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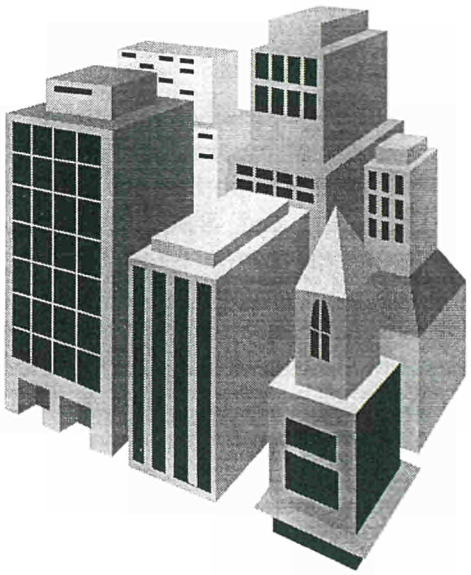

Limited competition in Engineering services activities in Europe

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Summary

The results in the following are based on a pilot survey in engineering services that was carried out in 1996/97 to test the Regulation 58/97 ([1])concerning structural business statistics but also in order to provide more detailed information on business services enterprises. 5 Member States (D, DK, F, P, S) participated in this survey.

Engineering services are dominated by limited liability companies and although most of the enterprises are quite small the largest engineering services companies comprise a substantial part of the total turnover within the engineering services sector.

The distribution of turnover by market segments varies considerably between the participating Member States, although buildings, manufacturing or energy typically were found amongst the two most important market segments.

The contracts are normally obtained without a tendering procedure and from an existing client structure. The reasons could be a combination of limited public investment and insufficient implementation and effectiveness of the Directive on public procurement.

The engineering services enterprises are relatively export oriented and more than 20 % of turnover is being exported. Primarily because of involvement in international development projects in the developing countries the main part of the export goes to countries outside the European Union. This is particularly the case for Denmark and Sweden, countries characterised by a high public international aid to developing countries compared to GDP.

Furthermore the large engineering services enterprises – especially in France- tend to set up foreign affiliates as a supplement to traditional export, thereby increasing the proximity to their potential customers which is especially important for business services.

The employees within the engineering services enterprises are mostly employed on a full-time basis, and the degree of female involvement is lower compared to other business services.

The main part of the employees are engineers and they have in general been employed with their current employer for a long period, half of them actually 5 years or more.

Most of the personnel costs of the engineering services enterprises goes to the "own production", whereas administration and marketing makes up most of the remaining part.

([1]) Council Regulation (EC, EURATOM) No. 58/97 of 20 December 1996 concerning structural business statistics.

1. Introduction

The business services sector is crucial for the European economies, since the sector contributes directly to the creation of employment and value added and therefore also to growth and the jobcreation process in the economies. Recent estimations for 1995 show that business services comprises 18 % of total employment in the services sectors.

More important, the business services influences the competitiveness and flexibility of the other sectors of the economy and thus indirectly contributes to the economic growth in the European Union.

Unfortunately this importance has not been reflected in the existing statistical coverage of the business services sector, and the level of statistical information concerning these activities is limited. This is also true for the coverage in the Regulation 58/97 on structural business statistics- the basic legal reference for EU business statistics.

In order to change this situation Eurostat in co-operation with the Member States has initiated a number of measures, which will improve the statistical coverage of the business services sector in the medium and long term ([2]).

To provide some statistics also in the short run, and also to test the Council Regulation 58/97 on structural business statistics, Eurostat, in collaboration with the Member States, has launched 4 pilot surveys covering particular business services activities. They are computer services, engineering services, labour recruitment and industrial cleaning. Results from these pilot surveys will be published in Statistics in Focus in the coming months.

The pilot survey on 'engineering services' (part of 7420 in NACE, rev. 1) was executed by Eurostat in co-operation with the national statistical institutes in five Member States. Denmark, Germany, France, Portugal and Sweden were participating in the survey co-ordinated by Statistics Denmark. The action was a once-off sample survey with the reference year 1995 respectively 1996 for Germany. Stratified samples have been used in all participating countries, except for Portugal where the total population was surveyed. France and Germany were supposed to prepare a sample of 500 accepted answers, whereas Denmark, Portugal and Sweden had to provide 200 accepted answers. The surveyed unit was the enterprise.

