Business Cooperation

From Theory to Practice

Nieves Arranz Peña and Juan Carlos Fernández de Arroyabe
Business Cooperation
This page intentionally left blank
Business Cooperation
From Theory to Practice

Nieves Arranz Peña
Professor of Economics
Universidad Nacional de Educación a Distancia (UNED), Madrid, Spain

and

Juan Carlos Fernández de Arroyabe
Professor of Economics
Escuela Superior de Gestión Comercial y Marketing (ESIC), Madrid, Spain
To Marta, Carlos and Ignacio
(our best products of cooperation)
This page intentionally left blank
# Contents

*List of Figures*  
xix

*List of Tables*  
xi

*Acknowledgements*  
xiii

## Introduction  

1 **An Economic View of Cooperation**  
   The company in the economy  
   Transaction costs: a theoretical approach  
   Contractual transaction structures: different types and main characteristics  
   Company and market frontiers  
   Company cooperation  

2 **The Decision to Cooperate: A Strategic Decision**  
   Introduction: company strategy and competitive advantage  
   Strategic decisions and company growth  
   Cooperation between companies  

3 **Organizational Forms of Company Cooperation**  
   Introduction  
   A theoretical view of organization  
   Features of company environments  
   Organizational forms of cooperation  
   From company cooperation to company association: clusters  

4 **Cooperation in Game Theory**  
   Introduction  
   Basic aspects of game theory  
   Cooperation between economic agents  

5 **Deciding on, Negotiating and Structuring Cooperation**  
   The decision to cooperate  
   The negotiating process and the agreement  
   The cooperative agreement: a dilemma between conflict and cooperation
### Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solutions for a cooperative game: the need to structure cooperation</td>
<td>85</td>
</tr>
<tr>
<td>Synthesis of organizational design for cooperation</td>
<td>87</td>
</tr>
<tr>
<td>Consistency and stability in cooperation agreements</td>
<td>89</td>
</tr>
<tr>
<td>The cooperation process in practice</td>
<td>91</td>
</tr>
<tr>
<td><strong>6 International Company Cooperation</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>The internationalization phenomenon</td>
<td>100</td>
</tr>
<tr>
<td>The internationalization of the company</td>
<td>101</td>
</tr>
<tr>
<td>Reasons for internationalization</td>
<td>102</td>
</tr>
<tr>
<td>Obstacles to internationalization</td>
<td>103</td>
</tr>
<tr>
<td>Stages in the internationalization process</td>
<td>104</td>
</tr>
<tr>
<td>International cooperation</td>
<td>107</td>
</tr>
<tr>
<td>Empirical evidence from the experiences of small and medium-sized companies</td>
<td>110</td>
</tr>
<tr>
<td><strong>7 Technological Cooperation between Companies</strong></td>
<td><strong>132</strong></td>
</tr>
<tr>
<td>Economics, technology and technological change</td>
<td>132</td>
</tr>
<tr>
<td>Technology as a competitive factor for companies</td>
<td>133</td>
</tr>
<tr>
<td>Economic features of technology and its influence on transaction costs</td>
<td>135</td>
</tr>
<tr>
<td>Cooperation as an instrument for reducing transaction costs</td>
<td>137</td>
</tr>
<tr>
<td>Technology transfer and cooperation as inherent elements in the process</td>
<td>139</td>
</tr>
<tr>
<td>Technological development: the process of technological innovation</td>
<td>144</td>
</tr>
<tr>
<td>National innovation systems as means of interaction and cooperation</td>
<td>148</td>
</tr>
</tbody>
</table>

**Notes** 153

**Bibliography** 167

**Index** 179
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Relationship between asset specificity and transaction and production cost</td>
<td>17</td>
</tr>
<tr>
<td>1.2</td>
<td>Governance cost as a function of asset specificity</td>
<td>19</td>
</tr>
<tr>
<td>1.3</td>
<td>Variables characterizing cooperation</td>
<td>23</td>
</tr>
<tr>
<td>1.4</td>
<td>Classification of forms of cooperation</td>
<td>23</td>
</tr>
<tr>
<td>2.1</td>
<td>The value chain</td>
<td>28</td>
</tr>
<tr>
<td>2.2</td>
<td>Desired characteristics of the firm’s resources and capabilities</td>
<td>30</td>
</tr>
<tr>
<td>2.3</td>
<td>External growth vectors and related involvement</td>
<td>34</td>
</tr>
<tr>
<td>3.1</td>
<td>Radius and axis networks</td>
<td>52</td>
</tr>
<tr>
<td>3.2</td>
<td>Nodal link networks</td>
<td>53</td>
</tr>
<tr>
<td>3.3</td>
<td>‘Ad hoc’ networks</td>
<td>53</td>
</tr>
<tr>
<td>3.4</td>
<td>Networks of regional networks</td>
<td>53</td>
</tr>
<tr>
<td>4.1</td>
<td>Prisoners’ payoff matrix</td>
<td>59</td>
</tr>
<tr>
<td>4.2</td>
<td>Payoff matrix of pollution game</td>
<td>60</td>
</tr>
<tr>
<td>4.3</td>
<td>The frontier of utility possibilities</td>
<td>62</td>
</tr>
<tr>
<td>4.4</td>
<td>The frontier of negotiation possibilities</td>
<td>64</td>
</tr>
<tr>
<td>4.5</td>
<td>The negotiator’s dilemma</td>
<td>65</td>
</tr>
<tr>
<td>4.6</td>
<td>Price function regulation</td>
<td>69</td>
</tr>
<tr>
<td>4.7</td>
<td>Core of the cooperative game</td>
<td>73</td>
</tr>
<tr>
<td>5.1</td>
<td>Payoff matrix of the two companies</td>
<td>83</td>
</tr>
<tr>
<td>5.2</td>
<td>Decision model</td>
<td>85</td>
</tr>
<tr>
<td>6.1</td>
<td>Progressive internationalization</td>
<td>105</td>
</tr>
<tr>
<td>6.2</td>
<td>Strategic aims of internationalization (REASONS)</td>
<td>115</td>
</tr>
<tr>
<td>6.3</td>
<td>Cluster of strategic positions</td>
<td>117</td>
</tr>
<tr>
<td>6.4</td>
<td>Average profiles of cluster</td>
<td>117</td>
</tr>
<tr>
<td>6.5</td>
<td>Degree of involvement and formalization in international relations (FORM)</td>
<td>118</td>
</tr>
<tr>
<td>6.6</td>
<td>Obstacles in carrying out international activities (OBSTAC)</td>
<td>119</td>
</tr>
<tr>
<td>6.7</td>
<td>International activities (ACINTER)</td>
<td>120</td>
</tr>
<tr>
<td>6.8</td>
<td>The most conflictive aspect of negotiation (DIFICIL)</td>
<td>125</td>
</tr>
<tr>
<td>6.9</td>
<td>Hierarchical analysis of distances (DIFICIL)</td>
<td>125</td>
</tr>
<tr>
<td>6.10</td>
<td>Difficulties in the functioning of the agreement (DIFICUL)</td>
<td>126</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>6.11</td>
<td>Hierarchical analysis of distances (DIFICUL)</td>
<td>127</td>
</tr>
<tr>
<td>6.12</td>
<td>Causes of the agreement’s failure (FRACASO)</td>
<td>129</td>
</tr>
<tr>
<td>6.13</td>
<td>Hierarchical analysis of distances (FRACASO)</td>
<td>129</td>
</tr>
<tr>
<td>7.1</td>
<td>Scheme of interface model</td>
<td>151</td>
</tr>
</tbody>
</table>
List of Tables

I.1 Theoretical approaches to inter-organizational relations 5
1.1 Resource allocation mechanisms 14
2.1 Factors in obtaining competitive advantages 29
3.1 New organizational trends 47
4.1 The price of raw materials in different purchase combinations 70
4.2 Characteristic functions for each case 71
4.3 Company contributions to diverse coalitions 72
4.4 Average contributions 72
5.1 Factors to consider in negotiating cooperation 79
5.2 The uncertainty/ambiguity matrix 84
6.1 Reasons for internationalization 102
6.2 Types of agreement 108
6.3 Results of factorial analysis (REASONS) 115
6.4 Factorial analysis results (OBSTAC) 119
6.5 Factorial analysis results (ACINTER) 121
6.6 Factorial analysis results (ACINTER 7/ FORM) 123
7.1 Factors in competitiveness 135
7.2 Activities involved in technological transfer 139
This page intentionally left blank
Acknowledgements

The authors and publishers wish to thank the following for permission to reproduce some tables and figures contained in this volume.


Figure 1.1. ‘Relationship between asset specificity and transaction and production cost’, Copyright ©1984, by The Regents of the University of Cornell. Reprinted from the *Administrative Science Quarterly*, vol. 29, No. 2. By permission of *Administrative Science Quarterly*.

Figure 1.2. ‘Governance cost as a function of asset specificity’, Copyright ©1991, by The Regents of the University of Cornell. Reprinted from the *Administrative Science Quarterly*, vol. 36, No. 2. By permission of *Administrative Science Quarterly*.

Figure 2.2. ‘Desired characteristics of the firm’s resources and capabilities’. Reprinted from *Strategic Management Journal*, vol. 14, R. Amit and P. Shoemaker, ‘Strategic Assets and Organizational Rent’, p. 38, Copyright (1993) John Wiley & Sons Limited, with permission from Wiley Interscience.

Figure 1.6. ‘La internacionalización progresiva’. Reprinted from *Estrategia Internacional*, p. 73, J. C. Jarillo and J. Martínez Echezarraga, Copyright
(1991) with permission from McGraw-Hill/Interamericana de España, SAU.

Text on p. 110. ‘Empirical evidence from the experiences of small and medium-sized companies’, Reprinted from Papeles de Economía Española, no. 89/90.

We are grateful to the Escuela Superior de Gestión Comercial y Marketing (ESIC) for their facilities to publish this book.

Last but not least we should like to thank Caitlin Cornish for her editorial assistance, and Keith Povey and Elaine Towns for correcting and preparing the final typescript.
Introduction

This book examines the phenomenon of business cooperation. Company cooperation, in its generic conception and in its different manifestations, did not arouse great interest as a subject of study by schools of economic thought before the 1970s. Since then, however, increasing attention to the phenomenon has been encouraged by the spectacular development and prominence acquired during the 1980s and 1990s. Different forms of cooperation proliferated over this period, establishing itself as a new form of company behaviour in the face of an increasingly global economic environment.

Nevertheless, even if it is true that abundant contributions to the literature exist with respect to cooperation from different analytic viewpoints – especially from the beginning of the 1990s – the reality is that there have been scarcely any works that integrate the complex reality this concept involves. This is because of, among other things, the profusion of organizational forms to which cooperation can give rise, the different theoretical approaches from which its study can be tackled, and the varied terminology by which it is described.

Agreements, alliances, coalitions, pacts, associations and so on are all terms that are used indistinctly in economics literature to emphasize the existence of privileged relations between companies.

General view of business cooperation

Cooperation and agreements between companies are not recent phenomena. Marshall (1997) carried out research with the aim of denouncing abusive conduct by companies wishing to restrict competition, as well as establishing behavioural models that would enable the situation of all participants to be improved.
The subject was studied from a collusive behaviour perspective in a context of imperfect competition. The word ‘agreement’ used to conjure up pejorative connotations, since it was understood that ‘agreements’ were concluded exclusively to restrict competition. The term was synonymous with sharing the market, common price fixing or joint control of distribution channels. This is the reasoning that has prevailed traditionally in industrial economy schools of thought, where cooperation agreements, of both horizontal and vertical types, were analysed as being coordination strategies that were damaging for third parties and did not produce a social optimum.

Coase (1972), meanwhile, approaches the subject of cooperation from an analysis of internationalization, emphasizing the role of transaction costs and contractual relations between related companies. He describes cooperation as an integration of an organisational and contractual nature that enables companies to avoid the market price formation mechanism. Increased cooperative relations between companies favours the appearance of the visible hand of management (Okun, 1981), replacing the invisible hand which, according to Smith (1950), intervenes in the price mechanism.

Cooperation can also be studied from the game theory point of view (Perroux, 1982). These types of agreement are equivalent to a non-zero-sum game, where there are no players with compensating gains and losses, but only players obtaining higher gains than those that would be accrued in the event of each acting individually.

Mariti and Smiley (1983), for their part, point out that a company cooperation agreement should be clear and explicit, agreed over a long period of time between two or more companies, and may or may not include financial remuneration. According to this definition, the relationship should be prolonged and not involve sporadic acts of a merely circumstantial nature.

A similar theoretical proposal is presented by Chesnais (1988), who understands cooperation agreements between companies to be all types of official or unofficial agreements coordinated by two or more companies to establish a certain degree of collaboration between them, and which include capital holdings or the creation of new companies, as well as agreements without any capital holdings. This definition sets out the forms these agreements may adopt, with capital holdings and the creation of companies being included among these.

This same line is expressed by Porter and Fuller (1986) when they say that a cooperation agreement is a formal, long-term alliance between companies that unites certain aspects of their activities, but which do
not result in a merger. These include joint ventures, agreements regarding operating licences, bids and marketing, and other types of agreement. They do not include acquisitions and mergers, as here the companies pool all their capacity and cease to act separately, thereby converting themselves into single economic agent. As with Mariti and Smiley, these authors emphasise the time factor, considering that all alliances may have to last in order that all their economic possibilities may be exploited.

According to Gulati (1998), cooperation can be analysed strategically from two points of view: through the sequence of circumstances that led to the agreement (the decision to reach an agreement, choosing a suitable partner, choosing a structural form for the agreement, and the dynamic evolution as the relationship develops over time). The second point is related to the consequences of the agreement, the functioning of relations between partners and the functioning of the companies participating in the agreement. Gulati and other authors indicate that cooperation has become one of the most important subjects in the literature on company organization and strategy.

How to approach the study of cooperation agreements between companies

As an initial hypothesis, a theoretical approach to the study of cooperation agreements between companies can be formulated by considering the latter as a particular example of relations between organizations. From a theoretical point of view, relations between organizations have been the object of study and analysis by researchers from different disciplines (marketing, the theory of the organization, the economy of organizations, strategic management and so on), something that has resulted in many interpretations and has been demonstrated by, among others, Mandell (1989), Oliver (1990) and Auster (1994).

Independently of their content, Whetten (1981) identifies different levels of inter-organizational relations analysis: on a dyadic level; as an organization set; as an action set; and as a network. We shall mention briefly the most relevant features and aspects of each of these levels.

The transactional relationship is analysed on a dyadic level, emphasizing the possible inter-relations between two parties. Johanson and Mattson (1987) define the relationship’s contents around four factors:

(i) A predisposition to act – or not to act – jointly, whether it be by sharing a good (generating economies of scale) or through the exploitation of complementary factors between participating agents.
(ii) Inter-agency dependency, resulting from the joint action of different organizations (Milgrom and Roberts, 1992).

(iii) Organization of the link, which is in some respects a measure of the bond between the interacting parties. According to Aldrich (1979), the features that the latter might display can be limited to four: formalization, intensity, reciprocity and standardization.

(iv) Investment made by the parties, which will determine future commitment to the relationship, and which normally takes the form of people and time. Iacobucci and Ostrom (1996) have identified several types of investment in this area: symmetrical, asymmetrical, competitive or hostile, company or work investment and so on.

A decisive element in the dyad is reciprocal influence, the principal phenomenon studied by this model being negotiation, balance of power and sources of conflict between the parties. This approach is closely related to social psychology (Arndt, 1979) and the game theory (Moulin, 1995).

The organization set level refers to the group of inter-organizational links established by an organisation with all those with whom it maintains relations. It should be taken into account that an organization set is grouped around a focal or central organization. This analysis examines the dyadic links between the focal organization and the interacting organizations. Interacting organizations are, however, unaware of these links.

The action set is a group of organizations that interact in order to achieve a determined objective. There is an underlying time factor in the action set, the agreement being established for a determined and limited objective, usually because of the impossibility of the objective being achieved by a single organization. In the case of the action set, analysis is centred on examining the behaviour of organizations caused by the objective in question (Aldrich and Whetten, 1981), rather than the inter-organizational relationship itself.

To achieve the established aim, the action set requires the existence of coordinated behaviour between organizations, it thus being necessary to determine:

(i) The number of organizations that will form part of the action-set;
(ii) The scope of power exercised by the organization assuming the role of leader;
(iii) The similarity of members’ values and attitudes; and
(iv) The effect of the behaviour of other action sets.

Finally, the network level refers to a group of organizations, normally a large group, connected by a certain type of relationship (Jay, 1964;
The network is built upon existing links between organizations in a locality.

One of the most significant aspects of networks is the existence of direct and indirect relations. It should be recognized that the analysis of a network is complicated, and from an overall perspective, there exists only a single network, since it will always be possible to link two economic actors, however tenuously. The problem lies, therefore, in establishing certain limits that must necessarily be arbitrary. According to Easton and Hakansson (1996) the criteria to follow in establishing these limits should enable them to be defined in the light of the research’s objectives.

Table I.1 summarizes the main theoretical approaches in the study of inter-organizational relations, what the research subjects are, and what

<table>
<thead>
<tr>
<th>Theory</th>
<th>Analysis level</th>
<th>Authors’ reference</th>
<th>Main aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional theory</td>
<td>Dyadic network</td>
<td>Dimaggio and Powell (1983)</td>
<td>To obtain legitimacy and acceptance</td>
</tr>
<tr>
<td>Resources theory</td>
<td>Dyadic</td>
<td>Mahoney and Pandian (1992) Barney (1991)</td>
<td>To search for resources and capacities</td>
</tr>
</tbody>
</table>
the different authors and the level of analysis for the relations concentrate upon.

**Cooperation relations**

The existence of some cooperative component (Welch and Joynt, 1987) is a common feature of a good many relationships proposed between organizations. Cooperation relationships, following the game theory (Moulin, 1995), are based on the existence of an incentive for two or more organizations to act jointly — as opposed to individual action — seeking the necessary complementariness, reducing risk or generating economies of scale.

From the transaction costs point of view, cooperation can be explained as an contractual or organizational form intermediate between the market and the company (Imai and Itami, 1984), or as a form of relationship that lies in the continuum between discreet transactions and relational exchange, suggested by the theory of relational contracting (McNeil, 1980).

Schemas of cooperation between companies therefore lie midway between pure market transactions and mergers or acquisitions of one company by another. We may only talk of cooperation if the companies participating in the agreement maintain their independent governing bodies and their autonomous decision-making capacity, even if this autonomy is restricted by commitments undertaken with other partners in the agreement.

The main difficulties posed by cooperation relations analysis centre, in the first place, on defining the concept of cooperation, since no single theoretical reference exists from which to approach its study and analysis, because these types of agreement involve many factors and, consequently, different approaches (a review can be seen in Auster, 1994).

A second difficulty becomes evident when it comes to defining the cooperation agreement. It proves difficult to define the limits between what constitutes the internal environment of a company and the market environment (Milgrom and Roberts, 1992; Williamson, 1999). Furthermore, once the two have been demarcated, the complexity resulting from the amplitude of the ‘intermediate form’ concept defined by Imai and Itami (1984) when referring to cooperation agreements means that they are very indeterminate.

To approach the issue initially, we could define cooperation as a formal agreement between companies, or between companies and organizations of different types that share display three features:
(i) They are related to their productive activity;
(ii) They are intended to alter positioning in the market or to open up markets; and
(iii) Authority and decision-making are shared, decisions being adopted without referring to hierarchical means of coordination.

Cooperation between legally independent companies involves a stable, long-term bond to exploit a specific market opportunity, each company being responsible for individual duties and all of them responsible for reaching the joint objective. It therefore involves a reciprocal, limited and progressive commitment between two or more partners to improve their respective performances and to acquire a competitive advantage in the market:

- **Reciprocal commitment**: the partners consider real interests (quantitative or qualitative) in cooperation.
- **Limited**: the partners develop common objectives through cooperation, but they preserve their independence in their own individual activities.
- **Progressive**: the partners learn to get to know one another through carrying out joint activities. As opposed to a merger or a takeover, cooperation gives partners time to evaluate each other mutually.
- **Reversible**: partners can dissolve the cooperation agreement if the results obtained are not satisfactory.

These features will be accentuated more or less according to the nature of the cooperation agreement. With regard to the goals, cooperation agreements may aim to pool financial, human or technological resources with a precise objective in mind and with a predetermined validity, or to be prolonged with no foreseeable cancellation. They might materialize into the creation of independent organizations, into the establishment of stable connections, or simply consist in the exchange of services or people, in order to establish a relationship between the participants that is capable of making company frontiers permeable, at least with respect to the aim of the agreement.

In this book, the words ‘business cooperation’ or ‘enterprise cooperation’ are used to indicate any kind of agreement reached either between direct competitors – which some authors call a ‘strategic alliance’, or with suppliers, or distributors, or with any other company with whom, in principle, there is no relationship at all. The aim, in all cases, is to carry out a common business project.
Structure of the book

The book consists of three parts, arising from these aims:

(a) To introduce a general view of the phenomenon of business cooperation from the different theoretical approaches through which it can be studied;

(b) To comment on the most important aspects regarding the organizational design of cooperation; and

(c) To analyse the principal cases in which cooperation has great relevance.

The first part presents the theoretical approaches of business cooperation from distinct points of view:

(i) The economic approach, with reference to cooperation as an alternative to the company and to the market in order to reduce transaction costs.

(ii) The strategic point of view, as an opportunity for business development and improvement in competitiveness, bearing in mind the challenges posed by the environment.

(iii) The organizational point of view, as a business response to contingent factors.

(iv) The game theory approach, analysing the circumstances in which negotiation among economic agents takes place.

In the second part, we study a number of questions related to the analysis of the organizational design of cooperation: the decision process, negotiating, and the structuring of cooperation. We also include methodology to serve as the starting point for preparing a cooperation agreement. This would be an extremely useful tool for organizations considering the pros and cons of carrying out cooperation projects with other companies.

The final part analyses the principal cases in which cooperation has great relevance. Chapter 6 examines the role of cooperation in the internationalization of firms and presents small and medium-sized enterprises’ experiences, while the last chapter explores key aspects of cooperation in technological environments.
1

An Economic View of Cooperation

The company in the economy

In neoclassical thought, considered to be the continuing trend for economic liberalism, the company is defined by what Marshall (1997) calls ‘the representative firm’, basing theoretical explanations of its functioning on four hypotheses:

(i) That the aim of the company is to maximize profits;
(ii) There is rationality in decision-making, with those making the decisions having unlimited information and being aware of different situations;
(iii) The company function consists of transforming resources (input) into products (output); and
(iv) The environments in which company activities are carried out is known and unchanging.

The neoclassical model analyses what Cyert and March (1975) call ‘a company without problems’, where organization creates no difficulties, there is no budget control, procedures are standard, and so on, and the field of application is confined to studying price and the quantities to be produced. This analysis ignores two basic circumstances when it comes to explaining its functioning, however: internal complexity, and the company’s environment, in addition to the reasons explaining the existence of the firm.

The company acts in a changing environment that is caused, among other things, by the potential reaction of competitors, changes in customer tastes, technological evolution, costs and rate of growth in demand. Management has the opportunity to make different decisions and
Business Cooperation

maintain active behaviour, since it is able to define a strategy (growing or diversifying, for example) and to influence its environment through this. In this context, profit maximization should be interpreted dynamically, where the company’s management chooses between alternatives, in accordance with the degree of aversion to risk. This choice is made in the presence of uncertainty, since not all of the alternatives – nor their results – are known beforehand, only the probable outcome. We are dealing, then, with decision-makers with limited rationality.3

Two lines of argument traditionally explain the company’s justification. The first position considers that the company is an organization, or rather a series of consciously coordinated activities that operate in situations of uncertainty or partial information (and therefore with limited rationality), whose aim to achieve a particular goal – namely, maximization of the company’s value in the market-place. Kaldor (1934) indicates that the appearance of the company is linked to specialization of work and the existence of economies of scale in the light of the indivisibility of certain factors.4 Adam Smith first argued along these lines when he stated that the organized division of work led to improved performance, facilitating specialization, skills and the overcoming of idle time, thereby making product improvements possible.5

The weakness of analysis focusing on economies of scale and work specialization, however, lies in the fact that only a small number of company activities are organized on this basis; in most cases, production activities may be split over multi-plants or multi-products, so that this point alone would not explain the existence of companies, and even less their development. This is why the work of Alchian and Demsetz (1972) indicates that productive equipment is the crucial variable in analysing a company.6 Both points of view consider technical or productive equipment as an argument for the existence of the company.

A second theory about why the existence of a company is linked to market imperfections, or rather the fact that the use of the market involves certain costs, the transaction costs.7 These costs refer to resources consumed in the process of regulating the conditions in which the transformation takes place prior to the resulting exchange of economic goods and services.

Transaction costs are associated with both the mechanism chosen to regulate exchanges and, in the last resort, with the allocation of resources. It is important to point out that transaction costs differ from production costs in that the latter are determined by productive technology and the structure of resources used, whereas the former depend on the level of information possessed and on the nature of the assets exchanged.
The economist, Ronald Coase (1937), was a pioneer in the study of transaction cost, stating that, in the framework of the market economy and through the initiative of private agents, formulas for collective action arise. The companies replace the market in their organizational and allocation functions when high transaction costs are incurred in carrying them out. For Coase, the market is still the regulatory mechanism for relations between companies, but within these, and within their scope of influence, businesses have the capacity to decide what is done and how.

Coase’s theory does not specify, however, what circumstances should arise in the exchange to cause the company or the market to be the most suitable organizational form. Arrow (1969) and, above all, Williamson (1975) carried out a deeper analysis of transactions costs resulting from market use, their contributions being fundamental to the establishment of studies on the theory of transaction costs.

**Transaction costs: a theoretical approach**

The theory of transaction costs is the part of economics devoted to the study of contractual efficiency. This theory analyses the comparative costs of planning, adapting and supervizing economic activities by using alternative resource organization/allocation mechanisms, with the aim of avoiding or harmonizing possible conflicts of interest between intervening agents. Williamson (1985) distinguishes between *ex ante* and *ex post* costs in his study. The former include costs involved in drafting, negotiating and safeguarding the agreement, whereas the latter include the costs of changing plans, of renegotiating terms with respect to those agreed when signing the contract, of creating and maintaining proceedings for resolving disagreements, and of ensuring that the parties comply with the obligations assumed.

Transaction costs occur because both the organization of production (within the company) and the organization of exchange (in the market) take place in different conditions from those that are implicit in the neoclassical economic model used to describe how markets function. Economic agents are therefore subject to limited rationality (restrictions in their capacity to make predictions, to determine eventualities and to evaluate them correctly so as to accurately assess price and other exchange conditions), thereby causing hypotheses regarding their behaviour to attribute them with selfish and opportunist conduct (aimed at maximizing their individual welfare), deriving from the non-verifiable nature of certain information and the incomplete condition of some contracts.
Economic transactions: the main features

Even if the natural features of economic agents represent restrictions to contracting, transactions and the environment also influence the results of different types of contracts. Williamson (1985) defines three features that transactions have to consider in drawing up contracts: uncertainty; the specificity of the assets exchanged; and the frequency with which these transactions occur.

**Uncertainty** refers to volatile environment conditions, to lack of information, and its asymmetrical distribution between participants with respect to variables or relevant factors in the exchange’s eventual success. A consequence of this is that participants are forced to engage in negotiating processes that involve costs arising from delays in reaching and fulfilling agreements, or even from the agreement and subsequent exchange not taking place.

The sale of a product in a foreign market, for example, generates a great deal of uncertainty in the light of the lack of relevant knowledge (the culture and consumer tastes, the reactions of competitors, commercial and advertising approaches and so on). It forces companies to explore the area in question before entering a foreign market, to seek local intermediaries, complementary information and so on, which naturally involves certain costs. This is why companies, when they are faced with uncertainty, generally opt for approaching the market through ‘experimental exports’, which enable reactions to be gauged before the product is placed on the market.

**The specificity of assets** is another important factor to take into account in contracts. Greater specificity generally is linked to the condition of non-verifiableness of information with relation to the quantity and quality of the investment. It should also be taken into account that the value of an investment in very specific assets is less for alternative uses than for those cases corresponding to the specific function for which they were originally designed.

Three types of specificity can generally be distinguished: *location* (when, for example, the value of goods exchanged depends on the geographical proximity of the exchange); *physical factors* (these arise, for example, when a company supplying another with goods has to use very specialized machines and/or tools to produce the object of the supply); and *knowledge*, which is normally a result of investment in human capital.

The need to acquire goods with very specific features for a particular productive process, for example, involves high costs, since it is necessary to look for suppliers, to embark on a negotiating process to ensure supply conditions are satisfied and, above all, to ensure the quality of the product.
This is why, in order to minimize part of these costs, there has been a proliferation in the number of certificates issued (for example ISO 9000) and standards organizations that, among other aims, enable companies to avoid high costs in seeking and subsequently verifying high-quality products. The existence of quality regulations and certificates reduces transaction costs resulting from specificity.

*Frequency*, the third feature to be considered in contracting, refers to the periodicity with which transactions occur. Behaviour between the parties performing the contract will be determined by short-term or specific interests (if frequency is low) or, alternatively, there will be an interest in controlling exchanges in detail, so that they are carried out smoothly if they are going to be of a frequent nature in the long term.

The theory of transaction costs, in short, suggests that both the human factor (economic agents, that is) and the actual nature of transactions – with respect to the goods transferred and the environments in which they are performed – is determined by cost. With the aim of minimizing the latter in different circumstances, control of exchanges is postulated by means of developing agreements between the agents intervening in the transactions. These materialize into contracts (in Williamson’s terminology) or contractual structures, minimum cost being the guiding criterion towards the different types of contract.

**Contractual transaction structures: different types and main characteristics**

Although the variety of resulting contractual forms or structures is very wide, the first classification proposed by Williamson links a type of transaction with a type of contract. He therefore distinguishes between classical contracts, neoclassical contracts and relational contracts.

The *classical contract*, or market contract, is a simple, flexible commitment, established in writing or verbally, and in which the exchange conditions are defined clearly. This type of contract is normally applied in transactions where non-specialized assets are exchanged, either frequently or occasionally, since the nature of the asset enables the source to be replaced easily. The classical contract is generally used in situations where transaction costs are small.

The *neoclassical contract* arises when the parties are going to carry out infrequent transactions, but ones which involve some asset specialization and which avoid exhaustive enumeration of exchange conditions by introducing arbitration mechanisms or the intervention of experts to solve any conflicts that arise. This type of contract therefore allows
greater flexibility in relationships, since there is an interest on both sides to carry out the transaction successfully.

Finally, the relational contract arises when the transactions to be carried out require specialized investment and occur quite frequently. The contract conditions are listed in detail here because the cost in time and effort is compensated by the large number of transactions to be made, and because a continuous, lasting relationship is desired. Williamson distinguishes, in turn, between relational contracts controlled bilaterally and contracts with one management unit including both parties. The choice between one type of contract or another depends on the asset specialization exchanged. When the specialization is great, a unified management ensures joint maximization, and while its maintenance naturally means specific costs, the existence of a unified structure does, nevertheless, enable contracts to survive in many cases.

A second classification proposed by Imai and Imai (1984) states that transactions may either occur between autonomous organizational units – controlled by the market – or within one economic unit, controlled by the company or the organization. They point out that in between the market’s natural allocation of resources and the organization there exist a series of intermediate forms, as shown in Table 1.1.

The way in which decisions are taken by agents participating in the relationship is considered in column 1 (the y-axis), the initial decisions thereby being made:

A1: By responding to external signals issued by the market, such as prices, and by maximizing individual interest.

A2: By seeking joint optimization and by responding to orders and rules established by a common authority. This is the case, for example, of a transaction within an organization.

<table>
<thead>
<tr>
<th>Interrelationship</th>
<th>B1</th>
<th>B1 + B2</th>
<th>B2</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Pure market</td>
<td>Market that functions as an organization</td>
<td>–</td>
</tr>
<tr>
<td>A1 + A2</td>
<td>Market that functions as an organization</td>
<td>Intermediate organization</td>
<td>Organization with market elements</td>
</tr>
<tr>
<td>A2</td>
<td>–</td>
<td>Organization with market elements</td>
<td>Pure organization</td>
</tr>
</tbody>
</table>

*Table 1.1 Resource allocation mechanisms*

*Source: Imai and Itami (1984).*
The headings (the x-axis), on the other hand, consider the inter-relationships that may be established between agents carrying out the transaction:

B1: With no inter-relationship, freedom of entry and exit thereby exists; this corresponds to the pure market model.
B2: With a fixed, continuous relationship, probably hierarchical and typical of a structured organization.

We can therefore say that the pure market as a mechanism for allocating resources occurs when individual utility is maximized by access to information provided by prices, and when freedom of entry and exit exists. The pure organization exists when there is a management authority concerned with joint optimization, and fixed and continuous relationships are established. The dominance of the role of transaction and resource allocation principles is clear in these cases.

Between these two extremes, however, we can also encounter transactions that take place under the organization’s control and that introduce natural market principles, such as when internal units must respond to signals transmitted by market prices in the form of decision-making \{(A1 + A2), B2\}; or when they are subject to the authority of external units \{A2, (B1 + B2)\}.\textsuperscript{16}

At other times, internal organization principles are introduced in the market domain, either by the existence of authority relationships that attenuate individual optimization \{(A1 + A2), B1\}, or by the existence of coordinated actions between companies operating in this market \{A1, (B1 + B2)\}.

\{(A1 + A2), B1 + B2\} type situations also occur on occasion, which Imai and Itami call ‘intermediate organization’, and which do not involve market or organization control. Neither (A1 + B2) nor (A2 + B1) are viable mechanisms in that they involve recourse to totally contradictory principles in the same resource allocation mechanism.

A great variety of possible intermediate situations exist, then, between the pure market and the pure organization that can lead to greater efficiency in the objective of reducing costs deriving from transactions.

**Company and market frontiers**

Even though the above explanations have shown the distinction between the company and the market, this frontier is in reality less clear than it might appear initially. The company and the market, as alternative mechanisms for controlling transactions, compete for the control of the
latter and, as we have seen, the decision to control a transaction by one mechanism or another is guided by efficiency criteria, thereby making it necessary to determine what the transaction costs are in both cases.

Market transaction costs are easily identified when it is considered that the main sources of costs (information, negotiation and guarantees) are relevant when any of the institutional hypotheses that are characteristic of a competitive market are not fulfilled. These hypotheses are the price transparency, the efficiency – or price identity for all participants – and the acceptance of prices as information, by both companies and consumers.

Company transaction costs are less obvious, but generally include communications costs involved in transmitting information across the hierarchy, costs deriving from exercising authority (as opposed to negotiation), and costs of delegating authority.

There are two different approaches in this field for analysing internal company organization:

(i) Where the main feature is the presence of a hierarchy and authority for transmitting instructions and objectives, as well as for drawing up plans for coordinating and guiding the actions of organization members. The market is still the controlling mechanism in this case for relations between companies, but within this framework is the businessperson’s power and capacity to decide what is to be done, and how. This analysis is reflected in the organizational structure of a company, which is linked to the demands of productive processes, specialization and technological features, and production equipment.

(ii) This approach considers the company as a series of individualized contracts between economic agents. What distinguishes the company for Alchian and Demsetz (1972) is the existence of a centralized contractual body (to carry out a productive process), where the multilateral contract is replaced by bilateral contracts between the central agent and each of the input owners. In the same sense, Jensen and Meckling (1976) see the company as legal fiction used as the nexus for a series of contractual relationships between individuals. The company, from this point of view, replaces multilateral contracting by the market with a series of bilateral contracts in which the former is the common bond, its organizational structure being designed as a system for reducing transaction costs.

