

Services in the Future

Innovation Activities
in the Service Sector

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Innovation Activities in the German Economy Service Sector: 1998 Survey

Innovation activities in the German service sector are developing in an altogether stable way. Within the service sector, however, clear conflicting developments are appearing. Innovation activities of modern, growing service branches – banking/insurance, data processing and technical services, consulting and other services (principally business-oriented) – are being intensified continuously. Innovation activities among traditional services – retail trade, wholesale trade and transport services – are falling back, however.

The most important results of the 1998 survey on innovation activities of the service sector in 1997 are, in short:

- ▶ The share of innovative service companies not including trade and transport had, at 66%, reached a level in 1997 which was clearly above that of the previous year. The share of innovators in trade and transport companies fell by 5% to 56%.
- ▶ Innovation expenditures of modern service companies climbed steadily to 26 billion DM in 1997 and intentions of the companies indicate a resultant rise to 29 billion DM for 1998. Among trade and transport, innovation expenditure dropped to 20 billion DM in 1997 and plans show that it will have dropped further still in 1998, to a level of 17 billion DM.
- ▶ Success of innovation measured as a share of turnover with innovative services or a share of reduced costs through process innovations is relatively high among modern services and corresponds in some

Reference Numbers of Innovation 1997			
Share of Firms with	Share 1997	Change compared to	
		1996	1994
Innovations	61	0	-1
Product Innovations	56	2	0
Process Innovations	52	14	11
Cost Reductions	18	–	–
Turnover Share in %	Share 1997	Change compared to	
		1996	1994
Product Innovations	19	–	–
Cost Reductions	2	–	–

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Values not surveyed for 1995, values preliminary. Turnover share surveyed 1997 for the first time. Shares in per cent, changes in percentage points. All information projected on the population in Germany.

branches to the manufacturing industry and mining. In trade and transport, however, the success of innovation is comparatively small.

Two problems arise in the German service sector:

- ▶ Innovation activities of trade and transport companies are declining. According to statements from the Federal Labor Office (Bundesanstalt für Arbeit), these branches employ more than 4 million persons subject to social insurance contributions. In these branches, a comparatively large number of people who belong to the “problem areas” of the job market, find employment.
- ▶ The number of innovative companies in the new Länder is declining, despite a partly increasing number of companies. Many companies from the new Länder

lack the stamina to continuously push ahead with innovation activities. Companies which remain, however, have increased their innovation activities and expanded their innovation budgets.

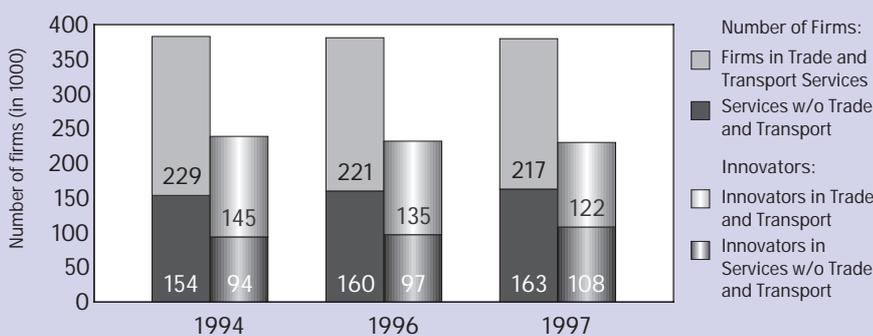
Development and Structure of Innovation Activities

Innovation activities in the German service sector in 1997 remained constant with regard to the previous year, at a level of 61% of innovative companies. Around 230 000 service companies introduced innovations. The share of innovations in the total service sector therefore lies below that of the manufacturing industry and mining. There, the share of innovative companies in 1997 rose by 6 percentage points with regards to the previous year, to a level of 66%.

Within the service sector, however, clear differences become apparent between traditional service branches with a decreasing number of companies, such as trade and transport, and modern, growing services branches. The share of innovators and also the total number of innovative companies are increasing continually over the total time period among the remaining services, that is banking/insurance, data processing and technical services, consulting and other services.

The share of innovators in these branches has, with 66%, clearly overstepped the 60% mark and thus corresponds to

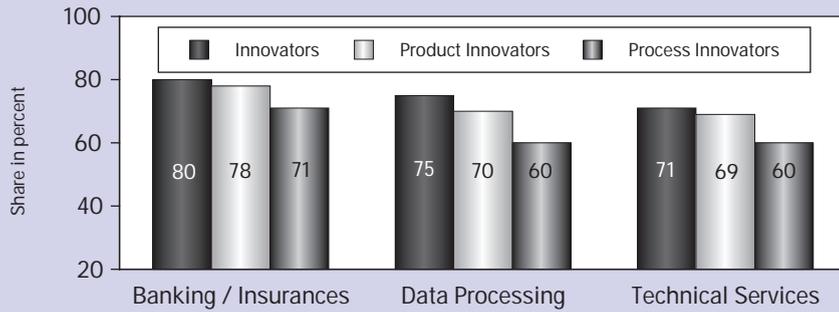
Number of Firms 1994 to 1997



Source: ZEW (1999): Mannheim Innovation Panel-Services, Federal Statistical Office (various years).

Comments: Values not surveyed for 1995, values preliminary. All information projected on the population in Germany.

Innovation Activities in Selected Branches 1997



Source: ZEW (1999): Mannheim Innovation Panel-Services
 Comments: Values preliminary. All information projected on the population in Germany.

that of the manufacturing industry and mining. Unlike in the manufacturing industry, however, this increase can not be fundamentally led back to the decreasing number of companies. On the contrary, the number of companies in these branches increased within one year from about 160 000 to 163 000. The number of innovative companies between 1996 and 1997 thus clearly increased to a greater extent than the total number of companies as a whole.

Within this strongly-growing sector of modern services, banks and insurance companies are above-averagely innovative. Here, 8 out of 10 companies were able to successfully complete innovation projects in 1997. Technical services reached a similarly high level, with 7 out of 10 – in spite of a decline from 1994 to 1997 – and data processing services achieved likewise with 7.5 out of every 10 companies.

Service companies

The survey covers almost the entire area of market related services. The differentiation of service sectors is based on the classification of economic sectors WZ93 of the Federal Statistical Office. Included are: trade, transport incl. postal and private courier services, bank and insurance companies, technical services and data processing, non-technical consulting services such as legal, tax and company consultations as well as advertising, and other services. Other services include telecommunications, estate and accommodation agents, rental, industrial cleaning and sewerage or waste disposal. Services which are predominantly related to households or individuals are not included, nor are services which are provided by the state.

