the Institute for Employment Studies

eWork in Europe the EMERGENCE 18-Country Employer Survey

U Huws
S O'Regan

An EMERGENCE Project Report

IES Report 380

EWORK IN EUROPE

the EMERGENCE 18-Country Employer Survey

Other titles from IES:

Where the Butterfly Alights: The Global Location of eWork
Huws U, Jagger N, Bates P
IES Report 378, 2001. ISBN 1-85184-307-8

Teleworking and Globalisation
Huws U, Jagger N, O'Regan S
IES Report 358, 1999. ISBN 1-85184-287-X

Teleworking: Guidelines for Good Practice
Huws U
IES Report 329, 1997. ISBN 1-85184-257-8

Teleworking and Gender
Huws U, Podro S, Gunnarsson E, Weijers T, Arvanitaki K, Trova V
IES Report 317, 1996. ISBN 1-85184-244-6

A catalogue of these and over 100 other titles is available from IES, or on the IES Website, www.employment-studies.co.uk

Further information on the EMERGENCE project, including details of other EMERGENCE publications and subscription to the EMERGENCE newsletter, is available from the project website, www.emergence.nu

the **Institute**
for **Employment**
Studies

eWork in Europe

the EMERGENCE 18-Country Employer Survey

U Huws
S O'Regan

EMERGENCE

Report 380

Published by:

THE INSTITUTE FOR EMPLOYMENT STUDIES
Mantell Building
Falmer
Brighton BN1 9RF
UK

Tel. + 44 (0) 1273 686751
Fax + 44 (0) 1273 690430

http://www.employment-studies.co.uk

British Library Cataloguing-in-Publication Data

A catalogue record for this publication is available from the British Library

ISBN 1-85184-309-4

Printed and bound by Antony Rowe, Ltd, Eastbourne

The Institute for Employment Studies

The Institute for Employment Studies is an independent, apolitical, international centre of research and consultancy in human resource issues. It works closely with employers in the manufacturing, service and public sectors, government departments, agencies, professional and employee bodies, and foundations. For over 30 years the Institute has been a focus of knowledge and practical experience in employment and training policy, the operation of labour markets and human resource planning and development. IES is a not-for-profit organisation which has a multidisciplinary staff of over 50. IES expertise is available to all organisations through research, consultancy, publications and the Internet.

IES aims to help bring about sustainable improvements in employment policy and human resource management. IES achieves this by increasing the understanding and improving the practice of key decision makers in policy bodies and employing organisations.

Acknowledgements

The authors would like to thank the many people in the NOP Research group who contributed to the successful completion of the challenging and complex survey on which this research is based, especially to Judy Morell, Joanne Brown, Tony Chimonides and the skilled supervisors and staff in NOP's international multilingual interviewing centre in London. We would also like to thank all our EMERGENCE partners and subcontractors for their useful inputs to the development and translation of the questionnaire, and to the identification of national sources of information for supplementing the samples as well as for their constructive feedback on work in progress. Thanks too are due especially to Monique Ramioul for her insightful comments on sectoral change, to John Hall for his specialist advice on the analysis of hierarchical data sets in SPSS and to our many colleagues at IES who supported the data analysis and report-writing process. Finally, we would like to express our gratitude to the European Commission's IST programme, especially to Peter Johnston for his strategic advice on the overall direction and focus of the EMERGENCE project and to our project officer, Jean Millar, for her patience with us.

Contents

Executive summary

Information and Communications technologies have made it possible for a wide range of activities involving the processing of information and their transmission by means of telecommunications to be located anywhere in the world where the appropriate infrastructure exists and workers are to be found with the right skills, in a phenomenon which has come to be described as eWork.

But to what extent are organisations actually making use of this potential to relocate work? Which remote sites are being selected? And what are the criteria used for selecting them?

The EMERGENCE employer survey

The EMERGENCE[1] project was set up with funding from the European Commission's Information Society Technologies (IST) programme to map and measure eWork. This report presents the results of a survey of 7,268 employers in 18 European countries: the 15 EU member states plus Hungary, Poland and the Czech Republic.

Computer-aided telephone interviews were carried out by mother-tongue interviewers in fifteen languages from NOP's international call centre in London. Establishments with a minimum of fifty employees were selected, with the sample stratified by sector, by size and by country.

In each establishment, information was collected about all forms of remote work carried out using a telecommunications link (or by eWork), regardless of whether this was carried out be direct employees or outsourced, or whether it was carried out on office-type premises or by home-based or multilocational workers.

[1] EMERGENCE stands for Estimation and Mapping of Employment Relocation in a Global Economy in the New Communications Environment. Between 2000 and 2003, research partners in Australia, Austria, Belgium, Canada, Denmark, Germany, Hungary, Italy, Sweden and the UK, with associates and subcontractors in many other countries are undertaking a range of related research activities, full details of which can be found on http://www.emergence.nu.

Types of eWork

The types of eWork covered in the survey include:

1. fully home-based working by employees
2. multi-locational or nomadic working by employees
3. freelance work carried out away from the premises
4. remote work carried out in remote 'in-house' (internally owned) back offices which are not call centres
5. work by employees carried out in remote 'in-house' (internally owned) call centres
6. work carried out in by employees in telecottages or other remote third-party premises which are not call centres
7. work carried out in by employees in telecottages or other remote third-party premises which are call centres
8. work outsourced to business service suppliers which are not call centres
9. work outsourced to call centres.

Business activities covered

These types of eWork were investigated in relation to seven different generic business functions:

1. sales (telemarketing and mobile sales)
2. customer service, including providing information, counselling and advice
3. data processing, typing and other forms of data input
4. design, editorial and other forms of creative or content-generating work including research and development
5. software development, maintenance and support
6. accounting, debt collection and other financial services
7. human resources management and training.

Data analysis

Once the fieldwork was completed, weights were calculated by country, size of establishment and sector group to bring the distribution of the achieved sample into line with the distribution of the population estimates outlined above. The results were then analysed by IES using SPSS and Excel.

Demand for eWork in Europe

The broadest definition of eWork encompasses any work which is carried out away from an establishment and managed from that establishment using information technology and a telecommunications link for receipt or delivery of the work.

According to this definition, nearly half of all establishments in Europe (49 per cent) are already practising some form of eWork. This means that of the estimated 55.5 million establishments in the fifteen EU countries plus Hungary, Poland and the Czech Republic, some 27 million can be estimated to be practising some form of eWork.

The largest proportion of this eWork involves outsourcing, although nearly 12 per cent of all establishments — representing some six and a half million employers across Europe — use forms of eWorking involving direct employees.

Here, it is interesting to note that the stereotypical employee teleworker based solely at home is in fact one of the least popular forms of eWork. Only one and a half per cent of establishments in Europe (EU 15 + 3) employ people to work exclusively from home in this way, although the proportion rises to over two per cent in the EU (15). It is much more common to use the new technologies to support mult-locational teleworking by employees, a form of working much less likely to be associated with social isolation, which is practised by approximately one European employer in ten.

Turning to eWork carried out by employees on office premises, we find that employers are already making significant use of IST technologies to carry work out remotely. One European employer in fourteen (6.8 per cent) has a back office in another region in which its own employees are based.

Less than one per cent of establishments, representing under half a million across Europe, make use of telecottages, telecentres or other remote office premises owned by third parties as workplaces for their remote employees.

These forms of in-house teleworking are heavily outweighed by the use of eOutsourcing as a mechanism for carrying work out remotely. Over half of all establishments (56 per cent) outsource at least one business service involving information processing. Restricting our definition only to those which use electronic means of delivery ('eOutsourcers') we find 43 per cent of employers making use of this practice.

Much of this eOutsourcing is carried out within the region where the employer is based (34.5 per cent) but substantial numbers (18.3 per cent) outsource to other regions within the same country, whilst 5.3 per cent outsource outside their national borders.

Outsourced forms of eWorking may involve contracts with individual freelancers or with companies.

Nearly one employer in six (17.3 per cent) uses freelancers to deliver some form of information service. However, not all of these use information and communications technologies for the receipt or delivery of work. When the definition is tightened to include only telemediated freelance work (*ie* work involving delivery over a telecommunications link), we still find that 11.4 per cent of European employers are using 'eLancers', a proportion which is roughly equivalent to those using home-based or multilocational teleworking employees.

National variations

Countries with high levels of eWork fall into two broad categories: advanced high-tech economies such as Sweden, Finland and the Netherlands, which make use of IST technologies for a wide variety of eWork practices; and countries in Southern, Central, and Eastern Europe such as Italy, Spain, Hungary, Poland and the Czech Republic, which have very high levels of outsourcing, sometimes rooted in economic systems which favour small firms or with a large informal economy. The new information technologies have clearly enabled establishments in these countries to develop electronically-enabled subcontracting networks to a considerable extent.

The larger economies of Germany and France and, to a lesser degree, the UK, tend to have a lower incidence of eWork, perhaps because of the more strongly corporate models of industrial relations which exist in Germany and France, perhaps because there is a more highly educated in-house workforce to draw on and hence a lesser need to seek talent externally.

Functions involved in eWork

Six out of ten of the establishments using eWork use it for software development and support, which is the function most likely to be carried out remotely using a telecommunications link.

The second most common telemediated function, at 38 per cent, is 'creative work', a category which includes design, editorial work, multimedia content generation and other creative activities. It also includes research and development.

This is followed by management, training and human resource management (HR) functions, at 19 per cent, and customer services at 18 per cent.

eEmployment: characteristics of the employed eWorkforce

Home-based and multilocational eEmployment

Relatively small numbers of employees are usually involved in any given establishment in home-based or multilocational teleworking arrangements.

In nearly six out of ten (58.9 per cent) of cases where fully home-based eWorkers were employed, and over four out of ten (41.2 per cent) of cases concerning multilocational eEmployees, fewer than six employees were involved. However, this is by no means a universal pattern. Nearly one case in five of multilocational eEmployment (18.6 per cent) involved over 50 workers, and approximately one-third (32.1 per cent) between ten and 50 employees. For homeworking eEmployment, the comparable figures were 3.1 per cent and 28.2 per cent respectively. This suggests that substantial numbers of employees may be working in this way in some sectors and regions.

Contrary to the expectations of many commentators, who see these flexible forms of working as particularly well suited to women because of their greater share of domestic responsibility, most arrangements are in fact dominated by male employees. In over a quarter (25.6 per cent) of cases of multilocational eEmployment and over three out of ten (31.3 per cent) cases of home-based eEmployment, no women were involved at all. Including the cases where women made up less than a quarter of the eWorkforce, brings the proportions of male-dominated cases to a more or less equal 46.4 per cent for homeworkers and 47.2 per cent of multilocational workers.

However, in the case of home-based working in 30.1 per cent of cases women formed the overwhelming majority (over 75 per cent) of eWorkers, with a further 3.8 per cent of cases where they form between 50 per cent and 75 per cent. This suggests that there may be some polarisation between female-dominated and male-dominated types of home-based eWork, perhaps rooted in occupational differences.

In multi-locational working, the proportion of female-dominated groups is somewhat smaller. In only a quarter (25.3 per cent) of cases do women form more than half the workforce.

The differences in gender patterns to be found in eEmployment reflect differences in the types of activity involved in both home-based and multilocational working.

The least popular function in each case, at 4.8 per cent, is the accounting and financial function, followed by data processing or typing, which accounts for 6.1 per cent of entirely home-based eEmployment and 7.4 per cent of multilocational eEmployment.

Telesales activities account for 9.7 per cent and 7.4 per cent respectively; creative functions for 11 per cent and 9.1 per cent respectively, and Management and HR functions for 15.7 per cent and 12.8 per cent respectively.

Two activities — which are also the most popular — stand out as having distinctive locational profiles. The first of these is customer services, which is involved in over four out of ten (41.2 per cent) of all cases of mobile eEmployment, compared with a quarter (24.6 per cent) of home-based eEmployment. The second is software development and support which is more likely to be a home-based activity, accounting for 28.2 per cent of all cases of home-based eEmployment, compared with 17 per cent of multilocational eEmployment.

eEmployment in remote office premises

Despite the fact that 'remoteness' was defined somewhat narrowly, to include only activities located outside the major (NUTS1 level) region in which the respondent was based, it is clear that remote back offices are used on a significant scale — by 6.8 per cent of establishments — whilst a small proportion of employers also employ people who work remotely from office-type premises owned by third parties, such as telecentres and telecottages.

The majority of the remote establishments are small, with over half (52.4 per cent) of internally owned sites employing fewer than 50 people to deliver the specified business service. There are, however, significant exceptions. Nearly six per cent (5.8 per cent) of internally owned back offices involve more than 500 remote employees, whilst a further 15.7 involve between 51 and 500 employees. In remote premises owned by third parties, only 5.2 per cent of cases involve 51-500 workers, whilst 14.8 per cent involve over 500 employees.

The gender breakdown of eEmployees on remote sites shows a more balanced picture than that for the more individualised forms of teleworking involving home-based or nomadic work, although here too there appears to be some overall dominance of men. The proportions of strongly female dominated workplaces (those where over 75 per cent of the staff are women) are roughly the same, at 17.8 per cent and 16.8 per cent respectively, for both internally and externally owned premises. So too are the proportions where there are no women at all, at 14.6 per cent and 15.2 per cent respectively. In the intermediate ranges there are some differences, with internally owned back offices somewhat more likely to have higher proportions of women.

The most common activity in remote offices is customer service – a typical call centre function. This accounts for nearly half (48.5 per cent) of eEmployment in internally owned remote offices and

nearly two-thirds (65.2 per cent) of eEmployment in those owned by third parties. This is followed in almost equal proportions in the internal remote offices by management, training and HR functions and by software development and support (at 14.8 per cent and 14.3 per cent respectively). In third-party owned premises, software development is more important, at 22.3 per cent.

eOutsourcing: the demand side

The use of ICTs to support outsourcing of business services is widespread; around four cases in five involve delivery by telecommunications.

As with remote back offices, the number of workers involved in supplying outsourced eServices is most frequently small. Where numbers were known, the largest proportion, 22.9 per cent, involved five workers or fewer. In a further 19.6 per cent of cases fewer than 50 workers were involved. The proportions employed in larger numbers are small by comparison.

In cases where the gender of workers was known, the picture was dominated by men. In no fewer than 20.4 per cent of cases, no women were employed whatsoever. In a further 29.9 per cent of cases women were in a minority, leaving only 18.2 per cent of cases where women formed over half the workforce.

The most important activity involved in eOutsourcing is software development and support, which accounts for 38.9 per cent of all cases. This is followed by creative functions, at 27.3 per cent, and then by HR, management and training functions.

Use of remote or outsourced call centres

One establishment in six (16.6 per cent) either outsources work to a call centre or has its own remote call centre outside its own region. This figure excludes call centres on the same site or within the same (NUTS1) region, so should not be interpreted as an indicator of the total extent of call centre usage in Europe, which must therefore be considerably higher.

Whilst most of the call centres identified in the survey were directly linked by telecommunications to the establishment, some were not. Telematically-linked call centres were used by 13.8 per cent of establishments.

There are very high levels of call centre use in Poland, Hungary and the Czech Republic, in the Mediterranean countries of Spain, Greece and Italy, and in Finland. The lowest levels are in Luxembourg, Denmark and Germany.

Among tele-linked call centres one activity stands out as the most common: software development and support, which accounts for nearly six out of ten (58.3 per cent) of all remote and outsourced call centres. This is followed in importance by customer service call centres. More than one call centre in five (21.6 per cent) is concerned with this function.

eWork: the supply side

Over one in five (21 per cent) of all establishments in Europe is engaged in supplying telemediated services. This suggests that such activities already play a significant role in the European economy.

The function most likely to be involved (at 14 per cent) is customer services, perhaps a reflection of the rapid recent growth of outsourced call centres and the relatively high proportion of establishments involved in this activity. This is followed by design, editorial and creative functions, at nine per cent and software development and support at seven per cent.

Levels of eWork supply in Hungary, Poland and the Czech Republic are high, mirroring the high levels of demand for the same services in those countries. However, in Spain, Italy and Greece, where the demand for these services is also well above-average, the proportion of firms found supplying eServices in the EMERGENCE survey was significantly below average. The most likely explanation for this is that suppliers in these countries are micro-businesses with fewer than 50 employees, too small to be included in the survey. Supplementary surveys of very small firms in these countries will shed light further light on this issue.

Within the EU, the countries with the greatest concentrations of eService suppliers are the Netherlands at 36 per cent, Denmark at 29 per cent and Finland at 27 per cent. This reflects the well-developed technological base and strong information service sectors of these countries.

Sectors involved in the supply of eServices

A major problem in the investigation of eWork, or, indeed, in the analysis of any other aspect of the information economy, is identifying the sectors involved in the new information economy.

One of the tasks which the EMERGENCE project therefore set itself was to chart the correspondence between NACE sectoral classification codes and the supply of eServices.

The results of this exercise are surprising and illustrate the extent to which knowledge-based activities now permeate virtually every sector of the economy. The survey found an extremely large number of different sectors involved in the supply of business

services. At the four digit NACE level, there were 150 different sectors involved in the supply of customer services, 77 in the supply of telesales, 89 in the supply of data processing services, 109 in software supply, 102 supplying financial services, 94 selling management, training and HR functions, and 127 supplying creative services.

This situation results from a number of factors including the breakdown of large organisations into separate cost- or profit-centres which (whilst retaining the sectoral classification of their parent) trade separately in business services, the impact of convergence between sectors, mergers, demergers, strategic alliances, outsourcing and 'insourcing'. The report discusses the most common sectors involved in each activity and draws out some of the implications.

It concludes that although these results provide an insight into the complexity of the supply of information services and the extent to which ICTs are already being used to support their inflows and outflows both within and between organisations, they also demonstrate the inadequacy of the existing classification schemes to capture information about these flows, which would enable them to be monitored effectively in the future. They also raise more general questions about the ability of existing statistical frameworks to supply the raw material which will allow the information economy to be modelled, analysed and understood.

Locations involved in remote work and reasons for their choice

A study of the most important destinations for eWork, whether in absolute terms or relative to population size, suggests a clustering effect whereby regions build a critical mass on their past reputation for excellence in a given field by attracting further talent and investment in this field, which in turn feeds a continuing cycle of growth. Poland and the Czech Republic both figure in the top ten regions, not just because of their large population size but also because they appear to have a genuinely strong presence in eWork supply. Otherwise, the top ten list shows a strong clustering around national (or in Germany regional) capital cities, including Brussels, London, Berlin, Hamburg and Bremen.

It is striking that, despite the publicity given to the practice of relocating or outsourcing eWork to non-European destinations such as India or the Caribbean, this is strongly outweighed, numerically speaking, by cases where work is relocated within Europe. It should nevertheless be noted that the list of favoured regions for remote eWork (shown in an appendix to the report) features a number of regions outside the EU and the Accession States of Central and Eastern Europe. These include India, Russia, Western Australia and Japan as well as a number of US States.

An examination of the reasons for the choice of a remote back office location or an outsourced supplier of eServices also overturns some popular stereotyped views. Several factors were notable by their absence, including: the availability of government grants or other state incentives to choose a location; the time zone in which the region is located; and low staff turnover.

In general, by far the most important selling point is the availability of technical expertise. Next comes low cost, which is followed by a good reputation and then by reliability or high quality.

There are some variations by region, for instance in Germany proximity to customers emerges as particularly important, whereas informal networks (expressed in the reason 'we happened to know them') hardly signify, although these assume some importance in other countries.

The views of suppliers of eServices about why they have been selected tend to match those expressed on the demand side fairly closely, the most important difference between the two being the relatively low importance given to their technical expertise by eServices suppliers and a somewhat lower importance given to cost. There are also some differences by function.

Customer services and telesales

For the customer service and telesales functions, the requirement to be near other parts of the organisation was mentioned the most often, followed, in the case of customer services, by 'good reputation/market leaders' and then 'low cost or competitive tender' and (unsurprisingly) in the case of telesales by 'proximity to customers'.

Data processing

In data processing and typing activities, by contrast, the most important reason for choice of an outsourced or remote destination for data processing was 'low cost/most competitive tender', accounting for 22.5 per cent of all the reasons cited on the demand side. This function was also more likely (though not exclusively so) to be located in regions where wages are somewhat below the EU average, including Attica, Lombardy, the Madrid region and the Czech Republic. In higher-wage countries, non-capital regions are more likely to be preferred for this activity, including Bayern and Baden-Wurttemberg in Germany, the Northeast of England and Mediterranean France.

Software development and support

The top locations for software development and support fall into three distinct categories: first, the Accession States of Poland, Hungary and the Czech Republic; second, capital regions or highly-developed urban regions with strong service sectors, including Brussels, London, Lombardy, Nordrhein-Westphalia, and the Madrid Region; finally, 'secondary' regions including the Emilia Romana region of Italy, North-east Spain, Southern Spain and the Bremen region in Germany.

By far the most important consideration when choosing a software supplier is technical expertise, which constituted 31.2 per cent of the reasons mentioned on the demand side and 22.3 per cent on the supply side. This is buttressed by a requirement for quality, reliability and a positive attitude (10.9 per cent and 20 per cent of reasons respectively). However, the need to find these qualities is balanced by a search for low cost, which constituted 13.2 per cent of reasons cited on the demand side, though only eight per cent on the supply side.

Financial services

For financial and accounting services, the top region in both absolute and per capita terms is Baden-Wurttemberg. Otherwise, the top ten list is divided between relatively high-wage, high-skill capital or metropolitan regions (including London, Brussels, other German regions and parts of the Netherlands) and lower-waged Poland where there appears to be a strong culture of outsourcing.

The reasons given for the choice of a remote or outsourced supplier of financial services are more evenly spread than for most other functions, the most commonly cited being the existence of a longstanding relationship. This is equalled on the supply side by reliability and quality. A good reputation is also important. For this function a strong degree of trust seems important, and quality and probity may count for more than competitive costs.

HR, management and training

According to the evidence of the EMERGENCE survey, human resources, management and training functions tend to gravitate towards major metropolitan regions. The top ten regions (adjusted for size) include Brussels, Antwerp, Madrid, London, Berlin and the highly urban regions of the North and East Netherlands and the West Midlands of the UK. In absolute terms, Lombardy (which includes Milan) and Nordrhein-Westphalia (which includes the conurbations around Dusseldorf, Dortmund and other cities) are also included, as well as Sweden.

Otherwise, the presence of Poland and the Czech Republic amongst the top ten testifies, once again, to the importance of

outsourcing in these countries, perhaps partly driven by the need to buy in expertise from outside during a period of rapid modernisation, or by the presence of many branches of companies managed from elsewhere.

Turning to the reasons for choice, we find that for HR functions the dominant tendency is the search for quality and reliability. The strongest reason stated (23.1 per cent of reasons on the supply side and 14.1 per cent on the demand side) is that the choice was made on the basis of a good reputation or a leading position in the market. This is followed by reliability and quality, which is in turn followed by the existence of a longstanding relationship, partnership or alliance. Value for money appears in more or less equal third place alongside this factor, being given slightly higher importance on the demand than the supply side.

Creative activities

The list of top ten destinations for creative services (including research and development, design, editorial, multimedia and other forms of content generation) includes a high proportion of regions in Southern Europe, including the regions surrounding Madrid, Athens and Milan. This is perhaps a reflection of the strong informal economy and high use of outsourcing in the Mediterranean regions as well as the strength of these regions in design. They are joined by the South of France as well as three regions (two in Germany and one in the UK) which also appeared as destinations for data processing work.

Good reputation and high quality both feature as important reasons, but so also do low cost and a longstanding relationship. On the demand side technical expertise is also rated highly, although this hardly figures on the supply side.

On the supply side we find that providers of these eServices credit good marketing with making a substantial contribution to their success in gaining contracts. This is also the only function in which time zone features as a significant reason on the supply side.

Conclusions

The results of the survey confirm that eWork is indeed taking place on a significant scale in Europe, a scale of sufficient importance to have a direct impact on employment practices and to affect indirectly the levels of employment in a number of regions.

The dominant forms of eWork within organisations are the use of remote offices, many of them call centres, and the employment of multilocational workers. Fully home-based eWork by employees,

although it can be found in all countries, remains a minority practice.

Such internal forms of eWorking by employees are, however, outweighed by external forms, using outsourcers. Whilst 43 per cent of establishments in Europe buy in outsourced eServices for at least one function, half as many, 21 per cent, are involved in supplying these eServices.

