Fundamentals of business engineering and management

A systems approach to people and organisations

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with contributions from J. in 't Veld and P.Ch-A. Malotaux

Preface

Background details concerning the realisation of this book

In order to see this book in its true perspective one needs to briefly consider its underlying developmental history which takes us back to 1968. That was the year when two professors were simultaneously appointed to teach a subject known as "business management" at the University of Technology in Delft. They were the engineers P.C.A Malotaux and J in 't Veld who were respectively affiliated to the departments of Business Engineering and Management Studies (Malotaux) and Industrial Organisation (In 't Veld).

The common ground that they shared was this. They were required to teach students drawn from all the university's technological disciplines and faculties everything that they might need to know in their future (very divergent) areas of professional practice about Management Science.

Over the course of 30 years some 20 academic staff members (including technological business administrators, economists, sociologists, psychologists, mathematicians and engineers drawn from different disciplines) have been affiliated to these departments and have contributed both to the scientific developmental sides of these fields and to their operational applications. In extensive final dissertations resulting from fieldwork within all kinds of companies more than 450 students have implemented the theoretical concepts developed. On top of that sustained contact was, and still is, maintained with graduates in their various fields of work. Such interaction has, of course, been most instructive which has meant that in turn the theoretical concepts developed could be perpetually extended and adjusted as could the way in which they could be applied to resolve problem situations in a wide diversity of technological and other companies. After all, it was all about establishing practical, applicable knowledge!

The Dutch-language course readers were not only used at the university in Delft but they were also listed as obligatory reading by many colleges providing polytechnic level courses in engineering throughout the country.

In 1993 Professor Malotaux and Professor In 't Veld retired but the co-operation between the "Business Engineering and Management" and the "Industrial Organisation" departments was perpetuated in the fields of education, research and theory development.

In the late nineties the authors selected certain of the existing and relevant key topics for inclusion in the present book. All these topic areas were partially revised, some of them were even rewritten and a number of totally new topics were added.

The focus throughout has been upon what technologists and colleagues drawn from other disciplines need to know in their everyday practice about business management insight and problem analytical and problem resolving oriented approaches.

The target group in question is a varied one comprising, above all else, technologists drawn from all kinds of disciplines who may be employed in all types of companies in all kinds of functional capacities. Moreover, in practice, also managers with other scientific backgrounds but with an affinity to a systematic approach to management problems, have proved to be interested. This book aims to provide such people with the fundamental insight they need into how, in broad outline, companies are structured and how they operate. It will also help them to learn how to recognise, analyse and tackle business functioning problems.

The business management approach adopted in this book may be described in the following way:

1. As being directed towards processes and the relevant accompanying functions
2. As dealing with the application of the Systems and model approach
3. As being interdisciplinary

1. Directed towards processes and the relevant accompanying functions

Companies are purposeful organisations set up in order to make "something" happen. To that end people undertake activities within processes and which are organised in such a way that the goal in question can be achieved. If those processes do not proceed well or if they are not properly organised or attuned to each other then something will be wrong. In such cases one must try, preferably in a systematic way, to establish what constitute the missing links and to find ways of improving matters.

In this respect a company is primarily viewed as an organised collection of functions that have to be fulfilled in which the onus is upon activities or processes. The way in which they are equipped and mutually structured is, in each case, the basic angle of approach.

2. The application of the systems and model approach

The Systems and model approach is what is implemented as a "method" and as a "language" because of the opportunities it provides to examine organisations in a systematic way with the help of unequivocally defined concepts. This approach opens up the way to keeping attention directed towards the organisation in its environment while at the same time looking from that standpoint at the various parts of the organisation. It also enables one to study organisations from the angle of different

professional disciplines and approaches. Together with the fundamental process approach the systems approach forms what amounts to a universally applicable set of instruments for analysing organisations and for getting to the bottom of problems in the functioning of business processes and, of course, to dealing with such issues.

Even though the methodology – especially in technologically oriented businesses – tends to be developed and applied it has emerged that it is just as applicable to the service providing sector for organisations such as hospitals, transport companies, trading organisations and so on. If one thinks about it this is logical because all organisations are under pressure to operate in a "goal-oriented" and "business-like" fashion.