Among traditional service companies, i.e. trade and transport services, innovation activities clearly dropped back. Since 1994, the number of trade and transport companies has continually fallen from 145 000 to a level of 122 000 in 1997. The decline of innovative companies even oversteps the decline in total number of companies. The explosive force behind this development is clear: over 50% of the service companies are retail trade, wholesale trade, or transport companies.

Product and process innovations develop differently over the course of time. The development of product innovators essentially runs parallel to that of entire innovation activities. Among service companies (not including trade and transport), the proportion of product innovators climbed by almost 10 percentage points between 1994 and 1997, to 63%; for trade and

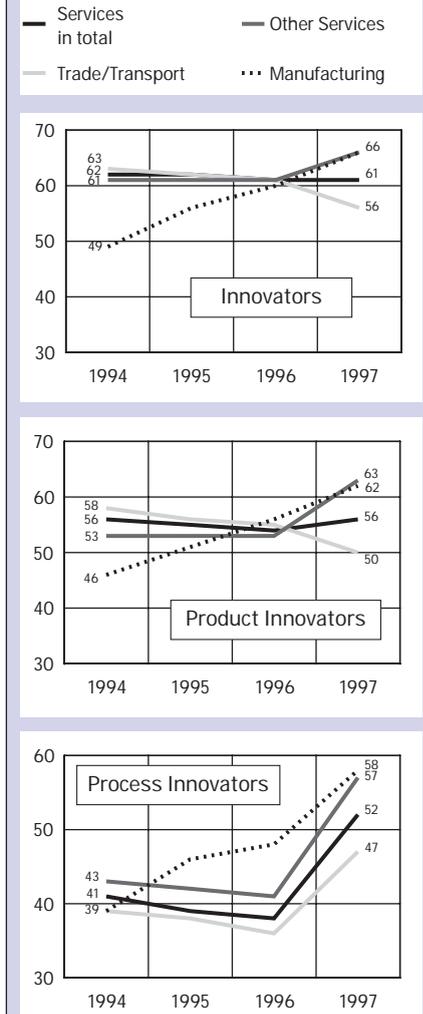
Product and Process Innovations

Innovators are companies which have successfully implemented at least one innovation project within the last three years, i.e. have introduced at least one innovation.

Innovations are made up of product and process innovations. Product innovations are new or significantly improved services which a company has introduced on the market. Process innovations are new or significantly improved methods used in producing or delivering services. Organisational and managerial changes only constitute innovations if they are directly related to the introduction of new or significantly improved services or ways of producing or delivering them.

The definitions and differentiations correspond to those of the OECD, which are established in the so-called Oslo-Manual.

Innovation Activities 1994 to 1997 (Share in Percent)



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values not surveyed for 1995 in the Service Sector, values preliminary. All information projected on the population in Germany.

transport the proportions fell from 58% in 1994 to 50% in 1997.

Within one year, the relative importance of process innovations over all branches rose considerably. The share of process innovators rose to 52% in 1997. This corresponds to an increase of about 50 000 companies, to a total of around 196 000. This increase occurs over all branches in general and also in service sectors in which the share of innovators in general clearly declined. The share of process innovators was at least 50% in 1997 in almost all of the service sector branches. From that, the development of the total share of innovators underestimates the development of the innovation activities. In the service sector, process innovations still occur almost exclusively in com-

Innovation Indicators in the Service Sector

	1994			1996			1997		
	absolute	in %		absolute	in %		absolute	in %	
Firms in the Service Sector	383,393	100		380,927	100		380,589	100	
<i>amongst those:</i>									
Innovators	239,342	62	100	231,692	61	100	230,484	61	100
Product Innovators	214,369	56	90	206,290	54	89	211,310	56	92
Process Innovators	155,848	41	65	145,569	38	63	196,032	52	85
<i>under them:</i>									
– Trade and Transport	229,469	100		221,088	100		217,459	100	
<i>amongst those:</i>									
Innovators	144,884	63	100	134,663	61	100	122,228	56	100
Product Innovators	132,087	58	91	121,386	55	90	109,186	50	89
Process Innovators	89,540	39	62	79,591	36	59	103,095	47	84
– Services w/o Trade/Transport	153,924	100		159,839	100		163,130	100	
<i>amongst those:</i>									
Innovators	94,458	61	100	97,029	61	100	108,256	66	100
Product Innovators	82,282	53	87	84,904	53	88	102,124	63	94
Process Innovators	66,308	43	70	65,978	41	68	92,937	57	86
for comparison:									
Firms in Manufacturing and Mining	69,628	100		63,209	100		61,912	100	
<i>amongst those:</i>									
Innovators	34,463	49	100	38,026	60	100	40,618	66	100
Product Innovators	32,327	46	94	35,481	56	93	38,398	62	95
Process Innovators	27,181	39	79	30,328	48	80	36,162	58	89

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Values not surveyed for 1995, values preliminary. All information projected on the population in Germany.

Information in Bill. DM	1995		1996		1997	
	absolute	in %	absolute	in %	absolute	in %
Innovation Expenditures in the Service Sector 1995-1997 (in total)	40		44		46	
Share of Turnover in %		1.2		1.3		1.3
<i>under them:</i>						
Current Innovation Expenditures					21.4	46
Investment for Innovation Projects					24.8	54
<i>under them:</i>						
Trade and transport	20		21		20	
Share of Turnover in %		1.0		1.1		1.0
<i>under them:</i>						
Current Innovation Expenditures					8.3	42
Investment for Innovation Projects					11.5	58
Services w/o Trade and Transport	20		23		26	
Share of Turnover in %		2.0		2.3		2.4
<i>under them:</i>						
Current Innovation Expenditures					13.1	50
Investment for Innovation Projects					13.3	50

Source: ZEW (1999): Mannheim Innovation Panel-Services. Comments: Turnover shares not including banking/insurances. Values preliminary. Distinction in current innovation expenditures and investment for innovation projects surveyed in 1997 for the first time. All information projected on the population in Germany.

Information for 1997, in %	Service Sector in total	<i>under them:</i> Trade/ Transport	Services w/o Trade/ Transport	for comparison: Manufacturing and Mining
Share of Turnover with Product innovations	17.6	15.5	25.3	39.0
Firms with Cost Reductions	18.0	13.1	24.2	40.2
Share of Reduced Costs	2.3	2.0	3.5	6.5

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Turnover shares not including banking/insurances. Values preliminary. All information projected on the population in Germany.

bination with, or as a result of, product innovations. Out of companies which introduce new processes, only one in every ten does so without the simultaneous introduction of new or significantly improved services.