There can therefore be said to be a thriving European market for eServices, involving a significant amount of cross-border electronic traffic. This market is not geographically self-contained. It includes substantial inputs from and outputs to the rest of the world. However, trade in services within Europe still outweighs trade with the rest of the world, suggesting a considerable degree of internal cohesion.

The strongest driver of eWork is the search for technical expertise. Cost and quality considerations also exert strong influences on the choice of a subcontractor or remote location. In some cases the need for proximity to other parts of the organisation or to customers is also decisive. A number of popular beliefs appear unfounded, however. Tax-breaks, government grants or subsidies to locate in certain regions appear to play a minimal role in locational choice. Neither do employers seem deterred by strong labour market regulation or trade unions.

These developments offer both opportunities and threats to individuals and regions.

With over ten per cent of establishments employing multi-locational workers and freelance suppliers of eServices, there are a multitude of opportunities in many regions for suitably qualified people to find forms of work which can be fitted in flexibly with other lifestyle demands.

At the regional level there are possibilities for attracting remote back offices or developing new enterprises to supply eServices. For most functions, these opportunities will depend on the ability to offer the appropriate technical expertise, combined with quality and reliability, at a competitive cost.

The information economy cannot be regarded as autonomous, however. Not only do many eService activities take place within organisations which are classified in other sectors; information processing sectors also both make inputs to and receive outputs from virtually all other sectors of the economy. The health of the information economy sector thus appears crucially dependent on other sectors and it seems unlikely that it can thrive in their absence. Conversely, these other sectors are unlikely to prosper without inputs from the information economy which makes a vital contribution not only to the innovation process within them

but also to a range of other (increasingly generic) business functions.

Further research

The results suggest a need for further research in a number of areas:

- an extension of the EMERGENCE methodology to other developed countries.
- in-depth qualitative research on the dynamics of employment relocation, the costs and benefits to employers and to workers and the impacts on employment in both 'source' and 'destination' locations
- further theoretical and empirical work on how the information economy (if it can be said to exist at all in a separately identifiable form) can be conceptualised, measured and modelled
- research on the impact of these developments on those regions of the globe and social groups which are currently excluded from them
- research on the impacts of work delocalisation on welfare systems, social protection and the social dialogue in order to inform policy choices in these areas
- research on the impact of multilocational working on the quality of working life, including health and safety, stress and work-life balance
- research on organisational culture and the role it plays in facilitating or constraining eWork. In particular, the impact on local work cultures of the organisational practices of remote employers based outside national borders.

Policy issues

The development of eWork also raises a number of questions for policy-makers. These include:

- issues relating to employment regulation and social protection in the context of increasing cross-border working and their implications both for supra-national and sub-national policies
- issues relating to employment mobility, including the implications for sustainability, in particular the relative merits of moving people to jobs and moving jobs to people
- issues relating to the development and implementation of strategies for continuous learning and updating of technical skills combined with the development of those social and organisational skills which make it possible for people to work remotely without injury to their family lives, their physical

and mental wellbeing, their career prospects, their productivity or their economic or social security.

- the relationship of the 'new' economy to the 'old' economy and the development of holistic economic development strategies which avoid social exclusion and environmental degradation by aiming for economic diversity rather than focusing exclusively on information services.

1. Introduction

Information and Communications technologies have made it possible for a wide range of activities involving the processing of information and their transmission by means of telecommunications to be located anywhere in the world where the appropriate infrastructure exists and workers are to be found with the right skills. This is a phenomenon which has come to be described as eWork.

But to what extent are organisations actually making use of this potential to relocate work? Which remote sites are being selected? And what are the criteria used for selecting them?

Unfortunately, such questions are extremely difficult to answer using existing statistics. Designed for collecting information on employment which is anchored to a single spot and for tracking the physical movements of 'real' goods, they are unsuitable for monitoring the elusive flows of electronically-transmitted services, and untethered 'butterfly' jobs.

The EMERGENCE[1] project was set up with funding from the European Commission's Information Society Technologies (IST) programme to map and measure eWork. This report presents the results of a survey of employers in 18 European countries.

It is published as a companion to *Where the Butterfly Alights: the Global Location of eWork* which analyses the existing evidence, statistical and otherwise, at a global level, and which it is designed to complement. As the EMERGENCE project progresses, these will be joined by other outputs from the project's research, including the results of qualitative case studies which explore the dynamics, risks and challenges of cross-regional eWork in depth, focused studies of the implications of these developments for Central and Eastern Europe and for Mediterranean Europe, a

[1] EMERGENCE stands for 'Estimation and Mapping of Employment Relocation in a Global Economy in the New Communications Environment'. Between 2000 and 2003, research partners in Australia, Austria, Belgium, Canada, Denmark, Germany, Hungary, Italy, Sweden and the UK, with associates and subcontractors in many other countries are undertaking a range of related research activities, full details of which can be found on http://www.emergence.nu.

study of the implications for Small and Medium-sized Enterprises, and an interactive website and regional toolkit designed to ease access to the results by regional policy-makers and other stakeholders. At the time of writing, the survey which forms the subject of this report is being carried out in Australia and will, it is hoped, also be extended to other parts of the world. Details of the results of these studies will be posted on the EMERGENCE web-site (http://www.emergence.nu) as they become available.

2. Identifying eWork: the EMERGENCE approach

In setting itself the ambitious goal of mapping the location of eWork at a global level, the EMERGENCE project entered uncharted territory. The concept of eWork is not defined in any existing employment or trade statistics, whether these are based on industrial sectors, on occupations or on other variables.

In researching any new phenomenon, there is a danger that the investigator will develop an overly restrictive hypothetical definition (based on preconceptions which may have only a shaky basis in reality) which will then become such an effective filter that other important related phenomena are screened out. For instance, if a researcher constructs a definition of 'teleworking' which assumes that 'teleworkers' are employees who work solely from their homes, and embeds this in a questionnaire which asks employers whether they have any employees who conform to this definition, then the existence of teleworkers who are self-employed, or who work only partially from their homes, or who work from other non-domestic premises will be rendered invisible. Alternative definitions might similarly filter out other types of teleworking.

The EMERGENCE approach sought to side-step this difficulty by avoiding imposing any predetermined definitions of eWork but collecting separately all the information (legal, spatial or technological) which might be required to enable research users to impose their own definitions. In order to do this, it was necessary to develop a clear conceptual framework so that a research instrument could be designed which was capable of capturing in an unambiguous and disaggregated form each separate ingredient of any potential definition.

To achieve this, it was necessary to break down each activity capable of being relocated using ICTs to the smallest possible delocalisable unit, in order to locate its territorial position and characterise the type of delocalisation involved.

This involved several distinct processes:

1. identifying the unit of analysis
2. developing a typology of forms of work delocalisation

3. developing a typology of delocalisable activities
4. developing a conceptual 'map' of the eOrganisation.

2.1 The unit of analysis

It is a truism of employment research that the 'establishment' — an essentially geographical concept —is frequently not the same thing as the 'company' which is a legal one, or the 'organisation' which may be a socially constructed definition. A number of trends in recent years have made it increasingly difficult to define what an organisation is. These include:

- the impacts of mergers, takeovers and demergers
- the development of strategic alliances and partnerships (including 'public-private partnerships')
- the disaggregation of large units into smaller cost-centres or profit-centres and
- the growth of outsourcing.

The use of ICTs has accelerated the breakdown of the spatially defined organisation and produced many of the relocations which the EMERGENCE project has been set up to investigate. The focus of the project is on the geographical distribution of telemediated work. In order to plot this, it is therefore crucial that (however much decisions may be made at various levels within an 'organisation' which is not defined geographically) the basic unit of analysis should be a geographical one. The 'establishment' — the physical site at which the investigated activities take place — is therefore the basic unit of analysis adopted in the EMERGENCE survey. This may be a single building or a group of buildings at the same address. How this is conceptualised in the survey is presented in greater detail below, in section 2.4.

2.2 A typology of forms of work delocalisation

The conceptual framework developed for classifying the various different forms of delocalised work involves drawing two broad distinctions.

The first of these is a legal distinction: between work carried out internally (*ie* by people contracted to work directly for the respondent organisation, normally covered by a contract of employment) and work that is outsourced, and therefore normally carried out under a contract for the supply of services.

The second is a distinction between work carried out by groups of workers on shared premises (normally a building which could be described as an 'office') and that which is carried out by individuals acting in isolation away from 'office' premises. These

Table 2.1: Typology of work delocalisation

		Contractual	
		Internal/employees	**Outsourced**
Type of workplace	**Individualised (away from 'office' premises)**	Employed tele-homeworkers Mobile employees	Freelance teleworkers or mobile workers
	On shared 'office' premises	Remote back offices/call centres Employees working in telecottages or other third party premises	Specialist business service supply companies Outsourced call centres

Source: IES

people might be working from their homes, or working nomadically from a variety of different locations, for all or part of the working week.

These variables are summarised in Table 2.1. When combined, they provide us with a two-by-two cell matrix within which all forms of eWork so far identified by researchers can be grouped.

In the EMERGENCE employer survey, information is collected on each of these forms of working, *provided*:

- that it is remote: *ie* it takes place at a geographical distance from the establishment where the respondent is based; and
- that it is telemediated: *ie* that a telecommunications link is used to deliver the work.

Because of the considerable policy interest in the subject of call centres, in the survey an additional distinction is made between remote locations that are call centres and those that are not.

Combining these variables gives us in all nine different categories of eWork:

1. fully home-based working by employees
2. multi-locational or nomadic working by employees
3. freelance work carried out away from the premises
4. remote work carried out in remote 'in-house' (internally owned) back offices which are not call centres
5. work by employees carried out in remote 'in-house' (internally owned) call centres
6. work carried out by employees in telecottages or other remote third-party premises which are not call centres
7. work carried out by employees in telecottages or other remote third-party call centres

8. non call-centre work outsourced to business service suppliers
9. work outsourced to call centres.

Whilst all these forms are separately identified in the EMERGENCE survey, and therefore form mutually exclusive categories at any given point in time, it is recognised that these different forms represent *choices* for employers and also, to some extent, for workers. It is therefore entirely possible that an employer may use more than one of these forms of eWork to carry out any given business function, or may switch from one to another over time. By the same token, an individual worker may also move over the course of a working lifetime between different forms of eWork.

2.3 A typology of delocalisable eOrganisation activities

Having identified the different ways in which work may be delocalised, it is then necessary to categorise the kinds of activities involved in this delocalisation.

Most labour market statistics are collected and categorised in relation either to sectors or to occupations. For the purposes of the EMERGENCE study, however, neither of these seemed adequate as a framework for data collection and analysis.

As regards sector, not only is technological change bringing about a convergence between sectors, but additional problems are created by cross-ownership and the involvement of single companies in multiple activities. Occupational categories are difficult to compare across countries, where qualification levels and patterns may be very different and there may be major differences in job design. Furthermore, many of the new 'eOccupations' such as call centre operator or webmaster are not yet separately identifiable in the statistical codes.

In the EMERGENCE survey it was therefore decided that the most stable and comparable, and therefore the most useful unit of analysis, was the generic business function. After an intensive review of the evidence, it was decided that most forms of eWork could be categorised within seven of these generic functions.

In the pilot interviews, these functions were specified, but respondents were also asked to name any other functions which did not fit into these categories. A number of such functions were named, but it was discovered after careful analysis that all could be back-coded to the initial seven categories. Accordingly, the wording of the questionnaire was adapted to make each category more explicit (and in a few cases more inclusive) and information on each of the nine forms of eWork described above was collected separately across the following seven business functions:

1. sales (telemarketing and mobile sales)
2. customer service, including providing information, counselling and advice
3. data processing, typing and other forms of data input
4. design, editorial and other forms of creative or content-generating work including research and development
5. software development, maintenance and support
6. accounting, debt collection and other financial services
7. human resources management and training.

When combined with the nine possible forms of eWork, these seven categories give us a total of sixty-three possible forms of eWork which may be used by any given organisation.

2.4 A conceptual 'map' of the eOrganisation

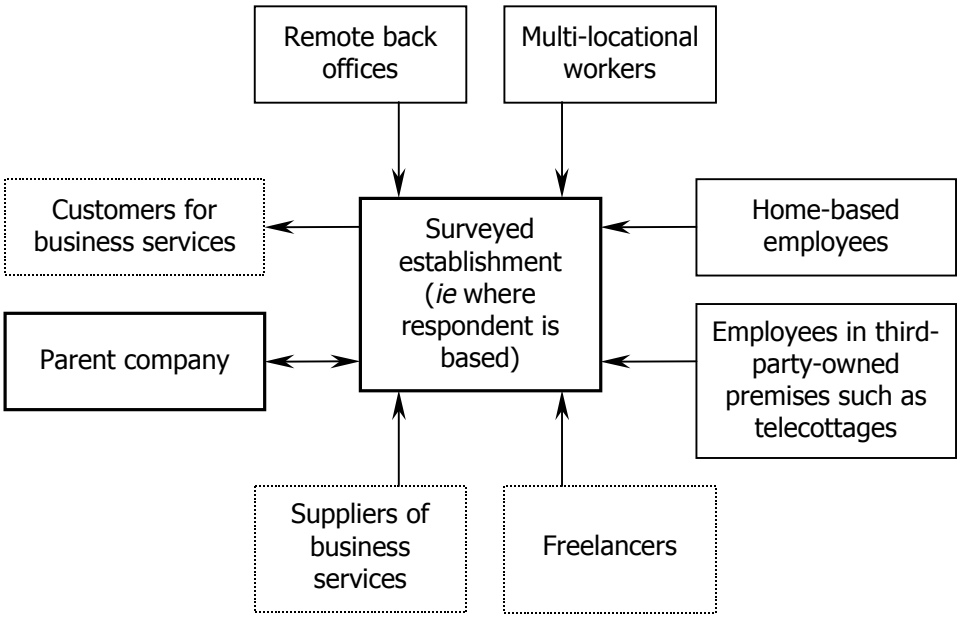
We have already noted that the basic unit of study in the EMERGENCE survey is the 'establishment'. However, there are a number of different ways in which this geographical concept may be related to the legal concept of the 'firm' or the 'organisation'. In order to avoid ambiguity or circular logic in the development of analytical categories, it was necessary to develop a conceptual map to make it possible to plot systematically the different ways in which companies and employees could be linked remotely.

Figure 2.1 below does not cover every conceivable type of distant telemediated relationship which it is possible for an establishment to engage in. However, it does demonstrate diagrammatically all those variables which are captured and mapped in the EMERGENCE survey. As well as the inputs of telemediated work categorised above, this also demonstrates the outputs which may be present where the surveyed company is a supplier of telemediated business services. In addition, it acknowledges that the establishment surveyed may be a branch or subsidiary of an organisation which is headquartered elsewhere and to which it supplies information-based business services (or alternatively from which it receives such business services).

By capturing information separately about the location of each of these units, it makes it possible not only to identify where in the world each type of eWork is located, but also to obtain some information about the position in the value chain of any given unit.

In the diagram, the remote partners with more fixed and permanent 'internal' relationships (normally an employment relationship) to the respondent establishment are shown in solid boxes; those with external suppliers and customers, which may be regarded as more shifting and contingent, have broken outlines.

Figure 2.1: A conceptual map of the eOrganisation



Source: IES

In the EMERGENCE survey, the location of each of these units was recorded in each case. However, detailed questions about the reason for choosing any particular location or subcontractor were asked only where the unit was located remotely ('remoteness' being defined as outside the NUTS1-level region where the respondent was based). Similarly, where customers were based outside the region where the surveyed establishment was based, respondents were asked why they thought their organisation was chosen to supply this service.

This helped to build up a picture not only of the global map of eWork but also of the locational advantages of any given region.

2.5 Implications for methodology

Capturing every possible permutation and combination of the variables produced by integrating these frameworks, and plotting these in such a way that their geographical location can be pinpointed to the level of region (in the EU, or state or province in the USA, Canada and Australia) and country (in the rest of the world) involves the production of an enormous data set with an extremely large number of variables.

The subject matter of the survey also implies a global scope. For instance, an interview with a respondent in France might involve collecting information about a parent company in the United States, a software development facility in India, a call centre in Morocco, a design facility in Italy and a debt-collection facility in the Netherlands. But by the same token, information about establishments in France may also be generated from responses in other countries. It is therefore not possible to regard any part of

the survey as a stand-alone process, although of course it is subsequently possible to analyse the results in such a way that establishments in individual countries can be studied independently, as can inflows to and outflows from any given region.

The EMERGENCE approach also implies unusually complex routing of questions, as can be seen from Appendix A of this report which summarises the questionnaire structure in diagrammatic form.

These considerations raise a number of implications for research methodology.

- The complexity of routing and large number of different variables to be coded are such that the use of a paper-based questionnaire and (non-computer-assisted) face-to-face interviewing methods are ruled out. Not only would the questionnaire be so long as to be physically too unwieldy for this method, it would also be impossible to avoid human error in its use.
- It is essential that all interviews are carried out using precisely the same definitions, codes, routing and software.
- Consistency is required not only in the form of the interview process and the ways in which the results are coded, but also in the sampling methods used and the construction of quotas.
- Quality control assumes critical importance, particularly when a large number of different interviewers are involved, using different language versions of the questionnaire.
- Data integration presents a major challenge, with over 3,000 separate variables involved.

Taken together, these factors presented an overwhelming case for integrated data collection, on grounds of cost, quality control, data integrity and consistency and ease of analysis. The details of the methodology adopted are presented in the next chapter.

3. Methodology

3.1 Sample universe

When the EMERGENCE proposal was developed, it was planned to carry out, in the first phase, a random survey of establishments right across the EU and in six EU Accession States. For budgetary reasons, it was necessary to reduce the scope of the survey somewhat, and this was achieved by including only three Accession States (Hungary, Poland and the Czech Republic – the three largest economies among the Accession States in Central and Eastern Europe) and by raising the minimum size threshold to establishments with a minimum of 50 employees. Certain questions were also dropped from the questionnaire in order to minimise interview length.

Although it was recognised that very small firms in the knowledge sector, such as design or software companies, might play a significant role in the supply of eWork, it was also recognised that this size category includes a very large number indeed of small firms in sectors such as artisanal manufacture, agriculture, retail, catering and miscellaneous services which have very little to do with the supply of eServices. A random survey in this size category, it was felt, would throw up a very high proportion of cases with little or no relevance to the survey and it was therefore decided that a different approach should be adopted in this size category.[1]

Accordingly, it was decided to sample only establishments with 50 or more employees, with a sample stratified by size and sector. The breakdown of the sample by country was arrived at as a result of balancing two considerations: on the one hand, it was necessary to take account of the major differences in size between Europe's national economies; on the other, it was felt important to have a sample in each country sufficiently large to make it possible to carry out some analysis at a national level and to draw valid comparisons between countries. The final breakdown is

[1] The EMERGENCE project is currently undertaking supplementary surveys of micro-businesses in the knowledge sector in several countries using the same methodology, the results of which will in due course be integrated with the results presented in this report.

Table 3.1: Breakdown of sample by country

Austria	300	Germany	800	Netherlands	400
Belgium	300	Greece	300	Poland	350
Czech Republic	350	Hungary	350	Portugal	300
Denmark	300	Ireland	300	Spain	700
Finland	400	Italy	800	Sweden	400
France	800	Luxembourg	100	UK	800

Source: IES

Table 3.2: Breakdown of sample by sector

Primary sector/manufacturing/construction	30%
Business and financial services	25%
Other services	35%
Public administration	10%

Source: IES

shown in Table 3.1. This represents a relative undersampling in large countries like Germany, France and the UK and a relative oversampling in smaller countries like Luxembourg, Denmark and Ireland.

Within each country, the sample was broken down as shown in Table 3.2. In most countries this represented an over-sampling of the business and financial services sector, where we expected to find a large amount of eWork activity and an under-representation in some other sectors. The sample was also stratified by size, with 50 per cent of interviews taking place in establishments with over 200 employees, and 50 per cent with those employing between 50 and 199.

In most countries, the business directories of Dun and Bradstreet or Kompass Direct were used to identify a sample. For the Public Administration sector, these were supplemented with Civil Service directories or other lists of public organisations. These proved adequate in most cases, but there were some shortfalls in Greece, Poland, the Czech Republic and Hungary and in the public sector in Denmark, Luxembourg and Austria which resulted in a failure to complete all quotas in these countries.

However, it was of course envisaged from the outset that the results would subsequently be weighted to ensure that they reflect the real distribution of employment in Europe.

3.2 Fieldwork procedure

The fieldwork was carried out by NOP Business and Financial from an international call centre in London using mother-tongue interviewers in fifteen languages.

In the first phase of the EMERGENCE survey, the following procedures were adopted:

1. A draft questionnaire was developed by IES in English in consultation with NOP and circulated to all EMERGENCE partners and sub-contractors for comment.
2. This draft was then discussed at the first EMERGENCE partners' meeting in March 2000 before being developed into a pilot questionnaire.
3. The pilot questionnaire was rechecked and refined before being translated into 14 other European languages by native speakers of those languages.
4. These first translations were then translated back into English by native English speakers.
5. These re-translated English versions were then checked against the original English version to see whether any misunderstandings or ambiguities might have crept in during the translation process.
6. The checked translated versions of the questionnaire were then circulated to EMERGENCE partners and subcontractors to be further checked in order to ensure that key terms (such as the concept of a 'telecottage' or 'call centre') and any technical terminology had been correctly expressed in a form of words which could be readily understood but was also consistent with the EMERGENCE conceptual framework.
7. Simultaneously, the NOP programming team were also using the pilot questionnaire to develop a Computer-Assisted Telephone Interview (CATI) script for the pilot interviews.
8. Intensive briefing sessions were held with NOP supervisors and interviewers, involving both NOP managers and IES staff, including the EMERGENCE project director.
9. Ten pilot interviews were carried out in each of 18 countries (the 15 EU member states plus Hungary, Poland and the Czech Republic).
10. The interviewers and their supervisors were debriefed and the results of the pilot interviews were analysed.
11. As a result of these discussions and analyses, a number of changes were made to the wording of the questionnaire and to the routing, and pre-coded categories were developed for responses to the open-ended questions.

12. A second draft of the questionnaire was then developed in English and used as the basis for a revision of the CATI script and a further round of pilot interviews in English, designed particularly to test the new routing and coding categories was carried out, with interviewers being re-briefed beforehand.
13. The iterative process of feedback, discussion and refinement was repeated and after a series of meetings and tests, the questionnaire was then revised in all other language versions.
14. After another round of checking and briefing, full rollout of the fieldwork was commenced in summer 2000, with start-dates staggered in order to fit national holiday patterns in each country.
15. The fieldwork on the first stage of the survey, which forms the subject of this report, was completed in October 2000.

3.3 Data analysis

3.3.1 Weighting the sample

As quota sampling was used, the probability of selection of any establishment was determined by three factors: the sector, the size (*ie* number of reported employees) and the country in which the establishment was based.

The final achieved sample was 7,268. This slight shortfall was due to full quotas not being met in the Czech Republic, Greece, Poland and for larger establishments in Hungary. There was difficulty obtaining contact details of enough establishments in these countries. Generally the quotas for sector and size were met, though the Public Sector in Austria, Denmark and Luxembourg was slightly under-represented, again due to difficulties with the available sampling frames.

For weighting purposes, it was necessary to obtain reliable and comparable estimates of the number of establishments by size and sector across Europe. Unfortunately, these are not readily available. The *New Cronos Database, Theme 4 (Industry, Trade and Services), Domain SME, Collection SME_70* provides the most comprehensive estimate of establishment distribution across the EU(15). The distribution of establishments as reported in this data-set was cross-referenced with the number of people in the workforce as reported in *the European Labour Force Survey 1998 (LFS)*. The LFS is a large scale sample survey of private households. The distribution in some countries, where the SME data was incomplete or unreliable for some reason, was adjusted on the basis of the size of workforce reported in the LFS. The LFS was also used to estimate the distribution of establishments in the three Central and Eastern European countries which were included in the sample.

Weights were calculated by country, size of establishment and sector group to bring the distribution of the achieved sample into line with the distribution of the population estimates outlined above. This resulted in 7,305 productive cases. No weights were trimmed, but rounding in the Statistical Package for the Social Sciences (SPSS) resulted in this slight discrepancy between unweighted and weighted cases.