3. Interdisciplinary

Though the process approach is often chosen as the main analysis mode, the view of people and organisations adhered to certainly may not be termed monodisciplinary in a technological or economic sense. Organisations are co-operations of people set up for people. If one only looks at the technological functioning of processes or at economic profit one will generally find that little can be resolved. Organisational phenomena emerge from the field of tension between what is technologically possible, economically profitable and socially and psychologically acceptable. This demands an approach that needs to be realised in an integrated way and from different perspectives. It is an approach that may be briefly characterised in the following way: "as paying attention to the organisation and to its environment, the basic conviction being that in all cases it is all about activity for people and with people". With the systems approach it is always possible to integrally introduce many different disciplines and specialist fields.

The desire voiced at the outset of the development of the business management approach reflected in this book to the effect that the approach should remain applicable to all kinds of organisations brought with it, and still brings with it:

- the need for a certain distancing from various concrete kinds of companies by turning them into abstractions
- a need to focus upon the general constants which may be said to lead to the fundamentals of business management

This book is therefore no manual. The aim is rather to help the reader to develop his insight and understanding. It should be emphasised that the many examples provided throughout the book constitute guidelines for independent analysis and for the finding of solutions to problem situations in all kinds of business processes.

Many business management books are more oriented towards specific business management issues and/or are written from the particular perspective of a given specialist field. In the realm of economics, for instance, much has been written about the establishing of business strategies and policies but there attention is rarely paid to the business processes that have to be specifically realised through such policies. The psychologists highlight the human factors while in sociology it is themes such as interest groups and power issues that are central. The approach presented here, known

as the Delft School approach, takes as its point of the departure the company itself and all the processes within the company and related to it. From that point of view it may be said that all disciplines have something important to offer that cannot only be acknowledged but which in fact must be acknowledged. The approach presented here provides the space for this. In other words, it is not so much a question of "instead of" or "in addition to" but rather of "in conjunction with".

When it came to the notion of developing an English edition of this book it was really the following considerations that were uppermost in the minds of the authors:

1. The "Delft School" ideology characterised by its process orientation, systems approach and interdisciplinary traits is really little known outside of the Netherlands. From their participation in various congresses the authors had gradually become aware that in the areas of systematics and applications there was much external interest for "their school". Publication thus offered the perfect platform for internationally launching the mental legacy of Malotaux and In 't Veld.

2. The internationalisation of the student population at the University of Technology in Delft is gradually making it imperative for the university to provide many of its courses in English.

Acknowledgements

It is due to the co-operation of many individuals that this book has finally been able to materialise. Content-wise it was Malotaux and In 't Veld who really developed the basic philosophy underlying the Delft School in close co-operation with their various staff members, the authors of this book included, over the course of a 20-year period. Students, post-graduates and student assistants stimulated them to innovate change and to modernise through the application of methods, and the provision of criticism and praise. Translating the book into English proved to be no sinecure. Mrs Diane Butterman enthusiastically took responsibility for the translation of the whole text and all the figures, all of which ultimately led to many hours of consultation with the final editor. The student assistants did a great deal of supporting work by collecting data, and adapting figures and correcting them.

We thank them all for their contributions. Without them this book could never have materialised.

"The science of the use of usable science"

<div align="right">

Delft, October 2002
W. ten Haaf
H. Bikker
D.J. Adriaanse

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About the authors

Wouter ten Haaf began his career as a secondary school maths and physics teacher. He qualified as an electro-technical engineer at Delft University of Technology and afterwards worked in West Germany for a number of years, firstly as a micro-electronic designer. Later on he fulfilled various managerial functions there in the fields of product development, sales and general management. He returned to the Netherlands in 1981 where he became associated professor within the Business Engineering and Management department at Delft University of Technology. After the retirement of Pierre Malotaux he was made responsible for the Business Studies side of the Delft School of Business Engineering and Management. Since then, together with Henk Bikker, he has been responsible for supervising the further development of that business school. In his approach to the field it is people that are central which is something that emerges from the research into and the teaching focused upon the methodology of problem resolving, the effectiveness and productivity of co-operation and management and the processes directed towards personal growth, also in the light of the "Systems Approach". These fields of research, which basically belong to the area of human sciences, are issues he tries to translate into the worlds of thought and experience of people with scientific and technological backgrounds in general and for (prospective) managers, particularly with such backgrounds, so that these fields become accessible and manageable for them.