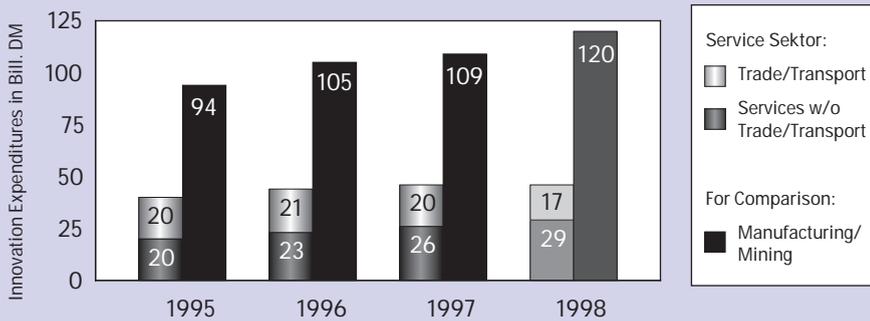
Development and Structure of Innovation Expenditure

Since 1995, innovation expenditure in the service sector has been climbing steadily, similarly to that of the manufacturing industry and mining. In 1997, its value for the entire service sector was at around 46 billion DM. Following a strong increase up until 1996, the growth then retarded: plans for 1998 even allow us to predict that innovation expenditure will stagnate around the 1997 value.

The development of innovation expenditure in services clearly goes hand in hand with the development of turnover. The average turnover share of innovation expenditure in the entire service sector remained constant from 1995 to 1997, at around 1.3%. Service companies therefore spend a far smaller amount of their turnover on innovation projects than companies in manufacturing and mining, where the share lies at over 5%.

The levelling-out of the annual growth, however, can be exclusively led back to

Innovation Expenditures 1995 to 1998



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values preliminary. Values for 1998 are plans/expectations of firms. All information projected on the population in Germany.

Innovation Expenditure

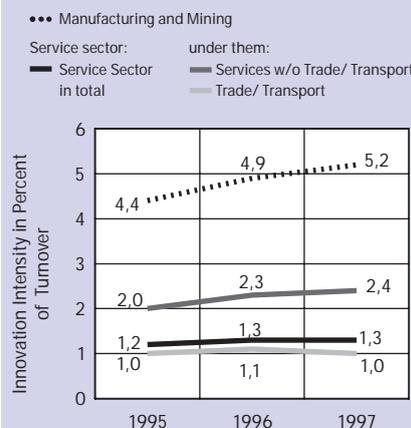
Innovation expenditure refers to expenditure for all current, completed and aborted projects within a year. It includes current costs (personnel costs and expenditure for materials and services etc.) and capital expenditure.

To this belong expenditure for R&D, conception of services or methods for their production, acquisition of machines and equipment, education and training of the workforce, preliminary market research, market tests and launch advertising, as well as other immaterial goods (e.g. software, patents) insofar as these expenses are linked directly to an innovation project. Dividing total innovation expenditure into current expenses and investment costs appeared for the first time in the 1997 survey. Therefore, developments cannot be shown.

the drop in innovation expenditure of the traditional service companies. Trade and transport companies reduced their innovation expenditure by 5% in 1997; according to company statements, even a further cutback of 10% is planned for 1998. In the constant proportion of innovation expenditure to turnover, it can be seen that these cuts in innovation expenditure can be led back to the deteriorating economic situation which is particularly evident in the trade sector. Companies belonging to the trade and transport sector consistently use around 1% of their turnover as innovation expenditure. The strengthening competition and the fall in turnover related to that, also led to a reduction in innovation expenditure.

Companies from the modern and growing service branches have, however, steadily raised their innovation expenditure an-

Share of Innovation Expenditures of Turnover 1995 to 1997



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Turnover shares not including banking/insurances. Values preliminary. All information projected on the population in Germany.

nally by around 15%. And a further increase in innovation efforts is planned for 1998. Whether or not the high annual growth rates will continue, remains to be seen.

Even when looking at the growth in turnover, an increase in innovation expenditure still comes about. At a level of 2%, the share of innovation expenditure of turnover among these services (excluding banking and insurance) was in 1995 already twice as high as that of trade and transport. By 1997, the proportion was clearly climbing again, reaching a mark of 2.5%.

In comparison to companies from manufacturing and mining, which use over 5% of their turnover for innovations on average, this value is still relatively low. When comparing though, one must take into consideration that large areas of the service sector – particularly in trade – naturally attain profit-turnover ratios which are considerably smaller than those of the manufacturing industry, since the value-added quota is smaller.

Population and Extrapolation

The results of the ZEW innovation survey are extrapolated to the stratified population of all service companies in the observed sectors in the Federal Republic of Germany having at least 5 employees. The differentiation of service sectors is based on the classification of economic sectors WZ93 of the Federal Statistical Office. In this, branches, company size (employees) and region (old and new Länder) serve as stratification characteristics.

Information about the population up until 1995 (number of companies and turnover amounts) was based on publications of the Federal Statistic Office (company and sales tax statistics); publications of various associations, and estimations made by the ZEW itself. Employee figures are not available for the frame population. Statements from 1996 onwards are partially based on forward projection of the population and are therefore preliminary.

As a sample frame, the CREDITREFORM databank is used. The 1998 sample survey includes 4010 companies, of which 1768 actively took part in the survey. This corresponds to a response rate of 44%. To correct for a possible bias in response behaviour, a further 910 companies were questioned by telephone about basics of their innovation behaviour.

The field phase of the survey, which was carried out from April 1998 till October 1998, was in the hands of infas (Institut für Angewandte Sozialwissenschaft).

The varying levels of innovation expenditure in service sector and in manufacturing industry can partially be explained by the structure of innovation expenditure. On average, two thirds of total innovation expenditure in manufacturing industry is spent on current expenditure and one third on investing in innovation projects. In the service sector, innovation expenditure for most of the economy branches is divided up so that one half is used for investments and the other half for current expenditure. Transport companies having a naturally high investment share of two thirds of the total innovation expenditure are an exception to this.

Current costs of innovation, i.e. costs for personnel, materials and services, play a relatively less significant role in services than in the manufacturing and mining.

This is because R&D, with the exception of a few branches, also has a relatively small significance. A large amount of the innovations – even of the new and improved services – are essentially made possible through investments in information and telecommunication facilities in particular.

Size and Structure of Innovation Success

In 1997, share of turnover with product innovations in the entire service sector (not including banks and insurance companies) was clearly below the corresponding amount of the manufacturing and mining industries, at a figure of 18%. In the latter industries, the figure is more than twice as high. At first, this result looks surprising, since services are very often customer-specific and therefore a higher share of turnover among new or significantly improved services could be expected.