3.3.2 Data analysis methods

Data were collected and cleaned in Quantime, then converted into SPSS. Frequencies, crosstabulations and percentages were calculated with the aid of two packages, SPSS and Excel. All results reported are based on weighted figures. Where appropriate, for example when producing lists of most popular destinations of eWork, *per capita* figures are used. The population of regions used to derive these *per capita* figures is the total population of the region as given in the *EU Labour Force Survey Results 1998* or the *Central European Countries Employment and Labour Market Review 1999* (figures for 1998). For countries outside the 18 countries in the survey, population figures were based on *Human Development Report 2000, UNDP.* Population information for states and regions in the USA, Canada and Australia were collected from the relevant government sources.

3.3.3 Definition construction

A key feature of the EMERGENCE methodology is that the nine categories of eWork outlined in the previous chapter are not described in the questionnaire. The questionnaire collects information separately along a series of dimensions (business activity, location, contractual relationship and use of ICTs for the delivery of the work) and definitions are constructed after the event by cross-tabulating the respondents' answers to a number of questions in various permutations and combinations. Each type of eWork is therefore represented by a **derived variable.**

More detailed descriptions of these derived variables are presented in subsequent chapters of this report. However, for ease of reference a glossary can also be found in Appendix B.

4. Demand for eWork in Europe

4.1 The overall picture

The broadest definition of eWork encompasses any work which is carried out away from an establishment and managed from that establishment using information technology and a telecommunications link for receipt or delivery of the work.

According to this definition, nearly half of all establishments in Europe (49 per cent) are already practising some form of eWork, as can be seen from Figure 4.1.

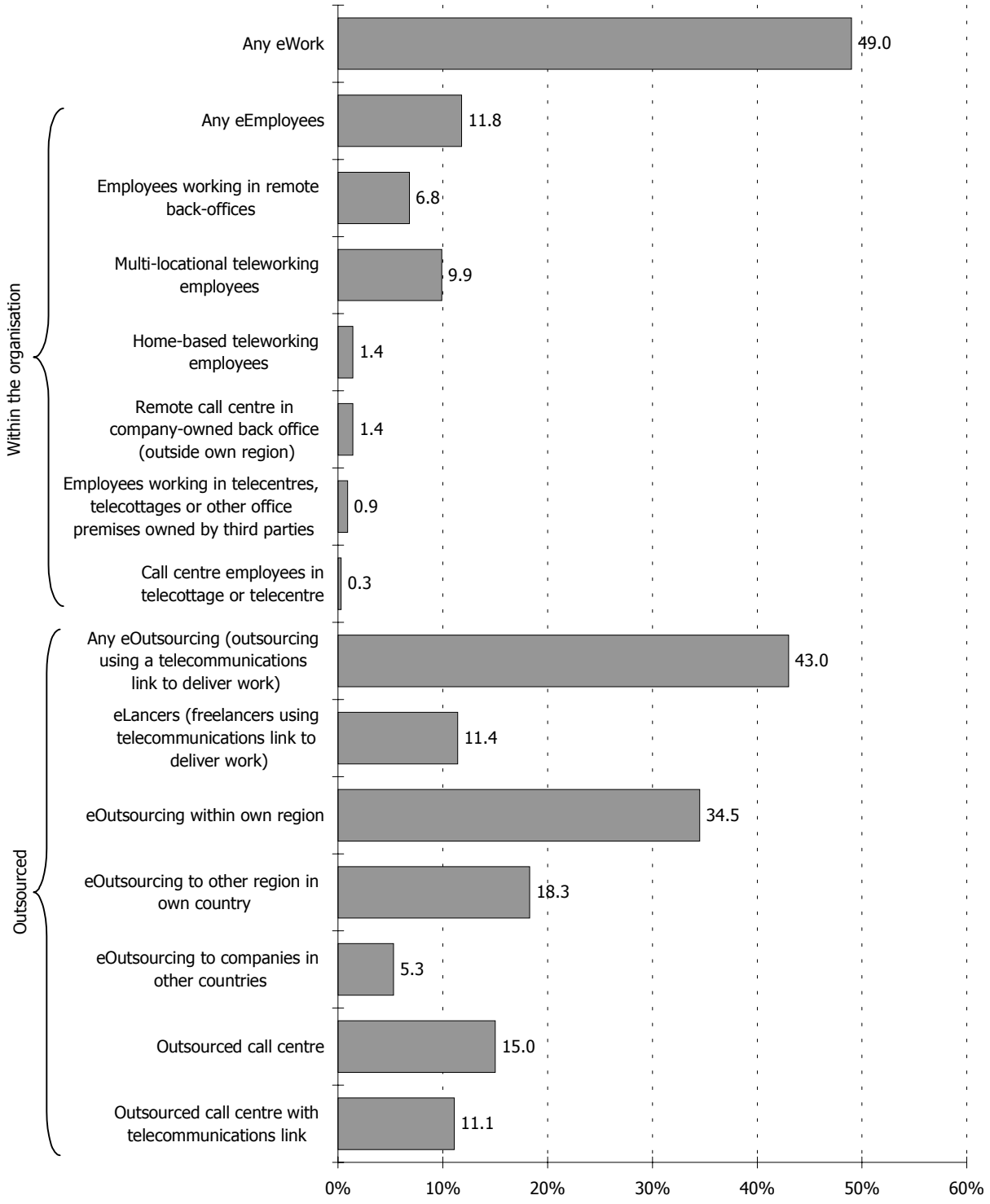
This means that of the estimated 55.5 million establishments in the fifteen EU countries plus Hungary, Poland and the Czech Republic, some 27 million can be estimated to be practising some form of eWork.

As the figure shows, the largest proportion of this eWork involves outsourcing, although nearly 12 per cent of all establishments — representing some six and a half million employers across Europe — use forms of eWorking involving direct employees.

Here, it is interesting to note that the stereotypical employee teleworker based solely at home is in fact one of the least popular forms of eWork. Only one and a half per cent of establishments in Europe (EU 15 + 3) employ people to work exclusively from home in this way, although the proportion rises to over two per cent in the EU (15). It is much more common to use the new technologies to support multi-locational teleworking by employees, a form of working much less likely to be associated with social isolation, which is practised by approximately one European employer in ten.

Turning to eWork carried out by employees on office premises, we find that employers are already making significant use of IST technologies to carry work out remotely. One European employer in fourteen (6.8 per cent) has a back office in another region. Bearing in mind that the 'regions' we are talking about here are large — NUTS1 level — regions, which, in the case of smaller countries like Ireland, Portugal or Luxembourg, constitute the whole country, this represents a significant displacement of work.

Figure 4.1: eWork in Europe by type of eWork



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases

Less than one per cent of establishments, representing under half a million across Europe, make use of telecottages, telecentres or other remote office premises owned by third parties as workplaces for their remote employees.

These forms of in-house teleworking are heavily outweighed by the use of eOutsourcing as a mechanism for carrying work out

remotely. Over half of all establishments (56 per cent) outsource at least one business service involving information processing. Restricting our definition only to those which use electronic means of delivery ('eOutsourcers') we find 43 per cent of employers making use of this practice. Much of this eOutsourcing is carried out within the region where the employer is based (34.5 per cent) but substantial numbers (18.3 per cent) outsource to other regions within the same country, whilst 5.3 per cent outsource outside their national borders.

Outsourced forms of eWorking may involve contracts with individual freelancers or with companies.

Nearly one employer in six (17.3 per cent) uses freelancers to deliver some form of information service. However, not all of these use information and communications technologies for the receipt or delivery of work. When the definition is tightened to include only telemediated freelance work (*ie* work involving delivery over a telecommunications link), we find that 11.4 per cent of European employers are using 'eLancers', a proportion which is roughly equivalent to those using home-based or multilocational teleworking employees. This is roughly in line with expectations. Data from the UK Labour Force Survey[1] indicate that the numbers of self-employed and employed home-based teleworkers are approximately the same (with employed teleworkers making up around 51 per cent of the total and the self-emplyed 49 per cent, although this may vary by one percentage point from one year to the next). Whilst no simple relationship can be established between the proportions of employers employing teleworkers and the proportions of the workforce who work in this way, it is reasonable to expect some correspondence.

Call centres make up a significant proportion of this eWork. Whilst only 1.4 per cent of respondents had an in-house remote call centre (outside their own region with a direct telecommunications link) no fewer than 15 per cent use an outsourced call centre. For 11.1 per cent of establishments this involves a direct telecommunications link to the main office.

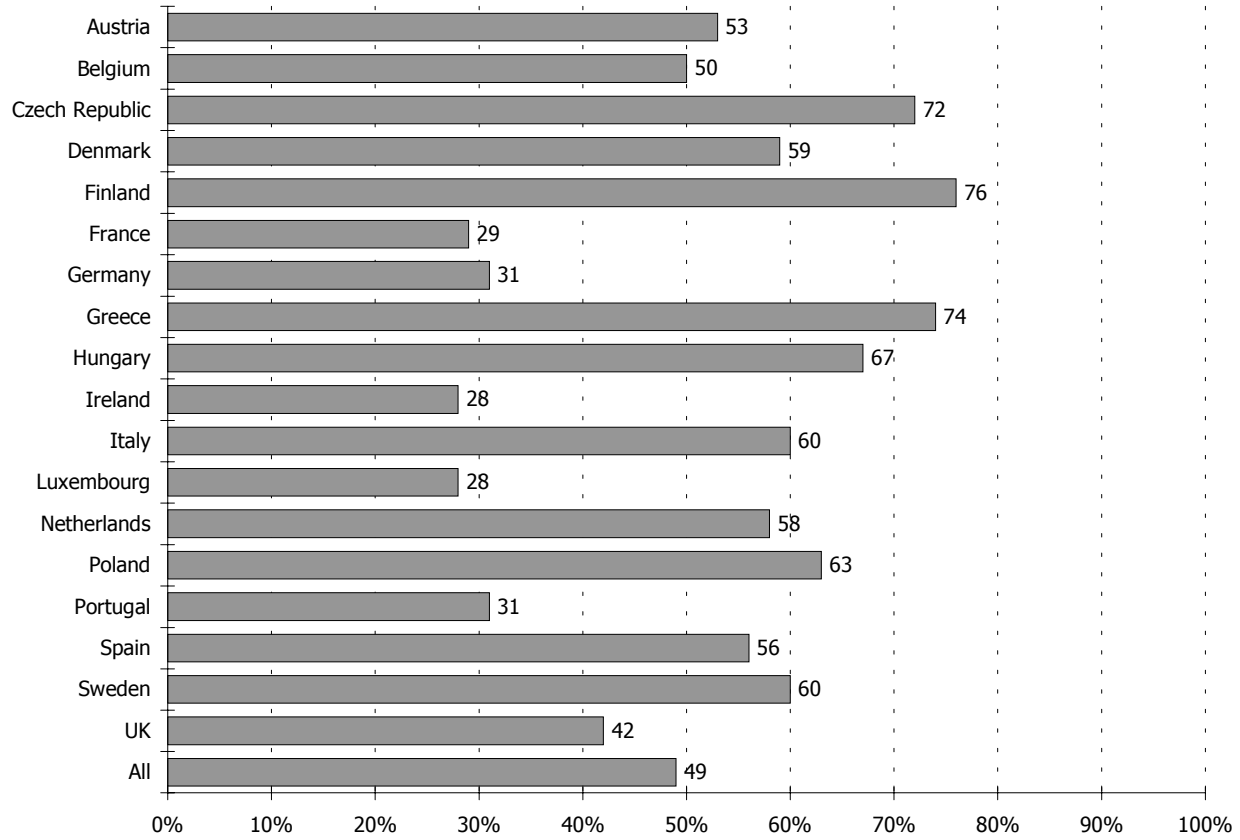
4.2 National variations

There is of course considerable variation in levels of eWork between countries, as can be seen from Figure 4.2.

Countries with high levels of eWork fall into two broad categories: advanced high-tech economies such as Sweden, Finland and the Netherlands, which make use of IST technologies for a wide

[1] Office of National Statistics, *Labour Force Survey,* Spring Quarter, 1997-2000, Analysis by IES.

Figure 4.2: eWork by country



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases.

variety of eWork practices; and countries in Southern, Central, and Eastern Europe, such as Italy, Spain, Hungary, Poland and the Czech Republic, which have very high levels of outsourcing, sometimes rooted in economic systems which favour small firms or with a large informal economy. The new information technologies have clearly enabled establishments in these countries to develop electronically enabled subcontracting networks to a considerable extent.

The high levels of outsourcing in the Accession States of Central and Eastern Europe raise a number of interesting questions. Is this a temporary phenomenon produced by the extremely rapid rate of economic development since 1989, requiring external sources of expertise? Might the survey be identifying the presence of a large number of branches or subsidiaries of Western-owned companies that have located in these countries to take advantage of a ready supply of scarce skills combined with favourable labour costs? Are the results affected by the small numbers of large establishments in these countries — could it be that a survey of micro-businesses with fewer than 50 employees would produce a different pattern? Could it be that cultural factors play a major role in producing distinctive work patterns that differ from those in Northern and Western Europe? Some of these questions are explored in greater depth later in this report, and will also be

addressed qualitatively in later phases of the EMERGENCE project. The project is also hoping to extend the survey to very small firms in the knowledge sectors in these countries.

The low apparent levels of eWork in Ireland, Luxembourg and Portugal are in part a result of the fact that these countries are each classified as a single region within the EU NUTS classification; this means that they cannot by definition be regarded as having remote back offices or outsourcing outside their own region but within their own country.

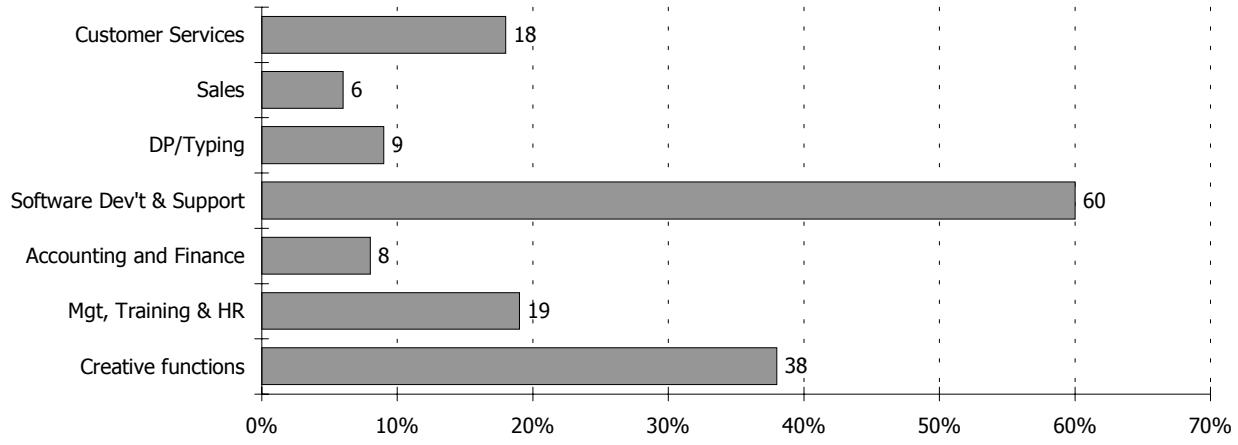
It is the larger economies of Germany and France, and to a lesser degree, the UK, which, because of their sheer size, bring down the average prevalence of eWork within the EU when the survey results are weighted. Perhaps because of the more strongly corporate models of industrial relations which exist in Germany and France, perhaps because there is a more highly educated in-house workforce to draw on and hence a lesser need to seek talent externally, there is a lower rate of take-up of eWork in these countries. This too is explored in greater depth later in this report.

4.3 Functions involved in eWork

Turning to the functions involved in eWork, shown in Figure 4.3, we find that six out of ten of the establishments using eWork use it for software development and support, which is the function most likely to be carried out remotely using a telecommunications link. There are several possible explanations for this.

First, it is a function that by its very nature lends itself to eWork. The personnel involved in this work are likely both to possess the requisite skills and to have access to the technology to enable them to work in this way.

Figure 4.3: eWork by function



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base 4,657.

Second, they are also likely to be in a position to use the Internet or other electronic means to recruit specialists or market their services remotely. There is, in other words, an established tele-marketplace for such work, although it is by no means universal in its scope.

Third, this is a rapidly changing field that, at the time of our survey, in 2000, was subject to highly-publicised skill shortages, leading employers actively to seek expertise wherever they could find it, and encouraging software professionals to offer their services remotely. This situation also gave a certain leverage to some software professionals on the labour market, enabling them to demand the working conditions that suited them best; it is quite possible that the right to telework might constitute one of these benefits.

The second most common telemediated function, at 38 per cent, is 'creative work', a category which includes design, editorial work, multimedia content generation and other creative activities. It also includes research and development.

This is followed by management, training and human resource management (HR) functions, at 19 per cent and customer services at 18 per cent. These results reflect strong recent trends towards the centralisation, and in some cases outsourcing, of HR functions[1] and the rapid growth of call centres, especially outsourced call centres, both for HR and for customer services functions[2].

Since sales activities have traditionally been carried out in a dispersed way, we did not wish to run the risk of categorising all travelling sales personnel as eWorkers, so the sales function was defined rather narrowly in the EMERGENCE survey to include only sales activities carried out using a telecommunications link. Such telesales activities were reported by only six per cent of all eWork employers. However, this apparently low level is partly accounted for by the increasingly popular pattern of integrating sales and customer service functions — many telesales activities have been subsumed into customer services departments.

At nine and eight per cent respectively, data processing activities and finance and accounting services also play a significant role in eWork.

---

1 Reilly P, *HR Shared Services and the Re-alignment of HR*, Institute for Employment Studies, IES Report 368, Brighton, July 2000

2 Denbigh A and Huws U, *Virtually There: the Evolution of Call Centres*, Mitel, Swindon, 1999

5. eEmployment: characteristics of the employed eWorkforce

5.1 Home-based and multilocational eEmployment

We have already noted that fully home-based eWork by employees is one of the least popular forms of eWork. Nevertheless, it is not entirely insignificant. We present the results here partly for this reason and partly because this form of eWork has also formed the subject of a large number of qualitative case studies and small-scale surveys, for which the EMERGENCE results form interesting contextual information.

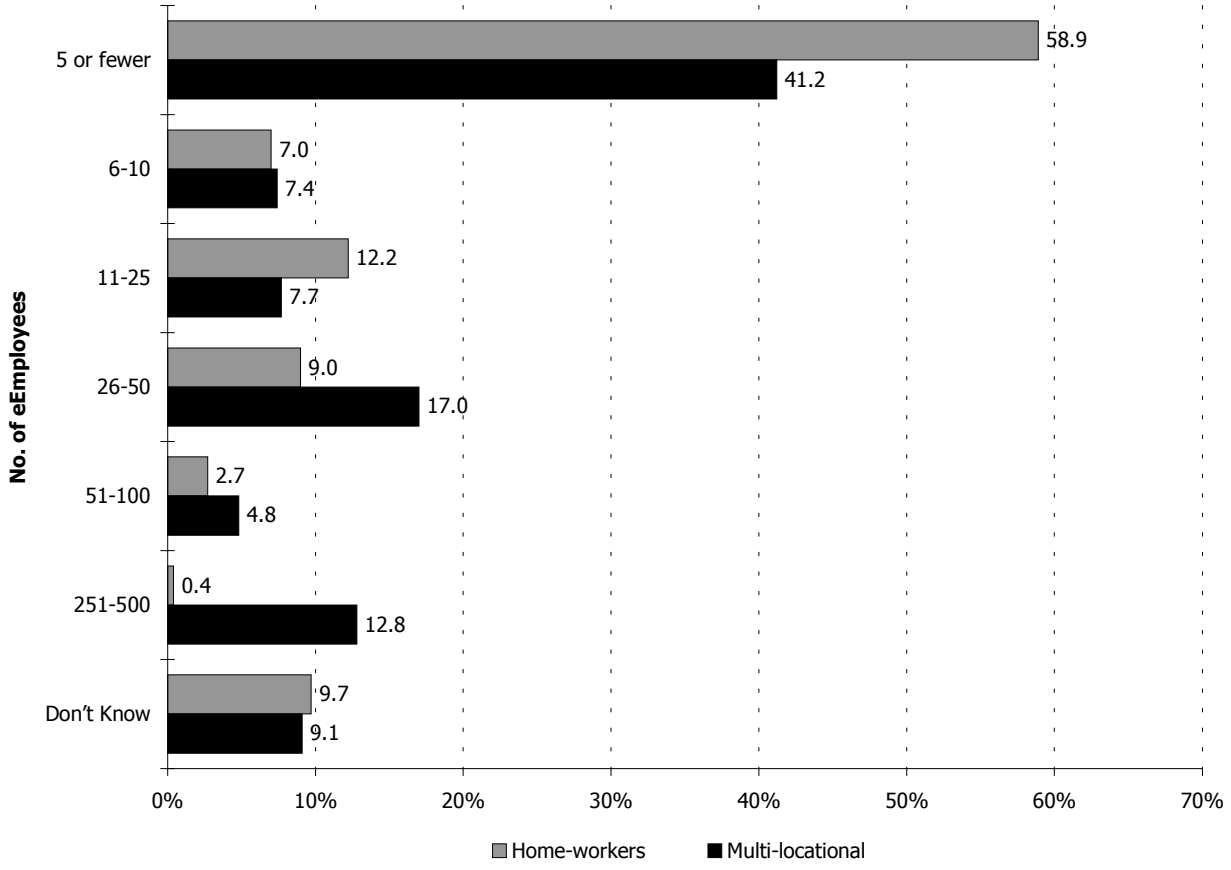
The more popular form of multilocational eEmployment involves employees using information and communications technologies to receive and transmit work from a variety of different locations which might include their homes, clients' premises or other non-work locations such as airports, hotels or trains. This category also includes 'alternating teleworkers' who may divide their working time between the employer's premises and their homes or other locations.

5.1.1 Numbers of home-based and multilocational eEmployees

As Figure 5.1 demonstrates, both home-based and multi-locational eEmployees are generally employed in small numbers.

In nearly six out of ten (58.9 per cent) of cases where fully home-based eWorkers were employed, and over four out of ten (41.2 per cent) of cases concerning multilocational eEmployees, fewer than six employees were involved. However, this is by no means a universal pattern. Nearly one case in five of multilocational eEmployment (18.6 per cent) involved over 50 workers, and approximately one-third (32.1 per cent) between ten and 50 employees. For homeworking eEmployment, the comparable figures were 3.1 per cent and 28.2 per cent respectively. This suggests that substantial numbers of employees may be working in this way in some sectors and regions.

Figure 5.1: Home-based eEmployment: number of eEmployees working fully from home (per cent of responses)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments in EU (15) plus Hungary, Poland and Czech Republic with >50 employees employing fully home-based employees for eWork. Weighted base: 154 instances of homeworking and 894 instances of multilocational working.

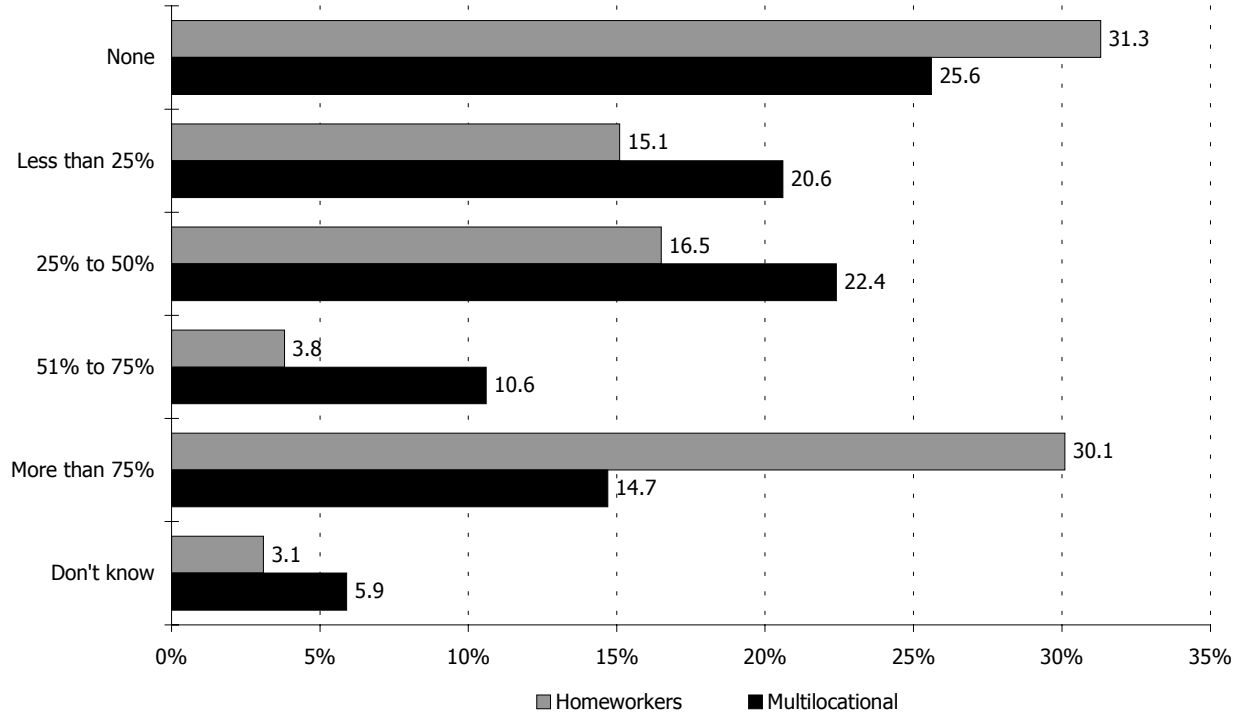
5.1.2 Gender of homeworking and multilocational eEmployees

It is sometimes argued that home-based employment, or employment which allows flexibility in the time and place of work, is particularly attractive to people with childcare or other domestic responsibilities, and hence to women (who still tend to be assigned primary responsibility for these in most European countries). It is therefore of particular interest to see whether this is reflected in the gender composition of the employed eWorkforce.

