements or suitability of raw materials and supplies, service and maintenance requirements etc. is usually obtained from potential suppliers. Worksheet VI-1 may be used for the description of machinery and equipment and worksheet VI-2 for the outline of the production process.

4. *Material inputs and services*

General information on the characteristics of material inputs and services, as typical for a subsector, may be available from related opportunity studies or comparable individual projects (see questionnaire VI-3). For an individual project, however, material and supply characteristics have to be determined on the basis of product and production requirements as determined by the marketing concept and the design of the production process (capacity, quality requirements etc). Based on identified requirements, the feasibility study should assess the availability of necessary material inputs and services in terms of quality, quantity and supply conditions (delivery time, costs etc) Critical inputs (e.g. quality tolerances and timely supplies) should be identified, as should means of coping with supply problems. Worksheet VI-3 may be used to describe the main inputs and supply characteristics.

5. *Purchasing and logistics*

Information on subsector-typical purchasing and supply conditions, including the logistics of stock-keeping and transport, should be available from opportunity

studies. The feasibility study should outline project-specific requirements as determined by projected production and sales programmes, as well as assess supply patterns (lead-time for deliveries, costs and risks of stock-keeping, transport capacities available) and related maximum and minimum stock volumes, to arrive at an adequate supply marketing concept (see also chapter VI). For estimating and projecting factory costs, use schedules VI-6 and IX-2.

G. Organization and controlling

The organizational structures and principles typical for a subsector, if available from an opportunity study, may serve as a reference for the outline and assessment of a project-specific organizational set-up. For a small business to be efficient, its organizational structure should correspond to the management style and attitudes of the entrepreneur himself or of key managerial personnel (see also questionnaires II-1 and II-2/2).

The main purpose of organizational design in the feasibility study is to determine management functions and related administrative costs (personnel and administrative overhead costs). Administrative functions include general management, accounting and auditing, controlling and general administrative services. The attribution of functions to specific organizational units or positions should be depicted in a chart showing the overall structure and the levels within it.

Administration procedures are required to assure efficient operations. While the procedures will be designed when a project is implemented (see chapter X, section H, as well as chapter VIII), the main procedures must be outlined at the feasibility study stage, in order to arrive at reliable estimates of related costs. Special attention should be paid to establishing efficient accounting and internal information systems. For the design of the organizational set up, worksheet VII-1 may be used. For related costs, schedules VII-1 and VII-2 may be used.

H. Project implementation

A timetable for project implementation, including start-up of production, and a budget and financial plan, as described in chapter VIII, should be prepared for a project in order to estimate implementation costs. Individual schedules and budgets should be compared with subsector-typical data, including the assessment of critical activities during the investment phase. Reliable estimates of capital requirements for project implementation, including start-up, will help to avert liquidity bottlenecks.

The questions asked in an opportunity study and in a feasibility study concern the same matters, but their focus is different (figure XX).

1 Implementation requirements

The feasibility study should assess activities related to the implementation of the project, including but not limited to legal conditions, costs involved and resources required, as compared to subsector-typical patterns (see questionnaire VIII-1).

Finally, in this phase, information on alternative sources of financing should be collected (see questionnaire VIII-2) and the scope of total capital demand has to be aggregated.

Figure XX. Comparison of questions asked in an opportunity study and a feasibility study

Opportunity study	Feasibility study
Legal forms typically dominating (by country and sector)?	Which legal form should be chosen?
Subsector-typical forms of cooperation?	Cooperation in form of family business, joint venture or subsidiary?
Subsector-typical ratios of equity to total capital invested (in percent)?	Amount of equity available?
Subsector-typical financing?	Type of financing feasible?

2 Implementation schedule

In a feasibility study the time schedule should cover all the main steps in project implementation. Particular attention should be paid to identifying time-critical activities and determining their scope and duration (worksheet VIII-1 should be used) as well as to the resources required, the attribution of responsibilities, the desired results and the interrelationship with other activities.

3 Implementation budget

Budget and financing schedules are prepared in order to determine initial capital requirements for implementation, including start-up. Cost estimates are inserted into schedules VIII-1 and VIII-2. If there is to be outside financing, the alternatives (long-term loans, leasing, supplier's credit and short-term loans) should be assessed, using questionnaire VIII-2. Capital costs should not be the only criterion for selecting a specific form of financing, and the design of an appropriate financial structure should consider other factors as well.

- Availability of additional capital needed later on
- Availability and quality of financial services and advice
- Collateral required
- Administrative procedures and red tape.

The total initial investment costs and finance required may be inserted into schedule VIII-3, for the definition of sources of finance and financing conditions, schedule VIII-4 may be used.

Worksheet II-1 Total human resource requirements

Project/alternative:	Code Date:			
Function	Job category	Number of persons [a/]		
		Part time	Full time	Total
Remarks:				

[a/] Total in full time equivalents (FTE)

Worksheet II-2. Functional personnel matrix

Project/alternative					Code: Date:			
	Entre-preneurs	Family members	Administra-tive staff	Technical staff	Sales staff	Skilled workers	Unskilled/ apprentices	Total
Number of persons								
Full-time equivalents in								
Total								
Management								
Administration								
R & D								
Training								
Procurement								
Store								
Transport								
Production								
Remarks:								

The aim of this worksheet is to have a clear idea on the number of people necessary for the project, according to their personal characteristics and the type of functions to be performed

Worksheet II-3 Participation in the decision process

Project/alternative	Code Date

	Entre-preneurs	Family members	Administra-tive staff	Technical staff	Sales staff	Skilled workers	Unskilled/ apprentices
Objectives							
Strategy							
Planning							
Accounting							
R & D							
Training							
Financing							
Marketing							
Procurement							
Production							

Remarks

This worksheet may be used to determine to what extent the different types of personnel will be involved in decision-making at the various managerial levels.

Worksheet II-4 Assessment of training needs [a/]

Project/alternative	Code Date

In case need for training has been identified, indicate duration and number of persons to be trained

Type of training	Duration (days)	Persons (number)
Training of supervisors		
Vocational training		
Business administration		
Training of apprentices		
Upgrading of technicians and (semi-)skilled workers		

Remarks

[a/] Also refer to worksheet VIII-1

Worksheet III-1 Capital regulations, taxes, duties and allowances (as relevant for the subsector)

Project/alternative	Code Date
Minimum equity capital required	[a]
Limits to foreign/non-resident participation	
Income tax rate(s)	
Tax holidays (years)	
Losses may be carried forward (years)	
Tax provisions on equity	
Tax provisions on capital transactions	
Tax provisions on profits and dividends	
Allowances/tax exemptions on investments	
Allowances on retained profits	
Tax on turnover and/or value added	
Import duties/taxes	
Export duties/taxes	
Foreign exchange control	
Public duties and fees	
Taxation of foreign/non-resident personnel	
Liability of investors/entrepreneur/manager	
Other regulations [b]	
Remarks	

[a] Remarks and explanations should be attached if necessary
[b] To be specified

Worksheet IV-1 Definition of location and site requirements

Project/alternative	Code Date

Select from questionnaire IV-1 location and site requirements and check availability and potential problem areas.

Required location and site factors	Availability		
	Appropriate	Poor	Not available

Remarks

Worksheet V-1 Market segmentation

Project/alternative	Code Date
Name of market segment (target group)	Criteria applied for segmentation
Segment A Segment B	
Remarks	

See check-list in section E of chapter X.

Worksheet V-2 Market description

Project/alternative	Code Date
Market segment (product-customer target group) [a/]	
Characterization of customers (type, location, preferences and needs, purchasing behaviour etc)	
Product characteristics	
Market size and potential [b/]	
Market life cycle ☐ Growing ☐ Mature ☐ Saturated ☐ Declining	
Distribution channels	
Main competitors [c/]	
Sales targets (quantities, prices, revenues)	
Remarks	

[a/] Use separate worksheets for each market segment

[b/] *Number of potential* customers, estimated market volume etc , market potential refers to the estimated total demand, market size is that part of a market potential already satisfied

[c/] Name, address, production (sales) programme For the assessment of competitors use worksheet V-3

Worksheet V-3. Analysis of competitors

Project/alternative	Code Date
Market segment (product-customer target group) [a]	
Main suppliers (of competitive goods and services)	
Market position of main competitors	
Market strategies/policies of main competitors	
Assessment of competitors	
Remarks	

[a] Use separate forms for each market segment.

Worksheet V-4 Formulation of marketing objectives

Project/alternative	Code Date
Marketing objective	Market segment/product
Remarks	

Based on questionnaire V-1, *Assessment of marketing success factors,* and on project-related judgement (worksheets V-1, V-2 and V-3), formulate marketing objectives for each market segment or product separately (Refer to the check-list in chapter X, section E)

Worksheet V-5. Definition of marketing strategies and measures

Project/alternative	Code Date
Market segment/product [a/]	
Measures and instruments	
Remarks	

[a/] Use separate forms for each market segment or product.

Worksheet VI-1 Description of main machinery and equipment

Project/alternative	Code Date
Machinery/equipment [a/]	
Remarks	

[a/] Indicate main machinery and equipment typical for the scope and type of production (technology) to the extent characteristic and essential for business success.

Worksheet VI-2 Outline of the production process

Project/alternative	Code Date
Block diagram of main processing steps and units, and explanatory notes	
Remarks	

Worksheet VI-3. Specific main inputs and supply characteristics

Project/alternative:	Code: Date:
Input and supply characteristics	
Remarks:	

For the main inputs described in questionnaire VI-2, additional information on main suppliers (sources) and significant supply conditions should be given.

Worksheet VII-1 Organizational set-up

Project/alternative	Code Date
Remarks	

Worksheet VIII-1 Project implementation, assessment of time-critical activities

Project/alternative	Code Date

Estimate the time typically needed for the following project implementation steps [a]	0 1 2 3 4 5
Formation of firm or purchase, set-up of an organization	☐☐☐☐☐☐
Purchase of site/estate	☐☐☐☐☐☐
Engineering design (civil, plant machinery etc.)	☐☐☐☐☐☐
Selection of suppliers, contracting	☐☐☐☐☐☐
Aquisition of technology, know-how and machinery	☐☐☐☐☐☐
Construction on site, delivery of machinery etc.	☐☐☐☐☐☐
Start-up of operations, commissioning	☐☐☐☐☐☐
Pre-production marketing	☐☐☐☐☐☐
Training of key personnel, general management	☐☐☐☐☐☐
Training of key personnel, production	☐☐☐☐☐☐
Training of key personnel, administration	☐☐☐☐☐☐
Training of other key personnel (specify)	
	☐☐☐☐☐☐
	☐☐☐☐☐☐
	☐☐☐☐☐☐
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	☐☐☐☐☐☐

Remarks

[a] 0 Don't know
1 Up to one month
2 Up to three months
3 Up to six months
4 Up to one year
5 More than a year

XI. Financial analysis of individual projects

Introduction

Analysis of the financial feasibility of an individual project follows the pattern described in chapter IX for opportunity studies at the subsectoral level It comprises detailed estimates of investment costs and costs of production and marketing to derive indicators for profitability, financial structure and productivity Ideally, for the financial appraisal of an individual project, project-specific indicators should be compared with corresponding subsector-typical indicators obtained from opportunity studies or other sources However, while an opportunity study ought to provide information on subsectoral characteristics (the potential factors of success or failure, the strengths and weaknesses typical of a subsector), a feasibility study has to assess individual projects, each with respect to its own business and social environment, market potential, availability of required inputs and, last but not least, the entrepreneurial potential of the investors

A. The use of schedules

The schedules contained in the appendix to this chapter are designed to be used for both opportunity and feasibility studies The first number of a schedule (the Roman numeral before the hyphen) refers to the corresponding chapter in part two, where more detailed background information can be found, particularly if the schedule is being used for an opportunity study at the subsectoral level For the worksheets (chapter X) and questionnaires (chapter XII), the same numbering system has been used to facilitate the preparation, analysis and appraisal of projects on both levels as well as the comparison of sectoral data with data for individual projects [84]

B. Human resource costs

Based on the total human resource requirements, as determined in accordance with worksheet II-I, the costs of personnel are estimated for each job and wage category For the breakdown of functional categories, the functional personnel matrix (worksheet II-2) should be used. Personnel costs are entered into schedule II-1

[84]The schedules, like the questionnaires contained in chapter XII, are compatible with the data input and output formats of COMFAR *III Expert*, a UNIDO software designed to facilitate the financial and economic analysis of small, medium and large investment projects. This advanced software package supports the computation of cash flows, accounting statements, costing, financing and the storage of project-related indicators in a standardized COMFAR *III Expert* Project Database. For more information, please contact the Research and Software Unit, Feasibility Studies Branch, UNIDO, P.O. Box 300, A-1400 Vienna, Austria.

separately for each job or wage category and for full-time employment equivalents (FTE), that is, the working time of persons employed part-time should be expressed as a decimal fraction to allow computing the total FTE for each job or wage category. If personnel costs vary with the volume of production and sales (capacity utilization), as may be the case when, for example, helpers (unskilled workers) are employed or when production or sales personnel earn a premium depending on production output or sales, the portion of variable costs needs to be defined. The impact of inflation is usually not included when analysing the financial feasibility of a project; however, if inflation rates are high, it will be necessary to include cost increases, particularly with a view to determining financing requirements and possible liquidity problems. Based on these estimates, personnel costs can be projected for the planning horizon underlying project appraisal.

If subsector-typical personnel costs are available, a comparison of these with projections for the individual project may give first indications as to the impact of personnel costs on the feasibility of the project.

1. Direct costs of personnel

The total number of personnel in a small business is usually too low to clearly allocate personnel to production, marketing and administration (so-called cost centres). For purposes of cost control it may nevertheless be useful to distinguish at least between those three cost centres in order to allocate the costs to each product and to determine the corresponding variable margins accordingly (see chapter IX and schedule IX-8).

2 Personnel overhead costs

Since wage or salary overheads are usually subsector-typical, estimates may be taken from opportunity studies or other sources of sectoral information (e.g. from professional associations). In estimating overall personnel costs, not only do wages and salaries paid have to be taken into account, but also all related cost components, such as social security charges, retained taxes, fringe benefits etc., have to be included and inserted into schedule II-1.

Five types of personnel overhead costs may be distinguished:

- Social security, fringe benefits and welfare costs
- Installation grants, subsistence payments and similar expenses that occur in connection with recruitment and employment
- Annual deposits to pension funds
- Direct and indirect costs of training
- Payroll taxes.

3 Opportunity cost of the entrepreneur

Very often the entrepreneur himself or herself or members of the family are not on the payroll of an enterprise. However, the opportunity cost of the entrepreneur or family member needs to be included in the estimates, otherwise the financial appraisal may come to wrong conclusions about the feasibility of the project. The cost of a general manager may be used as a reasonable approximation of the opportunity cost of a self-employed entrepreneur.

C. Financial impacts of the business environment

1. Capital regulations, taxes, duties and incentives

Data on the business environment should be available from published sources (e.g. investor's guides and macroeconomic research) and from subsectoral studies prepared in accordance with chapter III of the *Manual*. For the financial analysis, all the business incentives, restrictions and other regulatory policies that are decisive for the feasibility of a project should be identified.

Questionnaire III-1 and worksheet III-1 may be used for the assessment of respective government policies and programmes.