A company’s size and development, according to the latter approach, is explained by the costs of internalizing a new transaction, and how
they compare with transaction costs derived from carrying it out on the market. With regard to this point, Walker and Weber (1984) state that the company, taking the asset specificity into account, compares administrative expenses involved in setting up an internal production system with the transaction costs involved in acquiring it on the market. When both these factors are considered, it can be seen from Figure 1.1 that, from a certain level of asset specificity (indicated by point S), internalizing the activity is preferable.

**Figure 1.1** Relationship between asset specificity and transaction and production cost

*Notes:* $\Delta CP$ is the difference between the internal product price and the price of the external acquisition; and $\Delta CT$ is the difference between administration costs and the transaction costs.


**Company cooperation**

We have already seen that, from an economic point of view, the company arises as an organization that supplies goods and services, and as a mechanism for allocating alternative resources to the market. From comparing transaction costs with the costs of internalizing an activity, it is possible to determine the field of activity for both the market and the company. From this perspective, a company’s size and development will therefore be explained by transaction costs.

We have also seen how the division of activities between the market and the company gives rise to multiple contractual alternatives between companies, although, as Williamson (1991) points out, there exists
a continuum between these two extremes. The company and the market thus possess management structures to carry out transactions, but there also exist a series of intermediate possibilities materializing as a wide variety of contracts, which form a network of complex relationships between economic agents. In the market area, with independent units, agreements and relationships can be established that involve principles of authority that are characteristic of organizational behaviour. On the other hand, in the internal field of the company, norms of action can be established that simulate market behaviour rules (when profit centres and autonomous business units are defined, for example).

The concept of business cooperation, from this perspective, is considered as a ‘hybrid’ form between the market and the company (Williamson, 1991), or as an intermediate organizational form (Imai and Itami, 1984) between externalization – or pure market – and internalization of productive activities – or pure company. The underlying criteria in choosing between different possibilities are the search for economic efficiency by minimizing transaction costs.

If transactions occur very frequently, then the assets exchanged are very specific and uncertainty is high, and internalization appears as a better alternative than the market (since costs deriving from contracts and their adjustment are very high). Internalization, however, either through internal or external growth (through fusions or takeovers, for example), also entails important cost disadvantages, not only those resulting from the acquisition of assets, but also those involving an increased scale of organization and administration that by its nature entails greater complexity. Cooperation may, in this case, prove to be a more efficient alternative.

As Kogut (1988) and Hennart (1988) have pointed out, cooperation arises as a middle ground between internalization (internal or external growth) and externalization (market acquisition). Figure 1.2 shows how, given certain asset specificity conditions, and taking transaction and organizational costs into account, cooperation is indeed more efficient.

In Figure 1.2 $K(i)$ are the total costs – transaction cost plus organizational cost. $K(h)$, $K(m)$ and $K(c)$ are the total costs of hybrid, market and company, respectively. It is observed when specificity of assets is greater, the hybrid form – cooperation – is preferred to company and market.

Company cooperation, according to Thorelli (1986), seeks to transform traditional markets into harmonized or ‘quasi-integrated’ markets. These markets are formed by a series of relationships or contracts made between legally independent companies on the basis of cooperation agreements of varying complexity and specificity. They do not function
on the basis of competition, but rather as a result of privileged – or agreed – relationships established between the company and its competitors, or between the latter and other companies in the field. The final objective consists in minimizing transaction costs through cooperation agreements.

**Cooperation objectives**

The neoclassical model not only contemplates the existence of transaction costs, since, as has already been pointed out, they involve rationalizing economic agents, acting without restrictions when it comes to decision making, that is:

- The existence of uncertainty is not considered, but rather that information is unlimited and accessible to all those making decisions;
- It considers that a high number of supply and demand agents exist, so none of these have control over the market; and
- It considers that goods, although scarce, are accessible to all agents and are replaceable.

Nevertheless, we have also seen that these suppositions are not in reality fulfilled, since the economic agents, on carrying out economic transactions, find themselves in a changing environment with limited and asymmetrical information that leads to the existence of uncertainty about the results of activities. Also, for certain goods or services there exist a limited number of supply-and-demand agents – a concentration of economic agents – which causes them to have greater power in the market (negotiating power). Finally, that certain specific assets exist – either
through location, or through their characteristics – that are not easily replaceable or accessible.

These circumstances mean that the decision-maker acts with limited rationality and takes us away from the economic workings of pure markets and competition – in a neoclassical sense – as the most efficient mechanisms in allocating resources, introducing certain costs, transaction costs, which are derived from the difficulty in predicting market behaviour.

Underlying reasons for the transformation of classical market competition into coordinated competition are therefore a result of:

(i) Efforts to reduce the uncertainty of economic transactions in an age when the great growth in competition levels and economic globalization are increasing business risk, especially in the international field;
(ii) The need to reduce transaction costs that have risen due to the volatility of the environments, controlled transactions tending therefore to achieve this objective; and
(iii) The search for synergies linked to combining complementary operations (for example, through the joint use of common sales networks, joint development of technological projects and so on).

Moving away from the market by spinning off or internalizing certain activities makes it possible to achieve situations where transaction costs are lower.

In the face of increased uncertainty, the company can choose between spinning off or internalizing activities. Entering a new geographic market, for example, is a decision involving a high degree of uncertainty, caused by possible differences in consumer tastes and the difficulty in identifying them, lack of knowledge about competitors, market response to the product and its adaptation and so on. In this situation, the establishment of agreements (the creation of joint ventures, for example) with local agents enables greater information to be obtained and therefore the degree of uncertainty to be reduced. The other option, internalizing, means the acquisition (by fusion or takeovers) of local companies as a means of entering these markets.

Considering the existence of a limited number of economic agents (supply or demand agents) also implies that companies exist with control over the markets (negotiating power with customers or suppliers), thereby enabling them to generate economies of scale, obtain lower prices and achieve reduced costs. This is translated into internal processes that
are technically more efficient, and lower prices for the market as a result of greater concentration with respect to competitors.

In these markets, where volume is a critical variable factor, greater presence or concentration is a fundamental competitive factor. Greater size can be obtained by internal (internalization of activities) or external (fusion or takeovers) growth based on acquiring more control over the market. Internal growth implies increased administration and management costs, while in the latter case management and organizational costs might be increased by rising uncertainty generated by the acquisition of an external company, in addition, naturally, to the actual investment costs. Cooperation between companies represents a third option for acquiring volume, although it also introduces certain costs derived to organize and administer the cooperation contract. The adoption of one of these alternatives, in consequence, involves evaluating different costs.

Lastly, the specificity of certain assets involves an increase in transaction costs and, as has been pointed out, opting for internalization or cooperation depends on the degree of specificity; for very high levels of specificity, internalization is preferable when, in addition to ensuring supplies – especially when they are vital for productive processes – it eliminates dependence on the outside and means lower costs than those entailed by entering very detailed negotiating processes. When the assets that are the object of the transaction have a certain degree of specificity but are not decisive for a company’s competitive position in the market, the cooperative channel is the most suitable for reducing market costs.28

The reasons for company cooperation can be summed up, in short, as:

- Reducing transaction costs that arise when uncertainty is increased in economic markets;
- Obtaining a greater volume and presence in the market by reaching agreements with competitors, suppliers or customers;
- Seeking efficiency in certain activities carried out by the company by means of spinning off, when the internal costs of carrying out the activity are greater than if this activity is carried out in the market with logical competition; and
- Using specific goods which the company does not possess, but which complement its activities. According to the specificity of assets, cooperation may prove more efficient than acquisition in the market, since uncertainty is reduced on obtaining them without incurring any internalization costs.
Contractual forms of cooperation

It has already been pointed out how a continuum of possible contractual alternatives exists between the company and the market in carrying out economic transactions. Those forms that are closest to the market, therefore, materialize into very simple contracts, while those options that are closest to the company represent far more elaborate contracts with structures very similar to internalization. This results, logically, from a greater involvement between companies, from the investment levels required, and the need for follow-up adapted to the scope of the transaction carried out (when a joint venture company is created, for example).

The proliferation of intermediate structures – coordinated or agreed upon transactions – between the market and the company results from the fact that, by means of these, it is possible to reduce transaction costs that have arisen because of the effect of increasing uncertainty and, furthermore, to avoid the costs involved in the possible internalization of activities. Nevertheless, it is important to point out that the existence of coordinated transactions does not imply the disappearance of market competition. Quite the reverse, in fact, as companies combine coordination with competition, seeking the best way of allocating resources and providing economic efficiency.

Going back to Imai and Itami’s intermediate structure model (1984), the most common forms of cooperation can be characterized by two variables (see Figure 1.3):

(i) The form of inter-relationship between cooperating organizations, giving rise to situations closely linked to the market (minimal inter-relationship and low frequency) or, at the other extreme, those very closely linked to the company (stable and continuous cooperation agreements); and
(ii) Decision-making principles, which may rest on individual maximization or the search to maximize joint objectives.

By considering these two variables, it is possible to represent all of the most common forms of cooperation established between companies (see Figure 1.4).

Association is a form of cooperation that is closely linked to the market and characterized by weak objectives and relationships between partners. A purchasing association between retailers, for example, represents a minimum inter-relationship between participants, although it does represent the existence of a common objective, which is the achievement of lower prices by purchasing products in greater numbers.
Situated at the other extreme, for example, are *intracompany networks*. This type of structure, based on autonomous business units, is created within the company with the aim of improving efficiency, and hence its overall competitiveness. These units remain hierarchically dependent
on the company, being subjected to market criteria. The reasons for these activities are greater competitiveness in the sector and the need to optimize economic transactions that occur at the heart of the company.

Two possible forms exist: (i) those that maintain strong, frequent inter-relationships through hierarchical structures (the case of parent companies and subsidiaries, for example) with individualized objectives; and (ii) those where inter-relationships are conducted with greater intensity of objective and are not so hierarchically dependent (in the case of company groups, for example, where management, image and strategy are common to all components).

**Outsourcing** involves cooperation between individual companies with a certain degree of inter-relationship in carrying out common tasks. When an industrial company subcontracts its maintenance service to another company, for example, objectives remain independent, although there exists some inter-relationship in performing the contract.

**Spin-offs** consist in making some department or company independent; from that moment, individual objectives are proposed, although the companies maintain relations – at least for a time – since the part made independent is created to provide services to the main group (for example, an industrial company creating an engineering company from a technical office).

**Franchises** cover a wide spectrum of possibilities, although the common factor is that the two companies cooperating – the franchiser and the franchisee – maintain certain relations as well as having a series of common objectives. The degree of inter-relationship can vary within a wide range of possibilities, since it would be situated in the middle in the diagram. In a distribution franchise, for example, the products to be distributed, the brand image and the product policy are identical; but there may be some common financial objectives between the two individual companies, if a part of the franchisee’s profits or turnover are used to pay the franchiser.

The **joint venture** means the creation of a separate company by other companies as a result of a cooperation agreement. This means the existence of a high level of commitment, deriving from substantial investment by the original companies, which is reflected in the objectives (which will be common ones) and in the maintenance of a frequent and stable relationship. An example is the creation of a joint venture by two companies from different countries, for example, where the local company generally provides market knowledge and the foreign one provides the brand image, knowledge or technology.
The **consortium** involves the creation of a common structure between various companies to develop a project jointly, the relationship and the objectives therefore being weaker than in the case of a joint venture. Examples of consortiums can be seen in the creation of temporary company combinations – very common in the case of tenders for carrying out public works projects – or in the creation of an export consortium by a group of companies who wish to open up new markets for their products.

The different possibilities may therefore materialize into a wide range of agreements, of which we have only outlined the most representative here, since the degree of structuring is going to be determined by the objectives of the participants and by the types of transaction carried out.

It is important to emphasize that the proliferation of cooperation agreements is something that is taking place alongside the advances occurring in the field of new information and communications technology. This evolution is, in turn, introducing some important changes to the economic world, being displayed in:

- The decreasing relevance of the location factor, which is favouring greater globalization;
- Ease of access to information and its practical availability in real time; and
- The decentralization of intelligence as a consequence of both these factors.

This evolution is also having other important effects: the general reduction in transaction costs in the field of information – because of improved access – and a certain tendency to use company networks to set up cooperation structures that are linked more closely to the market, something that is made possible by the proliferation of information processing networks.
The Decision to Cooperate: A Strategic Decision

Introduction: company strategy and competitive advantage

The concept of strategy is as old as humanity itself. The first attempts at systematization and characterization took place in the military field (Philip of Macedonia, Alexander the Great, Sun Tzu, Napoleon, for example), although the strategic component in the thinking of other great leaders or thinkers (Machiavelli, Lenin or Mao Zedong) is also very important. All these have contributed to some extent to the evolution of and perfecting the concept of strategy.

The company as an organization has developed its activities with a more or less explicit strategic concept. Yet the strategic concept as such, and as a discipline subject to systematic analysis and study, first made its appearance in the 1950s. Initially, strategic analysis concentrated a great deal on planning, aiming to plan budgets based on predictions about future market evolution that would determine company policy. Strategic planning as such, however, makes future predictions based on a detailed analysis of a company’s environment, a diagnosis of internal weaknesses and strengths, and an evaluation of alternatives for action.

Company strategy is currently analysed as much more of a global strategy: strategic management not only involves a company’s capacity to adapt to the market’s future evolution, but also the capacity to create new needs in the market in which it operates: that is, to invent the future. In this respect, strategic management requires, in addition to prior analysis, a greater capacity for reflection at all company levels, and embraces concepts such as motivation, business culture or decentralization, which result in greater efficiency in decision-making.
Of all the attempts to approach the concept of strategy in the literature, it is difficult to find an author who covers all the relevant dimensions. Nevertheless, the different factors involved can be deduced from analysing some of these definitions.2

Chandler (1962), for example, defines strategy as the means of establishing an organization’s aim in terms of long-term objectives, action programmes and plans for redistributing resources.3 Mintzberg (1979) defines it as a response to favourable opportunities (strong points) and the hazards and weaknesses of the company’s interior structure.4 Andrews (1971) sees strategy as an area of competition, as a motivating force for agents around the company.5

For Quinn (1980), strategy is a target or plan consisting of the main objectives and policies, and an organization’s sequence of activities in a cohesive and solid whole.6 A well-formulated strategy, therefore, in the latter’s opinion, enables an organization’s resources to be allocated in a single, profitable manner, depending on internal powers, on anticipated changes to surroundings, and the contingent movements of opponents. If we stick with this definition, it is obvious that all organizations, in varying degrees and more or less consciously, carry out activities that could be called strategy. Glueck et al. (1980), for their part, define strategy as a coherent, unifying and integrating project for the entire organisation.7 As can be observed, the different dimensions offered by the concept of strategy affect all company activities.

It should be pointed out that strategic thinking since the 1980s has been dominated by the work of the Harvard professor, M. Porter, who, using a basis of the industrial economy, explains strategy as the series of actions and decisions aimed at meeting objectives established by the company. He emphasizes the importance of seeking advantages over competitors that enable the company to reach a strong and defensible long-term position.8

Porter states that competitive advantage is the power and control by a company over a feature, ability, resource or skill that increases its efficiency and enables it to move ahead of competitors. The competitive advantage may have different sources: it could arise from market imperfections, for example; or from the opening up of opportunities as a result of the sector structure in which the company acts; from efficiency deriving from different economies (of scale, learning and so on); from the use of commercial names, brands or patents; from better techniques or skills in carrying out activities; or from possession of greater organizational or management capacity.9 Competitive advantages are usually reflected in prices, design, trademarks, specific use of a certain good or service and so on.
The value chain: searching for competitive advantages

Companies supply the market with products or services as a result of a transformation process or combination of certain factors, such as raw materials, intermediate products, technology, labour, machinery and equipment and so on. The transformation process has an objective, which is to supply goods at market values; the objective of all companies, therefore, is to produce value.

This value creation process that companies engage in can, in turn, be subdivided into a series of specific functions or activities, with the aim of determining the contribution each of them make to the above process. The company can thus be broken down into a chain formed by links corresponding to different activities and functions, the aim of which is to generate value (see Figure 2.1). In the process of supplying a product or service, every link in the chain adds its share of value, making up the final value supplied to the market.

From analysing the value chain, the company can look at how to generate competitive advantages. By splitting the company up into different activities and determining how each composite link in the chain might be the basis for competitive advantage, the company can create or consolidate a competitive advantage by acting on any of the links that form the value chain.

Porter (1980) points to two generic competitive advantages: cost (improved technology applied to the productive process, for example, will increase productivity and reduce costs); and differentiation (if the company is able to offer products that incorporate higher quality or a new design, for example, they will continue to distinguish themselves from competitors). Table 2.1 summarizes the main factors in obtaining competitive advantages.

![Figure 2.1 The value chain](image-url)
One of the most contemporary approaches, however – the resource-based view – justifies the appearance of competitive advantages on the basis of heterogeneity in the amount of resources each company controls.\textsuperscript{10} The resource approach – or capacity theory – rests on the hypothesis of company heterogeneity, since the latter possesses a supply of resources that is the result of its own history. Given that this composition can be maintained over time, the competitive advantage can be kept and will provide long-term income.\textsuperscript{11} This idea is the basis of what Prahalad and Hamel (1990) call ‘distinguishing competence’. From this viewpoint, strategy and competitive advantages are linked to intangible assets\textsuperscript{12} that are difficult to copy (brand image, for example, or patents) and to organizational routines that enable these tasks to be carried out in a distinctive way (capacity of response, design capacity and so on).\textsuperscript{13}

Grant (1991), for his part, identifies some key factors for resources to generate competitive advantages. The determining factors are:

(i) Transferability, which determines the company’s potential to generate and maintain competitive advantages;
(ii) Capacity of aggregation, or the ability to integrate new resources with those it already has;
(iii) Appropriability, which means a company’s ability to generate income equivalent to the value created by that resource;

\begin{table}[h]
\centering
\caption{Factors in obtaining competitive advantages}
\begin{tabular}{l}
\textbf{Costs advantages:} \\
• Scale and reach economies \\
• Effects of apprenticeship \\
• Innovations in processes and methods of management \\
• Rationalization in the fabrication process \\
• The facility to access production factors \\
• A good purchasing policy \\
• The quality of human resources \\
• Direction styles orientated to tasks to increase production \\
\end{tabular}
\end{table}

\begin{table}[h]
\centering
\caption{Factors in obtaining competitive advantages}
\begin{tabular}{l}
\textbf{Differentiation advantages:} \\
• An innovation policy or developing new products \\
• An style of direction orientated towards people to stimulate creativity \\
• An accurate and deep knowledge of markets \\
• A productive and organizational flexibility \\
• An innovative management culture \\
• The degree of integration in the enterprise \\
• A culture orientated towards total quality \\
\end{tabular}
\end{table}
(iv) Specialization in the acquisition of resources; and
(v) The knowledge to be able to transform resources into outputs.

In this respect, company strategy is constructed around business processes, where competitive success depends on the transformation of these processes into strategic capacities that supply value to the customer.\textsuperscript{14}

Factors explaining competitive advantage are situated within the company, from a resource-based view (see Figure 2.2), going one step further than Porter’s analysis, where competitive advantage is defined by factors related to product positioning in markets.

**Strategic decisions and company growth**

A feature of the current business environment is a dynamic economy subjected to constant changes: (i) a rate of change that may be greater than the speed of company response in adapting to the new environment; (ii) scenarios in which technological innovation reduces product life-cycles; (iii) consumer needs and expenses modify market segments

\textbf{Figure 2.2} Desired characteristics of the firm's resources and capabilities

continuously; and (iv) quality, capacity for reaction and information are very important factors. In this situation, it is important to provide the company with strategies that enable it to anticipate changes, to adapt to the new rules of the game and to achieve a strong position with respect to competitors.

There are two types of strategic option from which all business decision-makers can choose: those concerning the search for a better competitive position for the product (by seeking new markets for the product, by developing new products, or by diversification) and those concerning growth possibilities that the company can exploit.\(^{15}\)

If we concentrate on the latter, traditional business growth has been a concept linked very closely to the search for competitive advantages. The different options in a company’s strategic growth vector have given rise to a great deal of literature.\(^{16}\) Most authors agree that the following points are among the most common strategic objectives of growth:

(a) Acquiring greater power over the market in those markets where the logic of volume is critical (economies of scale, learning, scope and so on) and to enable a strong, defensible position to be achieved; and

(b) Acquiring complementary resources.

Other types of implicit objective can also be identified, such as those obtained by benefits from diversifying in times of competitive uncertainty, those deriving from expanding into emerging markets at times of market saturation or the synergic effects entailed in internationalisation.

Greater capacity for growth can be achieved in two ways:

(i) *Internal growth*, based on developing products and markets, and by generating investment within the company through the consumption of internal resources. This type of growth modifies company structure and creates new productive capacity within it.

(ii) *External growth*, achieved by means of acquisitions, shareholdings and control of other companies; no new investment is generated in this case, apart from the external finance needed to deal with proprietorship costs involved in taking a share in or control of other companies.

The growth of large companies in mature markets (with extensive competition and a high degree of saturation), for example, is usually based on external growth, supported by the acquisition of competing companies. That allows them to obtain the latter’s market share without
introducing new productive capacity that would involve increased rivalry to capture customers. This action involves integrating the company acquired, together with its costs, personnel, image, location, technology and so on.

**Growth through external development**

As we have seen, the final objective set by the company in external development is to have a greater presence (greater volume or a larger market share) in a particular sector, to have access to new markets, or to search for complementariness in certain activities.\(^\text{17}\)

There are different types of external growth: mergers, takeovers, shareholdings and association agreements.\(^\text{18}\) The latter offer a wide variety of possibilities through company cooperation, which may be formalized in different types of agreement, and structured into different organizational forms, depending on the aims pursued, the characteristics and number of partners, the level of commitment and so on.

**Mergers**

The merger of two companies involves the creation of a new company and the consequent disappearance of the two original ones.

The main advantages offered by mergers are: (i) the new company acquires greater size – the sum total of the merged companies’ market shares, in theory, although there are always ‘desertions’; and (ii) economies of scale can be generated through reducing costs (such as duplicate structures, advertising costs and so on).

The greatest drawback is that the merger involves a high degree of commitment and poses some important questions, such as the definition of the new organizational structure, the company culture shock, the disappearance of brand images and the need to create new ones. These are precisely the drawbacks that cause the level of merger failure to be very high.

**Takeovers**

One company acquires another by means of a takeover, the company being taken over disappearing on becoming part of the purchasing company’s structure.

The same benefits are obtained in takeovers as in the case of mergers (greater size) and, in addition, some of the drawbacks presented by the latter are eliminated, since it is unnecessary to create a new brand image or to define a new company organizational structure, and the absorbed company is integrated into the purchasing company’s business culture.
Among the major problems, takeovers involve investment – deriving from the need to pay the exchange value of the company acquired and, as in the case of mergers, a high level of commitment.

**Shareholdings**

This is a way of acquiring greater size by controlling one or more companies through shareholdings. This presence may be a majority or a minority shareholding; the first case has the advantage, with respect to a merger, that the purchased company continues its activities with its existing structure, brand image and so on, but the purchaser is able to pull out of the deal more easily by simply selling their holding.

In the case of minority shareholdings, the presence of another company among shareholders may have a strategic objective: to influence decisions in some way, to have firsthand information about what happens in the target company, or an attempted first step towards subsequent control.

Shareholding generally provides greater flexibility, although the degree of commitment, depending on the size of the shareholding, may also prove to be high.

**Association agreements between companies**

This type of external growth consists of two or more companies reaching a series of agreements to achieve greater market presence by joining forces in those activities in which they are associated.

The association is carried out by establishing certain agreements – verbal or written – in which the companies coordinate their actions in particular activities (such as developing advertising campaigns, exporting products jointly, investing in new markets and so on) for a temporary period that may vary in length.

In a complicated and often unpredictable environment, consolidating growth on the basis of association agreements means a strategic decision with a lesser degree of structural involvement for the company than other types of decision. 19

As the level of commitment is reduced, so the flexibility for strategic decisions increases. Once a merger has been decided upon, therefore, it is difficult to turn back in the event of changed conditions; at the opposite extreme would be association agreements that represent a strategic decision regarding external growth, generally with greater flexibility and less structural involvement or investment (see Figure 2.3).

Among the different external growth options, therefore, the suitability or timeliness of the decision will depend on the degree of uncertainty in
the sector where company activities take place. In very changeable and unpredictable environments, therefore, with high levels of uncertainty, decisions should allow greater flexibility, which is facilitated if no important structural involvement exists.

**Cooperation between companies**

Association agreements between companies may be considered as the origin of what is generally known as ‘company cooperation’. Cooperation, as has already been pointed out, means a strategic decision that allows growth when both volume logic (greater market presence) and complementariness or synergic effects are being sought, providing, in turn, the necessary flexibility to react against environmental volatility.

Company management, especially strategic management, has made great efforts over the years to improve company competitiveness, although the most recent studies involve analysing the phenomenon of cooperation. These studies generally consider cooperation to be atypical behaviour, since confrontation is seen as the norm in competition models.

Among the different types of cooperation, agreements between competitors occupy a special place because of their ambiguity and complexity, and because they are the type that provoke the most mistrust. As Porter and Fuller (1986) have demonstrated, it is necessary to see whether allied competitors do in fact renounce the idea of confrontation, given that conclusions from studies on cooperation between competitors indicate that there are numerous strategic reasons justifying the conclusion of cooperation agreements that, a priori, may seem paradoxical.
The theory of competitive advantage considers that cooperation enables the respective value chains of companies joined by the agreement to be optimized. Cooperation agreements are thereby bracketed as a logical strand of complementariness, since value creation enables participants’ competitive advantages to be reinforced.\textsuperscript{23} Cooperation can generally be considered as a strategic option that permits competitive advantages to be obtained in exchange for avoiding direct confrontation.

\textbf{Theoretical explanations of cooperation}

James (1985), on pointing out that ‘the fundamental aim of a military – or economic – alliance is either to combine participants’ potential or effective forces so as to increase the latter with respect to adversaries, or to dissuade potential opponents from committing themselves to a future conflict’, states intuitively the main aims that might be pursued in cooperation:\textsuperscript{24} by pooling, combining or exchanging resources it attempts to enable partners to gain access to advantages they could not achieve individually.\textsuperscript{25} A feature of these actions is the existence of coordination, more or less long-term, between different companies that do not renounce their legal independence or their autonomy of decision.

Cooperation phenomena generally include different forms of association concentrating on internationalization strategies, technological innovation or market expansion, for example. Most authors, however, coincide in attributing a decisive influence to technological factors, which are considered to be an exogenous stimulant for concluding cooperation agreements. Technology therefore creates a suitable foundation for developing cooperative behaviour, resulting from the acceleration and rhythm of technological innovation, to the rapid spread of technology, to the reduction in product life-cycles, and to the intensive development of new associated products.\textsuperscript{26}

The two most common explanations for cooperation are: the search for growth effects or the power of the market; and the search for synergies or complementariness.

The first of these rests on the competitive positioning\textsuperscript{27} and industrial economy\textsuperscript{28} theories. If maximizing an activity’s profits depends on improving the company’s competitive position with respect to rivals, therefore, and if the necessary resources or risk acquired exceed its resources, cooperative association would enable economies of scale, experience and risk diversification to be obtained, while at the same time increasing the power of associated companies within the sector. This type of cooperation\textsuperscript{29} associates companies that might be comparable within a connected field and with identical problems, representing the common
link for resources of the same type (technological resources, human resources and so on).

The second theoretical explanation for cooperative behaviour is based on the synergies obtained by grouping or combining qualitatively complementary assets. This type of cooperation, also called symbiotic\textsuperscript{30} or differentiated cooperation,\textsuperscript{31} associates complementary companies that pool or exchange resources, each contributing different qualities. This combination of forces enables a more complete or intense use of the different types of asset possessed by each company in unequal proportions (for example, cooperation between companies and public research institutes, or international cooperation between a local partner and an international one, and so on).

**Strategic variants and types of company cooperation**

Cooperation could be defined as verbal or written agreements concluded between various companies in order to carry out an activity jointly, with certain definite objectives and a certain degree of coordination and structure in which to carry them out, with their duration depending on the aims being pursued.\textsuperscript{32} The cooperating companies generally maintain their legal and strategic independence in all or part of the activities.

The particularly ambiguous nature of the definition results in cooperation between companies materializing into multiple strategic variants that, following Williamson (1975), can be classified as:

- Independence and redirection strategies, where the aim is to reduce uncertainty and dependence on the surrounding environment by exploiting the associated companies’ own resources and competitive advantages.
- Cooperation strategies, which involve agreements between competitors, either on a general scale or in specific activities, the aim being to reduce temporarily competition between them.
- Linked relations or delegated link strategies, which are the result of one company’s agreement with another – the delegated or subcontracted one – in order to have a task, activity or function carried out on their behalf instead of assuming it themselves. Various forms of linked relationship exist: production subcontracting, partial fabrication of components, specialized or selective co-production, temporary hiring of resource, concessions, licences, franchises or intermediary powers and so on.
• Alliance strategies, which are agreements that attempt to modify the competitive environment, or to eliminate competition between agents more or less indefinitely. This change of conditions tilts the equilibrium towards a market between allies acting in concert, enabling priority to be given to collaboration, and threats to be eliminated, while also creating a new competitive front against non-integrated agents, and therefore also against antagonists. Alliances are a form of cooperation that involves greater rigour, formality and transparency. A cooperation agreement generally might not be explicit; the alliance, on the other hand, should be.

Cooperation agreements can, for their part, be classified by considering different variables:

• **According to the agreement’s economic objective.** These are generally based on some activity in the value added chain, such as associations for purchasing, sales, exports and so on.
• **As a function of the agents involved.** Companies may associate with competitors, for example, with suppliers, customers, and so on.
• **According to the industrial area concerned.** Company associations may be intra-sectoral (for example, between manufacturers of cars, household goods and so on.) or inter-sectoral (a pharmaceutical laboratory with a cosmetics firm, for example).
• **According to geographical area.** Cooperation agreements may be reached between domestic and international companies.
• **According to the size of associated companies.** Cooperation may be proposed between large companies, or between small and medium-sized ones.

**When is cooperation the right strategy?**

All decisions generally have their pros and cons when they are applied. Company cooperation as a strategic decision is not always the right solution to certain competition problems, and in some cases it is preferable to continue activities independently. This is why it is useful to determine the cases where cooperation is advisable, or not. Two conditions should generally be met to recommend initiating cooperation:

(i) Better efficiency should be achieved; and
(ii) It should be possible to carry it out and, above all, maintain it.
Company cooperation is efficient if the associated companies obtain lower costs by creating a single, integrated company: two companies may be more efficient associated than integrated if integration results in a company being too large to carry out some of the activities in its value chain.

A company that needs to develop a new product, for example, can set up its own research laboratory; this obviously involves incurring very high infrastructure costs that will therefore have to be reflected in the final price of the new product, in addition to establishing a need to maintain a research structure that might not subsequently produce any further results. Cooperation can also be initiated by some types of specific agreement with a research and development (R&D) company, which reduces costs and may prove to be more efficient while achieving the same result.

There are, on the other hand, other cases where significant economies of scale may be generated by integrating and creating a larger company, since the production process can be more effective if all the stages are carried out within the same company.

In the case of some steel production operations, for example, if a company had to produce the steel and sell it to another company to be rolled, the latter company would have to transport it and reheat it again for processing. This is adding extra costs to the process that would not make the two non-integrated companies very competitive. This is the philosophy on which integrated iron- and steel-making is based.

For cooperation to be maintained for a sufficient time to produce results, in addition to coming about in the first place, the key factor is the climate of trust generated between the associated companies. A direct consequence of lack of trust is an increase in transaction costs – through the introduction of additional surveillance and inspection costs – and opportunity costs, requiring much more time and effort in negotiating agreements that are as closed as possible.

Cooperation relationships also require important aspects of a company’s value chain to be left in the hands of third parties in many cases, or the participation of third parties with valuable knowledge. Companies run the risk that a partner may acquire these competitive weapons for themselves; an example of this was the experience of many North American companies that subcontracted fabrication of goods to Asian producers and found that, once the subcontractors had grown sufficiently and learnt the new technology, they began to sell directly to the final customers, thereby turning into the worst possible competitors.
Cooperation is, in short, always preferable when its costs are lower than the internal costs that would result from the company itself carrying out those activities.

**Advantages and disadvantages of cooperation**

A series of *advantages* can generally be pointed to for companies, both with respect to similarity cooperation (comparable organizations with identical problems that seek greater size), as well as in the case of complementary or synergic company associations (combining resources to use different types of asset more completely):

(i) Increased capacity and competence without needing to acquire and develop new resources and abilities;

(ii) Time gained with respect to competitors; and

(iii) Company flexibility is maintained, which is very necessary for adapting to the changing environment in which their activities generally take place.

Similarly, and just like all business decisions, cooperation has a series of *disadvantages*, the following being emphasized:

(i) A reduction in the associated company’s strategic autonomy that must accept a redistribution of order and control in exchange for the advantages sought, at least in relation to the activity that is the object of cooperation. This often causes mistrust on the part of business people and directors;

(ii) The need to harmonize and coordinate the decisions and actions of two or more independent organizations, often with different structures, systems and cultures, which can lead to conflicts between associated companies or to a possible obstruction to the activity that is the object of the cooperation. This would involve a deterioration in each partner’s overall performance; and

(iii) It can dissipate the strategic advantages of a company by means of the learning of its technology by a third party, creating a new competitor or fortifying an existing one, when sharing technology and knowledge with the partners.
Organizational Forms of Company Cooperation

Introduction

As we saw in the previous chapter, company cooperation is a phenomenon that, because of the economic context of greater inter-dependence between economies, involves an increasing number of companies. This strongly influences a company’s capacity to face single-handedly growth strategies that enable it to develop in markets that are becoming more open and competitive.

In an effort to be more competitive and flexible, the most innovative companies are establishing an extensive range of cooperation agreements with other companies: consortiums, joint ventures, outsourcing, supply agreements, marketing, or company networks.

Company cooperation is therefore leading to a revolution in the field of management, since agreements resulting from cooperation involve at least two decisions for the company: the first one being linked to the establishment of the actual cooperation, and the second, involving the determining of the organizational form for managing it. This leads us to suggest the need to link strategic decisions to cooperate with the organizational structure in which it materializes, given that coordination and inter-relationships represent, to a large extent, the basis of its success.¹

A theoretical view of organization

In the current environment – one of developed, industrialized, Western societies – the term ‘organization’ evokes intuitively a series of images: a private company, a university, a study or research unit and so on. The concept of organization is very present in the expressions we use every
day, yet this intuitive concept is not in itself sufficient. This is why, before beginning a study of the theory of organization itself, we shall look at some factors that should be considered.

The theory of organization studies the way in which a unit is constituted in order to function. Barnard (1938), a pioneer in the analysis of organizations, emphasizes the fact that an organization means ‘the conscious coordination between two or more people’; this feature, however, is present in different areas of collective life (such as monastic societies and families), and this is why organization is analysed from several schools of thought.

In the business field, designing a suitable organizational structure is one of the factors a company needs to reach the competitive level that brings profitability. This fact, in the case of company cooperation, is reinforced by the need to work in a coordinated way to make collaboration successful. Not all organizational designs are the same; the structure enables the strategy chosen by the company to reach objectives to be put into practice, and the latter can, in turn, define the specific company environment, determine its business and predetermine technological systems and functions to be carried out. Strategic, structural and process compatibility explain, at least in part, company efficiency.

In the following sections we shall study the contributions and evolution of the theory of organization with respect to the study of companies, as well as the new approaches that explain the organizational forms that cooperation generates.