He is also active in the field of social service. For 17 years he was the national chairman of a society occupied with social work. Apart from working at Delft University his enterprise 'Ten Haaf Consultancy and Education' provides business courses and training for people in industry. On top of that he is a course leader in the field of Business Engineering and Management at the College of Engineering in The Hague where he provides postgraduate education for managers. Apart from being a co-author he also contributed to the creation of this book by taking responsibility for the final editing.

Henk Bikker studied aviation engineering at Delft University of Technology and started working at Fokker in 1961. There he was responsible for managing one of the company's production programmes and later for production preparation and management at another Fokker plant. He was subsequently made responsible for the project management of the F28 Fellowship Centre Division, the VFW-614 wings and the Airbus programme. As head of the "New Parts Factory" design team he introduced the product oriented production line organisational concept to a factory that had originally been organised along the lines of a functional oriented organisation. This kind of re-organisation was the first of its type and scale to be undertaken in the Netherlands. In the period that followed it was new aircraft construction that was of central importance to him in his role as head of the engineering department. That was a period when interest in innovation was growing and modernisation paths in product development were emerging. In 1978 he moved from Fokker to the Industrial Organisation department at Delft University where that same interest in innovation and modernisation paths in product development was consolidated in a research

programme. He then went on to produce numerous national and international publications on the interrelationship between product design, production and service and the scientific approach to all of that with the aid of the "Systems Approach".

In 1994 he succeeded Jan in 't Veld and was made professor and head of the Industrial Organisation section. Since then much attention has been paid to the development of "New Systems Concepts", notably where the matter of the manageability of the primary processes in industry and technological service provision is concerned. Together with Wouter ten Haaf from the Business Engineering and Management department he is responsible for the provision and further development of education and research programmes within the framework of the Delft School.

Johan Adriaanse read chemistry at Delft University of Technology. After having rounded off this engineering course he worked in the chemical industry sector for 6 years where he was involved in the field of production process development and facility re-engineering. He then joined the staff at Delft University where, for a number of years he was occupied with interdisciplinary research into organisational change. After that he became senior consultant to the Dutch Marine Research Institute (MARIN) where he carried out research into organisation patterns on board ship and within shipping companies and into the consequences of that for the redesigning of freight ships. When he returned to the university in Delft he embarked upon research into the optimisation of design and engineering processes. In addition to that he worked as an organisation advisor for the medium and small business sector.

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A systems approach to organisations

1 Business Engineering and Management, an introduction to the field of study

1.1 Introduction

In this first chapter we would like to create a framework that will serve as a basis for your further examination of the ensuing chapters of this book.

The first issue to be examined will be the question: What is meant by Business Engineering and Management, how is it oriented and how can the relevant insights be of use? This thus makes it necessary to explore certain key concepts such as: company, enterprise, institution and organisation since those are the main objects of study in the field of Business Engineering and Management. What do terms like organisation and management mean?

Once this has been done it then becomes possible to examine in more depth a number of characteristics of the managerial approach and to see why it is so difficult to select an appropriate approach from the huge range of theories, methods and techniques, all of which *can* be relevant in an "introduction" to this specialist field. All in all, this will constitute a justification for "our" approach.

This first chapter will close with an overview (or main outline) of the topics to be dealt with in all the following chapters.

1.2 Exploring Business Engineering and Management

This book has been given the title: Fundamentals of Business Engineering and Management Studies; a Systems Approach to People and Organisations. Evidently it is therefore all about the knowledge and skills which relate to how companies function. But what do we mean by companies? Do companies function differently from other organisations? And, is Business Administration something different from Organisation Engineering?

