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ENTERPRISE GROUPS AND DATA EXCHANGE

Invited paper submitted by the German Monopolies Commission*

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Preamble

The submitted report is a call to consider enterprise groups – and not legally distinct companies – as the basic statistical units of the economy. This concerns economic analyses in industrial organization and competition policy, as well as empirical investigations and political recommendations in other fields. In a market economy the economic actors are of genuine importance for market structure, market behaviour and market performance as interdependent elements of a competitive system. Therefore it appears crucial to focus not on distinct legal units but on the actually relevant economic decision units.

In the area of firms those units are relevant, which are responsible for fundamental business decisions. To this effect an enterprise group is a collection of economic units, which - independently of their respective organisation and legal form – are controlled by an overriding unit. Economic control can be exercised not only directly, but also indirectly through several chains and stages which leads to complex control structures. However, these structures have – as is inherent to the concept of the control – always an immanent pyramidale structure.

Although the case to consider the economically relevant decision units is incontestable on the theoretical and conceptional level, the practical implementation of this point of view is faced with a number of problems. Nevertheless, the formation of enterprise groups can be dated back to the industrial revolution and has become a dominating structural principle of the economy. Enterprise groups are not limited by national borders, but have developed to a network with transnational, multinational and global range. Today, where global companies and global markets dominate the headlines, the lack of an adequate empirical basis for the reliable and complete collection of the participation networks of enterprises is clearly an anachronism.

This presentation deals with methodical, legal, organizational, empirical and technical questions, which are associated with the empirical recording of networks of integrated companies. I will suggest answers to these practical questions, answers which have already passed the practice test. Therefore, in my opinion, those practical questions are no longer the problem. Actual problems exist in administrative-political obstacles. Since the founding of the common market - i.e. for decades – the debate in Germany and in other members states about the recording of enterprise groups has gone on without a definite and foreseeable end. At present the European Commission has transmitted to the European Council and to the European Parliament a renewed proposal for a regulation, to oblige the Statistical Offices of the Member States to record enterprise groups as a category of statistical units in the official national business registers. Some Member States are still undecided - in particular Germany, whose participation as the largest Member State is however indispensable.

For these reasons the present preparation is also an appeal to the economics profession, to governments and to the administrators which are responsible for the supervision of official statistics. Last but not least it is addressed in particular to the self-confidence and self-conception of the Statistical Offices. Official business statistics are an indispensable and integrating element of the informational infrastructure of a rational economic policy. It's obvious that for a realistic coverage of economic structures and of the associated national, European and world-wide flows of capital and goods a significant data basis about enterprise groups is necessary.

This presentation is based on a report, which was completed with the support of the German Monopolies Commission for Eurostat at the end of 2004

Investigating ways of identifying and recording multinational enterprise group links

- Restricted call for tenders No PR5C/01/2003/ESTAT/01/EN –
Service Contract Number 2004 51100 001

The expertise was discussed positively with the representatives of the Statistical Offices of the Member States. The complete report is openly accessible as a manuscript.

Acknowledgements

My thanks go to Eurostat for commissioning the underlying study '**Investigating ways of identifying and recording multinational enterprise group links**' and for the support of its executives and staff at Unit D1, "Methodological coordination". Equal thanks also go to the German Monopolies Commission, which also supports the subject of the study within the framework of its statutory mandate. Special thanks go to Herr Jens Kammerath for elaborating the information theory for presenting participatory network structures according to enterprise groups.

The international data providers Bureau van Dijk Electronic Publishing (BvD), Brussels, and Dun & Bradstreet Corp. (D&B), Murray Hill, as well as the German providers Hoppenstedt Firmeninformationen GmbH, Darmstadt, and the Verband der Vereine Creditreform e.V. (VVC), Neuss, made it possible to evaluate data sources external to official statistics through their extensive cooperation. Of my many expert discussion partners, allow me to make special mention of Frau Beatrix Stejskal-Passler, Head of Section at the German Federal Bank, Frankfurt am Main, Mr Harrie van der Ven, Head of Division at Statistics Netherlands/CBS, Herr Peter Schmidt, Head of Section at the German Federal Statistical Office/destatis, Wiesbaden, and Herr Holger Wand, Principal Advisor at Human Inference B.V., Arnheim.

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Summary

Recording enterprise groups as statistical economic units constitutes an indispensable informational infrastructure of a rational European Union industrial and economic policy. It is also in the interests of the Member States, in order for them to be better able to recognise their own country as a business location in the context of multinational competition in the wake of the globalisation of enterprises and markets. Official statistics have the task of realistically representing the actual situation in this field.

As well as some general conceptual, methodological and legal considerations, the present paper contains specific proposals and data-technological instructions on how a "European Transnational Capital Links Register" can be set up, run and applied. Finally, an estimate is given of the necessary cost framework.

- **Need for information:** There is a great need for information in the fields of politics and administration, business, academia and among a specialised public on the national and multinational formation of enterprise groups whose members are controlled by an ultimate owner due to a majority shareholding.
- **Legal principles:** A binding European mandate given to the national Statistical Offices of the European Member States to record enterprise groups statistically is in accordance with priority European legal principles, particularly the principles of subsidiarity, the separation of statistics and administrative execution, and the integrity of individual pieces of statistical information, their use only for the specified purpose and their confidentiality.
- **Eurostat's mandate:** It is proposed as a specific result of the present paper that Eurostat be charged with setting up a centrally-run "European Transnational Capital Links Register" and a file for the participatory network structures derived from them and enterprise groups to which enterprises that have their registered office in a European Union Member State belong.
- **Setting up of the register:** The setting up and running of the "European Transnational Capital Links Register" takes place in an interactive process between Eurostat, the national Statistical Offices and private data providers. The process covers eleven steps which are described in detail.

Data sources for the first step are private data sources on enterprises' global multinational participatory network structures. Only these sources offer the possibility of identifying inter-

locking capital links beyond the European Member States. In addition, the data stock of the national Statistical Offices on enterprises' networks of interlocking capital has to date comprised just a fraction of the information that is actually known in many cases, which could contribute to national files being considerably extended.

- **Preparing the information:** The individual pieces of information on enterprises' transnational capital links are merged by Eurostat to form multinational participatory network structures, and are structured according to enterprise groups.

The present paper contains detailed documentation on processing the tasks involved in terms of information theory and data technology to ensure an efficient, robust and successful procedure that has been put to the test of experience.

- **Access by Member States:** Eurostat gives the national Statistical Offices of the Member States direct access on equal terms to the "European Transnational Capital Links Register" on shareholdings and the files of networks of interlocking capital. Access facilitates verification of the information in the European register and in the files of the national Statistical Offices. The quality of national Statistical Offices' information on enterprise groups can thereby be further improved and the consistency of transnational information checked.

The division of tasks envisaged in close cooperation between Eurostat and the national Statistical Offices not only serves to ensure the efficiency of the procedure and the reliability of the results, but also serves the principle of subsidiarity.

- **Costs:** The cost framework associated with setting up and running a "European Transnational Capital Links Register" can only be estimated at present. If efficient methods are used, the basic costs of setting up the European register with some 25 million data files should not exceed a maximum of € 3 million.

An initial matching of the "European Transnational Capital Links Register" with the files of the national Statistical Offices should be possible at a maximum cost of approximately € 4 million, even under unfavourable conditions. This would be the case if extensive text-based manual processing of the information were necessary, due to a lack of enterprise identifiers. Realistically, however, the costs of the first matching could be considerably lower, depending on the whether it is practically possible to use automated procedures.

€ 1 million should be sufficient to cover the costs particularly for the employment of specially qualified staff and the use of external expertise accruing centrally to Eurostat for one year.

This means that a maximum cost framework of **€ 8 million** is required to set up a centrally structured and run "European Transnational Capital Links Register" on the multinational capital links of European enterprises. This amount is likely to be reduced in the actual contract negotiations.

No reliable statement can be made at present on the regular ongoing costs accruing to Eurostat to update the "European Transnational Capital Links Register" in cooperation with the private data sources and the national Statistical Offices at least once a year. It mainly depends on the extent and quality of the private and national data sources, which are further developing, on the application of procedures which are to be successively improved and on the need for updating, i.e. interim amendments to data already recorded.

The costs of running the "European Transnational Capital Links Register" are estimated as full-time equivalents in real units.

Glossary

For the sake of simplicity, the following standardised terms are used in the text with the meaning indicated, unless otherwise defined.

- Enterprise
Legal units
Ultimate owner
Enterprise groups consist conceptually of enterprises. In the case of complex enterprises, these may consist of a number of legal units. Since these are easier to record empirically, it is more useful to define enterprise groups in terms of legal units. In addition, an enterprise is a statistical construct that may comprise more than one legal unit. By convention an enterprise group may exist only when it comprises more than one legal unit. It may however be represented by a single enterprise.

The ultimate owner of an enterprise group is only a member of this enterprise group if it is itself an enterprise and – in the case of a national truncated group – has its office within the reporting area.

In both cases, simplified reference is made to “enterprises” as members of an enterprise group.
- Europe / European
Member States of the European Union.
- Identifiers
Identification criteria for the unambiguous labelling of statistical units in a data source.
- Interlocking
Capital interlocking with an enterprise, i.e. an owner’s share in the own shares and capital of another enterprise.
- Name and location
Name and complete information on the registered office of an owner or an enterprise. The two terms are summarised as “address”.
- National Statistical Offices
The agency competent for official statistics in a European Member State.
- Private data sources
Private enterprises that offer to make statistical figures generally available within the framework of their terms of trade, usually commercially.
- Public
generally-accessible.
- Registration number
Identification criterion for unambiguously labelling a data file in a file maintained as a register.
- Transnational / multinational
Labelling of the relationship between two or several countries. Linguistically, the concept “international” is thus not unambiguous.
- Unequivocally defined
Unambiguous relationship between two facts (A, B) which is reversibly unambiguous, in that A is related only to B and B, too is only related to A (bijective, biunique: one-to-one relationship).
- Updating
Adapting figures in a file to the respective latest situation, including verification of the content of all recorded information.
- Verification
Examination, and correction and confirmation if necessary, of a piece of statistical information (validation).

The glossary developed by Eurostat applies to the terms relevant to the maintenance of the national business register and explanations of them.¹

I. General requirements and investigation plan to record multinational enterprise groups

I.A. Present situation

1. The European Union has been pursuing the objective of creating the empirical foundation for a rational economic, social and environmental policy at European level since the Common Market was founded. This objective is served by various European Council and European Commission regulations, directives and recommendations. In this connection, the European Council regulations of 1993 to set up and administer national business registers and to define economic statistical units – particularly enterprise groups – are of particular significance.

2. The European Council included an explicit enumeration of the fundamental considerations on which its rules are based in the two regulations.

¹ Eurostat, Business Register Recommendation Manual, Glossary, Fourth Draft, Luxembourg, March 2003.

The European Council regulations are unconditionally and immediately applicable in law in the Union's Member States. The loyalty to the European Community obliges the Member States to a peremptory application of the European law. It has not been a legal obligation to record enterprise groups in national business registers to date. However, the explicit objectives of Community law commit Member States to act in a way that is beneficial to the Community. That means that while they are not obliged to apply optional rules, they may not do, or fail to do, anything opposed to the realisation of the Community's present or future objectives.

3. The inclusion of enterprise groups in national business registers, which has been optional to date, takes account of the fact that in 1993, not all European Member States fulfilled the relevant legal, institutional, empirical and technical prerequisites. However, the European legislator expected that these prerequisites to meet the European objectives would be fulfilled in the following years.

4. Ten years after the European regulations were passed to record enterprise groups in the official economic statistics, Member States may now be expected to have fulfilled the relevant necessary theoretical, empirical and technical prerequisites. The European Union's objective in recording enterprise groups was influenced by the increasing multinational interlocking of enterprises' capital and of markets. This globalisation of business, which has gone hand in hand with mega-mergers, has become all the more extensive over the last decade.

There is an undeniable need for reliable, consistent and comprehensive empirical information on the actual economic decision-making units and the economic structures connected with them. This applies not only to the European Union and the Common Market as a whole, but also to the European Union's individual Member States.

It is not surprising that smaller European Member States have a special interest in tracing the multinational capital interlocking capital of their domestic enterprises. Smaller countries in particular are dependent on recognising their relatively sensitive position against the international competition in global markets as precisely as possible and providing an empirical basis for it.

I.B. Necessity of improving the quality of official national and European statistics on enterprises and Enterprise Groups

5. The development of a "European Transnational Capital Links Register" by Eurostat does not itself constitute official statistics in the sense of being reporting in the public interest or regular reporting on specific complex empirical facts. Rather, a European register would be suitable for providing the infrastructure to improve the quality of official statistics on enterprises in the European Union Member States by including their interlocking capital, extending comparable statistics to the reporting area of the European Union as a whole and enabling new study objectives to be pursued. A closer examination of the detailed requirements, implications and consequences of this has not yet been completed. However, these are of fundamental interest, both for Eurostat and for the European Member States, not least to evaluate the results of this examination in terms of costs and benefits.

6. As well as presenting some general conceptual, methodological and legal considerations, this paper primarily intends to contribute to the actual procedure by means of which a "European Transnational Capital Links Register" of enterprises' capital links, and, derived from it, of their multinational interlocking capital, could be developed, maintained and used. Finally, as well as presenting the possible benefit of a "European Transnational Capital Links Register" for statistical purposes and its functionality in terms of data technology, an attempt shall also be made to estimate the necessary cost framework.

7. The dimensions involved in identifying affiliated enterprises are presented in table 1 and figure 1, according to which there are more than 30 million enterprises in the 30 European Union Member States, including the accession candidates in 2003 and four EFTA members. These estimates include enterprises operated by sole proprietors. Such enterprises cannot themselves form parts of enterprise groups. The estimates also include non-profit and public

bodies, where they are recorded on the business registers of European Member States. Nevertheless the data provide some indication of the relative economic size of the Member States.

According to the available information from private data sources² some 4.5 million or approximately 15% of these enterprises are ultimate owners or enterprise group members under the majority control of ultimate owners. Thus, the average group size measured by the number of its members is approximately 3 to 4 enterprises. If enterprise group members are defined as legally independent units, the figures are correspondingly higher. However, no reliable empirical information is available at European level on enterprises' economic links or on legal units.

The more than 30 million enterprises recorded in Europe correspond to more than 160 million persons employed and annual turnover of EUR 24,000 billion. In view of these dimensions, it is of key importance to realistically and empirically record the relevant economic decision-making units and their multinational interlocking capital.

I.B.1. Improving the quality of official national statistics on enterprises

8. The quality of statistics on enterprises in the European Member States can be conceptually improved by making an additional instrument available to national Statistical Offices in the form of the "European Transnational Capital Links Register". It can be used to examine whether, to what extent and in what way the national enterprises and enterprise groups whose members have their registered office in a Member State belong to an multinational participatory network structure. In such cases, individual enterprises and enterprise groups would turn out to be not national enterprises and enterprise groups, but truncated enterprise groups. This is of particular importance if the ultimate owner has its registered office in another European or even in a non-European country. The national picture of the relevant economic decision-making units would change to a great extent.

9. *Figure 2* and the notes on it characterise typical constellations for the distribution of enterprise group members and their ultimate owners among one or several countries within and outside the European Union. A distinction was made between capital interlocking where the owner has a majority shareholding in the share capital and reserves of another enterprise and where the owner has a minority shareholding.

The graph and table show that identifying the majority shareholdings of enterprises within the European Union does not in itself suffice to completely identify enterprise groups. Unless minority shareholdings and enterprises outside Europe are included, they are either not identified at all, or only partially identified. What is also indistinguishable is that these enterprises are just one or several parts of unconnected enterprise groups existing within one or several EU Member States.

10. The European Union Member States consider a "European Transnational Capital Links Register" that includes non-European information to be necessary. Without these reference data, national information is incomplete or systematically distorted and unsuitable for identifying the real size and structure of economic decision-making units.

² Cf. the explanations on the database of private data sources in chapter IV.A.1.1. of this paper.