2. Costs of institutional infrastructure facilities and related services

Data on institutional infrastructure facilities and related services as important for business in a subsector should be available from related studies (see questionnaires III-1 and III-2 as well as the check-list in chapter X, section C). The feasibility study has to verify the availability and accessibility of such services and evaluate their quality and costs.

3. Costs of information and consulting services

The extent to which information and consulting services (e.g. legal advice, accounting, auditing) may be important for business success should be evaluated in accordance with questionnaire III-3, using data from subsectoral studies and published information. The feasibility study has to assess the availability of such services, as well as their quality and costs. Particular attention should be paid to services that may be crucial for guiding and rationalizing entrepreneurial decisions. The required services may be provided by professional associations or by the government agencies concerned and may even be subsidized for promotional purposes (see also the check-list in chapter X, section C).

D. Costs related to location and site

Cost estimates related to a location or site may be available from regional or subsectoral studies (opportunity studies). When an individual project is being appraised, these data need to be verified and updated for given alternatives. In most cases, however, no data are readily available, so they have to be collected. If project-specific costs deviate significantly from subsector-typical profiles, such differences have to be examined and analysed as to their effect on the feasibility of the project.

1 Investment costs

Estimates of investment costs related to the site are inserted into schedule IV-1. Such costs include the acquisition of land, taxes, legal expenses, rights of way, site preparation (removal of old buildings and constructions etc.) and development (fencing, connecting to power and water supply etc.). Estimates of the costs of civil works, structures and building (new constructions or renovations and adaptations) are inserted into schedule IV-2.

If local environmental and safety regulations as well as the type of business necessitate an investment for environmental protection, such investment should be included in the investment cost estimates. Cost estimates should be assessed against subsector-typical costs derived from existing studies in order to identify deviations from the mean values of successful businesses and to facilitate the assessment of potential locational strengths and weaknesses.

2 *Periodic costs related to site*

Recurring site costs comprise regular payments, such as rents and leasing fees. Cost estimates should be inserted into the corresponding schedules: if directly related to marketing into schedule V-2 (e.g. dislocated points of sale), if related to the production process into schedule VI-6 (factory costs) and if of a more general nature (overhead costs) into schedule VII-2 (administrative overhead costs).

E. Marketing budget

Based on the marketing concept, which is designed with the help of worksheets V-1 (market segmentation), V-2 (market description), V-3 (analysis of competitors), V-4 (formulation of marketing objectives) and V-5 (marketing strategies and measures), an estimate of marketing costs and sales revenues (marketing budget) is prepared. For estimating the budget, typical success factors, as assessed with questionnaire V-1, should be used as a reference.

1. Marketing costs

Marketing costs include salaries and wages, the cost of office space and equipment and other marketing-related costs (e.g. advertising and catalogues). Usually these costs cannot be directly allocated to a specific product (cost or profit centre). However, there are costs that can be directly related to specific products (direct costs), such as discounts, delivery costs and product folders. Direct and indirect marketing costs may be proportional to quantities sold or may remain constant over a certain period (fixed costs) regardless of turnover. The costs of marketing personnel may be inserted into schedule II-1, other marketing costs are inserted into schedule V-2.

2 *Sales revenues*

Projected sales should be expressed in terms of physical quantities (pieces, square metres etc.) and sales prices. Usually sales revenues are computed net of any taxes or duties, if the volume of sales taxes and duties is of interest for project appraisal, this information should be included in the feasibility study. Sales projections (quantities and sales prices) are to be inserted in schedule V-1.

F. Costs of production facilities and of inputs

1 Fixed investment costs

Based on worksheet VI-1, the investment costs related to machinery and equipment are estimated and inserted into schedules VI-1, VI-2 and VI-3. The investment

costs related to project overheads and incorporated fixed investments are inserted into schedule VI-4

Typical items in the category of production machinery and equipment (schedule VI-1) are as follows:

- Machinery and equipment for production (manufacturing)
- Costs of erection, installation etc.
- Special materials (e.g. galvanizing bath)
- Inspections and tests
- Safety and fire protection equipment
- Ventilation, air conditioning
- Effluent and waste treatment units
- Instrumentation and control
- Pipe work and valves
- Insulation and painting

Auxiliary and service equipment (schedule VI-2) typically includes the following items:

- Electricity connection charges
- Transformer and switch gear
- Cabling
- Stand-by power supplies
- Plant and pipe work for water storage, treatment and distribution
- Process, cooling and drinking water supplies
- Internal transport, conveying and storage of materials
- Loading and unloading facilities, elevators, cranes etc.
- Heating and lighting services
- Cooling and refrigeration equipment
- Compressed air, inert gas supplies
- Maintenance and repair equipment
- Operating and maintenance manuals, instructions, drawings etc.
- Testing and laboratory equipment
- Lightning protection
- Communication equipment.

Environmental protection equipment (schedule VI-3) may include some of the following

- Emission handling and treatment units
- Oil and grease separators
- Waste storage containers
- Refuse burning units etc.

Typical project overheads and incorporated fixed assets (schedule VI-4) include the following:

Technology costs: Lump-sum payments to suppliers of technological know-how or patents (annual royalty payments are accounted for in schedule VI-6)

Engineering costs: Basic process and factory design (basic engineering), as well as detailed engineering if not covered under civil works or machinery and equipment or under project implementation costs (schedules VIII-1 and VIII-2), and costs of inspection, consultants and specialists, including travel.

Transport and handling costs, insurance etc.

Temporary facilities required for construction: Site engineer, architect, temporary supply of power, water etc., temporary access, storage facilities, site security (fencing, warden etc.), construction workshops.

Working capital requirements (schedule VI-5): Inventories built up during the construction phase, such as raw materials, factory supplies, spare parts and products.

2. *Costs of material inputs and services*

The costs of specific inputs are estimated based on identified requirements (worksheets VI-2 and VI-3) and entered into schedules VI-6, VII-2 and IX-2.

G. Costs of organization and controlling

Investment costs related to organization (e.g. the costs of office equipment) are inserted into schedule VII-1 and administrative costs for materials, services and communication are entered into schedule VII-2 (costs of administrative personnel, however, are contained in schedule II-1).

H. Implementation budget

Budget and financing schedules are prepared in order to determine initial capital requirements covering implementation costs, including start-up. Cost estimates are inserted into schedules VIII-1 and VIII-2. Total investment costs and finance required are inserted into schedule VIII-3 and financing conditions into schedule VIII-4.

Individual costs should be compared with subsector-typical data. For cost-critical items, reliable estimates of capital requirements are essential to avoid cost overruns and liquidity bottlenecks in the usually difficult phases of establishing and starting up a business.

The following is an example of how cost estimates might be divided up:

- Costs of project implementation management (fees, duties, taxes, travel and communication, legal assistance)
- Costs of company formation
- Salaries, wages of own personnel, training, travel
- Costs of pre-production marketing (advertising, training of sales personnel, travel expenses, printing expenses for promotional material etc.)

I. Financial evaluation

The concept of financial analysis was discussed in detail in chapter IX. For the financial evaluation of an individual project, a variety of accounting and financial statements, including productivity and financial ratios, are computed based on the estimates and projections discussed above. The figures computed in schedules IX-1 to IX-10 should be analysed carefully for each individual project, using subsector-typical data where available. The analyst should pay special attention to those cost and income items that could significantly impact the financial results of a business over time.

The financial data, however, should not be assessed in isolation from the critical success factors, determined with the help of the questionnaires contained in chapter XII. If weaknesses are found (in, for example, the entrepreneurial potential, the business environment, the market, the supply side or in any of the other areas discussed in this *Manual*), their possible impacts on the financial performance of the project should be assessed by means of a sensitivity analysis. Similarly, success potentials should be assessed and weighed against the weaknesses, to get a realistic picture of the success potential of a project in the present business environment and in probable future environments, which may not always be supportive.

1. Assessment of total investment costs

The total investment costs comprise expenditures for fixed assets (i.e. fixed investment costs plus pre-production expenditures before and during the operational phase) and working capital. In the feasibility study, cost projections have to cover initial investment costs incurred during the construction phase, as well as costs for replacing fixed assets whose life is shorter than that of the overall project but that are necessary to maintain efficient operation of the plant. For details see chapter IX, as well as the check-lists contained in sections F and H of this chapter.

It is important to determine all significant cost items and to base cost projections on recent offers from suppliers and other reliable sources. The structure of investment costs should be assessed and compared with those for similar projects, if deviations from subsector-typical costs occur, the reasons for them should be identified (they may be justified by special local conditions but may also be due to errors by cost estimators). The analyst should always bear in mind that cost overruns due to underestimates of total investment requirements have often been the reason for project failure during the financially critical phase of project implementation and start-up.

Total initial investment costs are computed in schedule VIII-3, total pre-production expenditures in schedule VIII-2 and the projected net working capital requirements in schedule IX-1.

The requirement for working capital is often underestimated, and although it forms an essential part of initial capital outlays, representing the permanent component of current assets which should be financed by equity or long-term debt, it is quite often financed by short-term finance. Since the purpose of estimating working capital requirements is to ensure that the enterprise is able to meet its current obligations, it is prudent to hold an adequate amount of matching current assets. However, holding an unnecessarily high proportion of current assets, particularly cash, reduces profitability. With too low a proportion of liquid assets, on the other hand, there is a risk of running out of cash. When determining the optimum level of current assets for a given level of production, it is necessary to carefully forecast the cash flow.

The computation of working capital requirements was explained in chapter IX. When an individual project is being assessed, subsector-typical data from opportunity studies should be used as a reference. However, specific local conditions may require a higher level of working capital or, if inventories can be kept at a minimum, may justify reducing capital requirements.

Projections of the working capital requirements and annual costs of products sold are contained in schedules IX-1 and IX-2.

2. *Assessment of production costs*

The cost of production comprises factory costs, administrative overheads, depreciation and the cost of finance. The cost of products sold includes the marketing costs (see section E). To make cost structures more transparent it may be advisable to distinguish product lines and their related cost or profit centres, whereby direct costs and revenues should be attributed to specific profit centres. Indirect costs, by contrast, should be allocated by applying distributional ratios. If they cannot be allocated, they would have to be accounted for in aggregated form. This method of direct costing is an instrument for optimizing production and sales programmes. The feasibility study should verify cost estimates using subsector-typical data and local sources as a reference, paying particular attention to those cost items that could have a critical impact on the financial success of a business. Schedule IX-2 is used for projecting the total annual costs of products sold.

3 Assessment of the net income statement and balance sheet

Net income statements are projected over the planning horizon of the investor; they comprise estimates of annual costs and revenues and show profits before and after taxation. Projected balance sheets reflect the status of a firm's assets and liabilities for a given date and the changes in assets and liabilities over time. Various ratios or indicators are calculated on the basis of net income statements and balance sheets in order to assess the net worth, profitability and financial structure of a firm. Schedule IX-8 may be used to assess the structure of projected sales revenues, costs and net income, the structure of assets (use of finance) and of liabilities (source of funds) is analysed using schedule IX-9.

Schedule IX-10 contains a set of financial ratios and indicators frequently used by financial analysts for the financial evaluation of investment projects and of existing firms. For more details, see chapter IX.

4 Cash flow projections

For cash flow projections for the computation of the internal rate of return (IRR), the net present value (NPV) and accumulated cash flow, schedules IX-7/1 and IX-7/2 are used. When assessing discounted cash flows, the sensitivity of the IRR, NPV and payback to changes in expenditures and revenues should be analysed in order to identify the critical variables for an investment project. It is important to understand that it is not the computation of financial figures that is the task of a financial evaluation but the interpretation of what is behind these figures. The financial statements and the ratios are only a yardstick for measuring the performance and financial feasibility of an investment for expected scenarios. Such scenarios should include, but not be limited to, everything that could have a significant impact on the decision to implement a project: overall economic considerations, infrastructure aspects, intersectoral linkages and general development conditions.

5 *Financial planning*

Financial planning is carried out to assure liquidity, applying both financial and operational cash flow concepts, as distinct from the discounted cash flow concept (see schedule IX-6)

In preparing or assessing an individual project (feasibility study), the financial analyst should pay particular attention to two basic rules: fixed assets must be financed from long-term loan or equity capital (never by short-term finance), and the accumulated balance of annual net cash flows must never become negative. Several factors determine the ratio between equity and loan capital, since equity capital is often scarce, particularly in the case of small businesses, it is essential to determine the minimum equity required. A good rule of thumb is that total equity capital should be high enough to cover possible losses over at least three years.

APPENDIX SCHEDULES FOR FINANCIAL ANALYSIS

Schedule II-1 Estimate of standard costs of personnel

Project

Source Date

	Cost projections for year						Currency Unit (e g '000, million)					
	Total	Function/job category [a]										
		Job category 1	Variable portion (%)	Job category 2	Variable portion (%)	Job category 3	Variable portion (%)	Job category 4	Variable portion (%)	Job category 5	Variable portion (%)	Job category 6	Variable portion (%)
Number of persons [b]													
Full-time equivalents (FTE)													
Costs per time unit													
Time unit underlying calculations [c]													
Total units worked per year													
Total costs (salaries and wages) per year and category													
Surcharge (%)													
Surcharge (costs) per year													
Total costs per year and category													
Variable share of total													
Fixed share of total													

For attribution to product/cost centres, use schedule II-2

[a] [b] Insert from worksheets II-1, II-3 and II-4

[c] Time units working hour, day, week, month, year

Schedule II-2 Attribution of personnel costs to cost centres

Project

Source Date

Product/cost center Code	Cost projections for year						Currency Unit (e g '000, million)					
	Total	Function/job category [a]										
		Job category 1	Variable portion (%)	Job category 2	Variable portion (%)	Job category 3	Variable portion (%)	Job category 4	Variable portion (%)	Job category 5	Variable portion (%)	Job category 6	Variable portion (%)
Total costs per year (from schedule II-1)													
Attribution of costs													
Production, direct costs													
Production, overhead costs													
Services (procurement, storage etc)													
Adminstration, general management													
Marketing, direct costs													
Marketing, overhead costs													
[b]													

[a] One of the following groups (main cost centres) production, services, administration, marketing

[b] Additional cost/product centres may be added, as appropriate

Schedule III-1 Taxation and other fiscal conditions

Project

Source

Date

Year	Income tax (%) [a]					Allowances [b]		Other company taxes (e g on assets)
	A	B	C	D	E	Investment	Depreciable	
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Special conditions	Years	Remarks
Tax holiday		
Tax credit		
Losses may be c/f		

[a] Tax brackets, e g 10% for income up to £10,000, 20% for income £10,001-20,000, 30% for income £20,001-50,000 and 40% for income above £50,000

[b] Investment allowance means a tax allowance (reductive) based on the amount invested

Schedule IV-1 Estimate of investment costs
cost of land and site preparation

Project:

Source: Date:

Fixed investment costs	Currency: Unit (e.g. '000, million)			
Description of item/sub-item	Year of investment [a/]	Quantity (number) of items	Price/cost of item	Total costs

[a/] Or period.

Schedule IV-2. Estimate of investment costs: cost of civil works, structures, buildings

Project:

Source: Date:

Fixed investment costs	Currency: Unit (e.g. '000, million)			
Description of item/subitem	Year of invest-ment [a/]	Quantity (number) of items	Price/cost of item	Total costs

[a/] Or period.