**The evolution of the theory of organization**

Different approaches regarding the theory of organization have contributed decisively to improving the organizational bases of companies. The classical school was made up of contributions by a series of authors whose work dates from the first decades of the twentieth century and who came mainly from the world of business, the experience of which they attempted to extrapolate and generalize. The classical school comprises three different approaches, represented by Weber’s bureaucratic model, Fayol’s theory of administrative processes, and Taylor’s work on scientific management.

Of the classical thinkers that have reflected on the world of organization, sociologists occupy a prominent position, Weber (1971) being the undisputed precursor with his posthumous work entitled *Économie et Société*, published in 1922. In the Weberian organization, those in positions of authority carry out functions that require strict orders; subordinates not only obey individuals, but also those in possession of
rights and a hierarchical position determined in accordance with an impersonal order.\textsuperscript{6}

The classical school also includes contributions by technical experts who, following Taylor, broke down duties into elementary operations and were the forerunners of the scientific organization of work.\textsuperscript{7} Fayol, for his part, set out the major management policies, clearly distinguishing between prediction, execution and control.\textsuperscript{8}

These approaches are based on a mechanistic view of human nature, and from this perspective they deal with organizational rules that prove valid in all cases. They propose that management should be governed by a division of work principles, authority-responsibility, discipline, control units, management units, centralization, hierarchy, order, equity, subordination to the general interest, stability, initiative and harmony of personnel.

In contrast to the mechanics of scientific management, the school of human relations stated that organizations’ requirements with respect to development could be reconciled with the desires of agents by participating in structures based on individuals’ capacity for self-management and for exercising their initiative and creativity.\textsuperscript{9} The human relations school generally concentrates on individual and group behaviour studies within organizations, covering a wide range of studies that analyse interpersonal relationships, communications, leadership and management styles, as well as motivation and satisfaction processes.

The school of social systems, for its part, is concerned with rational behaviour in organizations and makes decision-making processes the central element of its argument (Labourdette, 1992). The focus is especially on the limited rationality that governs decision-makers’ conduct: people in organizations have limited information about a problem, they are not aware of all the possible alternatives for resolving it, nor of its consequences, and they may even lack a clear evaluative framework. It is difficult in this situation to maintain optimizing behaviour, so people will therefore try to achieve minimum levels of satisfaction. This approach concentrates generally on individuals who make decisions within an organization, on the psycho-sociological aspects of behaviour; that is, a bias they share in this respect with the school of human relations.

It can be seen that each school has made some useful contributions, albeit limited and rather partial, to the study of organizations: the contingency approach, inspired by the theory of systems, would try to overcome these limitations and provide a conceptual framework for overall analysis (Rojot and Bergmann, 1989).
The contingency theory

The contingency theory aspires to identify and understand how an organization functions in different conditions (or contingencies), this being the base for establishing the most suitable structural design and management actions in each case. The initial assumption is that various forms of organization can coexist successfully, depending on different conditions. These conditions depend not only on internal company factors, but also on the prevailing environment. Every company must therefore attempt to harmonize its structures, its internal processes and the specific contingencies or circumstances that characterize them, such as environment, size, technology and so on.

Two factors should be considered when it comes to characterizing environments: the uncertainty emanating from them, and the distribution of resources. Uncertainty depends on lack of available information that, at the same time, has two causes that combine in varying proportions: complexity and dynamism – or the degree of variability. Distribution of resources refers to the specific influence that investment, technology or the human capacity factor may exert.

From the contingent approach, therefore, the organizational structure should respond suitably to levels of uncertainty: when there is less available knowledge about the environment – because of the level of dynamism and complexity – the internal organization will have to be more flexible and less structured to adjust quickly to different conditions. On the contrary, an organization acting in a relatively familiar environment can maintain a fixed and stable structure, arranged to function for a long period of time.

The contingent approach includes a great variety of empirical studies that can be placed in one of the following groups:

(a) Studies based on environment determinism, which link the design of organizational structure to a series of external or contingent factors; or
(b) Studies that, based on management discretion, make organizational structure dependent on the decisions of the management team.

According to the first approach, organizational structure and processes should be a suitable response to contingent factors, thereby ensuring the organization’s continuity. At the core of the research is the study of causal relations between two variables, where structural factors occupy a dependent role with respect to contingent ones.

The second group does not share this ‘Darwinist’ concept, according to which the organization that does not adapt to contingencies will disappear.
On the contrary, this view believes that management is capable of taking decisions and of selecting objectives to follow, as well as the strategies to be used to achieve them. For this group, furthermore, the choice of a strategy involves the future environment in which the company will carry out its activity. Strategy, therefore, is the key concept that, from this point of view, enables problems regarding organizational design and relationships between structures and factors to be resolved.

Between these two solutions, extreme ones undoubtedly, a third solution can be seen that integrates environmental determinism and management discretion into a process of interaction and mutual adaptation: the denominated ecological approach.15

**The ecological approach**

In this approach, the environment represents a restrictive element that the organization adapts to in many ways. Organization-environment interaction is resolved through strategy: depending on the turbulence of the environment, the company opts for a strategy that is adapted to each circumstance and ensures success.16

The ecological approach also states that a great many restrictions exist that prevent organizations from adapting to environments and that, furthermore, exercise an endless pressure on maintaining the state of structural inertia in an organization. This means that the main theoretical view, regarding the organization’s adaptation to the environment by means of a strategic choice, is not sufficient to explain these organizations’ behaviour.

The reply to this question from an ecological approach rests on the principle of isomorphism: the diversity of organizational forms is isomorphous to these environments’ diversity. This means that only the form of organization that best adapts to changes in this environment will be in equilibrium in each environmental configuration. It should then be asked how this optimum equilibrium can be achieved, with two means being indicated by this approach: adaptation by the *learning channel*, in which decision-makers analyse optimum responses and adjust organization behaviour in accordance with this learning; and through *selection*, the environment positively selecting the optimum organization set-up.17

The original model, developed by Hannan and Freeman (1977), has generated a whole series of subsequent analysis, the chief exponents being Weick (1979) and Aldrich (1979) – who presented a general formulation of the model by showing this approach’s basic features, or Astley and Fombrun (1983), who stated that structural organizational
inertia is what reduces the possibilities of organizations adapting. In general terms, these analyses directly question the very concept of strategic choice, and relegate the role of company management to the background.18

Features of company environments

We have already seen how the effect of the environment on a company is seen as one of the keys to the successful design of an organization. We shall analyse the three environmental factors in this section that, in our opinion, have had the most decisive influence on company structure, and how, depending on these factors, they are changing the design of the organization.

The first factor we shall deal with is economic globalization. The world economy at the start of the twenty-first century is experiencing one of its moments of greatest dynamism and change. This dynamism is reflected in the growing interdependence of markets for goods, services and factors of production, as a consequence of the progressive suppression of institutional obstacles to free trade and the liberalization of capital movements.19

Since the creation of the General Agreement on Tariffs and Trade (GATT) in 1947, and through the various rounds of negotiations that concluded with the creation, in 1994, of the World Trade Organization, protectionist restrictions to free trade have been reduced substantially, even in areas of activity that were traditionally excluded, for example, agriculture, textiles, services and copyright. The effects of GATT are also being intensified in some areas by the advance in regional economic integration processes represented by the European Union, Mercosur, the North American Free Trade Association and so on, which are no more than channels for liberalizing trade at a regional level.

Together with this, the liberalization of capital movements in international financial markets represents a new reality that is even exceeding the capacity to respond to possible problems that may arise in some cases. This has been seen in the rapid transmission of financial crises from some regions (for example Brazil, Japan and Russia) to the rest of the world’s financial markets, resulting from great sensitivity to information.

In this increasingly inter-dependent world economic context, companies have to face up to new competitive challenges (such as the existence of international competitors, the international expansion of markets and greater capacity for innovation). These are demanding proposals on a wider scale than mere local or regional actions, in addition to global
operating and management strategies and organizational forms that consider this new reality in market and international competition.

The second factor, no less important, is the *increase in business uncertainty*. The speed with which changes are occurring in the economic world is introducing great uncertainty, especially in business areas, where constant transformations – resulting from reductions in technological and product cycles, from improvement in productive processes and so on, often difficult to predict, are demanding greater follow-up capacity from companies in order to adapt to the new surrounding conditions. The capacity of companies to respond (materializing into greater flexibility) in both strategic and organizational aspects, represents the key to their survival.

The third feature characterizing the business environment is the *high level of competitive rivalry*. The increased customer requirements and market saturation, for example, is obliging the company constantly to dig deeper in its search for competitive advantages to improve its position in the market. As a result of this, there is a tendency for companies to concentrate on know-how, or on those aspects of their added value chain they really dominate. The need to supply customers with what they require involves a great capacity for follow-up and for adapting to different tastes. This makes it necessary to consider greater reliability and quality requirements in productive systems, which are reflected in product quality by means of encouraging innovation and the creation of intangible assets such as design and brand image.

To sum up, this series of contingencies is introducing major strategic and organizational changes in companies, which we shall subsequently try to identify.

### The organizational response to contingent factors

Faced with this great inter-dependence between economies (economic globalization), companies are responding with a less localized view, and shown by the organizational need to be more or less global players.20

Moreover, the uncertainty of the environment also places greater demands on companies’ speed of reaction to adjust to transformations, or even to try to predict them, something that derives from the need to design a flexible and adaptable organization.

This greater level of competitive rivalry is, in turn, producing a regrouping or concentration in those activities where competitive advantage exists, thereby leading to a rethinking of scale (see Table 3.1)

These contrasting trends lead to the need to introduce organizational styles that respond to what Galbraith calls ‘the new organisational
Organizational Forms of Company Cooperation

Table 3.1 New organizational trends

<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Downsizing</strong></td>
<td>This approach tries to define strategy and performance forms to 'reduce' the effective size of the organization, with the purpose of making it more efficient or competitive</td>
</tr>
<tr>
<td><strong>Rightsizing</strong></td>
<td>An approach that tries to define how the organization must reorient its processes to strategic activities with basic competences and is therefore efficient and creates value; that is, ways of defining the specific and appropriate organization</td>
</tr>
<tr>
<td><strong>Leaning</strong></td>
<td>An inherited approach from technical processes or productive systems (lean manufacturing). This incorporates the philosophy of 'simplify manufacture' (by use of components and just-in-time) within an organization in both reduced or adjusted size and function</td>
</tr>
<tr>
<td><strong>Re-engineering</strong></td>
<td>An approach that entails redesigning the organization and its processes radically. Re-engineering postulates a radical change, the reverse of conventional positions of 'continued improvement'</td>
</tr>
</tbody>
</table>

paradigm’. It consists in trying to resolve problems resulting from the need to be both big – so as to enjoy economies of scale and to face up to the related complexities of economic globalization – and at the same time flexible and adaptable to give a rapid responses and personalized service to increasingly demanding customers.21

To respond to this situation, resulting from competitive and changing pressures in the environment, the most innovative organizations are now adopting two complementary lines of action.22

Large companies – structured and controlled by formal hierarchies – are gradually being replaced by smaller units that are formed through a culture of common values. Organizations seeking greater flexibility are eliminating internal barriers and hierarchies, reducing their size and forming a complex of autonomous business units that are aimed at the market and linked horizontally. These structures are setting up new forms of organization by means of internal cooperation, constituting the so-called internal cooperation or intra-company network.23

Moreover, companies are eliminating their environment limits (that is, with other organizations), searching for a greater presence in different markets. Through the relations established with other companies by cooperation agreements they are setting up true inter-company networks satisfying the global objective. This is the so-called external cooperation or inter-company network.

These two organizational revolutions are taking place at the same time: on the one hand, companies are introducing greater flexibility by creating autonomous units and, on the other, they are increasing their
presence in other markets – globalization – by concluding cooperation agreement with other companies. All of which makes finding the limits of the company difficult, due to this superimposition of internal and external networks. This circumstance represents, among other things, one of the reasons for the complexity in studying different forms of cooperation.

Greater cooperation between companies is also being made possible by the advances and effects of generalized use on new information and telecommunications technology. This technology is introducing substantial advantages and enabling:

- Geographically remote points to be connected;
- Communication to be established practically in real time; and therefore
- The decentralization of information and transmission via communication networks.

It could be said that the new communication systems are facilitating information exchanges between organizations to such a degree that they are comparable to those that take place internally.

**Organizational forms of cooperation**

Prior to analysing different organizational forms, we should emphasize a series of aspects that characterize cooperation between companies.

First, the necessary existence of a common objective between related companies. To maintain coherence with these aims, cooperating companies should coordinate their activities, and harmonize their decisions.

Second, it should be stressed that companies preserve their identity by cooperation, their legal independence or strategic sovereignty; that is, even if it is true that some reduction in autonomy takes place through the necessary distribution of power deriving from coordinating activities carried out jointly by associated companies.

Third, as we have pointed out, cooperation agreements cover a wide field and a great variety of organizational forms. The nature of the cooperation agreement will, in short, depend on both the strategy chosen and the organizational form determined for carrying it out. Although the intention is not to give an exhaustive list of the latter, some attempt will be made at outlining the most commonly used ones, commenting on the main features and conditions according to which the most suitable model is established.
Cooperation agreements with or without capital participation

Cooperation agreements with capital participation are carried out frequently through minority shareholdings or cross-holdings between cooperating companies. A new company may be created if the involvement is greater; this is the case in the joint venture or the common subsidiary that we shall discuss in the following section.

Cooperation agreements where no capital holding exists are normally formalized by means of written or verbal agreements. Choosing between one or another type of agreement will depend on matters such as:

- The duration, intensity and frequency of the cooperation activities proposed;
- The need to make a joint investment; and
- The degree of trust between cooperating companies.

If cooperation is intended to be long-term, for example, this will involve frequent relations and require intense coordination: a cooperation agreement with capital holdings may be the most suitable option. If, on the other hand, the cooperation proposed does not require the joint use of resources and is for a limited period of time only, it will not generally be necessary to establish capital holdings.

Joint ventures

The joint venture arises from cooperation between companies that create another independent company to carry out a particular activity. The most important feature is that the joint venture company is set up with legal status and engages in business on its own behalf, although coordinated with strategic objectives by the parent companies.

Joint ventures can be classified as follows:

- As a function of shareholders’ contributions: if they have the same capital holding, these are usually called balanced, and asymmetrical if any of them have a significantly larger holding; and
- They may be domestic or international, according to the geographical area in which they operate. In this case, normally international, the local partners provide personnel, access to the market and knowledge of surrounding conditions; the foreign company, for its part, basically provides the technology and production capacity.

The common subsidiary is an organization operating in a particular country that is owned or controlled by other foreign companies, which
may or may not manufacture in that country. The establishment of a common subsidiary, because of the importance of a parent company’s investments, therefore involves a greater commitment and more risk.

**Outsourcing**

In this form of cooperation, the main company – or contractor – entrusts another – the subcontractor – with fabrication of product components, part of the production or sometimes even the whole production. The main reasons for subcontracting are cost, short-term capacity or the scarcity (or lack) of necessary resources.

By means of subcontracting, then, the main company transfers some of its rigidities, costs or requirements outside, with both of the companies concentrating on their main activities, in which they have sufficient competence and ability to carry out more effectively.

The reduction of fixed assets also allows the principal greater flexibility and adaptability to possible changes in demand for its products.

Subcontracting has evolved with respect to its contents, and in many cases a simple production contract has become, in addition to a production agreement, an agreement that incorporates cooperation in design, in technological innovation – both with respect to the production process and the actual product itself, in quality management and so on.

**Licences**

The licence is a contract by which the company – the licensor – grants another company – the licensee – the authority to use industrial property rights in exchange for payment. These rights include patents, trademarks, design, author’s rights, know-how and technical information.

The licence may include wider agreements, such as the supply of materials or technical assistance by the licensor, or even the commitment of both to inform each other about all advances made with respect to the technology that is the object of the licence. The aim of this is normally to cover gaps in the company’s technological development.

The licence contract is usually more common at an international level, since this enables the company that owns the property rights to avoid risking commercial and industrial operations, and the licensee – who knows the market better – has the chance to use these rights and to obtain greater technological competence.

**Spin-offs**

This type of cooperation consists of a company – normally a large one – encouraging and supporting the creation of another by a team of skilled
workers from their own workforce. The idea is that the new company becomes a partner in carrying out the activity that was previously performed by a department or division of the big company. The cooperation thereby established is called the spin-off agreement.

This form of operation is sometimes a consequence of the disintegrating process in the large companies mentioned above, since certain activities can be externalized in this way to enable a concentration on key factors of the productive process, and to reduce costs. The activities separated off are normally subcontracted to companies created with workers who have left the parent company. These activities do not only concern production – they can also affect information technology, maintenance services and so on.

The spin-off agreement generally means that the main company provides technical and financial support for the new one that, for its part, commits itself to providing services or to carrying out the activities for which it was created.

**Franchises**

The franchise is an agreement by which a company – the franchiser – grants another company – the franchisee – the right to market or make an established product in exchange for certain economic compensation.

The franchise contract usually corresponds to the following characteristics:

- The franchisee owns the business and makes the necessary investment to set it up;
- The franchiser supplies a name and a common display and design in franchised establishments. Franchisers also provide know-how and corresponding technical and commercial assistance;
- There is franchisee exclusivity in the franchise agreement for a particular geographical area; and
- Payment of economic compensation to the franchiser and respect for the right of exclusivity (geographical and of image or product).

There are many types of franchise, depending mainly on the activity to be carried out, and the level of integration desired between participants.

The franchise means the elimination of restrictions on growth possibilities for the franchiser, since substantial investment in resources is necessary in the event of expansion. For the franchisee, it represents the chance to take advantage of the franchiser’s resources (generally a large company) without totally losing independence.
The franchise is usually one of the most common formulas for establishing distribution and marketing networks in international markets.

**Consortiums**

Consortiums – also called temporary company associations or associations of economic interest – are agreements that aim to carry out activities jointly. The activities' characteristics generally make it impossible for one company alone to have the total technical or financial capacity to carry it out.

Consortiums enable partners to maintain their legal independence, although they represent greater involvement in the form of common bodies whose basic mission is to coordinate partners' activities and, in some cases, representation before third parties. A consortium enables both investment costs and risk to be shared, as well as sharing any profits obtained.

**Networks**

Networks are a type of cooperation characterized by the existence of many agreements made by a high number of participants and which may link public or private institutions, financial bodies and so on.

Cooperation agreements are the links joining participants in the network. The key elements in a network are therefore the multiplicity and complexity of relations, and, generally, the large number of international companies and organizations involved.26

The main types of network structure can be seen in the basic examples shown in Figures 3.1, 3.2, 3.3 and 3.4, although it is important to indicate that networks are dynamic bodies, starting out possibly with one structure and evolving as a result of the influence of changes to both external (markets, political changes and so on) and internal (from experience, increased number of partners and so on) environments.

![Figure 3.1 Radius and axis networks](image)
Figure 3.2  Nodal link networks

Figure 3.3  ‘Ad hoc’ networks

Figure 3.4  Networks of regional networks
A new network generally begins as a ‘radius and axis’ network (see Figure 3.1). It is nearly always led by a coordinator that emerges as a result of their experience and personality; this partner generally takes the initiative in establishing and developing operating procedure, managing the network’s collective portfolio in terms of business opportunities, and promoting development of these opportunities through network partners.

All partners are generally on the same level in the nodal link network (see Figure 3.2) where no privileged relationship exists. The coordinator usually takes care of basic administrative tasks – in some networks of this type the coordinator’s role is even rotated. This type of network is normally formed by companies carrying out industrial research and with a similar technical base. The aim is to join forces to carry out larger and more costly projects than those the companies could consider independently.

The formal structure is reduced to a minimum in the ‘ad hoc’ network (see Figure 3.3), since the partners generally know each other quite well and maintain cordial, frequent contact, and communications between interested partners are intensified as the need arises. Each partner company is responsible for its own area of influence in this network, thereby allowing quicker and more flexible responses to meet the requirements of potential customers.

The complex type of network shown in Figure 3.4 is generally based on the criteria of establishing intensive cooperation between different participants regionally, backed up by an international vertebral column. This type of super-network is typically found in commercial activities, in the educational sector and between research institutions. Each partner in the network is responsible for building its own regional network, with access to support mechanisms, information sources and potential customers thereby being multiplied. This type of network is appropriate for specific projects requiring a heterogeneous group of collaborators.

**From company cooperation to company association: clusters**

In the course of this chapter we have analysed the interaction between organizations and their surroundings and, from a theoretical viewpoint, the two main approaches, the contingency approach and the ecological approach, which attempt to supply an overall framework for analysis, taking the surrounding environment to be a restrictive factor that the organization – considered individually – adapts to in different ways. Choosing individual companies as a unit for analysis can leave out the organizational forms produced by company cooperation mechanisms.
We have already seen how cooperation involves consensual inter-relationships between companies in order to reinforce their competitive positions and as a way of adapting to surrounding environments that require a combination of global and flexibility factors.

On a higher plane of analysis, we have observed the appearance of company associations seeking a common adaptation to surroundings, a series of individual units adopting a specific organizational form; that is, forming themselves into a group. This type of adaptation, generally carried out between small and medium-sized companies, involves the existence of a certain degree of independence and cooperation in performing a series of tasks, in addition to the necessary pooling of resources, capacity and competitive potential in searching for a joint strategy or cooperation in dealing with environment conditions.

These groups, which Porter calls ‘clusters’, are defined as ‘natural associations between companies in a certain sector with other companies or supporting sectors related to their activity’. He distinguishes between sectorial clusters (detectable productive sectorial systems on a country-wide scale that represent the characteristic cooperation mechanism between large and medium-sized companies) and local clusters (productive interaction phenomena on a local scale that are characteristic of cooperation between small and medium-sized companies).

Considering the competitive level of a group, or cluster, leads us to the introduction of the collective strategy concept, as opposed to individual strategies, in addition to the analysis of organizational inter-dependence of the group as a form of adaptation or reaction against the environment. It has already been shown how transaction costs are not always minimized within a company, but how, in each case and each market, the optimization instrument (company against market) may be different.

Even if the cluster phenomenon appeared to be significant in the 1970s, when it was subjected to study and political activity in many regions of Europe, North America and Asia, it was the failure of many vertical integration processes in the 1980s and the success of productive systems established by company groupings in cooperation that have demonstrated that it is more efficient to put the greatest number of areas and functions on the market.

These events have led to an extraordinary reappraisal of group strategies, causing interest to be focused on reinforcing cooperative ties – precisely those at the central core of Hirschman’s strategy – while at the same time supplying small companies with new instruments of competitiveness that were previously irrelevant in many markets and have contributed to the tertiarization of industrial economies, since many functions
previously carried out within the company are now acquired on the ‘company services’ market.

The main feature of the cluster is that it constitutes a heterogeneous complex of mutually inter-dependent companies where relations between participants combine cooperative and competitive features. All authors emphasize the clusters’ most important significance as being the generation of a series of externalities based on shared information flows, and knowledge based on a network of established relations between all the participants. Because of the peculiar nature of the cluster, it is possible to talk of a culture that is common to all participants: external companies should not compete against an individual company, nor even against one group of companies, but against whole subcultures, whose organic nature is what makes them most difficult to imitate, and is, therefore, their most sustainable competitive advantage.\(^\text{32}\)

In analysing company groups from a theoretical point of view, evolutionist theories try to establish parallels between biological evolution in species and in organizations. They therefore emphasize the importance of communal adaptation compared to individual adaptation, when a specific form of organization is adopted by a series of units that thereby become a collective.\(^\text{33}\)

The construction of these group formations is based on different types of variable factors that include size – if it occurs between large companies or between small and medium-sized companies; the objectives pursued – the search for logic or volume or complementariness; the form of interdependence – if they share resources or, on the other hand, if they make complementary efforts; the nature of the coordination within the group – direct, if the number of participants in the group is small, or indirect if there are a large number, and so on.\(^\text{34}\)

From combining these parameters, the resulting group forms offer up a great variety of possibilities.
Cooperation in Game Theory

Introduction

The theory of games studies the problems of multi-person decisions and their applications over almost all areas of economics. At a micro level, for example, exchange models (negotiation and bidding) use the theory of games. At an intermediate aggregation level, the theory of games is used in company behaviour models (problems of this type typically arise in oligopoly situations), in the field of labour economics (several workers competing for promotion) or financial economics (investment decisions). Finally, at a higher level of aggregation, international economics uses models in which countries compete in tariff decisions; and in macroeconomics, game theory is applied to analyse the results of monetary policy.

Generally, all economic systems are interaction systems between more or less independent economic agents and, given that the interests of these agents are hardly likely to coincide, strategic behaviour necessarily plays an important role when it comes to analysing and understanding their actions. The theory of games is a method of analysing the strategic behaviour of agents.1

Basic aspects of game theory

Game theory was developed as a result of research by John Von Neumann in 1937, being expanded on by the same author and by Oskar Morgenstern in 1944. It concentrated initially on the denominated zero-sum games, where players’ interests are in strict opposition: what one player gains is the same as what another losses.2 Von Neumann demonstrated that, for all bilateral zero-sum games, there is only one way of playing that is a specific payoff for each player-denominated ‘game value’. This value
is reached by means of optimum strategies by each player where each
minimizes the maximum loss the other can impose on him/her (the
‘minimax’ strategies).

Even if it was believed initially that a significant part of game theory
applications to social and economic contexts could be formulated as
zero-sum games, the idea that greater complexity existed in many areas
of interest was subsequently to gain ground. It modified substantially
the initial opinions about the relevance of zero-sum games as suitable
models for understanding the behaviour of rational players in conflictive
situations. It was shown, in particular, that large numbers of games do
not display head-on opposition between players’ interests, but rather
a mix of incentives for confrontation and cooperation that have to be
linked in analysing games. A fundamental aspect of interaction between
agents is that considering rational individual interest alone does not
always lead to the best result for the game.

The alternative to zero-sum games is that known as Nash’s equilib-
rium, which essentially assumes a solid agreement between players
about a particular game plan. A Nash equilibrium states that players can
set a particular strategy profile to be carried out by each throughout the
game. For this profile to be catalogued as equilibrium, it is necessary
that, once each player has assumed that the others will comply with it,
they do not have incentives to deviate unilaterally from this strategy.
The Nash equilibrium is one where no player can improve gains through
another’s strategy.

Two types of game can be distinguished in this context.\textsuperscript{3}

(i) \textit{Static games}, where players take decisions simultaneously and make
gains according to the combination of actions they have just chosen;
and

(ii) \textit{Dynamic games}, where decisions are taken successively.

Furthermore, in both static and dynamic games, each player may have
complete or incomplete information available. The first player knows
each player’s gains function – from combining chosen actions. In the
second case, a player does not know another player’s gains.

Four concepts of equilibrium follow from the above combinations,
which will be analysed briefly below:

(i) Nash’s equilibrium (static games with complete information);
(ii) Sub-game perfect Nash equilibrium (dynamic games with complete
information);
(iii) Nash’s Bayesian equilibrium (static games with incomplete information); and
(iv) Perfect Bayesian equilibrium (dynamic games with incomplete information).

**Static games with complete information: the prisoner’s dilemma**

In these types of game, each player chooses a strategy simultaneously, and the combination of strategies chosen by players determines the gains of each. *The prisoner’s dilemma* is one of the most famous examples of a two-person non-zero-sum game.

Two gang members are caught red-handed and apprehended by the police, who take each of them into separate cells to question them. They tell each one that they can either plead innocent or plead guilty. If neither confesses, the police can book them on a smaller charge, and they will each receive one month in jail. If they both plead guilty, the police will convict them for the greater charge for which they were originally apprehended, and they will each receive six months. However, if one of them confesses, and the other does not, the police will be lenient on the confessor, and set him free, while the other prisoner will receive the maximum of nine months in prison.

The payoff matrix in Figure 4.1 shows the negative of the number of years in jail that each prisoner will get. Obviously, each prisoner will want to minimize the number of years spent in jail. Looking closely at Prisoner 1’s payoff matrix, it can be seen that ‘Confess’ dominates ‘Don’t confess’ – if Prisoner 2 confesses, Prisoner 1 gets six months in jail as opposed to nine months, and if Prisoner 2 doesn’t confess, Prisoner 1 gets 0 years as opposed to 1. Clearly, then, his optimal strategy is to

![Prisoners' payoff matrix](image_url)
confess. Unfortunately, exactly the same reasoning applies to Prisoner 2. Thus, both prisoners, acting in their own best interests, will confess.

This is the crux of the problem: if both prisoners confess, they will each get six months in jail. However, if neither confesses, they will be spending a much more desirable one month each in jail.

This raises the possibility of the prisoners cooperating (for example, by always promising not to confess). Unfortunately, there is still the temptation for each prisoner to double-cross the other by promising not to confess and then confessing, which ensures that the confessing prisoner gets off free. Hence, the prisoners will naturally gravitate to the stable but non-optimal solution (Confess, Confess).

This equilibrium is called the dominant strategy and occurs when a better strategy for each player exists, independently of which one the other chooses.

Another example can be ‘the pollution game’. In this case, we are going to consider an economy with external factors such as pollution. In the absence of control, every profit-maximizing company will prefer to pollute than to install expensive equipment for controlling pollution.

If a company behaves altruistically in these circumstances and cleans up its polluting operations, it will have higher production costs, higher prices and fewer customers. If costs are sufficiently high, it could even become bankrupt. Competitive pressures and the desire to survive would lead all companies towards Nash’s equilibrium, in which no company could obtain higher profits by reducing pollution (see Figure 4.2).

This game is an example of a situation where the ‘Hidden Hand’ mechanism of perfect efficient competition is destroyed. This is a situation

![Figure 4.2 Payoff matrix of pollution game](image)
where Nash's equilibrium is inefficient from a social point of view. When decentralized markets or equilibria become dangerous because of social inefficiency, the state may intervene by establishing legislation or taxes on emissions that may induce companies to move towards the result of (less pollution, less pollution). Companies obtain fewer profits in this equilibrium than in the situation of high pollution, but the environment is protected.

**Static games with incomplete information**

The model described above incorporates implicitly the recognition that agents have perfect information about opponents' preferences. However, a basic feature of actual negotiating processes is the fact that agents do not know for certain how far opponents are prepared to go: their *reserve price*, that is. These types of situation, where agents have imperfect information about opponents' characteristics, are known as *incomplete information* games.

In modelling these situations, the assumption is made that, in a state of uncertainty, agents act by using a series of probabilities, and possess an identical distribution of probabilities with respect to possible actions before starting the game – they are Bayesian agents. With identical distribution and taking into account their own reserve price, agents transform their initial perceptions into a distribution of probabilities that considers the behaviour of opponents. In this situation, Nash’s Bayesian equilibrium determines what each agent should do after receiving each piece of information in order that each participating agent will receive the maximum payment expected.

**Dynamic games with complete or incomplete information**

Up to now we have considered that agents make decisions instantly and irreversibly, without contemplating the temporary processes that occur during negotiation. In these processes, agents make decisions in accordance with a pre-established order, thereby generating a temporary route for the game (this is the case in auctions).

Rubinstein (1982) proposed models for these types of dynamic and sequential games in potentially indefinite temporary situations. With regard to equilibrium in dynamic games, Selten (1975) introduced the concept of perfect equilibrium related to subgames, Kreps and Wilson (1982), for their part, working from the definition of a sequential equilibrium, developed a model for dynamic games which improved on those previously proposed by Nash, Harsanyi and Selten.
Cooperation between economic agents

Since the 1950s, games theoreticians have been constructing formal models that have provided some very useful analytical elements for explaining why cooperation arises and its stability in particular situations.\textsuperscript{11}

In order to develop some principles for cooperation, it is possible to establish a framework resting on two behavioural assumptions for agents:\textsuperscript{12}

(i) Individuals follow their own interests; that is, the agents considered individually have their own interests and objectives; and
(ii) Individuals try to maximize their utility obeying rationality criteria; that is, they tend to search for their own economic efficiency (Pareto’s optimum).

We are going to consider that, in cooperation, resources are allocated efficiently – in a Pareto sense,\textsuperscript{13} when it is impossible to improve the welfare of any agents without worsening that of others, that is. This means there is no wastefulness in efficient situations, since when it occurs it is always possible to improve the situation of one agent without prejudicing others.

The following example may help to explain the concept of Pareto efficiency. We shall assume an economy where only two agents exist, A and B. The frontier of utility possibilities in Figure 4.3 shows the combinations of utility levels that each one can obtain with the goods consumed. Given a quantity of resources in the economy, the frontier shows the maximum utility level that A can reach corresponding to

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure4.3.png}
\caption{The frontier of utility possibilities}
\end{figure}
each of B's utility levels. The negative gradient shows that, if no resources are wasted, then, in order to improve the well being of A, it is necessary to withdraw resources from B and, therefore, worsen its well-being.

From any point inside the frontier, it is possible at least to improve one agent's well-being without prejudicing another’s, by moving to the frontier. Agent B obtains all goods at point $Y$, its utility is at the maximum level, given the goods that exist and, conversely, at point $Z$ agent A has all the existing goods and its utility is at its maximum possible level. Both point $Z$ and point $Y$ are efficient in a Pareto sense.

Even if efficiency in a Pareto sense represents a criterion for knowing how wasteful a certain situation is, nevertheless it does not tell us anything about whether this is the best way of allocating resources (points $Z$ and $Y$ would obviously be unfair and not very equitable). The problem lies in how to define equitable allocation. With regard to this and among the different viewpoints presented in the literature on the concept of equity, we should emphasize:

(a) The utilitarian view, which considers everyone’s utility to be identical and therefore maximizes total utility of all members of society.

(b) The egalitarian view, which involves an equalitarian distribution of goods among all members of society.

(c) The Rawlsian view, which allows inequalities by arguing that an equalitarian distribution of resources can eliminate the incentive that the majority of productive persons have to make an effort; by rewarding the most productive people, more goods and services can be produced to improve the well-being of the poorest members of society.

(d) The market-based view, according to which the result of the resource allocation process in a competitive market is equitable because it rewards those who are most capable and who work the most.

**Solutions to the cooperative game: the core of the cooperative game**

The theory of cooperative games concentrates its efforts on searching for optimum solutions from a Pareto point of view; for an agreement between agents intervening in the process. Cooperative negotiation can be represented graphically, as shown in Figure 4.4.

This figure represents a negotiating situation where there are two interested parties that can reach various agreements, and which we shall call the results of a cooperative game. Each party may evaluate, on a numerical scale, the attractiveness of each possible agreement, including
the possibility that there is no agreement; the starting point (point zero in the figure) represents the value where no agreement is reached, the denominated point of disagreement.

The value that each party obtains from the agreement as a consequence of negotiations is called utility or gain. The best alternative for each party is represented by an inner frontier set at the utility each of them must obtain from a negotiated agreement; this curve representing efficient agreements, or rather possible agreements – from each party’s point of view – regarding questions that could not be improved without prejudicing the other party. This curve is, in short, the Pareitian frontier of the negotiating situation. The shaded area, which represents all the utility combinations of the different possible agreements, is called the negotiating area.

The theory of cooperative games assumes that cooperation will take place when the game’s result is a Pareitian optimum. Given that all games usually have many Pareitian optima, the theory concentrates on the development of criteria aimed at deciding what Pareitian optimum should be considered to be the solution to the game, and which has led to the existence of a great number of very different solution concepts.