1.2.1 The company as a specific organisation

In everyday conversation we find that the word "company" is linked to a multitude of business sectors: the construction, restaurant, garage, building, trade, agrarian, energy, broadcasting corporation, insurance, post, transport and newspaper sectors …

Simultaneously we also encounter, on a daily basis, a number of "organised co-operative associations" which we would not be so quick to label "companies", such as: the United Nations, NATO, employer's associations, student unions, the church, the family, society …

In the Business Management Lexicon the word "company" is defined as follows:

> *a company is a more or less independent organisation that produces something. It is a combination of people, means and actions leading up to a product or service. It also embraces other organisations, universities and organisation consultancy bureaux. In all cases it is possible to identify an objective that reaches beyond the objectives of the company's individual members.*
> *(When, in spoken language, one refers to business what one is usually referring to is businesses in their totality, that is, businesses or companies in which the primary objectives are economic ones).*

In everyday usage enterprises and companies are often seen as being synonymous. Collins Cobuild English Dictionary defines "company" as follows:

> *A company is a business organisation that makes money by selling goods or services.*

The word "organisation" is, in principle, applied to all units which have been systematically created in order to achieve a certain goal. Such "goal-orientedness" and "systematic composition" are things that are characteristic of all organisations, as is reflected in the first definition of company given above.

Businesses or companies have one extra characteristic, though, which is that they manufacture products or provide services. Within companies such products or services are there to be traded so that incomes may be earned to guarantee the company's continuation and possible expansion. Companies are organisations set up and kept going for a specific purpose, with or without a view to becoming profit-making.

1.2.2 Business Sciences and Organisation Sciences

Against this background, organisation sciences and business sciences may be characterised as follows:

Within the field of organisation sciences and studies the main focus is on the co-operative issues arising within organised units in the broadest sense of the word. Those may be human organisations of differing sizes covering a diversity of areas, or other biological or ecological systems. The theories and notions dealt with tend to be

abstract and only directly applicable to a limited extent. Often they first need to be related to specific organisations or issues.

Business sciences, on the one hand, and Public Administration Sciences, on the other hand, is a good example of this. Business sciences are oriented towards the co-operative issues alive within companies. The object of study and experience is "the company in its social context". Public Administration Sciences deal with problems occurring at a macro level, the object of study being "society in its context" and notably "public administration".

In practice, the terms Business Sciences (studies and theory) and Organisation Sciences (studies and theory) are often interchanged. Up to a point this is understandable when one realises that much organisational research is directed towards phenomena in human organisations, including within companies.

1.2.3 Business Sciences: a multi-disciplinary approach

As some readers might have realised, we have continually been speaking about "organisation sciences" and "business sciences", in other words we have been expressing this in the plural.

This has very much to do with the historical development of this young field of study. Although organisations are as old as the human race itself, it was only some 120 years ago that the scientific study of organisational issues commenced. At first the study centred on the setting up of production processes in factories developed during the course of the Industrial Revolution. The managing of such companies, which were becoming increasingly complex, also became a subject of study. The first people to carry out such studies were technologists.

In conjunction with what amounted to a somewhat technological optimisation it was discovered that having a better idea of costs and benefits was vitally important. Everything needed to be aimed towards achieving the best possible economic results from the scarce means available. From their points of view, economists began to occupy themselves with the functioning of companies in financial and economic respects.

At this time - partly at the instigation of political forces and trade unions - lawyers started working on developing the legal frameworks related to working conditions, work contracts and social insurance in cases of illness, accident occurrence and invalidity.

Round about 1930 people in America had discovered, by means of research, how instrumental attention to the person as a person (as an individual, as a social being) was when it came to the matter of realising high productivity and high yields in production. The behavioural sciences (sociology, psychology) came into their own and from these angles research started being conducted and recommendations started being made which were always directed at increasing productivity by improving the social climate.

One might characterise the academically supported approach to questions arising within companies during the first period as follows:

- every discipline had its own approach and way of solving matters (one-sidedness)

- the production process (work method, work organisation) needed to be optimised; the individual was expected to adapt to the job, in line with production process design.

Since the Second World War, and notably since the sixties, people have somewhat confidently arrived at the conclusion that if one is to resolve business problems then one must *combine* the insights drawn from the various academic disciplines. It has moreover become apparent that people who are, nowadays, better educated and more verbal, no longer accept what was once the prevailing situation of having to adapt to work methods and organisational forms: people demand "a say in matters" and "work that matches their capacities".