Schedule V-1 Definition of sales programme

Project

Source

Date

Market segment [a]	Currency
Market (sale to domestic or foreign market, optional)	Unit (e.g '000, million)

Year	Product 1			Product 2			Product 3			Product 4			Total sales
	Quantity sold	Sales price	Total annual sales per item	Quantity sold	Sales price	Total annual sales per item	Quantity sold	Sales price	Total annual sales per item	Quantity sold	Sales price	Total annual sales per item	
	Sales tax [b]	%		Sales tax [b]	%		Sales tax [b]	%		Sales tax [b]	%		

[a] Use separate schedules for each market segment if prices or sales tax are different. Indicate whether sales are on domestic or export market.

[b] Indicate whether prices are gross or net of taxes and/or subsidies

Schedule V-2. Estimate of standard costs. marketing costs [a/]

Project

Source Date

Product/cost centre Code	Currency Unit (e.g. '000, million)			
Cost projection for year Description of cost item/sub-item	Quantity	Price/cost	Total costs	Variable share (%)

[a/] For costs of marketing personnel, see schedule V-1

Schedule VI-1 Estimate of fixed investment costs production machinery and equipment

Project:

Source: Date:

Product/cost centre Code	Currency: Unit (e.g. '000, million)			
Description of cost item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VI-2. Estimate of fixed investment costs: auxiliary and service equipment

Project:

Source: Date:

Product/cost centre: Code:	Currency: Unit (e.g. '000, million)			
Description of cost item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VI-3. Estimate of fixed investment costs investment related to environmental protection

Project

Source Date

Product/cost centre Code	Currency Unit (e.g. '000, million)			
Description of cost item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VI-4 Estimate of fixed investment costs
Incorporated fixed assets

Project:

Source: Date:

Product/cost centre:	Currency:			
Code:	Unit (e.g. '000, million)			
Description of cost item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VI-5. Estimate of working capital requirements

Project:

Source: Date:

Product/cost centre Code	Currency: Unit (e.g. '000, million)			
Description of item/sub-item	Annual consumption (costs)	Coverage (days)	COTO [a/]	WCR [b/]
Inventories				
Raw materials and components				
Factory supplies				
Spare parts				
Production in progress Semi-finished products				
Finished products				
Accounts receivable				
Cash-in-hand				
CURRENT ASSETS				
Accounts payable				
CURRENT LIABILITIES				
TOTAL NET WORKING CAPITAL REQUIREMENTS Increase in net working capital				

[a/] Coefficient of annual turnover
[b/] Working capital requirements

Schedule VI-6. Estimate of standard costs: factory costs

Project:

Source: Date:

Product/cost centre: Code:	Currency: Unit (e.g. '000, million)			
Cost projection for year: Description of cost item/sub-item	Quantity	Price/cost	Total costs	Variable share (%)
Raw materials and components				
Factory supplies				
Overhead costs of raw materials and factory supply				
Spare parts				
Repair, maintenance materials				
Royalties payable on production				
Factory overheads (material) [a]				
TOTAL FACTORY COSTS [b]				

[a] For costs of personnel see schedules II-1 and II-2.

[b] Administrative costs are dealt with in schedule VII-2, marketing costs are shown in schedule V-2.

Schedule VII-1 Estimate of investment costs office equipment etc

Project

Source Date

Product/cost centre Code	Currency Unit (e.g '000, million)			
Description of item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VII-2 Estimate of standard costs: administrative (overhead) costs

Project:

Source: Date:

Product/cost centre: Code:	Currency: Unit (e.g. '000, million)			
Cost projection for year: Description of cost item/sub-item	Quantity	Price/cost	Total costs	Variable share (%)

For cost of personnel, see schedule II-1

Schedule VIII-1 Estimate of investment costs project implementation

Project:

Source: Date:

Product/cost centre Code:	Currency: Unit (e.g '000, million)			
Description of item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VIII-2 Estimate of investment costs pre-production expenditures

Project:

Source: Date:

Product/cost centre: Code:	Currency: Unit (e.g. '000, million):			
Description of item/sub-item	Year of investment	Quantity (number) of items	Price/cost of item	Total costs

Schedule VIII-3 Projection of total initial investment costs

Project

Source Date

Description of item/sub-item	Currency Unit (e.g. '000, million) Total investment	Production					
		1993 [a]	1994	1995	1996	1997	1998
Land, estate purchase Site preparation and development Civil works, structures and buildings Production machinery and equipment Auxiliary and service equipment Environmental protection Incorporate fixed assets Technology Project implementation Miscellaneous, project overheads Contingencies							
Total initial fixed investments							
Pre-production expenditures Contingencies							
Total pre-production expenditures, net of interest on loan capital							
Working capital requirements							
Total initial investment costs							
Equity capital Loan capital Interest on loan							
Total finance required							

[a] Year of construction

Schedule VIII-4 Sources and conditions of finance

Project:

Source: Date

	Currency: Unit (e.g. '000, million)			
Source of finance	Year	Amount paid in	Amount paid out	Conditions for profit distribution
Equity shares	1994 1995 1996 1997 1998			First payment starting (year) Payable in instalments Dividend payment conditions
Grants	1994 1995 1996 1997 1998			
Long-term loans	1994 1995 1996 1997 1998			Type[a/] Repayment[b/] First repayment Number of repayments Interest rate
Short-term loans	1994 1995 1996 1997 1998			Repayment[b/]

[a/] Constant principal, annuity, profile

[b/] Yearly, half yearly, quarterly, monthly

Schedule IX-1 Net working capital requirements

Project

Source Date

Investment category	Coefficient of turnover	Currency Unit (e.g '000, million)				
		Production				
		1994 [a]	1995	1996	1997	1998
Total inventory Raw materials Factory supplies Utilities Energy Spare parts consumed Work in progress Finished products Accounts receivable Cash-in-hand						
Current assets						
Current assets Accounts payable						
Total net working capital						
Increase in net working capital						

[a] Year of construction

Schedule IX-2. Total costs of products sold

Project:

Source: Date:

Cost item	Currency: Unit (e.g. '000, million)			
	Costs by year			
	1995	1996	1997	1998
Raw materials and components Factory supplies Utilities Energy Spare parts consumed Repair, maintenance material Royalties Labour Labour overheads Factory overhead costs				
Factory costs				
Administrative overhead costs				
Operating costs				
Depreciation Financial costs Interest Leasing (financial leasing)				
Total production costs				
Direct marketing costs Marketing overhead costs				
Costs of products sold				

Schedule IX-3. Production and sales programme (from schedules V-1 and V-2)

Project:

Source: Date:

Product	Currency: Unit (e.g. '000, million)			
	Production and sales by year			
	1995	1996	1997	1998
Product 1				
Stock brought forward Quantity produced Stock carried forward				
Quantity sold Gross unit price (average)				
Gross sales revenue Less sales tax				
Net sales revenue Subsidy				
Sales revenue				
Product 2				
Stock brought forward Quantity produced Stock carried forward				
Quantity sold Gross unit price (average)				
Gross sales revenue Less sales tax				
Net sales revenue Subsidy				
Sales revenue				
Annual sales				
Gross sales revenue Less sales tax				
Net sales revenue Subsidy				
Sales revenue				

Schedule IX-4 Total flow of financial resources

Project:

Source: Date:

Source of finance	Total inflow	Currency: Unit (e.g. '000, million)				
			Production			
		1994 [a/]	1995	1996	1997	1998
Equity capital Long-term loans						
Total long-term finance						
Total short-term loans Short-term finance Accounts payable						
Total financial flow						

[a/] Year of construction

Schedule IX-5. Total debt service

Project:

Source: Date:

Source of finance	Total inflow	Currency: Unit (e.g. '000, million)				
		Production				
		1994 [a/]	1995	1996	1997	1998
Total long-term loans						
Loan A Disbursements Repayments Debt balance end of year Capitalized interest Interest payable Other financial costs						
Loan B Disbursements Repayments Debt balance end of year						
Total short-term loans						
Loan A Disbursements Repayments Debt balance end of year Capitalized interest Interest payable Other financial costs						
Loan B Disbursements Repayments Debt balance end of year						
Total debt service						
Disbursements Repayments Debt balance end of year Capitalized interest Interest payable Other financial costs						

[a/] Year of construction

Schedule IX-6. Cash flow for financial planning

Project:

Source Date

Cash flow	Currency Unit (e.g. '000, million)					
	Annual flows by year					Scrap value
	1994	1995	1996	1997	1998	1999
Total cash inflow						
Inflow of funds *Equity* Long-term loans Short-term finance Inflow from operations Sales revenues Interest on securities Other income from operations						
Total cash outflow						
Increase in fixed assets Fixed investment Pre-production expenses [a/] Increase in current assets Operating costs Marketing costs Income tax paid Interest paid Loan repayments Dividends paid Equity capital refund						
Surplus (deficit) **Cumulative cash balance**						

[a/] Net of interest accrued

Schedule IX-7/1 Discounted cash flow: total capital invested

Project:

Source: Date:

Cash flow	Currency: Unit (e.g. '000, million)					
	Annual flows by year					Scrap value
	1994	1995	1996	1997	1998	1999
Total cash inflow						
Inflow from operations Sales revenues Interest on securities Other income from operations						
Total cash outflow						
Increase in fixed assets Fixed investment Pre-production expenses [a/] Increase in net working capital Operating costs Marketing costs Income tax paid						
Net cash flow **Cumulative net cash flow**						
Net present value at %						
Cumulative net present value						
Net present value at % Internal rate of return (%) Payback period Dynamic payback at % Net present value ratio						

[a/] Net of interest accrued.

Schedule IX-7/2. Discounted cash flow - equity capital invested

Project:

Source: Date:

Cash flow	Currency: Unit (e.g '000, million)					
	Annual flows by year					Scrap value
	1994	1995	1996	1997	1998	1999
Total cash inflow						
Cash surplus (deficit) Dividends paid Capital refund						
Total cash outflow						
Equity capital paid (net of subsidies)						
NET CASH RETURN **CUMULATIVE NET CASH RETURN**						
Net present value at % Cumulative net present value						
Net present value at % Internal rate of return (%) Net present value at % [a/] Dynamic payback at %						

[a/] Net present value computed for a shorter period, as defined by the decision maker

Schedule IX-8. Net income statement

Project:

Source: Date:

	Currency: Unit (e.g. '000, million)					
	1994	1995	1996	1997	1998	1999
Capacity utilization (%)						
Total sales (net of tax) Less variable costs						
Variable margin **(in % of sales revenue)** Less fixed costs						
Operational margin **(in % of sales revenue)** Add interest on securities Less cost of finance						
Gross profit from operations **(in % of total sales)** Extraordinary income Less extraordinary losses Less allowances						
Taxable profit Income (corporate) tax						
Net profit (in % of total sales) Net profit after tax/sales Dividends payable						
RETAINED PROFIT						
Ratio (%) Net profit/equity capital Net profit and interest/investment						

Schedule IX-9 Projected balance sheet

Project:

Source: Date:

	Currency: Unit (e.g. '000, million)					
	1994	1995	1996	1997	1998	1999
Total assets						
Total current assets						
Inventory (materials, supplies)						
Work in progress						
Finished products in stock						
Accounts receivable						
Cash-in-hand						
Securities						
Cash surplus, finance available						
Total fixed assets [a/]						
Fixed investment						
Construction in progress						
Pre-production expenditures						
Less accumulated depreciation						
Less depeciable allowances						
Accumulated losses b/f						
Loss in current years						
Total liabilities						
Total current liabilities						
Accounts payable						
Bank overdraft						
Total long-term debt						
Loan A						
Loan B						
Total equity capital						
Equity 1						
Equity 2						
Subsidies						
Reserves, retained profit b/f						
Net profit after tax						
Dividends payable						
Retained profit c/o						
Net worth (equity + reserves)						
Ratios (%)						
Equity/total liabilities						
Net worth/total liabilities						
Long-term debt/net worth						
Current assets/current liabilities						

[a/] Net of depreciation

Schedule IX-10. Financial ratios and indicators [a/]

Project:

Source: Date:

	Currency: Unit (e.g. '000, million)					
	1994	1995	1996	1997	1998	1999
Fixed assets/total assets						
Net working capital/investment						
Investment/wage bill						
Investment/value of output						
Value added/wage bill						
Value added/investment						
Equity/total liabilities						
Long-term debt/net worth						
Current assets/current liabilities						
Costs and sales revenues						
Wage bill/total costs						
Material and service/total costs						
Variable margin/sales						
Operational margin/sales						
Break-even sales/sales						
Gross profit/sales						
Net profit after tax/sales						
Net profit/equity capital						
Net profit and interest/investment						
Cumulative net present value (at %)						

[a/] Wage bill = total cost of personnel, value of output = sales revenues, (total) investment = fixed assets less current liabilities, variable margin = sales revenues less variable costs, operational margin = variable margin less fixed costs, including depreciation charges, but excluding cost of finance. For details see the corresponding schedules.

XII. Project appraisal

Introduction

The financial situation of a project is described by cash flow and net income projections, the composition of assets and by the structure of the firm's total liabilities (equity, long- and short-term loan capital) as computed by using the schedules contained in chapter XI. However, the financial analyst must bear in mind that the mere computation of cost and revenue figures is a useless accounting exercise unless the scenarios underlying these figures are known and properly interpreted. For decision makers it is essential to understand the preconditions for achieving the projected financial results, the processes and resources required and the potential impacts of a changing business environment on the viability of a project. For example, sales revenues may deviate from projections owing to changes in the market (buying behaviour, competition etc.), failure to implement the marketing concept (human resource or financial constraints, organizational problems etc.) or changes in the supply markets (availability of essential inputs etc.), to mention only a few rather typical examples.

It is essential, therefore, to assess the internal and external conditions potentially critical for business success or failure. Of the critical success factors, human resources in general and entrepreneurial skills and behaviour are the most important because entrepreneurial abilities have a key function in small and medium-sized enterprises (part one, section A, and chapter II).

A. Questionnaires

The questionnaires contained in the appendix to this chapter complement the financial analysis. They are intended to answer, in qualitative terms, the question, What is behind the figures computed in the schedules? All the questionnaires can serve for the preparation of subsector-typical profiles (opportunity studies) as well as of profiles of internal and external conditions for individual projects (feasibility studies). By comparing individual profiles with those typical for a subsector, relative strengths and weaknesses can be identified and assessed in view of potential opportunities and threats. In the absence of such profiles, the questionnaires will serve mainly as a check-list, and the analyst or evaluator will have to rely more on his or her own experience and judgement than on subsectoral information. The profiles should be collected in order to establish a reference database for future projects.

Since the questionnaires have been standardized,[85] it will be possible to co-operate with other project preparation and appraisal institutions and to exchange

[85]Most of the questions in the questionnaires have already been tested and applied in field research. For example, eight research teams cooperating in the STRATOS Group used a questionnaire with 553 questions on *(a)* firm, individual and environmental variables, *(b)* values and attitudes, *(c)* objectives and their achievement, *(d)* strategic behaviour and *(e)* performance measurement [1].

project profiles. However, before profiles from other countries or regions can be used as a reference, the validity of the data in a given cultural and socioeconomic business environment has to be checked. (See also chapter III and chapter X, section C.)