The survey questionnaire covered both variables on enterprise characteristics found in the Council Regulation 58/97 and variables specific to engineering services activities. The enterprise characteristics such as number of enterprises, number of employees, turnover, personnel costs, gross investments in tangible goods were mainly collected from existing statistical and administrative sources such as VAT-statistics, employment statistics and enterprises' accounts. This data are in general collected in regular compulsory surveys or extracted from administrative sources.

The surveys were implemented on a voluntary basis and the number of accepted questionaires from the enterprises were 278 in Denmark, 1 424 in Germany, 199 in France, 518 in Portugal and 433 in Sweden. Whenever possible the survey results have been raised to the national totals.

The structure of the remaining part of this bulletin is as follows; Chapter two covers an economic description of the engineering services sector; chapter three contains a presentation of the globalisation of the engineering services activities, whereas chapter four deals with the employment structure.

2. Economic data

Table 1
Basic economic indicators within engineering services, country totals, 1995

	DK	D	F	P	S[1]
Enterprises	5 838	:	20 333	:	9 760
Employees[2]	21 710	:	121 370 [3]	:	43 527
Turnover[4]	2 553	:	16 087	:	3 785
Value added[4]	1 542	:	6 451 [5]	:	1 989 [6]
Investments[4]	:	:	390	:	91
Personnel costs[4]	788	:	3 840	:	1 577

(1) Enterprises with a turnover less than 100000 SEK not included
(2) Full time equivalent
(3) Number of employees by the 31/12/95
(4) Mio. ECU based on the average of the 1995 exchange rates
(5) Value added in market prices
(6) Value added in basic prices
: Not available
Source: Eurostat, National Statistical Institutes

([2]) These measures are NACE rev.1 and the regulations on business registers, structural business statistics and short-term indicators.

The economic indicators show substantial differences between the Member States. The engineering services enterprises in France are relatively large and they employ on average nearly twice the number of employees per enterprise compared to Denmark.

Also as far as turnover per enterprise is concerned the engineering services enterprises in France are relatively large. They have approximately twice as much turnover compared to engineering services enterprises in both Denmark and Sweden.

In France the engineering services enterprises also invest a larger share of their value added, namely 6.0 % compared to 4.6 % in Sweden. Furthermore value added per employee is 16 % higher in France than in Sweden. In Sweden on the other hand personnel costs as a share of value added are relatively higher.

Table 2
Number of enterprises by legal status, 1995

(%)

Legal form	DK	D[1]	F	P	S [1]
Sole proprietorship	70.5	48.7	37.9	3.1	0.0
Partnership	3.3	19.6	0.9	0.2	0.5
Limited liability company	25.6	31.7	58.8	95.9	99.3
Others	0.7	0.0	2.4	0.8	0.2
Total	100.0	100.0	100.0	100.0	100.0

(1) Survey data
Source: Eurostat, National Statistical Institutes

Limited liability is the most frequent legal form within engineering services, except in Denmark and Germany where sole proprietorship is the most important. Partnerships are only significant in Germany where they comprise almost 20 % of the enterprises, cf. table 2.

The very few sole proprietorships among the Swedish engineering services enterprises can partly be explained by the fact that the results only refer to the survey data for the large enterprises and these are normally organised as limited liability companies.

In a larger perspective the result can be interpretated as a development where the classical liberal profession (sole proprietorship) gradually has been replaced by customary enterprises.

Table 3
Turnover by legal status, 1995

(%)

Legal form	DK	D[1]	F	P	S [1]
Sole proprietorship	6.1	11.5	3.1	0.2	0.0
Partnership	3.2	21.6	2.3	0.0	0.5
Limited liability company	90.0	67.0	87.8	98.6	99.4
Others	0.7	0.0	6.8	1.1	0.1
Total	100.0	100.0	100.0	100.0	100.0

(1) Survey data
Source: Eurostat, National Statistical Institutes

The dominance of the limited liability companies within engineering services is even more profound, when considering the distribution of turnover by size-classes.These enterprises comprise between 67% and 99% of the total turnover within engineering services, cf. table 3.

Accordingly the other legal forms are of limited importance, except for Germany where enterprises in sole proprietorship and partnerships contribute 1/3 to the total turnover.

Table 4
Number of enterprises by employment size-class, 1995

(%)

Size-class	DK	D[1]	F	P[1]	S
0-9	96.3	57.2	90.0	81.9	94.2
10-49	3.0	33.8	8.5	14.7	4.8
50-99	0.3	4.4	0.8	1.9	0.5
100-499	0.4	4.5	0.6	1.5	0.5
500(+)	0.1	0.1	0.1	0.0	:
Total	100.0	100.0	100.0	100.0	100.0

(1) Survey data
: Not available
Source: Eurostat, National Statistical Institutes

Most of the enterprises in engineering services have less than 10 employees. In Denmark, France and Sweden these small enterprises comprise more than 90% of the total number of enterprises and only few of the enterprises have more than 50 employees.