The share of turnover with product innovations varies a lot within the service sector. The overall picture is characterised by retail and wholesale trade, as well as the "other" service providers, who together make up over 50% of all service companies in 1997 and produced three quarters of the total turnover (not including banks and insurance companies). Around 16% of the turnover of these companies was obtained by product innovations.

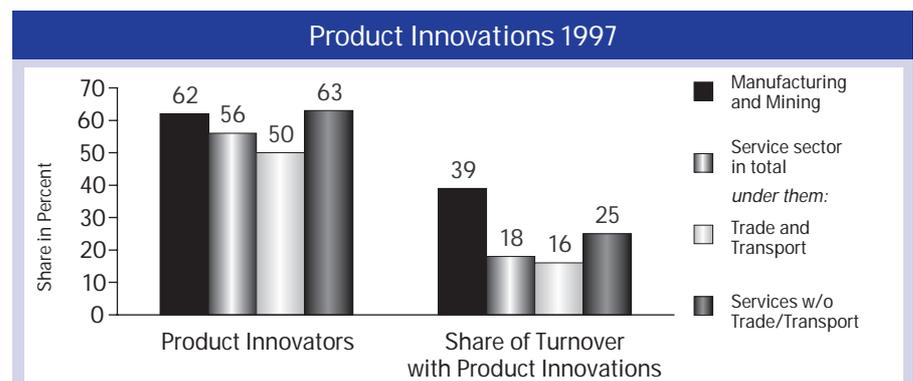
For services belonging to the modern and growing service areas of data processing and technical services as well as non-technical consulting services, new or sig-

Shares of Reduced Costs through Process Innovations

Cost-reducing process innovations refer to new or significantly improved production or delivery methods which have led to a reduction in average costs.

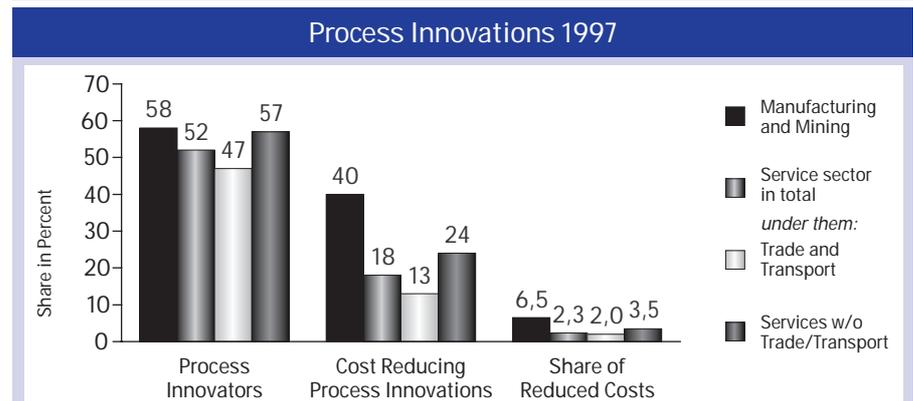
Shares of reduced costs refer to costs of the previous year which were reduced through cost reducing innovations of a three year time period. The proportions are weighted with the turnovers and therefore calculated with the exclusion of banks and insurance companies.

Cost-reducing process innovations and the share of reduced costs belonging to those, were asked for in 1997 for the first time. Therefore, developments cannot be shown.



Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Values preliminary. All information projected on the population in Germany.



Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Values preliminary. All information projected on the population in Germany.

nificantly improved services are, however, of greater importance. They obtain between 33% and 50% of their turnover with product innovations, therefore partly even more than the manufacturing industry. This extremely high share of turnover with product innovations is partly due to the above-averagely high number of company start-ups. By definition, young companies offer services which are new to the company simply because of their age. However, the start-up quotas in these branches alone are not high enough to account for the above-averagely high share of turnover with product innovations alone.

Apart from product innovations, process innovations are the second component of innovation activities. Process innovations do not necessarily have to be accompanied by rationalisation, since new methods for delivering services can come about as a direct result of new services, or they can fulfil statutory regulations. The share of cost reducing process innovations is therefore an indicator for process innovations which were based on the rationalisation motive.

In 1997, not even one in every five companies in the service sector was able to reduce costs due to process innovations. In manufacturing and mining, four out of ten

enterprises were able to do so. New or significantly improved methods in services are regularly introduced as a result of new or significantly improved services and not as often due to rationalisation aspects. Retail trade lies clearly below the service sector average: not even one in every ten German retailer was able to reduce costs due to process innovations. Possibly, the potential of rationalisation in retail trade is more exhausted at present.

As far as rationalisation innovations are concerned, companies from modern and growing service branches greatly resemble companies of the manufacturing industry. Around a third of all data processing and consulting services save costs because of process innovations. And for banks and insurance companies, this value is even surpassed.

The service sector branches actually vary considerably in the share of companies having cost-reducing process innovations; however, the shares of reduced costs which are subsequently obtained only vary insignificantly, with the exception of data processing services. The average of the entire service sector (not including banks and insurance companies) shows that in 1997, fewer than 3% of the costs were reduced through new or impro-

Innovation Success in Selected Branches of Services 1997

(all information in Percent)	Turnover due to New Products	Firms with Cost Reduction	Cost Reduction
Wholesale Trade	15.9	20.0	1.6
Retail Trade	12.1	9.4	2.2
Data Processing	50.2	30.3	12.9
Banking / Insurance	–	36.7	–
Technical Services	42.2	20.5	2.1
Consulting Services	33.1	34.1	3.1
Other Services	16.5	19.9	3.0

Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values preliminary. Turnover share surveyed 1997 for the first time. All information projected on the population in Germany.

ved methods. In manufacturing and mining, the share for the same year was twice as high. Then again, data processing services realised a clearly higher reduction in costs, at a figure of 13%.

Innovation Activities of Small and Medium-Sized Enterprises

The varying structure and development of traditional and modern services can also be recognised among small and medium-sized companies (SMEs). From 1994 until 1997, the number of companies actually remained at the same level. In trade and transport services, the number of SMEs fell by 5% from 228 000 to 216 000. For the remaining services, however, the number of companies increased by 6%, climbing from 150 000 to almost 160 000.

The development of the share of innovators in all companies is widely characterised by the corresponding development among SMEs. The increase in the share of innovative service companies excluding trade and transport services, for example, initially is a result of the clear and continual rise in innovators among SMEs. From 1994 until 1997, the number of innovative SMEs grew by about 14 000 companies to almost 105 000 innovators. This corresponds to a share of 66%.