Table 1:

Number of enterprises, number of persons employed and turnover represented as absolute and relative cumulative values according to European Union Member States 2003

Ifd. No.	Abb.	Member State ¹	Absolute values			Relative cumulative values		
			Enterprises ²	Persons employed ³	Turnover	Enterprise ²	Persons employed ³	Turnover
			Number	Persons	Million euro	Percent		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	IT	Italy	4,129,330	15,621,659	2,883,855	13.25	9.73	13,25
2	DE	Germany	3,831,281	26,197,473	3,938,560	25.54	26.04	31,35
3	FR	France	3,810,526	18,501,715	2,978,103	37.77	37.56	45,03
4	PL	Poland	2,925,379	10,285,582	397,866	47.15	43.96	46,86
5	ES	Spain	2,708,905	10,742,317	1,365,687	55.84	50.65	53,13
6	UK	United Kingdom	2,100,556	26,716,000	5,172,884	62.58	67.28	76,90
7	PT	Portugal	1,581,190	4,332,445	320,729	67.65	69.98	78,38
8	CZ	Czech Republic	1,271,610	3,937,367	386,991	71.73	72.43	80,15
9	RO	Romania	971,127	4,913,187	65,907	74.85	75.49	80,46
10	NL	Netherlands	958,677	7,197,743	796,630	77.93	79.97	84,12
11	HU	Hungary	944,691	3,789,127	173,221	80.96	82.33	84,91
12	BE	Belgium	910,435	3,408,341	719,248	83.88	84.46	88,22
13	SE	Sweden	902,171	4,365,143	565,903	86.77	87.17	90,81
14	GR	Greece	805,871	- ⁴	192,729	89.36	87.17	91,70
15	DK	Denmark	532,880	2,191,087	324,000	91.07	88.54	93,19
16	NO	Norway	432,522	1,223,810	244,879	92.46	89.30	94,31
17	CH	Switzerland	378,159	3,713,373	- ⁴	93.67	91.61	94,31
18	FI	Finland	372,552	1,941,724	273,173	94.86	92.82	95,57
19	SK	Slovak Republic	354,222	1,471,336	41,070	96.00	93.74	95,76
20	AT	Austria	330,805	2,925,898	427,721	97.06	95.56	97,72
21	BG	Bulgaria	229,514	1,928,625	35,069	97.80	96.76	97,88
22	IE	Ireland	204,030	1,617,278	226,181	98.45	97.77	98,92
23	SL	Slovenia	124,432	763,549	51,241	98.85	98.24	99,16
24	EE	Estonia	110,289	404,692	18,625	99.21	98.49	99,24
25	LT	Lithuania	68,356	1,051,358	24,164	99.43	99.15	99,36
26	CY	Cyprus	63,552	275,236	- ⁴	99.63	99.32	99,36
27	MT	Malta	43,921	162,438	- ⁴	99.77	99.42	99,36
28	LV	Latvia	43,688	640,627	21,222	99.91	99.82	99,45
29	LU	Luxembourg	28,013	289,598	119,090	100.00	100.00	100,00
30	TR	Turkey	- ⁴	- ⁴	- ⁴	100.00	100.00	100,00
Total			31,168,684	160,608,728	23,951,297	-	-	-

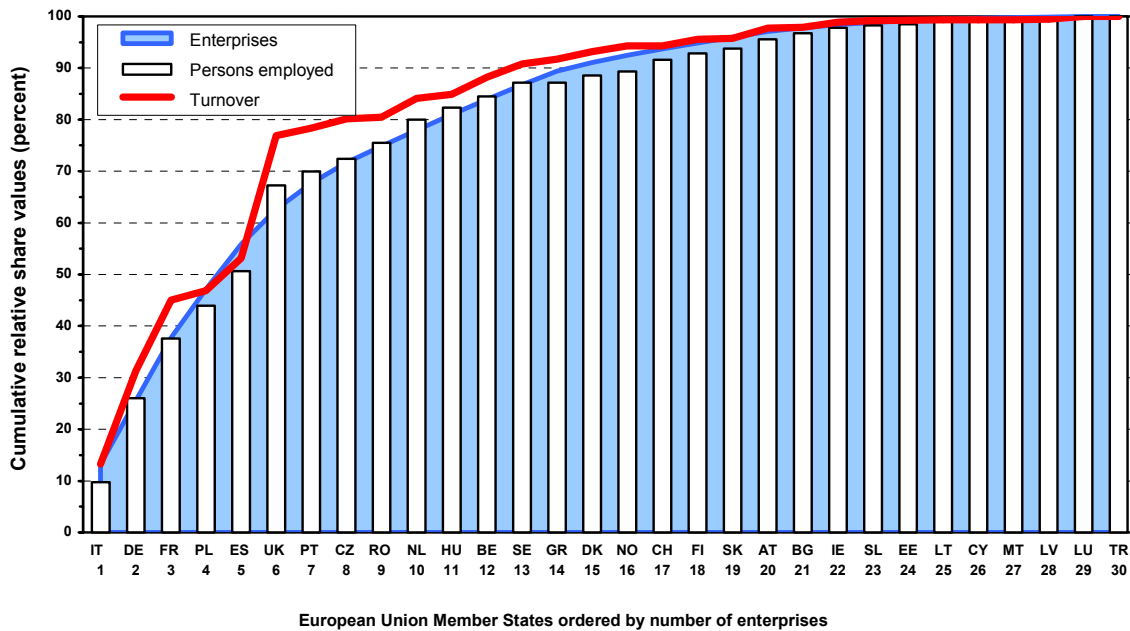
Source: Based on information from the countries polled by Eurostat, verified as of 21 December 2004.

N.B.:

- 1 Including the European Union accession candidates in 2003 as well as the EFTA Member States Switzerland, Liechtenstein and Norway.
- 2 Enterprises in the sense of economic units, i.e. including the legal units categorised as being part of them.
- 3 Employed persons of enterprises including proprietors and assisting family members.
- 4 No information is available to Eurostat.
- 5 No reliable information is available to Eurostat.

Figure 1:

Cumulative relative values concerning the number of enterprises¹, the number of persons employed² and the turnover according to European Union Member States³ in 2003⁴



Source: Based on information from the countries polled by Eurostat, verification as of 21 December 2004.

N.B.:

¹ Including the European Union accession candidates in 2003 as well as the EFTA Member States Switzerland, Liechtenstein and Norway.

² Enterprises in the sense of economic units, i.e. including the legal units categorised as being part of them.

³ Employed persons of enterprises including proprietors and assisting family members.

⁴ Where Eurostat has no information or no reliable information, this value was put at zero.

I.B.2. Improving the quality of official European statistics on enterprises

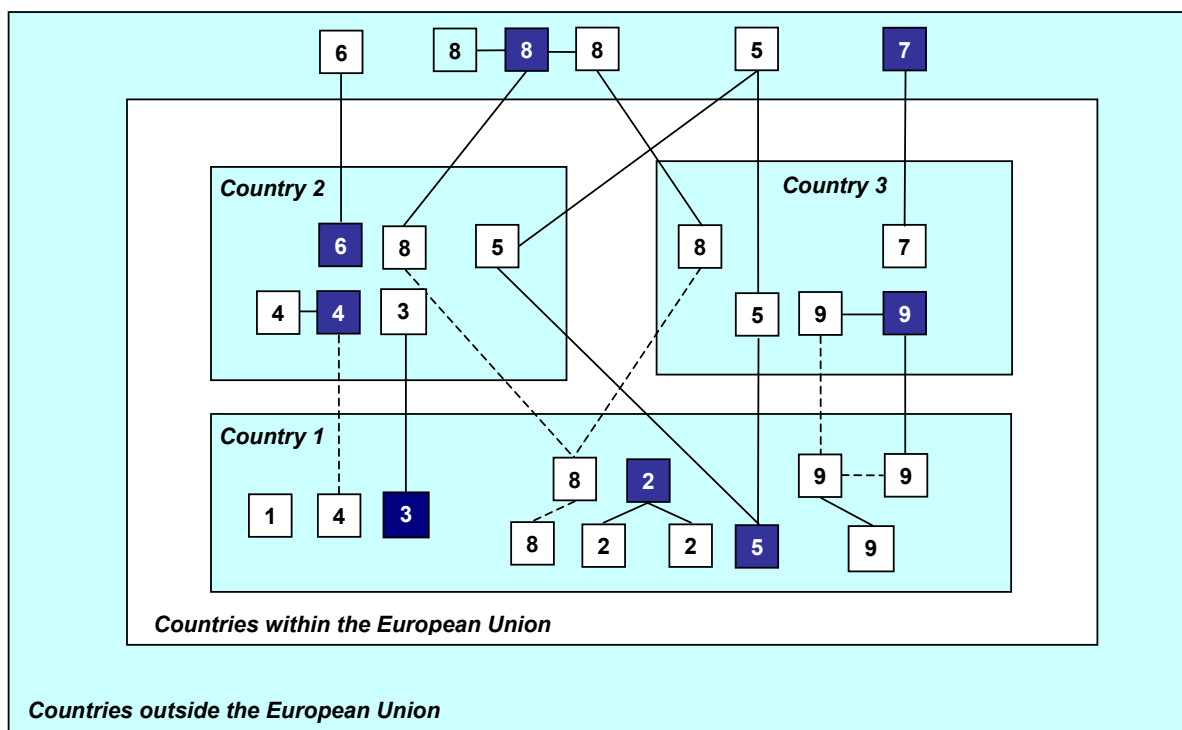
11. To date, no regular and systematically-compiled empirical information on enterprise groups has been available for the European Union as a whole. The number and structure of the relevant economic decision-making units in the form of conglomerates and other enterprise groups are largely unknown. If this information is a significant basis of a rational economic and competition policy in the European Member States, the same must be the case in the task areas of the Common Market for which the European Union is responsible.

12. Since the statistical body of data on enterprise groups in the European Union as a whole has been unknown to date, a "European Transnational Capital Links Register" provides an opportunity to prepare information on various aspects of enterprise groups. On the basis of these findings, a decision can be taken as to the specific questions concerning which the preparation of detailed statistics, possibly in connection with additional individual pieces of national information, is likely to lead to further results.

It is unlikely, for example, that enterprise group formation is of the same significance in all economic sectors. Even large enterprise groups with many members may be so strongly diversified in various economic sectors that enterprise group members do not influence the group's size

Figure 2:

Scheme of the distribution of enterprise group members and their ultimate owners in different countries within and outside the European Union



No.	Enterprise group	Informational status of national Statistical Offices
1	Individual enterprise.	Directly known.
2	National enterprise group.	Directly known.
3	Transnational enterprise group, ultimate owner within the country.	May be obtained indirectly through bilateral matching.
4	Transnational enterprise group, ultimate owner in another European country.	The connection of a domestic enterprise with the ultimate owner of a European enterprise group is not known unless minority shareholdings are identified.
5	Multinational enterprise group, ultimate owner within the country, parts of the group within and outside Europe.	The fact that a European enterprise group is part of a multinational enterprise group is not known . All that can be ascertained by making two bilateral matches is that a domestic enterprise is the ultimate owner of a European enterprise group that includes two Member States.
6	Transnational enterprise group, ultimate owner within the country.	The fact that a domestic enterprise is the ultimate owner of a multinational enterprise group is not known .
7	Transnational enterprise group, ultimate owner outside Europe.	The fact that a domestic enterprise is directly controlled by ultimate owners outside Europe is not known .
8	Multinational enterprise group due to cumulative control. Ultimate owner outside Europe.	The fact that a domestic enterprise not controlled by another domestic or European enterprise is cumulatively under the indirect majority control of an ultimate owner outside Europe, indirectly via two stages and two European countries, is not known .
9	Transnational enterprise group due to cumulative control, ultimate owner in another European country.	The fact that a domestic enterprise that directly controls another domestic enterprise and is itself indirectly under the cumulative majority control of a European ultimate owner via two stages is not known unless minority shareholdings are identified.

Key to symbols:

Ultimate owner: Shaded box

Majority control: Line

Participatory network structure: Boxes with the same number

Subsidiary: Unshaded box

No control: Dotted line

Registered office of enterprise: Domestic, other European country, outside Europe

structures at all or to any great extent.³ This picture may change, however, after the relevant figures have been weighted, for example according to turnover or the number of persons employed.

Developing a "European Transnational Capital Links Register" should therefore create the necessary empirical infrastructure to recognise in more detail the significance of enterprise group formation not only at the national level of the Member States, but also at the level of the European Union and the Common Market as a whole.

13. Preparing statistics on the size structure of enterprise groups at European Union level is directly possible without any additional information on the basis of a "European Transnational Capital Links Register" kept by Eurostat on the transnational shareholdings of European enterprises. Seven categories of analysis are of fundamental professional interest:

- (I) Number of enterprise groups,
- (II) Complexity of enterprise groups,
- (III) Size structure of enterprise groups,
- (IV) Enterprise groups according to economic, production goods or trade goods sectors,
- (V) Enterprise groups according to European Union Member States,
- (VI) Enterprise groups according to legal forms.
- (VII) Enterprise groups under the control of government agencies.

The categories formed according to various criteria may each be subdivided into several components based in particular on the relationship of the ultimate owner to the enterprise group members classified as belonging to it (cf. table 2).

Table 2:

Statistical preparations on the basis of the "European Transnational Capital Links Register" concerning the quantity and frequency distribution of enterprise groups

I		Quantity of enterprise groups
1	Total number of enterprises	
2	Number of subsidiaries	
3	Number of controlled enterprises	
4	Number of affiliated enterprises	
5	Number of enterprise groups	

II		Complexity of enterprise groups
1	Number of enterprises which are ultimate owners (enterprises which are only parent companies).	
2	Number of enterprises which are only subsidiaries.	
3	Number of enterprises which are both parent companies and subsidiaries (intermediates)	
4	Proportion of ultimate owners at national, European and global level that do not themselves belong to the enterprise group they control. This is the case when the ultimate owners are either not enterprises or have their registered office outside the reporting area (e.g. the ultimate owner of a national truncated group with its registered office in another country).	
5	Frequency distribution of subsidiaries according to the number of investment levels and chains of investment relationships over which the ultimate owner exerts majority control.	
6	Frequency of specific control and shareholding relationships: qualitative control criteria, joint ventures, circular participatory network structures, unverified information.	
7	Examination of the significance of the control criterion set for enterprise group members through an ultimate owner's majority shareholding: Cumulative frequency distribution of subsidiaries according to the amount of capital share of the largest shareholder in each case, ranging from 0 to 100%.	

³ The financial power, access to purchase and sales markets and other synergy advantages of enterprise group may also be of immediate significance.

III Enterprise groups' size structure	
1	Frequency distribution of enterprise groups according to size categories, measured by the number of members
2	Frequency distribution of enterprises according to the size categories of the enterprise groups to which they belong
3	Relative concentration of enterprises according to the size of the enterprise groups (share values of enterprises falling under a certain proportion of the biggest enterprise groups)

IV Enterprise groups according to economic sectors for production goods and trade goods	
1	Distribution of the members of enterprise groups according to economic and production goods sectors in accordance with the classification of economic sectors NACE Rev. 1 and the CPA and PRODCOM list production goods sectors. Relationship of affiliated and non-affiliated enterprises within and outside the sector concerned
2	Comparison of results according to economic and production goods sectors.
3	Distribution of enterprise group members according to economic and trade goods sectors, relationship of affiliated and non-affiliated enterprises within and outside the respective sector
4	Comparison of results according to economic and trade goods sectors.

V Enterprise groups according to European Union Member States	
1	Distribution of enterprise group members among the European Member States
2	Frequency distribution of enterprise groups according to the number of Member States in which affiliated enterprises have their registered office.
3	Matrix of the distribution of affiliated enterprises among the European Member States according to the registered offices of the ultimate owner and of the subsidiaries
4	Frequency distribution according to Member State of subsidiaries whose ultimate owner has its registered office in another Member State.
5	Frequency distribution according to Member State of ultimate owners whose subsidiaries have their registered office in another Member State.
6	Frequency distribution of enterprise groups according to the registered office of their members in a European Union Member State Union and the ultimate owner's registered office in a country outside the European Union.