The smallest enterprises are however much less dominant as far as turnover is concerned, although they make up between 1/4 and 2/5 of the total annual turnover in engineering services. In Germany they only count for 10% of the total turnover.

Table 5
Turnover by employment size-class, 1995

(%)

Size-class	DK	D[1]	F	P[1]	S
0-9	25.1	9.5	25.4	22.4	38.6
10-49	14.2	28.2	22.6	30.4	24.7
50-99	5.0	13.4	8.7	19.9	7.6
100-499	26.2	} 49.0	23.0	27.4	29.1
500(+)	29.5		20.2	0.0	:
Total	100.0	100.0	100.0	100.0	100.0

(1) Survey data

: Not available

Source: Eurostat, National Statistical Institutes

The distribution of turnover by market segment varies considerably between the participating Member States, although buildings, manufacturing or energy in most cases are found amongst the two most important market segments, cf. table 6.

In France energy comprises 1/3 of the total turnover for the engineering enterprises thereby being the largest market segment, whereas buildings is almost insignificant. But this does not necessarily reflect the situation of the whole market, because some of the biggest firms that answered the survey questionnaire are specialised in services oriented to the manufacturing industry (for instance the car industry) or energy and water market segment.

Table 6
Turnover by market segments, 1995

(%)

	DK[1]	D[1]	F[1]	P[1]	S
Transport infrastructure	4.5	19.7	10.1	22.6	9.4
Energy and utilities	15.5	12.2	34.7	14.2	3.7
Environment and utilities	8.4	18.9	11.1	7.5	5.0
Manufacturing	32.7	9.3	31.0	9.9	16.8
Buildings	26.3	30.6	3.3	12.1	31.0
Information technology	4.0	2.4	6.6	1.3	7.5
Others	8.6	7.0	3.2	32.5	26.6
Total	100.0	100.0	100.0	100.0	100.0

(1) Survey data

Source: Eurostat, National Statistical Institutes

On the contrary according to the professional federations, buildings has been the most dynamic market segment in the past few years, but this can however not be measured in this survey since buildings being part of a contract within manufacturing will be counted there.

In Germany and Portugal the importance of transport infrastructure and environment is considerably higher compared to the other Member States. For Germany the restructuring and building activities in the new German Länder might partly explain this difference. In Portugal it is a reflection of high public investments made in this area during the past few years.

The information technology constitutes a rather small market segment in engineering services, indicating that these services are delivered by more specialised and presumably smaller enterprises not sufficiently represented in the survey. In France and Sweden the share is however between 7 and 8 % of total turnover and with a growing demand for its services it is likely that the market segment "information technology" shall constitute a larger share of the total turnover of engineering services enterprises in the future.

The distribution of turnover by procurement method reveals interesting differences between the participating Member States, which perhaps is a reflection of general country differences, not only limited to the engineering services activities.

The non-tendering procedure seems to be the most important in the engineering services sector. In Denmark and France approximately 3/4 of the turnover is generated without a tendering procedure and in Portugal it is more than 1/2. It is remarkable, that the major part of the turnover came from existing clients, whereas new clients only contributed between 10 and 20 % of the non-tendering turnover, cf. table 7.

Table 7
Turnover by procurement method

(%)

Tendering procedure	DK[1]	D	F[1]	P[1]	S[1]
National	20.4	:	21.0	45.7	67.7
- open	30.1	:	21.4	39.3	37.9
- restricted	44.9	:	67.2	25.2	32.2
- negotiated	25.0	:	11.4	35.5	29.9
EU	8.1	:	1.1	3.1	5.4
- open	31.5	:	55.4	51.1	34.1
- restricted	54.7	:	38.6	7.7	10.8
- negotiated	13.9	:	6.0	41.2	55.1
None	71.4	:	77.9	51.3	26.8
- existing client	80.9	:	88.5	:	85.9
- new client	19.1	:	11.5	:	14.1
Total	100.0	:	100.0	100.0	100.0

(1) Survey data

: Not available

Source: Eurostat, National Statistical Institutes

This situation could indicate that the competition within the engineering services sector is still relatively limited. It could also mean, that the nature of the

engineering services activity favours longer and more confident business relationships between the clients and their supplier. They therefore use known suppliers as much as possible instead of seeking new business relations.