The evidence from this survey supports that from other population-based surveys, such as the UK Labour Force Survey[1] which has consistently found some 70 per cent of home-based workers using ICTs to be male. As can be seen from Figure 5.2, in over a quarter (25.6 per cent) of cases of multilocational

[1] Office of National Statistics, *Labour Force Survey,* 1997-2000, Analysis by IES.

Figure 5.2: Gender of homeworking and multilocational eEmployees: proportion who are women (per cent of responses)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures: establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 154 instances of homeworking and 894 instances of multi-locational working.

eEmployment and over three out of ten (31.3 per cent) cases of home-based eEmployment, no women were involved at all. Including the cases where women made up less than a quarter of the eWorkforce brings the proportions of male-dominated cases to a more or less equal 46.4 per cent for homeworkers and 47.2 per cent of multilocational workers. However, in the case of home-based working, in 30.1 per cent of cases women form the overwhelming majority (over 75 per cent) of eWorkers, with a further 3.8 per cent of cases where they form between 50 per cent and 75 per cent. This suggests that there may be some polarisation between female-dominated and male-dominated types of home-based eWork, perhaps rooted in occupational differences. Unfortunately, the small numbers of fully home-based eWorkers found in this survey make it difficult to establish reliably what these occupational patterns might be.

In multilocational working, the proportion of female-dominated groups is somewhat smaller. In only a quarter (25.3 per cent) of cases do women form more than half the workforce.

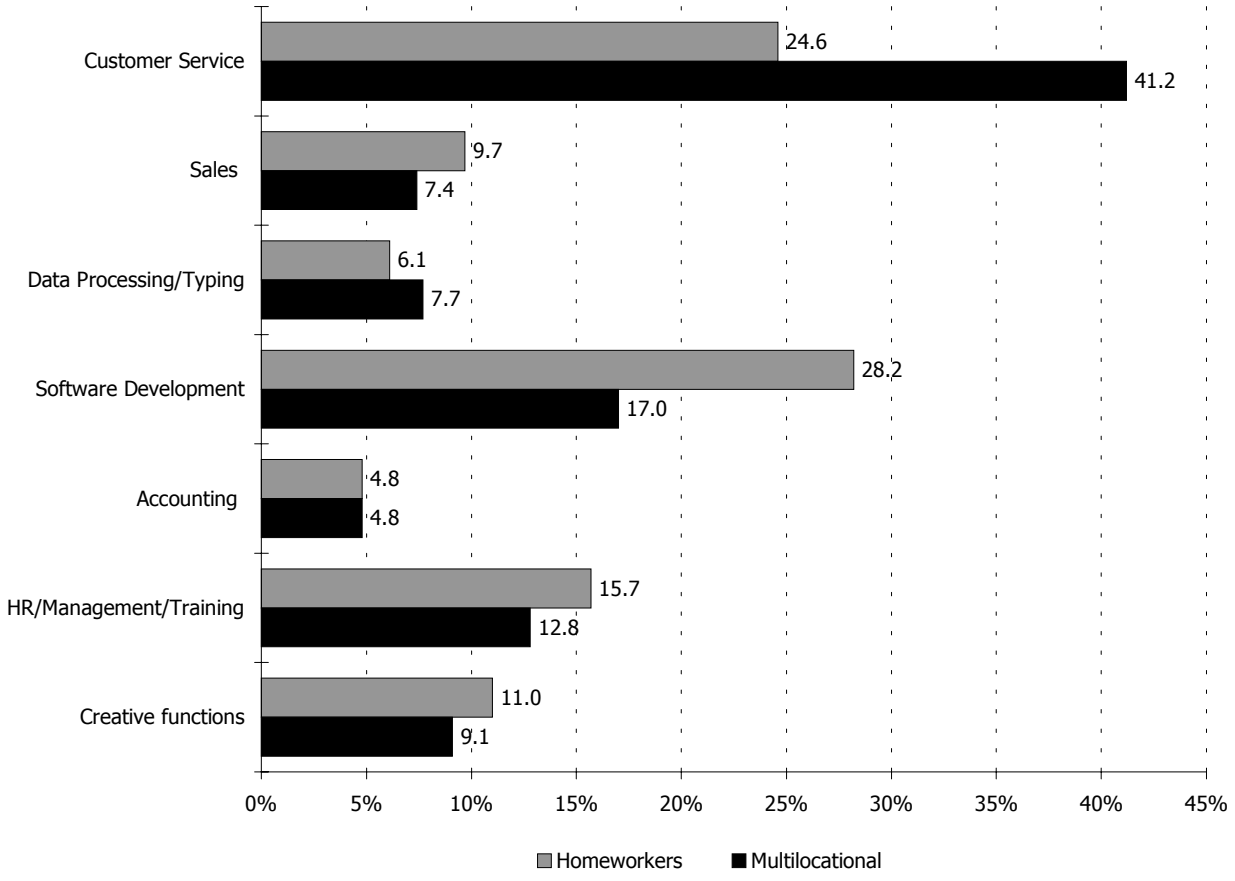
Given that women now form 45 per cent of the European workforce, this suggests that they are somewhat under-represented in these non-office-based forms of eWork.

5.1.3 Activities involved in home-based and multilocational eEmployment

The differences in gender patterns to be found in eEmployment reflect differences in the types of activity involved. Figure 5.3 indicates that a wide range of business functions are found in connection with these forms of eEmployment.

Given the differences between occupations in the degree to which they lend themselves to nomadic working, it is perhaps surprising that there are so few major differences between home-based and nomadic eEmployment in the distribution of functions. In most cases only two or three percentage points separate the two forms of eWork. The least popular function in each case, at 4.8 per cent, is the accounting and financial function, followed by data processing or typing, which accounts for 6.1 per cent of entirely home-based eEmployment and 7.4 per cent of multilocational eEmployment. In this case, the nature of the work suggests that this takes the form of 'alternating telework' with the employees working sometimes from the office and sometimes from their homes. Telesales activities account for 9.7 per cent and 7.4 per cent

Figure 5.3: Functions involved in home-based and multilocational eEmployment (per cent of responses)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 154 instances of homeworking and 894 instances of multilocational working.

respectively; creative functions for 11 per cent and 9.1 per cent respectively and Management and HR functions for 15.7 per cent and 12.8 per cent respectively.

However, two activities — which are also the most popular — stand out as having distinctive locational profiles. These are customer services, which is much more likely to involve multilocational working, and software development and support, which is more likely to be home-based.

Customer services is involved in over four out of ten (41.2 per cent) of all cases of mobile eEmployment, compared with a quarter (24.6 per cent) of home-based eEmployment. Many of the workers involved may be regarded as latter-day descendents of the roving field staff who in the past visited clients on their own premises. Despite the developments which have transferred some of their traditional roles to call centres, it is clear that new information and communications technologies have also given a new lease of life to this form of working, not only making it easier for traditionally nomadic workers to keep in touch with their employers from a distance, but also enabling many traditionally desk-bound staff to become more mobile and customer-facing.

On the other hand, software development and support is more likely to be a home-based activity, accounting for 28.2 per cent of all cases of home-based eEmployment, compared with 17 per cent of multilocational eEmployment. Because multilocational eEmployment is around six times as popular as home-based eEmployment, however, this should not be interpreted as suggesting that software development is primarily a fixed, home-based activity. There has been a history of home-based programming going back to the 1960s[1] and it is clear that significant numbers of software professionals are still employed in this way. However, they now appear to be considerably outnumbered by those who have greater flexibility in their place of work.

5.2 eEmployment in remote office premises

We turn now to those forms of eEmployment which take place in remote office premises. The notion of 'distance' is of course a relative one which cannot be defined precisely. As already noted, the EMERGENCE survey was constrained by the categories in existing data sets and only classified such activities as 'remote' if they took place outside the region where the respondent was based, a 'region' being defined using the standard European NUTS classifications, as NUTS1. In populous countries, such as

[1] documented, *inter alia*, in Huws U, *The New Homeworkers: New Technology and the Relocation of White-collar Work*, Low Pay Unit, London, 1984.

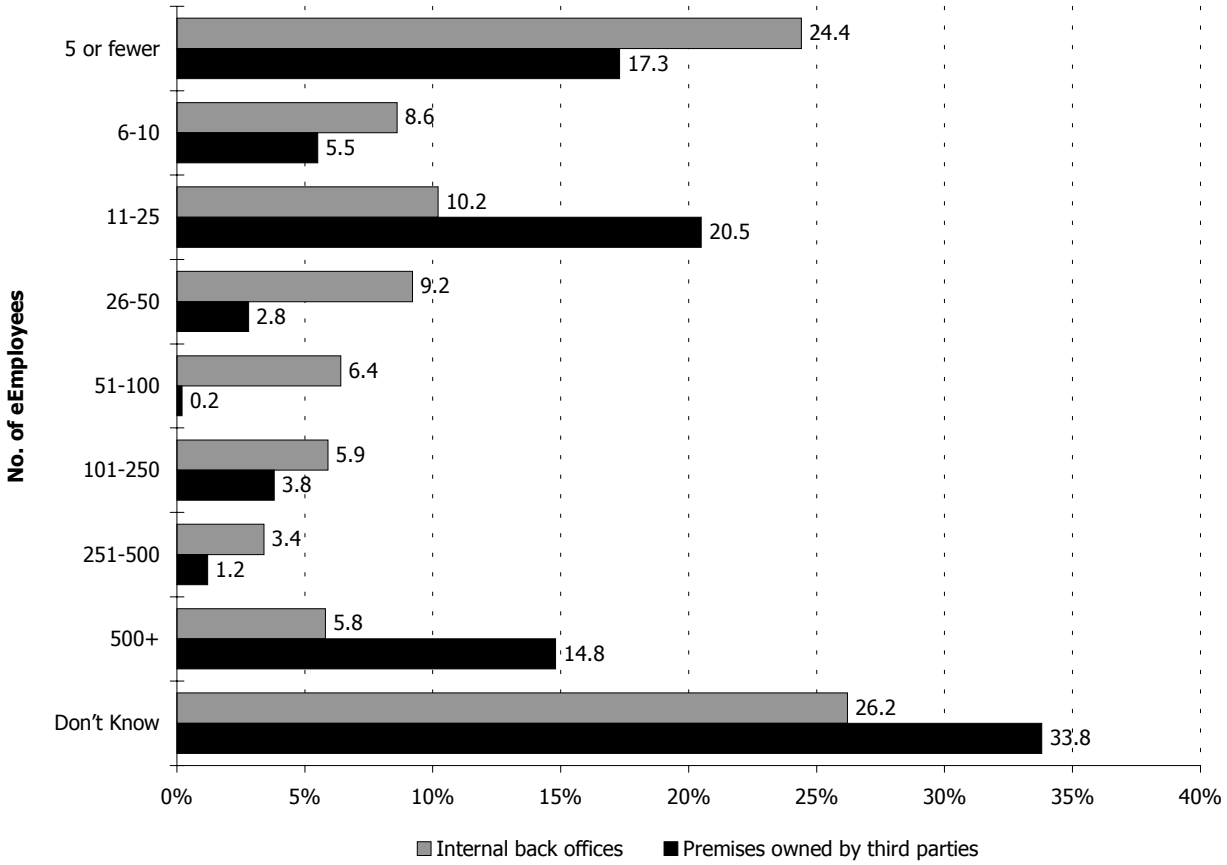
Germany, the UK, the Netherlands, Belgium or Italy, the NUTS1 region represents a unit which can be regarded as reasonably homogenous in terms of its labour market; a move to another region representing a significant relocation. For instance, if a firm based in the Lombardia region of Italy opened up a back office in the Campania region then this could legitimately be regarded as 'remote' in a sense which would not apply if the office were located in another part of Lombardia. In cases where establishments are located close to borders, there is, of course, a danger that sites which are actually quite nearby but located just the other side of the border will be defined as 'remote'. Such dangers are, unfortunately, inherent in any geographical classification system.

More seriously, however, there are major differences between countries in the size of regions, both in terms of population and in terms of geographical extent, which makes it impossible for 'remoteness' to be defined entirely consistently. Denmark, Ireland, Luxembourg, Sweden and continental Portugal are defined as single NUTS1 regions in the official EU classification scheme. Because of difficulties in obtaining comparable data broken down at a regional level, Poland, Hungary and the Czech Republic were also treated as single regional units in our analysis. It was felt preferable to run the risk of excluding some remote offices which were genuine examples of eWorking than to include large numbers of spurious cases where offices were separated only by short distances and regular face-to-face contact made it difficult to establish that the relationship was genuinely telemediated.

As a result, 'remoteness' is rather narrowly defined in the EMERGENCE survey which therefore probably underestimates the extent to which office work has become delocalised. Nevertheless, it is clear that remote (*ie* out-of-region) back offices are used on a significant scale — by 6.8 per cent of establishments — whilst a small proportion of employers also employ people who work remotely from office-type premises owned by third parties, such as telecentres and telecottages.

But what scale of employment displacement do such remote offices represent? Figure 5.4 summarises the responses to a question on this subject insofar as the answer was known. As can be seen, the very remoteness of the relationship meant that information on the scale of remote employment was not always available. Perhaps it was not surprising to find that one-third of those who reported employees working in premises owned by third parties did not know how large these were. In over a quarter of cases (26.2 per cent) respondents were unaware of the size of remote offices owned by their own company, perhaps because they had never visited these sites, many of which were in another country. Nevertheless, the data from the remaining three-quarters of cases do provide some indicative information.

Figure 5.4: Numbers of eEmployees on remote office sites (per cent of sites)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 1,060 remote company-owned sites and 110 remote sites owned by third parties.

As the figure shows, the majority of the remote establishments were small, with over half (52.4 per cent) of internally owned sites employing fewer than 50 people to deliver the specified business service. The equivalent proportion in premises owned by third parties was 46.1 per cent, but this figure should be treated with some caution because of the small numbers of cases in this category.

This finding underlines the importance of very small establishments in the supply of eWork. However, it must be emphasised that small establishments do not entirely dominate remote eEmployment. Nearly six per cent (5.8 per cent) of cases involve more than 500 remote employees, whilst a further 15.7 involve between 51 and 500 employees. Attracting such employment could therefore represent a significant opportunity for some regions.

More surprising, given the popular preconception of a 'telecottage' as a small rurally based unit providing the opportunity for local residents to work for distant employers, is the high proportion of employees working in large numbers in remote premises owned by third parties. Although only 5.2 per cent of such cases involve 51-500 workers, a full 14.8 per cent

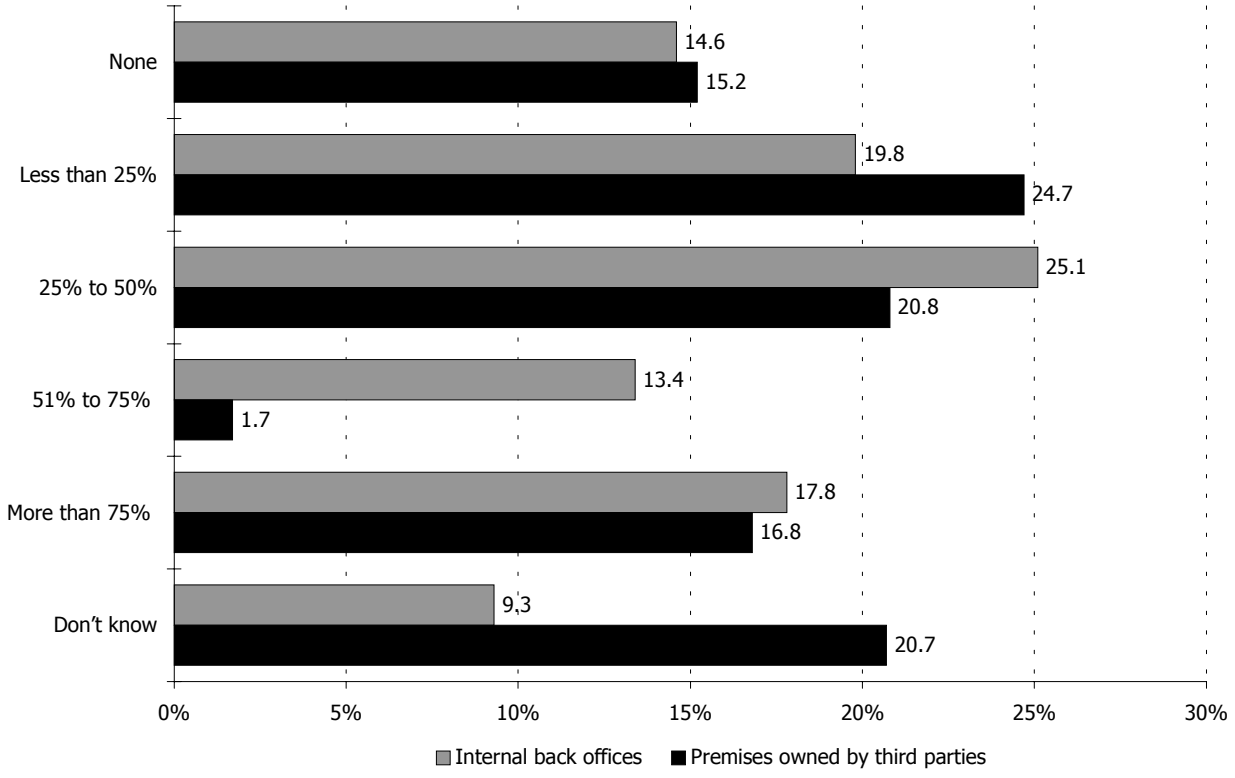
involve over 500 employees. The small numbers in this category caution us against drawing major conclusions from this, but where such cases are found, their profile is interesting. They generally involve employees working in large customised premises, such as call centres, of which the ownership and management is outsourced. Whilst it is more usual for a whole operation to be outsourced, including the employment of the workers, in some cases employers prefer to keep the workers under their direct control whilst outsourcing all other aspects of the arrangement. In some cases, the initiative comes from the building supplier, who may offer the use of these specialist premises to a variety of different clients.

The case studies being carried out by the EMERGENCE project in parallel with this survey have shed light on a number of complex arrangements of this type, which will be summarised in a companion volume to this report.

5.2.1 Gender of eEmployees on remote office sites

We now turn to the gender breakdown of eEmployees on remote sites, summarised in Figure 5.5. This shows a more balanced picture than that for the more individualised forms of teleworking involving home-based or nomadic work, although here too there

Figure 5.5: Gender of eEmployees on remote office sites: proportion who are women (per cent of sites)



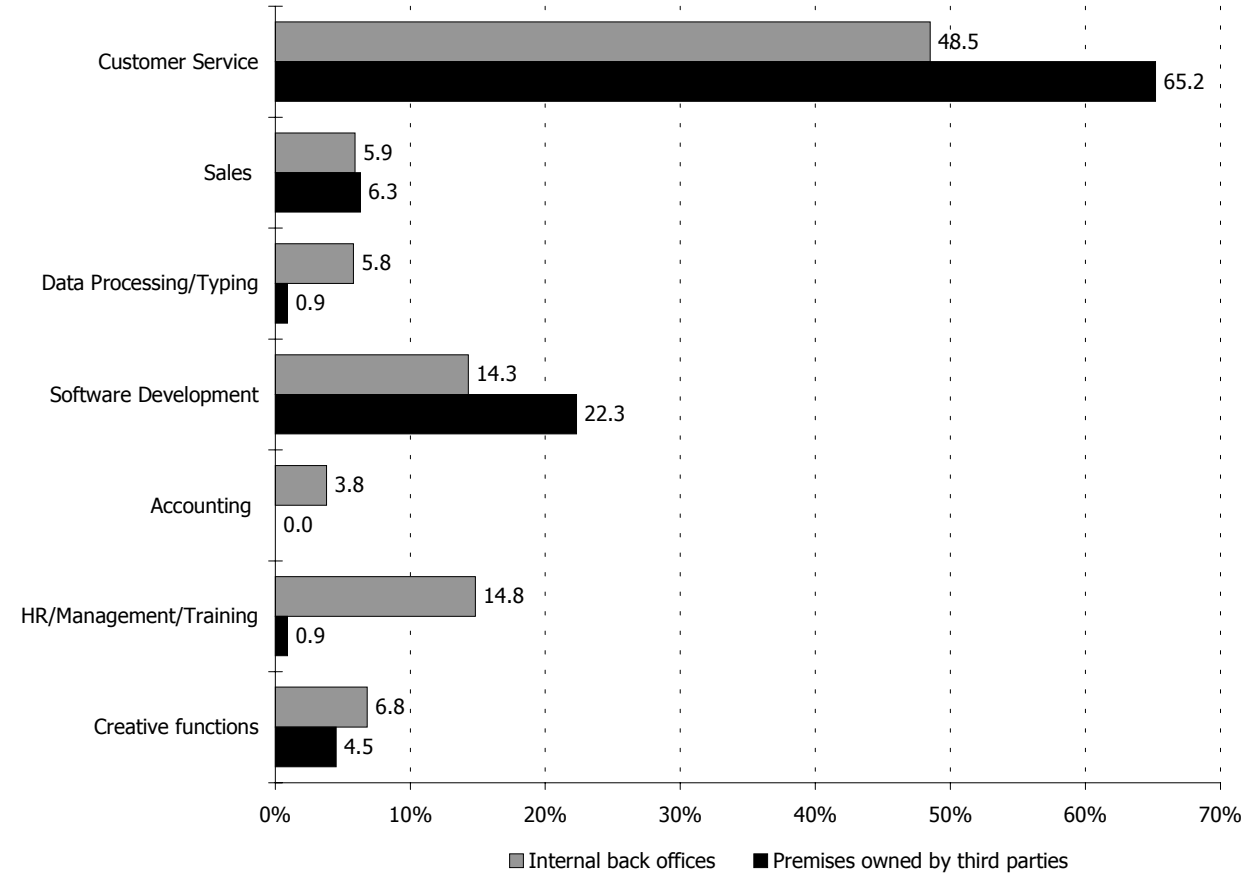
Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 782 remote company-owned sites and 73 remote sites owned by third parties in which gender of workers was known.

appears to be some overall dominance of men. The proportions of strongly female dominated workplaces (those where over 75 per cent of the staff are women) are roughly the same, at 17.8 per cent and 16.8 per cent respectively, for both internally and externally owned premises. So too are the proportions where there are no women at all, at 14.6 per cent and 15.2 per cent respectively. In the intermediate ranges there are some differences, with internally owned back offices somewhat more likely to have higher proportions of women. Again, it should be noted that the small number of cases of third-party owned premises makes generalisation from these results difficult.