These changes in the ways of viewing people and organisations have led to experiments set up by researchers in the various fields that are aimed at achieving better ways of co-operation when studying and resolving issues. Economists and technologists have united to develop products and production methods that are qualitatively good from a technical point of view while also being economically cost-effective. Similarly, technologists and behavioural scientists have united to create work organisations and divisions of labour that are technically effective and which, as regards job content and working conditions, correspond better to what people want and to what they can do.

Ultimately, it is all about optimising what is:
- technologically possible
- economically remunerative
- social-psychologically desirable
- socially acceptable

The notion of having better co-operation between the various academic mono disciplines when launching organisational issues at business and social level would only seem logical since it is also, after all, imperative. Indeed, the problems themselves do not conform with our notions of academic areas.

In organisational science such co-operation is difficult to realise in practice. On the one hand that has to do with the fact that we do not know exactly how unification and integration of knowledge from the various fields can be combined in a scientifically reliable way. On the other hand, our discipline-oriented education also prepares us badly for taking a broad view of things and for working together: it is rather the opposite that is true. This problem was not fully recognised within the universities until the nineties; since then more and more attention has been paid to co-operation and to "integrally approaching" subjects.

1.2.4 Business sciences, Business Administration, Business Engineering and Management

Here above it was suggested that the terms organisation sciences, Organisation Engineering, Organisation Theories, Business Sciences, Business Administration and Business Theories are often interchanged. The fact that Business Administration is

oriented towards questions put by businesses and asked within businesses (in the broadest possible sense) has also already been mentioned.

With business *sciences*, the onus is on gathering knowledge relating to the functioning of businesses and the issues which thereby arise. Since research topics often emerge from practical situations they generally also require co-ordinated examination from a number of disciplinary angles. The objectives are still: to find out and to explain.

With Business Administration it is more a question of applying knowledge in relation to concrete problems. Business Administration research thus tends to be more usually directed at the immediate resolving of problems. For this reason, Business Administration recognises many methods of approach and techniques for analysing and tackling such problems. Scientific knowledge and methodology are the tools that are used. The objectives are: to understand and to resolve problems.

In the Collins Cobuild English Dictionary the term *theory* in the sense of 'a school of thought' is defined thus:

- *A theory is a formal idea or set of ideas that is intended to explain something*
- *The theory of a practical subject or skill is the set of rules and principles that form the basis of it.*

The approach adhered to in this book is known as that of the "Delft School", a specific approach derived from co-operation between the Malotaux 'Business and Management Studies' chair and the In 't Veld 'Industrial Organisation' chair at Delft University of Technology.

The toolbox contains a set of cohesive methods. These are methods that have been frequently applied in practice and which have been thoroughly developed.

1.3 Central concepts

1.3.1 The concept "organisation"

The words organise and organisation derive from the word "organ" (Lat. orga'num = tool, Gk. organon) and the Collins Cobuild English Dictionary gives the following relevant definition:

> *An organ is a part of your body that has a particular purpose or function, for*
> *example your heart or lungs.*
> *To summarise: a composition suited to the realisation of various purposes*
> *which may also be seen as a tool for a particular function.*

In everyday usage the word "organisation" has a number of meanings.
- the activity of "organising": 'organising that party was quite a task', meaning, in other words, that much needed to be done in order to realise that particular event. In short, it is the process of making plans and ensuring that they (may) be executed.

- an organisational unit: the Philips organisation is having a difficult year, or: the trade union organisations have instructed everyone to interrupt their work for a while. In this sense it is the company or institution that is being referred to.
- the way in which something is organised, its arrangement: what characterises the navy is the fact that it is a very hierarchical organisation, or: the Ministry of Justice is a bureaucratic organisation. Here organisation relates to the way in which inter-relationships and job execution are arranged.

When taken out of context it is sometimes very difficult to identify the sense in which the word organisation is used:

> *through organisation an organisation with the following type of organisation has been created ...*

Apart from the word organisation, we also have the word "organism" which stands for:
- *organic structure, combination of parts of a functional and therefore dynamic whole (animal organism)*
- *organised body; being that possesses organs*
- *systematic composition of various components for a certain goal: the nation is an organism*

The word has, it would seem, many parallels to organisation: systematic composition, goal.
With organism, however, we do in the first place think of living beings: creations that are not externally made up but which develop from within, which grow. Organisations are constructed. With human organisations such as companies and institutions the building blocks are things such as people and groups.
The fact that those individuals or groups possess a certain, or rather uncertain, uniqueness and input is something that makes organisations also behave, in some respects, like living creatures.