In trade and transport, the number of innovative SMEs clearly fell between 1994 and 1997 more dramatically than the number of companies. The share of innovators fell by 7 % points to 56%.

Both the share of product innovators and the share of process innovators clearly increased more strongly among small and medium sized enterprises in services (not including trade and transport) than the average. Among SMEs, the proportion of product innovators increased between

1994 and 1997 by 9 % points to a level of 62%. The share of process innovators increased even more strongly, by 14% points, to 56%. This corresponds to a total of around 90 000 SMEs. In trade and transport, the share of product innovators among SMEs continually fell from 58% in 1994 to 50% in 1997. A clearer growth is recognisable among the process innovators. Following a slight setback in 1996, that share increased by 8% points between 1994 and 1997, reaching 47%.

The development of innovation expenditure is essentially characterised by large enterprises. Along with size of the company, the readiness to increase innovation expenditure in the near future also increases: companies with more than 500 employees represent only one fiftieth of all service companies, but they accounted for almost half of the innovation expenditure at a figure of more than 20 billion DM in the service sector in 1997.

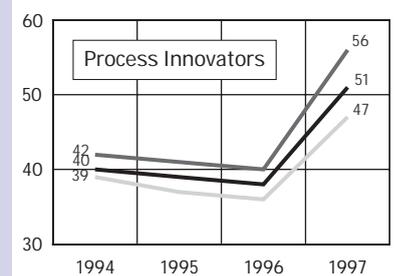
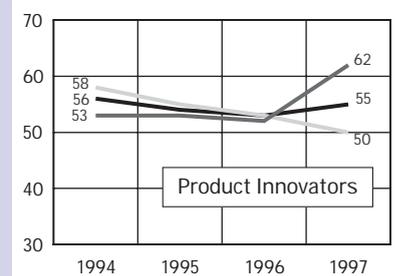
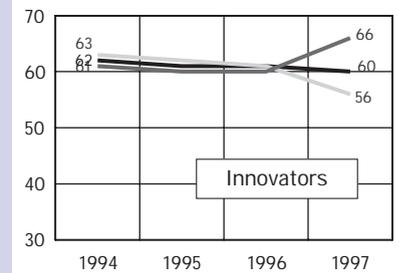
In spite of this, SMEs' innovation expenditure has increased steadily since 1995 and reached a total of 26 billion DM in 1997. The fall expected for 1998 can be primarily led back to companies in trade and transport, which are planning large cuts in their innovation budgets of around 20% for 1998. Among SMEs in trade and transport,

SMEs

Small and medium-sized enterprises (SMEs) are companies which have at least 5 and less than 500 employees. Small and medium-sized companies dominate because of their relatively large number all shares which refer to numbers of company. Contrary to that, large companies dominate as a result of their large financial totals all shares which refer to amounts of DM.

Innovation Activities in Small and Medium Sized Firms 1994 to 1997 (Share in Percent)

— Services in total — Trade/Transport
 — under them: — Other Services



Source: ZEW (1999): Mannheim Innovation Panel-Services.

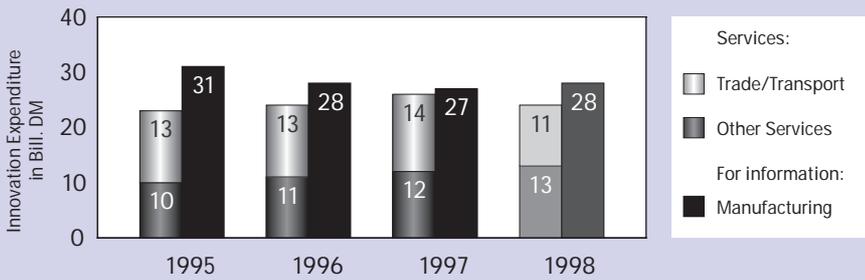
Comments: Values not surveyed for 1995 in the Service Sector, values preliminary. All information projected on the population of SMEs in Germany.

the development in innovation expenditure once again only reflects the development in turnover: for the SMEs, innovation intensity remains constant at 1.2%.

The remaining part of the service sector paints a positive picture. The annual increase of around 1 billion DM in innovation expenditure of SMEs in modern service branches may have continued for 1998. What is more, companies in these branches increase innovation expenditure not only in absolute numbers, but also relative to turnover. At a value of over 3%, the share of innovation expenditure to turnover is in the meantime entirely comparable to that of the manufacturing industry.

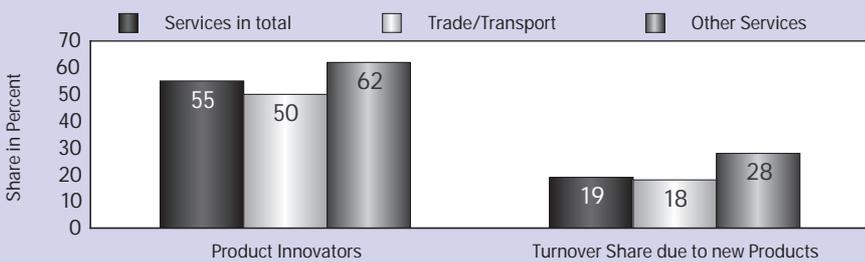
The success of product innovations in 1997, measured as share of turnover with

Innovation Expenditure of Small and Medium Sized Firms 1994 to 1998



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values preliminary. Values for 1998 are plans/estimates of firms. All information projected on the population of SMEs in Germany.

Product Innovations of Small and Medium Sized Firms



Process Innovations of Small and Medium Sized Firms



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values preliminary. Turnover share not including banking/insurances. All information projected on the population of SMEs in Germany.

new or significantly improved services, is higher among the SMEs than it is among the large companies. SMEs from modern service branches obtain 28% of their turnover from product innovations; SMEs from trade and transport obtain at least 18%, nevertheless.

For the success of process innovations, completely different results occur. Only relatively few SMEs managed to reduce their costs in 1997 through new or improved methods for delivering services. For SMEs of the trade and transport services, the figure was 13% of the companies and for the remaining services at least 24%.

In 1997, even the share of costs which were reduced through process innovations is relatively low, both in trade and transport as well as in remaining services. Among trade and transport services, merely 1.6% of the costs were reduced due to process innovations in 1997. In the remain-

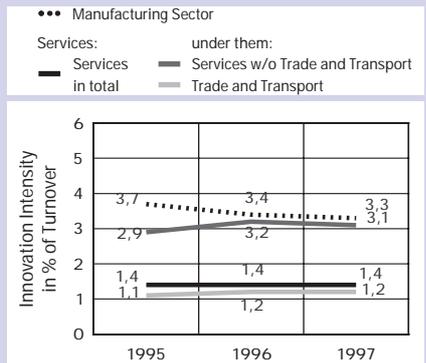
ing service sector, the figure was 3.6%. Obviously, especially among SMEs in services, considerable rationalisation potential is still available.