5.2.2 Activities involved in eEmployment in remote offices

We turn finally to the activities involved in these remote offices. As can be seen from Figure 5.6, by far the most common activity is customer service — a typical call centre function. This accounts for nearly half (48.5 per cent) of eEmployment in internally owned remote offices and nearly two-thirds (65.2 per cent) of eEmployment in those owned by third parties. This is followed in almost equal proportions in the internally owned remote offices

Figure 5.6: Functions involved in eEmployment in remote offices (per cent of sites)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 1,060 remote company-owned sites and 110 remote sites owned by third parties.

by management, training and HR functions and by software development and support (at 14.8 per cent and 14.3 per cent respectively). In third-party owned premises, software development is more important, at 22.3 per cent. However, the small number of cases in this category warns us not to read too much into this. Creative functions, sales functions and data processing functions each account for around six per cent of in-company office-based eEmployment, with financial and accounting functions emerging as the least popular activity in this category, at 3.8 per cent.

5.3 eEmployment in remote call centres

As noted in chapter 4, 1.4 per cent of establishments have eEmployees in an internally owned remote office which they describe as a call centre and which is linked electronically to their establishment, whilst 0.3 per cent employ such workers in a remote office owned by a third party. Because of the relatively small numbers involved (no doubt in part a result of our necessarily rather restrictive definition of 'remote') it was decided to integrate these cases with the much larger number of outsourced electronically linked call centres (used by 11.1 per cent of establishments) and analyse them together. These results are presented in Chapter 7.

6. eOutsourcing: the demand side

6.1 the general demand for outsourcing

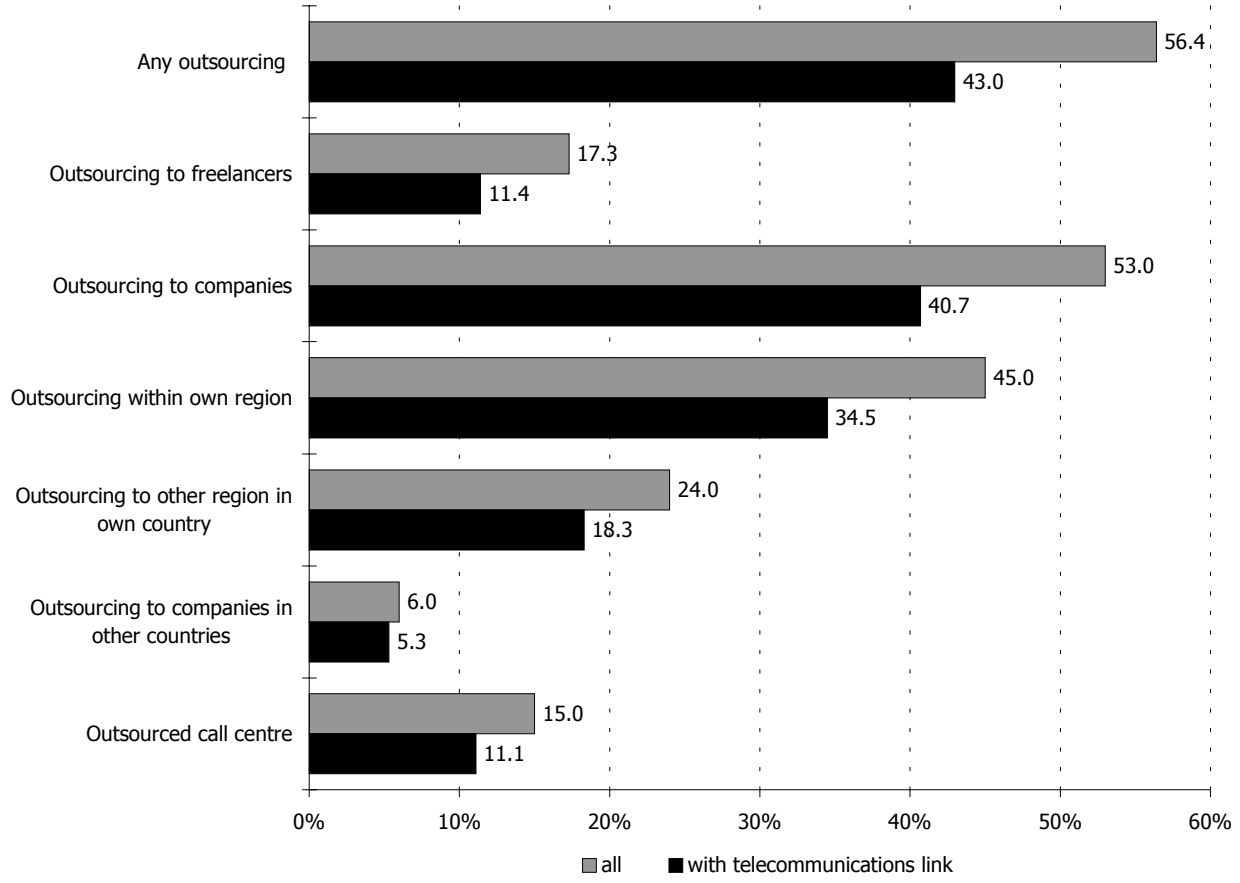
We noted in chapter 4 that the majority of eWork does not involve direct employees of the establishment in question, but some form of outsourcing, either to individuals or to companies. The EMERGENCE questionnaire collected information on all outsourcing of each specified business service, but then asked a supplementary question about whether a telecommunications link was used for the delivery of the work.

As can be seen from Figure 6.1, the use of ICTs to support outsourcing of business services is now widespread; around four cases in five could be said to be telemediated. This suggests that individuals or companies who supply these information-based services in traditional ways may be seriously at risk if they do not adopt the new technologies.

It should be noted that when collecting information about outsourcing we assumed that any telemediated relationship with an outsourcer would by definition be 'remote', and did not apply the criterion that it should take place outside the region where the respondent establishment was based in order to qualify as 'eWork'. However, even when the cases 'within own region' are excluded, we still find that 18.3 per cent of establishments were eOutsourcing to other regions within their own country (a category which could not exist in Luxembourg, Denmark, Portugal, Sweden, Ireland, the Netherlands, the Czech Republic, Hungary or Poland) whilst 5.3 per cent were outsourcing to other countries.

Compared with the 6.8 per cent of establishments using eEmployees in internally owned and the 1.4 per cent in externally owned remote offices, this suggests that outsourcing is a preferable option to direct employment for the remote delivery of office-based services for substantial numbers of European employers. The use of individual freelances, however, at 11.4 per cent, is roughly comparable to that of employed home-based and mobile teleworkers (at 1.4 per cent and 9.9 per cent respectively).

Figure 6.1: Use of telecommunication to support outsourcing of business services in Europe (per cent of establishments)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP.) Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases.

6.2 Numbers of workers involved in eOutsourced employment

Outsourcing is generally a more arms-length relationship than in-house remote employment, so it is not surprising that over half the establishments using eOutsourcing (53.1 per cent) did not know how many workers were involved at the remote location.

Where numbers were known, the largest proportion, 22.9 per cent, were small, involving five workers or fewer. It should be noted that these cases included outsourcing to individual freelances, but nevertheless this underlies the importance of individual entrepreneurs and microbusinesses in the supply of eServices. In a further 19.6 per cent of cases, fewer than 50 workers were involved. The proportions employed in larger numbers are extremely small by comparison. However, it must be borne in mind that numbers are more likely to be known when they are small, and it is quite possible that a substantial proportion of cases where numbers were not known involved larger numbers of workers.

Table 6.1: numbers of workers involved in eOutsourcing (% of responses)

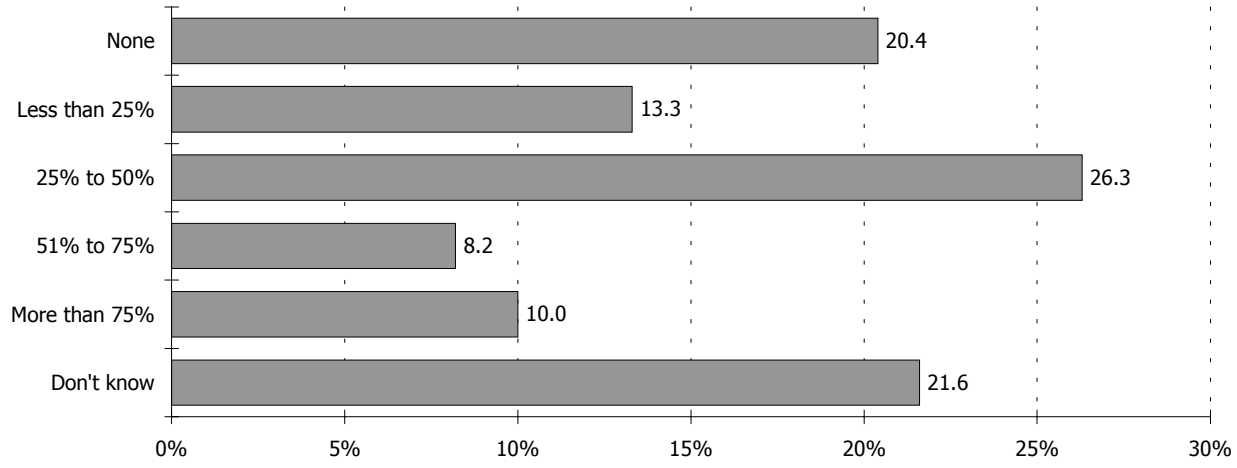
Number of workers	% of responses
5 or fewer	22.9
6-10	9.1
11-25	6.6
26-50	3.9
51-100	1.9
101-250	1.2
251-500	0.6
500+	0.7
Don't Know	53.1

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base 3,957 cases involving outsourcing with an electronic link to the surveyed establishment.

6.3 Gender of workers involved in eOutsourcing

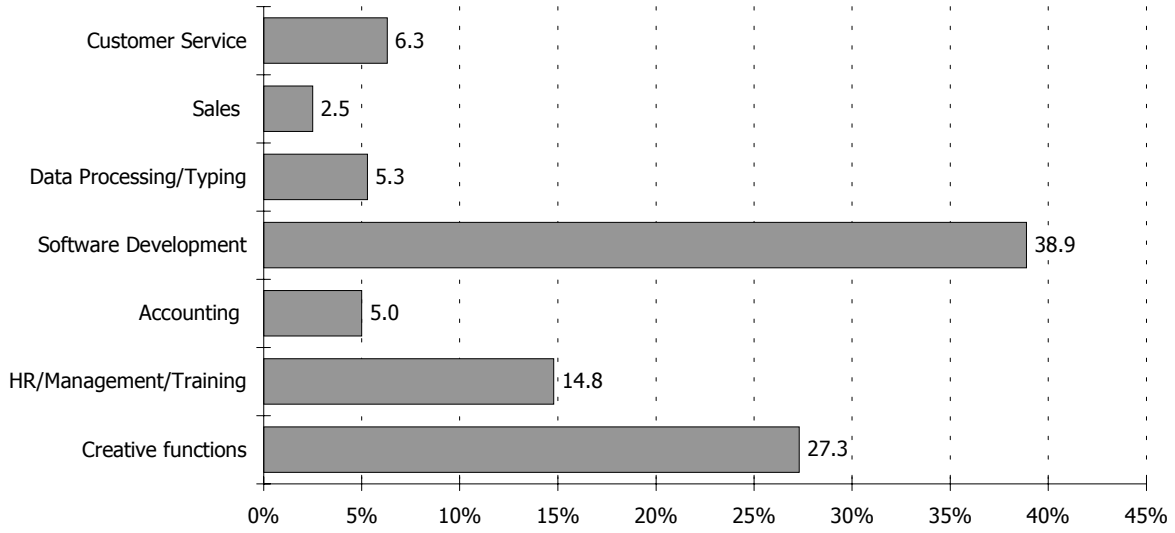
It is not surprising either that a substantial proportion of the respondents in the survey (21.6 per cent) did not know the gender breakdown of the workforce supplying them with their telemediated business services. Those that did, reported a picture which was somewhat similar to that for eEmployees: a picture dominated by men. In no fewer than 20.4 per cent of cases, no women were employed whatsoever. In a further 29.9 per cent of cases women were in a minority, leaving only 18.2 per cent of cases where women formed over half the workforce. This contradicts some stereotyped views which presume that employment in the business services sector in general and remote employment in particular is female-dominated.

Figure 6.2: Proportion of women employed in eOutsourcing (per cent of responses)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 3,493 cases involving outsourcing with an electronic link to the surveyed establishment.

Figure 6.3: Functions involved in eOutsourcing



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base 5,567 cases involving outsourcing with an electronic link to the surveyed establishment.

6.4 Activities involved in eOutsourcing

As can be seen from Figure 6.3, the most important activity involved in eOutsourcing is software development and support, which accounts for 38.9 per cent of all cases. This is followed by creative functions, at 27.3 per cent and then by HR, management and training functions. In contrast with internally owned remote offices, customer services accounts for a relatively low proportion of eOutsourcing, at 6.3 per cent, with data processing, financial functions and sales functions at 5.3 per cent, 5.0 per cent and 2.5 per cent respectively.

It seems likely that the two most popular functions — software development and creative functions — are those for which demand may be intermittent. For many organisations, some of the other functions, such as customer service, financial services or sales, may fall into a category of core activities which are more likely to be required fairly continuously and are therefore more likely to be carried out by employees.

7. Use of remote or outsourced call centres

We have already noted that 16.6 per cent of establishments either outsource to a call centre or have their own remote call centre outside their own region. This figure excludes call centres on their own sites or within the same region, so should not be interpreted as an indicator of the total extent of call centre usage in Europe, which must therefore be considerably higher. These results demonstrate the extent to which call centre working is already being carried out at a distance from the organisation, but do not provide a complete picture of call centre prevalence.

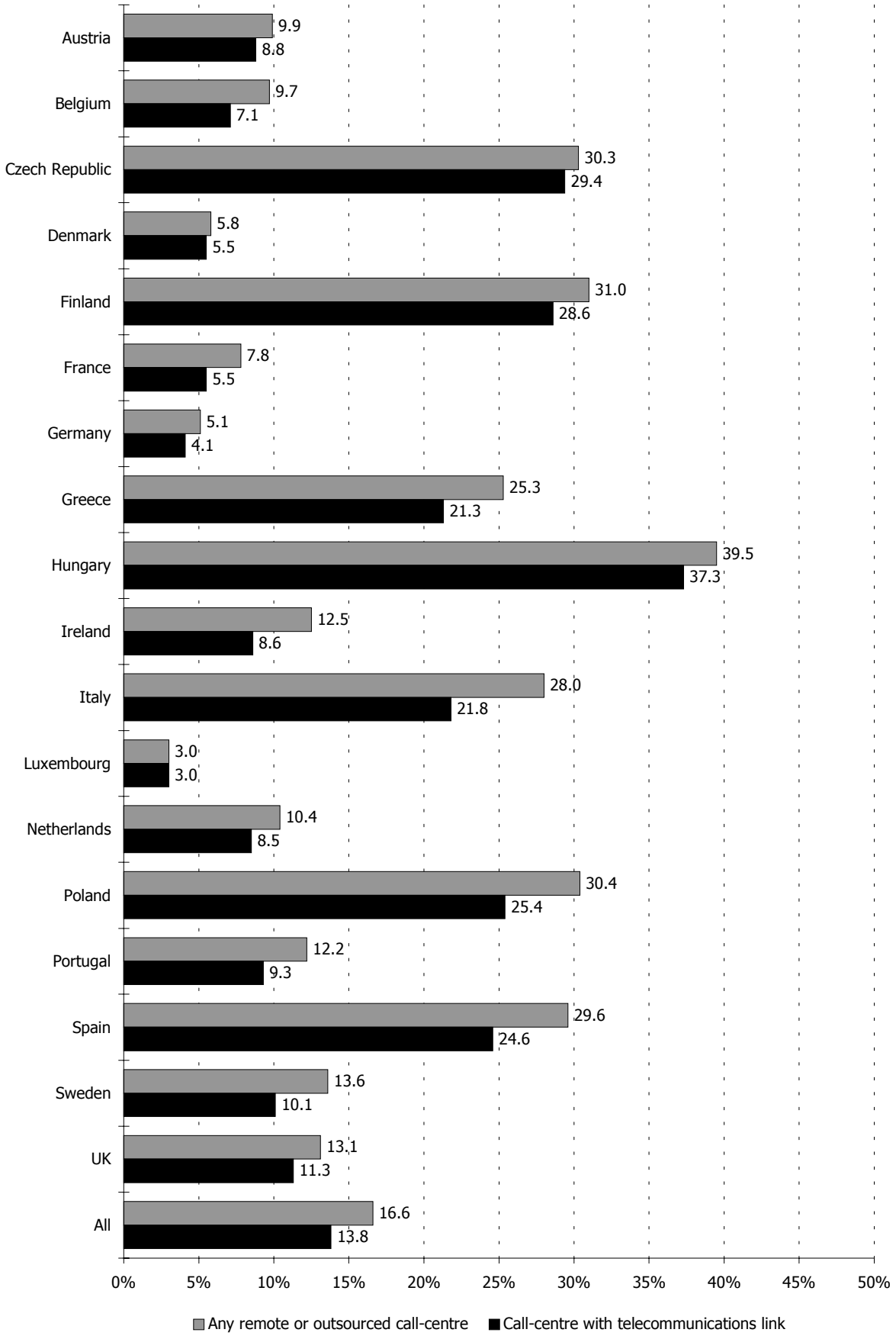
Whilst most of the call centres identified in the survey were directly linked by telecommunications to the establishment, some were not. It is clear that in some cases the call centre function is relatively self-contained. Figure 7.1 shows the use of any type of call centre by country and compares this with the use of telematically-linked call centres, which, as can be seen, were used by 13.8 per cent of establishments.

As with eWork in general, we find a pattern showing very high levels of call centre use in Poland, Hungary and the Czech Republic, in the Mediterranean countries of Spain, Greece and Italy, and in Finland. The lowest levels are in Luxembourg, Denmark and Germany.

It should be emphasised here that these results do not refer to the countries where the remote call centres are based (a subject which is looked at in Chapter 9), but to the countries where the establishments which use or manage them are located. It therefore gives the picture from the demand side.

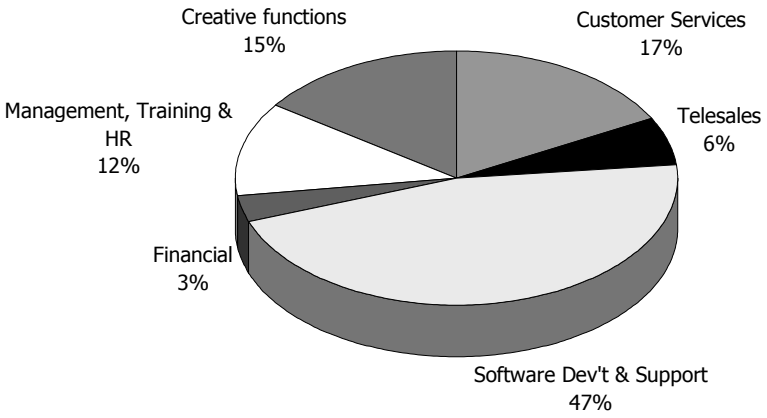
The very high levels in the Accession States of Central and Eastern Europe probably reflect a combination of factors, including a lack of in-house expertise resulting from the very rapid pace of recent economic development, and the presence of large numbers of establishments which are branches of externally-based companies. It is possible that in some cases this may be a transitional phenomenon. The use of eWork in these countries is being investigated in greater depth by the EMERGENCE project and will be the subject of a separate report.

Figure 7.1: Use of remote or outsourced call centres by country (per cent of establishments)



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases.

Figure 7.2: Functions involved in tele-linked call centres



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 1,010 cases involving remote or outsourced call-centres linked to the establishment by telecommunications.

The high use of remote or outsourced call centres in Italy, Greece and Spain reflects a strong culture of outsourcing in these countries, linked with a dynamic small firm sector which is, in turn, associated with a large informal sector.

Figure 7.2 shows the functions involved in those call centres which were directly linked telematically to the responding establishment.

As can be seen, among tele-linked call centres one activity stands out as the most common: software development and support, which accounts for nearly six out of ten (58.3 per cent) of all remote and outsourced call centres. This reflects the crucial importance both to organisations and individuals of having on-line technical support available on demand in the information economy. Although they do not necessarily employ the largest numbers of workers, these technical support help-lines are by far the most numerous. The very high prevalence of such call centres suggests the likelihood of continuing demand for some time to come. This sector could well offer a major employment opportunity to regions where the requisite skills are plentiful and the appropriate infrastructure is available.

They are followed in importance by customer service call centres. More than one call centre in five (21.6 per cent) is concerned with this function. Customer service could be regarded as an archetypal call centre activity and this finding comes as no great surprise.

Much more surprising is the high proportion of cases (19.4 per cent) involved in 'design, creative and editorial' functions. Whilst these functions have often been carried out remotely, we were extremely surprised to find that they could be designated as call centre activities. On investigation, we found that the great majority of the 243 such cases which were identified in the survey were being used by establishments which fell into a relatively small

range of categories. The great majority of these establishments (91 per cent) were head offices. They were also above-average in size (over 50 per cent had between 200 and 500 employees working at the site). Most were in Southern and Eastern Europe, although there were a few establishments in the UK and in Germany. In nearly all cases (98.2 per cent), the call centres referred to were outsourced call centres. Only in a very small proportion of cases did respondents refer to company employees in back offices or in telecottages. It should also be noted that the category 'design, editorial and other creative work' included such functions as translation, the design of house style and various advertising and public relations functions.

It is very likely that these 'creative call centres' represent the emergence of a new phenomenon in some parts of Europe: the outsourcing by large companies of some aspects of their corporate design and communications functions to what might be termed specialist 'style consultants', available to deal with telephone or email queries from their staff on such issues as how to apply the corporate house style to a document or presentation, or to supply services like translation or editorial checking on demand.

This is followed in importance by another new and rapidly expanding (though rather better documented) function — the Human Resources Management call centre.[1] Whether carried out internally within the organisation or outsourced entirely, it is becoming increasingly popular for organisations to use call centres for a range of HR functions including recruitment, appraisal, providing employee counselling, booking interviews, holiday schedules or training courses or dealing with requests for information on employee rights and benefits. As can be seen, nearly one employer in six is already making use of such services remotely. It is likely that many others are doing so on their own premises, or using employees on other sites within their own region. This suggests that a telemediated culture has already replaced the traditional face-to-face contact with a personnel manager for a substantial number of European workers. This category also includes some cases of other outsourced management functions, such as logistics management.

In the remaining functions, the picture is closer to expectations. Around one employer in twelve (7.9 per cent) is using a remote or outsourced call centre for telesales and 4.2 per cent of establishments are doing so for financial functions. In the case of companies in the banking, insurance and financial services sector, such call centres are typically involved in a range of different functions. In other sectors, they tend to be involved in debt collection, a function which is frequently outsourced, perhaps in part because of the distasteful nature of the work.

---

[1] Reilly P, *HR Shared Services and the Re-alignment of HR*, Institute for Employment Studies, IES Report 368, Brighton, July 2000.

8. eWork: the supply side

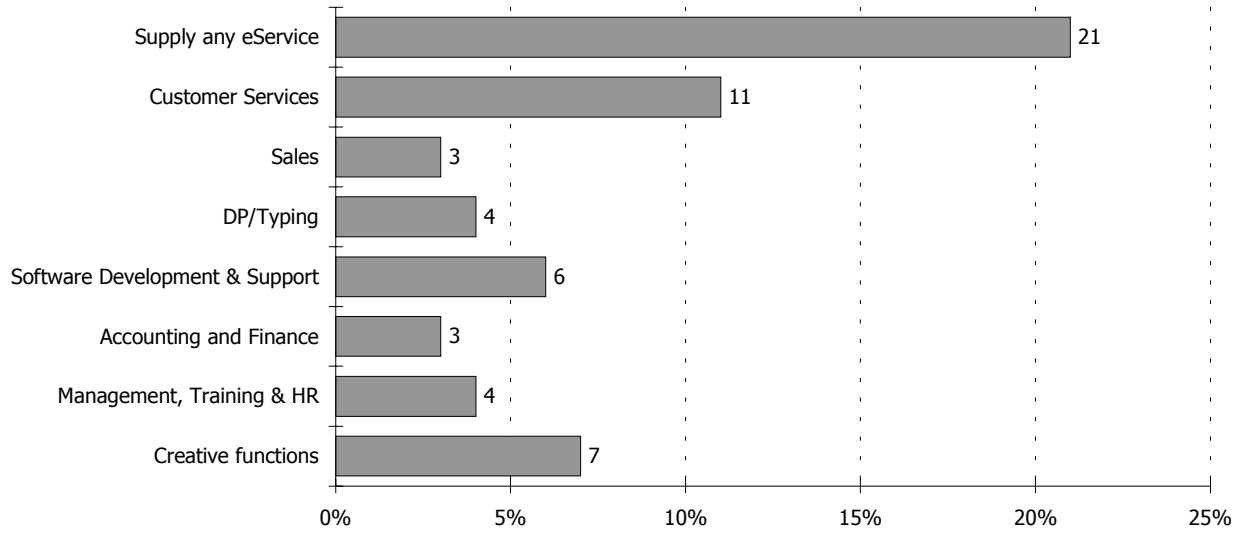
An eOutsourcing relationship, of course, involves two parties. Our survey looked not only at the demand for outsourced telemediated work (the subject of chapters 4-7) but also the supply side, at least insofar as this involves firms with more than fifty employees.