Of these, the solution proposed by Sebenius in describing the ‘negotiator’s dilemma’ proves very interesting. According to the latter, two types of strategy can be deduced from an analysis of the negotiating process between economic agents:

(i) Cooperative strategies that try to create value and to share it; and
(ii) Competitive strategies aimed at gaining value to beat the other party.
These results are represented graphically in Figure 4.5. The negotiator faces four possible situations in the dilemma:

- In zone A, the optimum frontier determines efficient but not equitable solutions, since Party 1 cooperates and Party 2 competes;
- In D, as in A, the frontier would determine efficient but not equitable solutions, since in this case it would be Party 1 who competes and Party 2 who cooperates;
- In B, the optimum frontier determines efficient and equitable solutions where both agents collaborate; and
- C, finally, determines a series of solutions that are not optimum from an efficiency point of view and where it is in both parties' interest to compete and not to cooperate.

Both principles, therefore, *efficiency* and *equity*, represent the mainstay of cooperation between rational economic agents. For cooperation to take place, in addition to both the agents involved in negotiation searching for joint economic efficiency (Pareto’s optimum), these solutions should also be equitable, corresponding to those where the agents attempt to create value and to share it.

**Principles for cooperation**

Cooperation, as we have seen, involves the establishment of a contractual relationship between companies jointly to carry out a particular business function. For cooperation to take place there must be an incentive, and this will exist provided that collaborating companies obtain greater utility than they would individually.
The main questions generally posed by business cooperation are:

- What is the optimum number of companies in the collaboration agreement?
- What are the incentives to collaboration?
- How should cooperation liabilities (costs) and profits be shared in order to guarantee distributive equity and, in turn, to maintain cohesion between members?

The theory of cooperative games tries to answer these questions, and the following principles having been postulated.

**First principle**

The incentive to cooperate arises when the total utility of acting in conjunction is greater than the sum of utilities for each participant considered individually. The incentive to cooperate in the theory of cooperative games is specified as the characteristic function of cooperation.

**Second principle**

Profit obtained by cooperation will be shared, so that the sum of profits allocated to each participant equals total profits (maximum economic efficiency or Pareto’s optimum).

Total profit obtained – or the cooperation earnings function – determines the denominated core solutions of the cooperative game, which represents the profit or earnings obtained by each agent. The core, as we have seen, is demarcated by the frontier of utility possibilities that show the maximum level of utility an agent can achieve for every level of the other agent’s utility, efficient situations in a Pareto sense (see Figure 4.4), that is.

Inefficient cooperative solutions can be produced within the frontier, since by moving to the frontier it is possible at least to improve one agent’s utility without prejudicing the other’s.

Furthermore, and in order to compare points located on the frontier, the need arises to seek solutions for equitable distribution that give equilibrium situation results, which the agents have no incentive to abandon.

**Third principle**

Individual rationality requires each participant to contribute resources, at least similar to those provided individually. This means that the
characteristic function of cooperation produces joint profit with respect to the individual situation. The cooperative game is questioned if, in order to obtain greater profit or earnings, each agent has to provide more resources than it would use in the case of acting individually.

**Fourth principle**

The condition of group rationality determines that profits obtained by a certain number of companies will be lower than that obtained by incorporating a new element into cooperation. This is because the incorporation of a new agent should increase collective utility, according to the first principle.

The Shapley index determines the average value of each agent’s contribution to the cooperation group already established.

**Repetitive games as incentives to cooperate**

Up to now we have looked at basic outlines of game theory and the criteria according to which agents will participate in cooperative games.

We have also pointed out that mutually cooperative behaviour gives higher profits for the group than the agents would obtain when considered individually. Nevertheless, in assessing agent behaviour, we have assumed that they pursue their own interests (individual utility) and maximize utility by obeying economically rational criteria.

The example of the prisoner’s dilemma, analysed at the beginning of the chapter, shows how individual rationality can lead to collective irrationality, and to the worst result from a collective point of view. In a game of this type, which is only going to last for one round, the most interesting rational option for each individual consists in not cooperating (if prisoners cooperated and chose to keep quiet, they would both receive one-month sentences, obviously the most favourable circumstance for both parties).

It should then be asked if there is any possibility of cooperation taking place and, if so, in what conditions. Axelrod (1984) answers this question by analysing a particular type of cooperation that cannot be generalized and is called *reciprocal cooperation*.21

According to this author, reciprocal cooperation between selfish and rational agents is possible, if the *temporary dimension* is introduced in repeating the game an indeterminate number of times, and if such agents decide to base their respective behaviour norms with relation to the other party on the *reciprocity principle*.

He states that cooperation may take place in the present when the probability of two agents meeting and being connected in the future is
high enough. This argument is based on the grounds that two dimensions are introduced into the context of repeated games, the past and future between agents, dimensions that change the static situation of the prisoner's dilemma substantially.

When the temporary dimension is specifically introduced into a repeated game situation, there exists some probability that two agents may meet again in the future. In this respect, today’s decisions will not only affect the present, but will also exert an influence on the future decisions of participants. Present decisions constitute past information for agents in the future and, given the rational behaviour assumption, this information will therefore be incorporated into the decision-making process in the future.  

If there is a strong probability of prolonged interaction (either because interactions become more lasting, or because they are more frequent) between two agents in the future, each will have an interest in adopting cooperative behaviour, expecting it to be reciprocated by the other party because this mode will maximize their future income.

The possibility of prolonged interaction therefore represents a necessary condition for cooperation; it is not sufficient, nevertheless, since the question of what behaviour norms will be adopted by agents still remains to be resolved.

The most interesting and profitable behaviour, according to Axelrod (1984), is a ‘tit-for-tat’ one based on the principle of reciprocity. This is a question of a conditional strategy that consists initially in cooperating and subsequently acting in the same way as does the other agent. This behaviour therefore incorporates a guarantee mechanism to avoid opportunism by the other party: the punishment of not cooperating in successive games. This punishment means a significant reduction in future income for the other party with respect to what is potentially achievable if the two agents cooperate. This guarantee mechanism, in turn, benefits from reputation and learning resulting from past interactions.

The tit-for-tat strategy is credible, because if one player cheats, it is clear that it is not in the other’s interest to continue to comply with the agreement. The threat of cheating in the following period is believable and sufficient to support the monopoly equilibrium result.

In general, the probability of two agents meeting again depends on the environment in which they are located. Studying distance (or proximity) between agents is likely, initially, to be tackled from three different perspectives.
(i) From a geographical perspective, where the relevant variable in this case is physical distance;
(ii) From a sectorial perspective, where proximity is achieved in terms of productive activity through complementary and similar activities; and
(iii) From an organizational perspective, with the associations or federations that join certain types of company acting as channels and leading to organizational proximity.

Knowledge of the environmental structure in which agents are located enables the potential of reciprocal cooperation to be measured. According to this approach, one of the means of promoting cooperation in a situation of scarce proximity consists in reorganizing the socioeconomic structure (by favouring the creation of associative networks, for example, or the appearance of companies with complementary activities to existing ones and so on) so that the level of proximity is increased, and the future level of interaction is augmented.

**Example**

Let us suppose that three companies in the same sector observe that competitors are buying from their supplier at cheaper prices. The reason is that they are buying raw materials jointly, generating economies of the scale of approximately 20–30 per cent.

In this situation, the three companies consider reaching a cooperation agreement with a similar objective to that of their competitors. In the initial exposition, certain reluctance and doubts arise in companies regarding the: number of partners (two or three companies), and how to distribute benefits of cooperation between companies.

The raw materials purchase is regulated by a price function as shown in Figure 4.6. We can observe that economies of scale takes place from 1500 units of purchase.

![Figure 4.6 Price function regulation](image-url)
With fewer purchases than this amount, the price remains constant. For additional purchases, the price follows an exponential function decreasing with the amount bought, with a coefficient \( \varphi = 7.926 \times 10^{-5} \). This supposes that, purchasing 4500 units, the price is reduced to 70 per cent.

We considered that each company acquires the following amounts individually: Company A buys 1500 units; Company B buys 2000 units; and Company C buys 3500 units.

Table 4.1 shows the prices of raw materials in different possible purchase combinations:

- First case: Self-supplying by each company;
- Second case: Coalition of two companies; and
- Third case: Coalition of three companies.

Next, we defined the characteristic function of cooperative game, \( V(n) \), as the saving in price when \( n \) agents cooperate to buy raw materials, in relation to individual situation. Therefore, the function represents the joint capital gain (or joint utility) that the set of \( n \) agents in cooperation obtains by this purchase.

In Table 4.2, we have calculated the characteristic function for each case. The table shows that the greater saving is obtained (the greater characteristic function) when cooperation takes place between the three companies. Therefore, as is pointed out in second principle, we are obliged to distribute the total profit (or saving) between all companies. If we represented it by \( X(A) \), \( X(B) \) and \( X(C) \) the following corresponds to each company:

\[
X(A) + X(B) + X(C) = 64\,360\,000 \text{ m.u.} \quad \text{(Pareto efficiency principle)}.
\]
The question is how to distribute the total profit in relation to the contribution from each agent. The following restrictions represent the conditions imposed:

(i) \( X(A) \geq 0; \)
(ii) \( X(B) \geq 0; \)
(iii) \( X(C) \geq 0; \)
(iv) \( X(A) + X(B) \geq 19\,400\,000 \text{ m.u.} \)
(v) \( X(B) + X(C) \geq 28\,060\,000 \text{ m.u.} \); and
(vi) \( X(A) + X(C) \geq 22\,830\,000 \text{ m.u.} \)

The solution that verifies the previous condition will be a reasonable solution. The set of payments – profit/saving, will be included by previous equations, which constitutes the core of the game.

Core conditions are a direct generalization of Pareto conditions and individual rationality, but demand each individual payment to each company is at least the amount that the company can obtain by itself: \( X(n) \geq V(n) \), with \( n = A, B \) and \( C \). Core determines the upper limit of results from each coalition; that is, its existence means that no coalition formed by fewer agents obtains a greater benefit.

Considering previous reasoning discussed in this chapter, trying to predict the cooperation agreement result seems to be quite a dangerous activity, since it is logical to think that players’ personalities, their environments, the communication facilities and so on, each have their own effects on the subject.

Lloyd S. Shapley (1972) proposed a formula to calculate each player’s value in a determined game. The value obtained by each player depends exclusively on the characteristic function \( V(n) \), abstracting previously mentioned factors.
The value of Shapley is a solution concept that can be explained as an average of marginal contributions of player $i$ to all possible coalitions.

In order to calculate the solution – core of the game – we shall calculate the savings distribution obtained by the possible combinations of intervening agents in coalition $S_n(i)$. Table 4.3 shows each company contribution to diverse coalitions.

Therefore, the maximum contribution of each agent will be:

(i) $S_3(A) = 36\ 300\ 000$ m.u.;
(ii) $S_3(B) = 41\ 530\ 000$ m.u.; and
(iii) $S_3(C) = 44\ 960\ 000$ m.u.

Table 4.4 shows each company average contribution to the coalition or Shapley value.

The factor $\gamma$ is the index's probability for each coalition. In the case of the Shapley index, all coalitions have the same probability $(1/3)$.

### Table 4.3 Company contributions to diverse coalitions

<table>
<thead>
<tr>
<th>Case</th>
<th>Coalition</th>
<th>Companies</th>
<th>Function saving value $S_n(i)(m.u.)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>A</td>
<td>A</td>
<td>$S_1(A) = 0$</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>B</td>
<td>$S_1(B) = 0$</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>C</td>
<td>$S_1(C) = 0$</td>
</tr>
<tr>
<td>Second</td>
<td>A $\cup$ B</td>
<td>A</td>
<td>$S_2(A) = V(A \cup B) - V(B) = 19\ 400\ 000$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>$S_2(B) = V(A \cup B) - V(A) = 19\ 400\ 000$</td>
</tr>
<tr>
<td></td>
<td>A $\cup$ C</td>
<td>A</td>
<td>$S_2(A) = V(A \cup C) - V(C) = 22\ 830\ 000$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>$S_2(C) = V(A \cup C) - V(A) = 22\ 830\ 000$</td>
</tr>
<tr>
<td></td>
<td>B $\cup$ C</td>
<td>B</td>
<td>$S_2(B) = V(B \cup C) - V(C) = 28\ 060\ 000$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>$S_2(C) = V(B \cup C) - V(A) = 28\ 060\ 000$</td>
</tr>
<tr>
<td>Third</td>
<td>A $\cup$ B $\cup$ C</td>
<td>A</td>
<td>$S_3(A) = V(A \cup B \cup C) - V(B \cup C) = 36\ 300\ 000$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>$S_3(B) = V(A \cup B \cup C) - V(A \cup C) = 41\ 530\ 000$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>$S_3(C) = V(A \cup B \cup C) - V(A \cup B) = 44\ 960\ 000$</td>
</tr>
</tbody>
</table>

### Table 4.4 Average contributions

<table>
<thead>
<tr>
<th>Company</th>
<th>Average contribution $\mu(i)$ (Shapley value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$\mu(A) = \gamma (\sum S_n(A)/2) = 16\ 500\ 000$ u.m.</td>
</tr>
<tr>
<td>B</td>
<td>$\mu(B) = \gamma (\sum S_n(B)/2) = 18\ 900\ 000$ u.m.</td>
</tr>
<tr>
<td>C</td>
<td>$\mu(C) = \gamma (\sum S_n(C)/2) = 28\ 960\ 000$ u.m.</td>
</tr>
</tbody>
</table>
Therefore, $\mu(a) + \mu(b) + \mu(Cs) = 64360000$ u.m. Of which, we can deduce that the Shapley value shows the saving each company contributes to the coalition.

This can be viewed graphically in Figure 4.7 that shows the core of the cooperative game.

*Figure 4.7  Core of the cooperative game*
Deciding on, Negotiating and Structuring Cooperation

The decision to cooperate

In this first paragraph we propose to analyse the reasons that lead companies to consider the possibility of cooperating with other companies, and the process leading up to this decision.

To do this, we shall first conduct a brief review of the company decision concept, with special reference to decision-making in uncertain environments and with limited information. Subsequently we shall analyse, from the different viewpoints covered in this book, the theoretical justifications on which decisions to cooperate rest.

Factors conditioning the decision

Decisions in general, and business decisions in particular, involve choosing between alternatives whose result is unknown. Because of the lack of information held by the decision-maker about a series of variable factors in the environment, the main feature characterizing decision-making is therefore uncertainty. Uncertainty is generated by the different options available to the decision-maker, and by environmental changes, which are considered to be exogenous variables not controlled by the latter.¹

On other occasions, uncertainty is a result of not knowing with any certainty what another agent’s behaviour will be, but whose decision in turn conditions the consequences of the first agent’s decisions. This situation, as we have already seen, is covered by game theory. This analysis, while not reaching definite conclusions with respect to the second agent’s behaviour, does still give an idea of its possible actions on the basis of supposed logic regarding its rationality.
Problems of deciding in uncertain conditions will therefore be characterized by the existence of a set of alternatives – depending on an environment that is not controlled by the decision-maker – and by other agents’ behaviour, which will result in a series of possible actions from which to choose.

Once the variables have been determined, the decision can be studied in two classical ways: by normal analysis and by extensive analysis. Normal analysis presents the problem from a viewpoint that introduces the strategy concept as a principle of decision-making. The actions to be taken are determined by observing certain behaviour, both in the environment and of other agents. The expected result of each strategy depends on the probability that contemplated actions are taken, and on the profits achieved by each action and environmental state. It is therefore possible to estimate the probability of each action being taken within a particular strategy and environment.

Extensive analysis, for its part, is identified with transforming the decision problem on a ‘tree’ where the alternatives are arranged in sequence as though they were ordered chronologically. Extensive analysis incorporates criteria of choice between alternatives based on maximum expected profit or dominant strategy, in Nash’s terminology.

**Theoretical justifications for the decision to cooperate**

Just as it has been analysed in this book, cooperation can be tackled by various theoretical approaches. The main reasons leading the decision-maker towards cooperation can therefore be justified from these different viewpoints.

First, from transaction cost theory it is possible to look at cooperation as a means of reducing costs. These costs resulting from using the market, in an economic environment that (like the current one in the early 2000s) is characterized by a high level of uncertainty. If, on the other hand, the specificity of assets exchanged and transaction frequency are taken into account, these are also features that can be used to indicate the advantages of cooperation.

Second, from a strategic point of view, two reasons have been suggested for cooperation between companies: obtaining greater size in markets that function with volume logic (volume strategy); and obtaining complementary or synergistic resources for company activities (complementary strategies). As well as these, cooperation also results from the need to combine business growth – without losing flexibility – and adaptation to ever-changing markets.
Third, the theory of organization, for its part, presents the need for a company to interact with its environment and, in this sense, cooperation with other companies represents a way of adapting to characteristics from the environment. Cooperation enables companies to be both global and flexible, and ones that make it possible either to achieve an important presence in markets (globalization strategy), concentrate on their competitive advantage (concentration strategy); or have greater capacity for reaction in the light of changes to the environment (adaptation strategy).

Finally, game theory presents the main argument for cooperation as being the achievement of greater profits between cooperating companies than those resulting from individual actions such as anticipating or responding to other companies’ behaviour.

**The negotiating process and the agreement**

The negotiating process with other economic agents can be analysed as a series of distinct, though inter-related, phases, whose study can be of some assistance when it comes to planning and learning from past experience in order to improve negotiating capacity in general.

In the negotiating period, management staff get to know one another. The conviction that partners will behave correctly in both formalizing and executing the agreement creates a climate of ‘mutual trust’ that is translated into a lesser probability of opportunist actions. Generally, when a company decides to negotiate a cooperation agreement with other companies, it has some minimum security that it will not subsequently be harmed if the second party lets it down. This guarantee mechanism, which has been identified as trust, is based on the establishment of cooperation.

Several authors have added a series of reflections to the concept of trust, even though economists have not yet defined them generally. Planque (1991) points out that, for trust to be considered as a guarantee mechanism, it is necessary for two conditions to be met. The first is related to the existence of a propitious geographical, technological, economical, social or cultural environment that favours the frequency and duration of future contracts where reciprocal behaviour can be demonstrated. The second, also presented by Jacquemin (1988), is related to past experience, which generates two types of effect:

(i) Prestige, in terms of service quality, honesty, efficiency and so on. This is translated into expectations of encountering few problems – and
therefore low transaction costs – if relations are established with prestigious agents; and
(ii) Learning, both in relation to other agents’ behaviour and to the utility of cooperation as a tool.7

The negotiating phase is generally a long one, constituting a repetitive process involving both the convergence and distancing of agents and which concludes – if the result is positive – in an agreement that gives rise to cooperation. A series of company members proposing cooperation intervene in a well-planned negotiating process, each of them playing a particular role, and enabling suitable communication channels to be established between partners, thereby facilitating the introduction of joint activities.

The following phases may be distinguished in the negotiating process.8

(a) Establishing contact;
(b) Planning;
(c) Evaluating options;
(d) Reaching a consensus; and
(e) Creating the agreement.

In the establishing contact phase the bases of effective inter-personal relationships are established – creating a suitable climate by exchanging information – and the needs of the other party are explored by checking available a priori information. The negotiating agenda is normally established in this phase: terms, subjects to be discussed and other considerations.

In the planning phase, the problem to be discussed during negotiation is outlined and defined. It is important when planning to anticipate possible answers by the other party, as well as considering different alternatives that will allow more flexible positions in the event that unforeseen circumstances arise.

With respect to the option evaluation stage, the creativity of the parties involved is essential to discover any mutually satisfactory possibilities. Primarily, strategic, economic and financial aspects of the agreement are discussed in this phase. To appraise each partner’s contribution is often a problem – especially when it concerns intangible assets such as brand name, skills, control of a particular technology, and so on – and the participation in output they receive in exchange.
Steps towards *reaching a consensus* can be described as a series of successive offers and counter-offers in which each party’s proposals include the amount of resources they should contribute and the participation in output they will receive in exchange, each proposal thus determining net utility for the negotiators.\(^9\)

Consensus, in this sense, is influenced by two basic factors: (i) the risk of breaking off negotiations; and (ii) opportunity costs, determined by the time that elapses before an agreement is reached. Net utility can, in any case, never be less than what each negotiator could obtain, in alternative opportunities, by using their own resources.

Equilibrium in contributions or, more explicitly, in the relationship between the profits and costs that each company hopes to obtain from cooperation, is very important, since, when a company obtains utility that is clearly higher than others, this generates mistrust and makes the latter show very little interest in cooperation.\(^10\)

The option evaluation stage generally has double significance: on the one hand it involves contemplating, within negotiations, questions relative to establishing cooperation, but on the other, it creates a climate of understanding through personal relationships and trust between negotiators that will be very important for the subsequent success of the cooperation.\(^11\)

The result of negotiations materializes into the *formalization of the cooperation agreement*, which will be the most complete one possible, even when possible future eventualities are considered. Operational aspects related to cooperation management are also finalized in this phase, such as costs, terms, communication systems, the resolution of functional problems and so on.

The agreement means a negotiated solution for establishing cooperation. It has already been pointed out in analysing game theory how the solution is stated based on principles of searching for efficiency (Pareto’s optimum) and searching for equity (cooperative games).\(^12\) The solution to the negotiating game is to define the *core utilities* for each participant, which determine:

- Profits obtained from cooperation by each agent, which should correspond to the cooperation core, taking average levels to be those fixed by the Shapley index; and
- The resources to be contributed by each agent that, as determined by the cooperation principles expressed in the previous chapter, should not exceed those borne by each agent in the event of acting individually.
Table 5.1 summarizes some remarks the negotiation should observe.

### Table 5.1 Factors to consider in negotiating cooperation

<table>
<thead>
<tr>
<th>Negotiating factors</th>
<th>Operating factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partners’ objectives</td>
<td>Economic efficiency</td>
</tr>
<tr>
<td>Cooperation objectives</td>
<td>Equity</td>
</tr>
<tr>
<td>Duration of the cooperation</td>
<td>Breakthrough point</td>
</tr>
<tr>
<td>Partners’ contribution</td>
<td>Asymmetries between agents</td>
</tr>
<tr>
<td>Results distribution</td>
<td>Cooperation nucleus</td>
</tr>
<tr>
<td></td>
<td>Resources to contribute</td>
</tr>
<tr>
<td></td>
<td>Maximization of collective utility</td>
</tr>
</tbody>
</table>

The cooperative agreement: a dilemma between conflict and cooperation

We have already seen in Chapter 4 the prisoner’s dilemma, when introducing the study of game theory. In this example we note that the game solution was the Nash equilibrium, in which both prisoners confess. This decision is justified because each player chooses the option that maximizes his/her individual benefit. Also, through the collusion example, it was shown that another equilibrium exists, the cooperative equilibrium in which game results are more favourable for both players. The question we shall analyse next is why the probability of achieving this is so low.

A priori, individuals recognize that in pursuing their own objectives they may enter into conflict with other agents. Also, they observe that by acting cooperatively they can obtain superior results. However, cooperation requires that contributions and retributions are clearly defined in the agreement, and mainly demands that each part is fully committed to the liability. This last aspect is difficult to assure, since the individuals are often interested in taking advantage of the cooperation without incurring any of its associated costs. In the example of the prisoner’s dilemma, if both prisoners agree to remain silent but one of them fails to fulfil their promise, the one that confesses would be free, which is more beneficial than a month in jail if the pact were fulfilled.

Tension therefore exists between individual interest and the necessity to coordinate when cooperation with other individuals is proposed.

In the real world, this dilemma is increased because, in addition, cooperation agreements usually tie in a wide variety of institutions and organizations, with multiple objectives and preferences, with differential
information among themselves, with different capacities and decision-making criteria, and all of this against a background of uncertain environments.\textsuperscript{13} Conflict in the agreed cooperation, understood as tension between two or more organizations arising from incompatibility of actual or desired reactions, is thus a constant threat. Situations of conflict sometimes arise from structural agreement aspects,\textsuperscript{14} such as incompatible objectives, or disagreement on decisions and contributions of resources (clear conflict). In others, they are related to attitudes and feelings among agreement members, associated with disagreements about functions to be carried out, and with expectations, perceptions and communication (underlying conflicts). We could therefore consider relations between agents in agreements to be a game of dynamic equilibrium between cooperation and conflict, which increases management complexity, because of the difficulty in predicting participating agents’ behaviour.

**The difficulties in cooperative behaviour**

Reviewing the literature, we found diverse difficulties in cooperative behaviour between agents taking part in agreements. These reasons refer to three different levels of analysis:

(i) The individual agents’ behaviour;
(ii) The heterogeneity between the agents who take part in the agreement; and
(iii) The complexity in the decision-making.

**The individual agents’ behaviour**

We have already seen how economic agents frequently diverge from classical maximizing behaviour as a result of differing circumstance. Some highlight the difficulty of maximizing behaviour in situations of imperfect information. On the other hand, others emphasize the non-coherence between the maximization objective and the agents’ level of satisfaction because of individual preferences, and, on other occasions, it is the agents’ own inertia that leads to limited rationality situations (such as when the individual does not vary his/her behaviour, for example, when environmental conditions change).

Faced with the difficulty of identifying rational individual behaviour, J. G. March and H. A. Simon (1958) developed a theory to explain individual behaviour when limited rationality exists (when the variable explaining an individual’s behaviour is satisfaction and not maximization, for example), basing their analysis on the satisfaction–effort–reward triangle.\textsuperscript{15} In the presence of limited rationality, an individual agent’s
behaviour may differ from that predicted, possible discrepancies therefore occurring in the group’s objectives when an individual’s activity is inserted into an organization (or into an agreement).

The heterogeneity between the agents who take part in the agreement

Each agent who takes part in a cooperation agreement has his/her own objectives and preferences, therefore it is normal that conflict situations arise between individual objectives and those in the agreement.

From the viewpoint of game theory, in cooperation agreements two economic agents interact to carry out a common task (game). In this game, every economic agent sets individual objectives – and consequent behaviour – that has to be agreed upon (negotiated) to carry out the common task.

The game thus described has certain parallels with the process of fixing objectives and interests in organizations. No criteria generally exist in organizational thinking with regard to whether the organization has its own objectives or whether they are proposed by the individuals within it, something that possibly leads to conflict in setting objectives within the organization.

Marshak (1974) establishes different types of economic organization, taking the distinguishing criteria to be the relationship that may exist between the objectives of the organization and those of its members, giving rise to three possible situations:

(i) Where an objective exists for the organization that coincides with the individual objectives of the participants (the team);
(ii) When an organization objective exists but individuals have other objectives that do not coincide with it (foundation); and
(iii) When members have objectives, but the organization does not (coalition).

These situations distinguish between organizations that function without conflicts and divergent objectives between members – the team – and those where conflict and divergence is present – foundations and coalitions.

Relations between agents in agreements may be described as a game of dynamic equilibrium, between cooperation and conflict; that is, between team and coalition.

Coalition therefore responds to an organization model where each member decides on his/her participation in the collective task by maximizing his/her own individual utility. This apparent paradox between

optimizing individual utility and forming part of an organization is resolved by taking into account that the result of acting collectively is greater than the sum of profit each member obtains by acting individually. Although the existence of this profit is what promotes cooperation, conflict of interest can arise because each participant is not indifferent as to how remuneration is shared.

From a methodological point of view, the coalition model considers a group of agents where each contributes a resource to the collective task. The result is obtained from all the members’ contributions and shared between participants in accordance with a previously established remuneration function. Each agent’s utility increases with remuneration and decreases with the quantity of resources s/he contributes to carrying out the collective task.

Since the decision of each member is taken from a view of individual rationality, it could be the case that the contribution provided is less than efficient from a collective point of view. The coalition model, therefore, might not ensure an efficient allocation of resources.

**Example**

Let us suppose that two companies reach an agreement to launch a product jointly on the market, and consider why the output of each company will depend on actions taken by the other.

Since it is costly to measure individual actions, each company has an interest in reducing its efforts and taking advantage of the efforts contributed by the other party.

The output obtained from two companies’ actions are:

\[ Y = (a_1)^{1/2} (a_2)^{1/2} \]

Where \( Y \) is the output and \( a_1, a_2 \) are the efforts contributed by the two companies. The utility of each agent depends on the actions that s/he selects and on the remuneration that s/he receives. The distribution of output between agents settles down with the function:

\[ S_i = \frac{Y}{2} \]

That is, output obtained by the group is divided equally between the two companies. The utility of each agent is:

\[ U_i = \frac{Y}{2} (a_i)^{-2/3}, \ i = 1, 2. \]
Let us suppose that each company can contribute two effort levels: $a^i = 2$ and $a^i = 4$ and each company selects the effort level that maximizes its utility.

Actions and utility values are represented by the payoff matrix shown in Figure 5.1.

The exposition is similar to the prisoner’s dilemma. If Company 1 thinks the other company is going to make a maximum effort, its better strategy is to deliver a minimum effort. The same applies to Company 2. Both companies have a dominant strategy consisting of minimum effort. The game solution is a Nash equilibrium, which is inefficient.

If each agreement participant has the unilateral capacity to decide the amount of resources to contribute to collective action, their decision is not going to agree with collective efficiency. This always occurs in contracts whose remuneration is based on output.

**The complexity in decision-making**

As Popper (1982) indicates in relation to behaviour laws, economic agents’ decisions are the result of three worlds interacting: the physical-chemical-biological one; the psychological one; and the intellectual one.\(^{18}\) For Perroux (1980) the agent is activity, and it is agents’ activity that turns the economy into a conflict-cooperation game.\(^{19}\)

By looking at the conjunction of these contributions, we can state that *complexity* underlies as much in agents’ decisions as performances. It explains that agents’ behaviour in cooperation agreements is sometimes unpredictable and does not always match expected outcomes. The decisions’ complexity has its origins in two concepts: uncertainty and ambiguity.

*Uncertainty*, according to information theory and decision theory, is associated with situations in which it is possible to identify the set of
results but any probability distribution is not assignable. In an organiza-
tional context, Galbraith (1973) defines uncertainty as the difference
between the information required to develop a task, and the informa-
tion that an organization has.\(^{20}\) The absence of information is common
in both definitions, and the reason why a reduction in uncertainty
demands information storage of unknown variables.

Several authors nevertheless suggest that uncertainty does not explain
sufficiently the real world that organizations face when they must make
decisions.\(^{21}\) They argue that, frequently, it is difficult – if not impossible –
to identify possible results derived from a decision. In these cases, decision-
making is made under conditions of \textit{ambiguity}, in which multiple and
conflicting interpretations exists.\(^{22}\)

Schrader \textit{et al} (1993) indicate that difference between both situations
is in mental models used by organizations to solve problems. The uncer-
tainty/ambiguity matrix shown in Table 5.2 summarizes this point of
view.\(^{23}\)

We can synthesize, therefore, that when economic agents act in
a cooperative agreement diverse circumstances are going to influence
their decisions, and can change the expected behaviour. These are:

(a) Uncertainty or the absence of information;
(b) Disparities in the agents’ objectives; and
(c) Ambiguity in decision-making.

The scheme shown in Figure 5.2 is a simplified decision model, with
the difficulties we have analysed included.
Solutions for a cooperative game: the need to structure cooperation

To solve problems between conflict and cooperation in agreements, multiple mechanisms to formalize individual behaviour need to be generated. We can classify the mechanisms used to solve cooperation games into two groups:

(i) Internal, affecting the economic agent (commitment and confidence); and
(ii) External, which introduces the need to structure the cooperation between agents (hierarchy, incentives, exchange and information).

Related to internal mechanisms, we have already noted, when studying the game theory, how incentives to cooperate appear when the temporary dimension is introduced. A repeated game establishes a relationship between the players.

Although game repetition by itself does not give rise to learning, we can consider that a perspective of game repetition can modify behaviour, allowing players to develop strategies in which future behaviour is conditioned by their previous performance.24

In cooperation agreements, for example, different phases in the negotiating process allow the exploration of future partners’ attitudes and the development of confidence between them. If an offer of absolute cooperation from one partner is not reciprocal, collaboration will cease. If on the contrary the answer is favourable, the partners will continue collaborating. Only a long-term relationship can obtain this result. If the end of the relationship is expected, each partner considers behaviours that maximize individual profit instead of maximizing joint gains.
The temporary dimension in a game also introduces other favourable factors\textsuperscript{25} to attain a cooperative equilibrium: commitment and confidence. Returning to the prisoner’s dilemma example, if both of the prisoners have committed crimes together previously, both already know the other's behaviour when they are under arrest. They will look for the most beneficial equilibrium for each other. Commitment is a reciprocal option in which it is not only important that one is committed to fulfil, but also is important that the other is able to respect the commitment and to act consequently.

Also we can suppose that neither of the two prisoners knows how the other one is going to act. The lawyer is a friend of both of them, which is the reason why he will want to obtain the same result for both prisoners in order to avoid being questioned about his performance. Coordination in performances through an external agent is how to obtain the best possible result for both. Hierarchy, in the sense of ‘power of influence’ on decision-making by participants, breaks symmetry between the Nash equilibrium and cooperative equilibrium and is necessary as a way to solve coordination problems. Hierarchy is an external mechanism that allows solving the game through cooperation.

Another external mechanism to attain cooperative equilibrium is to introduce an incentive into the game. In the prisoner’s dilemma example, we see that when one of the prisoners keeps silent and the other one confesses, this last one is free. Let us suppose that the situation changes for the game result, also introducing a sentence for the one who confesses, although smaller, three months in prison for example. Both delinquents will be interested in reaching an agreement and not confessing, since this option implies a smaller sentence for both. Incentives, therefore, can change the game result, favouring achievement of a cooperative equilibrium.

Labourdette (1992) points out that after the above; the basic external control mechanisms for individual behaviour are exchange and information.\textsuperscript{26} Exchange represents a fundamental factor in an organization. A series of tasks, activities and processes are carried out in the organization that, placed in order, are useful to achieve the organization’s objectives. The intensity of the interaction between agents is essential, and depends on the frequency and duration of contact.

With respect to information, each individual agent – according to their authority and preferences and depending on information received – will also perform actions that should be able to harmonize with individual and organizational objectives.
Both external control mechanisms for individual behaviour represent the basis for control systems in organizations,\textsuperscript{27} from which the following should be mentioned:

(i) Mechanisms reinforcing individual behaviour (behaviour rewards or penalty systems);
(ii) Mechanisms for adapting to group norms (group learning, organizational culture and so on); and
(iii) Mechanisms for tasks list (the organization is a system of connections between agents that can perform various functions).

With the introduction of external control mechanisms for individual behaviour, the foundations of organizational design are laid. The organizational design is defined as the process that specifies the organization’s structure, or the way in which a series of relations, information flows, and decisions are organized and formalized. These allow establishing the hierarchical levels in which they are to be applied in order to achieve suitable communication and coordination between components.\textsuperscript{28}

The aim is that the functions carried out correspond to the common plan. Organizational design therefore considers three basic factors:\textsuperscript{29}

(i) Analysis of the series of tasks, activities and processes necessary to achieve the organization’s objectives;
(ii) A system of authority, materializing into a distribution of hierarchical levels between individuals comprising the organization; and
(iii) The establishment of a decision process between individuals who comprise the organization, so that decision-making will depend on their functions and responsibilities.

In designing organizations, therefore, the aim is to achieve a certain order or balance between individuals, their preferences, and activities with respect to available resources to fulfil certain objectives, both for the organization and for the individuals. For this reason, the design of an organization functioning mechanism involves the creation of an external control system for individual behaviour.

**Synthesis of organizational design for cooperation**

Taking the characteristics displayed by the phenomenon of cooperation into account and according to these, it is possible to try to formulate – as in all business projects – the strategies, objectives, and operating plans
that favour the establishment of a real organization for *implementing cooperation*.

These aspects materialize into the design of an *organizational structure*, in a *decision-making system*, and a *communication and information system* whose contents we shall briefly identify.\(^{30}\)

**Organizational design structure**

By considering the different levels of involvement that company cooperation can materialize into, a wide range of possibilities may be obtained: from the new organization for which a structure should be created, to the other extreme of deciding on the people who should be involved in cooperation (for example, in the case of an association agreement).