VI Enterprise groups according to legal forms	
1	Distribution of subsidiaries and ultimate owners according to their legal form and their relationship to all enterprises with the same legal form
2	Matrix of enterprise group members according to the legal form of the ultimate owner and of their subsidiaries
3	Distribution of enterprise groups categorised according to trade goods sectors
4	Differentiation of affiliated enterprises in a sector according to the entire enterprise group's level of diversification (e.g. proportion of group members in an economic sector measured against the total number of group members)

VII Enterprise groups according to the control by government agencies	
1	Distribution of enterprise groups according to the status of government agencies as ultimate owners: central state, regional and local authorities, municipalities, municipal facilities in the form of public-law corporations, institutions and similar.
2	Distribution of enterprise groups according to production goods sectors, particularly manufacturing in accordance with the CPA and PRODCOM list
3	Distribution of enterprise groups according to trade goods sectors

14. By merging various components of the analysis, the presentation of the enterprise groups' structure can be extended and deepened almost indefinitely.

Thus, from the point of view of foreign trade, it is enlightening to establish how enterprise group members are distributed in various countries according to economic sectors and in which country the respective ultimate owner has its registered office. From the point of view of deregulating the state's economic activities, it is of particular interest to ascertain the legal form in which state-controlled enterprises are run.

15. The influence of enterprise group formation on market structures, and thus on the level of economic concentration, is of greater economic and competition policy significance. This is influenced not only by the proportion of affiliated and non-affiliated enterprises, but also by the level of diversification of the enterprise groups in various economic sectors. When there is a high level of diversification, it is possible for the members of an enterprise group to be distributed among various economic sectors and to have little or no influence on the enterprise's size structure. In contrast, the market share of the ten largest suppliers in the German food trade, for example, rises from approximately 30% to approximately 80% when enterprise group formation is taken into account.⁴

The following table 3 headings may help to statistically identify the relationships existing between the size and diversification of enterprise groups:

Table 3:

Table headings for the preparation of concentration statistics on information about enterprise groups according to economic sectors

Industrial sector	Total	Enterprises					Truncated groups formed		Units taken into account in calculating concentration (columns 7 and 9)
		Not in a group	Of which			For information	Total	Of which	
			Independent of groups		Not forming groups (columns 3 and 5)			With 2 or more enterprises belonging to a group only in the respective industrial sector	
			Of which in the industrial sector						
Total	As a single enterprise	Two or more enterprises							
1	2	3	4	5	6	7	8	9	10

16. Regardless of special aspects of analysis, the influence of enterprise group formation should be examined in each case to ascertain how narrow and stable the controlling influence of the ultimate owners is on enterprise group members. The strength and stability of the influence is not only determined by the number of participation levels and chains, but also by the amount of the respective shareholdings. Obviously, control by means of direct and ongoing shareholdings above a qualified majority of 75% is stronger and of longer-lasting structural significance than those of a latent group of enterprises whose members change more frequently over time and whose control is only exerted by means of a share of capital only slightly above the threshold of a simple majority.

17. Analysing the quantity of enterprise groups and their members has the advantage that in spite of the multitude of study purposes, it can be based exclusively on the "European Transnational Capital Links Register".

- The information on enterprises' capital interlocking can in principle be taken from generally accessible sources. Thus, there are no restrictions on the statistics being used for a specified purpose or the individual pieces of information and results being kept secret.
- Insofar as the analysis is limited to the quantity of enterprise groups and their members, no individual pieces of information from official national statistical surveys are required.

An analysis of the quantity of enterprise groups in a first step is sufficient to examine the likely informational value of further examinations. Thus, for economic sectors where the empirical evidence suggests that no or only very limited enterprise group formation is likely, it is not necessary to undertake further-reaching examinations. Analysing the quantity of enterprise groups is one of the fundamental factors on which a later analysis and publication programme of European official statistics can build.

⁴ Cf. German Monopolies Commission (2000), p. 24.

18. As well as further differentiating the analysis of the quantity of enterprise groups, the informational value of the findings can be significantly increased through weighting the absolute frequencies. Possible weightings are above all enterprises' value added, turnover and number of persons employed.

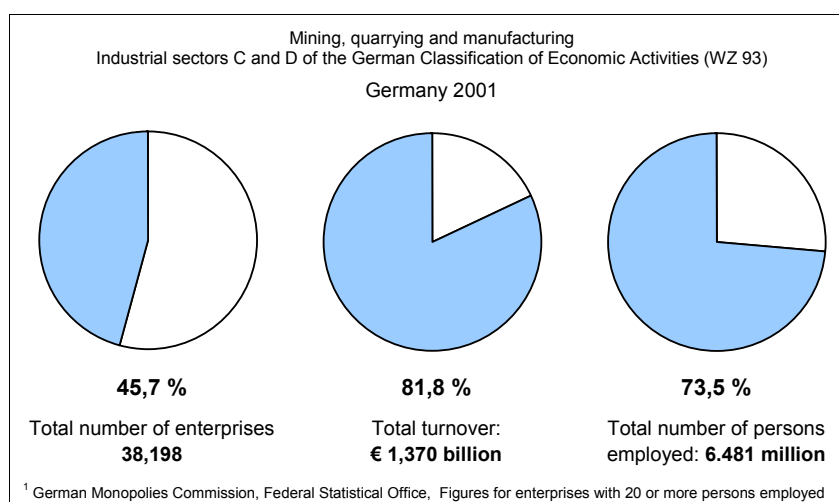
Value added is to be preferred for various technical reasons. The information required for calculating value added is not available to the required extent, and is not sufficiently reliable or comparable, however. The information on turnover also contains internal turnover which does not correspond to market prices when it is based on internal prices. Conversion problems should be taken into account when making international comparisons with countries outside the euro zone. Weighting with the number of persons employed can be a measure of value added under conditions which are otherwise the same. In reality, however, their influence is overshadowed in particular by different productivity levels.

To sum up, it is recommended that for statistical purposes, the number of enterprises be weighted according to turnover and the number of persons employed.

19. Calculations for Germany for the reporting period of 2001 show what significance enterprise group formation has when the number of enterprises is weighted according to turnover and the number of persons employed and when it is not weighted. In the central manufacturing sectors (mining, quarrying and manufacturing) the proportion of all 40,000 affiliated enterprises with 20 or more persons employed that have their economic focus in these sectors is approximately 46%; when weighted according to the number of persons employed, it is approximately 74% and when weighted according to turnover it is approximately 82 % (cf. figure 3).

Figure 3:

Proportion of affiliated enterprises by the number of enterprises, the number of persons employed and the turnover in the productive industry, Germany 2001



I.C. Implementing the task

20. The major aspects of fundamental importance in identifying enterprise groups are discussed below. A description of various theoretical possibilities has not been given so as to highlight a realistic path to a solution and its possible variants. This requires a discussion of the following content-related, legal, methodological, empirical, information theory-based and data technology-based tasks:

- to assess the economic and statistical relevance of taking enterprise groups into account as statistical economic units,
- to uphold the principles of European statistics law,

- to apply the principle of subsidiarity to recording the information on multinational enterprise groups,
- to tie the recorded data to a specific purpose and to separate statistics from administrative execution,
- to protect personal data and statistical secrecy,
- to operationalise the concept of control,
- to assess the requirements of the available administrative data sources external to statistics and inherent in them on enterprises' participatory network structures,
- to process data on enterprises' shareholdings and participatory network structures according to enterprise groups,
- to match national data sources on enterprise groups,
- to examine the quality of the data and the reliability of the statistical results,
- to facilitate access to and use of the results by the Statistical Offices of the Member States and Eurostat,
- to assess the financial requirements.

21. These examination criteria are treated as scenarios in various constellations. They are based on constellations which may be presumed to exist in some Member States or generally. In view of the possible diversity of possible constellations, the scenarios are based on a number of basic constellations. These vary between the following extremes:

● **Scenario I: The national Statistical Offices process transnational data**

- (1) The national Statistical Offices collect information on the financial linkages of enterprises that have their registered office within the country concerned, using both confidential and public and private sources respectively. If possible, at least the first transnational cross-shareholding level is taken into account, i.e. subsidiaries or owners that do not have their registered office within that country.
- (2) The individual pieces of information ascertained on the shareholdings of domestic enterprises are structured according to enterprise groups.
- (3) The Statistical Offices of the countries concerned in each case link the transnational information that has been ascertained and generate step by step the structure of multinational enterprise groups and their ultimate owners.

Advantage:

Eurostat takes the European principle of subsidiarity vis-à-vis the Member States into account.

Disadvantages:

The disadvantages comprise a considerable reduction in efficiency, systematic distortions and serious data gaps.

- The process of coordination requires a large number of bilateral coordination processes between national Statistical Offices, and corresponding coordination and harmonisation efforts. It is quite possible that there are different or contradictory identification criteria for the same enterprise and that the designations of the name and location are different in each Member State.
- It is not possible to close data gaps on enterprises that have their registered office outside the European Union, making considerable systematic distortions of the participatory network structures likely.
- Enterprises with interlocking capital and affiliated enterprises are either not recorded at all in the national Statistical Office files, or only a small proportion of them are recorded; it is not possible to make connections.

Scenario I cannot be realised in the near future.

● **Scenario II: Central recording and preparation of generally accessible files by Eurostat**

- (1) The information on the transnational shareholdings and multinational participatory network structures of enterprises that have their registered office in the European Union, including shareholdings outside the European Union, are collected, prepared and assessed by Eurostat without the cooperation of the national Statistical Offices, drawing on generally accessible data sources.

Advantage:

The procedure centralised at Eurostat offers the advantage of using relatively few data sources external to statistics to build up a consistent multinational database and to derive from it European enterprises' transnational and multinational participatory network structures.

Disadvantages:

Setting up a central "European Transnational Capital Links Register" alongside national files, which are set up and run separately by each of the 25 national Statistical Offices, is associated with several clear disadvantages.

- The potential of national Statistical Offices to record enterprises' participatory network structures within their country is not tapped. The central "European Transnational Capital Links Register" remains incomplete and possibly partially incorrect.
- The physical structure of information on the number of unaffiliated, interlocking and affiliated enterprises and on ultimate owners cannot be weighted with reliable information on the turnover, number of persons employed or value added. Insofar as enterprises are not required to publish these criteria, commercial data sources do not always contain this information on diversified and conglomerate enterprises to the necessary degree of sophistication. For these reasons, it is collected by the official statistics at national level. Failing to use this information for statistical purposes at European level, too, constitutes inefficiency in the costly official statistical system that is difficult to substantiate.
- There are some gaps and some redundant and contradictory overlaps in the national files, both in relation to one another and also in relation to the central "European Transnational Capital Links Register". These gaps, mistakes and inconsistencies in the official data sources can only be removed by means of central consolidation.
- Direct access by the national Statistical Offices to the database set up and run independently by Eurostat is impeded or even impossible. The identification criteria of unaffiliated, interlocking or affiliated enterprises and ultimate owners, as well as on the intervals of time between the pieces of information in the national files cannot be harmonised or recoded in accordance with the corresponding information in the "European Transnational Capital Links Register" at all, or only to a limited extent. This is all the more the case when it is only possible to identify identical units using text-based information on the name and location.

In summary, scenario II would result in a torso of a "European Transnational Capital Links Register" that cannot fulfil the requirement of constituting the infrastructure of a European statistical system to record multinational enterprise groups. The means that would have to be employed are not acceptable in relation to the information that could be gained.

Realistically, the recommendable scenario will lie somewhere between the two extremes of scenarios I and II above, combining elements from both concepts. The resulting scenario III will cover a certain range of possibilities, however, depending on the way in which the national Statistical Offices cooperate with Eurostat.

● **Scenario III: Verification of the transnational shareholding data of national Statistical Offices and supplementing it with multinational data on interlocking capital using generally accessible sources**

With regard to specialist aspects and aspects relating to information and data technology, the establishment of a database on European Union enterprises' shareholdings with a view to investigating the presence of multinational enterprise groups only seems possible in cooperation with the national Statistical Offices, Eurostat and commercial database providers.

The integrating elements of scenarios I and II should be combined to create a new scenario III with this objective in mind. The requirements to be taken into account concerning various aspects will be discussed below. The specific form of this scenario is the subject of the final report.

22. In preparing the final statement, various documents were evaluated and in particular talks held with institutions and individuals that have specialist knowledge and experience in this field. However, the breadth of the subject and the diversity of national situations meant that it was not possible to discuss all questions in detail in the brief time available. These essential requirements, taking different aspects into account, are dealt with in more detail below. The specific form can only be examined and assessed in a practical application phase, possibly within the framework of a pilot project.

II. CONTENT-RELATED AND LEGAL REQUIREMENTS OF RECORDING MULTINATIONAL ENTERPRISE GROUPS

II.A. Economic and statistical relevance of taking enterprise groups into account as statistical economic units

23. In a market economy, the actual economic decision-making units are of major significance. They are not identical with workplaces, retail outlets, production sites, sales outlets, plants, or legal or institutional units. For example, a multitude of legally independent units may be organised under the management of one accounting group, and they for their part may be classified organisationally, technically or according to other aspects.

The actual economic decision-making units determine the number and size of the economic actors, however, and thus determine the economic structure from a sectoral, geographical, statistical or dynamic point of view.

24. Central objects of observation of economic statistics, whose results are determined by the number and size of statistical units in the economy, are as follows:

- enterprise size structures and economic concentration,
- relationship of the economic sectors as a whole,
- structure of international trade and globalisation of the economy including foreign direct investment,
- role of the state at the level of Federal Government, the Federal States and the municipalities as the ultimate owners of enterprises,
- status of small and medium-sized enterprises which are independent of groups,
- enterprises' turnover on the basis of inter-company and external sales and its valuation according to internal and market prices,
- industrial-economic indicators, taking separate kind-of-activity units into account,
- corporate governance of complex enterprises and enterprise groups,
- market transparency of supply structures from the point of view of demand.

II.B. Upholding the principles of European statistics law

25. The form of official statistical systems in the European Member States is influenced by the specific legal and actual framework conditions:

- the designation of the tasks and purposes of official statistics, which is based on constitutional law and specified in the statutes, as well as the distribution of responsibilities between the Member States and the European Union according to the principle of subsidiarity,
- the separation of official statistics from administrative execution and acts of government in line with constitutional law,
- the status of data protection under constitutional law and the statutory provisions and procedures to uphold statistical secrecy,
- the statutory form of the duty of disclosure, of multi-functionality and of the quality assurance of official statistical surveys, taking into account efforts to relieve business of administrative tasks,
- enterprises' duty under trade law to publish, record and disclose,
- privileged right of access to official statistical data for research purposes,
- legal and actual possibilities of cooperation between various state and private institutions, the existence and accessibility of the data collected there, and the possibilities of processing it,
- economic conditions leading to an interest in particular empirical circumstances.

The following is of particular importance for Germany:

- the division of tasks between the Federal Statistical Office and the Statistical Offices of the Länder within the federal system of the Federal Republic of Germany.

The above-mentioned implications under statistics law have a different weight in each European Member State, are in a different relationship to one another and are organised differently.

26. The European Council has harmonised the national official statistical systems in various areas. The nomenclature of the economic and product sectors, the business register and the definition of statistical economic units are of particular significance in recording multinational enterprise groups.

In spite of the common principles of statistics law that have been created, implementation of the objective pursued by the European Council since 1993 of recording the group formation of enterprises in the Member States still faces legal concerns. These are expressed, inter alia, in the statements – including one by Germany – on the latest draft of the amendment of the European Council Regulation on administering business registers of 27 July 2004⁵. The draft replaces the optional recording of enterprise groups by an obligation and provides for the communication of the necessary information to Eurostat.

27. Notwithstanding other national differences, the following are to be regarded as essential inalienable principles of statistics law:

- principle of subsidiarity in the division of tasks,
- separation of statistics and administrative execution,
- upholding of data protection and statistical secrecy.

The recording of multinational enterprise groups does not contradict these principles.

⁵ Art. 11 – Transmission of multinational enterprise data, Commission of the European Communities, Proposal for a Regulation of the European Parliament and of the Council on Community coordination in drawing up business registers for statistical purposes and repealing Council Regulation (EEC) No 2186/93, Brussels 27 July 2004.