Innovation Activities in the New Länder

The number of service companies in the new Länder is slightly declining in 1997, unlike the situation in the manufacturing and mining industries. This development is particularly characterised by traditional services in which the number of companies is constantly decreasing. In trade and transport, the number of companies dropped by about 6 000 to almost 50 000 between 1994 and 1997. In modern service branches, the number of companies increased during the same time period by about 4 000 to a level of 29 000, which corresponds to a growth rate of 16%.

Not only the number of companies, but also the number of innovative companies is declining in the East German service sector. In the old Länder, this is only true for the traditional services of trade and transport. Since the decline in numbers of innovators is stronger than the decline in total numbers of companies, the share of innovators is also decreasing. Not only the

Turnover Share of Innovation Expenditure of Small and Medium Sized Firms 1995-1997



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Shares not including banking/insurances. Values preliminary. All information projected on the population of SMEs in Germany.

traditional services of trade and transport are affected by the decline in share of innovators, but also fast growing branches, such as technical and data processing services. Here the shares for 1997 fell by 8% points with respect to the previous year, to a level of 52%. Only non-technical consulting services, such as legal, tax and business consultants, show positive growth rates. The number of innovative consultant services grew by about 600 companies to a total of around 2 500. This represents 53% of all consultant companies in the new Länder.

In East German trade and transport services, the importance of product innovations decreased between 1996 and 1997 after a continual growth before. The share of product innovators fell by 8 % points to a current level of 52%. The proportion of process innovators is climbing steadily and is now at a level of 48%.

Among other services, both share of product innovations and share of process innovations increased considerably from 1996 to 1997, after they had been steadily falling in the preceding years. In 1997, 51% of these companies introduced new or significantly improved services and 45% new or significantly improved methods for deli-

Reference Numbers of Innovation Activity in the Service Sector - Small and Medium Sized Firms

	1994			1996			1997		
	absolute	in %		absolute	in %		absolute	in %	
Firms in the Service sector	377,996	100		375,431	100		375,036	100	
<i>amongst those:</i>									
Innovators	234,812	62	100	227,208	61	100	226,035	60	100
Product Innovators	210,353	56	90	199,026	53	88	207,060	55	92
Process Innovators	152,249	40	65	141,479	38	62	191,061	51	85
<i>under them:</i>									
– Trade and transport	228,347	100		219,946	100		216,300	100	
<i>under them:</i>									
Innovators	143,998	63	100	134,040	61	100	121,388	56	100
Product Innovators	131,315	58	91	117,645	53	88	108,386	50	89
Process Innovators	88,788	39	62	78,862	36	59	102,626	47	85
– Services w/o Trade/Transport	149,649	100		155,485	100		158,736	100	
<i>amongst those:</i>									
Innovators	90,824	61	100	93,168	60	100	104,647	66	100
Product Innovators	79,038	53	87	81,381	52	87	98,674	62	94
Process Innovators	88,788	42	70	62,617	40	67	89,335	56	85

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Values not surveyed for 1995, values preliminary. All information projected on the population of SMEs in Germany.

vering services. Remarkable is the fact that both shares increased between 1996 and 1997 even though the percentage of innovators decreased as a whole. This means that when looked at relatively, fewer companies are innovative. Innovative companies are however pushing ahead both product and process innovations.

At around 7 billion DM, companies in the new Länder actually carry only a small fraction of the service sector's total innovation expenditure of 46 billion DM. In recent years, innovation expenditure has however increased continually.

According to their own statements, service companies in the new Länder have planned to cut their innovation budgets in 1998. Again, this can be led back to a decline in innovation expenditure of trade and transport companies. Innovation expenditures of remaining service companies will stay stable. Trade and transport companies clearly put less into innovation projects than companies from other bran-

New Bundesländer

Companies from the new Länder include companies from former West Berlin. Due to the relatively small amount of cases, statements about larger companies (more than 500 employees) and individual branches are tainted with very large uncertainty. Moreover, the company and turnover figures are subject to relatively large fluctuations over the course of time, and these fluctuations make it difficult to recognise general tendencies.

(Information in Bill. DM)	1995		1996		1997	
	absolute	in %	absolute	in %	absolute	in %
Innovation Expenditure in Services	23		24		26	
Share of Turnover in %		1.4		1.4		1.4
<i>under them:</i>						
Current Innovation Expenditure					12	46
Investment for Innovation Projects					14	54
<i>under them:</i>						
– Trade and Transport	13		13		14	
Share of Turnover in %		1.1		1.2		1.2
<i>under them:</i>						
Current Innovation Expenditure					5	37
Investment for Innovation Projects					9	63
– DL ohne Handel und Verkehr	10		11		12	
Share of Turnover in %		2.9		3.2		3.1
<i>under them:</i>						
Current Innovation Expenditure					7	56
Investment for Innovation Projects					5	44

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Turnover Shares not including banking/insurances. Values preliminary. Distinction in current innovation expenditures and investment for innovation projects surveyed in 1997 for the first time. All information projected on the population of SMEs in Germany.

Angaben für 1997 in %	Service Sector in total	<i>under them:</i> Trade/ Transport	Services w/o Trade/ Transport
Share of Turnover with Product Innovations	19.2	17.9	27.9
Firms with Cost Reductions	17.7	13.0	24.1
Share of Reduced Costs	1.9	1.6	3.6

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Turnover shares without banking/insurances. Values preliminary. All information projected on the population of SMEs in Germany.

ches. From 1995 to 1997, companies in trade and transport services constantly spent around 4 billion DM on innovation purposes. For 1998 we can expect that in the trade and transport sector of East Germany, a slight cutback in innovation expenditure will probably come about, although the reduction will turn out to be clearly smaller

than in the old Länder. In remaining service branches, innovation expenditure increases from 2.1 to 2.7 billion DM.

The increase in innovation expenditure can also be diagnosed when one regards the development in turnover. The share of innovation expenditure to turnover is, at 2.6%, even twice as large in the new Län-

der as it is in the old Länder. In general, this can be seen as a positive signal. In particular among modern service branches, the share of innovation expenditure to turnover increases notably in 1997 to more than 3.5%.