Depending on the case, it will therefore be necessary to adjust some coordination mechanisms and to determine whether they require the creation of specific working teams or autonomous, organizational units.

In the first hypothesis, when cooperation takes the shape of a separate body of associates, we could use classical business design.\(^{31}\)

**Systems for decision-making and control**

Conventional processes and systems for decision-making and control are, in the case of cooperation, becoming more informal and flexible.\(^{32}\)

With respect to decision-making systems, it is necessary to design procedures for establishing whose responsibility it will be, in what areas they will have the power to decide and how they will make decisions. Consensus is the key in this respect and it is usually the most widely used mechanism.

As for control, systems with sufficient flexibility and dynamism are generally sought. The use of new information and communications technology is facilitating the rapid and continuous inter-connection between different companies that are cooperating together in carrying out projects.

**Communication and information systems**

It has already been pointed out that the most favoured company cooperation has resulted from the appearance of new information and communications technology. This has meant that companies can be in constant communication in spite of different and distant locations. In this respect, when designing a communications and information system, factors like the type of information communicated, its frequency, and the people involved are all taken into account. Failure to consider these
points may lead to situations favouring the independent execution of tasks by partners and result in the group’s lack of coordination.

In summation, classical organizational management – concentrating almost exclusively on formal and structural design – only offers partial solutions for the design of company cooperation, since a series of particularities should be taken into account with the latter, such as:\(^{33}\)

(i) The weakness of the formal structure and the influence of social relations that generally represent the force by which different cooperating companies are integrated; and
(ii) Different levels of involvement that can be achieved between organizations by establishing cooperation agreements that justify the absence of a single design.

In this respect, company cooperation – at least in forms next to the market – shares many of the characteristics of pre-capitalist organizations:

(i) They are structured around a charismatic authority (the coordinator). This figure subsequently disappears in the bureaucratic organization;
(ii) The division of tasks is neither rigid nor regular, and the coordinator normally carries out its allocation;
(iii) Authority relationships are diffuse and based on personal loyalty and consensus, not being ordered into a clear hierarchy; and
(iv) In selecting members to participate in the agreement, particular criteria are used according to the purpose of the cooperation.

The organizational outline that arises from company cooperation is characterized by a tendency to achieve the maximum degree of flexibility, decentralized planning and control and the substitution of vertical relations by lateral links.

**Consistency and stability in cooperation agreements**

Making a resemblance with Mechanics, we can introduce the consistency concept in cooperation agreements to refer to different circumstances that are going to assist the agreement to endure.

The Economics of Chaos (chaos dynamic) introduces the concept of entropy, indicating that the natural tendency of organizations is decomposition, leaving its individual units under maximum disorder (chaos). In the case of cooperation agreements, entropy is showing
a like tendency to rupture, derived from not only agents’ behaviour but also the environment evolution.

From our point of view, we will consider greater consistency in agreements is directly related to the agreement’s stability. Consistency, and therefore stability, will depend on the following variables:

(i) The economic advantages obtained when deciding in favour of an intermediate form between market and the internalization of activities;
(ii) The level of confidence generated between partners;
(iii) The mechanisms preventing the agreement desertion; and
(iv) The mutual learning asymmetry in the cooperation process as in accomplishment of joint activities.

These different variables act on the cooperation agreement in a double sense, reinforcing or debilitating consistency in the agreement. Those variables acting to reinforce agreement we will denominate centripetal variables, and those acting against agreement’s stability we will denominate centrifugal variables.

The first variable arises from the reason to be in cooperative agreement. Agreement arises when the benefit of acting jointly is greater than acting independently. In addition, we have seen that cooperation agreement needs, for its proper functioning, to create a certain organizational structure necessary to coordinate activities, and to make compatible the participants’ objectives.

From the transaction cost approach, cooperation agreements can be translated into a reduction of transaction costs. It has already been indicated that companies incur some costs derived from market use, and that these are the result of information, negotiation and safeguarding costs to carry out transactions in schemes of pure markets. Additionally, transaction costs depend on transaction uncertainty, selectivity of assets transferred and frequency of interchanges. Logically, transaction costs are greater as uncertainty, selectivity and frequency increase. Therefore, when a company acquires assets in a market, total costs are integrated by costs of acquisition and more transaction costs.

On the other hand, cooperation agreements, as an intermediate organization form between the company and the market, also incur costs whose origin is in the coordination and information necessary between participant agents to attain objectives.

Therefore, if diminution of transaction costs is a centripetal variable for cooperation agreement, organization costs of joint activity presume
an opposing force. Based on the cooperation form chosen – next to the market or next to the company – we will be transforming transaction costs into organization costs. The balance between the two forces will determine the agreement stability.

Another variable to consider is the confidence level and commitment generated between partners. The greater commitment and confidence between agents diminishes uncertainty on the other partners' behaviour. The dynamic cooperation/conflict, as we have seen, is solved by mechanisms to formalize agents' behaviour.

The greater empathy between agents is a centripetal force that favours agreement stability. On the contrary, formalization mechanisms of agents' behaviour imply an organization cost. In general, behaviour formalization is necessary due to limited rationality in decision-making. Another circumstance is participants' heterogeneity in agreements (different size, diversity of origins, cooperation importance within their objectives and so on), which has resulted in an inter-relation degree between agents. All these factors act as centrifugal forces in agreement consistency.

We have also indicated other variables that exist and affect the agreement's stability; they are the obstacles to the agreement's desertion or exit barriers. Among them we can indicate: investments in joint assets, coercive clauses in case of the agreement's rupture, possibility to cooperate in the future. All of these acts like centripetal forces in the agreement's consistency.

Finally, related to asymmetry in mutual learning, we can indicate that this variable will depend on the transparency in relations and on partners' receptivity and interest to collaborate. From the structural point of view, learning is conditioned by the difference in size between partners, by its experience and by its appropriation capacity. The asymmetry acts as a centrifugal force in agreement's stability. On the contrary, greater complementariness between partners and synergic effects derived from agreement acts as centripetal forces in their consistency.

The cooperation process in practice

Up to now, we have reviewed the different factors that influence the cooperation process from a theoretical point of view. In this section we shall try to formulate, from a practical point of view, the different issues the company faces when it decides to initiate a process of cooperation.

The development of a cooperation agreement usually runs into a number of difficulties and we shall begin by identifying the main sources of
an agreement’s unsatisfactory functioning and the reasons for its failure, 
since detection of these can help us conclude a better cooperation 
agreement and plan its subsequent management. Based on this, we shall 
build a scenario that includes the fundamental aspects to take into 
account when it comes to establishing a cooperation agreement.

The unsatisfactory functioning and failure 
of cooperation agreements

Although there are many and varied reasons for the failure of a cooper-
ation agreement, most authors agree in pointing to the factors outlined 
here:

- Not assimilating the style of the partner;
- Little experience of cooperation;
- Not building the relationship correctly;
- The agreement is not concluded;
- Non-defined value creation;
- Partners’ roles not specified;
- Poor communication;
- Little commitment;
- Too optimistic; or
- Choosing the wrong partner.

By analysing these obstacles, we can identify the sources of the prob-
lems that arise, in different subgroups:

- The first group, where unsatisfactory functioning is directly related 
to the need to properly select the partners that are to participate in 
the agreement, noting the interest they display during negotiations. 
Negotiations should be used to build up the relationship progres-
sively, for the companies to get to know one another, and to see if 
a good understanding develops between the future partners, all of 
which can help to avoid conflictive situations during the course of 
the agreement. Problems normally appear when, for example, agree-
ments are signed between companies with very little in common, 
when there is a lack of involvement and motivation between the 
future partners, a clash of culture and so on. These circumstances 
favour, in turn, the appearance of opportunist behaviour.
- The second group refers to the difficulties that arise during the func-
tioning of the agreement and arising from its management: lack of 
coordination, conflicting interests, financial weakness, badly defined
objectives and so on. The flexibility and low level of commitment initially required by cooperation mean that agreement relationships are not built on suitably planned foundations (aims and strategic plans), the opposite from what occurs with other decisions regarding growth, merger or takeovers, for example. It is necessary to build a cooperation relationship by planning suitable organization, information and control systems that avoid the appearance of conflictive situations.

These circumstances, in short, added to the lack of experience in these types of activities and excessive optimism, constitute the main source of failure in cooperation agreements. It will therefore be important to consider that:

(a) Cooperation is a complex strategy to establish and manage, although it does have the advantage over other strategies of representing a lower degree of initial involvement;
(b) It is important to design a good plan for searching and selecting partner(s), since the latter will have to manage the agreement jointly in order to optimize results;
(c) The negotiating phase is the best opportunity to get to know future partner(s) and to note where the greater empathy lies; and
(d) The need to construct a good cooperation agreement makes the development of a true strategic plan advisable.

The company cooperation project

The cooperation project as such includes different stages that can be classified as initial, intermediate and final, according to the progress made by the company in establishing the cooperation agreement.

In the initial stage, which we can consider to be a prospective and pre-design stage, the company has detected the need to search for partner(s) in order to grow, to develop new capacity, or simply to solve certain shortcomings. To face up to this need, the company considers the possibility of developing a cooperation project. At this point, which can be defined as the initial strategic formulation period for cooperation, the company has to consider the following questions:

(i) Identification of reasons to be carried out by means of the cooperation agreement;
(ii) Identification of possible collaborating partners, subsequently determining the profile or characteristics they should possess; and
(iii) Preparing the **initial dossier**, considering certain points prior to the cooperation project:

- Presentation of the company;
- Description of requirements of the partner; and
- Pre-defining an organizational structure for cooperation.

In the **intermediate stage**, or the phase involving *selection and initial contact* with partner(s), the company has already identified its potential partners, a company dossier has been prepared to commence negotiating, and the type of cooperation sought has been considered. The tasks to be carried out include:

1. Establishment of the *partner selection criteria*;
2. Defining *channels to search* for partners; and
3. Selecting the partner and *first contacts in a pre-negotiating* phase.

Finally, in the **last stage**, or the phase involving **negotiating and establishing the agreement**, the company is at an advanced stage of the cooperation project, with the following points needing to be resolved:

1. The *design of the structure and contractual definition*, once the contributions of partners and the distribution of partner roles and functions within the agreement have been determined; and
2. The definition and formulation of a strategic plan for the cooperation agreement, considering the outlook for the agreement and defining its aims and the *operational plans* to be implemented.

We should point out that the company cooperation project is not necessarily sequential; the stages listed above may be repeated wholly or partly, and may give rise to new negotiations before the agreement is concluded.

Outlined in the following section, and in a parallel fashion to the stages we have indicated, is a questionnaire designed to act as a more detailed guide on how to tackle a cooperation project in practice.

**The agreement step by step**

**1. Initial stage (prospective, pre-design stage)**

We define this phase as one where the company considers the need to establish a cooperation agreement but where it has not defined the profile of possible partners or made any initial contact in this respect.
Identifying reasons for cooperation

(i) Specify the reasons that have led to the decision to cooperate with other company(ies).

(ii) Identify the main reasons for cooperation:
- Improve the competitive position in the presence of ‘volume logic’ (generating economies of scale);
- Increase the company’s power in its competitive surroundings;
- Market access;
- Access to some complementary and necessary resources and/or skill(s);
- Technological development:
  ✓ Technology transfer;
  ✓ High R&D costs and risk; and
  ✓ Developing innovative ideas.
- To carry out projects that are too costly and risky; and
- Learning:
  ✓ Learning skill(s); and
  ✓ Learning from the cooperation process.

(i) In what areas is cooperation considered:
- Technology;
- Supply;
- Product development;
- Production;
- Marketing;
- Commercialization;
- Internationalization;
- Distribution;
- Sales; or
- After-sales service?

Defining the profiles of partners

(i) Questions to be considered in selecting partners:
- Internal capacity of the potential partner (resources, products or complementary services);
- Motivation and aims of the partner;
- Organizational compatibility (management style and methods); and
- Size and business culture compatibility.
(ii) Questions to consider in partner effectiveness:

- Financial factors:
  ✓ Financial stability; and
  ✓ Reasons for success/failure in different areas of business.

- Organizational factors:
  ✓ Organizational plan;
  ✓ Labour relations; and
  ✓ Internal information systems and planning methods.

- Market factors:
  ✓ Situation and positioning in the market;
  ✓ Sales methods; and
  ✓ Interest in service and quality.

- Production factors:
  ✓ Production efficiency;
  ✓ Quality control processes;
  ✓ Level of research and introduction of new technology; and
  ✓ Relations with suppliers.

- Institutional factors:
  ✓ Contacts with the government, business people and organizations;
  ✓ Regional influence; and
  ✓ Successful negotiations with banks and official authorities.

- Possible negotiating attitudes:
  ✓ Short-term/long-term orientated; or
  ✓ Experienced/inexperienced company(ies).

Preparation of the initial dossier

(i) Presentation of the company:

- Activity;
- Legal information;
- Quantitative information (sales revenue, workforce, products and so on);
- Business sectors in which operating;
- Main technical, industrial capacity and so on;
- Reason and purpose for cooperation;
- Type of cooperation sought; and
- Main strengths.

(ii) Description of requirements:

- What do we need from the partner?
- What can we contribute to the cooperation agreement?
• What objectives can we propose? and
• What type of agreement are we seeking?

(iii) Pre-defining an organizational structure for cooperation:
• Cooperation agreement with or without capital holdings;
• Joint venture;
• Outsourcing;
• Licence;
• Spin-off or externalization;
• Franchise; and
• Consortium.

(ii) Intermediate stage (stage for selection and initial contacts with partner(s))

The company has identified the profile of future partners in this phase, and has also defined the areas in which it wishes to establish cooperation and predefined the types of cooperation agreement for carrying out the above.

Defining selection criteria for partner(s)
(i) An interest in cooperation;
(ii) A match for the profile sought; and
(iii) Personal and cultural empathy.

Defining channels to search for partners
(i) Direct:
• Suppliers;
• Competitors; and
• Customers.
(ii) Indirect:
• Databases;
• Intermediary bodies (Chambers of Commerce, public administration, business associations and so on) at local, regional or national level; and
• Company meetings.

Selecting the partner and first contacts in a pre-negotiating phase
(i) Establishing more direct relations;
(ii) Setting out negotiating stages;
(iii) Establishing the cooperation purpose;
(iv) Deciding cooperation objectives and general outlook;
(v) Deciding general cooperation strategy:
   • Sequences and stages to be followed;
   • Maximizing competitive advantages;
   • Minimizing disadvantages; and
   • Organizational form.

(iii) Final stage (agreement negotiation and establishment stage)

In this phase, the company has already established contact with the partner(s) and has set out the negotiating areas, in addition to the prior design of the agreement’s organizational structure.

The design of the structure and the contractual definition of cooperation

(i) Aspects to consider in negotiations:
   • The type of inter-dependence;
   • Subjective utilities;
   • Tangible and intangible goods (for example, software, R&D, brands, engineering);
   • Representativeness of negotiators;
   • Information exchange and common definitions; and
   • The dynamic nature of negotiating relations.

(ii) Aspects to consider with respect to resources contributed:
   • Form and timing of contributions;
   • Effective evaluation of contributions; and
   • Establishing a fairness coefficient (% of effort / % of profit).

(iii) Determining those responsible for the project:
   • Profiles and prior experience;
   • Decision-making capacity;
   • Quantitative objectives assigned; and
   • Dedication.

(iv) Specifications to be incorporated into the contract:
   • Identification of the parties involved;
   • Cooperation objectives;
   • Terms of agreement;
   • Capital supplied;
   • Management responsibilities;
   • Profit and loss sharing;
   • Resolving conflicts;
   • Complementary agreements:
     ✓ Confidentiality;
     ✓ Exclusiveness;
     ✓ Definition of commercial zones;
✓ Guaranteeing veracity of information provided by partners; and
✓ Long-term agreement strategy.

**Operational stage of the agreement**

(i) Feasibility plan and establishment of common aims:
- Production and sales objectives;
- Commercial evaluation;
- Infrastructure requirements;
- Market information;
- Distribution channel analysis;
- Technical evaluation of the project; and
- Financial evaluation of the project.

(ii) Implementing the cooperation plan:
- Management system;
- Planning;
- Information and communications channels;
- Follow-up and control mechanisms; and
- Economic planning.

The above questions have the objective of describing the cooperation process and, in sum, can aid in designing a good plan for the construction of a cooperation agreement.
International Company Cooperation

The internationalization phenomenon

At the start of the twenty-first century, the world economy is currently experiencing one of its periods of great dynamism and change. The speed with which changes are occurring is introducing great uncertainty, since it is not easy to measure exactly the economic effect of the different occurrences taking place. Nevertheless, the tendencies developing are clearly determining the environment, in which company activities are included.

This reference framework is, among other things, characterized by: economic globalization, market interdependence, greater technological diffusion, the growing participation of newly industrialized countries in world trade, and the generalization of economic integration processes. ¹

Globalization is taken to be the adaptation and transfer of factors contributing to economic convergence to a large number of countries. Some of these factors are the homogenization of customer preferences; the tendency to design and distribute standardized products for different countries; the opening up of markets and the elimination of trade barriers; increasing coordination of functions in international companies and so on.

These events are having an enormous effect on companies throughout the world, who have to adapt to increasingly competitive market demands derived from new internationalizing trends.

The growing inter-dependence of markets for goods, services and factors of production – a consequence of the progressive suppression of institutional obstacles to free trade and the liberalization of capital movements – in addition to the substantial reduction in transport and communication costs. As a result of technological advances, increased trade is possible,
even for countries that have traditionally been isolated from international trade flows because of their particular geographic locations.

Furthermore, the diffusion of technology, with regard to both the incorporation of products and that inherent in production processes, is resulting in increasing speed and accessibility. This, in turn, is enabling new products to appear on the world markets that, among other things, are taking advantage of their lower labour costs.

Newly industrialized countries are also characterized by a substantial degree of openness to foreign trade. Unlike those countries that followed industrialization policies of import substitution, the countries that have been successful in economic development processes are usually those that have followed policies aimed at exports and the opening up of new foreign markets, the most paradigmatic case being the four Asian ‘dragons’ (Singapore, Hong Kong, South Korea and Taiwan) and, in Latin America, Mexico and Brazil.

These countries have exploited increasing economic globalization to seek a niche of economic growth in the development of certain industries where they have comparative advantages with respect to developed countries – mainly labour-intensive industries or intermediate technology industries, such as textiles, electrical machinery, electronic consumer goods, iron and steel and so on. This has meant that multinationals from developed countries have decided to transfer centres of production to these areas in order to exploit these advantages, rather than see themselves driven out of their own markets by new producers, so capital and technology-intensive productive processes are maintained at the same time in developed countries.

Together with this, integration processes are also being favoured, not only by the above factors, but by the fact that world globalization is forcing different countries to join supranational institutions. Member countries coordinate their actions and commercial policies, declining to open their frontiers to countries that do not act on a reciprocal basis, whether it be through tariffs or through more subtle protectionist measures – as in the case of non-tariff barriers. Producers can increase their economies of scale in this way and have access to factors of production that enable them to compete with producers in other areas of trade.

**The internationalization of the company**

Internationalization can be broadly defined as the series of activities a company carries out outside the markets that constitute its natural
geographical surroundings, so the proportion of activities a company carries out abroad will determine its level of internationalization.

The decision to internationalize responds to the desire to develop: at some time in the life of all successful companies it becomes difficult for them to keep growing in their habitual market, since all markets, sooner or later, reach saturation point. This is why companies usually opt for one of these two major solutions: to remain in their own country, but enter other sectors (by product diversification, for example); or to keep to their line of production, but tackle new markets.³

If the company decides to enter foreign markets, this generally results in growth and a reinforcement of its competitive position because of increased volume and the generation of economies of scale.

Lack of knowledge about foreign markets on the part of the company, however, and inexperience in operations of this type, often cause a great deal of uncertainty about results, so that the risk associated with this type of decision is high.⁴ The transformation of a domestic company into an international one is, in consequence, frequently the result of a gradual process, in which the degree of company commitment grows as knowledge about the new market and variable factors inherent in the actual process increase.

Reasons for internationalization

Even if there are companies that deliberately embark upon the internationalization process motivated by a definite quest for profitability and risk diversification,⁵ the majority only do so as a way of compensating and absorbing internal market reductions, which continues to be their main objective. Table 6.1 list the main reasons, or the most typical ones, justifying international expansion by companies.

<table>
<thead>
<tr>
<th>Table 6.1 Reasons for internationalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use all productive capacity</td>
</tr>
<tr>
<td>Economies of scale</td>
</tr>
<tr>
<td>Access to a bigger market</td>
</tr>
<tr>
<td>Client proximity</td>
</tr>
<tr>
<td>Image improvement (internal and external)</td>
</tr>
<tr>
<td>Elimination of international transport costs</td>
</tr>
<tr>
<td>Diversification of risks</td>
</tr>
<tr>
<td>Learning</td>
</tr>
</tbody>
</table>
Nevertheless, there are other important reasons for initiating international expansion that do not appear in Table 6.1 because they go beyond mere enlargement of export markets:\(^6\)

- First, for those companies whose business concentrates on a small number of customers, the decision to internationalize activities occurs when one of these key clients enters other foreign markets.
- A second reason to seek out foreign markets is linked to the concept of product life-cycles. When the company makes a product that has reached a mature phase in its county of origin, it is advisable to export to other countries where the product is still unknown – because there it is in an introductory or primary growth phase. Once the product is accepted by consumers, it will encounter few competitors and will enjoy a high rate of growth in the market.\(^7\)
- Finally, some companies opt to move into foreign markets as a reaction to attacks from international competitors threatening their local position.

**Obstacles to internationalization**

Companies generally have to clear certain obstacles when contemplating an internationalization operation, making this option more complex and riskier in comparison with diversifying products in the country of origin – the reason why companies often prefer other forms of growth. In general, the main barriers that a company encounters may be financial, commercial, logistic or legal.\(^8\)

With respect to financial obstacles, the most common one is usually the lack of suitable export loans;\(^9\) loans should enable coverage of the period, normally a lengthy one, between preparing orders and the receipt of payment from foreign customers. Difficulties created for financial planning should also be added to this, resulting from uncertainty with respect to currency exchange rates at the time the payments are made, which can significantly affect an operation’s profitability.

With regard to trading obstacles, the most common ones are usually a lack of knowledge about commercial opportunities and difficulty in accessing potential buyers abroad; lack of contacts; and an absence of knowledge about distribution structures, commercial practices and so on in the target markets. In this respect, the opening of trading offices and delegations, for example, by company confederations and other bodies seeks to remove these types of obstacle.
Logistic and cultural obstacles increase with market distance and include costly trips to explore markets, high transport charges, substantial coordination and control costs, ignorance of language, customs and traditions, and so on.

Legal obstacles, finally, are all those imposed by governments, especially those in the country that receives exports or direct investment.

In the case of exports, a distinction is usually made between tariffs and non-tariff barriers. The former are a tax on the value of the goods; while non-tariff barriers are more subtle and numerous – the best known being quotas, minimum prices, health controls, technical specifications, safety standards and so on, whose real objective is to prevent access to the market in question.

With respect to obstacles to direct investment, these may consist in control related to company ownership (some countries prohibit companies with 100 per cent foreign ownership, for example, and some even restrict it to less than 50 per cent of capital) – which make joint ventures with local companies necessary; restrictions on the repatriation of profits; the obligation to produce particular quantities and so on.

Given that the disadvantages are different and that they vary between countries, internationalizing companies usually choose to deal with countries that pose fewer problems to the entry of final products and raw materials, in the case of exports, or capital and technology, in the case of investment. Countries with market economies that are more open to international trade are normally those offering fewer restrictions.

**Stages in the internationalization process**

The internationalization process, as we have seen, involves risks for the company because of the uncertainty that surrounds foreign markets, caused by the existence of a wide range of cultural, social and economic models that apply in each destination country. Lack of knowledge, added on many occasions to the difficulty in obtaining it, is one of the main obstacles to rapid international expansion. This is the reason why company progress in the international field is usually gradual and involves constant learning and gaining familiarity with new environments.

International expansion for companies involves a decision-making process, therefore, through which activities are located in the value chain that are closest to the end customer abroad, and begin by moving ‘backwards’ in the internationalization process\(^{10}\) (see Figure 6.1).
The stages a company usually follows in its internationalization process are as follows:\footnote{11} 

- Passive exports;
- Active exports;
- Establishment of sales subsidiaries abroad; and
- Establishment of production subsidiaries abroad.

We shall leave other forms of internationalization based on cooperation, such as licences, joint ventures and contractual agreements, for subsequent sections. We shall now describe and analyse each of the four stages in detail.

**Passive exports**

In this initial stage, internationalization consists of specific exports to foreign markets that are still marginal for the company and involve sporadic foreign orders without initiating active exploration of new markets, since no decision has been taken to begin the process formally. The exporter acts as though exports were just further sales in the internal market.

Between active and passive exporting a more advanced phase of experimental exports sometimes occurs (in some cases, this is the first stage, as is the case with companies created to concentrate exclusively on export business). These experimental exports are made because the company has decided to start the international expansion process and deliberately to explore the possibility of selling without having to depend on occasional foreign sales.

Companies normally use local intermediaries (such as agents, export consortiaums, trading companies and so on) to meet foreign orders.
Active exports

If a company has obtained satisfactory results in the first stage, it may embark on a further one that commits more resources and reserves part of its production capacity for the international market. This second stage means an acceleration in the process by actively seeking out foreign markets and consolidating the company’s international activities.

The company by now has a stable group of customers, usually working with agents on a commission basis in the various countries, or appointing exclusive distributors. Some companies decide to create export departments, opening small contact and information offices in one or more countries, whose duties consist of acting as a means of communication, control and support for intermediaries in logistical (handling orders, shipments and so on) and promotional matters.

If a company sells industrial products to a few clearly identified customers abroad, it may be best to create its own sales force, with sales staff traveling internationally.

Establishing sales subsidiaries

Once an export market has been consolidated, a company decides whether to continue selling from the country of origin, using intermediaries, or to make an investment in the foreign country. In the second case it assumes commercial functions previously carried out by third parties, establishing sales subsidiaries with their own legal status.

This option means a change in the company’s international strategy, since from the mere supply of productive capacity a marketing phase begins where it is responsible for both productive and logistical activities, not only in the country of origin, but also in the destination country.

The advantages presented at this stage and in the subsequent one are greater sales, profit potential and learning; the disadvantages are reduced flexibility and the necessary level of investment required.

Establishing production subsidiaries

This is usually considered as the final stage in a company’s internationalization process, in which foreign production activities – established with the sales subsidiary – are added to marketing, distribution and technical service activities. In establishing production subsidiaries, a series of external factors related to the destination market are considered, which include:

- The existence of a potential market that enables investment in installations to be recouped in a reasonable period;
• The existence of very high tariffs or interest rates, currency controls or other restrictions that make other forms of exporting unviable;
• The existing climate in the country with respect to investment from abroad (if incentives are offered to foreign companies to invest in the country) or the economic attraction of the country in terms of financial stability, interest rates and so on;
• Logistical costs constituting too high a proportion of the final product price (because of geographical distance or the low intrinsic value of the product exported), so that while exports are not compensated, production is justified because of the foreign market’s importance; and
• The existence of productive resources (low labour costs, for example) that allow products to be obtained at lower costs than in the country of origin, thereby making the investment profitable for the company.

International cooperation

Company internationalization can also be carried out through cooperation agreements. The strategic decision to cooperate on internationalization provides advantages with respect to the classical internationalization pattern mentioned earlier, since companies incur less investment, as well as less risk. In this sense, it is probably the best way to begin internationalizing a company.¹²

The concept of company cooperation, such as those agreements made between different companies to share resources, capacity or activities with the aim of mutual learning and improvements in competitive positions, has already been defined above.

As in the case of company cooperation, cooperation in an international setting is proposed between companies who lack resources or the capacity to face internationalization strategies alone. In international cooperation in marketing operations, for example, companies try to share resources to achieve access to particular markets outside the country’s geographical limits.

The diversity of consumer preferences for a product, differences in marketing, and the different roles of advertising and promotion in different countries are some of the factors that make market access less difficult for a company that has some familiarity with it.

Agreement with a local partner may facilitate market entry and ensure success of its operations.¹³
Types of international cooperation agreements

We shall now describe the possible cooperation agreements that exist in the international area see Table 6.2. A basic distinction can be made initially between two types of agreement: 14

(i) Agreements where new organizations are created; and
(ii) Agreements where no new companies are created.

Cooperation agreements that create new organizations

In the first type of agreement, two or more companies provide capital in the form of financial, human and technological resources or other types of assets in order to enable a new company to be formed. In this case, the associated companies share ownership of the new company.

Examples of this type of agreement are joint ventures, export consortiums and foreign trade cooperatives.

Joint ventures: the most common arrangement in an international joint venture is for the local company to contribute capital, market knowledge and access; with the foreign company, for its part, providing capital, brand image or technology. The local company benefits from foreign financial resources and, above all, technology or brand image, while the foreign company obtains access to an unknown market with less capital and less risk. 15

In export consortiums and foreign trade cooperatives, various small or medium-sized companies provide capital to create a new entity to channels their exports, with these companies sharing ownership of the new corporation.

The difference between consortiums and cooperatives lies in the fact that they have a different legal structures, and the latter have an egalitarian

Table 6.2 Types of agreement

<table>
<thead>
<tr>
<th>International cooperation agreements</th>
<th>Those creating a new organization</th>
<th>Those not creating a new organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint ventures</td>
<td>Licences</td>
<td></td>
</tr>
<tr>
<td>Export consortiums</td>
<td>Franchises</td>
<td></td>
</tr>
<tr>
<td>Foreign trade cooperatives</td>
<td>Crossed distribution</td>
<td></td>
</tr>
<tr>
<td>Projects sponsored by governments</td>
<td>Manufacturing contracts</td>
<td>Administration contracts</td>
</tr>
<tr>
<td></td>
<td>Minority shareholdings</td>
<td></td>
</tr>
</tbody>
</table>
system of management (cooperatives usually operate in agricultural, agro-industrial and livestock sectors).

Projects sponsored by governments or international institutions can also be bracketed into this group. These agreements are the least common, since a new entity is created that is not the property of the associate members, but rather of the government or institution financing the project. It usually involves large projects promoted by governments or international institutions to encourage cooperation between companies in common areas.

Cooperation agreements in which no new companies are created

These are associations between companies that do not lead to the creation of a new entity and do not involve ownership participation by partners. Included in this group are research and development associations, licences, franchises, administration contracts, manufacturing contracts and so on.

We shall mention briefly below the most common agreements.

Licences. These are contractual agreements between companies from different countries by which one grants another the right to use a productive process, patent, restricted trademark and so on. The party granting the licence obtains a market presence without any investment cost, and the licensee gains access to technology, brand, patent and so on, that would be difficult to achieve alone.

This type of agreement is usually made when:

- Transport costs are very high;
- There are considerable currency restrictions;
- The market is too small; or
- Foreign investment is prohibited.

The greatest drawback is that potential profits are reduced for the licence-owner, and everything is left in the hands of the licensee, who can cause the partner company to lose prestige, or develop operations themselves.

Franchises. These are very commonly used agreements internationally, generally for distribution and marketing.\(^{16}\) They have the advantage of not needing the large investment required to create a sales network.

Administration contracts. These occur when a foreign company exports the administration of certain business to a local company (as in the case of hotel chains, for example).

Manufacturing contracts. In this case, the international company pays another company to make its products under its brand name. An example
is the production of manufactured goods in countries with lower labour costs (sports goods, household goods and so on).

**Crossed distribution agreements.** These consist of products exchanged for distribution in other countries. In this way, two companies can mutually benefit by distributing their products in markets where they previously had no presence.

Other types of cooperation agreements exist that, while no new companies are created, involve shared ownership by partners, via *share exchange agreements* or *minority shareholdings*, with the aim of consolidating a particular relationship over the long-term, and developing joint activities internationally.

### Empirical evidence from the experiences of small and medium-sized companies

Small and medium-sized companies are an essential component of the business structure in the European Union. Their contribution to economic growth has been highlighted in many analyses. Nevertheless, the contribution that international cooperative relations could make, and indeed is making, to these small and medium-sized companies has still not been studied in sufficient detail. Such a contribution is necessary to enter (and maintain positions in) foreign markets where undoubtedly a good part of their capacity lies to grow competitively and create employment.

The aim of this section is to describe the results of an empirical study carried out among companies involved in international activities, most of them small, medium-sized and micro companies from the Cantabria region of Spain. The following subsections examine models for internationalization in the companies in the sample, analysing in particular the role that cooperation agreements play. The development of the cooperation process itself is also studied: how it is formed, and what main difficulties arise in its evolution.

### The position of small, medium-sized and micro companies with respect to internationalization

The aim of this first section is to specify the various positions that companies might adopt with respect to internationalization, and the role of cooperation in this process. Having reviewed the literature on the subject we can point to at least two reasons that make companies decide to begin internationalization. The first of these is the result of the pressure exerted by the surrounding environment on organizations
and institutions in general, and on companies in particular (Root, 1994), as a reaction to economic globalization. The second reason lies in the need companies have to seek competitive advantages, this being the main argument for internationalization used by numerous authors (Jarillo and Martínez, 1991; Canals, 1994; Root, 1994).

Alonso and Donoso (1996) indicate that the position of the company with respect to internationalization is determined by the aptitudes and attitudes the company adopts in this area, specifying that *aptitudes* refer to the company's preparation (its size, knowledge of foreign markets and so on), while *attitudes* are related to predisposition and management in the light of this decision.

In relation to these factors, classical literature distinguishes between two possible company positions: one being active, where the company adopts a dynamic role and takes the initiative in seeking a presence and acquiring commitments in international markets. A second, passive one, where the company does not take the initiative, since the aim is to reinforce its position in the domestic market, but where it ensures its presence abroad through an intermediate company (Welch and Loustarinen, 1988; Alonso, 1994; Rialp and Rialp, 1996).

In this respect, it should be pointed out that the disposition or position with respect to internationalization is also conditioned by the experience gained by the company in carrying out international activities. This may also magnify any difficulties and obstacles resulting from the prior knowledge they might have in this area (Kedia and Chhokar, 1986; Alonso and Donoso, 1996).

Once the arguments for internationalization and the positioning that companies can adopt have been considered, it is now necessary to mention the different ways of confronting this process. Two distinct approaches are revealed in literature on the subject:

(i) The first of these, labelled *gradualist* or the *Swedish model* (Uppsala model), where internationalization is conceived as an incremental learning process carried out by covering a series of stages, which commence with occasional exports and culminate in direct foreign investment (Johanson and Vahlne, 1977 and 1990).

(ii) The second approach considers company internationalization as if it were an innovative process, where the need to commence export activities (the problem) is detected and resolved through the opening up of new foreign markets. This process results in a cycle of learning and improved company competences and capacity in this activity (Bilkey and Tesar, 1977; Cavusgil, 1980; Reid, 1981; Czinkota, 1982).
Both positions argue that export activities need a minimum company size,\(^{19}\) which means that small, medium-sized and micro companies do not initially have access to international activities, since they lack sufficient resources to tackle the process. Another hypothesis that underlies both approaches is related to experience: in both cases it is considered to be a factor in improving company competences and the capacity to confront internationalization.

Against these classical views, labelled *rigid models* (Andersen, 1993), other authors have put forward more flexible models where the gradualist nature is abandoned and the need for the process to be carried out over several stages is ignored. From this view, international cooperation agreements appear to be a fundamental factor, especially in mitigating situations with high transaction costs, and for ruling out initial hypotheses regarding size and experience in internationalization processes (Ohmae, 1989; Jarillo and Martinez, 1991; Gerlach, 1992; Canals, 1994; Dunning, 1995; Hennart and Reddy, 1997).