As can be seen from Figure 8.1, in all, over one in five (21 per cent) of all larger establishments in Europe is already engaged in supplying telemediated services. This suggests that such activities already play a significant role in the European economy.

The function most likely to be involved (at 14 per cent) is customer services, perhaps a reflection of the rapid recent growth of outsourced call centres and the relatively high proportion of these involved in this activity.

This is followed by design, editorial and creative functions, at nine per cent and software development and support at seven per cent. Given the very high level of demand for IT services, and the very high proportion of call centres which involve the provision of technical support, the relatively low prevalence is a little surprising.

Figure 8.1: The supply of outsourced eServices in Europe

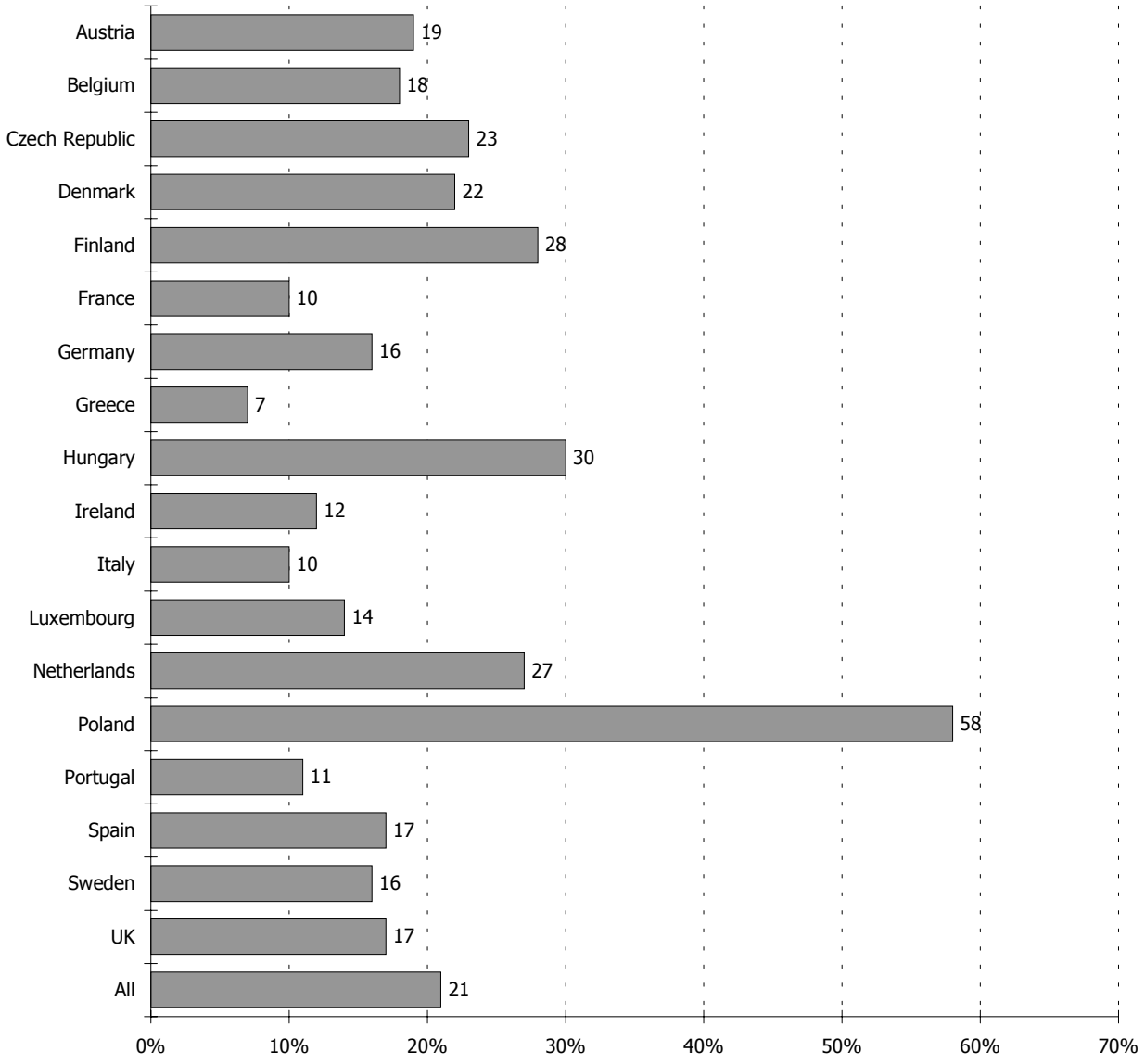


Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases.

Two factors may contribute to this: the strength of countries outside Europe (which would not, of course, have been sampled in this survey) in this sector; and the existence in the IT sector of a number of micro-businesses, either single freelancers or companies with fewer than 50 employees, which, because of their size, would not have been picked up in our survey (although it is hoped that supplementary surveys of very small firms being undertaken at the time of writing by the EMERGENCE project will eventually shed further light on this).

Once again, we find major national differences in the supply of eServices, as can be seen from Figure 8.2. The very high levels of eWork supply in Hungary, Poland and the Czech Republic mirror the high levels of demand for the same services in those countries. Perhaps because firms in these countries have been able to enter the information economy without the encumbrance of a legacy of

Figure 8.2: Supply of eServices by country



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases.

in-house provision of such services, it is clear that the practice of outsourcing is much more widespread in these countries than in the EU.

It might be expected that the supply of eServices might also be above-average in Spain, Italy and Greece, where the demand for these services is also well above average. Surprisingly, however, this is not the case. On the contrary, the proportion of firms found supplying eServices in the EMERGENCE survey was significantly below average in these countries. Two explanations suggest themselves. The first of these is that establishments in these countries may be buying in a high proportion of their business services from other countries; the second, and more likely, is that they are buying them in from micro-businesses too small to be included in the survey. Supplementary surveys of very small firms in these countries will shed light further light on this issue.

Within the EU, the countries with the greatest concentrations of eService suppliers are Finland at 28 per cent, the Netherlands at 27 per cent and Denmark at 22 per cent. This reflects the well-developed technological base and strong information service sectors of these countries.

8.1 Sectors involved in the supply of eServices

A major problem in the investigation of eWork, or, indeed, in the analysis of any other aspect of the information economy, is identifying the sectors involved in the new information-processing activities. Although sterling work has been carried out on this subject, *inter alia* by the US government's Department of Commerce,[1] Industry Canada,[2] and the OECD[3] there remains little empirical evidence of the extent to which sectoral classification captures the reality of the new division of labour in information processing across economies.

One of the tasks which the EMERGENCE project therefore set itself was to chart the correspondence between NACE sectoral classification codes and the supply of eServices.

The results of this exercise were surprising. Not only do they illustrate the extent to which knowledge-based activities now permeate virtually every sector of the economy; they also cast doubt on the very concept of a 'sector' as a defining characteristic of firms likely to remain constant for long enough to be of use to

---

1 US Department of Commerce (2000) Digital Economy 2000, www.ecommerce.gov

2 Howitt P (ed.), *The Implications of Knowledge-Based Growth for Micro-Economic Policies,* Industry Canada, and University of Calgary Press, Calgary, 1998.

3 Work in progress.

researchers. It has been clear for some time that there has been a strong trend both towards convergence and towards cross-ownership between sectors. Mergers, demergers, strategic alliances, public-private partnerships and other practices further complicate the situation, making it ever more difficult to draw distinct sectoral demarcations. The picture becomes even more complex when the impact of outsourcing, the fragmentation of corporations into separate cost- or profit-centres and various forms of business process re-engineering, outsourcing, 'insourcing' or 'hollowing out' are added. A final factor is the speed of change which renders many arrangements provisional and transient.

In the longer term, it is possible to discern secular shifts between activities carried out for exchange, outside the monetary economy, activities carried out within the service economy, the development of material products and the development of new services which transform the boundaries between sectors.[1] Nevertheless, these shifts can, at least in principle, take place whilst leaving intact the sectoral classification of individual firms and the division of labour between them. However, it now appears to be the case that even the concept of the 'core' business of a firm is becoming outdated. It is sometimes argued that the transition from an industrial to a service economy can only be completed if firms shift 'from selling services to selling experiences'.[2] In a world in which the 'brand' is all, it is common to find, for instance, cafes or book-bags sporting the logo of a cigarette company, clothing stores carrying the brand of a toy company, and anything from financial services to mobile phones to airlines carrying the name and trade mark that originated with a record store. Many car companies now find that selling financial services and maintenance contracts is more profitable than selling vehicles. Citing examples as various as Disneyworld, Niketown and British Airways, Pine and Gilmore propose a new model in which firms continually recreate their identities in a process which they summarise in the phrase 'you are what you charge for'.

The results of the EMERGENCE survey give some credence to such a picture. Whilst they by no means support a view of a situation where 'everyone does everything', they certainly demonstrate that the internal division of labour within some

---

1 In a process of commodification which is discussed by Ursula Huws in her 'Challenging Commodification', in *Very Nice Work If You Can Get It: The Socially Useful Production Debate*, Spokesman, Nottingham, 1985, 'Consuming Fashions', in *New Statesman & Society*, August l988, 'What is a Green-Red Economics?: the Future of Work' in *Z*, September 1991, and 'Material World: the Myth of the Weightless Economy' in Panitch L and Leys C (eds), 1999: *Global Capitalism vs. Democracy Socialist Register,* London and Toronto, 1999.

2 Pine II B J and Gilmore J H, 'Welcome to the Experience Economy', *Harvard Business Review,* July-August 1998, p 98.

organisations is such that for many activities there is not only a choice between carrying them out internally or outsourcing them to an external supplier; there is also a third choice: to sell the service to another organisation. The global nature of markets and the increasingly generic nature of many business activities also seem to play a role in facilitating this process, thanks in part to the interoperability and standardisation resulting from using the same or similar hardware, networks, platforms and software.

As an illustration of this, in once case studied by the EMERGENCE project, a large power company found that it had surplus capacity in its internal call centre, because of large fluctuations in the workload. Instead of reducing staffing levels and using temporary or outsourced staff to cope with the peaks in demand (which might have been a feasible option) the company chose instead to capitalise on its human assets by selling the services of its call centre to other companies. At the time of our study, the company's call centre supplied its services to several other companies including a theatre ticket agency and a vehicle breakdown rescue service. Because they remained employed by the same company these workers would nevertheless have been classified in the 'energy' sector.

When analysing the results of the EMERGENCE survey we found a vast range of sectors involved in the supply of business services. At the four digit NACE level, there were 150 different sectors involved in the supply of customer services, 77 in the supply of telesales, 89 in the supply of data processing services, 109 in software supply, 102 supplying financial services, 94 selling management, training and HR functions, and 127 in supplying creative services. So incredible did we find these results at first sight that we selected a number of the most surprising cases and investigated them in depth, thinking that perhaps a question might have been misunderstood, or a response miscoded. In each case, however, we found a genuine case of a business service being sold to a client using a telematic link. In one case, for instance, a company which was coded as an 'instrument maker' was selling customer services to clients in other countries. Looking closer, we found that the company had employees in a customer services department whose services they were selling to other manufacturers of similar products based in China, as well as in other European regions, thus both generating additional income and enhancing the 'customer experience' by offering a wider choice of products.

Because of the very large number of sectors involved, we have not attempted to provide a comprehensive list here, but present instead the top ten sectors involved in the supply of each of the business services studied in the survey. NACE Revision (1992) sector designations at the four-digit level (*ie* level 5) are used here.

Table 8.1: Top ten sectors involved in supplying telemediated customer services

NACE code and sector designation	%
65.11 Central banking	6.61
85.14 Other human health activities	4.46
72.20 Software consultancy and supply	3.87
67.12 Security broking and fund management	3.13
17.54 Manufacture of other textiles n.e.c.	2.95
36.63 Other manufacturing n.e.c.	2.85
75.14 Supporting service activities for the government as a whole	2.76
72.60 Other computer related activities	2.71
29.56 Manufacture of other special purpose machinery n.e.c.	2.47
85.11 Hospital activities	2.34

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 770 establishments supplying customer services to clients using a telecommunications link.

Table 8.1 shows the top ten sectors involved in supplying customer services functions. It should be noted that both the term 'customer' and the term 'service' were interpreted broadly in the survey, so that this category included giving any kind of information, advice or counselling. However, only services delivered to customers by means of ICTs were included.

As can be seen, the spread of sectors is so broad that none accounts for more than seven per cent of the total. This is perhaps partly a result of the fact that the category 'customer service' does not exist in the current NACE classification scheme. Specialist customer service establishments (for instance outsourced call centres) therefore have no obvious 'home' in the scheme. It seems likely that many are classified under the sector which forms their main client base, which, in some cases, may be the sector from which they evolved, or in which their parent company is based.

It is likely that at least some of the seventy-five companies classified under 'central banking' and 'security broking and fund management' may have been outsourced call centres, brokers or financial advice services supplying these sectors, rather than financial institutions themselves. A similar situation may have pertained in many of the 'software consultancy' and 'other computer-related activities'.

In the manufacturing sectors, it is more likely that companies were offering their in-house services to other firms with a similar or complementary product range, as in the case of the instrument manufacturer described above. This illustrates the frequently blurred division between manufacturing and distribution, with manufacturers, on the one hand, increasingly involving themselves in retail activities and retailers, on the other hand, venturing into manufacturing to commission 'own brand' products.

Table 8.2: Top ten sectors involved in supplying telesales services

NACE code and sector designation	%
65.11 Central banking	8.94
36.63 Other manufacturing n.e.c.	7.41
22.15 Other publishing	4.12
64.20 Telecommunications	4.06
85.14 Other human health activities	4.02
51.39 Non-specialised wholesale of food, beverages and tobacco	3.31
80.30 Higher education	3.17
80.42 Adult and other education n.e.c.	2.65
60.24 Freight transport by road	2.62
51.33 Wholesale of dairy produce, eggs and edible oils and fats	2.61

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 211 establishments supplying telesales services to clients using a telecommunications link.

The presence of health services, hospitals and other government activities in the top ten demonstrates the increasingly important role of telematics in the provision of information to the public about public services, and the reconstitution of service users as 'customers', illustrated by such initiatives as *NHS Direct*[1], in the UK and the development of a call centre model for accessing many local and central government services.

The lack of a suitable sectoral designation becomes even more apparent in relation to telesales, as can be seen from Table 8.2. What is perhaps most striking about this table is that only one sector in the top ten (non-specialised 'wholesale food and drink distribution') falls within the NACE sectoral classifications 51 and 52 which cover conventional retail and distribution activities. Banking once again makes an appearance, as does 'other human health activities', but here they are joined by education and a number of other sectors including publishing, telecommunications and freight transport.

Turning to software development and support, shown in Table 8.3, we find a picture which conforms rather more closely to expectation. Here, it seems, the standard classification scheme is somewhat more accommodating to the emerging realities of an information economy. The top two sectors are appropriately classified as 'software consultancy and supply' and 'other computer-related activities'.

[1] A call centre staffed by trained health professionals who provide a first port of call for patients with medical problems. Depending on the seriousness and urgency of the case, *NHS Direct* staff may provide medical advice, call an ambulance, arrange a home visit by a health care professional, or arrange for an appointment to see a doctor.

Table 8.3: Top ten sectors involved in supplying telemediated software development or support services

NACE code and sector designation	%
72.20 Software consultancy and supply	14.96
72.60 Other computer related activities	8.85
85.11 Hospital activities	4.17
80.30 Higher education	3.87
65.11 Central banking	2.97
64.20 Telecommunications	2.78
75.14 Supporting service activities for the government as a whole	2.63
74.12 Accounting, book-keeping and auditing activities; tax consultancy	2.62
29.56 Manufacture of other special purpose machinery n.e.c.	2.61
74.84 Other business activities n.e.c.	2.50

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 394 establishments supplying software development or support services to clients using a telecommunications link.

These are followed by hospital activities, higher education and central banking. Here, it seems (echoing the situation in customer services and telesales supply) that these markets are sufficiently specialised to encourage their suppliers to identify themselves solely with their customer base. In some cases, of course, the establishments in question may be wholly or partially owned by parent companies in the sectors concerned.

The other sectors which feature in the top ten, 'supporting service activities for the government as a whole', 'accounting, book-keeping and auditing activities; tax consultancy', ' manufacture of other special purpose machinery not elsewhere classified' and 'other business activities not elsewhere classified' appear to offer appropriate descriptions for services covered in this category, taking into account the historic roots of the software industry, on the one hand in business and financial services and on the other in the business machine manufacturing sector. It is perhaps the convergence of these two sectors which lies at the heart of the development of an information economy.

Having said this, it should be noted that these top ten sectors account for slightly less than half (48.4 per cent) of all the cases of telemediated software supply identified in the EMERGENCE survey. The remaining 51.6 per cent were spread across 99 other sectors, some of which may have represented the sector of user organisations, and some of parent organisations.

It is clear that there is no easy correspondence between the designation 'software development' and actual practice of this activity. This suggests that estimates of the extent of such activities based solely on the official statistics using standard classification are likely to be extremely inaccurate.

Table 8.4: Top ten sectors involved in supplying telemediated data processing or typing services

NACE code and sector designation	%
75.14 Supporting service activities for the government as a whole	6.23
36.63 Other manufacturing n.e.c.	5.60
72.20 Software consultancy and supply	4.82
74.12 Accounting, book-keeping and auditing activities; tax consultancy	4.67
72.60 Other computer related activities	4.54
80.30 Higher education	3.63
85.11 Hospital activities	3.27
75.11 General (overall) public service activities	3.01
80.42 Adult and other education n.e.c.	2.70
18.22 Manufacture of other outerwear	2.54

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 271 establishments supplying data processing or typing services to clients using a telecommunications link.

It is clear that even activities which are apparently readily identifiable using current classification schemes have been rendered elusive and fugitive by the complex and shifting inter-relationships within and between organisations, the continual refocusing of markets and changes of ownership, combined with the speed of technical and organisational change.

We turn now to the data processing and typing function, shown in Table 8.4. There is in fact a sectoral code in the NACE classification, number 72.30, entitled 'data processing'. Interestingly enough, however, less than one per cent (0.38 per cent) of the establishments selling data processing or typing services were actually classified in this category, which does not feature in the top ten.

This function seems most usually either to be bundled in with the supply of other more general business services such as 'supporting service activities for the government as a whole', 'software consultancy and supply', 'accounting, book-keeping and auditing activities; tax consultancy', 'other computer related activities' or 'general (overall) public service activities' or attributed to the sector of the parent company or client sector (*eg* hospital activities or the manufacture of outerwear).

Once again, even when a suitable code exists, it is clear that this is not applied in a way which enables meaningful estimates to be made.

The next activity we turn our attention to is accounting or financial services (Table 8.5). Here, as in software development, we find that there is at least some correspondence between the activities involved and the sectoral designations. The top two sectors are 'central banking' and 'accounting, book-keeping and

Table 8.5: Top ten sectors involved in supplying telemediated accounting or financial services

NACE code and sector designation	%
65.11 Central banking	13.33
74.12 Accounting, book-keeping and auditing activities; tax consultancy	7.32
36.63 Other manufacturing n.e.c.	6.00
75.14 Supporting service activities for the government as a whole	5.35
85.11 Hospital activities	4.53
75.13 Regulation of and contribution to more efficient operation of business	3.00
72.20 Software consultancy and supply	2.71
60.21 Other scheduled passenger land transport	2.59
45.25 Other construction work involving special trades	2.53
80.22 Technical and vocational secondary education	2.40

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 230 establishments supplying accounting or financial services to clients using a telecommunications link.

auditing activities; tax consultancy'. Fourth in the list is 'regulation of and contribution to more efficient operation of business' which also seems centrally relevant. Nevertheless, these only account between them for around a quarter of all cases supplying these services. Some financial activities, like data processing, appear to be submerged into larger business services categories (such as 'supporting service activities for the government as a whole') but many others seem to have taken on the identity of their client sectors, or to be subsidiary establishments of larger organisations, providing a specialist accounting, auditing, debt-collection or other financial function within or to an organisation whose core activity is not the provision of financial services.

In the next activity we examine human resource management functions, management and training, shown in Table 8.6. Here, we have expanded our top ten sectors to a top eleven in order to include one of the expected sectors, 'supporting service activities for the government as a whole', which would otherwise have been (just) excluded. Accounting for just over three per cent (3.1 per cent) of all cases, this is just exceeded by the sector in which one might expect to find a high proportion of cases in this category, 'labour recruitment and provision of personnel' which accounts for 3.8 per cent of cases.

Whilst it is clear that the outsourcing or remote provision of telemediated HR, management and training functions is proceeding apace, it seems equally clear that much of this development is taking place outside the traditional personnel and recruitment agency sector.

Table 8.6: Top 11 sectors involved in supplying telemediated HR, management or training services

NACE code and sector designation	%
80.30 Higher education	10.73
65.11 Central banking	8.83
74.12 Accounting, book-keeping and auditing activities; tax consultancy	5.30
36.63 Other manufacturing n.e.c.	4.97
72.20 Software consultancy and supply	4.91
80.42 Adult and other education n.e.c.	4.68
85.11 Hospital activities	4.68
29.56 Manufacture of other special purpose machinery n.e.c.	4.45
72.60 Other computer related activities	3.82
74.50 Labour recruitment and provision of personnel	3.79
75.14 Supporting service activities for the government as a whole	3.07

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 293 establishments supplying HR, management or training services using a telecommunications link.

The position of 'higher education' and 'adult and other education not elsewhere classified' near the top of the table is to be expected, given their strong role as training providers.

Even allowing for the fact that some of the activities ascribed to 'hospitals' or 'software consultancy and supply' may apply to specialist recruitment or training agencies, however, some of the other designations are less expected. In at least some cases, organisations whose core activity is something quite different appear to be taking advantage of the special expertise of their HR or training staff to supply outsourced management or personnel services to external clients or other members of the same group of companies. In many cases, these are former internal departments which have been externalised, or turned into separate profit centres, and which thus retain their original sectoral classification, even though they may now be operating with some degree of independence.

Finally, we examine the top ten sectors involved in supplying creative services. This category too was interpreted broadly, to include research and development as well as design, writing, editorial work, translation, multimedia production and other forms of content generation. Table 8.7 shows the top ten sectors involved in supplying such services via a telematic link.

Here, it is clear that a number of sectors appear in the top ten because of their role in the supply of research and development. These include 'higher education', 'research and experimental development', 'other adult education' and 'hospital activities' and possibly also 'other manufacturing not elsewhere classified'.

Table 8.7: Top 10 sectors involved in supplying creative services

NACE code and sector designation	%
80.30 Higher education	8.09
36.63 Other manufacturing n.e.c.	8.01
22.12 Publishing of newspapers	4.44
22.15 Other publishing	4.25
80.42 Adult and other education n.e.c.	3.88
73.10 Research and experimental development on natural sciences and engineering	3.75
74.40 Advertising	3.27
74.84 Other business activities n.e.c.	2.76
85.11 Hospital activities	2.57
72.60 Other computer related activities	2.51

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 503 establishments supplying creative services using a telecommunications link.

The remainder are sectors which might be expected to be found supplying content: newspapers, other publishing, advertising and 'other computer-related activities'. Later in the list (but not featuring in the top ten), we find other similar sectors, for example: 'publishing of books', 'photographic activities', 'architectural and engineering activities', 'motion picture and video production', 'radio and television activities' and 'other entertainment activities'. Nevertheless, it must be noted that these are interspersed with a broad range of other sectors which appear, on the face of it, to have little to do with such activities. Again, we must assume that these are either subsidiary departments or companies of larger groups, classified under the parent activity, which are supplying their services to other parts of the group or to external clients.