B. Assessment of entrepreneurial behaviour and talents

1 Entrepreneurial values and attitudes

Entrepreneurial values and attitudes (figure XXI) are used as a yardstick to assess how well the talents and behaviour of an entrepreneur suit a particular business. The 12 questions should suffice to determine which of the following behavioural patterns dominates *(a)* the all-rounder (type A) with dynamic-creative and administrative-executive strengths, who might be described as the versatile, universally responsive and adaptive entrepreneur; *(b)* the pioneer (type P) with predominantly dynamic-creative strengths, who is generally less risk-averse and resembles the Schumpeterian innovator; *(c)* the organizer (type O) with analytical and organizing strengths, an administratively oriented executive entrepreneur; and *(d)* the *routinier* (type R) with no particular strengths, who is cautious but who, in the long run, may be the one with the least potential for success or survival. For a fuller characterization of the types of entrepreneurs, see the STRATOS Group [1]

An all-rounder will typically disagree with questions 3 and 12, disagree with or have no opinion on question 4, more or less agree with questions 5 and 8 and agree with questions 9, 10 and 11. A pioneer has a profile similar to that of an all-rounder but shows more disagreement with questions 3, 4, 5 and 8, has no opinion on question 10 and agrees with question 11. An organizer would more or less agree with question 12, agree with questions 5, 8 and 10 and disagree only slightly with questions 3 and 11. A *routinier* typically disagrees or strongly disagrees with question 9, shares the opinion of a pioneer with regard to questions 5 and 11 and agrees with questions 4, 8, 10 and 12.

Questions 1 and 2 serve to characterize the entrepreneurial attitude as such rather than to distinguish types of entrepreneurs, however, an organizer would seem to be more able to cope with interventionist tendencies, while a *routinier* might even welcome them, contrary to all-rounders and pioneers, who are most affected by government interference.

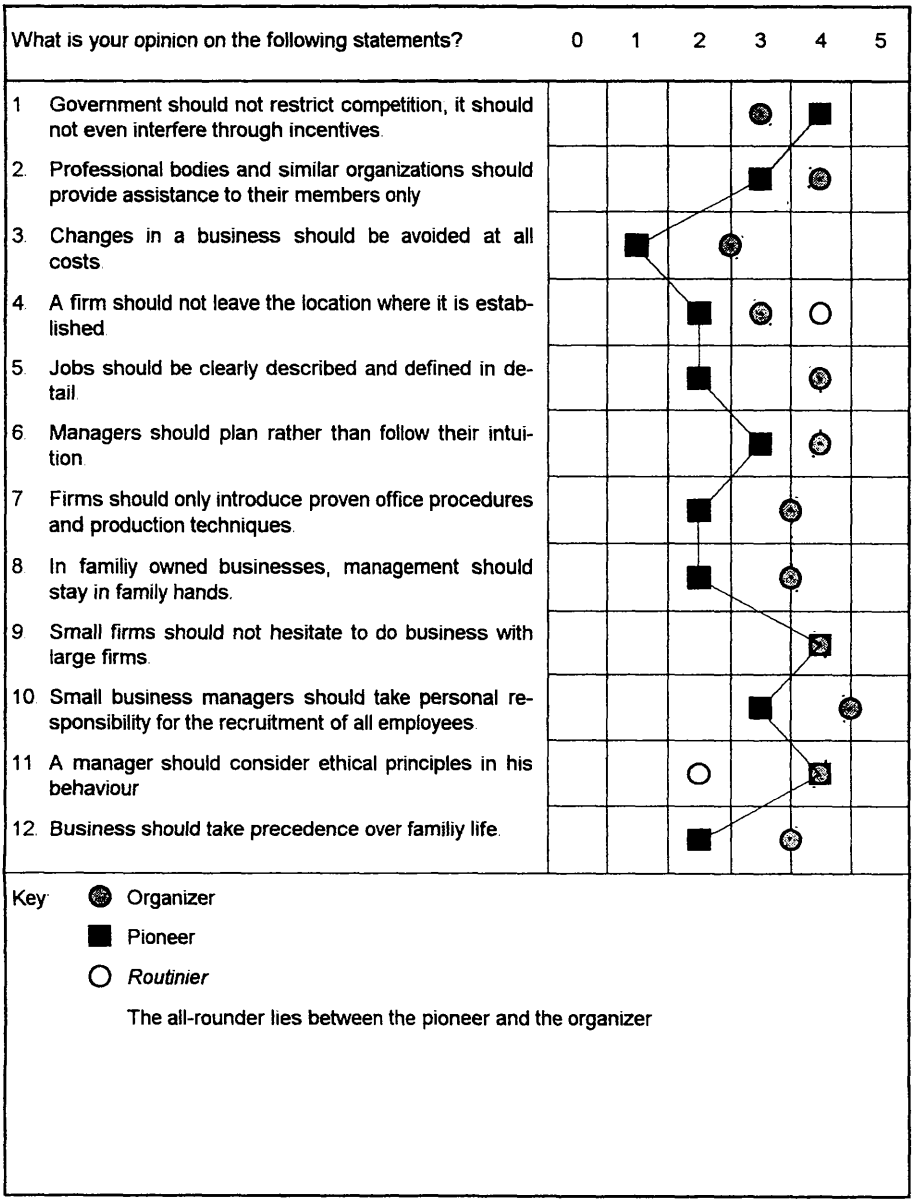
Question 7 allows examining attitudes towards change. In general it can be said that the successful entrepreneur is risk-conscious, which clearly imposes limits on willingness to change.

Although each type of entrepreneur is in principle best suited to a particular stage of a firm's life cycle, in practice all four types can be found at any stage. A pioneer is more likely, however, to be found in a growth industry or in the early stages of a firm's life cycle, while the orientation to stability of organizers and *routiniers* suggests they would be found in mature sectors.

2. Entrepreneurial abilities and behaviour

The questionnaires for the assessment of entrepreneurial abilities and behaviour contain the same items but have a different purpose and interpretation. Questionnaire II-2/1 is used to prepare subsector-typical profiles of entrepreneurial abilities and behaviour important for business success. Once reliable profiles are available, individual abilities and behaviour, that is, personal strengths and weaknesses, can be assessed (questionnaire II-2/2).

Figure XXI. Profiles of four types of entrepreneur, based on answers to questionnaire II-1.



0 No answer
1 Strongly disagree
2 Disagree
3 No opinion
4 Agree
5 Strongly agree

The fact that a would-be entrepreneur is aware of the traits needed to do the job is in and of itself a success factor Questionnaire II-2/2 serves to identify the relative strengths and weaknesses of a potential entrepreneur as well as training needs and should be compared with the requirements identified by questionnaire II-2/1

C. Assessment of the business environment

It has been shown that the success of a small-scale business project depends greatly on the business environment, the infrastructure, the availability of critical inputs and the absence of discriminating factors (see chapter III, part one, section D, and chapter X, section C). The questionnaires serve to assess the impact of government policies (incentives and constraints), the institutional infrastructure and the cooperative/competitive balance as well as the importance of information and consulting services

Again, the questionnaires will serve for the preparation and analysis of subsector-typical profiles (opportunity study) as well as for the assessment of the business environment individual projects (feasibility study)

1. Government policies and programmes, supportive measures and constraints

Supportive measures and constraints (questionnaire III-1) may be valid for the entire country, a specific region or a particular sector of the economy The degree to which government policies and programmes may have an impact on the success of a business should be assessed based on subsectoral profiles and on the location envisaged for an individual project.

The adaptation to unfavourable business conditions can be quite costly and may constitute a severe constraint for establishing or operating small businesses However, supportive measures (e.g. incentives in the form of allowances or subsidies) should also be assessed carefully as they may lead to the establishment of businesses that are not viable in the long run, if incentives are granted for a limited period and withdrawn after business start-up, an enterprise relying on financial support or protective measures may not be able to survive.

2. Institutional infrastructure and cooperative environment

If a particular institutional infrastructure and cooperative environment (questionnaire III-2) has been identified in a subsectoral assessment as being important for business success, the availability of such infrastructure at the location envisaged for an individual project has to be assessed. The lack of infrastructure would at least increase the costs of establishing and operating the business or might even constitute a severe constraint.

3. Information and consulting services

Small-scale enterprises, unlike large firms, depend very much on information and consulting services (questionnaire III-3) In the case of individual projects, the availability of services important for business success, as well as their quality and costs, has to be assessed using subsectoral data as a reference.

D. Assessment of location and site characteristics

Ideally, a catalogue of subsector-typical factors determining choice of location should be used to assess individual projects. If not available, such a catalogue can be prepared on the basis of questionnaire IV-1, assessing the importance certain location factors have for the choice of a business location and the site.

The assessment of potential locations and sites for individual projects should be carried out in two steps. First, it should be checked whether and to which extent a potential location meets the requirement profile typical for a subsector. Secondly, the costs related to factors that are important or very important for success should be identified, and the criticality of the factors should be assessed. For the evaluation of individual projects, use worksheet IV-1.

E. Assessment of marketing success factors

When subsector-typical marketing success factors are being analysed (questionnaire V-1) or marketing concepts are being designed for individual projects, the importance of customer orientation of the products and services, of marketing policies (product, price, distribution and promotion policies) and of the operational dimensions of marketing have to be assessed.

The information obtained by means of this questionnaire is essential for evaluating the alternative marketing strategies, projected sales revenues and marketing costs of individual projects.

F. Assessment of production characteristics and input requirements

The qualitative analysis of production characteristics, related technologies, supplies and supply characteristics is supported by three questionnaires, VI-1, VI-2 and VI-3. Apart from facilitating intra- and inter-sectoral comparison, the questionnaires allow the setting up of a reference database, so that individual projects can be assessed to see if they match the production patterns of other successful enterprises in a subsector. Based on reference data, analysts and evaluators can immediately judge whether selected technologies are suitable for the production capacities and programmes envisaged and determine the capacities below which production is not economical.

1. Assessment of production characteristics

Questionnaire VI-1 helps to identify the production strategies with the greatest success potential. Characteristics typical in a subsector are used as a reference when assessing individual projects.

2. Assessment of technology

For the assessment and choice of technology (questionnaire VI-2), the following are analysed: degree of mechanization, degree of cost intensity, factors determining the choice of technology (such as product design or quality, availability of equipment or supplies), the business environment with regard to technology transfer and absorption, technology forecast and availability (acquisition).

3. *Assessment of raw materials, factory supplies and supply characteristics*

Questionnaire VI-3 serves to identify the supplies important for business success, as well as to assess supply characteristics (purchasing, transport and storage). If no subsector-typical profiles are available, the questionnaire will serve as a checklist for identifying critical supplies and logistics, e.g. concentrating or spreading critical purchases, inventory control.

G. Project implementation, legal form of business and financing

The businesses in a subsector may have a characteristic legal form, and the legal form itself may have an impact on business success.[86] Questionnaire VIII-1 identifies the legal form as well as forms of cooperation. Sources of funds are assessed using questionnaire VIII-2. Both questionnaires should be used as a checklist when assessing individual projects and for collecting statistical data on subsector-typical forms of businesses and business financing.

References

1 STRATOS Group, *Strategic Orientation of Small European Business* (Aldershot, Gower Publishing, 1990)

[86]To assess the organizational set-up, worksheet VII-1 may be used, time-critical activities may be assessed using worksheet VIII-1

APPENDIX QUESTIONNAIRES

General data

Project code	Project/alternative.
Country code	Country
Subsector code	Subsector
Date	Data source

Questionnaire II-1 Assessment of entrepreneurial values and attitudes

What is your opinion on the following statements? [a]	0	1	2	3	4	5
1. Government should not restrict competition; it should not even interfere through incentives.	☐	☐	☐	☐	☐	☐
2. Professional bodies and similar organizations should provide assistance to their members only	☐	☐	☐	☐	☐	☐
3. Changes in a business should be avoided at all costs.	☐	☐	☐	☐	☐	☐
4. A firm should not leave the location where it is established	☐	☐	☐	☐	☐	☐
5. Jobs should be clearly described and defined in detail	☐	☐	☐	☐	☐	☐
6. Managers should plan rather than follow their intuition	☐	☐	☐	☐	☐	☐
7. Firms should only introduce proven office procedures and production techniques.	☐	☐	☐	☐	☐	☐
8. In family-owned businesses, managment should stay in family hands.	☐	☐	☐	☐	☐	☐
9. Small firms should not hesitate to do business with large firms.	☐	☐	☐	☐	☐	☐
10. Small business managers should take personal responsibility for the recruitment of all employees.	☐	☐	☐	☐	☐	☐
11. A manager should consider ethical principles in his behaviour	☐	☐	☐	☐	☐	☐
12. Business should take precedence over familiy life	☐	☐	☐	☐	☐	☐

Remarks.

[a] 0 No answer
1 Strongly disagree
2 Disagree
3 No opinion
4 Agree
5 Strongly agree

Questionnaire II-2/1 Assessment of entrepreneurial abilities important for success

How important are the following entrepreneurial abilities and behaviour with regard to: [a]	0	1	2	3	4	5
Change and innovations?						
1 Willingness to take risks	☐	☐	☐	☐	☐	☐
2 Intuition	☐	☐	☐	☐	☐	☐
3 Dynamic behaviour	☐	☐	☐	☐	☐	☐
4 Initiative	☐	☐	☐	☐	☐	☐
5 Decisiveness	☐	☐	☐	☐	☐	☐
6 Courage	☐	☐	☐	☐	☐	☐
7 Opportunity seeking	☐	☐	☐	☐	☐	☐
Strategic orientation of planning and administration?						
8 Information seeking	☐	☐	☐	☐	☐	☐
9 Demand for efficiency and quality	☐	☐	☐	☐	☐	☐
10 Goal setting	☐	☐	☐	☐	☐	☐
11 Systematic planning and motivating people	☐	☐	☐	☐	☐	☐
12 Persuasion and networking	☐	☐	☐	☐	☐	☐
13 Financial prudence	☐	☐	☐	☐	☐	☐
14 Formulating objectives	☐	☐	☐	☐	☐	☐
Entrepreneurial self-image and staff relations?						
15 Dealing with strain and stress	☐	☐	☐	☐	☐	☐
16 Acting always in the interest of the enterprise	☐	☐	☐	☐	☐	☐
17 Supporting staff development	☐	☐	☐	☐	☐	☐
18 Employing staff and workers according to their talents	☐	☐	☐	☐	☐	☐
19 Communicate with staff and keep employees informed	☐	☐	☐	☐	☐	☐
20 Ability and readiness to coordinate, supervise, delegate	☐	☐	☐	☐	☐	☐
21 Ability to recognize and criticize staff	☐	☐	☐	☐	☐	☐
22 Working in a team	☐	☐	☐	☐	☐	☐

Remarks:

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire II-2/2. Assessment of individual strengths and weaknesses leadership and entrepreneurial qualifications, personal background

How would you assess your strengths and weaknesses with regard to the following entrepreneurial and managerial abilities? [a]	0 1 2 3 4 5
Change and innovations?	
1 Willingness to take risks	☐☐☐☐☐☐
2 Intuition	☐☐☐☐☐☐
3 Dynamic behaviour	☐☐☐☐☐☐
4 Initiative	☐☐☐☐☐☐
5 Decisiveness	☐☐☐☐☐☐
6 Courage	☐☐☐☐☐☐
7 Opportunity seeking	☐☐☐☐☐☐
Strategic orientation of planning and administration?	
8 Information seeking	☐☐☐☐☐☐
9 Demand for efficiency and quality	☐☐☐☐☐☐
10 Goal setting	☐☐☐☐☐☐
11 Systematic planning and motivating people	☐☐☐☐☐☐
12 Persuasion and networking	☐☐☐☐☐☐
13 Financial prudence	☐☐☐☐☐☐
14 Formulating objectives	☐☐☐☐☐☐
Entrepreneurial self-image and staff relations?	
15 Dealing with strain and stress	☐☐☐☐☐☐
16 Acting always in the interest of the enterprise	☐☐☐☐☐☐
17 Supporting staff development	☐☐☐☐☐☐
18 Employing staff and workers according to their talents	☐☐☐☐☐☐
19 Communicate with staff and keep employees informed	☐☐☐☐☐☐
20 Ability and readiness to coordinate, supervise, delegate	☐☐☐☐☐☐
21 Ability to recognize and criticize staff	☐☐☐☐☐☐
22 Working in a team	☐☐☐☐☐☐