Only in Sweden the main part of turnover origins from national tendering procedures, and like in Portugal the open procedure is slightly more important.

The EU tendering procedure seems to be of relatively little importance for the engineering services sectors as a whole, with shares of turnover between 1 and 8 %.

Recognising that the private sector is not encompassed in the EU legislation concerning procurement and the typical engineering services project is rather small this is still a surprisingly low figure. Since the threshold value for public procurement is 200 000 ECU ([3]) this could indicate that apart from lacking implementation at national level the competent EU legislation achieves not yet its complete effectiveness.

3. Globalisation

The growing importance of Foreign Direct Investments and the creation of foreign affiliates instead of traditional cross border services export reflect the increasing globalisation of the economies. Therefore this pilot survey has also included questions concerning affiliates and foreign ownership.

Table 8
Exports of services as a share of turnover, 1995

(%)

	DK(1)	D	F(2)	P(1)	S(1)
Total exports	23.1	:	23.5	7.0	20.4
- of which EU-countries	10.2	:	5.8	3.5	5.2
- of which other countries	12.9	:	17.7	3.5	15.2

(1) Survey data
(2) 1996 data from the Business Annual Survey with a provisional breakdown by contries
: Not available
Source: Eurostat, National Statistical Institutes

Export comprises approximately 1/5 of total turnover within the engineering services enterprises, which indicates that the engineering services enterprises are quite international, cf. table 8.

([3]) Council directive 93/36/EEC of 14 June 1993.

Furthermore it is interesting that a very large part of the export goes to countries outside the European Union. In Sweden and France it is as much as 75 % and in Denmark and Portugal 56 % and 50 % respectively. In Denmark and Sweden this is partly due to the involvement of the engineering services enterprises in the development projects financed through the public aid programmes for the developing countries. In France the biggest firms have interests especially in Asia.

Table 9
Enterprises with foreign affiliates divided by the total number of enterprises

(%)

Enterprises with affiliates	DK(1)	D(1)	F(1)	P(1)	S(1)
Enterprises with domestic or foreign affiliates	16.7	6.1	34.7	3.9	21.8
Enterprises with foreign affiliates	8.2	2.2	13.8	0.6	5.1
Turnover in enterprises with affiliates	56.0	39.5	68.3	21.2	40.5

(1) Survey data
Source: Eurostat, National Statistical Institutes

There are several reasons for setting up foreign affiliates. First of all it can be necessary to have close proximity to the client. This is especially the case within the business services sector, where the "products" are being more and more customised. Secondly, despite the Internal Market, national practises and habits can still make it difficult for companies from abroad to act efficiently across the borders without being physically and legally represented in the country.

The engineering services enterprises in France are more inclined to have affiliates compared to the other Member States. As much as 35 % of the enterprises have domestic or foreign affiliates and almost 14 % have foreign affiliates. On the other hand only 2 % respectively 1% of the surveyed enterprises in Germany and Portugal have foreign affiliates, cf. table 9.

It is likely that this is due to the historical links of France to other continents, whereas on the other hand the large national market apparently is sufficient for the engineering services enterprises in Germany. This could especially be the case after the German unification in 1990, with the restructuring of the new German Länder.
In all of the surveyed countries, the enterprises with affiliates are very large and they comprise a

significantly higher share of total turnover compared to the total number of enterprises.

Table 10
Foreign owned enterprises as a share of all enterprises, 1995

(%)

	DK(1)	D(1)	F(1)	P(1)	S(1)
Number of enterprises	2.9	0.9	3.0	1.9	7.2
Total turnover	12.9	7.1	2.8	11.3	14.3
Number of employees	8.9	6.2 (2)	3.2	7.0	8.0

(1) Survey data
(2) Number of persons employed
Source: Eurostat, National Statistical Institutes

The engineering services enterprises in the participating Member States are rarely owned by foreign enterprises, cf. table 10. They are therefore more often having affiliates abroad than they themselves are owned by non-resident enterprises, cf. table 9.

The foreign owned enterprises comprise 13-14 % of total turnover in engineering services in Sweden and Denmark and 8-9 % of the number of employees. They therefore have an economic importance that is higher than indicated only by the number of enterprises.

4. Structure of employment

The business services sector is in general characterised by a high labour intensity. Since these activities also tend to be relatively knowledge based, the qualifications of the employees are of fundamental importance in the business services sector. Therefore this pilot survey included questions on the characteristics of the employees as for instance educational background, seniority, distribution of personnel costs by purpose, working time and gender.