II.C. Applying the principle of subsidiarity to the establishment of a European database

28. The collection of national information on enterprises' networks of interlocking capital should be the prerogative of the Member State in which the enterprises have their registered office, not only for legal reasons, but for reasons of practicability on account of their greater geographical proximity. The national Statistical Offices are free to process the information for their own statistical purposes. Eurostat limits itself to supplies of data from Member States which are required to record enterprises' and groups' multinational participatory network structures in the European Union. These include:

- integration of participatory network structures existing in several Member States or individual transnational enterprises, which are only interlocked within the European Union,
- integration of participatory network structures existing in one Member State which are also part of a network of interlocking capital outside the European Union,
- integration of participatory network structures existing in several Member States which are also part of a network of interlocking capital outside the European Union.

29. Only when the participatory network structures of enterprises that have their registered office within or outside the European Union are completely integrated is it possible to recognise the connection between parts of participatory network structures, which may extend world-wide. The prerequisite for this is to verify transnational participatory relationships which integrate national parts of participatory network structures, to identify and aggregate enterprises belonging to enterprise groups and to identify their ultimate owners.

30. The integration of national parts of participatory network structures for European Union enterprises requires consistent national information to be available in full at this level.

From the point of view of information and data technology, any institution that has the requisite specialist know-how, experience and infrastructure may be assigned this task. In line with the present division of tasks within the institutions of the European Union, it will be assumed below that this task will be assigned to Eurostat.

31. The principle of subsidiarity prevailing within the European Union vis-à-vis its Member States also means granting national Statistical Offices access to the data recorded and processed by Eurostat. This right to partnership with regard to statistics puts these Offices in a position to recognise the participatory network structures existing in their countries as possibly being parts of a larger transnational, multinational or even global network transnational or multinational network. The Statistical Offices of the Member States have the opportunity to build on this basis to undertake processing and evaluations of their own in the national interest.

II.D. Separating statistics and administrative execution

32. The information recorded by a central agency – as suggested here, by Eurostat – from the information provided by the Member States on participatory relationships between the individual enterprises and other criteria examined (e.g. turnover and persons employed) may only be used for statistical purposes. This requires a specific definition of what the statistics aim to find out and of processing and publication programmes.

33. The use of individual pieces of information for administrative purposes, i.e. also by institutions which have themselves undertaken to keep official secrets, but which carry out tasks other than exclusively statistical tasks, shall be excluded. In order to ensure compliance with this rule, its text should not only be unambiguous and explicit, but measures should also be taken to guarantee adherence to it.

34. This does not apply – as explained in more detail below – to information which can already be obtained directly from generally accessible sources or which is provided by the persons or enterprises concerned themselves and which is not in need of protection.

II.E. Protecting personal data and statistical secrecy

35. Information from national Statistical Office surveys is protected from publication by the strict rules on the protection of personal data (data protection) and on maintaining statistical confidentiality (statistical secrecy). This follows from the legal nature of statistical surveys with a duty of disclosure as part of the state's powers of sequestration. The rules not only have high legal status, but also serve to ensure that those polled accept the official statistics, thus serving to ensure the quality of the statistical surveys and results.

36. If data on interlocking capital and the formation of enterprise groups are obtained by the Statistical Offices of the Member States or Eurostat from generally accessible sources or are provided by the enterprises themselves, the protective legal purpose of observing the secrecy of this information and the results gained from it does not apply. Such cases do not involve disclosing individual pieces of statistical information from the domain of official statistics, but quoting information from published sources and knowledge deduced from it.

37. Information on the participations of individual enterprises (e.g. shareholdings) which are not subject to statistical secrecy can be combined with information from surveys (e.g. turnover, number of persons employed) which are to be kept secret. In such cases, the stricter national rule applies to the publication of results at European level which also include national results. This is intended to avoid the rules existing in a Member State being contravened as the result of a publication of European results. From the point of view of future law, too, European Member States should harmonise the criteria for upholding statistical secrecy in this connection in order to avoid publishing incomplete results.

38. Information on enterprise groups is usually a summary of individual pieces of information. Summarised individual pieces of information are not subject to statistical secrecy, however. Thus, summarising the turnovers of the three largest enterprises to derive the concentration rate CR-3 is not subject to the secrecy requirement – apart from exceptions that fulfil the so-called dominance criterion - and this statistical finding is regularly published.

In principle, the same applies to the summary of a number of individual pieces of information based on other aspects, such as regional aspects, insofar as the summary does not relate to a specific legal subject. This would be the case, for example, if the information on a number of plants of one enterprise were to be summarised. In this case, the summary would disclose an individual piece of information about this enterprise. In principle, however, this does not apply to an enterprise group. In having the organisational form of a conglomerate, it is not itself a legal person, but a summary undertaken by official statistics in accordance with certain theoretical criteria, and it is in this sense a statistical artefact, a stylised fact.

39. In the relationship between the Statistical Offices of the Member States and in their relationship to Eurostat, the statistical secrecy rules must not prevent the transfer of individual pieces of information is technically necessary to ensure the production of the European statistics that are legally proscribed. This principle corresponds to national arrangements, particularly within Germany, in the relationship between the Federal Statistical Office and the Statistical Offices of the Länder.

40. **Summary:** In conclusion, the existing methodological, legal, institutional and empirical framework conditions within the European Union and individual Member States are unlikely to impede Eurostat's initiative of recording European enterprises' multinational interlocking capital and group formation.

III. METHODOLOGICAL, INFORMATION THEORY-BASED AND EMPIRICAL REQUIREMENTS OF RECORDING MULTINATIONAL ENTERPRISE GROUPS

III.A. Operationalising the concept of control

41. In reality, the European concept of legal and economic control by one or possibly several central decision-making bodies, which is fundamental to the formation of enterprise groups, covers a wide range of possible forms. As well interlocking capital or interlocking directorates, there may be control contracts, long-term close cooperation, so-called strategic alliances or far-reaching economic dependencies between enterprises.

42. A majority interest in an enterprise's share capital and reserves secures shareholders long-term potential to influence the enterprise. In addition, this criterion enables control relationships to be statistically operationalised and quantified. Thus, a control relationship through shareholdings, which may consist of a number of levels and chains of investment relationships, will be used below as a statistical criterion of the formation of enterprise groups, in accordance with the European concept of control introduced in 1993.

43. Beyond a nominal shareholding, the legal framework determining the shareholders' influence on an enterprise's management should not be neglected, the voting rights at shareholders' and partners' meetings associated with the shareholding, the extent to which shareholders are present at such meetings, whether and how voting rights may be transferred, and whether this is done in practice.

In addition, defining the concept of control as being a majority interest does not prevent specific qualitative information on control relationships being used in cases where such information is available. In such cases, even if there is no data on the specific value of shareholdings, there may be reliable information that control relationships exist or that profit-transfer contracts and/or control contracts have been concluded.

44. In conclusion, however, it is presumed that majority interests in share capital and reserves facilitate long-term structural control over an enterprise, that such control is also exerted and that other forms of influence reflect and reinforce the control of the capital.

III.B. Processing data on enterprises' shareholdings and structuring participatory network structures according to enterprise groups

45. Processing the data on enterprises' shareholdings and structuring the resulting participatory network structures and networks of interlocking capital according to enterprise groups and their ultimate owners is based on the following concepts.

46. A **shareholding** denotes the **relative** share of an owner in an enterprise's **share capital and reserves** in the legal form of a public limited company. The shareholding defines a one-level relationship between two parties in each case. For complete unambiguousness, four constellations are possible:

- enterprise with just one owner
 - ... which only holds an interest in this enterprise,
 - ... which holds an interest in a number of enterprises.
- enterprise with a number of owners,
 - ... which only hold an interest in this enterprise,
 - ... which hold an interest in a number of enterprises.

Even when the elements involved are simple, one-level relationships, it is possible for individual participatory network structures to form a network.

47. **Intermediates** are enterprises that have a shareholder but are shareholders themselves at the same time. Thus, there are three levels of owners or enterprises that are linked through cross-shareholdings:

- enterprises which are only parent companies or shareholders,
- enterprises which are both parent companies and subsidiaries (intermediates),
- enterprises which are only subsidiaries.

The proportion of all enterprises and owners which are intermediates is a measure of the complexity of a participatory network structure. The existence of intermediates makes it possible for there to be complex multi-level participatory network structures. Hierarchies may be distinguished according to whether parts of a network are superior, equal or subordinate, and cross-links are possible between them. Cyclical relationships result from a direct or indirect shareholding in one's own enterprise.

48. **Control relationships** between an owner and an enterprise may take two forms, depending on the number of chains of investment relationships:

- an owner has a majority shareholding within one chain of investment relationships at one level (direct control) or a number of levels (indirect control).
- an owner controls **a number of** chains of investment relationships of several enterprises, which only jointly have a majority shareholding in an enterprise (cumulative control).

Thus, a majority shareholding calculated across all levels would be a sufficient but not a necessary condition for a majority shareholding to exist at every level of investment.

49. **An ultimate owner** is a shareholder who exerts control over one or a number of enterprises on account of a majority interest if it is not and cannot be controlled by another owner.

Natural persons, regional and local authorities, joint ventures and societies, including cooperatives and associations, may only be shareholders and possibly ultimate owners, as nobody can own shares in them or control them through majority interests. Additional information on contractual agreements to exert entrepreneurial control may be available on joint ventures in exceptional cases.

50. **An enterprise group** – complete or truncated respectively – exists within a certain reporting area if at least two legal units belong to it that have their registered office there.

Accordingly, the ultimate owner of an enterprise group only itself belongs to the group if it is an enterprise. If this is the case, an enterprise group may consist of one controlling and just one controlled legal unit. If the owner is not a legal unit, it must control at least two legal units in order for them to be deemed to be a group. It is possible for an enterprise group to comprise a single enterprise, where that enterprise itself comprises more than one legal unit.

If part of an enterprise group is geographically, sectorally or in some other way truncated, the ultimate owner is only a member of the group if it is itself an enterprise and is to be categorised as belonging to the subset concerned. Thus, the ultimate owner of a German national enterprise group, i.e. a group whose members have their registered office in Germany, is only a member of the group if it is itself an enterprise that has its registered office in Germany.

These defining criteria are required to delimit enterprise groups or truncated enterprise groups and thus to determine their number and size.

51. When spread over a number of countries, the complexity of a network of interlocking capital acquires an additional dimension. An enterprise, a group or a number of enterprise groups that have their registered office in one country may be part of a larger group whose other members have their registered offices in other countries. In order to recognise these connections and the ultimate owners of transnational or multinational groups, full information needs to be available on the participatory network structure, also multinationally.

52. Analysing such a network of interlocking capital on the basis of information theory is often no trivial matter, depending on its level of complexity. High-performance software is available to

process even complex participatory network structures and to structure them according to enterprise groups, i.e. to categorise all enterprises controlled by an ultimate owner. This software has been successfully used to examine and process the capital interlocking of more than 3 billion enterprises.

III.C. Requirements of the available administrative data sources of enterprises' participatory network structures that are external to statistics and inherent in them

53. The applicable concept of control based on an owner's majority shareholding in an enterprise requires complete records of all capital relationships existing between two parties, i.e. regardless of the size of the individual shareholding. This information provides the necessary elements of a database of relationships as a basis for further processing and analysis.

54. The establishment of a complete database of relationships involving capital interlocking using one's own surveys is time-consuming, costly and places additional burdens on industry. It is not usually possible for the Statistical Offices of the European Member States to carry out their own surveys of enterprises' shareholdings. Nor are primary surveys actually required insofar as information on shareholdings is already available. Such data may derive from court, administrative or commercial sources. Access to it may be restricted, however (e.g. the data of a regulatory body), or unrestricted (e.g. trade register data). Official statistics are explicitly and unambiguously permitted under European law to use generally accessible sources, particularly to record enterprise groups.

It is a matter for each Member State to examine which administrative and court registers and/or commercial files are relevant in each case.

55. **Administrative and courts registers** that take diverse aspects of enterprises into account exist at national and European level. They also make reference to the existence of interlocking capital and some of them contain specific collections of data. Under trade, company and enterprise law, these include the trade register and other registers kept within the framework of voluntary jurisdiction. Specific data sources are required for supervising banking, the insurance industry and financial services, recording transnational capital movements and investments, applying tax-law privileges to affiliations, controlling insider dealings, administering state-controlled enterprises, funds and institutions, for merger control and for supervising the stock exchange.

56. A variety of actual and legal framework conditions exist for the cooperation of the national Statistical Offices with other state agencies. In particular, they concern the use of data being tied to a specific purpose and data being secured by means of access rules. Since access is generally limited to enterprises which have their registered office in the country concerned, state data sources external to statistics can only apply to record enterprises' multinational network of interlocking capital to a limited degree. Within the framework of national law, these sources are useful primarily for recording participatory network structures within a Member State.

The national central banks and the European Central Bank have specialist knowledge of the multinational interlocking of capital in the economy. It remains to be examined whether and, if so, how, they can actually and legally make a contribution towards recording multinational enterprise groups within the context of their tasks. This contribution could, for example, relate to supplementing the data obtained from other sources or to examining its quality and consistency.

57. **Generally accessible private commercial data sources** are suitable to crucially supplement the national official statistics register and the administrative and court registers. National providers cover enterprises that have their registered office in a certain country, and sometimes also follow their shareholdings and owners across national borders through one or more levels or world-wide. There are also databases focusing primarily on multinational shareholding and control relationships.

Due to the great effort required to establish and maintain a world-wide investment database, there is a limited number of efficient providers in this field.

III.D. Transnational matching of enterprises' national participatory network structures

58. It would be desirable for the national Statistical Offices to record enterprises' chains of investment relationships in a Member State across the national border, at least for one level. In this case it would be possible to take into account the principle of subsidiarity of the Statistical Offices of the Member States vis-à-vis Eurostat. The offices involved in each case could examine transnational links themselves in a bilateral procedure.

Supplementing the network of interlocking capital existing among European Union enterprises offers an opportunity to close the following empirical loopholes:

- to categorise individual enterprises whose group membership has not been recognised to date as belonging to a chain of investment relationships,
- to categorise national enterprise groups whose transnational links have previously not been recognised as truncated enterprise groups in a higher-ranking group,
- to identify a number of individual enterprises which have not been recognised as members of an enterprise group and/or to identify enterprise groups within a European Member State as members or part of a trans-European or multinational enterprise group.

In the wake of the increasing multinationalisation of enterprises and markets, consideration of multinational enterprise groups should not be neglected.

59. The requirements of reliably matching transnational chains of investment relationships existing between enterprises should not be underestimated. Enterprises should be identified which have their registered office in different countries and which are included in different national data sources. Identification requires accessible, comparable, completely unambiguous identifiers that remain stable over time, largely identical recording dates and common conventions on denoting the legal form, the economic activity and, if relevant, the style of notation of the enterprise's name, location and address. National differences exacerbate problems that exist in any case in identifying enterprises in heterogeneous data sources.

60. As well as qualitative aspects, the large number of likely bilateral coordination processes would also have a quantitative impact. If there were only one link between each Member State and every other Member State, there would be $2 \times 25^2 = 1,250$ pieces of information to check and to match in pairs for the 25 current Member States; for a possible 29 Member States in the future, there would be 1,682 links. In fact, however, there are already a total of approximately 85,000 entries for the eight member States whose Statistical Offices record multinational interlocking enterprises in their statistics registers. That is equivalent to a relative proportion of nearly 0,5 % percent of all recorded entries. If the equivalent is applied to all Member States, the result is an extrapolated figure of more than 150,000 transnational links.

Of the approximately 400,000 members of an enterprise group that have their registered office in Germany, some 5 % have ultimate owners that have their registered office abroad. That would mean that in some 20,000 cases, the German information has to be coordinated with up to 20,000 corresponding pieces of foreign information. If the equivalent of 5 % is generally applied, the result is a figure of more than 1,500,000 transnational links. It is not yet possible to determine the scale of such relationships at European Union level.