Remarks:

[a] 0 No answer
1 Clear weakness
2 Some weakness
3 Neither weakness nor strength
4 Some strength
5 Clear strength

Questionnaire III-1 Assessment of government policies and programmes, supportive measures and constraints

What impact do government policies and programmes have on business operations in the subsector? [a]	0	1	2	3	4	5
1 Labour market and labour protection	☐	☐	☐	☐	☐	☐
2 Education, human resource development	☐	☐	☐	☐	☐	☐
3 Consumer protection and other consumer-related policies	☐	☐	☐	☐	☐	☐
4 Market organization, competition and market performance	☐	☐	☐	☐	☐	☐
5 Cultural identity and development	☐	☐	☐	☐	☐	☐
6 Sectoral development	☐	☐	☐	☐	☐	☐
7 Regional development	☐	☐	☐	☐	☐	☐
8 Economic development	☐	☐	☐	☐	☐	☐
9 Industrial administration and development	☐	☐	☐	☐	☐	☐
10 Development of innovative capacities, R & D	☐	☐	☐	☐	☐	☐
11 Taxation and subsidies	☐	☐	☐	☐	☐	☐
12 Foreign exchange administration	☐	☐	☐	☐	☐	☐
13 Banking sector (credit availability and conditions)	☐	☐	☐	☐	☐	☐
14 Trade and customs	☐	☐	☐	☐	☐	☐
15 Transport and communication sector	☐	☐	☐	☐	☐	☐
16 Energy sector (saving, conservation etc.)	☐	☐	☐	☐	☐	☐
17 Environmental impacts	☐	☐	☐	☐	☐	☐

Remarks

[a] 0 No answer
1 Severe constraint, obstacle to business operations
2 Considerable constraint, making business operations difficult
3 Not relevant
4 Favourable for business
5 Highly supportive, essential for business success

Questionnaire III-2 Assessment of the importance of institutional infrastructure

How important are the following institutional infrastructure facilities for business success in the subsector? [a]	0 1 2 3 4 5
1 Professional associations	☐☐☐☐☐☐
2 Chamber of trade, industry etc.	☐☐☐☐☐☐
3 Small-business-related research institutes	☐☐☐☐☐☐
4 Subcontractor exchange	☐☐☐☐☐☐
5 Professional upgrading and training institutions	☐☐☐☐☐☐
6 Purchasing cooperatives	☐☐☐☐☐☐
7 Small business financing and insurance agencies	☐☐☐☐☐☐
8 Marketing cooperatives	☐☐☐☐☐☐
9 Export cooperatives	☐☐☐☐☐☐
10 Licensing of patent exchange/agencies	☐☐☐☐☐☐
11 Product quality certifying institutions	☐☐☐☐☐☐
12 Other promotional institutions (specify)	
	☐☐☐☐☐☐
	☐☐☐☐☐☐
	☐☐☐☐☐☐
	☐☐☐☐☐☐
	☐☐☐☐☐☐

Remarks

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire III-3 Assessment of information and consulting services

How important are services in the following areas for business success in the subsector? [a]	0 1 2 3 4 5
1 Management (organization, planning, accounting etc.)	☐☐☐☐☐☐
2 Finance	☐☐☐☐☐☐
3 Auditing	☐☐☐☐☐☐
4 Legal advice	☐☐☐☐☐☐
5 Research and development	☐☐☐☐☐☐
6 Marketing	☐☐☐☐☐☐
7 Distribution	☐☐☐☐☐☐
8 Promotion	☐☐☐☐☐☐
9 Purchasing and supply	☐☐☐☐☐☐
10 Production and technology	☐☐☐☐☐☐
11 Electronic data processing	☐☐☐☐☐☐
Remarks:	

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire IV-1 Assessment of location factors and site characteristics

How important are the following location factors for business success in the subsector? [a]	0 1 2 3 4 5
Input-oriented factors	
1 Professional skills (personnel)	☐☐☐☐☐☐
2 Raw materials and supplies	☐☐☐☐☐☐
3 Technical services	☐☐☐☐☐☐
4 Infrastructure services (electric power, water, sewage etc.)	☐☐☐☐☐☐
5 Communication, transport (mail, telephone, railways etc.)	☐☐☐☐☐☐
6 Other business-oriented services (banking, auditing etc.)	☐☐☐☐☐☐
Output-oriented factors See questionnaire V-1	
Other location factors	
7 Agglomeration of firms	☐☐☐☐☐☐
8 Public promotional measures	☐☐☐☐☐☐
9 Environmental factors (climate, topography etc.)	☐☐☐☐☐☐
Site characteristics (important for choice of site)?	
10 Special requirements on buildings	☐☐☐☐☐☐
11 Compliance with technical construction requirements	☐☐☐☐☐☐
12 Legal provisions on building construction and adaption	☐☐☐☐☐☐
Access/connection to	
13 Power supply	☐☐☐☐☐☐
14 Water supply	☐☐☐☐☐☐
15 Sewage system	☐☐☐☐☐☐
16 Communication systems (telephone, facsimile etc.)	☐☐☐☐☐☐
17 Others (specify under "remarks" below)	☐☐☐☐☐☐
18 Public transport (bus, rail etc.)	☐☐☐☐☐☐
19 Image-related aspects	☐☐☐☐☐☐
20 Possibility of future expansion	☐☐☐☐☐☐
Remarks	

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire V-1 Assessment of marketing success factors

How important for business success are the following:[a]	0	1	2	3	4	5
Compliance with differentiated customer demand						
1 A large product assortment	☐	☐	☐	☐	☐	☐
2 Highly specialized products/services	☐	☐	☐	☐	☐	☐
3 Great variety within product groups	☐	☐	☐	☐	☐	☐
4 Standardized products (rather uniform demand)	☐	☐	☐	☐	☐	☐
Product policy						
5 Product quality	☐	☐	☐	☐	☐	☐
6 Product development, innovative products	☐	☐	☐	☐	☐	☐
7 Technical assistance before sale or delivery	☐	☐	☐	☐	☐	☐
8 After-sale service	☐	☐	☐	☐	☐	☐
Price policy						
9 Low price policy	☐	☐	☐	☐	☐	☐
10 High price policy	☐	☐	☐	☐	☐	☐
11 Favourable terms of payment	☐	☐	☐	☐	☐	☐
12 Free delivery and/or assembling	☐	☐	☐	☐	☐	☐
13 Timely delivery	☐	☐	☐	☐	☐	☐
Distribution and promotion policy						
14 Highly qualified sales personnel	☐	☐	☐	☐	☐	☐
15 Decentralized points-of-sale (branches)	☐	☐	☐	☐	☐	☐
16 Distribution through wholesalers	☐	☐	☐	☐	☐	☐
17 Distribution through retailers	☐	☐	☐	☐	☐	☐
18 Travelling salesmen	☐	☐	☐	☐	☐	☐
19 In-house sales	☐	☐	☐	☐	☐	☐
20 Subcontracts	☐	☐	☐	☐	☐	☐
21 Personal contacts	☐	☐	☐	☐	☐	☐
22 Image (reputation) of firm	☐	☐	☐	☐	☐	☐
23 Image of products	☐	☐	☐	☐	☐	☐
24 Appearance of salesrooms	☐	☐	☐	☐	☐	☐
25 Appearance of personnel	☐	☐	☐	☐	☐	☐
26 Advertising (sales promotion)	☐	☐	☐	☐	☐	☐
27 Printed promotional materials (display, brochures)	☐	☐	☐	☐	☐	☐
28 Technical descriptions/specifications	☐	☐	☐	☐	☐	☐
29 Developed marketing management	☐	☐	☐	☐	☐	☐
30 Developed marketing organization	☐	☐	☐	☐	☐	☐

Remarks

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Which of the following characteristics is typical for business in the subsector and how important is it for success? [a]	0	1	2	3	4	5
Market orientation of production process						
1 Products manufactured to order	☐	☐	☐	☐	☐	☐
2 Production of components based on long-term subcontracts	☐	☐	☐	☐	☐	☐
3 Large stock required to meet customers' demand	☐	☐	☐	☐	☐	☐
4 Semi-finished products to stock and assembly to order	☐	☐	☐	☐	☐	☐
5 Main components are purchased	☐	☐	☐	☐	☐	☐
6 Main components supplied by customer	☐	☐	☐	☐	☐	☐
7 Seasonal production, demand-dependent	☐	☐	☐	☐	☐	☐
8 Seasonal produciton, supply-dependent	☐	☐	☐	☐	☐	☐
Type of production						
9 Shop assembly	☐	☐	☐	☐	☐	☐
10 Multi-spot assembly	☐	☐	☐	☐	☐	☐
11 On-line assembly	☐	☐	☐	☐	☐	☐
12 Batch production dominating	☐	☐	☐	☐	☐	☐
13 Continuous production dominating	☐	☐	☐	☐	☐	☐
14 Combination of batch and continuous production	☐	☐	☐	☐	☐	☐
15 Custom-made products	☐	☐	☐	☐	☐	☐
16 Production of small lots	☐	☐	☐	☐	☐	☐
17 Mass production	☐	☐	☐	☐	☐	☐
Remarks						

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire VI-2. Assessment of technological characteristics

How important are the following characteristics for the assessment and choice of technology? [a]	0	1	2	3	4	5
Degree of mechanization						
1. Fully mechanized production	☐	☐	☐	☐	☐	☐
2. Partly mechanized production	☐	☐	☐	☐	☐	☐
3. Fully manual production	☐	☐	☐	☐	☐	☐
4. Very high degree of automation (e.g. CIM)	☐	☐	☐	☐	☐	☐
5. High degree of automation (e.g. CAM)	☐	☐	☐	☐	☐	☐
6. Medium degree of automation (e.g. CNC)	☐	☐	☐	☐	☐	☐
Degree of cost intensity						
7. Labour-intensive	☐	☐	☐	☐	☐	☐
8. Material-intensive (raw materials and supplies)	☐	☐	☐	☐	☐	☐
9. Capital-intensive	☐	☐	☐	☐	☐	☐
Determinants of technology choice						
10. Product design (customer demand/behaviour)	☐	☐	☐	☐	☐	☐
11. Product quality	☐	☐	☐	☐	☐	☐
12. Price level	☐	☐	☐	☐	☐	☐
13. Availability of domestic supplies (material, services)	☐	☐	☐	☐	☐	☐
14. Availability of domestic equipment, spare parts	☐	☐	☐	☐	☐	☐
15. Imported supplies (materials, services)	☐	☐	☐	☐	☐	☐
16. Imported equipment, spare parts	☐	☐	☐	☐	☐	☐
Environment conditions						
17. Sociocultural conditions	☐	☐	☐	☐	☐	☐
18. Environmental/ecological conditions	☐	☐	☐	☐	☐	☐
19. Public policies, legal conditions	☐	☐	☐	☐	☐	☐
20. Absorptive capacity, available human resources	☐	☐	☐	☐	☐	☐
21. Absorptive capacity, infrastructural resources	☐	☐	☐	☐	☐	☐
22. Adaptability of technology to local conditions	☐	☐	☐	☐	☐	☐
23. Training requirements	☐	☐	☐	☐	☐	☐
24. Technology forecast (foreseeable development)	☐	☐	☐	☐	☐	☐
Type of technology transfer						
25. Free access (public domain)	☐	☐	☐	☐	☐	☐
26. Purchase	☐	☐	☐	☐	☐	☐
27. Licensing	☐	☐	☐	☐	☐	☐
28. Participation in a joint venture	☐	☐	☐	☐	☐	☐
29. Acquisition of foreign technology or know-how	☐	☐	☐	☐	☐	☐

Remarks:

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire VI-3 Assessment of raw materials, factory supplies and supply characteristics

How important for business success are the following aspects of raw materials, factory supplies and services? [a]	0	1	2	3	4	5
1 Quality of raw material(s) or components	☐	☐	☐	☐	☐	☐
2 Quality of factory supplies	☐	☐	☐	☐	☐	☐
3 Quality of services	☐	☐	☐	☐	☐	☐
4 Timely availability of raw material(s)	☐	☐	☐	☐	☐	☐
5 Timely availability of factory supplies	☐	☐	☐	☐	☐	☐
6 Timely availability of services	☐	☐	☐	☐	☐	☐
7 Cost of raw material(s) or components	☐	☐	☐	☐	☐	☐
8 Cost of factory supplies	☐	☐	☐	☐	☐	☐
9 Cost of services	☐	☐	☐	☐	☐	☐
10 Imported supplies (specify)	☐	☐	☐	☐	☐	☐
Purchasing, transport and storage						
11 Maintaining close relationship with local suppliers	☐	☐	☐	☐	☐	☐
12 Maintaining close relationship with foreign suppliers	☐	☐	☐	☐	☐	☐
13 Concentrating critical purchases (one or a few suppliers)	☐	☐	☐	☐	☐	☐
14 Spreading critical purchases (selection of best offer)	☐	☐	☐	☐	☐	☐
15 Reliability of suppliers	☐	☐	☐	☐	☐	☐
16 Availability of transport capacities	☐	☐	☐	☐	☐	☐
17 Planning of transports	☐	☐	☐	☐	☐	☐
18 Availability of capacities for difficult transports	☐	☐	☐	☐	☐	☐
19 Keeping significant quantities in stock	☐	☐	☐	☐	☐	☐
20 Inventory control (management)	☐	☐	☐	☐	☐	☐

Remarks

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire VIII-1 Assessment of the legal form of a business

How important are the following forms of business for success in the subsector? [a]	0	1	2	3	4	5
Legal form						
1 Sole proprietor	☐	☐	☐	☐	☐	☐
2 Partnership	☐	☐	☐	☐	☐	☐
3 Limited company	☐	☐	☐	☐	☐	☐
4 Cooperative	☐	☐	☐	☐	☐	☐
Form of cooperation						
5 Family business (over 50% equity in family hands)	☐	☐	☐	☐	☐	☐
6 Subsidiary of another company	☐	☐	☐	☐	☐	☐
7 Joint venture of local firms	☐	☐	☐	☐	☐	☐
8 Joint venture with a foreign partner	☐	☐	☐	☐	☐	☐
Remarks						

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

Questionnaire VIII-2. Assessment of sources of funds

How important are following sources of funds for business success in the subsector (new and expansion)? [a]	0	1	2	3	4	5
Long- and medium-term finance						
1 Retained profits	☐	☐	☐	☐	☐	☐
2 Equity capital paid in by owners	☐	☐	☐	☐	☐	☐
3 Equity capital paid in by new partners	☐	☐	☐	☐	☐	☐
4 Loans obtained from financing institutions	☐	☐	☐	☐	☐	☐
5 Loans obtained from family members	☐	☐	☐	☐	☐	☐
6 Loans obtained from partners	☐	☐	☐	☐	☐	☐
7 Grants	☐	☐	☐	☐	☐	☐
8 Leasing	☐	☐	☐	☐	☐	☐
9 Equity participation of employees, pension fund etc.	☐	☐	☐	☐	☐	☐
Short-term finance						
10 Bank credits and overdraft	☐	☐	☐	☐	☐	☐
11 Bills of exchange	☐	☐	☐	☐	☐	☐
12 Creditors	☐	☐	☐	☐	☐	☐
13 Advance payments by customers	☐	☐	☐	☐	☐	☐
14 Factoring	☐	☐	☐	☐	☐	☐
15 Private loans	☐	☐	☐	☐	☐	☐
Remarks.						