Among service companies in the new Länder in 1997, almost 25% of turnover was obtained through new or significantly improved services. This value actually lies almost 15 % points below the value of the manufacturing industry, but 7% points above the share of the entire service sector in Germany.

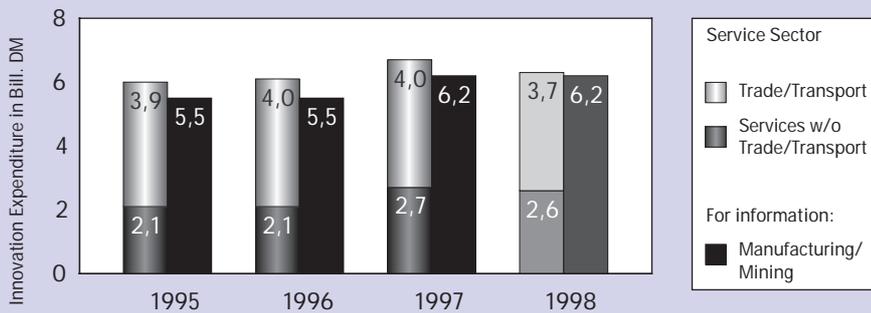
The share of turnover with product innovations among modern, growing services, is still evidently higher. Here, the value lies at a good 30% and in some of the branches it even reaches almost 50%. Among trade and commercial companies, however, the share of turnover lies at little more than 20%.

The share of cost reducing process innovators in the new Länder corresponds to roughly that of the entire Federal territory, at around 17% in 1997. In the new Länder, the share in trade and transport is, at 12%, also much lower than it is

among the remaining service companies, where it is twice as large.

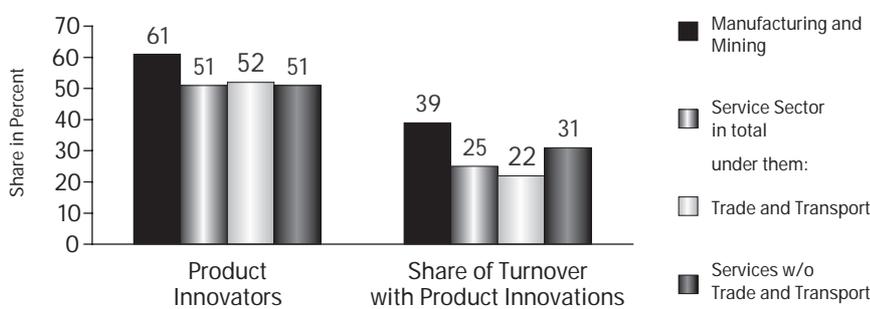
This is also true for the share of costs, which could be reduced through process innovations. At around 3%, it is somewhat higher in 1997 in the East German service sector than in the entire Federal territory. In trade and transport services, only around 2% of costs are saved. In the remaining service sector it is 5%; a value which is comparable to manufacturing industry and mining.

Innovation Expenditures in the New Länder 1995 to 1998



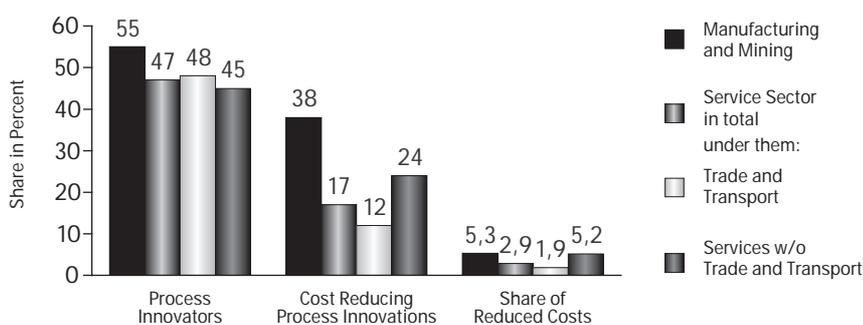
Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values preliminary. Values for 1998 are plans/expectations of firms. All information projected on the population in the New Länder in Germany.

Product Innovations in the New Länder 1997



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Turnover shares without banking/insurances. Values preliminary. All information projected on the population in the New Länder in Germany.

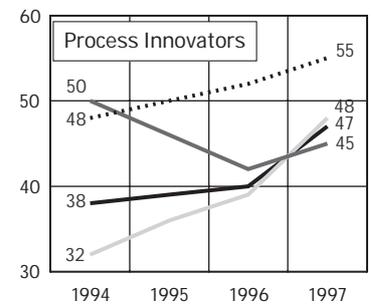
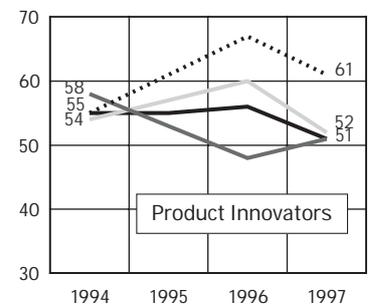
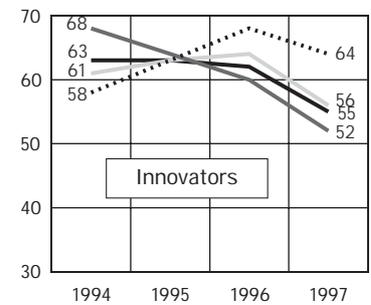
Process Innovations in the New Länder 1997



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Shares without banking/insurances. Values preliminary. All information projected on the population in the New Länder in Germany.

Innovation Activities in the New Länder 1994 to 1997 (Share in Percent)

— Services in total
 — Other services
 — Trade/Transport
 ... Manufacturing



Source: ZEW (1999): Mannheim Innovation Panel-Services.
 Comments: Values not surveyed for 1995 in the Service Sector, values preliminary. All information projected on the population in the New Länder in Germany.

Innovation Indicators for the Service Sector - New Länder

	1994			1996			1997		
	absolute	in %		absolute	in %		absolute	in %	
Firms in the Service Sector <i>amongst those:</i>	81,021	100		79,397	100		78,894	100	
Innovators	51,408	63	100	49,597	62	100	43,213	55	100
Product Innovators	44,816	55	87	44,101	56	89	40,428	51	94
Process Innovators	30,513	38	59	31,977	40	64	36,940	47	85
<i>under them:</i>									
– Trade and Transport <i>amongst those:</i>	55,896	100		51,640	100		49,763	100	
Innovators	34,298	61	100	33,011	64	100	27,911	56	100
Product Innovators	30,184	54	88	30,779	60	93	25,645	52	92
Process Innovators	17,953	32	52	20,277	39	61	23,914	48	86
– Services w/o Trade and Transport <i>amongst those:</i>	25,152	100		27,757	100		29,221	100	
Innovators	17,110	68	100	16,586	60	100	15,302	52	100
Product Innovators	14,632	58	86	13,322	48	80	14,783	51	97
Process Innovators	12,560	50	86	11,700	42	88	13,026	45	88

Source: ZEW (1999): Mannheim Innovation Panel-Services. Comments: Values not surveyed for 1995, values preliminary. All information projected on the population in the New Länder in Germany.