In this respect, an initial view, which has been traditionally maintained in works on internationalization, considers that cooperation agreements are a secondary option in entering international markets (Stopford and Wells, 1972; Hamel *et al.* 1989; Hennart, 1991). This option also enable risks of a political nature to be overcome (Friedman and Kalmanoff, 1961; Fagre and Wells, 1982; Lecraw, 1984; Kobrin, 1987).

This viewpoint has lost importance progressively, being replaced by new arguments where cooperation is contemplated as an option that goes beyond a mere circumstantial alliance to permit entry into new markets. From this perspective, cooperation agreements represent a stable option for the organization of international activities, which are in turn favoured by the globalization of markets (Dunning, 1995), and that is the basis for the expansion of large companies.

The operational (in the first case) or strategic (in the second case) character, therefore, together with the difficulties in conceptualizing and defining cooperation, constitute the reasons for the paradoxical situation that arises with regard to the following question: companies are carrying out cooperation activities in the international field although they do not recognize them explicitly.

This view will be the starting point for the empirical study, and in line with this approach the following factors will be analysed:

- The positioning of small, medium-sized and micro companies and their reasons for internationalization;
The internationalization process and the role of cooperation agreements in it;

The cooperation process, identifying those aspects relative to the drawing up of the agreement: the search for partners, negotiations, or the type of agreement reached; and

Critical factors on commencing a cooperation agreement and the main difficulties in its evolution, highlighting the presence of conflict as a major element in its development.

Research design

The survey concentrated on companies carrying out international activities (purely commercial as well as productive) in the Cantabria Autonomous Region. These companies were selected following a pilot study among approximately 250 companies in the manufacturing or services sectors listed in the Register of the Cantabria Chamber of Commerce, Industry and Shipping in 2000.

The main period of reference in the statistics is the year immediately prior to the conducting of the survey (1999). However, in variables related to cooperation proper, these refer to the five years prior to the carrying out of the survey, in order to understand the agreements’ development. The basic analytical unit is the company, as described above.

The preliminary questionnaire was carried out on a pilot sample of five companies, and the final questionnaire was sent to the selected companies in the population, with forty-nine valid responses being received, giving a total of 19.60 per cent responding; the sample error was 14.28 per cent, with a confidence interval of 95.5 per cent for \( p = q = 0.5 \).

With respect to company size, expressed as the number of employees and annual turnover, we should point out that most of the companies in the sample are contained within a range defined as small and medium-sized, although there is a percentage among those considered that display micro company characteristics: that is, fewer than ten workers (5 per cent of the total) and an annual turnover of between 300 000 euro and 1.5 million euro (16 per cent of these companies). Approximately 60 per cent of the companies in the sample are family-run companies.

Questionnaire design and information processing

Information referring to companies in the sample was collected by means of a questionnaire designed with predetermined answer options. These are dichotomous ones in most cases (with values of 0 and 1, the
first value corresponding to the negative answer and the second to the positive answer), although on occasions a Likert frequency scale (value 1 representing zero frequency and value 5 representing the maximum frequency) was also used.

With regard to the processing of information, a SPSS 10.0 statistical package was used. The statistical analysis carried out took two forms: the first being descriptive in character, where the frequency of the results obtained has been estimated and represented in the form of histograms; the second used multivariate statistical techniques.

Regarding the latter, the aim was to develop the descriptive and causal side of the research by means of three types of analysis:

(i) *Factorial analysis*, which enables variables to be grouped together and to obtain factors that are characteristic of these groupings;

(ii) *Cluster or company conglomerate analysis*, which enables the grouping together of data in accordance with their similarity to or affinity with a determined value, thereby obtaining a profile of the companies considered; and

(iii) *Hierarchical analysis of variables or variable clusters*, which enables variables to be classified hierarchically in accordance with the affinity perceived in them by the companies.

**The internationalization of small, medium-sized and micro companies: their positioning, the internationalization process and the role of cooperation agreements**

It can be observed from the study results that the international activities of the companies considered are of great importance and represent in most cases (57 per cent) a percentage that fluctuates between 10 per cent and 50 per cent of total turnover, while for 18 per cent of the companies considered, international activities represent more than 50 per cent of their turnover. It can be concluded from this data that a large number of the companies show a certain propensity to develop international activities regardless of their size.

Regarding the geographical area in which activities are carried out, as confirmed in other studies (García Canal *et al.*, 1998), most of the companies pursue their international activities in Europe (84 per cent). The percentage of companies involved in activities in Latin America is also appreciable (45 per cent), and this area is registering considerable activity encouraged by the entry and establishment of large Spanish companies in the industrial and financial sectors (Endesa, Iberdrola, or Bank of Santander, for example).
As far as the underlying aims and reasons for internationalization are concerned, overall they do not differ from those generally pointed to by other authors (García Canal et al., 1998). Company replies are outlined in Figure 6.2, from which it can be observed that the most frequent motivating forces for the development of international activities are to diversify markets (70 per cent of replies), and to continue growing (68 per cent).

With the dual aim of concentrating variables as well as looking for some common features or factors for developing international activities in all the companies in the sample, we carried out a factorial analysis with all the reasons collected as company answers (see Table 6.3). The result of the analysis shows three factors that assemble all the strategic reasons and that explain 70.23 per cent of the total variance.

![Figure 6.2 Strategic aims of internationalization (REASONS)](image)

Table 6.3 Results of the factorial analysis (REASONS)

<table>
<thead>
<tr>
<th>Matrix of rotated components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
</tr>
<tr>
<td>REASONS 1</td>
</tr>
<tr>
<td>REASONS 2</td>
</tr>
<tr>
<td>REASONS 3</td>
</tr>
<tr>
<td>REASONS 4</td>
</tr>
<tr>
<td>REASONS 5</td>
</tr>
<tr>
<td>REASONS 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>REASONS 1</td>
<td>0.679</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REASONS 2</td>
<td></td>
<td>0.895</td>
<td></td>
</tr>
<tr>
<td>REASONS 3</td>
<td></td>
<td>-0.822</td>
<td></td>
</tr>
<tr>
<td>REASONS 4</td>
<td>0.351</td>
<td>0.477</td>
<td>0.579</td>
</tr>
<tr>
<td>REASONS 5</td>
<td>0.852</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REASONS 6</td>
<td>0.875</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: KMO test = 0.523; Bartlett test: Chi-square = 31.788; d.f. 15; sig. = 0.007.
According to these results, with respect to the variables assembled and the numerical values with which they are included, three strategic company positions can be emphasized when faced with internationalization:

(i) One strategy that can be labelled aggressive (corresponding to factor 1) and based fundamentally on increasing competitiveness and improving company image (REASONS 5 and 6);

(ii) A second strategy (referring to factor 2), less aggressive, and can be defined as static or maintaining a competitive position, which basically attempts to continue company growth and not to lose market share, since the development of international activities is made necessary by the market itself (REASONS 1 and 3); and

(iii) The final strategy (factor 3), which can be labelled defensive, corresponds to making use of idle productive capacity (REASONS 2). This situation usually arises when the domestic market for a company’s products is reduced, either because of a drop in demand or because of the entry of new, more competitive companies into the market. The company, in an attempt to survive, adopts this defensive attitude by looking for business in international markets.

It should be pointed out that, in presenting different strategic positions, the ‘diversify markets’ (REASONS 4) variable has not been taken into account, since, on being common to the three factors, it has less of an explanatory influence in each one than have the other variables. Nevertheless, in a parallel fashion to the previous analysis, market diversification can also be caused by different company attitudes: aggressive ones when the aim is to seek new products and/or markets; and passive/defensive ones when survival is the aim. Because of these three factors, all the companies in the sample can be grouped around these cores, as illustrated in Figure 6.3.

By analysing conglomerates, taking as variables those factors that have determined these three types of strategy, we can quantify the sizes of the clusters and the average profile of each company grouping considered (see Figure 6.4). The final clarification of the three clusters offers some significant information: the first grouping accounts for 10.2 per cent (five companies) of the companies in the sample; the second one contains 81.6 per cent of the total (forty companies), and the third includes the remaining 8.2 per cent (four companies).

As can be appreciated, most of the companies concentrated around cluster 2 do not reveal any specific strategic attitude with respect to internationalization, something that is shown by the small significance of
Figure 6.3  Cluster of strategic positions

Figure 6.4  Average profiles of cluster
the different strategic profiles in this grouping. In cluster 1, on the other hand, a more pronounced value appears – although it is negative – with respect to factor 2 (maintenance strategy) and, in cluster 3, defensive strategy dominates the attitude of this company grouping. It should be pointed out, therefore, that most of the companies in the sample propose no definite strategy with respect to internationalization.

With regard to the degree of involvement in international relations (see Figure 6.5), it should be emphasized that the companies analysed opt more frequently for interaction forms with ‘less commitment’, or rather those that involve less loss of autonomy for the company, the company contract being the most usual legal form of setting out the parties’ commitments.

It is also significant that a number of answers refer to the ‘goodwill’ of the parties in fulfilling agreed obligations (33 per cent) or that the activities established are carried out simply as a result of a verbal agreement between the two parties (21 per cent). Basically, this could be because relations are established to carry out specific economic or commercial activities, so agreements in this area that develop a legal structure and framework prove to be significantly less frequent as well.

With respect to the main obstacles that companies encounter in carrying out international activities (see Figure 6.6), they can all be bracketed – by factorial analysis – in two factors, as outlined in Table 6.4.

The first of these (factor 1) includes the group we could define as ‘prospective market factors’, which include lack of knowledge regarding the market and customers and/or suppliers, logistical difficulties and legal restrictions. This characterization corresponds to the types of obstacle that arise for companies with a certain degree of experience in international activities.
The second group (factor 2), which is less homogenous, not only includes lack of market knowledge, but also the difficulties that result from the lack of an international company culture, and the financial obstacles that are evident on embarking on a project of this type. This factor would correspond to the initial obstacle arising from the company’s first experiences in carrying out international activities.

These results reinforce those demonstrated by Alonso and Donoso (1996) and demonstrate how, in general, the main obstacles encountered by companies in the initial internationalization experience are basically related to language and lack of international tradition, as well as estimating the expenses for beginning international activities. These problems are a result of being unaware of the process’s potential, of inexperience in seeking information sources and so on. Once international activities have
begun, or when a certain amount of experience of them has been gained, difficulties are appraised in terms of actual effort involved, and usually arise in specific cases, such as logistics, the market and customers.

Regarding international activities and the degree of penetration in international markets, the results are reflected in Figure 6.7. The replies obtained show that the activities carried out most frequently by small and medium-sized companies in the sample are regular exports (in 70 per cent of cases) and imports of products and services (57 per cent of replies). These are also the most common types of international activity in the case of Spanish companies (Alonso and Donoso, 1996).

Figure 6.7 also underlines how the use of cooperation agreements in developing international activities represents a small percentage, explained in part – as will be argued later on – by the attitude taken towards cooperation in the company, as well as by the greater influence of marketing products abroad as the main aim of companies in the sample. In this respect, foreign trade can be considered as a market relationship where the coordination mechanisms are price and quantity. On the other hand, cooperation relations are based on the existence of a certain level of coincidence in the aims sought by companies, and in a certain degree of coordination in the activities that must be carried out in unison (Imai and Itami, 1984).

With the variables that make up international activities – which show internationalization as a sequential process or one of stages – we have carried out a factorial analysis. This enabled us to analyse company replies from a static point of view and to identify the main components (not correlated) that define the profiles of international activities for the companies considered, thereby eliminating sequential factors. The result
shows the existence of three factors (see Table 6.5), which explain 64.706 per cent of the variance in the model, and defines the same number of companies:

(i) Purely export companies (factor 1) that export on either a regular or an occasional basis;
(ii) Companies with commercial offices or manufacturing activities abroad (factor 2) – subcontracting companies, for example; and
(iii) Purely import companies or local offices of international companies (factor 3).

As indicated when analysing the aims and reasons for internationalization, variables grouped in factor 1 would define active internationalization positioning through occasional and regular exports and with the presence of collaboration agreements as a form of foreign link.

Factor 3 corresponds in turn to a passive positioning, where companies establish contacts abroad through imports or by connections with an international company, the aim being to reinforce their domestic position.

The presence of ‘imports of products and services’ and ‘cooperation agreements’ variables in almost all of the factors may be a result of:

(a) Imports of goods and services are a common practice in international companies, and this activity therefore does not correspond exclusively to subsidiaries of international companies or purely import companies; and

Table 6.5  Factorial analysis results (ACINTER)

<table>
<thead>
<tr>
<th>Components</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACINTER 1</td>
<td>0.403</td>
<td>0.574</td>
<td>−0.343</td>
</tr>
<tr>
<td>ACINTER 2</td>
<td></td>
<td></td>
<td>−0.644</td>
</tr>
<tr>
<td>ACINTER 3</td>
<td>−0.915</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACINTER 4</td>
<td>−0.839</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACINTER 5</td>
<td>0.800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACINTER 6</td>
<td>0.754</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACINTER 7</td>
<td>0.318</td>
<td>0.687</td>
<td></td>
</tr>
</tbody>
</table>

Notes: KMO test = 0.504; Bartlett test: Chi-square = 44.021; d.f. 15; sig. = 0.000.
(b) Collaboration agreements (in factor 1) show the type of cooperative relations established with the customers for whom the exports are destined; in the case of factor 3, they refer to relations linking the parent company with its subsidiaries (as in the case of an international franchise, whose aim is to sell products in the destination market).

With regard to the small percentage of collaboration agreements at an international level – discussed above, company replies seem to be somewhat paradoxical. If we take company profiles into account – small and medium-sized – and the data provided in the specific literature on the subject, where it is underlined that these types of companies rely on collaboration agreements more frequently than is observed for the sample as a whole when they commence relations in the international field (Ohmae, 1989; Gerlach, 1992; Dunnig, 1995).

This apparent contradiction may be the result of two circumstances:

(i) The first of these is probably the difficulty – already mentioned – of defining the cooperation concept and in marking out a contractual and organizational form for it, something that causes a certain ambiguity; and

(ii) The second contradiction is probably a result of the instrumental character with which these companies perceive cooperation agreements, compared to more explicit positions of other strategic decisions.

These conclusions would also be confirmed by the results obtained previously in the factorial analysis of variables carried out in the international field (ACINTER). It can be observed in this analysis that cooperation agreements figure as a variable in two of the three groupings resulting from the factors. It is therefore possible initially to interpret the cooperation agreements as being seen by companies as instruments or tools for internationalization, and are present as such in relations established with other agents when carrying out these types of activity.

The results of non-parametrical tests contribute towards reinforcing this hypothesis and verifying the existence of a relationship between the cooperation agreements variable (ACINTER 7) and formalization of international relations (FORM). These show a quite similar rating among variables24 (ACINTER 7 = 3.13; FORM 1 = 3.81; FORM 2 = 3.44; FORM 4 = 3.26; FORM 5 = 3.01), except in the case of company contracts (FORM 3 = 4.36). We cannot rule out the fact that no relationship exists between the formalization of international links and the existence of cooperation agreements.
A more detailed analysis, taking these variables as a starting point, enables us to look for the main components that characterize these types of transaction, thereby obtaining the main factors or components that link the different cooperation commitments or organizational forms (variance explained, 63.974 per cent) (see Table 6.6).

As indicated earlier, cooperation means the appearance of a form of intermediate, international and economic transactions between the market and a company which also shows a continuum of possibilities with respect to both contractual forms (Williamson, 1975) and organizational structures (Imai and Itami, 1984).

Three factors can be distinguished from the factorial analysis: the first of these (factor 1; variance explained, 27.327 per cent) corresponds to hybrid forms between the market and the company, collaboration agreements being the main variable, and reinforced by framework agreements and organizational forms that materialize into legal structures (joint ventures, for example). The second factor (variance explained, 20.091 per cent) is related to market transactions, through the presence of company contracts, and finally, factor 3 (variance explained, 16.556 per cent), largely comprising the ‘legal structure’ variable identified with transactions in an organizational context.

From the results obtained, we can indeed confirm the underlying complexity of defining cooperation agreements or, in the reverse direction, the characterization of pure market transactions and the definition of organization frontiers. This question is also shown when conglomerates are analysed and the behaviour of companies in the sample is profiled with respect to the types of transaction they carry out. This is because

<table>
<thead>
<tr>
<th>Table 6.6</th>
<th>Factorial analysis results (ACINTER 7/FORM)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Matrix of rotated components</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Components</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ACINTER 7</td>
<td>0.862</td>
</tr>
<tr>
<td>FORM 1</td>
<td></td>
</tr>
<tr>
<td>FORM 2</td>
<td>−0.354</td>
</tr>
<tr>
<td>FORM 3</td>
<td></td>
</tr>
<tr>
<td>FORM 4</td>
<td>0.768</td>
</tr>
<tr>
<td>FORM 5</td>
<td>0.320</td>
</tr>
</tbody>
</table>

*Notes:* KMO Test = .523; Bartlett Test: Chi-square = 31.788; d.f. 15; sig. = .007.
the results do not clarify anything: 93.9 per cent (forty six companies) do not show a characteristic type of transaction.

**Identification and characterization of the cooperation process in small, medium-sized and micro companies**

In order to find out how companies in the sample treat international cooperation relations and how they recognise the different stages involved in the process, a series of questions were prepared to determine with whom they establish links, how these links arise, and what difficulties were encountered in setting up and implementing the agreements.

**Seeking partners**

Regarding the types of agent with whom international links are established, it can be observed that, in most cases, relations are established with other supply companies or customers – 90 per cent of the replies centre on this option. This result is in line with those obtained in most of the studies on cooperation carried out among Spanish companies (García Canal et al. 1998). An important feature is the tendency to establish relations with individual agents (21 per cent of replies), with small, medium-sized and micro companies, for example, which facilitate their entry into new markets. The justification for this result can be found in the concern about controlling international relations, so that partners of a similar size or smaller are therefore sought.

With respect to relations with competitors (11 per cent of replies), the low frequency obtained is in line with the difficulties posed by these types of agreement, representing an unstable balance between cooperation and competition (Hamel et al., 1989). Relations with other institutions (government administration, universities, public research institutes and so on) do not seem relevant either, because these types of connection are most often established in association with other types of objective, such as R&D.

**Negotiations and the agreement**

Authors are generally in agreement in pointing out that both the search for partners and contractual negotiations are basic elements in the success of cooperation (Porter and Fuller, 1986; Gulati, 1995b). Negotiations serve to begin a relationship and get to know the partner, as well as detecting whether there is an ‘empathy’ between them, so necessary for commitment and trust – key parts of the cooperation agreement, and ones that constitute the basis of the relationship (Kay, 1993).
Company replies regarding the subjects most likely to create conflicts in negotiating the agreement are outlined in Figure 6.8.

Because of the application of the hierarchical analysis (cluster) variable, groupings are obtained that are perceived by companies as being similar (see Figure 6.9).

The first group corresponds to aspects relative to the distribution of commercial zones (DIFICIL 5) and the distribution of profits (DIFICIL 6). A second group refers to the evaluation of contributions (DIFICIL 1) and the distribution of roles and functions (DIFICIL 4) between companies participating in the agreement. Last, financing the agreement (DIFICIL 2) and business planning (DIFICIL 3) provide the final two groups of variables.

These results enable a series of relevant aspects to be stressed, which need to be agreed upon during the negotiation process and be reflected in the cooperation agreement established. The first aspect refers to the plan...
of action or the strategic plan of the agreement; the second considers the role each partner plays in the agreement, and the material (people, resources and so on) and immaterial (market knowledge, patents, brand image and so on) contributions to be made. A third aspect relates to financing, which does not correspond exactly to the financial contributions that each partner makes, but which should rather consider other possible sources of finance for the agreement as well. A fourth, and final, aspect corresponds to the distribution of profits and utility obtained from the cooperation.

On observing the replies obtained from companies, it can be seen that the aspects causing the most conflict for them are those related to the contributions of partners, financing, and activities to be carried out. Among respondents, the aspects with a lower risk of potential conflict, on the other hand, are those related to the distribution of roles and functions, the distribution of commercial zones and, curiously, the distribution of profits. Profit distribution is generally a very important source of conflict in the course of cooperation agreements (Marshak, 1974) and game theory, in an attempt to dilute conflict in distribution, has contributed solutions for optimizing profit distribution according to the contributions made by partners (Moulin, 1995). Our finding could indicate that the internationalization through cooperation of the responding companies is still at an early stage.

The functioning of the agreement: the presence of conflict

As for the difficulties that arise in the course of the agreement, the main problems indicated by the companies (outlined in Figure 6.10) refer to failure in achieving aims, the appearance of conflicts of interest, and problems deriving from lack of coordination.
In order to seek similarities between different variables, hierarchic analysis of the variables was carried out, the results of which show three groupings (see Figure 6.11). The first group includes variables that correspond to lack of coordination (DIFICUL 2) and to the existence of conflict between partners (DIFICUL 5) in the cooperation agreement. In this case, we could say that problems arise from the management of the cooperation agreement. As Marshak (1974) points out, the presence of conflict is consubstantial to collaboration between economic agents, and indicates that three possible cases could arise among different agent preferences or in the agreement of aims:26

(i) Where no agreement exists (coalition);
(ii) Where total agreement on preferences exists (team); and
(iii) Where an intermediate situation exists (foundation).

To solve these problems, the participants normally decide to give the agreement some organizational structure, with the aim of:

(i) Reducing differences and asymmetrical information through the creation of communication channels;
(ii) Creating a system of management, negotiation and remuneration to make aims or preferences coincide with the collective interests of the cooperation agreement; and
(iii) Creating a system for coordinating and supervising activities and contributed resources, in order to eliminate possible divergences in activities and therefore to maximize the achievement of cooperation objectives.

![Hierarchical analysis of distances (DIFICUL)](figure6_11.png)
These are reasons why it is usual for a coordinator to exist in cooperation agreements to establish communication channels, remuneration policies and so on. The lack of some necessary structuring to mitigate possible situations of conflict generally involves an increased probability in the agreement’s failure or makes impossible the optimum achievement.

The second block of similarities between the different difficulties that affect companies assembles a series of aspects that make up a range of difficulties related to the attitude of economic agents towards cooperation, including lack of involvement by partners in the agreement (DIFICUL 4) and the existence of opportunist behaviour (DIFICUL 6).

A cooperation agreement is generally reached when an incentive exists to put it into practice, or when the benefit derived from working together is greater than that involved if each partner carries out the activity separately. In this respect, an agent will intervene in a cooperation agreement depending on to the potential benefits (or utility) that exist. Nevertheless, an agent can participate in an agreement by giving priority to their individual interests and objectives, allocating less effort, resources and time than those that are necessary to maximize cooperation benefits. This explains how an agreement may not be handled properly (DIFICUL 4), and this circumstance might be caused by or lead to, opportunist behaviour27 (DIFICUL 6) on the part of some participants in the agreement.

Divergent business cultures between those signing the agreement (DIFICUL 3) are also grouped with the previous variables, although at some distance. It could mean that lack of commitment is caused by the different cultures, and is an obstacle to the agreement’s optimum functioning.

The final grouping presented in the cluster contains a single variable, objectives not achieved (DIFICUL 1), which could be caused by circumstances outside the actual agreement, related to changes in the environment or in economic circumstances, in addition to the internal aspects already discussed.

The conclusion of the agreement

Finally, we asked the opinions of companies in the sample about reasons for the failure of an agreement in which they have participated. Responses are listed Figure 6.12.

In this case, in carrying out a cluster analysis (Figure 6.13) and looking for similarities between variables, it can be observed that:

(i) An initial group of causes of failure corresponds to the ending of agreements because there is an unbalanced number of companies
different aims, different sizes, disparate business cultures and so on – (FRACASO 3) and lack of partner motivation (FRACASO 4). Both of these problems are related directly to the need to make a suitable selection from among the partners who are willing to participate in the agreement, and to observe the amount of interest shown during the actual negotiations. Also included in this group as a cause, although somewhat more remote, is the lack of experience in this field (FRACASO 5), a question that is nevertheless indicated as the most frequent reason for the cooperation not being concluded satisfactorily (cited in 25 per cent of the replies).

(ii) Another group of variables refers to the agreement’s financial weakness (FRACASO 1) and to badly defined aims (FRACASO 2). This result leads us once more to point to the importance of suitable management and planning of the agreement.

(iii) The last group refers to negative surrounding developments (FRACASO 6) as a reason for the cause for cooperation being unsuccessful.
In sum, we could repeat the causes indicated by referring to the main difficulties arising in the course of the agreement, with the reasons for failure being related to:

- Factors regarding attitudes and suitability of partners;
- Factors relative to management of the agreement; and
- Factors related to economic circumstances.

**Final observations**

In this chapter, we have looked at the internationalization of small, medium-sized and micro companies based on the cooperation relations they establish in this area. Combining theoretical analysis with the results of empirical study, the following aspects can be emphasized:

(a) The position of small, medium-sized and micro companies with respect to internationalization. Our analysis was directed at defining the position of companies from a static point of view, abandoning the classic position based on a gradualist approach to internationalization. The first of these referred to the strategy defined by the company (aggressive, maintenance or static, and defensive strategies); a second core related to the degree of experience in relation to international activities; and finally, the third, relative to the degree of penetration in international markets with the activities carried out (export company, investment or import company).

(b) The role of cooperation in the internationalization of small, medium-sized and micro companies. The cooperation strategies are proposed in internationalization with an character instrumental and implicit, which can be explained by the complexity in defining cooperation and the difficulty in demarcating it.

(c) The cooperation process in an international field. An explicit lack of formalization should be emphasized in all stages of the process, not only during its planning stages, but also concerning the negotiation and structuring of the cooperation agreement. In this case, the reasons can be found, on the one hand, in the instrumental character of cooperation, and on the other, in the fact that cooperation, as a strategic tool, is still very new among small, medium-sized and micro companies.

Taking the limitations of the study into account, with such a small number of companies included, the conclusions obtained should be interpreted with the reservations determined by the sample size. Even
so, these limitations lose relevance if we consider that the establishment of cooperative relations in internationalization is still a phenomenon that is far from widespread in the normal activities of small, medium-sized and micro companies. Nevertheless, in our opinion, cooperation as a basis for internationalization processes could be the tool that enables the international presence of many companies to be introduced and maintained – especially in the case of small, medium-sized and micro companies. In this respect, cooperation agreements should be considered as a stable option for organizing companies’ international activities, acquiring an explicit character when a presence is sought in foreign markets.
Technological Cooperation between Companies

Economics, technology and technological change

Before analysing the importance of technology for companies and the different ways in which it is acquired, it is necessary to define the concept and the contents of the term ‘technology’, something that it is not easy, as it has many definitions. The Royal Spanish Academy, for example, defines technology as a series of industrial tools and processes for a particular sector or product. In a more general sense, technology can be defined as a series of skills or integration of applications that enables people, based on certain given resources and means, to carry out a productive activity, provide a service, or reach a goal or objective.

Nezeyis (1985), in turn, introduces the distinction between technology and technique in defining the term, pointing out that technology is a branch of knowledge established by a series of specific skills necessary for using, improving and creating techniques, whereas technique is comparable to a production process and is composed of a series of operations that must be carried out to produce a given good. From a technical-economic perspective, it is possible to take the concept of technology to mean the state and knowledge of production systems, and the central techniques and skills related to these systems that allow them to be performed effectively.

When changes occur in the technological conditions of the prevailing economic system (through the introduction of new processing or product technologies, for example), the alterations introduced into the economy are called technological changes. For Dosi (1983), technological change appears in different forms: by creating new services for users, by modifying product features, and by varying productive processes. In this respect, the dual nature of technological change can be considered by taking into account that, on the one hand, it is a factor in reducing
production process costs – product technology – and, on the other, an element in creating demand – product innovation.

In general, the technological factor has scarcely been dealt with by classical and neoclassical economics, since in the perfect competition model it is considered to be a set of freely available production possibilities, in the face of which all economic agents are identical – which in most cases is totally contrary to reality. On the other hand, on analysing the production function that explains quantitative relationships between output and products, it can be seen that technology and technological change are determined in an exogenous manner, and only their effects on economic variables (factor costs, productivity, prices and so on) are analysed.

It was not until the end of the 1950s and during the 1960s that economists, from analysis carried out by Schumpeter (1961), began to recognize that technological changes were an important component of economic growth, and sought the explicit introduction of technological considerations into the framework of a neoclassical production function theory. This marked the beginning of a systematic study of the influence of technological variables on productivity and market structures. Some authors began to refer to the structural theory of technological change in the 1980s, representing the main contributions in this area from both macro- and microeconomic viewpoints.

The first group includes studies relative to the different aspects of the macroeconomic effects of technical progress: the development of economic growth models and their link with the production function, the restoration of international trade theory, economic cycle interpretations, income distribution between work and capital, the development theory, the minimizing of economic differences and so on.

The second group, orientated microeconomically, aims to analyse strategic competence of a technological nature and the way in which research and development (R&D) activities affect industrial structure and markets. The main subjects studied refer to scale performance; the design of the most suitable structures for the market; the role of the state in technical advance and in regulating markets; factors explaining research; diffusion mechanisms; the determining of optimum R&D policies; and the role of institutions in protecting patents.

**Technology as a competitive factor for companies**

To analyse the importance of company cooperation in technological matters, it is necessary first to identify the importance of technology as a competitive factor for companies.
It was Schumpeter, in the first half of this century, who suggested the importance of company innovation, even linking it to the very essence of the businessperson. Subsequently, Ansoff (1965) analysed the role of technology as a competitive factor, but it was not until the 1970s when a series of theoretical and empirical studies appeared, that technological innovation was identified as the central factor in company competitiveness. These studies provided the basis for a series of further studies that, from the 1980s, developed analyses of various aspects of the impact of technological innovation on company competitiveness.

A series of radical changes occurred in the company environment over these years, shaping a panorama in which technology began to acquire a role as a strategic factor in company competitiveness. These changes, beginning in the 1970s, can be synthesized briefly as:

(i) The loss of productivity suffered by medium- and high-technology US products in world markets because of growing pressure from countries such as Germany or Japan, leading to the first devaluation of the dollar in 1971 and the abandonment of the Bretton Woods system;

(ii) The oil crisis of 1973 – with the consequent increase in the price of crude oil – and its effect on industrial prices, which obliged companies in developed countries to carry out a massive reconversion of production processes, applying technologies that resulted in energy savings: this so-called process technology became the main factor in industrial reconversion strategies;

(iii) The slow growth in demand for capital goods – once industrial reconversion had been accomplished – obliged companies to diversify products – based on new technology – and search for emerging high-growth markets; with product technology taking centre stage as a strategic factor in company development; and

(iv) The emergence of new industrial powers in South East Asia and the appearance of radical innovations in the company field – derived from advances in microelectronics, new materials, the use of alternative energy, the industrial application of lasers and so on – that exerted greater pressure on markets and company competitiveness.

Nevertheless, a clear conclusion began to appear from the experience accumulated during earlier years: technology itself does not determine competitive advantage if it is not accompanied by company organization systems that administer its use efficiently. As Kay (1993) points out, ‘innovation can be the single factor that gives rise to competitive
advantage, but such a result is actually quite rare. What often appears to be the result of innovation is in fact the consequence of combining competitive advantages. Its translation into competitive advantage requires the strong support of associated strategic elements.\textsuperscript{11}

Theoretical work carried out in the 1990s on the implications of new technology for generic business strategies has heralded a new era where technology occupies a central role in the company and touches on all the company’s activities, going beyond research and development (R&D) departments.\textsuperscript{12} Other works in this direction study the importance of intangible resources (available technology, staff training and motivation and so on.) in building up a company’s competitive advantage. These resources are not used separately, but are combined to develop complex interaction patterns constituting the so-called specific abilities or distinctive competence – in other words, those activities the company is particularly good at, and on which their competitive advantage can be based\textsuperscript{13} (see Table 7.1).

It can be said, in conclusion, that technological development, innovation, the structure of science and technology systems, and the innovative spirit of the company itself figure among the most strategically important factors for achieving competitive advantages.\textsuperscript{14}

**Table 7.1  Factors in competitiveness**

<table>
<thead>
<tr>
<th>External factors</th>
<th>Internal factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tangible factors</td>
<td></td>
</tr>
<tr>
<td>• GDP</td>
<td>• Size</td>
</tr>
<tr>
<td>• Inflation</td>
<td>• Growth</td>
</tr>
<tr>
<td>• Unitary labour costs</td>
<td>• Productivity</td>
</tr>
<tr>
<td>• Exchange rate</td>
<td>• Profitability</td>
</tr>
<tr>
<td>Intangible factors</td>
<td></td>
</tr>
<tr>
<td>• External opening</td>
<td>• Internationalization</td>
</tr>
<tr>
<td>• Technological development</td>
<td>• Innovation: R&amp;D</td>
</tr>
<tr>
<td>• Science technology systems</td>
<td>• Strategic attitude</td>
</tr>
<tr>
<td>• Industrial competition level</td>
<td>and direction style</td>
</tr>
<tr>
<td>• Total quality</td>
<td>• Industrial design</td>
</tr>
</tbody>
</table>

**Economic features of technology and its influence on transaction costs**

Technology, as an exchangeable economic resource, displays a series of traits that we shall try to synthesize below.
It is necessary first to point out that technology as a variable factor is not considered exogenous to the economic system. In the learning by doing analytic model (the model of acquiring technological knowledge through learning) proposed by Arrow (1962a), technology had already ceased to be considered as accessible public information, becoming knowledge that was neither free nor easy to acquire, with experience being the fundamental factor in accumulating technological skills.

With reference to the cumulative nature of learning by experience, it can be seen intuitively that, as technological skills are acquired and developed, so improved performance can be achieved over time. Similarly, the theory of resources and capacities suggests that technology is an intangible company resource – an endogenous variable, therefore – that can provide competitive advantages.

The first characteristic it displays, together with the process of technological development is, therefore, uncertainty. Technology originates from investigative efforts and in all research processes there exists uncertainty – or a situation of high risk – derived, on the one hand, from the difficulty of establishing a priori a definite period for obtaining results and, on the other, from doubts regarding the actual benefits to be obtained by research. It is important to point out that, in order to carry out a process of technological development, certain minimum thresholds are required with respect to investment in personnel and equipment, which translates into entry barriers that make it difficult for many companies, especially small ones, to carry out these types of activity.

Other features that are characteristic of technology are its discriminatory and localist nature. The discriminatory character refers to the existence of different technical alternatives: the creation of value resulting from the choice of a certain technique will depend on its cost, and on the knowledge acquired as a result of this option. The outcome of this process also leads to uncertainty, derived from not knowing whether the best technical decision has been made until after the results are obtained. The work of Atkinson and Stiglitz (1969) in this area is aimed at demonstrating that technological improvements do not affect the whole economic system in the same way, the arguments explaining this supposition being related to the cumulative nature of technological knowledge and of learning through experience.

Regarding the localist nature of technology, this is related to the concept of technological trajectory. In determining technological trajectory, economic agents and institutional factors decide the concentration of technological development efforts in certain directions. In this respect, Dosi (1988) indicates that there are a series of ex ante situations where
institutional, economic and social factors determine the different possibilities, and a series of ex post situations where market criteria are what select the products resulting from a particular type of technological development.\textsuperscript{21}

*Indivisibility*, finally, is another characteristic of technology. This means that it is not possible to isolate technology – either the process or the product – from its content (techniques, knowledge, training and so on), something that introduces greater complexity into economic transactions.