[a] 0 No answer
1 No importance
2 Low importance
3 Medium importance
4 High importance
5 Very high importance

ANNEX

Two cases

Case I

AN INTERNATIONAL JOINT VENTURE: ESTABLISHING A SMALL INDUSTRIAL JOINT VENTURE IN AN ASIAN COUNTRY

Introduction

This case describes the establishment of a joint venture between a small European manufacturer and an Asian partner. It discusses the background project development and design and gives details of project planning.

A. Background

Advanced Metal Works (AMW) was established in 1977 by Smith and Bald as a limited partnership. Both partners had been in the metals industry for quite some time, in tool-making and mould-making. As owner-managers of the company they were personally engaged in the everyday business of the firm, which had 19 employees. Smith and Bald had developed a new technology that allowed the production of high-quality blades. The production capacity was approximately 3 million jigsaw blades per year, spread among 30 different products. The marketing strategy of AMW was to carve a market niche in high-quality jigsaw blades for professional users. It sold 40 per cent of its production in the domestic market and exported 60 per cent, 80 per cent of that in Europe, the rest overseas, including to Asian countries.

Despite the high quality of its products, AMW exports were limited owing to high manufacturing costs. AMW had managed to establish a distribution network that would allow it to enter the United States market, but owing to the unfavourable exchange rate, export possibilities deteriorated.

AMW technology for manufacturing jigsaw blades is internationally acknowledged. Ten years ago, Smith and Bald entered a contract with a State-owned company in eastern Europe to deliver a turnkey factory for the manufacture of 5 million jigsaw blades per year. The contract comprised engineering design, the delivery of machinery and equipment and supervision of the installation, including a licence agreement covering the transfer of know-how for the production of four types of high-quality blades.

Initial contacts with potential joint-venture partners were made at an international fair for capital goods. Valuable market information was obtained, along with details on production costs and manufacturing facilities. It was learned that high-quality jigsaw blades were being sold in Asia at a higher price than in Europe. Several trading companies offered to introduce AMW products to markets in the Association of South-East Asian Nations (ASEAN) region.

Against such a background, AMW explored the possibility of setting up a jigsaw blade manufacturing unit in the form of an international joint venture that would have cost advantages, allowing market opportunities in the United States to be re-explored and activities in Asia to be expanded. To achieve these objectives, Smith and Bald realized that they would have to rely on external expertise and consulting services to cope with administrative procedures and to overcome the language barrier.

B. Project development and design

1 Looking for a local partner

To find an appropriate local partner, Smith and Bald took advice from consultants familiar with the cultural characteristics, attitudes and sensitivities of both countries. This paved the way for negotiations. In recognition of the prevailing sensitivities and anxieties, such as losing face in case of failure, negotiations had to be conducted discreetly and were based on time-consuming personal contacts. Finally, out of a relatively small pool of potential local partners, the C & D Company was selected on the basis of several promising characteristics.

- It was a family-owned enterprise that included a steel foundry
- The owners had had technical training in Europe.
- They were able to communicate in the language of the European partners
- The company had long experience in tool- and mould-making
- C & D products were of high quality and were being exported to markets in the ASEAN region.
- Facilities and machinery were in place to produce the tools required for jigsaw blade manufacturing
- C & D was highly motivated to cooperate with the European partner, so as to exploit foreign know-how for its own benefit and image
- It was able to participate with a financial commitment of up to $1 million

2 Selection of consultants

AMW contracted two consulting firms working in partnership: the Asian consultant was familiar with local conditions and the European consultant had special expertise in technology transfer relating to capital goods. Such a combination of experience would assure that the complex requirements and problems arising from an international joint venture could be dealt with successfully.

It was agreed that consulting fees would be partly based on the completion of the various steps of project preparation and implementation.

3 Financing of project preparation

The project team jointly identified the scope of the project and the related financing plan, based on AMW's loan application to a development finance institution in its own country. A long-term loan for promoting programmes in the small and medium-sized business sector was secured; it covered 50 per cent of the costs of project preparation. The remainder was to be financed by the joint venture.

4 Data sources

Making use of data bank facilities, where available, project data were collected from the joint venture partners and local sources such as public authorities, business agencies and institutions specialized in providing information for potential investors.

In the absence of a subsector-typical study, the information collected had to be screened and carefully assessed. Money was saved because both the local consultant and the Asian joint venture partner were able to provide expertise.

Particular attention was to be paid to assessing market opportunities, product pricing, quality requirements and administrative procedures. Sales organizations, trading houses and investment agencies proved to be valuable sources of advice and information on which to base realistic estimates.

5. *Locational aspects*

The country of the Asian partner, C & D Company, has became an important producer of technical supplies. The domestic market is growing and the country is ideally located for exporting to other ASEAN countries. Government policy has increasingly focused on promoting small-scale industries that produce a wide range of products, and it offers measures and incentives for regional development.

Foreign investors, particularly from more advanced countries, are welcomed, in the expectation that this will diversify the sources of technology and investment. The Government offers a range of incentives to foreign investors, such as tax holidays for business start-ups and other privileges designed to promote one or another region.

The national investment authority strongly supported the jigsaw blades project because of its anticipated import substitution effect and its export potential. To obtain this investment incentive, the partners signed a letter of interest covering buy-back.

Preliminary market research revealed that there was no domestic production of jigsaw blades or any other kind of saw blades, the entire demand had to be satisfied by imports.

6. *Transferability of the AMW technology*

There are two main processes for making jigsaw blades: conventional milling and deep grinding, a new technology. The conventional process is used mainly for manufacturing simple products of low quality, whereas deep grinding produces higher quality products that are suitable for export to more developed countries. This suitability for export would fulfil one of the primary objectives of the project.

The new technology involves hardening the metal prior to grinding and maintaining this hardness through the rest of the processing steps. The know-how for it, which is being provided by AMW Ltd., entails the design and installation of special grinding tools and machinery. The industrial applicability of the process and its novelty have been acknowledged and certified by industrial research institutes in the countries of the joint venture partners.

The local availability of better quality jigsaw blades might allow local industrial users to improve the quality of their products, which would constitute another benefit of the technology transfer.

7 *Availability and cost of resources*

In the course of project preparation, several topics were investigated: raw materials, machinery, production costs, energy and environmental protection. It was found that the required qualities of raw materials could be got only from Sweden and Germany. The plant machinery and equipment also had to be imported.

Labour costs in the country of the Asian partner proved to be only one fifth of the costs in Europe, taking into account differences in both wage levels and productivity. In the course of the project study, other factors decisive for the success of the project were identified: transport, other technical infrastructure and the cost of energy.

8. *Letter of intent*

Negotiations between the joint venture partners resulted in the signing of a letter of intent specifying details of the preparation and appraisal of the project.

C. Detailed project planning

Based on the letter of intent between the two partners, AMW and C & D Company, a project team was established. Experts contracted by the Asian partners were assigned to collect and prepare the information required for detailed project planning.

1 Training programme

To carry out technology transfer, project staff of the Asian partner had to be trained at the factory of the European counterpart. Trainees were selected carefully, because it was recognized that when technicians and other staff from developing countries were being trained abroad they often chose not to return to the job.

To avoid such an occurrence and keep the know-how within the firm, small Asian enterprises prefer sending family members for training overseas, and AMW (Asia) also followed this course.

It was agreed that the European partner should design a training programme that would teach the importance of making products of consistently high quality. Two family members of the Asian partner were selected to participate in that programme. Another training programme was to be conducted by experts of the European partner at the C & D Company.

2 Marketing concept

Annual demand for jigsaw blades in the ASEAN region was estimated at about 140 million units, growing at 3-5 per cent per year. Under the joint venture, AMW (Asia) would, it was estimated, eventually produce and market up to 10 million high-quality jigsaw blades, with company exports growing faster than demand in the ASEAN region as a whole. With that objective in mind, the volume of production was set at 3-4 million units in the third year, reaching the full capacity of 10 million units in the seventh year after start-up. Capacity utilization was projected conservatively, leaving room for any required adjustments by expanding sales in the ASEAN region and other markets or by raising the buy-back volume that had been guaranteed by the European partner. To improve the competitiveness of AMW products, particularly in the United States market, it was agreed that the buy-back price would be 20 per cent below the European sales price.

3 Sales projections and marketing activities

Production and sales volumes were projected as follows:

	Year						
	1	*2*	*3*	*4*	*5*	*6*	*7*
Units (millions)	0.8	3.5	5.5	7.7	9.0	10.0	10.0
Price (dollars)	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sales (thousands of dollars)	320	1 400	2 200	3 080	3 600	4 000	4 000

In the first three years after start-up, the entire production could be absorbed, if necessary, by way of buy-back on the part of the European partner. During that period an efficient sales organization would be set up for marketing the products domestically and in the ASEAN region. That entailed testing market opportunities, establishing contacts and negotiating with sales agents, distributors and trading houses in the region, and intensifying the sales activities of the European partner in the area.

Valuable additional information on market opportunities in Asia was obtained from traders of related products or by-products, such as band-saw blades. It turned out that the distribution channels were largely similar and that only the end-users differed.[87]

In order to implement the proposed marketing concept, a number of decisions were taken.

- The European partner would be primarily responsible for international marketing.
- The Asian partner would develop a sales organization for the domestic and ASEAN markets.
- The sales office would be located in the metropolitan area of the Asian partner's country to allow access to communications and proximity to potential customers.
- Existing local agencies and the distribution network of the Asian partner would be used.
- Appropriate quality standards would be maintained as they were essential to achieving sales targets in the Asian market and to satisfying the requirements of the buy-back arrangement.

In the light of these decisions, it was judged that the sales organization did not have to be large.

4 Capacity planning

A production capacity of 10 million units per year, based on two shifts, was planned (table 8).

Table 8. Projected production and personnel

	Year						
	1	*2*	*3*	*4*	*5*	*6*	*7*
Planned production							
Capacity utilization (%)	8	35	55	77	90	100	100
Annual production (million units)	0.80	3.50	5.50	7.70	9.00	10.00	10.00
Number of employees							
Production	4	16	50	65	75	75	80
Administration	—	2	3	3	4	4	4
Sales	—	2	2	3	3	4	4
Total	4	20	55	71	82	83	88

5 Production capacity and technology

To meet market requirements it was decided that the joint venture should apply both production processes: the technologically advanced deep grinding process for 60 per cent of the output and the conventional milling process for 40 per cent of the output.

[87]In pursuing market opportunities for jigsaw blades, the research team was able to identify promising demand for band-saw blades, with potential for similar joint ventures.

6. *Subcontracting the hardening process*

To keep the costs of hardening to within 5 per cent of overall production costs and to avoid capital-intensive investment in hardening equipment, it was decided to subcontract hardening to a nearby small enterprise specializing in this process. A pre-contract was signed with the subcontractors to reserve the capacity needed for the joint venture. That agreement would enable the subcontractor to invest in new technology (vacuum hardening) for improving product quality and minimizing environmental impacts.

7. *Provision of tools*

Adequate facilities for making the required tools proved to be available on the premises of the Asian partner However, to assure the required quality, Asian technicians had to acquire the necessary know-how at the factory of the European partner Thus, during the initial phase of technology transfer, the required tools had to be supplied by the European partner

Once tool-making has been completely transferred to the Asian partner, the costs should be 40 per cent less than those of tool-making in Europe. Given such a cost differential, the European partner may decide to discontinue production in Europe and export from Asia.

8 *Establishing AMW (Asia) Ltd. as a joint venture*

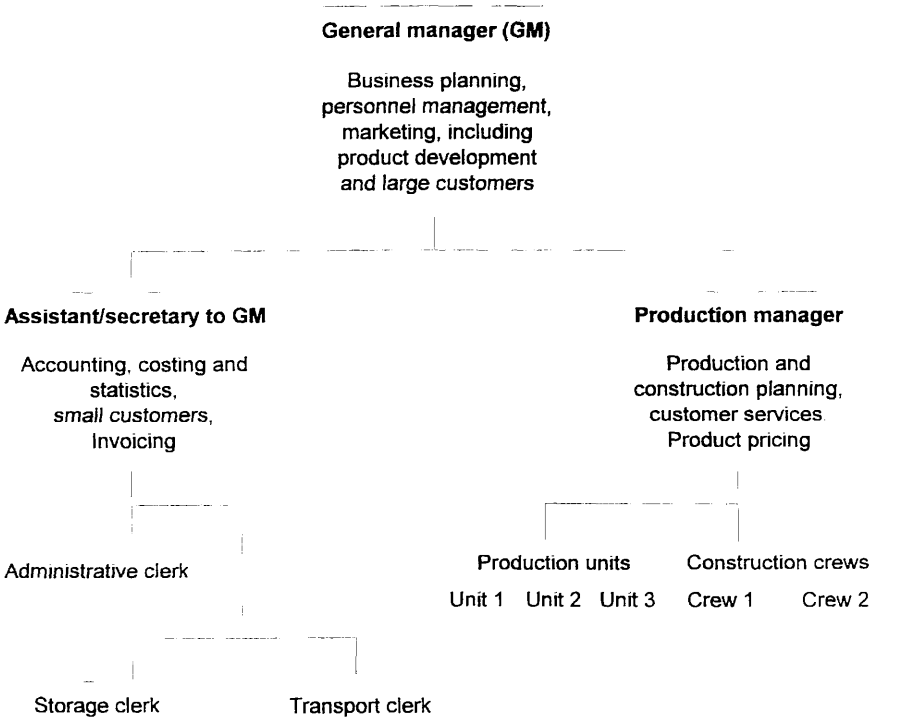
Both partners decided to set up a joint venture named AMW (Asia) Ltd. The AMW name would serve as trade mark and would signal high quality and advanced technology Equity participation was to be shared 60:40 between the European and Asian partners, respectively, under the following provisions (see table 9 and figure XXII).

- The European partner would be responsible for technology transfer to AMW (Asia) Ltd., in particular for the supply of tools as well as the provision of tool-making know-how
- The European partner would guarantee to buy back a certain volume, this arrangement was an essential element of the export marketing scheme, especially in the start-up phase.
- The European partner would appoint one of its managing directors as a board member of AMW (Asia) Ltd.
- The Asian partner would be responsible for plant installation, including site development, construction, recruitment of personnel and plant operation.
- The legal form and organizational set-up as a limited partnership would conform to the law of the Asian country This required seven shareholders, who, by internal agreeement, would be chosen from family members of both joint-venture partners
- The plant would be located 170 kilometres from the capital, near the highway to the airport, on a site owned by the local partner; this would allow taking advantage of incentives offered for projects outside the metropolitan area.
- The sales office would be in the capital, close to potential customers and having communication facilities for export activities in the region.