What, then, is: Organise?
To equip with organs? To provide with tools?

The Business Engineering and Administration Lexicon defines Organise as follows:

> *The process of creating efficient relations between people - means and dealings - in order to achieve certain objectives; creating an organisation.*

The achieving of such a goal can sometimes be one-off, demanding a limited amount of time, like the organising of a party or like constructing a bridge. People thus organise in a project-based way how things are going to be done and who is to do what. This is therefore termed project organisation.

It is furthermore also common for organisations to be set up for much longer durations in order to continue achieving certain objectives. Organisations like hospitals, power companies or ones that are rather less production-oriented such as Greenpeace and the Church are good examples of this. Organising thus focuses on the question: how can more permanent organisations be set up in such a way that their long-term function is optimally fulfilled (institutional or business organisation).

1.3.2 The concepts "business, institution, enterprise"

In Section 1.2 a business was characterised as an organisation that generates products or services, so fulfilling a function in societal production. In the past, a clear differentiation was made between "profit" (aimed at earning) and "non-profit" activities. Companies were also classified as belonging to the "private" or "government" sector as far as ownership relationships were concerned.

The companies that belonged to the public sector were those that were set up by state or municipal authorities, invariably to provide products or services to meet primary societal requirements, such as gas, water, electricity and transport companies, health care and education. In those cases it was not so much making profit from invested capital that was important as meeting certain needs. There was, moreover, little or no competition between such companies.

Facilities of this kind, established by the government, were often known as "institutions" and they included associations and foundations.

(The term "institution" is also applied to organisations that are not established and financed by the government and which take different legal forms (association, foundation, etc.). Frequently they have one ideal objective and are not profit-oriented. They are not companies).

Private sector companies are those that used to be set up on the basis of private initiative with money derived from entrepreneurs/owners and/or shareholders. Often these businesses were known as "enterprises": industrial enterprises, trading enterprises. Though these types of businesses also endeavour to meet social needs the pressure to be profit-making is much greater in these instances because of the demands of the providers of capital, on the one hand, and because of the existing competition on the other hand.

In everyday language, the terms company and enterprise are frequently made synonymous. With the term enterprise one thinks chiefly of the economic aspect (finance, the market) or of the legal form (one-man businesses, limited company, public limited company etc.); with the term company one thinks more readily of what the enterprise does and how this is achieved (technology).

This simple view of businesses, as being either profit or non-profit making is becoming more and more obsolete. Many public sector companies are being privatised in order to fulfil their primary purposes. Insofar as that is not happening, though, public sector organisations are having to become increasingly "market-oriented, customer-friendly and efficient". Financially, too, they must be self-sufficient.

1.3.3 The concept "management" = "leadership and organisation"

In this book, the term "management" is understood to mean "leadership and organi-sation". Day in, day out the term management is used, it stands for a number of concepts:

- the *activity* of providing leadership and organising, also known as "managing".
- the *group* of people responsible for providing leadership (the management = the group of managers).
- the leadership-providing *function* of a company or department: top-management, production-management, financial-management, personnel-management.

Besides this, the term "management" is also used to denote various branches of science, e.g. management-science or, quite simply, management.

The *function* of leading and organising companies and institutions may be described as follows:

> *looking after and further developing labour forces and the available human talent, capital and other means required to give rise to goods and services and to make them productive.*
> *Thereby doing that in such a way that the interests of employees, investors, consumers and suppliers, and society as a whole are exploited to best advantage, both in the short-term and in the long-term.*

Companies fulfil a diversity of functions within society, they: provide products and services, supply goods/services to customers, they pay taxes, they offer employment …

Such activity demands perpetual adjustment to a number of external groups. Adjusting to the environment is but one aspect, another facet is the internal agreement that has to be reached between individuals themselves making use of the means available within the organisation.