Because of these characteristics, technological exchange causes high transaction costs, though a combination of factors:

(a) Technology is, in the first place, knowledge and not information; therefore its reproduction and acquisition are neither easy nor free. And cumulative nature through learning and experience make it even more specific;\textsuperscript{22}

(b) Its localist and discriminatory character, derived in part from the prioritization and selection of certain development trajectories, means that it generates differences between sectors, sometimes very pronounced (localization specificity); and

(c) Finally, mention should be made of the high degree of uncertainty engendered throughout the process, from the invention phase with respect to the results to be obtained and the period in which they are expected to be attained, the final market response phase in the selection of products resulting from a particular type of technological development.

**Cooperation as an instrument for reducing transaction costs**

From considering technology as an intangible asset (knowledge) and observing its importance as a factor in competitiveness, it can be seen that it is a fundamental resource for companies. It has been shown, nevertheless, that, because of the very nature of technology, its acquisition involves certain transaction costs. Both facts are leading to a substantial change in the way in which companies act with respect to technological requirements and, as a consequence, to cooperation taking on a central role in reducing transaction costs. The need to generate economies of scale in the technological development process – which requires heavy investment – is leading companies (small ones especially in particular) to intensify the establishment of cooperative relations with other companies, the government, universities and public research centres.
This move towards greater cooperation is also being reflected in the definition of public policies in the technological field and in the reconsideration of the government’s role in articulating the scientific–technological–industrial system. The observation, in particular, that the acquisition or development of technology is a fundamental part of generating resources and capacity for improving company competitiveness is giving rise to a change in the design of public policies for technological development and promotion, and putting greater emphasis on technological management policies at company level.

Furthermore, the generation of technology is concentrated heavily in a few countries – the localist feature referred to earlier. Basically, this is the most developed countries, since they have longer experience, and consequently a greater accumulation of technological skills, the acquisition of which on the part of other countries is taking place through processes of technology transfer. In this respect, if we take into account the uncertainty and, in many cases, the difference in technological culture between the principal and the recipient, cooperation also turns into a fundamental instrument for the transfer of technology.

It has also been seen that the technological process is the result of interaction and cooperation between a complex series of agents and institutions that form the so-called science–technology–industry system, or national innovation system. Rosenberg (1976) points out, with respect to this system, that such interactions play a fundamental role in multiplying and accelerating technological results. The new theory of technological change also gives great importance to institutions, since, according to Dosi and Orsenigo (1985), their need is motivated by the existence of great uncertainty. For these authors, the work of institutions has a dual role: as decision-makers on the one hand; and on the other, as organizers of interaction and cooperation between agents participating in the innovation process.

Finally, globalization and the greater inter-dependence between economies is producing a phenomenon that some authors call ‘technoglobalism’, which means the internationalization of technology, whether in generating or exploiting technological processes.

Because of the nature of technology, high transaction costs and the difficulty of acquiring technological knowledge though learning alone, companies are therefore searching for new mechanisms to obtain this knowledge. In this respect, cooperation is serving the purpose of minimizing transaction costs and as a form of access to technological skills that are difficult for individual companies to obtain. The Administration’s intervention is similarly motivated by this aim.
Technology transfer and cooperation as inherent elements in the process

The concept of technological transfer can have different meanings. On the one hand, it is used to identify the processes through which skills generated in research laboratories come to be used by companies; it is also used to indicate the processes by which a particular technology designed for a given industrial sector can be used in another. Finally, the term also refers to the international transfer of technology, or rather the flow of skills that takes place between countries – particularly that which occurs between developing countries and industrialized nations (see Table 7.2).

Technological transfer generally means the transmission of one country’s, or market’s knowledge to, and assimilation by another, resulting in innovation in the destination market. The capacity thus to assimilate and maintain technological control requires the recipient company to have certain resources and traditions in R&D, an industrial culture related to innovation, and suitable methodology and procedures.

Factors conditioning technology transfer

With regard to goods subject to exchange, we have already seen that technology transfer is synonymous with technological skill transactions, having the following distinctive features.

Difficulty of assimilation: since the technology is knowledge developed through learning and experience, the degree of adaptability will depend largely on the recipients themselves.

Complexity deriving from its indivisibility, since it is not possible to isolate technology – either the process or the product – from its content, techniques, skills, training, complementary development and so on.

<table>
<thead>
<tr>
<th>Table 7.2 Activities involved in technological transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The sale or cession under licence of industrial property.</td>
</tr>
<tr>
<td>2. The transmission of technical knowledge and experience in the form of reliability studies, models, manuals, detailed formulas or specific instructions.</td>
</tr>
<tr>
<td>3. The transmission of necessary knowledge for installation, start up and operation of turnkey projects.</td>
</tr>
<tr>
<td>4. The transmission of know-how to acquire, install and use intermediate capital assets, goods and final goods.</td>
</tr>
</tbody>
</table>
Uncertainty is generated with respect to the possible results and times of the technological processes. When we move down the stages of the process (invention, innovation and diffusion), the level of determinism is greater.

A series of factors exists that condition the success of technological transfer:\footnote{32}

(a) Features inherent in the product being transferred and of the receiver of the transfer, from the capacity for technological assimilation to the way in which the recipient receives the knowledge, the dominant paradigm or the technological culture in the recipient’s surroundings, and so on.
(b) The circumstances of the party supplying the technology: experience, for example, company size, the level of competition in the market, the newness of the technology.
(c) Those resulting from the environment where the transfer takes place – since a familiar local market poses fewer problems than the international market – and the legal framework of the transfer. Generally, the greater the complexity of the environment, the greater the uncertainty.

As for receipt of the transfer, a series of factors should be highlighted:\footnote{33} first, the capacity for assimilation, which differs according to the type of technology in question – it may be process or product technology, the latter being more accessible. Second, the degree of coding incorporated, since there are types of technology that require a high level of tacit understanding on the part of the recipient for optimum development, use or application. Third, the paradigm or level of technological development in the environment in which the recipient operates, a very important factor in the case of international transfers. Finally, whether it is necessary for the recipient to generate complementary services, such as marketing, quality control, after sales services, and so on, in order to develop commercially and use the technology acquired.

With respect to the supplier’s environment, its nature (research laboratory, company, engineering firm and so on), size (small or international company) and the level of competition in the market in which it operates, are circumstances that will influence the success of the transfer. These circumstances will also have an influence over the newness of the technology to be transferred and the capacity to
assume the costs that the process involves. These costs take the form of:

- The allocation of resources for promotion – so that the technology is publicized and proves interesting to possible buyers;
- The allocation of resources for adapting technology to the conditions and needs that surround the acquiring firm;
- Costs related to the negotiating process;
- Legal expenses in preventing the illegal use of technology; and
- Expenses derived from hiring specialized personnel to carry out the transfer.

Finally, with respect to the degree of uncertainty derived from the environment in which the transfer is carried out, the success of the transaction can be conditioned by:

- The existence of a legal framework (patent and trade name protection system, standards for repatriating utilities and so on); and
- The fact that the transfer takes place in the geographical area in which the transferring company operates, together with the other circumstances mentioned earlier.

By considering the factors listed above we can conclude that technology transfer is a complex process – something that is reflected initially in the high degree of specificity in the asset exchanged, carried out in conditions of high uncertainty which generally involve considerable transaction costs. The move away from the classical market and simple contract situation (the price and quantity of the good to be transferred) towards mechanisms that try to minimize uncertainty and transaction costs therefore seems logical.

Technology transfer is carried out in many ways that, in turn, materialize into different types of contract (Williamson, 1985) or into intermediate organizational forms (Imai and Itami, 1984) for carrying out the technological transaction. Central authorities, for their part, whether national or international, also intervene to reduce uncertainty in transfers, acting as inter-relational structures, and setting out the legal and regulatory framework.

**Different types of technology transfer contract**

There are various types of contract for transferring technology, the most common ones being:
Business Cooperation

- The sale of machinery and equipment (the so-called incorporated technology);
- Licence agreements (whereby the use of legally owned technology is authorized);
- Know-how agreements (by which authorization is given for the use of knowledge whose property is not guaranteed by patents);
- Technical assistance;
- Training, research and development services, consulting services; and
- Turnkey contracts.

As one can see, a great variety of types exist, but as a result of the complexity involved in technological transfers, different types of co-operation agreements have developed between the companies owning and the companies acquiring technology: from very simple ones to complex contracts that may even include joint structures between the agents involved in the transfer. These contracts represent intermediate contractual and organizational formats between internalization and the market, and involve collaboration between the supplier and the purchaser to exploit the technology jointly.

The degree of hierarchy in the relationship between agents participating in the transfer will depend on transaction costs. Generally, when the transfer is complex, a franchise, or joint venture type of cooperation can minimize transaction costs. A transfer can be complex, and the costs are usually high, either because of the nature of the technology (requiring technical assistance by the supplier, staff training and so on), because of substantial technological differences between the supplier and the recipient, or because it involves an international transfer with a high degree of uncertainty.

Technology transfer and interface structures

Technological transfer is not usually a specific function of companies, except in special cases such as research laboratories, industrial design companies and so on. Generally, the size of the company – small companies especially – or simple lack of legal knowledge, means that it is not possible to tackle certain transfer projects. It has already been pointed out, nevertheless, how a transfer is one of the main forms of technology acquisition, and therefore fundamental when the question of improving company competitiveness is raised.

Because of this, and in order to resolve the deficiencies noted, a series of intermediate mechanisms (or interface structures) has been developed with the aim of facilitating and performing technology transfers. Even
if they originate from very varied sources, since they are the result of initiatives by company associations, the government, universities and so on, their task is the same in all cases: to mediate in the process of technology transfer.

Interface structures may be defined as a specific form of interaction between two or more entities (these may be countries, companies or even individuals, depending on the observer’s point of view) through which technology is transferred. The scope of transfers carried out covers all possible forms of interaction occurring in the process.

Interface structures, although they perform other, more extensive, tasks, carry out a series of functions related to technological transfer that take the form of:

(a) Searching for partners and information;
(b) Linking supply and demand; and
(c) Drafting and following up transfer contracts.

The form and internal organization depend not only on the source, but also on the objectives pursued.

**Technology transfer networks**

It has already been pointed out that interface structures, as specialized intermediaries, are capable of identifying potential partners, either purchasers or sellers of technology, and of negotiating with them on a client’s behalf. An important part of this power consists of extensive contacts in industrial and research fields, which enable possible partners to be identified rapidly and effectively. In this respect, interface structures constitute real technology transfer networks.

In Europe interface structures are generally small, specialized structures, so to extend their search potential and enable them to offer auxiliary services they participate in networks with other mediators and consultants. The success of networks in the field of technology transfer depends on the common desire of network partners to pool individual – but complementary – experiences for their mutual benefit. The aim of networks is to help companies from different countries to trade technology, carry out joint research and development programmes, put innovative products on the market, or to commit themselves to other forms of cooperation related to technology and innovation.

There are generally two types of partners in these networks: commercial mediators in technology, and regional economic development bodies, both with different tasks, capacities and motivation. The former thus
aim to help companies during the phases of identifying, evaluating and negotiating with partners in cooperation agreements, while the latter usually pursue an active role in making companies aware of the advantages of technology transfer – a function that is normally the responsibility of bodies financed by public funds, since the costs are very high and not always recoverable.

The purpose of transnational networks is generally to spread technology internationally by putting research bodies, sectorial technical centres and economic development agencies and organizations in contact with one another.

**Technological development: the process of technological innovation**

**Technological innovation**

Although the technical literature offers a wide range of definitions related to the concept of innovation, we must thank Schumpeter (1939) for the distinction between inventions and innovations: ‘Innovation not only consists in new products and processes, but also in new organisational forms, new markets and new sources of raw materials’. 38 Rothwell (1992), for his part, defines innovation in a broad sense as ‘a process that includes technique, design, production and commercial and management activities involved in the sale of a new product or the use of new production processes or equipment’. 39

Innovation defined in this way does not depend necessarily on technology; when considering an innovative process, it is possible to take into account economic, social, technological, organizational and strategic innovation that originates and develops at different levels. Freeman (1982) states that technology, strictly speaking, is simply a body of knowledge related to techniques, and distinguishes between innovation—which means the introduction and diffusion of new and improved products and processes in the economy – and technological innovation, which is related to advances in technological knowledge proper. 40

From this distinction, numerous authors have established a precise definition of the concept of technological innovation, considering this to be innovation based on the industrial application of scientific and technological skills, and in common with innovation it is generally characterized by its commercialization capacity in the market in the form of a new product or service.
In conclusion, it may be said that innovation has many functions: it is the motive force that drives companies to achieve ambitious long-term objectives that lead to the renewal of industrial structures and the appearance of new sectors of economic activity. Innovation is translated formally into: a renewal and extension of the range of products and services, a renewal of production, storage and distribution methods, changes in management and in the organization of work, plus the skills required of workers.

Technological innovation is, above all, an attitude, a capacity to improve and adapt existing products, and processes, organization to match new technological developments.

The process of technological innovation

In this section, we shall briefly analyse the process of technological innovation, and the problems involved in such an analysis.

The process of technological innovation, considered as a unitary process, ranges from the generation of an idea to its introduction on to the market in the form of a new product or process, with every phase having a specific process at both institutional and financial levels. It is vital, nevertheless, not to lose sight of the reference that the process is a coherent and coordinated whole, whose end is to successfully commercialize the results of research.

The initial phase, invention, is one where a new idea is developed and where, possibly, a prototype is produced. New skills and ideas are generated in this phase, with perhaps some resulting from basic elements of research being translated into new scientific skills.

Next, in the innovation phase, invention is translated into a process or product subject to commercial exploitation; here, technical development is combined with marketing, and the company begins production of the new product. This effort culminates in the introduction on to the market of the new product by the innovating company.

In the third phase, and in so far as the new product or process is acknowledged to be superior to existing ones, it is subjected to intense use by the innovating company, as well as being adopted by other companies in the industrial sector: this is the diffusion stage.

Conceptualization of technological innovation processes and approaches to dealing with them – based on recognizing their complexity – have changed profoundly since the 1960s. These changes can be synthesized into five models or generations of administration of the innovation process.41
The first models analysing the process all establish a linear sequence between invention and innovation. Nevertheless, from third-generation models it is accepted that this sequence between invention and innovation does not necessarily always have to occur. The complex relationship between invention and innovation is highlighted, together with the fact that these are not necessarily dependent on one another: ‘innovation is possible in the absence of anything we could identify as invention, and invention does not necessarily produce innovation’.

Technological innovation processes in integrated models are considered to be retroactive, concurrent and not sequential; they also take market and consumer needs into account, corresponding to a greater integration of phases and a significant level of coordination and control.

Nevertheless, a major increase from the second half of the 1980s in the number of technological alliances based on collaboration in developing innovation shows that technological innovation is the result of something more than a sequential or integrated process; it is a process that is carried out in a network. The network is made up not only of cooperating companies, but also of those involving customers, suppliers, sources of technological knowledge (universities, public research institutes), administrators and so on, which results in a complex process of inter-relationships between different participants.

Recognizing the complexity of the innovation process and the difficulties in understanding it constitutes a necessary prior element to enable action strategies to be defined, both in the world of the company and in public policies. Rosenberg (1982) symbolizes this difficulty by referring to a ‘black box’, in which invention and innovation are considered exogenous forces – and uncontrollable to a large degree – which operate independently of any policy. Von Hipel (1988), meanwhile, also emphasizes the complexity of the process by stating that the function of innovation is a distributed and unknown function, in spite of sufficient knowledge existing with respect to its functioning to enable company managers to take action.

Another important contribution regarding the complexity of the innovation process is that resulting from the conclusions of the OECD’s TEP (Technology and Economy Programme), in which it can be verified that the generating process of innovation covers more factors than those considered up to that time. These demonstrate that the process is not linear – as was traditionally accepted: that the process begins with basic research, followed by applied research, and moving successively to the development stage. Quite the reverse, in fact – it appears that the different stages are closely inter-related, with feedback loops and
beginning in any of the stages, according to the sector or the specific activity considered. In spite of this, Rosenberg and other authors have emphasized elements of continuity and inter-relationship between them.

Based on these considerations, we shall try to analyse the technological innovation process that is developed within the framework of technological cooperation networks, which basically involve the phases described here but also introduce a complexity resulting from the many bodies involved in carrying through the technological objective.

**Cooperation networks in the technological innovation process**

As has already been pointed out, views on the development of technological innovation processes have evolved considerably from the first studies carried out, not only concerning the characteristic features of the process, but also the way in which they are carried out by companies.

Traditionally, Schumpeter's Hypothesis II (Schumpeter-Galbraith) considers the existence of a relationship between size and innovative activity, which leads to two conclusions: that small companies do not develop technological innovation activities – so that the only channel open to them therefore is technology transfer; and that innovation is a function that is internalized in companies, especially those of a certain size.

Even if this reality was the dominant tendency up to the mid-1980s, technological cooperation agreements and participation in networks currently represent an alternative, more active means of participation for small and medium-sized companies in developing technological innovation; this means that small companies acquire, through external network partners, abilities and technological skills, which they cannot generate individually.

Furthermore, the internalization of technological innovation processes involves the investment of a considerable proportion of company resources in projects whose results are veiled with uncertainty, not only relative to the fulfilment of planned time limits, but also, and more importantly, to the expected results. Together with this, the growing speed of innovative cycles means that companies of a certain size – those that are able to generate economies of scale – are faced with ever-greater uncertainty in relation to innovation processes that is difficult for the company to control, and is reflected naturally in an increase in internal transaction costs.

For these reasons, the tendency, also noted in the case of large companies, is to externalize certain stages of the technological process – and those related to invention in particular – so they frequently opt for
collaboration with public research centres. These activities are being made possible through information and communication technology, thus providing information channels that are comparable to those existing within companies.

The promotion of networks in this area is therefore being favoured by the above circumstances, enabling cooperation agreements with particular institutions. This will generate the complementariness and synergy it is not possible to achieve individually – in the case of large companies, and participation in technological innovation projects to generate economies of scale – in the case of small and medium-sized companies.

These finding provide evidence that innovation processes require many factors to be considered – both internal and external – resulting from the need to study the interaction mechanisms, competitiveness policies and factors that determine the environment in which companies operate using an *interactive, systematic and transnational approach* that takes into account the many agents involved. ⁵¹

**National innovation systems as means of interaction and cooperation**

It has already been explained how the present speed of innovation in different fields of knowledge has meant that a new product takes very little time from being developed in a research laboratory to being launched on to the market. This has caused product life-cycles to be shortened increasingly (in particularly for products with high added value, such as cars, electronic equipment, computers, production machinery and so on), and that new technology in areas of acquiring and processing information, in telecommunications and materials, have opened up the possibility of rapid technological progress in diverse fields.

The need and importance, therefore, of linking scientific and technological studies at universities and research institutes more closely with industry – as a way of satisfying its requirements for service, research and development, in addition to continuous training – is indicated as the way to face present and future market demand with a better chance of success. ⁵² This has led to the creation of various cooperative links with industry in order to transfer technology to the productive sector and to promote the creation of new technology-based companies, since cooperation is considered to be a key element for countries’ economic and technological growth. ⁵³

The role of users in developing new technology is no less important, however. As Von Hipel showed in a study published in 1977, around
70 per cent of new processing machines for the production of semiconductors and electronic sub-assemblies in the USA were developed by users, and not by machinery manufacturers.\textsuperscript{54} Freeman (1982), meanwhile, indicates that the closeness of users to the suppliers of innovation plays an important part in the design and elimination of defects in new products,\textsuperscript{55} especially in high technology products, considering that profitability for the supplier depends on proof of profitability for the user.\textsuperscript{56}

Users also tend to play a prominent role in markets where uniformity in consumer patterns is being reduced in the face of production aimed at satisfying the diversified demand made possible by the appearance of flexible productive systems. Finally, user-producer relations are playing an important role in the process that signifies moving from static efficiency – in the short term, by means of access to available techniques – to a dynamic one where a company not only must have knowledge, but must also acquire it by an interactive learning process through innovation.\textsuperscript{57}

Verification of the importance of encouraging and developing interaction and cooperation in the innovation process between participating agents means, therefore, that current technology innovation, transfer and diffusion policies include an increasing number of measures aimed at multiplying places or mechanisms where cooperation and interaction may take place.

The concept of a national system of innovation (NSI) has appeared recently in the technical literature to indicate the existence of certain organizational and functioning mechanisms that make effective interaction possible between science, technology, production and the market. The NSI is a framework for institutional organization that links different capacities (information, skills, financial resources and so on) with different sources (public laboratories, university research centres, engineering firms, information centres, users) to make innovation processes possible in an economy. This definition acknowledges implicitly the many factors and agents involved in the process of technological innovation and, hence, technical change. Nelson (1993) indicates that the NSI is the result of a complex series of relations and interactions between agents and institutions within a more extensive economic system.\textsuperscript{58}

In the same context, Freeman (1987) associates national systems of innovation with substantial technological changes, and defines them as the network of institutions in public and private sectors whose activities and interactions initiate, affect, modify and spread new technology.\textsuperscript{59}
These networks and institutions range from the State’s institutional and political apparatus to the private individuals who will be the final consumers of new products or services supplied on the market. The underlying idea in this definition is that technological dynamism does not emerge in an economy if the necessary infrastructure and networks are not available to support innovative company activity and to allow the diffusion of new technology. Freeman arrives at these conclusions based on a study carried out on the Japanese national system of innovation. Some facts arise from Freeman’s study:

- The role of government bodies and the ability to identify areas that are crucial to future technological progress, in addition to the capacity to mobilize major technological and capital resources to achieve strategic priorities;
- The role of company R&D strategy in formulating a new company management approach, integrating the design and development of production systems and their relation with users;
- The role of education, training and human resources;
- The role of social innovation in motivating, training and controlling the labour force;
- The development of an industrial structure particularly favourable for long-term strategic investment in marketing, training and technological activities; and
- The encouragement of interaction and cooperation between agents intervening in the process.

National systems of innovation, in short, do involve different organizational frameworks and different policies. In constructing a national system of innovation, the role of the state has a triple influence in relation to the technological process:

- First as a creator of infrastructure (research centres, information systems, developing human resources and so on);
- Second, as a promoter of innovation by means of policy design and the creation of institutional mechanisms directed at complementing the working of the market; and
- Finally, as a manager of agreements with the aim of establishing a network of relationships through cooperation that enables the flow of the different types of information, skills and abilities that sustain innovation processes between companies, research laboratories,
credit institutions, and so forth, through the available channels (finance, fiscal systems, administration).\textsuperscript{60}

The national system of innovation, integrated into the socio-economic mainstream, has shown the growing need to link companies, universities and public centres. To cover this need, a series of structures directed at facilitating this interaction have been developed. These are the interface structures – commonly generated by established factors in the system – or support structures for managing interaction and cooperation between universities, companies, the government, financial institutions, and so on.

These structures are concerned with closing the gap that exists between different agents, and their task, apparently, is simple (Figure 7.1). They are responsible for finding out what universities and public research centres (PRC) can offer – what training possibilities they have, in what fields they can provide technological advance, and so on. In addition they seek to discover the needs of companies: what technology they

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{interface_model.png}
\caption{Scheme of interface model}
\end{figure}

\textit{Note}: Public research centres (PRC).
need; from whom and in what precise form; how to carry it out; and under what conditions. Their activities are related to four main activities: linking, advising, informing and managing. 61

Interface structures are the result of an interactive concept of innovation, which considers its existence to be a decisive factor for the proper functioning of a national system of innovation.
Notes

1 An Economic View of Cooperation

7. In this context, transaction means to transfer the right to use certain goods and services in favour of other agents.
11. Arrow calls these costs of government of transaction as the ‘cost of economic system management’, whereas Coase calls them the ‘cost of use of the price system’.
12. We have already commented that this model considers all goods and services to have an observable price that is without cost to participant agents in interchange. It is assumed that there is high supply and demand which, implies that nobody has the capacity to impose conditions in price. On the other hand, maximization of particular interest in decisions is accepted *ex ante*, although it assumes that opportunistic behaviour *ex ante* or *ex post* does not exist.
13. The assets can be general or specific. When assets are general they can be employed in alternative uses without important change costs; the customer knows the price the market assigns to the assets and, on the basis of this decides whether or not to carry out the investment. When assets are specific, however, their value is not determined by the market but rather the profitability in their planned use; it means the price will have to be agreed – or to be negotiated – between customer and seller.
16. In the case of an industrial company in which the incidence of maintenance service and engineering is very high in the final product costs, the company may bring together two types of actions to make it more competitive: (i) the payments between the departments that need that service are accounted for in market price; and (ii) these services can be offered outside the company. Both performances lead to the creation of independent business units.
17. See Milgrom and Roberts (1992), ch. 2.
20. See Alchiam and Demsetz (1972).
28. See the cited works of Kogut (1988a,b) and Hennart (1988).

2 The Decision to Cooperate: a Strategic Decision

18. For a detailed classification of external growth, see Martinet (1983).
19. In this context, the structural implication is rigidity.
20. Cooperation agreements can be reached with suppliers, clients and competitors in the same sector, with complementary enterprises in the same or different sector, and so on. See Porter (1980).
23. According to Porter (1980), the objective of strategy is to enable a company to maximize its results and create or consolidate a competitive advantage, bearing in mind that companies acts in imperfect markets.
25. Other studies evaluate cooperation from the point of view of competitors. In this respect, see Doz *et al.* (1989).
34. Both conditions are largely justified in Porter and Fuller (1986).
35. Regarding cooperation’s advantages and disadvantages, see Collins and Doorley (1992).

3 Organizational Forms of Company Cooperation

1. Related to the need for coherency between strategic decision and organi-


17. An extensive analysis of this principle can be seen in Rojot and Bergmann (1989).


27. For example, the Community Program ‘Innovation’ (Technological Diffusion Information Network) had this structure.

## 4 Cooperation in Game Theory

1. A strategic conduct considers the conduct expected by others and recognizes the mutual dependence.
4. A payoff matrix is a table that shows the gains of each possible action of a player against each possible action of the other player. The first number corresponds to the gain of the first player.
6. Company profits are represented like payoffs.
7. The modelling of these situations is based on the scheme proposed by Harsanyi, so this equilibrium might be called the ‘Harsanyi equilibrium’. J. Harsanyi, ‘Games with Incomplete Information Played by Bayesian Players’,
24. This aspect can be viewed in Lecoq (1991).
5 Deciding on, Negotiating and Structuring Cooperation

7. Past experience allows us to ponder if reciprocity exists in relationships with other agents.
10. When agreements take place between competitors who share markets, and strong imbalances exist among them, these situations are usually considered to be of maximum risk for the continuity of cooperation. See P. Dussauge and B. Garrette, ‘Alliances Stratégiques, Mode d’Emploi’, *Revue Française de Gestion*, vol. 85 (1991), pp. 4–18.


25. A detailed analysis of the modelling of these situations by game theory can be viewed in, for example, J. Kay, *Foundations of Corporate Success* (Oxford University Press, 1993).


6 International Company Cooperation


3. The internationalization decision is analysed more deeply in Porter (1990), ch. 2.

4. Implicitly, it shows that an increase in transaction costs takes place.

5. Diversification, like all enterprise decisions, involves advantages (‘not putting all your eggs in one basket’) but also disadvantages (‘spreading yourself too thinly’). With regard to internationalization and diversification risks, see, G. S. Yip, *Total Global Strategy* (Englewood Cliffs, NJ: Prentice-Hall, 1992).

7. A typical example can be technological markets: as a technology reaches maturity in a market, if it is introduced into other markets it can continue to yield.


9. Restrictions on export credits are justified because, in many cases, they constitute concealed subsidies, looking to increase or reinforce the competitiveness of a sector and, in this sense, to limit free competition.


12. As was indicated in the first chapter, these operations involve high transaction costs that can be mitigated through cooperation.

13. In this sense, the European Community policy is definitely in favour of the internationalization of small and medium-sized companies through cooperation – in particular, by means of joint ventures – as reflected in the ECIP (European Community Investment Partners) programme.

14. The creation of a new structure is carried out when high transaction costs exist. In addition, the commitment between agents, through the participation in the newly created organization, can be considered as an internal control mechanism.

15. The creation of joint ventures in international operations with high transaction costs (high risk), assures the commitment to long-term cooperative behaviour by the local partner.

16. Some examples of franchises are Benetton, McDonald's, Cinq à Sec and so on.

17. Small, medium-sized and micro companies comprise more than 90 per cent of the companies in Spain; they contribute more than 60 per cent to GDP; generate more than 80 per cent of jobs; and make more than 70 per cent of exports.

18. This exposition is heavily based on the article from Fernández de Arroyabe and Arranz (2001).

19. This hypothesis is strengthened in other studies (see Cavusgil and Naor, 1987; Aaby and Slater, 1989; Bonaccorsi, 1992; Hennart and Reddy, 1997), which point out that there is a minimum size of firm – approximately 200 workers – that increases the probability of exporting.

20. In turnover intervals of less than 10 per cent of the total, it represents 25% of companies. For 5 per cent of companies in the sample, international activities represent 100 per cent of turnover.

21. The percentages corresponding to other groups of companies are: Africa (25 per cent), the USA (23 per cent), the Middle East (21 per cent) and the rest of the world (10 per cent).

22. In the factorial analysis, and particularly in the matrix of rotated components, values of less than 0.30 have been eliminated (for this, see T. W. Anderson (1958)). Extraction method: analysis of main components. Rotation method:
Varimax standardization with Kaiser. The same models are followed in the following analyses.

23. The variance explained by these two factors is 49.925 per cent: 29.219 per cent corresponds to factor 1 and 20.706 per cent to the second factor.

24. Verifying statistics are: Chi-squared = 37.836; d.f. = 5; sig. = 0.000.

25. Individual agents are usually individuals or legal entities representing small companies.

26. Cooperation between economic agents is balanced between cooperation and conflict, adopting intermediate forms between coalitions and teams that depend on the attitudes of partners, and the functioning and evolution of the agreement.

27. The opportunism of some agents intervening in the agreement, with competitive attitudes compared to the cooperative attitudes of the other partners, and who therefore obtain greater gains with respect to other participants. This competitive attitude corresponds to the criteria of maximizing individual objectives with respect to the aims of the agreement; the cooperative attitude, on the other hand, corresponds to an approach that chooses to maximize group objectives rather than individual ones.

7 Technological Cooperation between Companies


15. It has already been shown that neoclassical analysis, and even the innovation model proposed by Schumpeter, considers technology like an exogenous variable. See Schumpeter (1961).


22. As we showed in Chapter 1, the nature of the assets determines the specificity in three areas: knowledge specificity, physics and local specificity.


27. One of the Administration’s objectives is to promote interaction and cooperation between agents who take part in the technological process; E. B. Roberts, *Generating Technological Innovation* (New York: Oxford University Press, 1984).


31. Neoclassical models consider that economic goods are perfectly substitutable and divisible. In the case of technology, when defining this as a set of
knowledge susceptible to productive use, it would lead us to think that the transfer of technology is a non-divisible ‘integral package’.


34. See Robinson (1988).


40. Ch. Freeman, *The Economics of Industrial Innovation* (London: Pinter, 1982).


42. J. A. Schumpeter (1939) describes technological innovation as a process having three stages: invention (idea or prototype); innovation (model of a new product); and diffusion (the innovation is assimilated by an increasing number of users).


49. As enterprise size becomes greater, innovative activity, from the viewpoint of this analysis, is considered to be more important; see Kamien and Schwartz (1982).

50. We have seen throughout this chapter that the economic characteristics of technology and the high degree of uncertainty derive in the internalization of this activity. Nevertheless, this implies great investments, reason why only companies that have sufficient size carry out this internalization.

51. For example, The Framework Programmes of the European Community comprises institutional initiatives whose objective consists in establishing greater cooperation between European companies and scientists for the
development of technologies. The way to reach this objective is trans-
national collaboration between companies and scientific community in R&D
projects.

    Report for the Prince of Wales Award for Innovation, Highgrove Conference,

53. P. Montigny, ‘From Technological Advance to Economic Progress’, *The OECD


55. Freeman (1982).

ties and Risks for the World Economy: The Challenge of Increasing Complexity*
    (Paris: OECD, 1986). See also V. Walsh, ‘Technology and the Competitiv-
    ness of Small Countries: A Review’, in Ch. Freeman and B. A. Lundvall (eds),
    *Small Countries Facing the Technological Revolution* (London: Pinter, 1988).

57. See B. A. Lundvall, ‘Innovation as an Interactive Process: From User-Producer
    Interaction to the National System of Innovation’, in G. Dosi *et al.* (eds),


59. Ch. Freeman, *Technology Policy and Economic Performance. Lessons from Japan*

60. OECD (1992).

61. European Communities Commission, *The University-Industry and Research-
    Industry Interfaces in Europe* (Luxembourg: Official Publications Office,
Bibliography


167


Freeman, Ch., The Economics of Industrial Innovation. (London: Pinter, 1982).


Freeman, Ch., Technology Policy and Economic Performance. Lessons from Japan (London: Pinter, 1987).


Jones, Ch., Introduction to Economic Growth (New York: W. W. Norton, 1998).