Table 9. Financing of AMW (Asia) Ltd

	Smith and Bald		*C & D*		*Total*	
	Thousands of US dollars	*Percentage*	*Thousands of US dollars*	*Percentage*	*Thousands of US dollars*	*Percentage*
Equity	729.00	60	486.00	40	1 215.00	50
Long-term loans	732.00	60	488.00	40	1 220.00	50
Capitalized interest	9.20		32.41		41.61	
Total long-term finance	1 470.20		1 006.41		2 476.61	

Figure XXII. Organization chart for AMW (Asia) Ltd.



As can been seen in table 9, Smith and Bald had to finance $732,000, or 60 per cent of the long-term credit. AMW applied for financing under a special promotion programme. Under that programme interest during the first four years was 1 per cent. After that, it was 2.5 per cent.

It had been agreed that the Asian partner would finance the remaining $488,000 by a long-term loan from the International Finance Corporation. The average interest rate would be about 12 per cent per year

Annual interest payments are shown in table 10

Table 10. Annual interest payments and repayments

(Thousands of US dollars)

	Year							
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Loan 1 (Smith and Bald)								
Disbursement	732.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capitalized interest	1 83	7 36	0.00	0.00	0.00	0.00	0.00	0.00
Repayment	0.00	0.00	123.53	123.53	123.53	123.53	123.53	123.53
Debt balance end of year	733 83	741 19	617 66	494.12	370.59	247 06	123 53	0.00
Interest paid	0.00	0.00	12.20	14.67	11.58	8.49	5.40	2.32
Loan 2 (C & D)								
Disbursement	353.00	135 00	0.00	0.00	0.00	0.00	0.00	0 00
Capitalized interest	10.59	29 87	0.00	0.00	0.00	0.00	0 00	0.00
Repayment	0.00	0.00	40.09	87.55	98 37	110.53	124 19	67 74
Debt balance end of year	363.59	528.46	488.37	400.82	302.45	191 92	67 74	0.00
Interest paid	0.00	31 71	63.42	56.05	45 23	33 07	19.41	4.06

9 *Financial evaluation of the project*

The cost structure of AMW (Asia) Ltd production in Europe (table 11) has been taken as a reference for the projection of production and marketing costs shown in table 12 The net income statement (table 14) shows projected sales revenues, total variable costs and total fixed costs of production and marketing, as well as interest paid on loan capital (see also table 9) for a production phase of six years It can be seen that a capacity utilization of 8 per cent in the first year and 35 per cent in the second year is not sufficient to cover all costs (the higher capacity utilization shown in table 12 reflects the increase of finished products in stock) Therefore, the project should be revised in order to reduce investment and production costs during the start-up period or to increase sales

The profitability ratios (table 14) show a reasonable return on equity capital and on total capital invested only for a capacity utilization of 55-60 per cent (i.e after the third year) The internal rate of return of 14.27 per cent (table 13) appears acceptable at first glance, however, the rate (and the cumulative net present value) is achieved only because of the relatively high cash flows in the last three years (the cumulative discounted cash flows are still negative in the eighth year, if a discounting rate of 15 per cent is applied)

The total long-term finance is about $2.48 million (table 9), however, the total finance required for the first three years is $3 0 million (see table 15) This figure includes financing of the permanent net working capital, which should be financed with long-term capital and not from short-term loans, as assumed by the promotors of the project.

Since the cumulative cash balance (table 15) is negative from the third to seventh years, the project needs to be revised. The promotors of the project should investigate whether sales could be increased in the first and second year Alternatively, the project could be started two years later than projected in the study As the cash flow generated by the project would not be sufficient to service the loans, it will be necessary to revise the debt-equity ratio and to renegotiate the loan conditions

Table 11. Cost structure of AMW (Asia) Ltd. production in Europe

(Percentage of turnover)

Cost item	*Share*
Labour cost	25
Raw material	16
Tools	4
Hardening	3
Energy	2
Packing and transport	2
Administration and miscellaneous	10
	62
Marketing	20
Depreciation	12
Profit	6
	38

Table 12. Production costs of AMW (Asia) Ltd.

(Thousands of US dollars)

	Year						
	1	*2*	*3*	*4*	*5*	*6*	*7*
Capacity utilization (%)	9.00	37.33	56.25	78.83	91.08	100.83	100.00
Production to inventory (%)	1.00	2.33	1.25	1 83	1.08	0.83	0.00
Production sold (%)	8.00	35.00	55.00	77.00	90.00	100.00	100.00
Raw materials	57.60	238.93	360.00	504.53	582.93	645.33	640.00
Factory supplies	39.60	164.27	247.50	346.87	400.77	443.67	440.00
Tools	14.40	59 73	90.00	126.13	145 73	161.33	160.00
Hardening	10.80	44.80	67.50	94.60	109.30	121.00	120.00
Energy	7.20	29 87	45.00	63.07	72.87	80.67	80.00
Packing, transport	7.20	29.87	45.00	63.07	72.87	80.67	80.00
Labour	39.91	100.94	147.38	206.63	246.51	283.53	295.49
Factory costs	137 11	504.14	754.88	1 058.03	1 230.21	1 372.53	1 375.49
Administrative costs	392.64	419.84	438.00	459.68	471.44	480.80	480.00
Operating costs	529 75	923.98	1 192.88	1 517 71	1 701.65	1 853.33	1 855.49
Depreciation	209.35	215.23	203 73	203 73	203 73	187 28	181.40
Financial costs	59.01	133.21	132.07	98.31	41.57	24.82	6.38
Total production	798.10	1 272.43	1 528.68	1 819 75	1 946.95	2 065.43	2 043.27
Direct marketing costs	144.80	348.80	485.00	647.60	735.80	806.00	800.00
Cost of products	942.90	1 621.23	2 013.68	2 467.35	2 682.75	2 871.43	2 843.27
Foreign share (%)	13.80	11 10	8.12	6.06	5.01	3.96	3.14
Variable share (%)	19.99	48.46	59.07	67.92	72.56	75.47	76.04

Table 13. Discounted cash flow of AMW (Asia) Ltd.

(Thousands of US dollars)

	Year								
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*Residual value* *8*
Total cash inflow	0 00	320 00	1 400 00	2 200 00	3 080 00	3 600 00	4 000 00	4 000 00	1 205 95
Inflow operation	0.00	320 00	1 400 00	2 200 00	3 080 00	3 600 00	4 000 00	4 000 00	0 00
Other income	0 00	0 00	0.00	0 00	0 00	0 00	0 00	0 00	1 205 95
Total cash outflow	2 300 00	728 84	1 273 26	1 684 23	2 203 30	2 725 63	3 008 74	3 003 20	0 00
Increase in fixed assets	2 300.00	0 00	0.00	0 00	0.00	0 00	0 00	0 00	0 00
Increase in net working capital	0.00	75 23	49 57	32 79	49 88	29 21	23 37	0.69	0 00
Operating costs	0 00	516 01	891 68	1 175.45	1 491 94	1 686 30	1 841.42	1 855 49	0 00
Marketing costs	0 00	137 60	332.00	476 00	634 40	728 00	800 00	800 00	0 00
Income (corporate) tax	0 00	0 00	0 00	0.00	27 09	282 12	343 94	347 02	0 00
Net cash flow	–2 300 00	–408 84	126 74	515 77	876 70	874.37	991 26	996 80	1 205 95
Cumulative net cash flow	–2 300 00	–2 708 84	–2 582 09	–2 066 32	–1 189 63	–315 26	676 00	1 672 80	2 878 75
Net present value	–2 300 00	–355 51	95 84	339 13	501 25	434 71	428 55	374 73	394 23
Cumulative net present value	–2 300 00	–2 655 51	–2 559 67	–2 220 55	–1 719 29	–1 284 58	–856 03	–481 29	–87 07

Net present value	at 15 00%	–87 07
Internal rate of return	14.27%	
Modified internal rate of return	9 47%	
Normal payback	at 0.00%	7 years
Dynamic payback	at 15 00%	0
NPV ratio	–0 04	

Table 14. Net income statement

(Thousands of US dollars)

	Year											
	1		*2*		*3*		*4*		*5*		*6*	
Sales revenue	320 00		1 400 00		2 200 00		3 080 00		3 600 00		4 000 00	
Less variable costs	167 56		736.53		1 163 14		1 636 81		1 923 50		2 149 28	
Variable margin	152.44		663.47		1 036 86		1 443 19		1 676 50		1 850 72	
As percentage of sales revenue		47 64		47 39		47 13		46 86		46 57		46.27
Less fixed costs	695 40		702.38		692 04		693 26		694 53		679 43	
Operational margin	–542 95		–38 91		344 83		749 93		981 97		1 171 30	
As percentage of sales revenue		–169 67		–2 78		15 67		24 35		27 28		29 28
Financial costs	59 01		133 21		132 07		98 31		41 57		24 82	
Gross profit from operations	–601 96		–172.13		212 75		651 62		940.41		1 146.48	
As percentage of sales revenue		–188 11		–12.29		9 67		21 16		26 12		28 66
Deductible loss	0 00		0.00		212.75		561 33		0 00		0 00	
Taxable profit	0.00		0.00		0 00		90.28		940.41		1 146 48	
Income (corporate) tax	0.00		0.00		0 00		27 09		282 12		343 94	
Net profit	–601 96		–172.13		212 75		651 62		940.41		1 146.48	
As percentage of sales revenue		–188 11		–12.29		9 67		20 28		18.29		20.06
Dividends payable	0.00		0.00		212 75		624 53		658 28		802.53	
Retained profit	–601,96		–172 13		0 00		0 00		0 00		0.00	
Ratios (%)												
Net profit/equity capital	–49 54		–14 17		17 51		51 40		54 18		66 05	
Net profit/net worth	–98 19		–39 04		48 25		141 65		149 30		182 02	
Net profit + interest/investment	–22.39		–1 57		13 75		28 27		27 06		31 70	

Table 15. Cash flow for financial planning

(Thousands of US dollars)

	Year								
	0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*Residual value* *8*
Total cash inflow	2 312.42	829 13	1 591 69	2 201 10	3 081 37	3 600 73	4 000 61	4 000 00	1 213 32
Inflow funds	2 312 42	509 13	191 69	1 10	1 37	0 73	0.61	0 00	0 00
Inflow operation	0 00	320.00	1 400 00	2 200 00	3 080 00	3 600 00	4 000 00	4 000 00	0 00
Other income	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0.00	1 213 32
Total cash outflow	2 312 42	826 97	1 571 79	2 406 23	3 319 42	3 850 28	4 084.42	4 010.56	7.37
Increase in fixed assets	2 300 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Increase in current assets	0 00	77 13	51 27	33 88	51 25	29 95	23 98	0 66	0.00
Operating costs	0 00	516 01	891 68	1 175 45	1 491 94	1 686 30	1 841 42	1 855.49	0 00
Marketing costs	0 00	137 60	332.00	476 00	634.40	728 00	800 00	800 00	0.00
Income (corporate) tax	0 00	0 00	0 00	0 00	27 09	282 12	343 94	347 02	0.00
Financial costs	12.42	96.23	133 21	132 07	98 31	41 57	24 82	6 38	0.00
Loan repayment	0 00	0.00	163 62	376 08	391 90	424 06	247 72	191 30	7 37
Dividends payable	0.00	0.00	0 00	212 75	624 53	658 28	802 53	809 71	0.00
Equity capital refund	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0.00	0 00
Surplus (deficit)	0 00	2 15	19 91	(–205 14)	(–238 05)	(–249 54)	(–83 81)	(–10 56)	1 205 95
Cumulative cash balance	0 00	2 15	22 06	(–183 07)	(–421 13)	(–670 67)	(–754.48)	(–765 03)	440 91
Foreign surplus (deficit)	233 00	103 29	(–239 24)	(–281 80)	(–278 71)	(–275 63)	(–272.54)	(–197 65)	0 00

Case 2

A SMALL FAMILY BUSINESS, MANUFACTURE OF TURNED AND STAMPED METAL PARTS

Introduction

This case is discussed in six sections:

- Project history and background
- Assessment of project characteristics
- Market analysis and selection of target markets
- Design of project strategy
- Profile of entrepreneurial values and attitudes
- Preparation of a business plan

A. Project history and background

Mr Pioneer owns a family business manufacturing metal parts and components to the specification of local customers. Before starting his own business, he worked in a larger company for 15 years. There, he began as an unskilled worker and was trained step by step in metalworking; finally he became a foreman supervising as many as 25 workers.

When the factory was closed down unexpectedly, he decided to establish his own business, starting out with some second-hand machinery which he purchased at a low cost from the old factory. Using part of the factory premises lying idle after having been shut down, he established himself on the local market while looking for a suitable location. After having acquired a piece of land nearby, he set up a new workshop and built housing for his family. Soon he had a business with eight employees, including two family members, equipped with the necessary machinery (a bending machine, a cutting machine, welding equipment and simple hand tools).

Sales activities were based on personal contacts only. Further development was constrained by poor quality, limited demand for the products and market barriers.

Seeking to expand business opportunities, Mr Pioneer investigated the possibilities in a new industrial zone being promoted by the Government. Located some 80 kilometres from his existing workshop, this zone was open to both local and foreign investors. It had already attracted a number of factories that manufactured electric and electronic components and assembled finished products especially for export, with foreign companies taking advantage of low labour costs.

In pursuit of his objectives and based on a preliminary market survey carried out by a local adviser, Mr Pioneer learned that some companies in the new industrial zone needed larger quantities of turned and stamped metal parts, which were at the time being imported from industrialized countries. The idea was born that these companies might be interested in buying locally, if their quality standards could be satisfied. To follow up this idea, Mr Pioneer made use of consultancy services provided under government programmes for industrial promotion.

B. Assessment of project characteristics

To facilitate a comprehensive assessment of essential criteria and potential success factors, worksheets V-1 and V-2 (figures XXIII-XXVI) were filled out to record, analyse and appraise the data. As a first result of the assessment, the magnitude of the investment and further steps of project design and preparation were determined. Taking into account the financial capacity of the family and its ability to assume risk, the total investment was not to exceed $250,000.

C. Market analysis and selection of target markets

A field survey led to the identification of three categories of potential customers.

- Customers requiring large quantities of turned and stamped parts of high quality and precision, processed by automatic machines. These customers usually had their own production capacities for such parts and were basically self-sufficient. However, they sometimes also bought from outside suppliers, paying low prices but still expecting that products would be of uniform quality
- Customers requiring smaller quantities. They sometimes had limited in-plant capacity but depended primarily on their parent companies or foreign suppliers.
- Customers requiring relatively small quantities. They generally relied on foreign suppliers and ordered from more than one subcontractor or supplier

The survey revealed that Mr Pioneer, in light of the constraints facing him, should aim at the last two groups. A consultant was hired to carry out the necessary market analysis. Related enquiries confirmed that potential customers would prefer to buy from a local producer, although they expressed doubts about whether quality standards could be met.

1 Identification of products

A number of manufacturers were interested in jointly specifying the products to be supplied by Mr Pioneer. These specifications would determine the choice of technology and equipment. Market analysis predicted the following trends.

- Gradually rising quality standards
- The increasing substitution of imports
- Growing direct investment by foreign companies taking advantage of lower labour costs
- The increasing application of advanced technology, combined with upgrading and the development of necessary skills

Market descriptions (see figures XXIII-XXVI) provided relevant information on specific market segments. However, details of competitors' characteristics, market shares and marketing strategies still needed to be investigated. The following items were found to be critical for the design of the project and marketing strategies.