It turns out that part-time employment is not very common within the engineering services, since approximately 9/10 of the employees are working full-time, cf. table 11.

Furthermore there is a strong positive relationship between the number of female employees and the degree of part-time employment, with part-time employment being more common in Denmark and Germany.

Table 11
Employees divided by working time and gender, 1995

(%)

	DK(1)	D(1)	F	P(1)	S(1)
Full-time	87.1	89.8	93.1 (2)	91.4	93.2
Part-time	12.9	10.2	6.9 (2)	8.6	6.8
Male	65.0	63.8	73.7 (3)	74.4	79.0
Female	35.0	36.2	26.3 (3)	25.6	21.0

(1) Survey data
(2) Data from the Annual Business Survey, compulsory
(3) Data from the Declaration Annuelle de Données Sociales. Administrative declaration which is compulsory for all firms having employees
Source: Eurostat, National Statistical Institutes

The educational background of the persons employed within engineering services is very different between the Member States with the highest share of engineers in Germany, Denmark and Sweden, cf. table 12.

The difference is significant. It could indicate that the products within engineering services in these countries are relatively more specialised. However, this hypothesis does not seem to be supported by the data concerning turnover distributed by market segments (table 6).

Table 12
Persons employed divided by education, 1995

(%)

	DK(1)	D(2)	F(2,3)	P(2)	S(2)
Engineers	48.1	48.6	}30.5	29.2	63.1
Other University	9.9	7.0		3.8	3.5
Architects	0.6	1.9	0.0	1.3	5.0
Technicians	4.9	14.1	22.2	31.0	9.5
Skilled workers	15.3	9.6	7.0	:	:
Administrative	7.3	11.2	18.4	18.7	11.7
Other, no education	13.9	7.5	22.0	15.9	7.1
Total	100.0	100.0	100.0	100.0	100.0

(1) Education Register (UKM)
(2) Survey data
(3) Engineers includes senior executives
: Not available
Source: Eurostat, National Statistical Institutes

Another explanation can be differences in the classification of education between Member States. This is indicated by the fact, that there are no skilled workers employed within engineering services in Portugal and Sweden, whereas it is 15 % in Denmark.

A third explanation could be that differences are caused by a number of enterprises in the sample carrying out several activities of which engineering services is the largest and thus classifying the enterprise within this activity.

The employees within engineering services are quite experienced and between 47 % and 57 % have been employed for more than 5 years in the same enterprise. Since the seniority is linked to experience only within the surveyed enterprises it implies that the surveyed enterprises within engineering services are relatively old. This finding is probably related to the dominance of larger enterprises in the surveyed enterprise population.

Table 13
Number of employees divided by seniority, 1995

(%)

	DK(1)	D(1,2)	F(1,3)	P(1)	S(1)
Less than 2 years	20.8	13.7	16.1	26.1	21.6
2 – 5 years	25.4	29.4	29.0	26.9	22.7
More than 5 years	53.8	56.9	54.9	47.0	55.6

(1) Survey data
(2) Persons employed
(3) Includes non-university graduates
Source: Eurostat, National Statistical Institutes

Since the employees are experienced and often rather well- educated another finding of the survey show that very few are less than 25 years old.

Table 14
Personnel costs by function, 1995

(%)

	DK(1)	D	F	P(1)	S(1)
Own production	69.9	:	:	68.6	69.0
R&D projects	5.0	:	:	2.2	4.5
Training, post-education	3.3	:	:	1.4	2.4
Administration, marketing	17.2	:	:	17.6	16.9
Other purposes	4.6	:	:	10.2	7.2
Total	100.0	:	:	100.0	100.0

(1) Survey data
: Not available
Source: Eurostat, National Statistical Institutes

The distribution of personnel costs by business function is very similar in the surveyed countries. The main part (more than 2/3) is for the own production in the enterprises, whereas administration and marketing used the second largest part, cf. table 14.

Less than 5 % of the total personnel costs are used in connection with Research and Development projects which seems to be relatively little. Considering the qualifications of the employees as a crucial factor for the enterprises in the business services sector, it is noteworthy that 2-3 % of the personnel costs is used for training and post-education. The ressources that are invested into keeping the qualifications of the employees up to data seems therefore to be still very limited especially taking the high seniority of the employees into consideration. On the other hand training on the job is very much used and this could to a certain extent explain the figure.