Rialp, A. and Rialp, J., ‘El Papel de los Acuerdos de Cooperación en los Procesos
de Internacionalización de la Empresa Española: Un Análisis Empírico’, Papeles
Robbins, S., Organizational Behavior, Concepts, Controversies, Applications, 8th edn
Roberts, E. B., Generating Technological Innovation (New York: Oxford University
Robinson R. D., The International Transfer of Technology Theory. Issues and Practice
Rojot, J., and Bergmann, A., Comportement et Organisation. Comportement Organisational et Théorie des Organisations
Root, F. R., Entry Strategies for International Markets (Lexington, Mass.: Lexington
Books, 1994).
Rosenberg, N., Perspectives on Technology (New York: Cambridge University Press,
1976).
Rosenberg, N., Inside the Black Box: Technology and Economics (Cambridge University
Press, 1982).
Rothwell, R., ‘Successful Industrial Innovation: Critical Factors for the 1990’,
and R. Rothwell, The Handbook of Industrial Innovation, (Cheltenham: Edward
Elgar, 1994a).
Rothwell, R., ‘Towards the Fifth Generation Innovation Process’, International
Schendel, D., ‘Introduction to Competitive Organizational Behavior: Toward an
Organizationally-based Theory of Competitive Advantage’, Strategic Management
Schrader, S., Riggs, W. and Smith, R., ‘Choice over Uncertainty and Ambiguity in
Technical Problem Solving’, Journal of Engineering and Technology Management,
vol. 10 (1993), pp. 73–99.
Schumpeter, J. A., Theory of Economic Development (New York: Oxford University
Sebenius, J., Negotiating the Law of the Sea (Cambridge, Mass.: Harvard University
Selten, R., ‘Re-examination of the Perfectness Concept for Equilibrium Points in


Index

[Note: f = figure, n = endnote/footnote, t = table]

Abernathy, W. J. and Townsend, P. L. 163(n9), 167
action set 4
administration contracts 109
administrative processes 41
advertising 12, 32, 33, 107
Africa 162(n21)
after-sales service 95, 105t, 140
agency theory 5t, 16, 154(n18)
aggregation 29, 57
agreement desertion 90
see also prisoner’s dilemma
‘agreements’ 1, 2–3
agriculture 45, 109
Alchian, A. and Demsetz, H. 10, 16, 167
Aldrich, H. E. 4, 5t, 44, 157(n15), 167
Alonso, J. A. and Donoso, V. 111, 119, 167
ambiguity 83, 84t, 85f, 122
Anderson, E. 5t, 167
Andrews, K. R. 27, 167
Ansoff, I. 134, 154(n1), 167
appropriability 29, 30f
arbitration 13
Arrow, K. J. 162(n10), 168
Asia 55
Asian ‘dragons’ 101
assets 14, 36, 39, 90, 91, 139t
fixed 50
general or specific 153(n13)
intangible 29, 46, 77, 137
specific 19–20
specificity 12–13, 17f, 17, 18, 19f, 21, 75, 141, 153(n13), 164(n22)
Astley, W. and Fombrun, C. 44–5, 158(n33), 168
Atkinson, A. B. and Stiglitz, J. E. 136, 168
auctions 61
Auster, E. R. 3, 6, 168
Axelrod, R. 67–8, 168
Bank of Santander 114
banks 96
Barnard, C. 41, 168
Barney, J. B. 5t, 168
Bartlett, Ch. A. 162(n10), 168
Bayesian agents 61, 158–9(n7)
Bayesian equilibrium 59
behaviour 42, 57, 83, 87
Benetton 162(n16)
bidding/bids 3, 57
Bienaymé, A. 164(n10), 168
brands 24, 27, 29, 32, 33, 46, 77, 98, 108, 109–10, 126
Braudy, B. 159(n22), 168
Brazil 45, 101
Bresser, R. and Harl, J. 158(n33), 168
Bretton Woods system 134
budgets 26
bureaucracy 41
business cooperation
agreements between companies 3–6
cooperation relations 6–7
definition 7
economic view 9–25, 153–4
forms 18
general view 1–3
introduction 1–8
strategic decision 26–39, 154–6
structure of book 8
see also company cooperation
business planning 125f, 125
capacity theory 29
capital 2, 45, 49, 97, 98, 100, 104, 108, 133, 150
capital goods 134
Chandler, A. D. 27, 156(n1), 157(n10), 158(n30), 169
chaos dynamic 89
Charreux, G. 154(n18), 169
Chesnais, F. 2, 169
Child, J. C. 157(n16), 169
Cinq à Sec 162(n16)
collective strategy concept 55
collaboration 56, 158(n33)
Collins, T. M. and Doorley, T. L. 156(n33, n35), 169
collaborative strategies 37, 155(n17)
collaborative work 15, 169
commercial mediators in technology 143–4
commercial names 27
commercial zones 125f, 125, 126
commitment 86, 91, 128
communications 16, 54, 79, 92, 99, 100, 106, 127, 128
Community Program ‘Innovation’ (Technological Diffusion Information Network) 158(n27)
companies 9–11, 14, 22, 23f, 90–1, 151, 151f
association 22, 23f, 54–6, 109
association agreements 32, 33–4, 34f, 88
decision to cooperate 26–39, 154–6
definition 9
disintegration process 47, 51
external growth capacity 31
flexibility 33, 34f, 39, 40, 43, 46–8, 50, 55, 75–6, 88, 89, 106
frontiers 15–17
growth 135t
growth through external development 32–4, 155(n17)
interior structure 27
intermediate 111
internal environment 6
internal growth capacity 31
internal organization 16
internationalization 8
justification 10
market value 10
size 37, 43, 56, 135t, 140, 142
size v. innovative activity 147, 165(n49–50)
structure 45
technological cooperation 132–52, 163–6
value chain (search for competitive advantage) 28–30
see also environment/corporate; internationalization; organizations
companies (types)
conglomerates 116, 123
financial 114
industrial 114, 154(n16)
industrial design 142
international 52, 100
large 47, 51, 55, 56
micro 110, 112, 113, 124, 130–1, 162(n17)
multinational 101
parent 122
Spanish 124
see also SMEs
company behaviour models 57
company contracts 123
company cooperation 17–25, 34–9, 155(n20)
advantages and disadvantages 39, 156(n35)
alliance strategies 37
classification 23f
clusters (company cooperation to company association) 54–6
contractual forms 22–5

definition 36

objectives 19–21

organizational forms 40–56, 156–8

strategic variants 36–7

table-turning 38

theoretical explanations 35–6, 156(n25)

timing 37–9, 156(n34)

types 34, 36–7, 155(n20)

see also business cooperation

company growth 30–4, 155(n16–17)

company meetings 97

company ownership 104

‘company services’ market 56

competence 39, 50, 111, 112, 154(n26)

competition 9, 12, 16, 19, 20–1, 22, 27, 37, 38, 40, 46, 56, 124, 140, 162(n9)

imperfect 1–2

international 45–6

perfect 60–1, 133

competitive advantage 5t, 7, 35, 36, 38, 46, 55, 56, 76, 98, 101, 102, 111, 134–5, 136, 155(n9, n13, n23), 164(n13–14)

company strategy 26–7

factors 29t

search for 28–30

strategic 39

see also company growth

competitive position 107, 116

competitive positioning

theory 35

competitiveness 8, 21, 24, 34, 38, 41, 47t, 55, 110, 115, 116, 137, 138, 142, 148, 154(n16), 162(n9), 163(n27)

factors 135t

importance of technological innovation 134, 163(n9), 164(n13–14)

competitors 21, 36, 37, 97, 103, 124, 156(n25), 160(n10)

cooperation between 155(n20, n22–3)

certainty see trust

certainty 98

confidentiality 98

conflict 126–8, 163(n26)

clear 80

underlying 80

Conrath, D. 161(n21), 169

consensus 78, 88, 89

consistency (concept) 89–91

corporations 23f, 25, 40, 52, 97

consultants/consulting services 142, 143

consumers see customers

contacts 103, 106, 143

contingency theory 5t

contracts 11, 18, 65, 83, 109–10, 122, 123, 141

administration 108t

bilateral 16

classical 13

manufacturing 108t

multilateral 16

neoclassical 13–14

relational 14

transaction structures 13–15

Williamson’s approach 12–14, 17–18

contractual agreements 105

control 88, 89, 99

control systems 87, 93

cooperation

communication and information systems 88–9

deciding on, negotiating, structuring 74–99, 160–1

differentiated 36

easy 69–73

factors 74–5

implementation 87–9

instrument for reducing transaction costs 137–8

need to structure 85–7

negotiating process 76–9

organizational design

structure 88

practice 91–9

principles 65–7

reasons 95

reciprocal 67–8, 159(n21)
cooperation (continued)
repetitive games (as incentives) 67–73
solutions 85–7
symbiotic 36
systems for decision-making and control 88
technology transfer 139–44
theoretical justifications 75–6
cooperation agreements 6–7, 8, 34–5, 40, 47–8, 52, 155(n20, n22)
capital participation 49
centripetal and centrifugal variables 90–1
classification 37, 156(n33)
consistency and stability 89–91
dilemma between conflict and cooperation 79–85, 160–1(n13–23)
formalization 79
initial dossier 94, 96–7
international 107–10, 120f, 162(n12–14)
operational plan 94
partner selection 92, 93–4, 95–7
stages 93–4
step by step 94–9
strategic plan 94
unsatisfactory functioning and failure 92–3
see also SMEs
cooperation principles 78
cooperative equilibrium 86
cooperative games 63–5, 66, 159(n19)
copyright 45
costs 9, 28, 29t, 32, 54, 60, 66, 75, 78, 79, 95, 109, 119, 144
acquisition 90
administration 17n, 17, 18, 19f, 21
agency 5t
communication 100
ex ante 11
ex post 11
labour 101, 107, 110, 135t
organizational 18, 21, 90–1
production xii, 17f
reduction 38–9, 50, 51
technology transfer 141
transport 102t, 109
see also transaction costs
creativity 29t
crossed distribution 108t, 110
culture
corporate 32, 39, 56, 92, 95, 119, 128, 129
foreign country 104, 119f
innovation 139
technological 140
currency 103, 107, 109, 135t
US dollar 134
customer tastes 9, 12, 20
customers/consumers 16, 20, 21, 28f, 30–1, 32, 37, 47, 54, 60, 97, 107, 118, 119f, 120, 122, 124, 146, 149, 150, 155(n20)
abroad 103, 104, 105–6
Cyert, R. M. and March, J. G. 9, 169
Daft, R. and Lengel, R. 161(n21), 169
Daft, R. and Macintosh, N. 161(n21), 169
databases 97
Davenport, T. H. 158(n24), 169
Davidow, W. H. and Malone, M. S. 157(n20), 158(n23), 169
decision model 85f
decision theory 83
decision-making 7, 9–10, 14, 19–20, 22, 26, 42, 44, 48, 74–6, 80, 86, 87, 88, 98, 138
complexity 83–5
extensive analysis 75
internationalization process 104
normal analysis 75
decisions 48
strategic 30–4, 40, 156(n1)
dependency theory 5t
design 27, 46, 50, 135t, 142, 144
developed countries 101, 134, 138, 139
developing countries 139
development theory 133
differentiation 28, 29t
Dimaggio, P. J. and Powell, W. W. 5t, 170
distance (physical) 68–9
distribution 2, 7, 24, 52, 95, 99, 103, 105t, 106, 109, 145
diversification 31, 102, 102t, 103, 115, 116, 134, 161(n5)
Dixit, A. and Nalebuff, B. 159(n11), 170
Dollar, D. and Wolf, E. 164(n14), 170
dominant strategy (Nash) 60, 75, 83
Donaldson, L. 157(n11, n13), 170
Dosi, G. 132, 136–7, 170
Dosi, G. and Orsenigo, L. 138, 170
downsizing 47t
Doz, Y. L., Hamel, G. Y., and Prahalad, C. K. 155(n22), 156(n25), 170
dyads 3–4, 5t
Easton, G. and Hakansson, H. 5, 170
ecoligic theory 5t
economic agents 11, 15, 18, 19, 20, 37, 57, 76, 78, 79, 81, 83, 84, 85, 90, 124, 127, 128, 133, 136, 142, 148, 149, 150, 163(n14, n26–7)
behaviour 91
cooperation between 62–73, 159(n11–24)
heterogeneity 81–2
individual 80–1, 85, 124, 163(n25)
individual behaviour 80–1
joint 85
economic cycles 133
economic growth 133
economic liberalism 9
economic planning 99
economic transactions: main features 12–13
Economics of Chaos 89
economics, technology and technological change 132–3
Économie et Société (Weber) 41–2, 156–7(n6)
economies of learning 27, 31
economies of scale 3, 6, 10, 27, 29t, 31, 32, 35, 38, 47, 69, 69f, 95 101, 102, 102t, 137, 147, 148
inefficiency 83
see also Nash equilibrium; Pareto optimum; prisoner’s dilemma
electrical machinery 101
electronic consumer goods 101
employment (Spain) 162(n17)
Endesa (Spanish company) 114
energy savings 134
engineering 149, 154(n16)
enterprise cooperation 7
entropy (concept) 89–90
environment
  corporate 9–10, 26, 30–1, 33, 34, 39, 41, 43–4, 45–8, 52, 54, 55, 74–5, 76, 100, 104, 128, 134, 148, 157(n12), 157–8(n19–24), 158(n30)
corporate evolution 90
technology transfer 140–1
equipment 28, 136, 144
equity 65, 66, 78, 79t
  views 63
Europe 55, 114, 143
European Community 110, 162(n13)
European Community Framework
  Programme 165–6(n51)
European Community Investment Partners (ECIP) programme 162(n13)
European Union 45
evolutionist theories 56
*ex ante* situations 11, 136–7, 153(n12)
*ex post* situations 11, 137, 153(n12)
exchange 85, 86
see also transaction costs
exchange models 57
doing 135
inexperience 102
export agents 105–6
export consortiums 108–9
export credits 103, 162(n9)
exports 33, 101, 103, 104, 106–7, 111–12, 120f, 120, 121, 122, 162(n7, n20)
active 105, 106
local intermediaries 105–6
passive 105
Spain 162(n17)
external agents 86
external control mechanisms 86, 87
externalities 56

factor costs 133
factors of production 100, 101
Fayol, H. 41, 42, 170
major management policies 42
theory of administrative processes 41
Fernández de Arroyabe, J. C. and Arranz, N. 162(n18), 170
finance 108, 109, 119f, 125f, 125, 126, 151
financial crises 45
stability (foreign countries) 107
foreign direct investment 104, 107, 109, 111
foundations (Marshak) 81
framework agreements 123
franchises 23f, 24, 36, 51–2, 97, 108t, 109, 122, 142, 162(n16)
free trade 45, 100
Freeman, Ch. 144, 149–50, 166(n56), 170–1
frequency (of transactions) 12, 13
frontiers
corporate and market 15–17
negotiation possibilities 64f
optimum Pareto 64f, 65f
utility possibilities 62–3, 66
Fundenberg, D. and Tirole, J. 158(n4), 171

gain 64
Galbraith, J. 5t, 46–7, 84, 171
game repetition 85
game theory 2, 4, 6, 8, 57–73, 74, 76, 78, 79, 81, 85, 126, 158–9, 161(n25)

basic aspects 57–61
cooperation between economic agents 62–73
principles for cooperation 65–7

games
cooperative 63–5, 66, 159(n19)
dynamic 58, 59, 61
dynamic equilibrium 80, 81
non-zero-sum 59
static 58, 59–61
zero-sum 57–8
GDP 135t, 162(n17)
General Agreement on
Tariffs and Trade (GATT, 1947–) 45
geographical areas 37, 51
geography 107, 141
Germany 134
globalization 1, 20, 25, 45–8, 76, 100, 101, 111, 112, 138, 157(n20)
Glueck, F. W., Kaufman, S. P., and Walleck, A. S. 27, 171
goods 12–13, 139t, 164(n31)
goods and services 17, 19, 27–8, 45, 63, 100, 120f, 120, 132, 145, 153(n12)
imported 120f, 120, 121
government 96, 108t, 109, 124
government bodies 150
governments 137–8, 143
Grant, R. M. 29, 164(n13), 171
group objectives 163(n27)
group strategies 55
guarantees 16
Gulati, R. 3, 5t, 160(n3–4), 171
Handy, C. 158(n23), 171
Hannan, M. T. and Freeman, J. 44, 157(n15), 171
Harsanyi, J. 61, 158–9(n7), 172
Harsanyi equilibrium 158–9(n7)
Hax, A. and Majluf, N. 154(n2), 172
Hayes, R. H. and Abernathy, W. J. 163(n9), 172
Hennart, J. F. 5t, 18, 172
‘Hidden Hand’ 60
hierarchical analysis 114
hierarchy 16, 47, 85, 86, 87, 89, 142
Hirschman, A. 55, 158(n30), 172
Hong Kong 101
hotel chains 109
household goods 110
human
capacity 43
capital 12
nature 42
relations 42
human resources 28f, 29t, 108, 150
labour 28, 57, 96, 101, 107, 110, 133, 135t, 145, 150
personnel 32, 49, 136
sales staff 106
Iacobucci, D. and Ostrom, A. 4, 172
Iberdrola (Spanish company) 114
ICT see information and communications technology
image 115, 116
Imai, K. and Itami, H. xii, 6, 14t, 14–15, 18, 22, 141, 172
import substitution 101
imports 121
imports of products/services 120f, 120
incentives 85
income distribution 133
incorporated technology 142
individuals 16, 81–2, 86–7, 163(n27)
behaviour 80
industrial districts 158(n29)
industrial economy theory 35
industrial sectors 139
industrial structure 133
industrialization 101
inflation 135t
information 9, 10, 12, 15, 16, 19, 20, 25, 31, 43, 45, 54, 56, 68, 74, 77, 79–80, 84, 85f, 85, 86, 87, 90, 98, 99, 113–14, 119, 136, 137, 143, 149, 150
asymmetrical 127
imperfect 80
information and communications technology (ICT) 25, 48, 88–9, 148, 158(n24)
information offices 106
information systems 93, 96
information technology 51
information theory 83
infrastructure 150
innovation 29t, 45, 138
distinguished from ‘inventions’ (Schumpeter) 144
distinguished from ‘technological innovation’ 144
national system 138
inputs and outputs 9
institutional theory 5t
institutions 133, 138, 149–50
integration processes 100, 101
inter-organizational relations 3–6
theoretical approaches 5t
interest rates 107
‘intermediate form’ concept
(Imai and Itami) 6
‘intermediate organization’
(Imai and Itami) 15
intermediate products 28
internal control
mechanisms 162(n14)
internal cooperation
(intra-company network) 47
internalization 17–18, 20, 21,
22, 90, 142, 147, 165(n50)
international company
cooperation 100–31, 161–3
empirical evidence (SMEs)
110–31
international cooperation
107–10
internationalization 100–7
international economics 57
international institutions 109
internationalization 2, 21, 31,
35, 95, 135t
company 101–7, 161(n3)
cooperation agreements
107–10, 162(n12–13)
obstacles 103–4, 162(n8)
phenomenon 100–1
progression 105t
reasons 102–3
rigid models 112
stages 104–7, 162(n10)
Swedish/gradualist/Uppsala
model 111, 112
see also SMEs
invention 145, 146, 165(n42)
inventions
distinguished from
‘innovations’
(Schumpeter) 144
investment 14, 21, 24, 31,
33, 43, 49–50, 51, 52, 57,
91, 104, 106, 107, 109,
136, 137, 150, 153(n13),
165(n50)
iron and steel 101
irrationality see prisoner’s
dilemma
ISO 9000 13
isomorphism 44
Jacquemin, A. 76–7, 172
James, B. G. 35, 172
Japan 45, 134, 150
Jarillo, J. C. and Martínez, J.
xii, 172
Jensen, M. C. and Meckling, W. H.
5t, 16, 172
Johanson, J. and Mattson, L. G.
3–4, 172
joint ventures 3, 20, 22, 23f,
24, 40, 49–50, 97, 104, 105,
108, 123, 142, 156(n29),
162(n13, n15)
classification 49
Jones, Ch. 163(n6), 173
just-in-time production 47t
Kaldor, N. 10, 173
Kamien, M. I. and Schwartz,
N. L. 163(n7), 165(n49), 173
Kay, J. 134–5, 161(n25), 173
Kedia, B. L. and Chhokar, J.
162(n8), 173
know-how 46, 50, 51, 139t, 142
knowledge 12, 20, 24, 30, 38, 39,
56, 69, 102, 103, 104, 108,
118, 119f, 119, 132, 136, 137,
138, 139, 140, 144, 146, 149,
164(n22)
legal 142
Kogut, B. 18, 173
Koontz, H. 156(n4), 173
Kotha, S. and Orne, D. 164(n12),
173
Kreps, D. M. and Wilson, R.
61, 173
labour see human resources
Labourdette, A. 86, 156(n5), 173
language 119
lateral links 89
Latin America 101, 114
law 104, 108, 118, 119f, 140, 141
Lawrence, P. R. 157(n12), 173
lawyers 86
lean manufacturing 47t
learning 77, 85, 87, 95, 102t, 104, 106, 107, 111, 137, 138, 139, 149
learning asymmetry 90, 91
learning channel 44
learning by doing/through experience 135, 136
Lecoq, B. 158(n29), 159(n22, n24), 173
legitimacy 5t
liberalization 45, 100
licences/licensing 36, 50, 97, 105, 108t, 109, 139t, 142
Likert, R. 157(n9), 173
Likert frequency scale 114
limited rationality 10, 11, 20, 42, 80–1
literature 1–3
classical 111, 133
company growth 31, 155(n16–17)
company strategy 27, 154(n2)
neoclassical economics 133
equity (concept) 63
SMEs 110–11, 122
localization specificity 137
location 12
logistics 106, 107, 118, 119f, 120
Lorange, P. and Roos, J. 5t, 173
Lundvall, B. A. 166(n57), 173
Luthans, F., Hodgetts, R. M., and Rosenkrantz, S. A. 157(n14), 173

macroeconomics 57, 133, 163(n6)
Mahoney, J. T. and Pandian, J. R. 5t, 174
maintenance 24, 51, 154(n16)
management 9–10, 14, 15, 18, 29t, 76, 80, 95, 98, 99, 111, 127, 145, 150
costs 21
discretion 43–5
invisible hand 2
revolution in 40
scientific 41, 42
strategic 3, 5t
strategies 46
structure 28f
visible hand 2
see also human resources
Mandell, M. P. 3, 174
manuals 139t
manufacturing 109–10, 120f, 121
March, J. G. and Simon, H. A. 80, 174
Mariti, P. and Smiley, R. H. 2, 3, 174
market
access 49, 95
criteria 137
economy 11, 104
environment 6
expansion 35
imperfections 27
information 99
knowledge 126
mechanism 16
power 35–6
segments 30–1
share 21, 31–2, 34, 75, 76, 116
structure 133
transactions (pure) 6
marketing 3, 28f, 40, 52, 95, 106, 107, 109, 120, 140, 145, 150
markets 7, 14t, 14, 18, 22, 23f, 26, 28, 29t, 40, 45, 47, 51, 52, 55, 61, 75, 89, 90–1, 96, 101–2, 102t, 108, 118, 123, 129f, 133, 137, 139, 142, 146, 148, 149, 150, 153(n13), 160(n10)
competitive 16, 63
crossed distribution
agreements 110
degree of penetration 130
markets (continued)
diversification 115–16
domestic 111, 116
emerging 31
emerging high-growth 134
export 103, 106
foreign 12, 102, 103–4, 105, 107, 111, 110, 131, 162(n7)
frontiers 15–17
imperfect 155(n23)
inter-dependence 100–1
international 45–6, 50, 112, 119f, 119, 120, 130, 140
local 140
mature 31
new 20, 31, 32, 33, 124, 144
product-positioning 30
pure 15, 20, 90
‘quasi-integrated’ 18
regulation 133
size 109
world 134
Marshak, J. 81, 127, 174
Marshall, A. 1–2, 9, 158(n29), 174
Martinet, Ch. 155(n9, n18), 174
McDonald’s 162(n16)
McGregor, D. 157(n9), 174
mechanics 89
Mercosur 45
mergers and acquisitions 3, 6, 7, 18, 20, 21, 31–2, 32–3, 34f, 93
metallic products, wood and chemical industries 117f
Mexico 101
microeconomics 133, 163(n7)
microelectronics 134
Middle East 162(n21)
Miles, R. E. and Snow, C. C. 158(n25), 174
Milgrom, P. and Roberts, J. 160(n9), 174
Miller, S. M. 157(n6), 174
‘minimax’ strategies 58
minority shareholdings 108t, 110
Mintzberg, H. 27, 156(n1), 157(n11), 174
motivation 135, 150
Moulin, H. 159(n19), 174
Nash, J. 75
Nash’s Bayesian equilibrium 59, 61
Nash’s equilibrium 58–9, 61, 79, 83, 86
national systems of innovation (NSI) 148–52, 166(n52–61)
interface structures 151–2
Japan 150
role of state 150–1
negotiating area 64
negotiation 4, 8, 11, 12, 16, 19, 20, 21, 57, 61, 76–9, 85, 90, 92, 93, 94, 113, 124–6, 127, 141, 153(n13), 160(n3)
conflictive aspects 125f, 125–6
cooporative 63–4, 64f
factors to be considered 79t
phases 77–8, 97–8, 160(n9–10)
negotiator’s dilemma 64–5, 65f
Nelson, R. 149, 174
neoclassical economics 9, 11, 19–20, 133, 153(n12), 164(n15), 164–5(n31)
networks 4–5, 52–4
ad hoc 53f, 54
company 40
cooperation 147–8
direct and indirect relations 5
distribution 52
inter-company 43
intra-company 23f, 23–4
marketing 52
nodal link 53f, 54
radius and axis 52f, 54
regional 53f, 54
technology transfer 143–4
types 52
Neumann, J. Von and Morgenstern, O. 57, 174
newly-industrialized countries 101
Nezeys, B. 132, 174
non-tariff barriers 101, 104
Nordhaus, W. 163(n6), 174
North America 55
North American Free Trade Association 45

objectives 84, 85f
OECD’s Technology and Economy Programme (TEP) 146, 165(n48)
oil crisis 134
oligopoly 57
Oliver, C. 3, 5t, 158(n33), 175
operating licences 3
opportunism 60, 68, 76, 92, 128, 163(n27)
opportunity costs 38
optimism 92, 93
organization set 4
organization theory 3, 5t, 76
organizations 3, 14t, 14, 15, 69, 80, 84, 86, 93, 96, 122, 144, 145
adjustment to environmental conditions 5t
behaviour 4
corresponding 42, 43–4, 54, 157(n10–13)
cooperation relations 6–7
culture 87
design 87
ecological approach 44–5, 54, 157(n15, n17)
economic 81–2
evolution of theory 41–2, 156(n4–5)
forms 98, 123
intermediate forms 141
literature 156(n4)
pre-capitalist 89
response to contingent factors 46–8
social behaviour 157(n9)
structure 43–5, 157(n14)
tasks 86, 87
theoretical view 40–5, 156–7(n2–18)
trends 47t
see also companies
output 30f, 82, 83
outsourcing 23f, 24, 40, 50, 97
Pareto, V. 62, 159(n13), 175
Pareto’s optimum 62–6, 70–1, 78, 159(n13)
Parkin, M. 159(n23), 175
partner selection 3, 92, 93–4, 95–7, 124, 129, 130
patents 27, 29, 50, 109, 126, 133, 141, 142
payoff matrices 59, 59f, 60f, 83, 158(n4)
perfect equilibrium 61
Perronix, F. 83, 175
Perrow, C. 157(n10), 175
Pfeffer, J. and Salancik, G. 5t, 175
Pisano, G., Russo, M. and Teece, D. 5t, 175
planning 26
Planque, B. 76, 175
point of disagreement 64
political change 52
pollution game 60–1, 158(n5)
Popper, K. R. 83, 175
Porter, M. E. 5t, 27, 28, 30, 55, 155(n20, n23), 161(n3), 164(n12), 175
Porter, M. E. and Fuller, M. B. 2–3, 34, 156(n34), 175
power 4, 5t, 48
Prahalad, C. K. and Hamel, G. 5t, 29, 164(n13), 175
prediction 20, 26, 46
prestige 76–7
price/s 9, 11, 21, 27, 38, 60, 107, 120, 133, 134, 153(n12–13), 154(n16)
price function regulation 69, 69f
price mechanism 2
price transparency 16
price-fixing 2
prisoner’s dilemma 59–61, 67, 79, 83, 86
process technology 134, 140
processes 29t, 144, 145
product development 95
product innovation 133
product quality 12–13
product technology 134, 140
production 9, 10, 11, 29t, 50, 69, 95, 96, 101, 144, 145, 149, 150
factors of 45
steel 38
production capacity 31–2, 49, 102t
production processes 16, 21, 46, 51, 101, 109, 132–3, 134, 144, 145
production subcontracting 36
productive activity 132
productive equipment 10
productivity 28, 133, 134, 135t
products 31, 33, 100, 101, 104, 105t, 115, 116, 122
innovative 143
life-cycle 30, 35, 46, 103, 148
new 35, 38, 82, 116, 144, 145, 148, 149, 150, 165(n42)
see also goods and services
profitability 41, 102, 103, 135t
profits 9–10, 18, 27, 35, 52, 60, 61, 66–7, 68, 75, 76, 78, 82, 85, 98, 106, 109, 125f, 125, 126, 153(n13), 158(n6)
repatriation 104
savings 70–3
protectionism 101
prototype 165(n42)
public laboratories 149
public policy 146
public research centres
(PRCE) 137, 148, 151–2, 151f
public research institutes 36, 124, 146
purchasing 29t, 69–70
pure market transactions 123
quality 12–13, 31, 50, 96, 140
total quality 29t, 135t
Quinn, J. B. 27, 175
rationality 9, 42, 62, 66, 68, 74
individual 67, 82
raw materials 28, 69–70, 104, 144
reciprocity 67–8, 86, 101
regional economic development bodies 143–4
Register of the Cantabria Chamber of Commerce, Industry and Shipping (2000) 113
regulation 119f
relational contracting, theory of 6
reliability 68, 159(n22)
remuneration 127, 128
reputation 68, 159(n22)
research 54, 96, 158(n27)
research bodies 140, 142, 144, 148
research and development 38, 95, 98, 124, 133, 135t, 135, 139, 142, 143, 146, 148, 150, 151f, 165–6(n51)
research and development associations 109
reserve price 61
resource approach 29
resource allocation 17, 20, 22, 27, 62f, 63, 82, 154(n16)
Imai and Itami 14t, 14–15
resource-based view 30f, 30
resources 29, 30f, 31, 36, 43, 55, 78, 79t, 82, 95, 107, 126, 128, 132, 155(n13)
resources theory 5t
right-sizing 47t
risk 6, 20, 35, 52, 78, 95, 102, 102t, 103, 104, 107, 108, 160(n10), 161(n5)
Robbins, S. P. 156(n4), 159(n12), 176
Rojoft, J. and Bergmann, A. 157(n17), 159(n12), 176
Rosenberg, N. 138, 146–7, 176
Rothwell, R. 144, 176
Royal Spanish Academy 132
Rubinstein, A. 61, 176
Rumelt, R. P. 155(n13), 176
Rumelt, R. P., Schendel, D., and Teece, D. J. 155(n17), 176
Russia 45
Index 191

sales 95, 96, 105f
Samuelson, P. A. and Nordhaus, W. D. 158(n5), 176 satisfaction–effort–reward triangle 80 Schendel, D. 155(n16), 176 Schrader, S., Riggs, W., and Smith, R. xii, 84, 176 Schumpeter, J. A. 133–4, 144, 164(n15), 165(n42), 176 neoclassical production function theory 133 Schumpeter’s Hypothesis II (Schumpeter-Galbraith) 147, 165(n49) science–technology–industry system 138 Sebenius, J. 64, 176 sectors (industrial) 37 selection 44 Selten, R. 61, 176 semiconductors 149 sequential equilibrium 61 services 45, 117f, 140, 144, 150 Shapley, L. S. 71–3, 177 Shapley index 67, 78, 159(n20) Shapley, L. S. and Shubik, M. 159(n20), 177 share exchange agreements 110 shareholdings 31, 33, 34f, 49 Singapore 101 skills 27, 77, 95, 132, 138, 139, 144, 145, 149, 150 small and medium-sized companies (SMEs) 8, 55, 56, 108, 147–8 aggressive strategy 116, 117f, 130 aptitudes 111 attitudes 111 barriers to entry 136 clusters 116–18, 128–30 contribution to economic growth 110, 162(n17) defensive strategy 116, 117f, 118, 130 employees 113 factorial analysis 114, 115–24, 162–3(n22–3) failure of international agreements 128–30 final observations 130–1 formalization in international relations 118, 122 functioning of international agreements 126–8, 163(n26) geographical area (international activity) 114 growth 115, 116 identification and characterization of cooperation process 124–31 idle capacity 115, 116 international activities (percentage of total turnover) 114, 162(n20) international cooperation (empirical evidence) 110–31, 162–3(n17–27) international cooperation agreements 114–31 internationalization 110–24, 162(n13) lack of formalization 130 maintenance strategy 116, 117f, 118, 130 negotiating international agreements 124–6 no definite strategy 118 obstacles to internationalization 118–19 partner selection 124, 129, 130 position with respect to internationalization 110–13 presence of conflict 126–8, 163(n26) questionnaire design and information processing 113–14 reasons for internationalization 115–18, 121 research design 113–14 role of cooperation agreements 114–24
Index

small and medium-sized companies (SMEs) (continued)
roles and functions 125f, 125
size 112, 113, 114, 162(n20)
turnover 113, 114, 162(n20)
types of international activity 120f, 120
types of transactions 123–4

Smith, A. 2, 10, 177
social psychology 4
social systems 42
software 98
Solow, R. 163(n6), 177
South Korea 101
South-East Asia 134
Spain 162(n17)
Cantabria 110, 113
specialization 10, 30
specific abilities (distinctive competence) 135
spin-offs 20, 21, 23f, 24, 50–1, 97
sports goods 110
stability 89–91
standards 13
state 133, 150
statistical analysis 114
storage 145
strategic alliance 7
strategic analysis 26, 154(n1)
strategy 26–7, 75–6
adaption 76
complementary 75
concentration 76
definitions 27
global 26
globalization 76
volume 75
structural involvement 33–4, 34f, 155(n19)
subcontractors 38, 50, 121
subgames 61, 160(n9)
subsidiaries 49–50, 105, 106–7, 120f, 121, 122
subsidies 162(n9)
suppliers 7, 12, 20, 21, 37, 69, 96, 97, 118, 124, 142, 146, 149, 155(n20)
supply 95
supply agreements 40
supply and demand 19, 20, 143, 153(n12)
synergies 20, 31, 34, 35, 36, 39, 75, 91, 148
Taiwan 101
tariffs 57, 104, 107
Taylor, F. W. 41, 42, 157(n7), 177
teams 81, 127
technical assistance 142
technical information 50
technical service activities 106
techniques 132, 137, 139, 144, 149
techno-globalism 138, 164(n26)
technological assimilation 139, 140
technological change 132–3, 138
technological cooperation between companies 132–52, 163–6
national innovation systems 148–52
technology transfer and cooperation 139–44
technological indivisibility 139, 164–5(n31)
technological innovation 144–8, 165–6(n39–51)
cooperation networks 147–8
definitions 144
diffusion 145, 149, 165(n42)
interaction and cooperation 148–52, 166(n52–61)
national systems 148–52, 166(n52–61)
technological trajectory (concept) 136–7
technology 8, 9, 24, 28, 28f, 32, 35, 38, 39, 43, 49, 77, 95, 96, 104, 108, 109, 132–3, 162(n7)
competitive factor for companies 133–5, 163(n9), 164(n12)
definitions 132
diffusion 100, 101
‘discriminatory and
localist’ 136–7, 138
economic features 135–7,
164(n15)
indivisibility 137
influence on transaction
costs 135–7
innovation 30, 50
internationalization 138
reduction in cycles 46
technology transfer 138,
139–44, 148, 149,
164–5(n31–7)
activities 139t
contracts 141–2, 143
factors conditioning 139–41
interface structures 142–3
meanings 139
networks 143–4
partners 143
temporary dimension 67, 85–6
textiles 45, 101
Thiétart, R. A. 155(n9), 177
Thorelli, H. B. 18, 154(n26), 177
time/timing 2, 3, 4, 33–4, 37–9,
128, 147
trade 100, 101, 104, 108–9, 120,
133
trade barriers (elimination of) 100
trade names 141
trademarks 27, 50, 109
training 135, 137, 139, 142, 148,
150
transaction cost theory 5t, 75
transaction costs, xii 2, 5t, 6,
10–13, 17f, 18, 19, 20, 21,
22, 25, 55, 77, 90–1, 112,
137, 147, 153(n7, n11, n13),
154(n16), 161(n4),
162(n12, n14–15)
company 16
cooperation as instrument for
reducing 137–8
market 16
technology transfer 141, 142
theoretical approach 11–13
transaction frequency 75
transactions 16, 18
contractual structures 13–15
transparency 37, 91
transport 100, 102t, 109
trust/confidence 49, 76–7, 85,
85, 86, 90, 91, 124
mistrust 38, 39, 78
turnkey contracts 142
uncertainty 5t, 12, 19, 20, 21,
22, 23f, 31, 36, 43, 46, 61,
74–5, 80, 83–4, 84t, 85f, 90,
100, 102, 103, 104, 136, 138,
140–1, 142, 147
uncertainty/ambiguity
matrix 84t, 84
United States of America 134,
149, 162(n21)
universities 124, 137, 143, 146,
148, 149, 151
utility 63, 64, 66, 67, 82–3,
126, 128
collective 79t
core 78
individual 62, 66, 67, 79, 81–2
joint 70
value chains 35, 37, 38, 46
value creation 28–30, 64, 92,
136, 148
see also competitive advantage
vertical integration 55
Von Hipel, E. 146, 148–9, 177
Walker, G. and Weber, D. 17, 177
Weber, M. 41–2, 156–7(n6), 177
bureaucratic model 41
Weick, K. 44, 161(n22), 177
Whetten, D. A. 3, 177
Williamson, O. E. 5t, 11–14, 17–18,
36, 141, 159(n22), 177–8
World Trade Organization
(1994–) 45
Yip, G. S. 161(n5), 178