In view of the qualitative and quantitative risks involved in transnationally matching enterprises' national participatory network structures, it seems expedient to centralise this coordination process. This would offer a greater chance of categorising transnational shareholdings in a standardised and consistent manner.

61. In cases where the levels in a chain of investment relationships relate to enterprises that have their registered office outside the European Union, a bilateral coordination process between the European Member States does not suffice.

A complete, reliable and consistent record of multinational participatory network structures is only possible with the help of data sources that have a global scope. Recording transnational and multinational enterprise groups in a way that is as reliable as possible can be done through attempting to identify all enterprises that have their registered office in a Member State of the

European Union in an multinational database. This can determine whether enterprises which to date were not classified as belonging to a group are in fact independent of groups, and enterprise groups within the European Union are not parts of different or the same global enterprise groups.

Supplementing national participatory network structures by means of the transnational shareholdings existing within the European Union will be continued through including non-European information. The inclusion of conglomerate registered offices in the USA in particular is likely to have an impact on the participatory network structures within the European Union.

62. To sum up, identifying enterprises in heterogeneous data sources requires specialist knowledge and experience of the special national circumstances in each case. Thus, close co-operation with the respective national Statistical Offices and Eurostat at working level is necessary, at least at the beginning of the process.

III.E. Examining data quality and the reliability of the statistical results

63. The use of information on enterprises' participatory network structures for statistical purposes requires the quality of the information gathered from the different sources to be examined. The quality of data is determined above all by its factual correctness, form of representation, up-to-dateness or adequate temporal relevance, its consistency with comparable information and its matchability with corresponding information in other data sources – i.e. the presence of a generally accessible, completely unambiguous identifier.

64. The transnational relationships between enterprises that have their registered office in the Member States of the European Union should be examined by the respective national Statistical Offices themselves. They are closest to the national data sources and have the appropriate knowledge and practical experience. General rules should be developed at European level to deal with cases where a comparison of the transnational shareholdings of two countries leads to inconsistent results for various reasons and to avoid such cases in the future.

65. The national examination of participatory network structures comes up against its limits in the case of enterprises that have their registered office outside the European Union. In such cases, data sources on the global capital interlocking of enterprises should be used as reference files. The number of suitable data sources is limited and the concepts and procedures on which they are based vary. It is essential, however, to make full use of the available information on enterprise shareholdings outside Europe. Since it is unlikely that complete, reliable, comparable and generally accessible information on enterprises' global capital interlocking will be available for reference in the near future, the quality of a European database can only be estimated using sample surveys based on individual cases and/or a system of consistency tests.

III.F. Establishing and managing a central European file on enterprises' capital interlocking

66. The capital interlocking of enterprises which have their registered office in an EU Member State should be recorded and maintained in a central European file using data technology. Regardless of the organisational form of a centrally managed database, the specialist responsibility should lie with Eurostat, so as to take into account the tasks assigned to the European Union institutions.

As well as the specialist requirements referred to above, there are also technical reasons for centralisation. Experience has been gained in this area with the official German business registers, which are administered by the 16 Statistical Offices of the Länder depending on where enterprises have their registered offices. This leads to a disproportionate need for multilateral co-ordination and consolidation, which is costly, time-consuming and prone to error.

Managing a central file on enterprises' interlocking capital serves above all to examine that the information at European Union level is complete, up-to-date, of a high quality and consistent.

The establishment and maintenance of the file requires the cooperation of the national Statistical Offices with regard to national data. This process must conform to general rules concerning the verification of the information, updating intervals, the format and standardisation of entries, continuity and suchlike.

III.G. Access by Eurostat and the Statistical Offices of the Member States to the European file on enterprises' capital interlocking

67. Eurostat and the Statistical Offices of the Member States shall be given access to the data stock of the European file on enterprises' capital interlocking. The participation of the Member States takes into consideration the principle of subsidiarity and specialist reasons. The individual pieces of information on shareholdings, the control relationships deduced from them, their structure according to enterprise groups, and statistical results based on them are accessible

Access by the national Statistical Offices not only serves to improve the processing and interpretation of national results, but also to support Eurostat through successive examination and improvement of the quality and consistency of the European database.

IV. INFORMATION THEORY CONCEPT AND DATA TECHNOLOGY PROCEDURE FOR RECORDING MULTINATIONAL ENTERPRISE GROUPS IN THE EUROPEAN UNION

Information theory concept for setting up and developing a "European Transnational Capital Links Register" of European enterprises' multinational participatory network structures for European and national statistical purposes

68. As presented at the beginning, it is useful to identify multinational enterprise groups in the European Union by means of a "European Transnational Capital Links Register" managed centrally by a responsible agency.

By using one rather than several registers, the data stock can be organised within the context of a coherent information-theory and data-technology system in a way that is optimal in terms of contents and efficient in terms of technology, and that takes account of various aspects. These include in particular structuring, extending and cleansing the data stock, and verifying, updating and using the data, particularly in cooperation with the Statistical Offices of the Member States.

The same applies to having one agency rather than several agencies directly responsible for setting up and managing the register. If responsibilities are distributed decentrally and possibly in such a way that the agencies concerned are in competition with one another, it would mean that coordination processes would be inefficient and responsibilities unclear. The Statistical Office of the European Communities (Eurostat) is regarded as the central agency responsible for a "European Transnational Capital Links Register" of European enterprises' multinational participatory network structures.

69. The term "**European** Transnational Capital Links Register" is used below to refer to a central European register set up and maintained by Eurostat of the multinational participatory network structures of enterprises that have their registered office in one of the European Union Member States.

A concept is proposed for setting up and running the "European Transnational Capital Links Register", which distinguishes between eleven steps.

- Some steps are carried out just once. They serve to set up the European register with initial data stock.
- The overwhelming majority of the steps are carried out regularly. They ensure that the data stock in the European register is verified and updated on an ongoing basis.

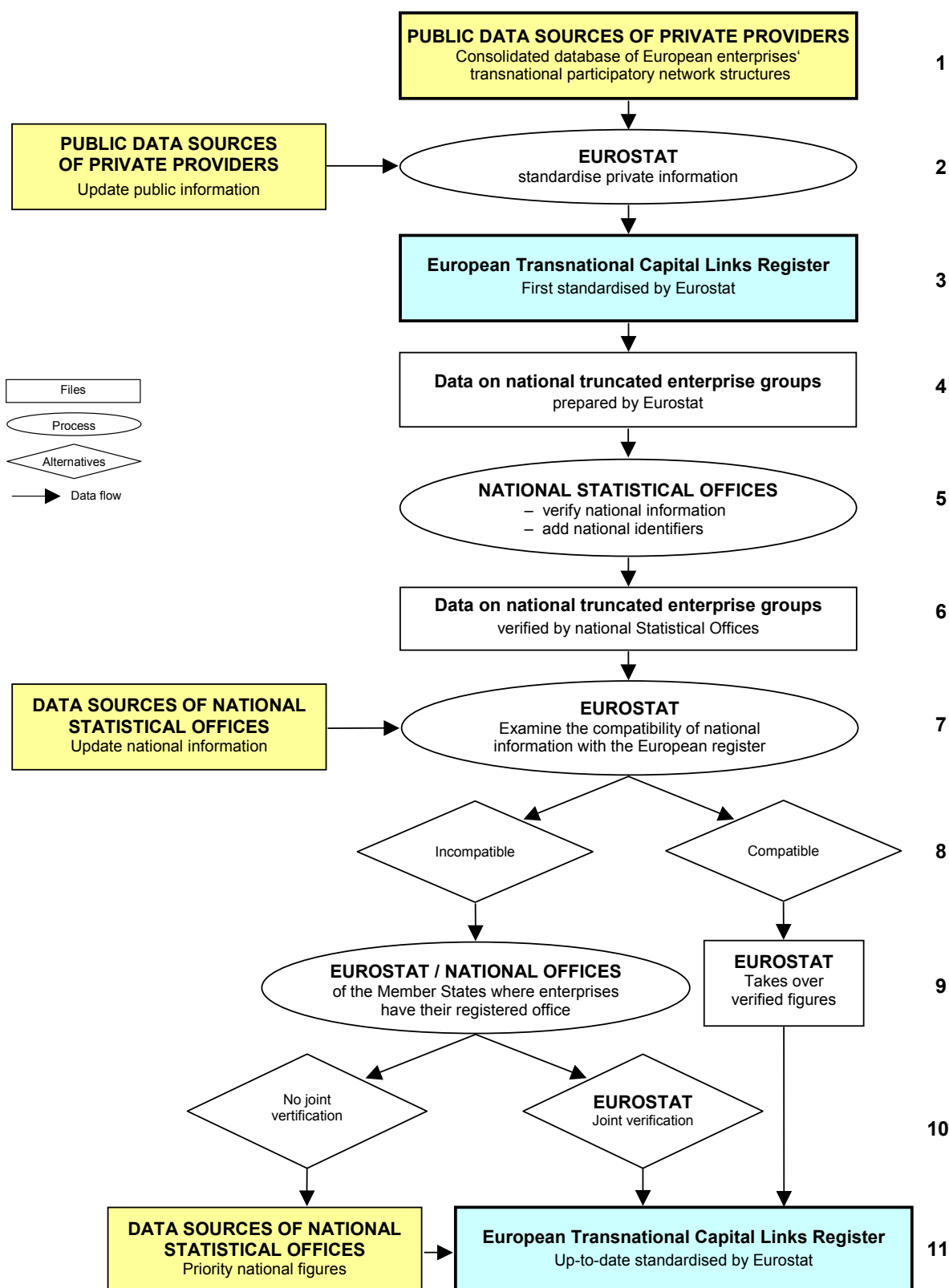
The eleven steps are presented in figure 4 and are briefly explained in the notes. The text below gives a detailed account of the subject, and the purpose and reasons for the individual steps.

70. It was taken into account in developing the concept that while the "European Transnational Capital Links Register" is to be set up and run centrally, it should also conform to the principle of subsidiarity. Cooperation between Eurostat and the national Statistical Offices is not only necessary for setting up and running the register, but also for its use, as it is primarily intended to serve national as well as European purposes.

When the "European Transnational Capital Links Register" is set up, the concept provides for its data stock to be based initially upon private sources with information on European enterprises' multinational participatory network structures. The subsequent maintenance of the register is based both on private data sources, which are regularly updated, and on the national information on enterprises' interlocking capital already collected and regularly updated by the national Statistical Offices. The eleven steps to set up and develop the European register should achieve the following (cf. figure 4):

Figure 4:

Interactive establishment and development of a "European Transnational Capital Links Register" for European and national statistical purposes



Explanatory notes on figure 4:

Interactive establishment and development of a "European Transnational Capital Links Register" for European and national statistical purposes

<p>Public data sources of private providers: Original database to establish a "European Transnational Capital Links Register" comprising generally-accessible commercial data sources with largely reliable, global and complete figures.</p> <p>Eurostat: Preparation of an excerpt from the private data sources with information on the transnational global shareholdings of enterprises which have their registered office in a European Union Member State. Each data file contains two pieces of information - an owner's relative shareholding in an enterprise and the shareholding's identification criteria.</p>		1
<p>Public data sources of private providers: Regular communication of updated figures to Eurostat.</p> <p>Eurostat: Formatting and standardisation of the figures from private data sources in accordance with the European register's standards.</p>		2
<p>Eurostat: Integration of individual figures on enterprises' shareholdings in participatory network structures and structuring of them according to enterprise groups or the ultimate owner that has majority control (head of the group).</p>		3
<p>Eurostat: Structuring of members of multinational enterprise groups according to their registered office in one of the European Member States. Identification according to their membership of a national or a truncated enterprise group. The national data files contain units arranged in pairs, as well as their links with a national or truncated enterprise group, and any direct transnational interlocking capital.</p> <p>Eurostat: Information of the national Statistical Offices on the national figures.</p>		4
<p>National Statistical Offices: Verification of the data files transferred by Eurostat and supplementation of any missing national identifiers of the individual units:</p> <ul style="list-style-type: none"> - enterprises: unambiguous and generally-accessible national identifiers; - enterprises in the national business registers and also registration number; - shareholders which are not enterprises: authentic names and addresses. 		5
<p>National Statistical Offices: Notification of the verified national figures to Eurostat.</p>		6
<p>Data sources of national Statistical Offices: regular transfer of updated figures to Eurostat.</p> <p>Eurostat: Examination of the compatibility of the national figures from the national Statistical Offices' files with the national information in the European register:</p> <ul style="list-style-type: none"> - earlier information concerning which there are already entries in the European register, - updated information on which there are not yet any entries in the European register. 		7
<p>Compatibility: Examination of the compatibility of the national information in the files of the national Statistical Offices and in the European register with positive or negative result.</p>		8
<p>Positive compatibility: Eurostat finally includes national information from the national Statistical Offices that is compatible with national information in the European register.</p>	<p>Negative compatibility: Eurostat and the competent national Statistical Office jointly examine the reasons for the incompatibility and verify the applicable information. The competent office is the National Office of the Member State where the owner of the shareholding to be examined in any particular case has its registered office.</p>	9
	<p>Verification: Examination of the incompatible information and verification of the correct information with a positive or negative result.</p>	10
	<p>Positive verification: Eurostat includes the verified national information in the European register.</p>	<p>Negative verification: Eurostat gives priority to including the national information of the national Statistical Offices in the European register.</p>

Table 4:

Bureau van Dijk Electronic Publishing (BvDEP):

Total number of enterprises, number of members of a participatory network structure, number of majority-controlled enterprises and numbers of ultimate owners according to European Member States, 2004

Member State ¹			Number of enterprises ² in the database			
No.	Abb.	Name	Total ³	Members of a capital network structures		
				Total ³	Majority-controlled enterprises ⁴	Ultimate owners ⁵
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	AT	Austria	129,693	129,693	65,197	4,789
2	BE	Belgium	763,197	348,998	28,312	19,332
3	BG	Bulgaria	89,233	89,233	75,425	4,964
4	CY	Cyprus	194	194	79	31
5	CZ	Czech Republic	14,718	14,718	3,804	629
6	CZ	Slovak Republic	4,142	4,142	51	22
7	DE	Germany	874,830	874,830	763,714	41,134
8	DK	Denmark	145,061	145,061	67,326	26,734
9	EE	Estonia	49,777	49,777	3,679	476
10	ES	Spain	665,180	665,180	126,393	24,662
11	FI	Finland	71,365	71,365	7,173	3,800
12	FR	France	932,623	932,623	179,864	36,280
13	HU	Hungary	203,489	203,489	18,975	785
14	IE	Ireland	163,668	163,668	2,545	988
15	IT	Italy	275,282	275,282	17,585	8,091
16	LT	Lithuania	3,127	3,127	1,251	101
17	LU	Luxembourg	8,693	8,693	298	165
18	LV	Latvia	6,401	6,401	2,857	283
19	MT	Malta	1,606	1,606	7	6
20	NL	Netherlands	1,583,635	1,116,235	192,242	115,093
21	NO	Norway	169,916	169,916	126,872	15,295
22	PL	Poland	25,155	25,155	12,885	1,081
23	PT	Portugal	80,958	80,958	57,385	3,872
24	RO	Romania	493,449	493,449	417,827	3,066
25	SE	Sweden	248,588	248,588	46,224	29,058
26	SI	Slovenia	45,116	45,116	81	68
27	UK	United Kingdom	2,651,282	2,651,282	251,067	93,195
Total			9,700,378	8,818,779	2,469,118	434,000

Source: Information from Bureau van Dijk, Electronic Publishing, Brussels, Belgium, and Frankfurt am Main, Germany.
Last updated: 26.11.2004, 22.12.2004.

N.B.:

¹ Including European Union accession candidates in 2003.

² Enterprises in the sense of legal units.

³ The information in columns (d) and (e) is the same for most countries, as Bureau van Dijk only includes stock companies in these countries, due to its business model.

⁴ Controlled enterprises in a country whose ultimate owners have their registered office within or outside this country.

⁵ Ultimate owners in a country whose majority-controlled enterprises have their registered office within or outside the country concerned. Not including ultimate owners who are natural persons or their direct shareholdings.