8.1.1 Conclusion

These results provide an insight into the complexity of the supply of information services and the extent to which ICTs are already being used to support their inflows and outflows both within and between organisations. Unfortunately, however, they also demonstrate the inadequacy of the existing classification schemes to capture information about these flows which would enable them to be monitored effectively in the future. They also raise more general questions about the ability of existing statistical frameworks to supply the raw material which will allow the information economy to be modelled, analysed and understood.

9. Locations involved in remote work and reasons for their choice

Previous chapters have summarised the extent and characteristics of eWork and the nature of the demand and supply of telemediated eServices. In this chapter we focus on the geographical scope of this delocalisation, and address such questions as: which regions are net beneficiaries of these developments? and: which are favoured for which types of activity?

9.1 The overall picture

We begin by looking at the top 'destinations' for eWork, *ie* the regions which, according to the results of the 'demand side' interviews, are most involved in the supply of eServices. It should be noted in this context that in the EU, NUTS1 level regions were used for classifying locations. The NUTS1 region is large and, in the case of some smaller countries, such as continental Portugal, Luxembourg, Ireland, Sweden and Denmark, constitutes a whole country. In the EU Accession States of Poland, Hungary and the Czech Republic, because of problems of data compatibility, locations were also coded at only the national level, despite the relatively large size of these economies.

It is obviously the case that the larger an economy the greater the number of establishments and the size of the workforce and hence the greater the likelihood of being selected as a destination for eWork. Table 9.1 therefore shows both the top ten destinations for eWork in absolute terms (*ie* those which were mentioned most frequently by respondents as locations for remote back offices, telecottages in which remote employees were based, or sources of outsourced business services) and the top destinations relative to their size, expressed as a ratio to the size of their populations. Appendix C gives a list of all the regions, numbering 77 in all, at a global level that received a significant number of mentions (*ie* above expectation) as destinations for any given function. Again these are listed in order of importance in absolute terms, with this list then being adjusted to reflect population size.

The first variable, on the left-hand side of the table, therefore gives an indication of the overall importance of a region in the supply of eServices in the European economy. The second variable, on the

Table 9.1 Top ten destinations for eWork, absolute and per capita

Absolute	Per capita
POL Poland	BE1 Region Bruxelles
CZE Czech Republic	DE5 Bremen
UKI London	NL1 Noord-Nederland
DE1 Baden-Wurttemberg	CZE Czech Republic
DEA Nordrhein-Westfalen	POL Poland
ES2 Noreste	DE6 Hamburg
ES3 Comunidad de Madrid	UKI London
IT2 Lombardia	DE3 Berlin
HUN Hungary	LUX Luxembourg
DE2 Bayern	ES6 Sur

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 7,305 cases.

right-hand side of the table, gives an indication of how successful a region has been in attracting such employment given its size. Regions which feature in this column can thus be said to be performing better than expectation in the eEconomy.

Comparing the two lists, it becomes apparent that a number of regions are important destinations for eWork in both absolute and relative terms. This may well be an illustration of a clustering effect, whereby regions build a critical mass on their past reputation for excellence in a given field by attracting more talent and investment in this field, which in turn feeds a continuing cycle of growth. Poland and the Czech Republic do not just figure because of their large population sizes but also appear to have a genuinely strong presence in eWork supply, perhaps partly due to the very strong culture of outsourcing in these countries, already noted in earlier chapters.

Otherwise, the list shows a strong clustering around national (or in Germany regional) capital cities. This trend was also noted in the EMERGENCE analysis of official statistics relating to eWork, published as a companion volume to this report: *Where the Butterfly Alights: The GlobalLocation of eWork*. It is particularly interesting to note that various German regions, which featured as very low users of eWork on the demand side, nevertheless appear to have a strong position when it comes to supply. The position of Luxembourg in the top ten when the results are calculated in relation to the size of the population may be an effect of its very small population relative to its scale of economic activity, caused in part by a large daily inflow of commuters across its borders from neighbouring countries. In combination with the relatively small number of cases in this country, this suggests that this result should be treated with some caution.

Table 9.2: Reasons for choice of top ten eWork destinations — the customer perspective (in order of importance)

Brussels Region (Belgium)	Bremen Region (Germany)	Nord-Nederland (Netherlands)	Czech Republic	Poland
Reliability/quality	Near customers	Technical expertise	Technical expertise	Technical expertise
Technical expertise	Merger/takeover	Near other parts of the company	Low cost	Good reputation
Near other parts of the company	Low cost	Near customers	Near customers	Near customers
Longstanding relationship	Technical expertise	Low cost	Good reputation	Low cost
Low cost	Reliability/quality	Longstanding relationship	Longstanding relationship	Longstanding relationship
Good reputation	Near other parts of the company	Good reputation	Reliability/quality	'Geography'
Cultural understanding	Good reputation	Cultural understanding	Near other parts of the company	Reliability/quality
'Geography'		Happened to know them	'Geography'	Near other parts of the company
		'Geography'	Happened to know them	Good marketing strategy
			Good marketing strategy	Merger/takeover
			Merger/takeover	Happened to know them
			Cultural understanding	Cultural understanding

Hamburg Region (Germany)	London Region (UK)	Berlin Region (Germany)	Luxembourg	Sur Region (Spain)
Near customers	Technical expertise	Near customers	Technical expertise	Technical expertise
Near other parts of the company	Good reputation	Merger/takeover	'Geography'	Good reputation
Reliability/quality	Reliability/quality	Near other parts of the company	reliability/quality	Near other parts of the company
Low cost	Low cost	Technical expertise	cultural understanding	Near customers
Merger/takeover	Longstanding relationship	Reliability/quality		Low cost
Good reputation	Near other parts of the company	Low cost		Reliability/quality
Technical expertise	Cultural understanding	Good reputation		Happened to know them
Longstanding relationship	Good marketing strategy	Good marketing strategy		
'Geography'	Merger/takeover	Longstanding relationship		
Good marketing strategy	Near customers	Cultural understanding		
	Happened to know them			
	'Geography'			

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Ranked counts of the reasons given for choosing each region for e-work.

It is of course possible that these regions have emerged as important in the supply of eWork as a result of various accidents of history and geography. We therefore thought it interesting to explore the reasons why they had been selected as remote locations or as sources of outsourced supply. It should be noted in this context that respondents were only asked about the reasons for their choice of a remote location or subcontractor where these were based outside their own region or country. These results therefore specifically exclude cases where locations or subcontractors were chosen simply for reasons of proximity.

A striking feature of the table is that all the regions mentioned are in Europe. Despite the publicity given to the practice of relocating or outsourcing eWork to non-European destinations such as India or the Caribbean, this is strongly outweighed, numerically speaking, by cases where work is relocated within Europe. It should nevertheless be noted that the list of favoured regions for remote eWork shown in Appendix C features a number of regions outside the EU and the Accession States of Central and Eastern Europe. These include India, Russia, Western Australia and Japan as well as a number of US States.

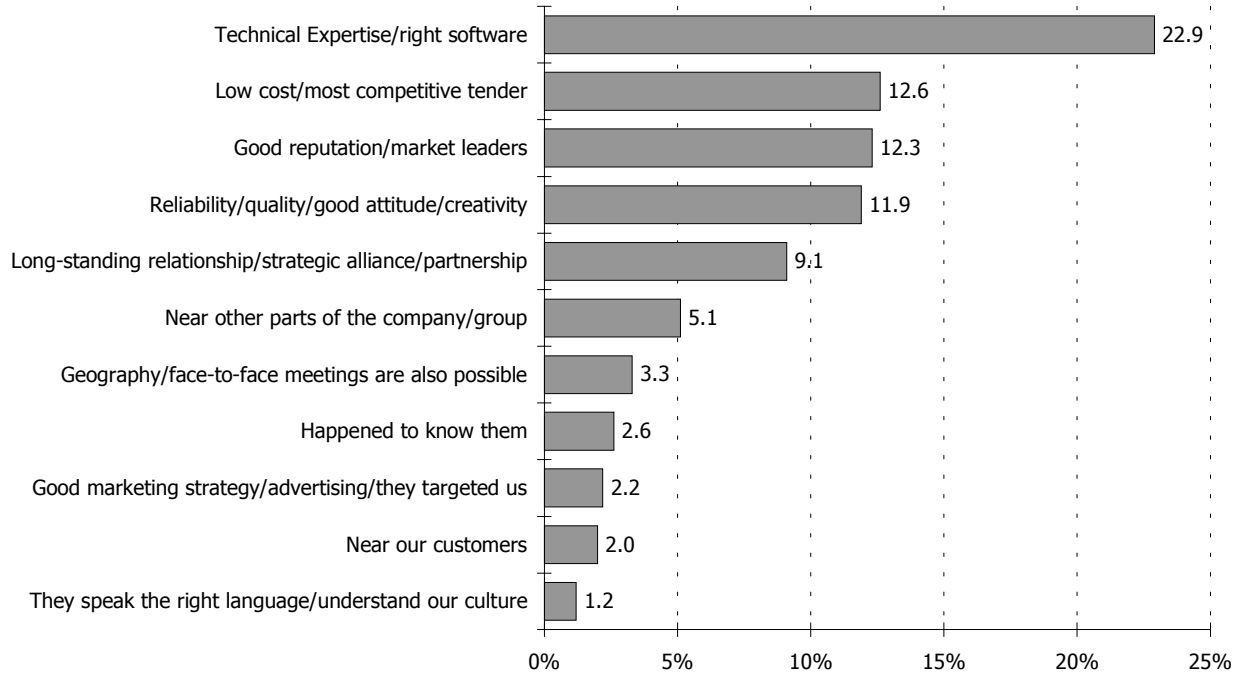
Table 9.2 summarises these reasons for the top ten eWork 'destinations'. For each region, the reasons are listed in the order of the frequency with which they were mentioned.

One of the most striking features of this table is the absence of several factors often considered important in determining the location of eWork: the availability of government grants or other state incentives to choose a location, the absence of strong labour market regulation or trade unions, the time zone in which the region is located, and low staff turnover. In general, by far the most important selling point of any region is the availability of technical expertise. This is often combined with a good reputation, reliability or high quality. The second most important factor, and in Germany the most important one, is proximity to customers. Proximity to other parts of the organisation is also important in the Brussels and North-Netherlands regions, in Hamburg and Berlin and in Southern Spain.

The selection of outsourcers or locations through informal personal networks clearly takes place on a significant scale in the Czech Republic and Poland and, to a lesser extent in the UK, Spain and the Netherlands, but 'we happened to know them' was not mentioned in any of the other top ten regions.

In some cases, the relationship resulted from an initiative on the part of a remote outsourcer or regional development agency, who used a successful marketing strategy to target the customer. This was mentioned in relation to remote subcontractors in Poland, the Czech Republic, London, the Netherlands, Berlin and Hamburg. Whilst in general this may be regarded as a minor factor, it seems

Figure 9.1: Reasons for choice of outsourcer for eServices — the demand-side perspective



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; Base=4,154. Respondents who obtained eServices from another region were asked why they chose that region or supplier and were able to select several reasons for each instance of relocation. Percentages are based on the total number of reasons.

to be capable of tipping the balance in favour of a particular company or region, all other factors being equal.

The criteria governing the choice of these popular regions differ very little from the more general picture of the locational criteria for all outsourced business services, which is summarised in Figure 9.1. The main difference is the greater importance given to 'low cost/most competitive tender', when work involving remote employees and destinations in all parts of the world are included. This is to be expected, given the nature of the outsourcing relationship. It also reflects the fact that low cost is often a greater consideration when work is located outside core EU regions.

It is interesting to note too that when outsourcing is taken in aggregate, historical and informal associations with the company count far more than a successful marketing strategy by the subcontractor. Language and cultural factors play a relatively small part, whilst the time zone is important in a few cases and for a narrow range of activities.

It is interesting to compare the customer's views of choice criteria with those of their suppliers. Figure 9.2 shows the responses to a question posed to all respondents supplying eServices to external clients about the reasons they thought they had been selected.

As can be seen by comparing Figures 9.1 and 9.2, the supply-side view mirrors that of the demand side fairly closely, the most important difference between the two being the relatively low

Figure 9.2: Reasons for choice of outsourcer for eServices — the supply-side perspective

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Weighted base: 9,068. Respondents who supplied customer services to another region were asked why they thought their client chose them and were able to select several reasons for each instance of relocation. Percentages are based on the total number of reasons.

importance given to their technical expertise by eService suppliers, and a somewhat lower importance given to cost. These factors are explored in greater depth in the case studies being undertaken by the EMERGENCE project in parallel with this survey.

9.2 Customer services

We now turn our attention to individual functions. Table 9.1 shows the most popular destinations for the customer service activity, both absolutely and relative to the size of each region. As can be seen, here the scene is dominated by Germany, which accounts for eight of the top ten regions measured in absolute terms, and six of the top ten regions when the results are adjusted according to the population of the region concerned. Poland and the Czech Republic also figure prominently in both lists, whilst the North Netherlands and Southern Spain make their appearance when the lists are adjusted for population size.

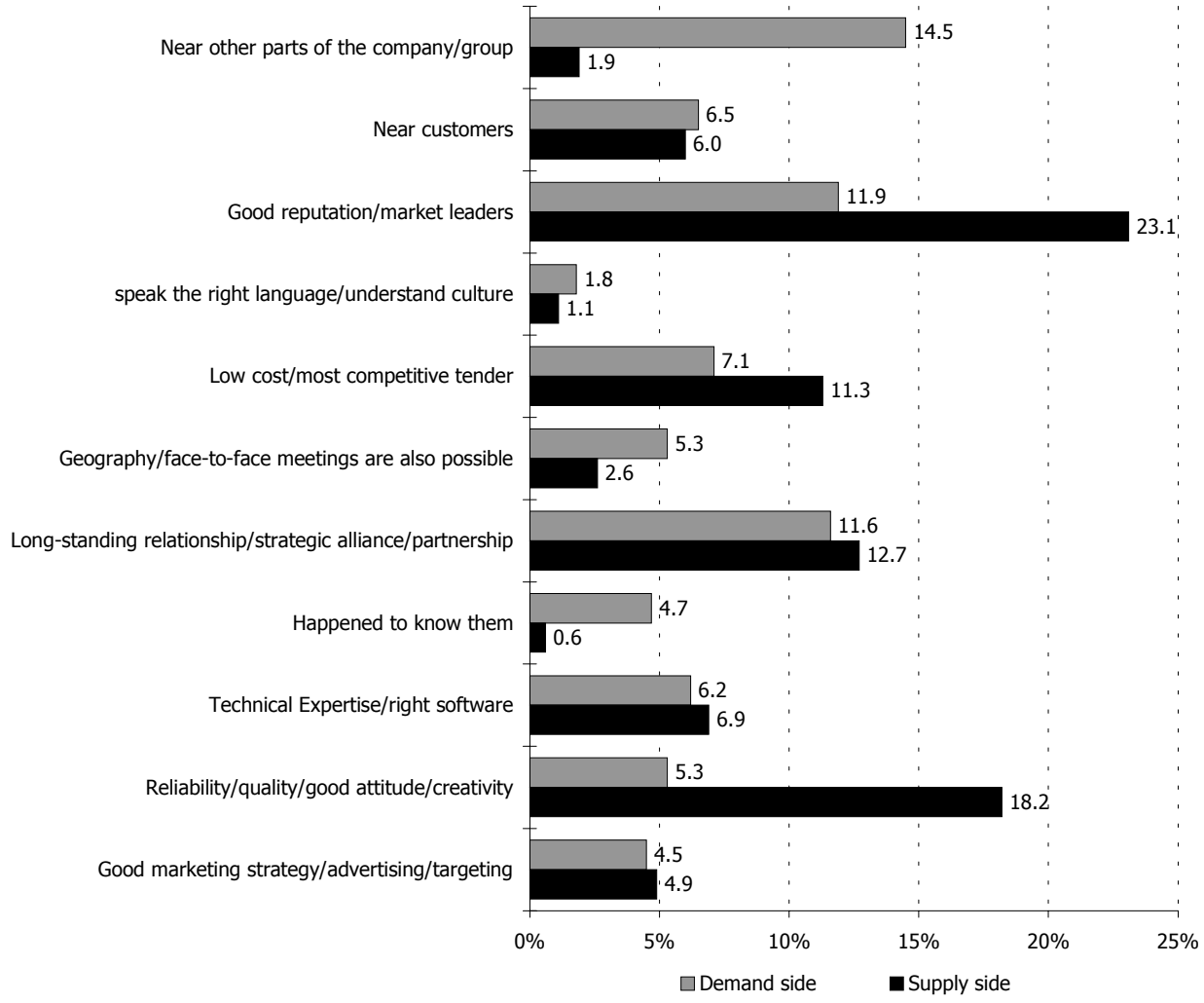
It is possible that part of the explanation for this geographical pattern may lie in the sheer size of the German market and the

Table 9.1 Top ten destinations for remote and outsourced customer services

Absolute	Per capita
POL Poland	DE5 Bremen
CZE Czech Republic	DE6 Hamburg
DE1 Baden-Wurttemberg	DE3 Berlin
DEA Nordrhein-Westfalen	POL Poland
DE3 Berlin	DE4 Brandenburg
DE6 Hamburg	CZE Czech Republic
DE2 Bayern	NL1 Noord-Nederland
DEU Germany (unspecified)	ES6 Sur
DE5 Bremen	DE1 Baden-Wurttemberg
DE4 Brandenburg	DED Sachsen

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

Figure 9.3: Reasons for choice of location for customer services — supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP) Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base=337. Supply Base=3,147.

strongly regional character of the German economy, making it desirable for companies from all over Europe to establish a presence near their German customers.

Some evidence to support this comes from an analysis of the reasons given for choice of location in customer services, shown in Figure 9.3. However, this clearly does not provide a complete explanation. Whilst around six per cent of the reasons given on both the supply and the demand side refer to the need to be near customers, other criteria are mentioned even more frequently. On the demand side, the requirement to be near other parts of the organisation was mentioned the most often, followed by 'good reputation/market leaders' and then 'low cost or competitive tender'. On the supply side, 'good reputation/market leaders' was regarded as even more important, accounting for 23.1 per cent of all reasons given. This was followed by a group of responses which were coded together as 'reliability/quality/good attitude/ creativity', then by 'longstanding relationship', then 'low cost/ competitive tender'.

Technical expertise appears to play a lesser role in this function than in some other forms of eWork, whilst value is placed on quality and a relationship of trust and on proximity both to customers and other parts of the organisation.

9.3 Telesales

Because the number of cases of remote or outsourced telesales was relatively small compared with other functions, the data were unreliable for many locations. Table 9.2 therefore shows only the top four locations, named in a significant number of cases. These destinations were the most important, both in absolute terms and per capita.

The prime position of Switzerland in this list is somewhat surprising, given that no interviews were carried out in this country. In the absence of case-study evidence we can only speculate about the reasons for this.

In general, the reasons cited for outsourcing work to Switzerland (for any eService) are topped equally by 'good reputation' and 'longstanding relationship', followed by 'technical expertise', with

Table 9.2: Top destinations for telesales

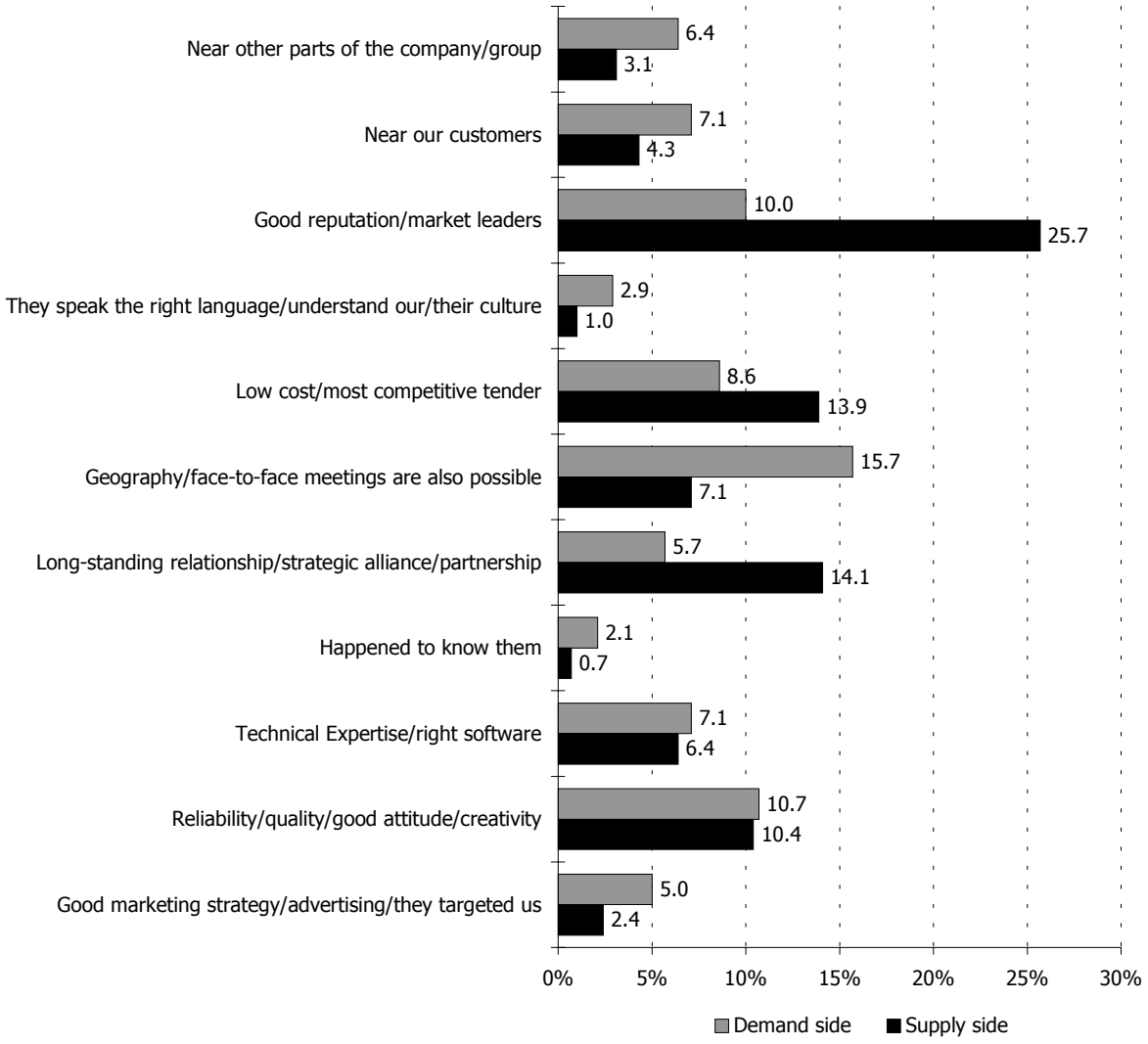
CHE Switzerland
IT1 Nord Ovest
IT3 Nord Est
FR7 Centre-Est

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

proximity to customers and to other parts of the organisation in equal third place.

One possible explanation for Switzerland's popularity specifically for telesales might be the multi-lingual skills of its workforce. However, (as can be seen from Figure 9.4) 'they speak the right language' accounted for only 2.9 per cent of all the reasons given for choice of location for telesales. Another possible explanation is that Switzerland may have fewer legal restrictions on 'cold-calling' customers, a practice which is very tightly controlled in Germany and in some other European countries. To judge from the reasons for locational choice summarised in Figure 9.4, the most likely explanation is that certain firms in this sector in Switzerland have built up a reputation for excellence in this field, which is utilised by organisations in other countries, particularly (to judge by the importance of 'geography' among the reasons) those which immediately border the country.