The greatest responsibility for "leadership and organisation", and thus also for business engineering and management, is that of ensuring that both types of agreement are satisfied and that they remain in harmony with each other.

A company's immediate environment (the community, society) is like a co-operative union of people continually subjected to development and change; developments in technological, social, cultural and political areas. This is intensified by the fact that the immediate environment is also influenced by global changes. Within organisations, too, one may speak of there being a perpetual flux of change.

The implications of all of this is that day in, day out these adjustments demand complete and utter attention, in other words, they require management.

1.3.4 The concept "society"

"Society, that's you!" is the familiar slogan in a Dutch TV advertisement produced by SIRE (i.e. the Dutch Institute for Non-Commercial Advertising). In other words, we are all being addressed: society is US.

The Business Engineering and Administration Lexicon provides the following definition:

> *A society or community comprises the total sum of people living together in its entirety in which many forces and groups have a part to play and within which organisations also have a function.*

Society is a somewhat abstract denotation of something that we recognise as existing but which we find very difficult to define. Despite the fact that we are able to identify all kinds of groups and organisations within society and also point, with a degree of pride, to what we have managed to build up over the centuries, our description falters when we try to explain how society is made up and how it functions as something communal. Society is composed and controlled on our behalf, as though it were an entity. Simultaneously, though, we perceive around us a great diversity of groups and interests in which it is hard for us to find something communal, unless one's national team is playing football.

In conjunction with Business Engineering and Management, it is especially important for that same society to comprise a richly textured diversity of individuals, groupings, organisations and institutions - each with their "own" interests and demands - in an endeavour to forge an own sense of direction.

It is within that social context that businesses operate. In their capacity as goal-oriented organisations companies are involved, in many different ways, with society and its numerous groups. Companies need society to achieve their objectives and so they also place demands on society. But the community, individuals and groups concerned also place demands on companies. That confrontation gives rise to tension and becomes threatening and restricting, especially when there are opposing interests at stake. At the same time that same society also offers the companies possibilities and opportunities.

As a part of society, companies likewise have to adapt to what the social environment offers them in terms of limitations and possibilities. Simultaneously, businesses will sometimes also (in conjunction with their continuity or desire to grow) try to endeavour to influence the environment. Through marketing activity, for instance, attempts are sometimes made to expand a product or service's marketing area. Just think, for example, of the various lobbies in The Hague for companies like DAF, Fokker and Amsterdam Airport and issues such as the Betuwe rail connection and the Wadden Sea.

Companies do not, therefore, blindly conform to social developments: they also play a (greater or smaller) part in those very developments themselves.

1.3.5 The concept "entity"

In the previous section it was asserted that society is a rich tapestry of individuals, groups, organisations and institutions. All these "organisms" have their "own" interests and desires. To a certain extent they are, or at least they behave like living creatures.

What is characteristic of living creatures, of individuals, but also of groups and organisations is that they strive to:

- *maintain* their existence
- and also: the *development* of their being

Maintaining or continuing almost invariably leads to resistance to the changes or limitations imposed by the environment; the *external situation* in which one is placed.

The endeavour to develop is something which might be seen as an aspect of the individual abilities to want to expand or utilise. This points inwards, to what one as an individual or as an organisation can do and wants to do: *the internal situation*.

In business administrative literature companies, organisations and institutions are sometimes identified as entities within society. For the word "entity" the Collins Cobuild English Dictionary offers us the following definition:

> *An entity is something that exists separately from other things and has a clear identity of its own*

Van Dale's Dictionary defines the concept as:

> *Actual existence, something that is essential.*

The word "essential" refers, in turn, to the word "essence" which is applied to indicate living, or independent beings, viewed as living. Organisations, companies and so on, apparently display several characteristics which are also peculiar to living creatures: they create objectives and take action to realise those objectives, they develop, they display a certain type of behaviour, etc.

According to the system approach - to be discussed further in the next chapter - the word entity is sometimes also used as an indication for a basic element when considering a greater whole. One may see a company, for instance, as a conglomeration of interacting departments (entities or elements) such as: purchasing, production, sales, research, engineering, administration, personnel and organisation, the directorate, etc. A company can also be seen as an entity within, or basic element of, society.