Table 5:

Dun & Bradstreet, Corp. (D&B):**Total number of enterprises, number of majority-controlled enterprises and number of ultimate owners according to European Union Member States¹, 2004**

Member State ¹			Number of entries				
No.	Abb.	Name	Total ²	Enterprises ³	Majority-controlled enterprises ⁴ with ultimate owners ⁵		
					Total	Majority-controlled enterprises ⁴	Ultimate owners ⁵
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	AT	Austria	354,000	313,000	82,600	56,600	26,000
2	BE	Belgium	851,000	820,000	67,000	44,000	23,000
3	BG	Bulgaria	7,200	7,100	866	580	286
4	CY	Cyprus	9,600	9,600	1,712	1,115	597
5	CZ	Czech Republic	1,450,000	1,430,000	16,600	12,800	3,800
6	CZ	Slovak Republic	514,000	513,000	4,700	3,897	803
7	DE	Germany	3,500,000	3,300,000	393,000	292,000	101,000
8	DK	Denmark	556,000	510,000	101,000	72,300	28,700
9	EE	Estonia	4,700	4,700	1,170	895	275
10	ES	Spain	1,760,000	1,720,000	73,000	60,600	12,400
11	FI	Finland	534,000	504,000	54,500	46,900	7,600
12	FR	France	6,700,000	5,900,000	1,250,000	895,000	355,000
13	HU	Hungary	352,000	352,000	5,150	3,760	1,390
14	IE	Ireland	372,000	371,000	22,100	16,752	5,348
15	IT	Italy	2,700,000	2,100,000	950,000	620,000	330,000
16	LT	Lithuania	4,100	4,060	289	235	54
17	LU	Luxembourg	41,100	41,000	6,700	4,200	2,500
18	LV	Latvia	3,700	3,700	640	538	102
19	MT	Malta	4,300	4,300	846	564	282
20	NL	Netherlands	1,700,000	1,600,000	419,000	290,900	128,100
21	NO	Norway	790,000	742,000	87,100	69,700	17,400
22	PL	Poland	118,000	117,000	10,600	8,600	2,000
23	PT	Portugal	938,000	936,000	14,300	11,000	3,300
24	RO	Romania	12,800	12,700	1,900	1,542	358
25	SE	Sweden	1,230,000	114,000	161,000	131,800	29,200
26	SI	Slovenia	8,200	8,200	1,100	837	263
27	UK	United Kingdom	3,700,000	3,400,000	665,000	556,800	108,200
Total			28,214,700	24,837,360	4,391,873	3,203,915	1,187,958

Source: Information from Dun & Bradstreet Corp., Murray Hill, USA, on the third quarter of 2004. Last updated: 24.11.2004.

N.B.:

¹ Including European Union accession candidates in 2003.

² Legally independent units including legally dependent bigger branches or business establishments etc. in the first instance without further consideration by D&B. The data may include also dormant or non-corporate entities.

³ Legally independent units not including legally dependent branches.

⁴ Controlled enterprises in a country, whose ultimate owners may have their registered office within or outside this country.

⁵ Ultimate owners in a country, whose majority-controlled enterprises have their registered office within or outside the relevant country. Not including ultimate owners who are natural persons or their direct shareholdings.

Table 6:

Data source "Hoppenstedt Firmeninformationen GmbH":

Number of minority and majority shareholdings of 5,755 ultimate owners that have their registered office in Germany according to European Union Member States, 2004

Member State ¹			Number of shareholdings of 5,755 ultimate owners ² that have their registered office in Germany	
No.	Abbr.	Name	Total shareholdings ³	of which majority shareholdings ⁴
(a)	(b)	(c)	(d)	(e)
1	AT	Austria	1,930	1,419
2	BE	Belgium	907	677
3	BG	Bulgaria	94	74
4	CY	Cyprus	35	23
5	CZ	Czech Republic	805	658
6	CZ	Slovak Republic	302	261
7	DE	Germany	40,619	33,000
8	DK	Denmark	346	287
9	EE	Estonia	57	44
10	ES	Spain	1,387	981
11	FI	Finland	209	163
12	FR	France	3,186	1,776
13	HU	Hungary	757	600
14	IE	Ireland	429	320
15	IT	Italy	2,056	994
16	LT	Lithuania	63	45
17	LU	Luxembourg	473	324
18	LV	Latvia	42	31
19	MT	Malta	15	10
20	NL	Netherlands	1,907	1,418
21	NO	Norway	302	242
22	PL	Poland	989	823
23	PT	Portugal	385	281
24	RO	Romania	198	165
25	SE	Sweden	875	682
26	SI	Slovenia	108	92
27	UK	United Kingdom	3,826	3,176
Total			62,302	48,566

Source: Information from Hoppenstedt Firmeninformationen GmbH, Darmstadt, Germany on the fourth quarter of 2004. Last updated on 24.11.2004.

N.B.:

¹ Including European Union accession candidates in 2003.

² Ultimate owners including natural persons and their direct shareholdings.

³ Number of majority and minority shareholdings by ultimate owners that have their registered office in Germany in enterprises that have their registered office in the European Union Member States.

⁴ Number of affiliated enterprises or majority shareholdings in enterprises that have their registered office in the European Union Member States.

Table 7:

Number of enterprises, majority-controlled enterprises, ultimate owners and enterprise groups according to official and private data sources and according to European Union Member States in 2003/2004

Member State ¹			Data source	Number of database entries			
No.	Abb.	Name		Enterprises ²	Members of a participatory network structure		Enterprise groups ⁵
					Majority-controlled enterprises ³	Ultimate owners ⁴	
(a)	(b)		(c)	(d)	(f)	(e)	(g)
1	DK	Denmark	NSI	532,925	1,027	61	61
			BvD	145,061	67,326	26,734	
			D&B	556,000	72,300	28,700	
2	ES	Spain	NSI	2,710,389	21,510	4,649	7,670
			BvD	665,180	126,393	24,662	
			D&B	1,720,000	60,600	12,400	
3	FI	Finland	NSI	372,552	7,614	705	833
			BvD	71,365	7,173	3,800	
			D&B	534,000	46,900	7,600	
4	IR	Ireland	NSI	-	22 ⁶	-	-
			BvD	163,668	2,545	988	
			D&B	372,000	16,752	5,348	
5	IT	Italy	NSI	5,747,899	140,761	44,358	47,847
			BvD	275,282	17,585	17,585	
			D&B	2,700,000	620,000	330,000	
6	NL	Netherlands	NSI	1,040,687	275,945	78,904	79,281
			BvD	1,583,635	192,242	115,093	
			D&B	1,700,000	290,900	128,100	
7	PT	Portugal	NSI	1,581,190	2,889	82	90
			BvD	80,958	57,385	3,872	
			D&B	938,000	11,000	3,300	
8	SE	Sweden	NSI	902,662	88,234	24,637	29,354
			BvD	248,588	46,224	29,058	
			D&B	1,230,000	131,800	29,200	
9	UK	United Kingdom	NSI	2,130,360	141,505	37,933	50,919
			BvD	2,651,282	251,067	93,195	
			D&B	3,700,000	556,800	108,200	
Total of nos. 1 – 9 above			NSI	15,018,664	679,507	191,329	216,055
			BvD	5,885,019	767,940	314,987	
			D&B	13,450,000	1,807,052	652,848	
10	D	Germany ⁷	MK	3,310,000	395,409	121,360	121,360
			BvD	874,830	763,714	41,134	
			D&B	3,500,000	292,000	101,000	
Total of nos. 1 – 10 above			NSI	18,328,664	1,074,916	312,689	337,415
			BvD	6,759,849	1,531,654	356,121	
			D&B	16,950,000	2,099,052	753,848	

Source: Information from the national Statistical Offices to Eurostat, reporting year 2003, Dun & Bradstreet Corp., Murray, Hill, USA, figures as of mid-2004; Bureau van Dijk, Brussels, Belgium, figures as of mid-2003; German Monopolies Commission, Bonn, Germany, figures as of end of 2001.

N.B.:

¹ Including European Union accession candidates in 2003.

² Enterprises in the sense of legally independent units.

- ³ Majority-controlled enterprises in a country whose ultimate owners have their registered office within or outside the country concerned.
- ⁴ Ultimate owners in a country whose majority-controlled enterprises have their registered office within or outside the country concerned. Not including ultimate owners which are natural persons or their direct shareholdings.
- ⁵ Ultimate owners in a country whose majority-controlled enterprises have their registered office within or outside the country concerned. Not including ultimate owners which are natural persons or their direct shareholdings.
- ⁶ This information is based on 22 enterprises, each of which comprises more than one legal unit. The total number of legal units is thus correspondingly greater.
- ⁷ Information of the German Monopolies Commission relating to majority-controlled enterprises that have their registered office in Germany and their ultimate owners that have their office in Germany or abroad if this could be established, in the reporting year 2001, Monopolies Commission (2004), marginal number 293.

Abbreviations:

- NSI National Statistical Office.
- BvD Bureau van Dijk, Brussels, Belgium.
- D&B Dun & Bradstreet Corp., Murray Hill, USA.
- MK German Monopolies Commission, Bonn, Germany.

Table 8:

General file description for the "European Transnational Capital Links Register" (ECR)

No	Criterion	Description	Source	Date	Notes
1	Registration number	Number of file in the current "European Transnational Capital Links Register" (ECR)	Eurostat		Date of production and of last amendment
2	Owner (enterprises and non-enterprises)	Number of owner in the current ECR	Eurostat		
3		Identifiers	NSI, PDS		All available information.
4		Name	NSI, PDS		Authentic name and trading name, if relevant.
5		Location	NSI, PDS		Standardised address information according to registered office, delivery address and/or P.O. box.
6		Communication	NSI, PDS		Telephone numbers, e-mail address, website.
7		Information on the head office of an enterprise group or the owner's registration number or head office, if these are an enterprise.	NSI, PDS		Headquarters, head office, or the office responsible for accounting and controlling which has information on the owner's shareholding.
8		If the owner is an enterprise: Additional information for enterprises under nos. 15 to 16 below.	NSI, PDS		
9		Subsidiaries	Number of the subsidiary in the current ECR	Eurostat	
10	Identifiers		NSI, PDS		
11	Name		NSI, PDS		
12	Location		NSI, PDS		
13	Communication		NSI, PDS		
14	Registration number of the national owner superordinate to the direct owner and of the ultimate owner, insofar as such owners exist.		NSI, PDS		Additional information on subsidiaries may be obtained using the registration numbers of the superordinate owner.
15	Legal form		NSI, PDS		In accordance with the classification of legal forms
16	Economic focus		NSI		In accordance with NACE Rev. 1
17	Shareholding	Absolute share of the owner in the share capital and reserves of the enterprise	NSI, PDS		A priority, but optional
18		Enterprise's share capital and reserves	NSI, PDS		A priority, but optional
19		Owner's relative share in the enterprise's share capital and reserves	NSI, PDS		Obligatory, recorded or calculated according to nos. 17 and 18.
20		Information on the relationship between capital shareholdings and voting rights	NSI, PDS		Information on shares with majority voting rights, shares without voting rights and similar.

Abbreviations:NSI: **N**ational **S**tatistical **I**nstitute, NSO: **N**ational **S**tatistical **O**ffice.PDS: **P**riate **D**ata **S**ource, including the sources it draws upon, particularly the trade register.**N.B.:**¹ Natural persons and associations, foundations, regional authorities and similar are not enterprises.

Figure 5:

Capital network of enterprises to identify ownership structures, enterprise groups and ultimate owners on the basis of majority control

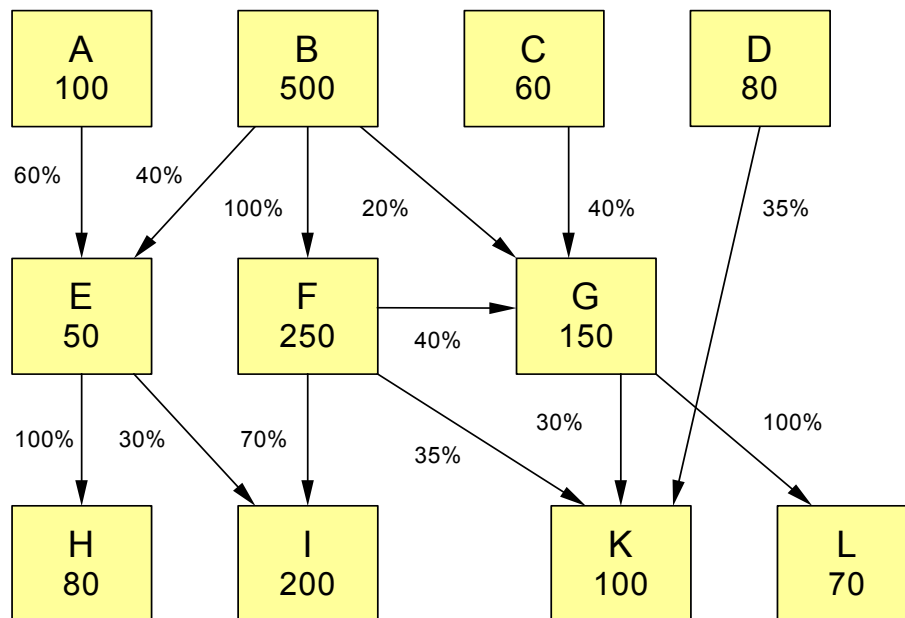
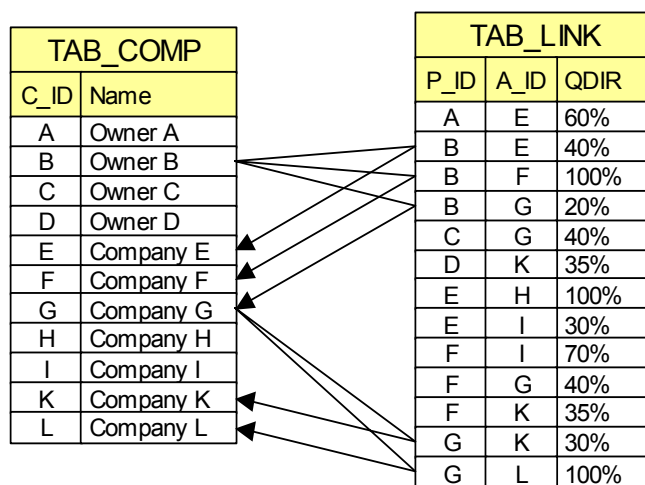


Figure 6:

Representation of the network of direct ownership linkages in the database

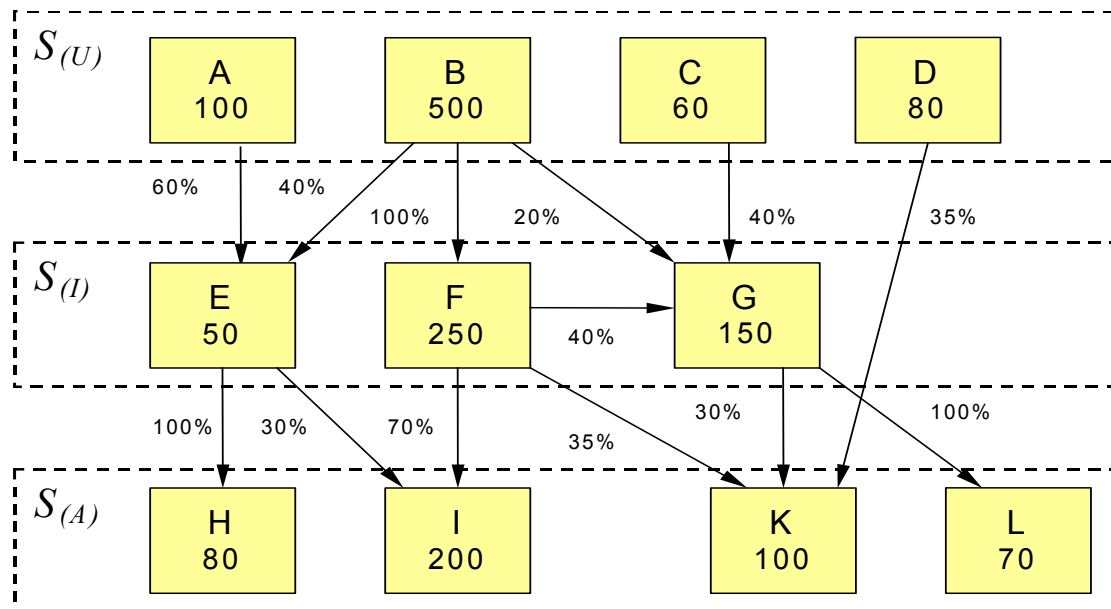


Explanation: Select all companies appearing as affiliates in TAB_LINK, calculate the total percentage shares of all owners for all of them, then select those with total shares amounting to more than 100%.