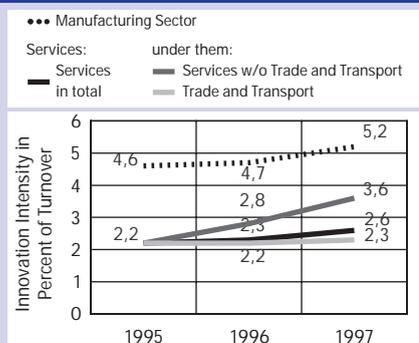
Conclusions for Innovation Policy

In general, innovation activities in German services are developing in a stable manner, but amidst individual service branches serious differences become apparent.

Some very good evidence can be made out regarding innovation activities of modern, growing service branches (banks/insurance companies, data processing and technical services, consultants and other [predominantly company-oriented] services). All important indicators are showing positive signs:

- ▶ The share of innovative service companies (not including trade and transport services), showing an increasing number, in 1997 corresponds to manufacturing

Share of Innovation Expenditures of Turnover in the New Länder 1995-97



Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Turnover shares not including banking/insurances. Values preliminary. All information projected on the population in the New Länder in Germany.

	1995		1996		1997	
	absolute	in %	absolute	in %	absolute	in %
Service Sector in total (in Bill. DM)	5.9		6.1		6.7	
Share of turnover in %		2.2		2.3		2.6
<i>under them:</i>						
Current Innovation Expenditures					3.1	47
Investment for innovation Projects					3.5	53
<i>under them:</i>						
– Trade and Transport	3.9		4.0		4.0	
Share of turnover in %		2.2		2.2		2.3
<i>under them:</i>						
Current Innovation Expenditures					1.6	40
Investment for innovation Projects					2.4	60
– Services w/o Trade and Transport	2.1		2.1		2.7	
Share of turnover in %		2.2		2.8		3.6
<i>under them:</i>						
Current Innovation Expenditures					1.6	58
Investment for innovation Projects					1.1	42

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Turnover Shares not including banking/insurances. Values preliminary. Distinction in current innovation expenditures and investment for innovation projects surveyed in 1997 for the first time. All information projected on the population in the New Länder in Germany.

Information for 1997, in %	Service Sector in total	<i>under them:</i> Trade/Transport	Services w/o Trade/Transport
Share of Turnover with Product Innovations	24.5	21.8	30.9
Firms with Cost Reductions	16.7	12.3	24.4
Share of Reduced Costs	2.9	1.9	5.2

Source: ZEW (1999): Mannheim Innovation Panel-Services.

Comments: Turnover Shares not including banking/insurances. Values preliminary. All information projected on the population in the New Länder in Germany.

industry and mining at a figure of 66%, and is clearly higher than it was the previous year.

- ▶ For years, innovation expenditure has been steadily increased by 15% annually and is now at a level of 26 billion DM. Even the share of innovation expenditure to turnover is continually on the upward trend.

- ▶ The share of turnover with new and significantly improved services (not including banks/insurance companies) lies clearly above the average of the whole service sector. Among data processing and technical services they are comparable to those of manufacturing industries and mining.

▶ The share of reduced costs through process innovations lies above the average of the entire service sector as well, but still clearly below the corresponding value of the manufacturing industry.

Traditional service branches, i.e. trade and transport, offer up a completely different picture. There are reasons for serious concern:

▶ The share of innovators among trade and transport services is falling continuously, to only 56% in 1997 and decreases by 5 % points within one year.

▶ For a total drop in company numbers, the number of innovative companies is dropping back both in absolute and relative terms. Companies which were innovative up till now either stop their innovation activities or discontinue their economic activities at all.

▶ In spite of a general drop-off in shares of innovators, the proportion of process innovators increases within one year by about 10 percentage points.

▶ Innovation expenditure decreases back both absolutely and in relation to turnover.

▶ Innovation success, measured as share of turnover with product innovations and as share of reduced costs through process innovations, is comparatively small.

In a knowledge-oriented society, innovations as well as the qualification of workforce represent the decisive motor for

growth and activity. International competition, which is gaining in strength as a result of deregulation measures and progress in information and communication technology, together with the pressure of personnel costs and additional costs related to personnel, forces companies to cut their innovation budgets. However, increasing international competition can only be met through continual efforts to innovate. In the medium-term, the cutbacks damage the competitive position of the companies.

The situation of the service sector in the new Länder is running instable. Some innovation indicators give way to a picture which is mostly welcome:

▶ Innovation expenditure in the new Länder is steadily increasing both absolutely and in relation to turnover.

▶ The share of innovation expenditure to turnover made up by innovation expenditure is even higher than in the old Länder.

▶ The share of turnover with new or significantly improved services surpasses the corresponding values of the old Länder.

▶ The realised share of reduced costs through process innovations is likewise clearly higher in the new Länder than in the old ones – at least in modern service branches.

Without doubt, though, throughout all of the service branches – so also among modern services – there is cause for concern despite these rays of hope:

▶ The number of innovative companies in the new Länder is declining, both in trade and transport and in the remaining services, although at least in modern services the number of companies is increasing.

In the new Länder therefore – even in modern, actually growing service branches – quite a lot of innovative companies are discontinuing with innovation projects or are withdrawing from economic activity. Innovations are always tainted with risks. The economic framework in the new Länder is obviously not good enough to provide the companies with necessary staying-power. It can therefore be asked in the new Länder in particular, what effects can be expected on the employment market.

For both problem areas explained here, trade and transport as well as service companies from the new Länder, it is true that the economic problems can definitely not be resolved through innovation policy alone. There is now an urgent necessity to improve the economic framework conditions, which has become evident particularly in the pressures on the companies, due to personnel costs and their additional costs as well as taxes. This framework must be improved in order to make it possible for innovative companies in particular to continue their innovation activity; to allow them to survive, and with that strengthen the security and creation of jobs.

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The Mannheim Innovation Panel - Service Sector

On behalf of the federal ministry of education and research (Bundesministerium für Bildung und Forschung, bmb+f), since 1995 the ZEW in collaboration with infas and FhG-ISI has been conducting annual surveys on innovation behaviour in the German Service Sector.

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