In various chapters of this book this notion will be further considered.

1.4 An approach

1.4.1 What should be looked at, ... to achieve what?

In the field of business administration one looks to companies, to how they function in their environment, to how they function internally and to how the internal and external functioning are tuned to each other, or, harmonise.

But how can that be established or described? Can that be done objectively and unequivocally?

When we ask various people to describe a passenger car factory like NEDCAR Born (in the Netherlands), we get, for instance, the following answers:

- a producer of societally desirable goods
- a producer of environmentally polluting articles
- an instrument for generating profit for one's shares
- a saleable "object" that has a monetary value (when taken over)
- a construction and assembly floor
- a provider of employment
- a producer of tax revenue
- a "consumer" of tax revenue
- a place where all kinds of production processes take place
- a place with poor working conditions and a high level of absence due to illness
- a place where people can develop
- a place where people can earn money
- a user of raw materials, semi-manufactured articles, components and accessories

What is clearly apparent from these statements is that people evidently have very different associations when they think of car factories: for each of the people questioned that factory concept has a positively different meaning. This may be an indication that possibly very different observations are combined with very different interpretations of what one sees. It would seem to be, at the very least, plausible to assume that the people behind these utterances are involved with the factory from very different angles, they take different stands and are involved in different ways.

In and around companies it is possible to differentiate various groups of concerned parties, such as: employees with very different positions within the company, consumers and users of the products and services, suppliers of raw materials, power and equipment, those who provide capital, and authorities in their various capacities. Each of these groups expects something different from the company and has, indeed, different interests. Partly because of this, different things are considered.

What also has to be borne in mind is that there are observational differences between what one individual "sees" and what another sees because what we are able to observe and how we do that is very much determined (and particularly limited) by our personal development (upbringing, education, experience). In short, our observations are SELECTIVE. One can rightfully endorse the Dutch adage: "I can see, I can see what you can't see!" or, to put it another way: my reality is not your reality.

Important though it is, further expanding on this theme derived from the field of psychology and philosophy, remains beyond the scope of this introduction. The topic has, however, been briefly touched on here because:

- it makes it easier to understand that within organisations people often do have very different views about what should happen and about how things should be done. Co-operation is not automatic!
- it makes it easier to understand that amassing "knowledge" on the functioning of the object of study known as "business" requires quite some agreement, as far as

gaining insight into the various academic disciplines is concerned since they too are selective in the way they approach organisations, both regarding what they look at and how they look at it.

Examining organisations from a certain angle is in one way necessary because we have no other way of doing this. It is, however, dangerous to want to change the way organisations function when problems arise on the basis of a limited and especially one-sided view of things. This is something that we want to avoid as much as possible in this book.

This can be avoided by endeavouring in one's approach to keep one's eyes firmly fixed on establishing a balanced view of:
- the organisation <u>and</u> the environment
- the organisation <u>and</u> the individual
- the various parties involved, position-wise and interests-wise
- the processes (what) and the people who contribute (how, with what)
- all aspects: technical, economic, social ...

Taking an as broad as possible view sounds very pretentious. After all, who possesses all the necessary knowledge and is able to integrate that in practice <u>and</u> do that in a "balanced" way?

This book, *Fundamentals of Business Engineering and Management; a Systems Approach to People and Organisations*, primarily aims to acquaint the reader with the way in which, step by step, more insight can be gained into the functioning of organisations and into the questions which thereby arise. In the next section more details will be given of the approach taken in this book.

1.4.2 Angles of approach

In the previous section it was suggested that different individuals have very different views of the phenomenon "company". It was also noted that every academic discipline has its own selective view of things: one looks through specific lenses at specific phenomena and makes connections in a certain way.

Here are a few examples:

Economics examines economic dealings at macro, meso and micro levels, the central concepts being scarcity and usefulness. The most important concepts as far as Business Engineering and Management is concerned are: costs/benefits, productivity, efficiency, investment results and the behaviour of the markets (labour, capital, raw materials and information).

With *Technology* it is especially the way in which scientific knowledge is applied that is particularly revealed in the way in which production processes are established for goods or services that is important: in the product development, process development and technology of creating something.