Other inconsistencies, such as cyclical control, can only be revealed when actually tracing the network links.

Figure 7:

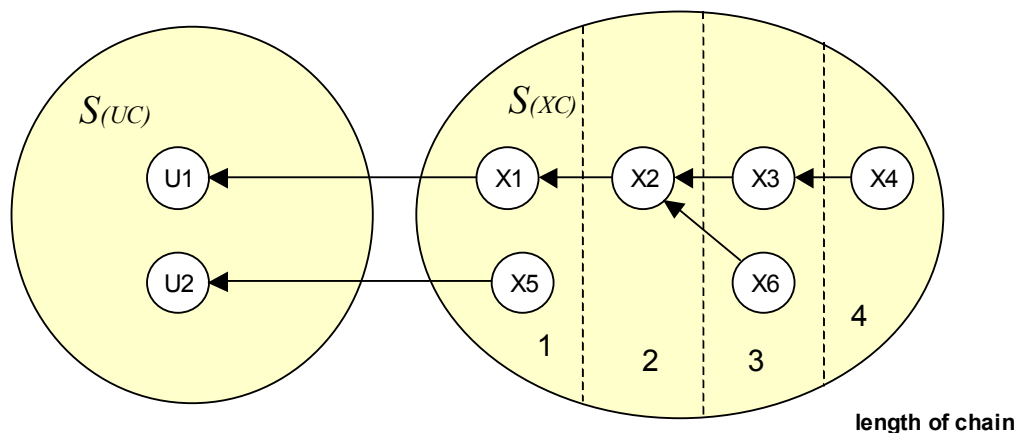
Sets representing the different levels of the network of direct ownership linkages



The SQL statement retrieves all majority control chains linking an enterprise from the set $S_{(XC)}$ to an ultimate owner from set $S_{(UC)}$ (cf. figure 8):

Figure 8:

Scheme for the retrieving of all majority control chains linking an enterprise to an ultimate owner



Level	Ultimate	Company	Lev1	Lev2	Lev3	Lev4
1	U1	X1	X1	0	0	0
2	U1	X2	X1	X2	0	0
3	U1	X3	X1	X2	X3	0
4	U1	X4	X1	X2	X3	X4
3	U1	X6	X1	X2	X6	0
1	U2	X5	X5	0	0	0

Table 9:

**Sample report from the German database "Verband der Vereine Creditreform e.V. ":⁶
Beteiligungen der Ingram Micro Delaware Inc.**

CREFO- Nummer	Name des Unternehmens bzw. Anteilseigners	Anteil
8330155785	Ingram Micro Delaware Inc.	
8330161526	Ingram Micro Holding GmbH	100%
8330215546	Ingram Micro Deutschland GmbH	100%
8330221221	Ingram Micro Management GmbH	100%
8330221225	Ingram Micro Europe GmbH	100%
8330150270	Ingram Macrotron Aktiengesellschaft für Datenerfassungssysteme	99%
8230337361	Computer Peripheral Service GmbH	100%
8330148432	MACROKOM Gesellschaft für Bürokommunikation mit beschränkter Haftung	100%
8330215056	Ingram Macrotron Distribution GmbH	100%
5290001982	Compu-Shack-Electronic GmbH	100%
4350018381	Baumeister & Partner Datentechnik GmbH	98%
5290035540	Compushack distribution electronic GmbH	100%
5290035545	Compushack production electronic GmbH	100%
8030155600	MACROTRON COMPUTER MANU- FACTURING GMBH	100%
8330233142	Macrotron Systems GmbH	100%
8330234166	Macrotron CAD-CAM Systeme GmbH	100%
8330234190	Macrotron Process Technologies GmbH	100%
8330233248	Future Software Entwick- lungsgesellschaft für Büro kommunikations- u. Inform.	90%
8330221224	Ingram Micro Development GmbH	100%
8330223612	Ingram Micro Germany Verwaltungs GmbH	100%
8330251127	Ingram Micro Components (Europe) GmbH	100%
8330229143	Ingram Micro Acquisition GmbH	100%

Updated on 4 December 2001.

71. After determining the ultimate owners of all intermediates, the ultimate owners of pure affiliates can be identified by simple one-step SQL statements:

- if the majority owner of a given "pure" affiliate belongs to the set of potential ultimates, this owner is the ultimate owner
- if the majority owner of a given "pure" affiliate is an intermediate, the ultimate owner of this intermediate is also the ultimate owner of the affiliated enterprise
- For the sample network discussed in the previous sections, the picture would change in the following way (cf. figure 9):

⁶ See Kammerath (2002), p. 34.

Figure 9:

Scheme for the identification of the ultimate owners of pure affiliates after determining the ultimate owners of all intermediates

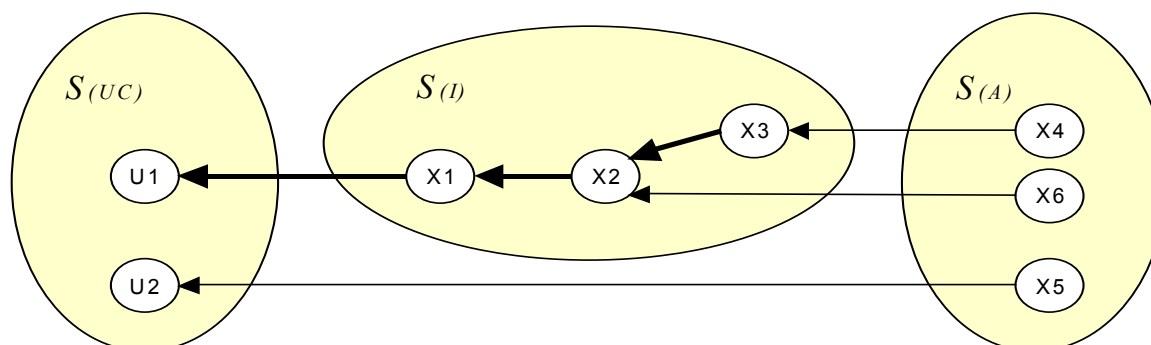


Table 10:

Twelve general rules defining a system that meets national and European requirements of a system of multinational enterprise group statistics⁷

1	Requirements	Defining the purposes and the political and statistical requirements for a new system of enterprise statistics (e.g. the preambles of the European Council Regulations of 1993 on statistical units and on the development of business registers, as well as the considerations of according regulations in the European Member States).
2	Economic context	Investigation and description of enterprise groups in the real economic world, with special regard to their units, structure, and organisation from an economic, technical and regional point of view (issues of capital shares and control, joint ventures, franchise systems and outsourced legal units).
3	Legal system	Investigation of the legal frameworks for enterprise groups in the EC Member States (corporate rights and companies law, commercial law, taxation law, liability to render account, competition, and fair trade law, corporate control, statistical confidentiality and data protection, insider dealing law etc.). Analysis of the European and national statistical laws with special regard to the priority of and the correspondence with European rules.
4	Methodology	Development of a theoretical and methodological framework to represent the structure of enterprise groups, including their relationships and significance in an operational way (relationships between legal and economic units, complex enterprises, kind-of-activity units, cases of exceptions to the rule, etc.).

⁷ see ISTAT (2002), chapter E: Germany, Table 1.

5	Algorithms	Development of an appropriate general system of algorithms, based on computational science, to develop the available specifications of enterprise groups, their relations, and the resulting networks by data processing.
6	Data banks	Setting-up of an appropriate design of data banks, especially the statistical business registers as regulated by the European Council in 1993.
7	Technical framework	Testing and evaluating the appropriate hardware and software to run the national business registers including enterprise groups.
8	Data sources	Exploration and evaluation of appropriate data sources outside or inside the official system of business statistics. Develop the qualitative, formal, technical, and financial conditions to make use of them.
9	Combination	Test appropriate software solutions to combine homogeneous data sources from outside and inside official statistics, first by name and address of each enterprise and later on by a general unambiguous reference number.
10	Organisation	Elaboration of an organisational model for 1) The co-operation of the statistical offices, commercial suppliers of firm data sources and special software to develop these data for statistical purposes, 2) Professional institutions to analyse and evaluate the economic and legal relationships between enterprises and groups and 3) The political and administrative authorities.
11	Applications	Description and demonstration of the range of applications, possibly through an efficient statistical system of business registers (description of the international trade flows and division of labour by multinational enterprises, calculation of actual market shares and concentration indices, dealing with complex corporate structures).
12	Cost-benefit analysis	A well founded calculation of costs is essential. Although the benefits of the project are difficult to quantify, a convincing argument must be stated. The general political obstacles to realise statistical projects, the liberal tendency to reduce governmental activities and the necessity to cut down state expenditures are hard to reconcile.
13	Realisation	Conceptual development to convince the political and administrative authorities of the new statistical system of business registers at the European Union and Member States level (Overcoming conceptual preconceptions and prejudices, legal and administrative obstacles, financial constraints etc.). To deliver a study, a complex project requires a range of realistic options, and a staged approach to implementation.

EKA Capital Ownership Analysis Software¹

Survey of Sample Outputs²

The Analysis of the network of ownership starts from the **selection of a “base firm”**, using a multifield search box.

Auswahl einer Firma

Name: oder PLZ: Sortieren:

Land: oder Branche: ? Schritt:

Ort: oder E-Typ: Gefunden: 26

Kapital: >= und <= Währung: Angezeigt: 20

Umsatz: >= und <= Inl./Ausl.:

Mitarb.: >= und <= Konzern:

Start

Nächste 10

OK

Liste speichern

Abbruch

Hilfe

BASF Canada Inc.
 FAG Bearings Ltd.
 General Tire Canada Inc.
 Great Lakes Reinsurance Holdings Ltd.
 INMET Mining Corporation
 Metallgesellschaft Canada Ltd.
 Munich Holdings Ltd.
 Nissan Canada Inc.
 Oerlikon Aerospace Inc.
 Pirelli Canada Inc.
 Potacan Mining Company (PMC)
 Potash Company of Canada Ltd. (POTACAN)
 Sakura Bank (Canada)

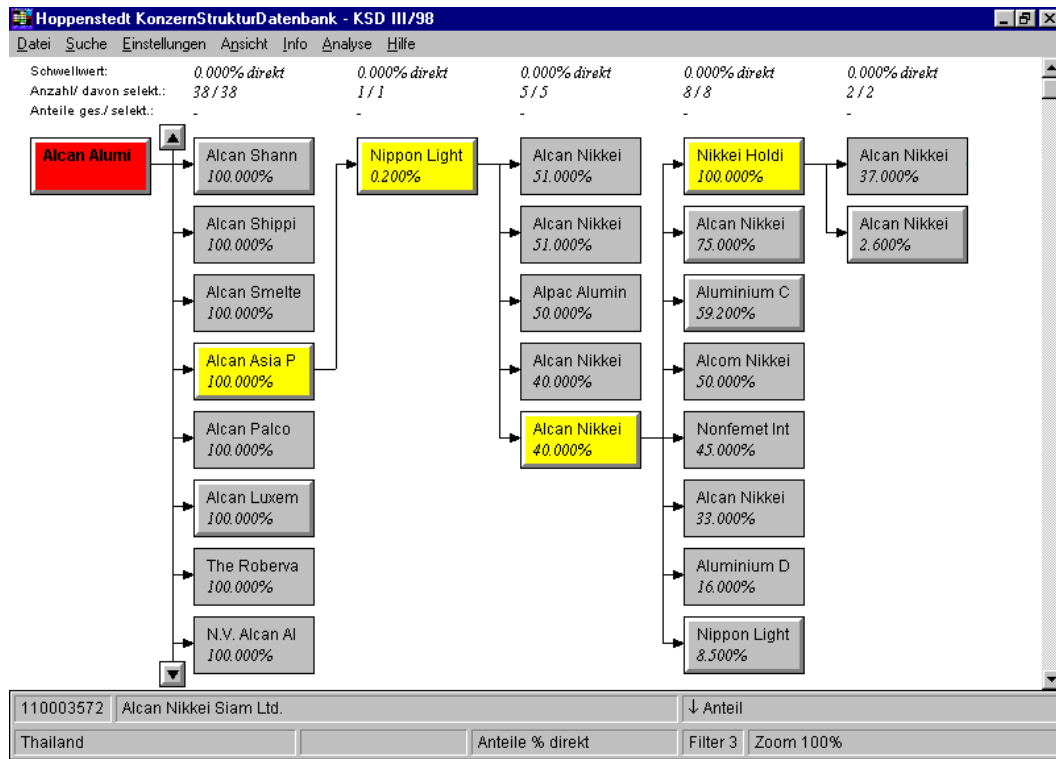
Criteria include names, country, city, zip code, industry (NACE), equity, sales, number of employees, currency. Search text can contain wildcards.

Sets of firms matching certain search criteria may be stored for further analysis (see button “Liste speichern” – “Save list”).

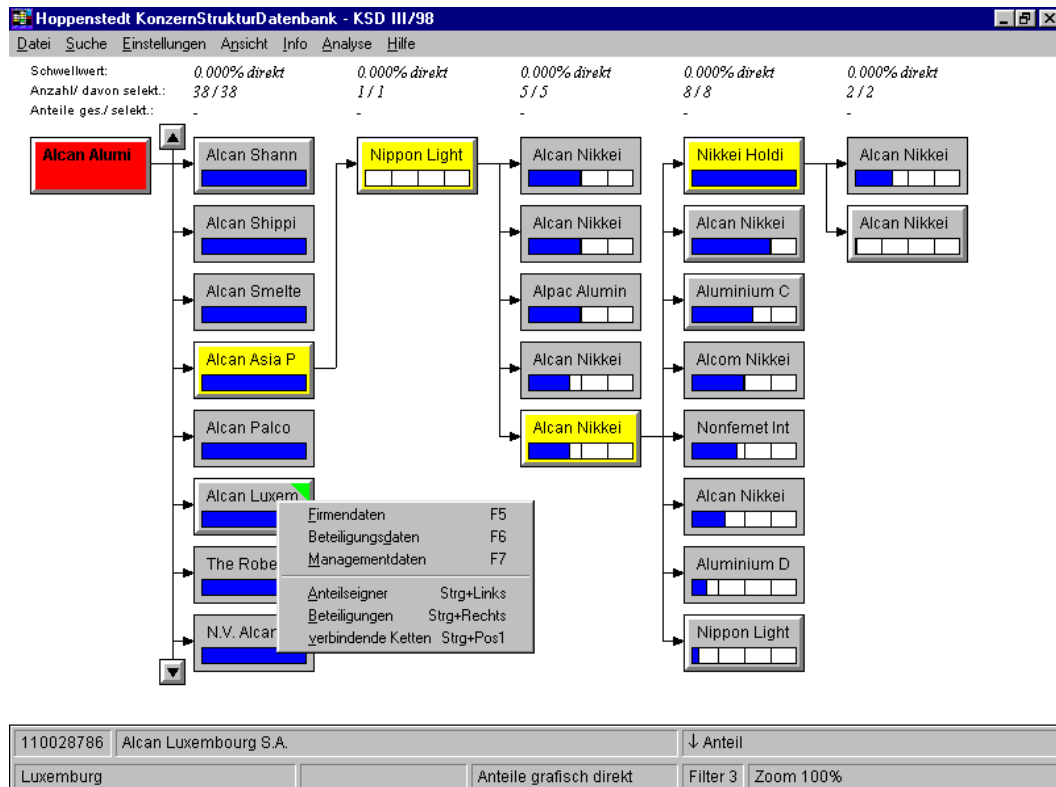
¹ See Kammerath, Jens, in: Feuerstack (2003), Eurostat – no. 2000.242.00002 - Anlage 4.