- Factors determining product specification
- Production capacity and potential sales (break-even)
- Training needs and technology standards to meet quality requirements
- Creating an image as a supplier of quality products
- Planning future investments in relation to market developments, financial constraints and risk considerations

Figure XXIII. Filled-in worksheet V-1 describing market segmentation

Project/alternative: Mr. Pioneer	Code / Date
Name of market segment (target group)	Criteria applied for segmentation
Segment A low order volume, quality turned and stamped parts, one (foreign) supplier Segment B small quantities, quality turned and stamped parts, more than one supplier/ subcontractor Segment C large order volume high quality and precision lowest price possible	order volume, frequency quality type of supplier (competitor) cost - price ratio (margin)
Remarks	

See check-list in chapter X

Figure XXIV. Filled-in worksheet V-2 for market segment A

Project/alternative: Mr. Pioneer	Code / Date
Market segment (product-customer target group) [a]: Low order volume "A" depending on parent company or one (foreign) supplier	
Characterization of customers (type, location, preferences and needs, purchasing behaviour etc.): Medium quantities, low transport cost, flexible, short delivery time, simple communication in order to supplement limited in-plant capacities	
Product characteristics: good quality, high precision	
Market size and potential [b]: Estimated market volume $ 6 million	
Market life cycle: [x] Growing [ ] Mature [ ] Saturated [ ] Declining	
Distribution channels: directly to customers	
Main competitors [c]: in-plant capacities, imports (parent companies, foreign supplier), other (potential) local suppliers	
Sales targets (quantities, prices, revenues): $ 12 million in 3 to 5 years (= 20 % market share)	
Remarks: 40 % turned parts; 60 % stamped parts; materials locally available; tools possibly supplied by customers	

[a] Use separate worksheets for each market segment.

[b] Number of potential customers, estimated market volume etc., market potential refers to the estimated total demand, market size is that part of a market potential already satisfied.

[c] Name, address, production (sales) programme. For the assessment of competitors use worksheet V-3.

Figure XXV. Filled-in worksheet V-2 for market segment B

Project/alternative: Mr. Pioneer	Code / Date
Market segment (product-customer target group) [a]: Smaller firms (small order sizes) "B"	
Characterization of customers (type, location, preferences and needs, purchasing behaviour etc.): Small quantities, changing demand, highly profitable, short term delivery, flexible production	
Product characteristics: different materials, small production lots, adequate quality and precision	
Market size and potential [b]: Estimated market volume $ 4.5 million	
Market life cycle: ☐ Growing ☐ Mature ☐ Saturated ☒ Declining	
Distribution channels: directly to customers	
Main competitors [c]: imports, other (potential) local suppliers	
Sales targets (quantities, prices, revenues): $ 650,000 in 3 to 5 years (= 15 % market share)	
Remarks: 30 % turned parts; 70 % stamped parts; materials locally available, tools possibly from customers	

[a] Use separate worksheets for each market segment.

[b] Number of potential customers, estimated market volume etc., market potential refers to the estimated total demand; market size is that part of a market potential already satisfied.

[c] Name, address, production (sales) programme. For the assessment of competitors use worksheet V-3.

Figure XXVI. Filled-in worksheet V-2 for market segment C

Project/alternative: Mr. Pioneer	Code / Date
Market segment (product-customer target group) [a]: Large enterprises "C" controlling their subcontractors (BUYER MARKET)	
Characterization of customers (type, location, preferences and needs, purchasing behaviour etc.): interested in domestic supply, own (limited) in-plant capacity, foreign suppliers; timely delivery important	
Product characteristics: gradually rising quality standards	
Market size and potential [b]: estimated market volume $ 15 million	
Market life cycle: [X] Growing [ ] Mature [ ] Saturated [ ] Declining	
Distribution channels: directly to customers	
Main competitors [c]: in-plant capacities, imports, growing direct investment of foreign companies	
Sales targets (quantities, prices, revenues): potential $ 1.5 million in 3 to 5 years (= 10 % of market)	
Remarks: 50 % of sales turned parts; 50 % of sales stamped parts; local supply of materials; tools possibly from customers	

[a] Use separate worksheets for each market segment.

[b] Number of potential customers, estimated market volume etc., market potential refers to the estimated total demand; market size is that part of a market potential already satisfied.

[c] Name, address, production (sales) programme. For the assessment of competitors use worksheet V-3.

D. Design of project strategy

Assessment of the worksheets and questionnaire II-1, which is described in the next section, and detailed market analysis revealed that the project strategy would be determined by the following considerations:

- While Mr Pioneer had the necessary entrepreneurial background and professional experience, his financial means were limited.
- Although demand for high-quality turned and stamped metal parts was growing, building up the corresponding capacities and meeting quality standards would take time, because staff needed to be trained in the technology
- The customer range would have to be diversified in order to spread the risk and reduce Mr Pioneer's vulnerability as a subcontractor.
- The outlook was that Mr Pioneer's new firm would at first be just another small supplier in a fairly large and competitive market but might eventually be able to achieve a sizeable share of the local market (for example, the market in the industrial zone)

1 Definition of marketing objectives

In line with the results of the market analysis, Mr Pioneer decided to develop a new product line geared to the needs of the following customer groups over the next two years:

- Customers ordering frequently but in small quantities (segment A, see figure XXIV)
- Small firms needing small quantities (segment B, see figure XXV)

First-year sales targets were projected at $300,000 for the first group and $200,000 for the second group. Mr Pioneer decided to concentrate on potential customers in the industrial zone (see below, subsection 4), establishing related business contacts and building up an image as a cooperative, reliable and quality-conscious supplier

2. Marketing measures

In order to establish business contacts and build up the firm's reputation, Mr Pioneer needed to set up a marketing organization. He realized that he should be supported in his activities by an experienced sales representative. In addition, he needed an in-house organization for keeping in contact with customers and responding to special queries and requirements. It also became clear that it would be important how the firm represented itself to its clients. Promotional activities would have to project a professional image: product information could be conveyed through well-designed printed materials for potential customers.

Since an experienced sales representative was difficult to come by, Mr Pioneer decided to employ his own son, who had the necessary technical background and a knowledge of foreign languages. He lacked experience as a salesman, however, and required additional training.

For the in-house sales organization, a senior technician was hired. He was to be trained on the job in sales techniques.

3 Sales projections

Sales targets for both customers groups were to total $500,000 in the first year, slightly less than 30 per cent of potential sales, and were expected to double in the second year

With a view to the longer term, Mr Pioneer decided to closely follow market developments. He thought his firm might be able to cater to larger enterprises (segment C, see figure XXVI) that would replace their limited in-house capacity by subcontracting agreements.

4 Choice of location

Mr Pioneer had to decide whether to install a new production line for turned and stamped parts on his existing premises or to set up a new plant in the industrial zone, 80 kilometres away, next to the potential customers. Were he to opt for the latter alternative he would have had to adapt to a new and unfamiliar environment and to establish new business relationships, including hiring workers and coping with the organizational and administrative procedures of the industrial zone.

Under the circumstances and aware of the risks involved, Mr Pioneer, at the advice of his consultants, decided to start a new production line in his established workshop. This enabled him to rely on existing organizational patterns and staff, albeit upgrading their skills and training new workers to achieve the required capacities and quality standards for the new products. It also put him in a position to concentrate on identifying and developing customer relations with potential contracting firms. A decision on relocating the plant was deferred until market conditions, skill levels and other inputs had developed sufficiently.

5. Training requirements

To achieve and maintain quality standards, existing staff needed to be upgraded and newly hired workers had to be trained. This entailed special attention to the selection of staff as well as to deciding how best to make use of internal and external training facilities. It also meant providing incentives for trained personnel to stay with the firm.

To ensure adequate training and to keep up with technological innovations, close cooperation with suppliers of machinery and equipment was considered to be essential.

6 Choice of machinery and equipment

The machinery and equipment had to be of a technical standard that could make products of the required quality. When the new production line was set up, it was found that the quality requirements could for the time being be met using second-hand machinery. With increasing production and turnover, this machinery was gradually to be replaced by more modern and technologically advanced equipment, which would, however, have to meet the following requirements.

- Ability to produce sufficient quantities of products of a reliable quality
- Simple operation, ready availability of spare parts and access to suppliers' services

As the cost-effectiveness of any new investment very much depended on the fulfilment of these requirements, the investor needed to stay abreast of technical developments. Information could be obtained at international fairs and from sales agents and suppliers specializing in capital goods.

Mr Pioneer had to decide whether to use moulds and tools provided by his customers or to manufacture them himself, in which case he would be less dependent on his customers. If the customers provided the required tools and moulds, as often happened, their freedom to choose among competing subcontractors meant they might be able to dictate delivery conditions and prices.

Mr Pioneer, confronted with this choice between greater autonomy and greater dependence, decided in favour of making his own moulds and tools. This decision meant additional investment for maintenance and repair and also entailed acquiring the necessary know-how

and skills. Mr Pioneer decided to start out by making simple moulds while obtaining the more complicated ones from his customers. This allowed him and his staff to become familiar with different technical standards and technological developments.

7. *Supply of raw materials*

For his line of products, Mr Pioneer had to rely on imported raw materials, which exposed him to international markets and the risks that attend supply conditions and prices. Government trade policies and import regulations, such as quotas or licensing, could also have a significant impact on availability and costs.

8. *Strategic options and constraints*

Based on the case history and strategic considerations, the following determinants for the design of the project were identified.

- Given the financial resources of Mr Pioneer and his family, the total investment was not to exceed $250,000, of which at least 50 per cent was to be equity-financed.
- In line with marketing objectives, production capacity for stamped and turned metal parts would be geared to satisfy the demand of customers in two different segments of the local market, both of which required reliable supply of high-quality products.

E. Profile of entrepreneurial values and attitudes

Mr Pioneer was asked to complete questionnaire II-1 (figure XXVII). His entrepreneurial values and attitudes, if compared with the profile contained in figure XXI, correspond to those of a pioneer. His answers to questions 1, 6, 8, 10 and 12 deviate from those of the average pioneer type by one point, which is probably due to sociocultural conditions different from the sample.[88]

Pioneer types typically disagree with statements that place a high value on continuity, habit and order. They are, instead, more creative, flexible and open to change, which are qualities required by growth industries or during the growth phase of the business cycle.

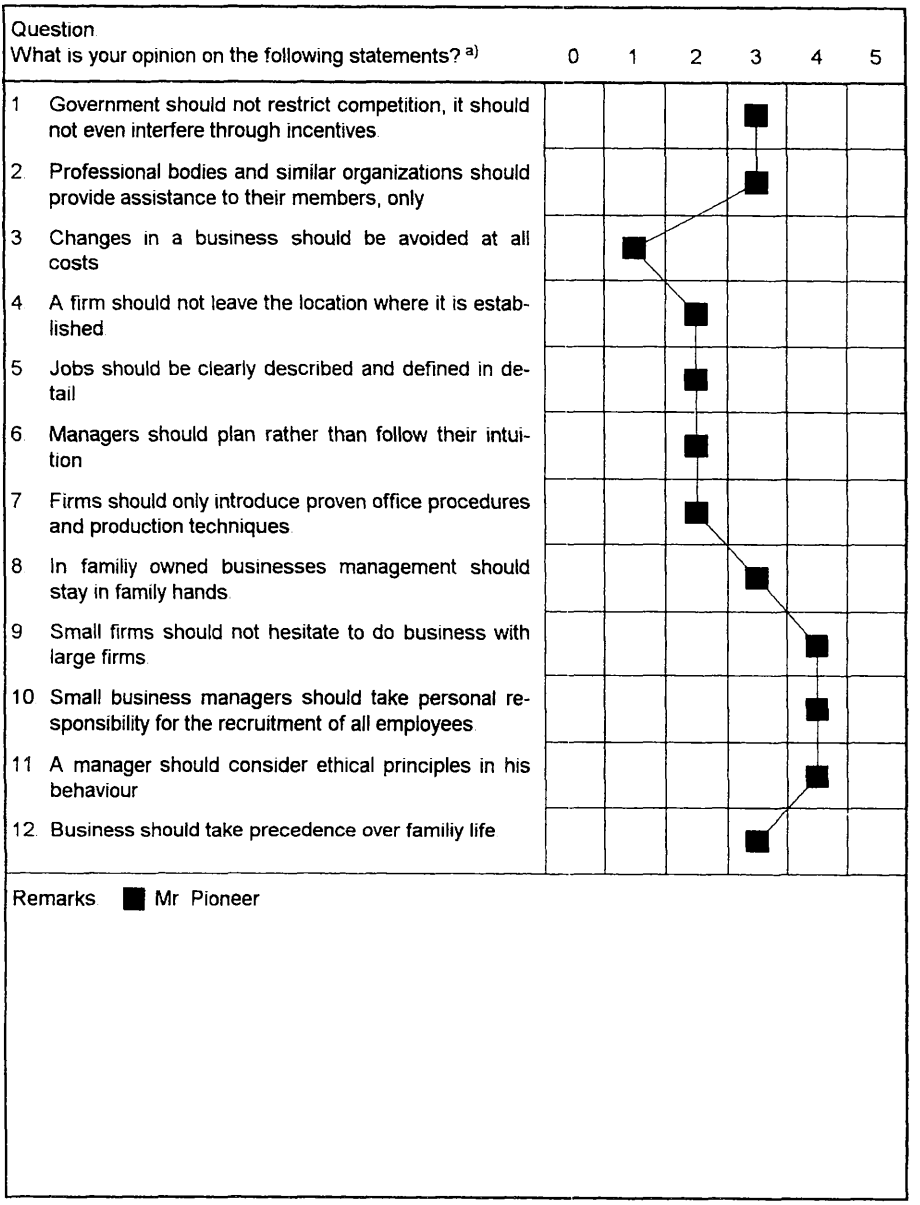
F. Preparation of a business plan

To obtain a long-term loan from the Small Business Development Bank, Mr Pioneer now has to submit a business plan. This plan must contain an estimate of the investment cost as well as the projected sales and costs of operations for five years. The cost of modern and technologically advanced equipment, mentioned in subsection D.6, can be obtained from suppliers, the cost of moulds and tools made in Mr Pioneer's shop must be calculated.

Apart from revenue and cost projections, the bank also needs detailed information on how the supply of imported raw materials can be secured (see subsection D.7). As the bank also has to verify whether sales projections are realistic, Mr Pioneer should submit, along with the business plan, the technical specifications and quality requirements of his main customers and, in case of subcontracting, a letter of intent with subcontractors interested in purchasing from him.

[88]The profiles were developed by the European INTERSTRATOS study (base 1991), which covered five industrial sectors and approximately 3,000 entrepreneurs [1].

Figure XXVII. Profile of Mr. Pioneer, showing his answers to questionnaire II-1



a) 0 No answer
1 Strongly disagree
2 Disagree
3 No opinion
4 Agree
5 Strongly agree

For the appraisal of the loan request the bank will compare the project proposal and business plan with similar projects, using subsector-specific ratios as a reference (for example, output-capital ratio and structure of operating costs). Subsectoral data not available at the bank may be obtained from the Small Industry Development Organization.

References

1 See EIASM, *First Descriptive Results of the INTERSTRATOS Project,* EIASM Working Paper Series (Brussels, 1993) and STRATOS Group, *Strategic Orientation of Small European Business* (Aldershot, Gower, 1990).

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