² Sample output based on data from „Konzernstrukturdatenbank III/1998“, © Verlag Hoppenstedt GmbH, 1998; Software EKA © Dr. Jens Kammerath

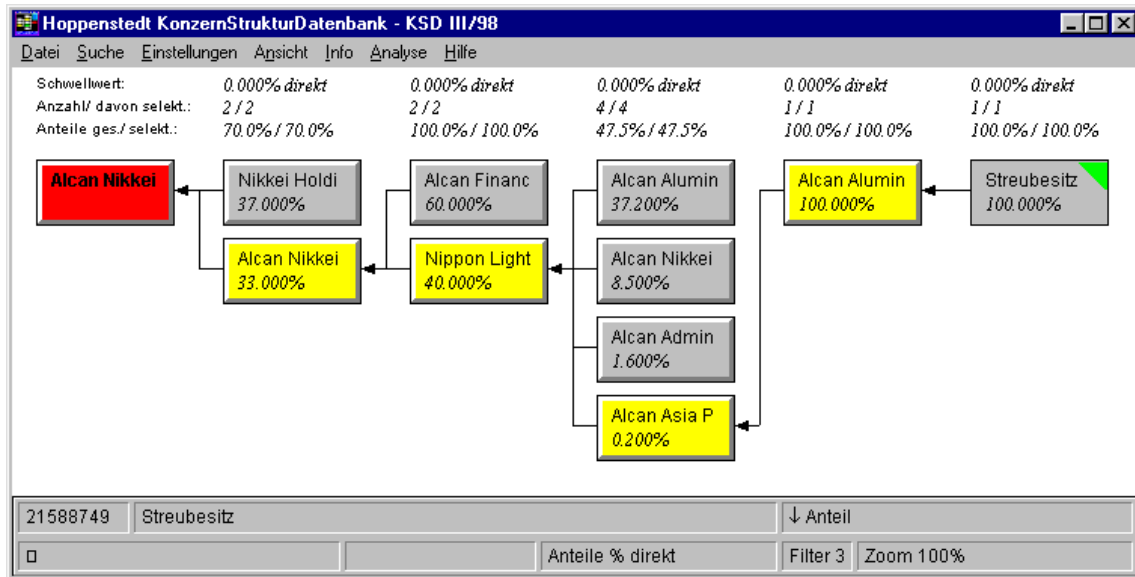
Graphs are used for the interactive navigation through the ownership network:



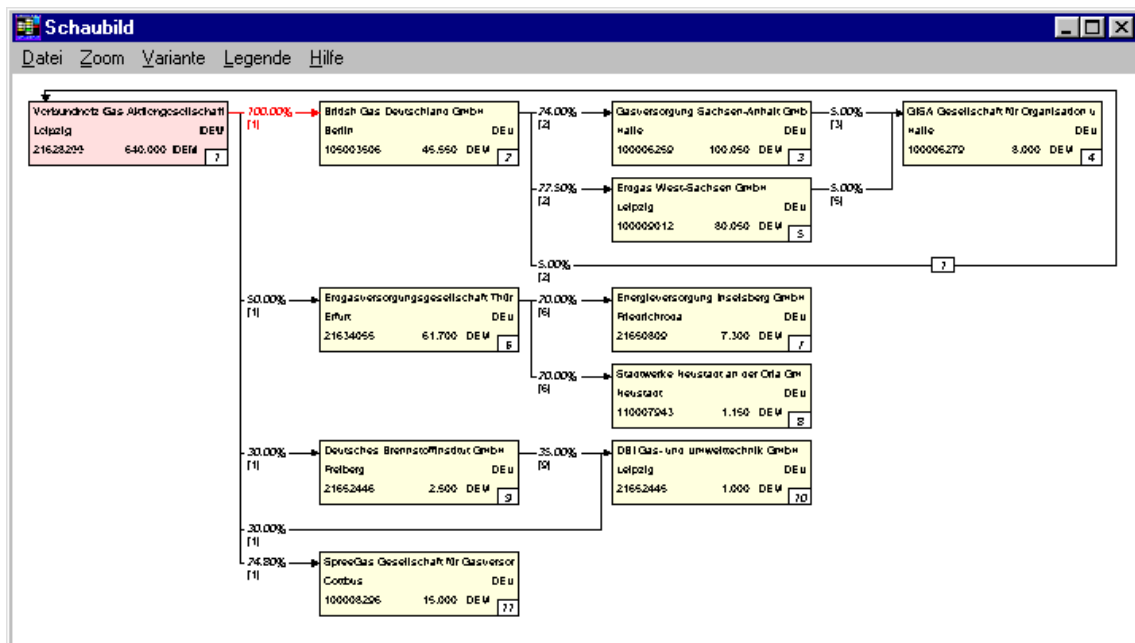
The boxes can contain direct or total shares as numbers or bars, majority and control attributes. Clicking the right mouse button calls a context menu.



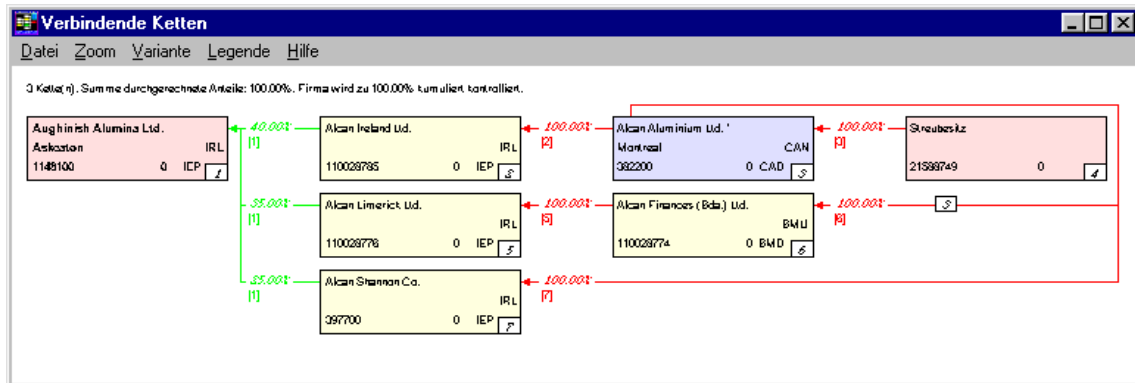
The graphs and charts display **either** direct and indirect **affiliated companies** (see above) or **owners** of a certain company. This navigation graph shows owners:



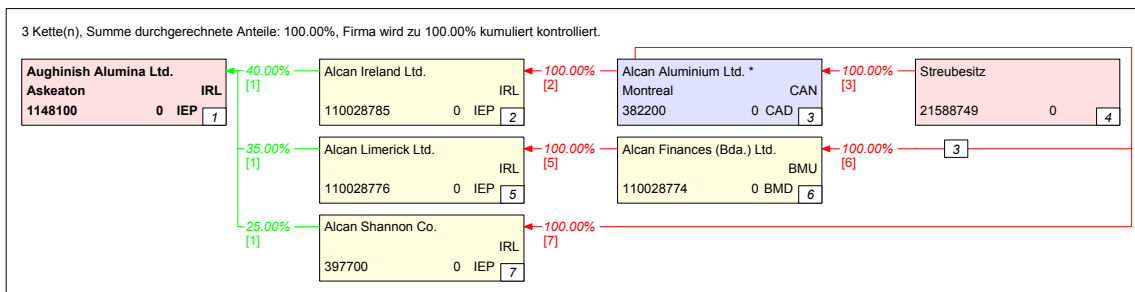
While these **navigation graphs** show only one selected ownership chain with its neighbourhood, charts present the whole network. Red lines stand for „controlling linkages“. The software handles multiple feedback or circular linkages in a flexible way:



Searching for “linking chains” often reveals cases of **cumulative control** (green lines). A circular linkage is a special case of linking chains (not shown here).



All graphs can be exported as **WMF** graphics files for import into other programs:

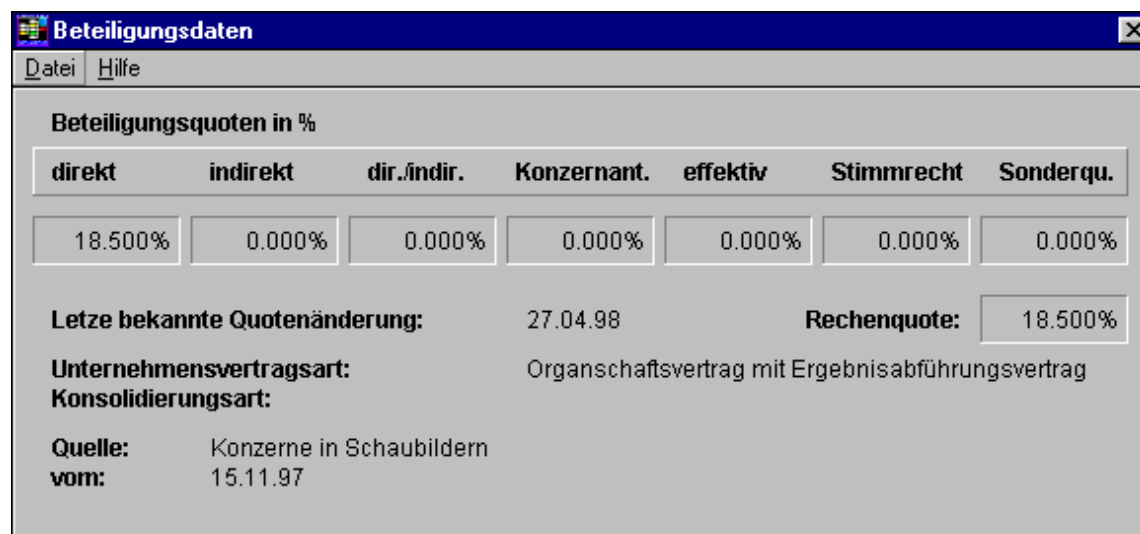


“**Indented Tables**” are an alternate form of displaying ownership hierarchies. They can be exported as “comma separated value” (CSV) files for further processing, e.g., using spreadsheets. Multiple links are marked by an asterisk (*).

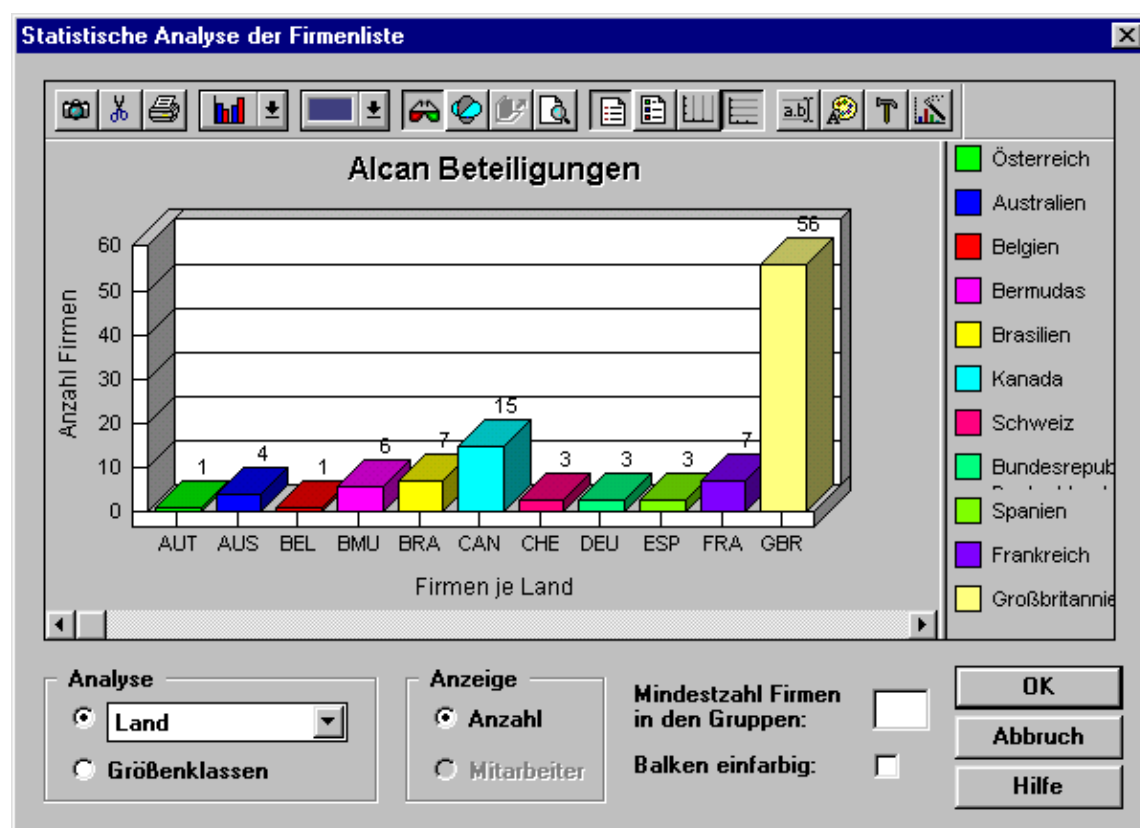
The table displays ownership data in an indented format:

lfd. Nr.	KSD-Nr.	Name der Gesellschaft	Straße
Beteiligungen insgesamt			
1	382200	Alcan Aluminium Ltd. *	-
2	379600	. Alcan Adminco Inc.	
3*	10569000	. . Nippon Light Metal Co. Ltd.	
4*	394300	. . . Alcan Nikkei China Ltd.	
5*	394500	. . . Alcan Nikkei Korea Ltd.	
6*	110032842	. . . Alpac Aluminium Inc.	
7*	110032841	. . . Alcan Nikkei Asia Company Ltd.	
8*	110028777	. . . Alcan Nikkei Asia Holdings Ltd.	
9	110028780	. . . Nikkei Holdings Pte. Ltd.	
10*	110003572	. . . Alcan Nikkei Siam Ltd.	
11*	110003573	. . . Alcan Nikkei Thai Ltd.	
12*	110028779	. . . Aluminium Development Company (Thailand) Ltd.	
11*	110003573	. . . Alcan Nikkei Thai Ltd.	
13	110003571	. . . Aluminium Company of Malaysia Berhad	
14*	110028778	. . . Alcan Nikkei Specialty Coatings Sdn. Bhd	

Ownership information covers different types of shares or voting rights, specific forms of firm contracts, source of information.



Sets of firms (example: affiliated companies of Alcan Aluminium Ltd., Montreal) can be analyzed, e.g., by country.



With the help of the **Query Wizard** complex search functions over all or specific direct and indirect owners resp. affiliated companies of a certain set of firms can be specified and performed easily and within a short time.

Analyse-Assistent: Abfragedefinition

gesucht werden...	zum Beispiel:	
<input type="radio"/> A alle Beteiligungen einer bestimmten Gruppe von Eignern - direkt und indirekt	alle Beteiligungen deutscher Versicherungen	<input type="button" value="Weiter"/>
<input checked="" type="radio"/> B ausgewählte Beteiligungen einer bestimmten Gruppe von Eignern - direkt und indirekt	alle deutschen Beteiligungen deutscher Versicherungen ab 500 Mitarbeiter	<input type="button" value="Abbruch"/>
<input type="radio"/> C alle Eigner einer bestimmten Gruppe von Firmen - direkt und indirekt	alle Eigner von Münchner Firmen	<input type="button" value="Hilfe"/>
<input type="radio"/> D ausgewählte Eigner einer bestimmten Gruppe von Firmen - direkt und indirekt	alle ausländischen Eigner von Münchner Firmen	

dafür sind zu definieren (Liste):

Eigner:	<input type="text"/>	-	<input type="button" value="Wahl"/>	<input type="button" value="Lade"/>
Beteiligungen:	<input type="text"/>	-	<input type="button" value="Wahl"/>	<input type="button" value="Lade"/>

Example (see "B"): Search for all German affiliated companies of German insurance corporations with more than 500 employees.

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