Figure 9.4: Reasons for choice of location for telesales services — supply and demand side



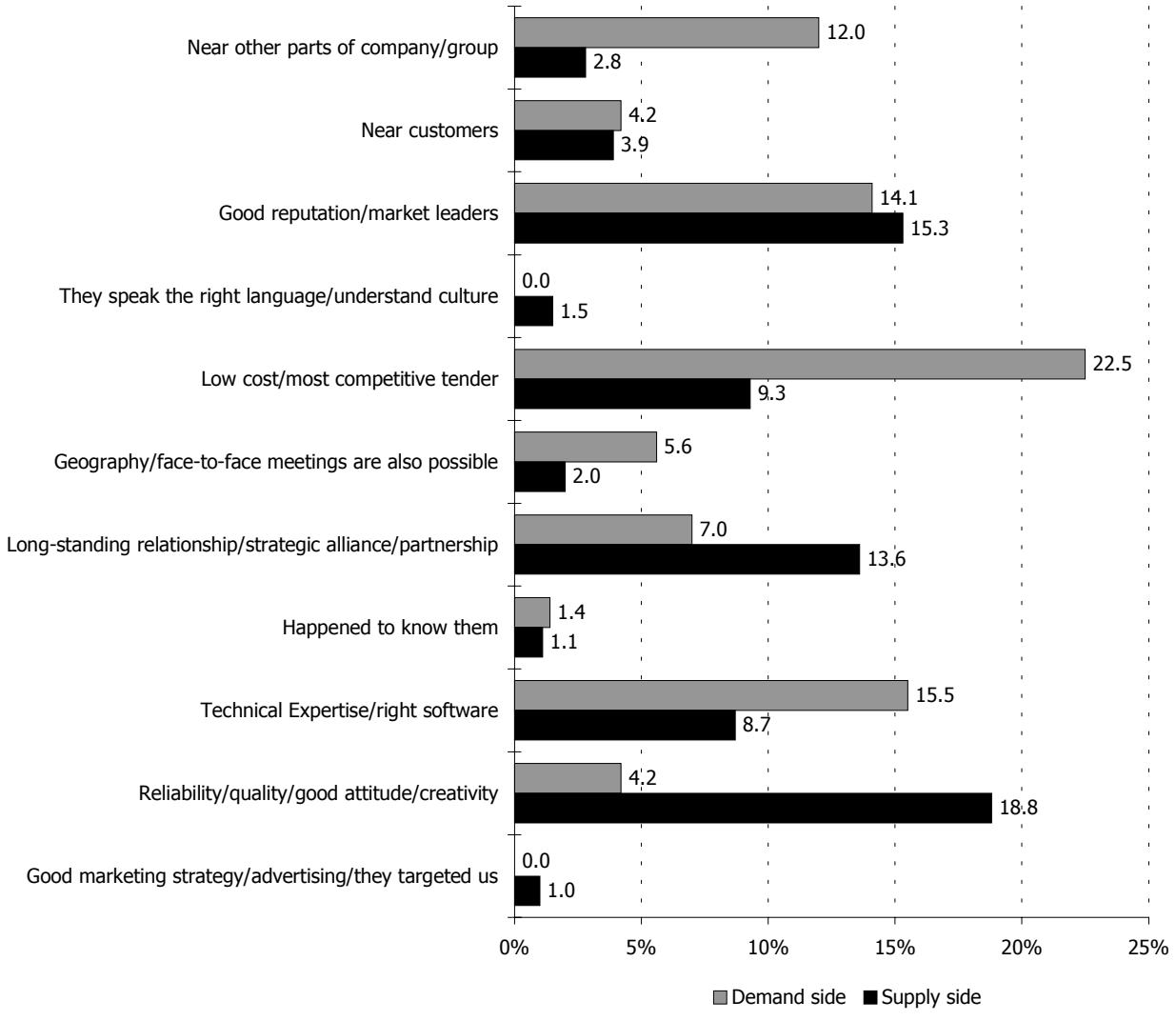
Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base=140. Supply Base=575.

9.4 Data processing and typing

Turning to data processing and typing, we find a very different regional profile. This is a function which generally requires relatively low skill levels and is often carried out in fairly large volumes. It is often therefore more price-sensitive than other functions, as can be seen from Figure 9.5 which shows that the most important reason for choice of an outsourced or remote destination for data processing was 'low cost/most competitive tender', accounting for 22.5 per cent of all the reasons cited on the demand side.

It is therefore to be expected that locations selected for this activity might well tend to be peripheral regions with relatively low labour costs, rather than those in Europe's core economic heartlands.

Figure 9.5: Reasons for choice of location for data processing — supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP) Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base=142. Supply Base=713.

Table 9.3: Top destinations for data processing and typing (absolute and per capita)

Absolute	Per capita
CZE Czech Republic	LUX Luxembourg
ES3 Comunidad de Madrid	GR3 Attiki
GR3 Attiki	UKC North East
FR8 Méditarranée	FR8 Méditarranée
DE2 Bayern	CZE Czech Republic
IT2 Lombardia	ES3 Comunidad de Madrid
DE1 Baden-Wurttemberg	IT2 Lombardia
UKC North East	DE2 Bayern
Pennsylvania	DE1 Baden-Wurttemberg
LUX Luxembourg	Pennsylvania

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

The picture shown in Table 9.3 supports this expectation to some extent. The position of Luxembourg at the head of the list of top ten locations relative to population size can be explained by the statistical anomaly resulting from this country's small population and high inflow of commuters. This means that, whilst the country obviously has a presence in this activity, this result should not be accorded too much significance.

Attica, Lombardy and the Madrid region are all areas of relatively dense population with a concentration of specialist IT companies and head offices. These conditions seem likely to have created historical situations where a large number of suppliers of office services have grown up in these regions, in a strongly competitive market. Although Attica (which includes Athens) and Madrid are capital regions, they are in countries — Greece and Spain — where wages are somewhat below the European average.

Bayern and Baden-Wurttemberg are also near concentrations of IT companies, but in this case in rather high-wage regions of Germany. It is, of course, possible for pockets of low-wage work (often part-time) to exist in such areas.

The North-east of England and Mediterranean France are regions where wage levels are below those which pertain in the capital regions which surround London and Paris.

The appearance of the Czech Republic in the list is in line with expectation: wages there are significantly lower than in most EU countries and some local firms have clearly established niches for themselves in the provision of telemediated data processing services.

This function marks the first appearance of a non-European destination in the top ten: the destination in question is Philadelphia, in the United States, which we must presume to have built up a specialism in this function.

9.5 Software development and support

The top locations for software development and support fall into three distinct categories. First, we find the Accession States of Poland, Hungary and the Czech Republic, all of which appear in the top ten destinations in absolute terms and two of which do so when the results are adjusted relative to population size (Table 9.4).

Second, we find capital regions or highly-developed urban regions with strong service sectors. These include Brussels, London, Lombardy, Nordrhein-Westphalia, and the Madrid Region. Finally, we find 'secondary' regions which, whilst also highly developed, adjoin these regions, including The Emilia Romana region of Italy, North-east Spain, Southern Spain and the Bremen region in Germany.

From the position of 'United States — unspecified' in the list of top ten destinations in absolute terms, it is clear that a large number of European employers are also buying in software know-how and services from the United States (and also, unfortunately, also clear that many do not have a very clear knowledge of exactly where these suppliers are based). It is interesting, however, that although a large number of other foreign destinations were mentioned in the context of software supply, these were outnumbered by suppliers within Europe.

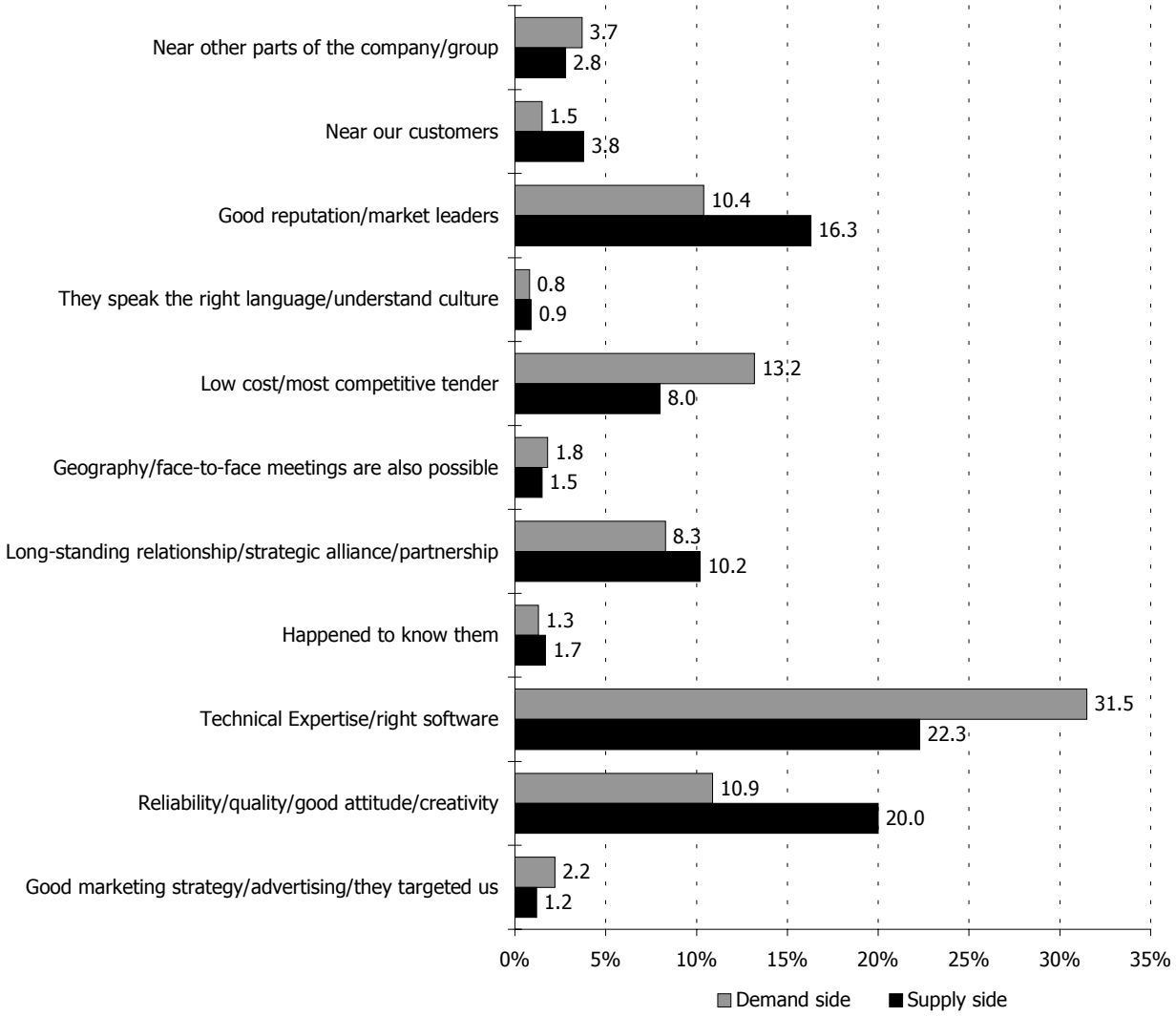
Looking at the reasons for choice of supplier or remote location for this function, shown in Figure 9.6, we find that by far the most

Table 9.4: Top destinations for software development and support (absolute and per capita)

Absolute	Per capita
POL Poland	BE1 Region Bruxelles
CZE Czech Republic	DE5 Bremen
ES2 Noreste	NL1 Noord-Nederland
DEA Nordrhein-Westfalen	ES6 Sur
UKI London	POL Poland
ES3 Comunidad de Madrid	CZE Czech Republic
IT2 Lombardia	ES2 Noreste
HUN Hungary	UKI London
USA United States (unspecified)	IT3 Nord Est
IT3 Nord Est	IT4 Emilia_Romagna

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

Figure 9.6: Reasons for choice of location for software development and support — supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP) Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base=2,025. Supply Base=1,383.

important consideration — not surprisingly — is technical expertise, which constituted 31.2 per cent of the reasons mentioned on the demand side and 22.3 per cent on the supply side. This is buttressed by a requirement for quality, reliability and a positive attitude (10.9 per cent and 20 per cent of reasons respectively). However, the need to find these qualities is balanced by a search for low cost, which constituted 13.2 per cent of reasons cited on the demand side, though only eight per cent on the supply side.

The case of software illustrates a pattern which also appears in the market for some other eServices whereby suppliers tend to over-estimate the value of their existing relationship with their customers and the quality of their work and to underestimate the value of their price competitiveness when compared with the assessment from the demand side.

9.6 Financial and accounting services

Like telesales, financial and accounting services are rather less likely to be sited remotely than some other functions, as a result of which fewer cases in remote destinations were identified in the EMERGENCE survey. This made it difficult to determine reliably the order of popularity of destinations after the top five most popular regions had been identified, the differences in absolute terms being too small to be significant. However, when the results were adjusted to reflect the size of each region, it was possible to determine a top ten list of destinations for this activity, which is presented in Table 9.5.

As can be seen, the top region in both absolute and per capita terms is Baden-Wurttemberg. The presence of high-tech Stuttgart in this region, with a pool of suitably qualified professionals, may well offer part of the explanation for this. Otherwise, the list is divided between relatively high-wage, high-skill capital or metropolitan regions (including London, Brussels, other German regions and parts of the Netherlands) and lower-waged Poland where, as already noted, there appears to be a strong culture of outsourcing.

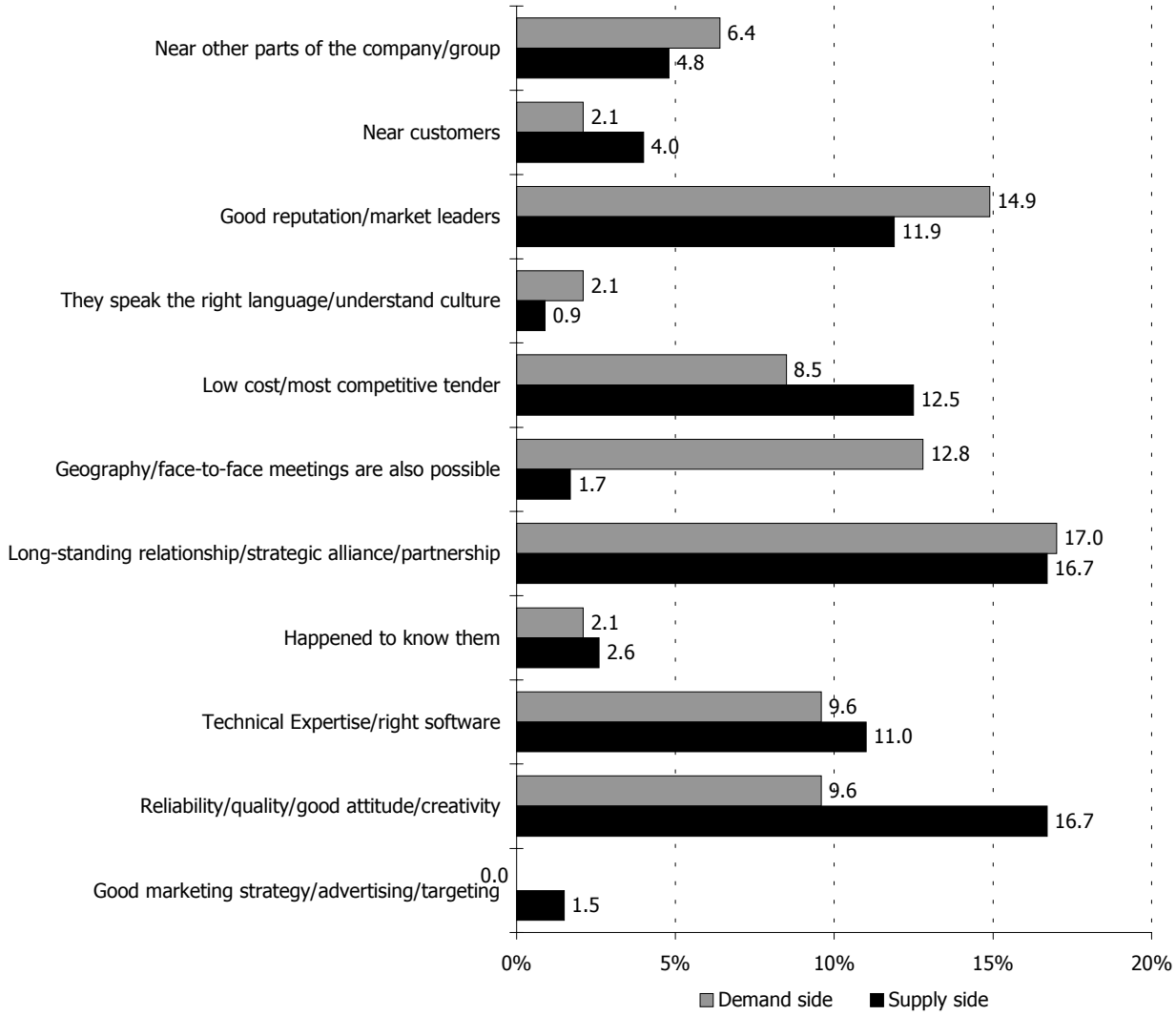
The reasons given for the choice of a remote or outsourced supplier of financial services are more evenly spread than for most other functions, the most commonly cited being the existence of a longstanding relationship. This is equalled on the supply side by reliability and quality. A good reputation is also important. It seems apparent that for this function a strong degree of trust is considered important, and quality and probity may count for more than competitive costs.

Table 9.5: Top destinations for financial services (absolute and per capita)

Absolute	Per capita
DE1 Baden-Wurttemberg	DE1 Baden-Wurttemberg
POL Poland	UKI London
UKI London	NL3 West-Nederland
DE9 Niedersachcen	DE9 Niedersachcen
NL3 West-Nederland	POL Poland
	BE1 Region Bruxelles-cap.
	DE5 Bremen
	NL1 Noord-Nederland
	ES6 Sur
	CZE Czech Republic

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

Figure 9.7: Reasons for choice of location for financial services — supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base=94. Supply Base=545

9.7 HR, management and training functions

According to the evidence of the EMERGENCE survey, human resources, management and training functions tend to gravitate towards major cities. The top ten regions (adjusted for size) include Brussels, Antwerp, Madrid, London, Berlin and the urban regions of the North and East Netherlands and the West Midlands of the UK. In absolute terms, Lombardy (which includes Milan) and Nordrhein-Westphalia (which includes the conurbations around Dusseldorf, Dortmund and other cities) are also included, as well as Sweden.

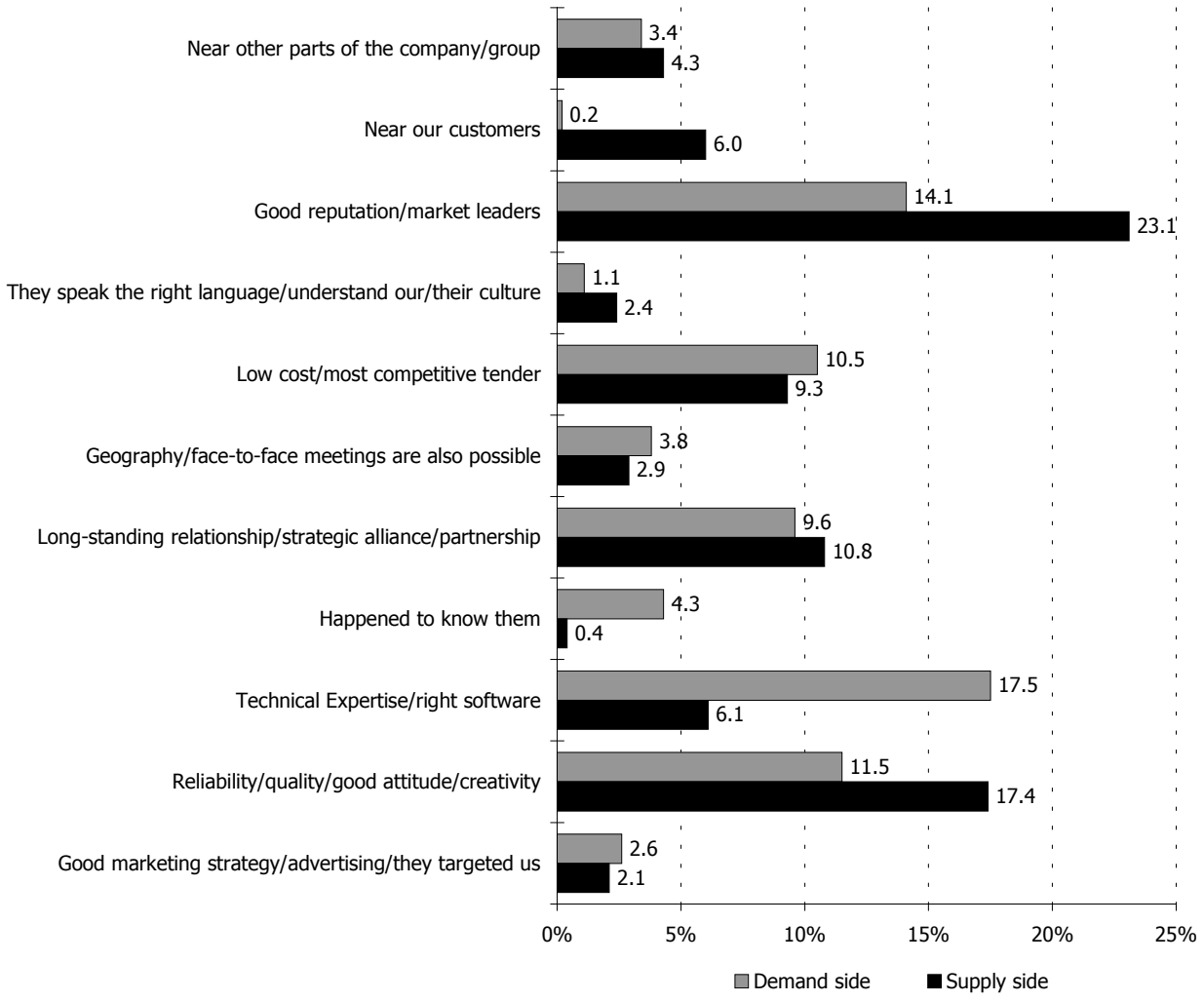
Otherwise, the presence of Poland and the Czech Republic amongst the top ten testifies, once again, to the importance of outsourcing in these countries, perhaps partly driven by the need to buy in expertise from outside during a period of rapid modernisation.

Table 9.6: Top destinations for HR, management and training (absolute and per capita)

Absolute	Per capita
POL Poland	BE1 Region Bruxelles
UKI London	UKI London
CZE Czech Republic	NL1 Noord-Nederland
ES3 Comunidad de Madrid	CZE Czech Republic
ES2 Noreste	POL Poland
DEA Nordrhein-Westfalen	BE2 Vlaaams Gewest
HUN Hungary	NL2 Oost-Nederland
SWE Sweden	DE3 Berlin
IT2 Lombardia	UKG West Midlands
BE2 Vlaams Gewest	ES3 Communidad de Madrid

Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

Figure 9.8: Reasons for choice of location for HR, management and training — supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentages are based on total number of reasons. Demand Base=468. Supply Base=806.

Turning to the reasons for choice, we find once again that the dominant tendency is the search for quality and reliability. The strongest reason stated (23.1 per cent of reasons on the supply side and 14.1 per cent on the demand side) is that the choice was made on the basis of a good reputation or a leading position in the market. This is followed by reliability and quality, which is in turn followed by the existence of a longstanding relationship, partnership or alliance. Value for money appears in more or less equal third place alongside this factor, being given slightly higher importance on the demand than the supply side.

The relatively low importance of geographical proximity may be an indication that this is a genuinely locationally independent function. On the other hand it may just be an indication of self-selection — only those function which are capable of being carried out remotely would, by definition, appear in this category, which applies only to activities located outside the region of the respondent.

9.8 Creative functions

Our final category of eServices comprises creative services including research and development, design, editorial, multimedia and other forms of content generation. Table 9.7 lists the top ten destinations both absolutely and per capita.

As can be seen, this list includes a high proportion of regions in Southern Europe, including the regions surrounding Madrid, Athens and Milan, perhaps a reflection of the strong informal economy and high use of outsourcing in the Mediterranean regions as well as the strength of these regions in design. They are joined by the South of France as well as three regions (two in

Table 9.7: Top ten destinations for creative functions (absolute and per capita)

Absolute	Per capita
CZE Czech Republic	LUX Luxembourg
ES3 Comunidad de Madrid	GR3 Attiki
GR3 Attiki	UKC North East
FR8 Méditarranée	FR8 Méditarranée
DE2 Bayern	CZE Czech Republic
IT2 Lombardia	ES3 Comunidad de Madrid
DE1 Baden-Wurttemberg	IT2 Lombardia
UKC North East	DE2 Bayern
Pennsylvania	DE1 Baden-Wurttemberg
LUX Luxembourg	Pennsylvania

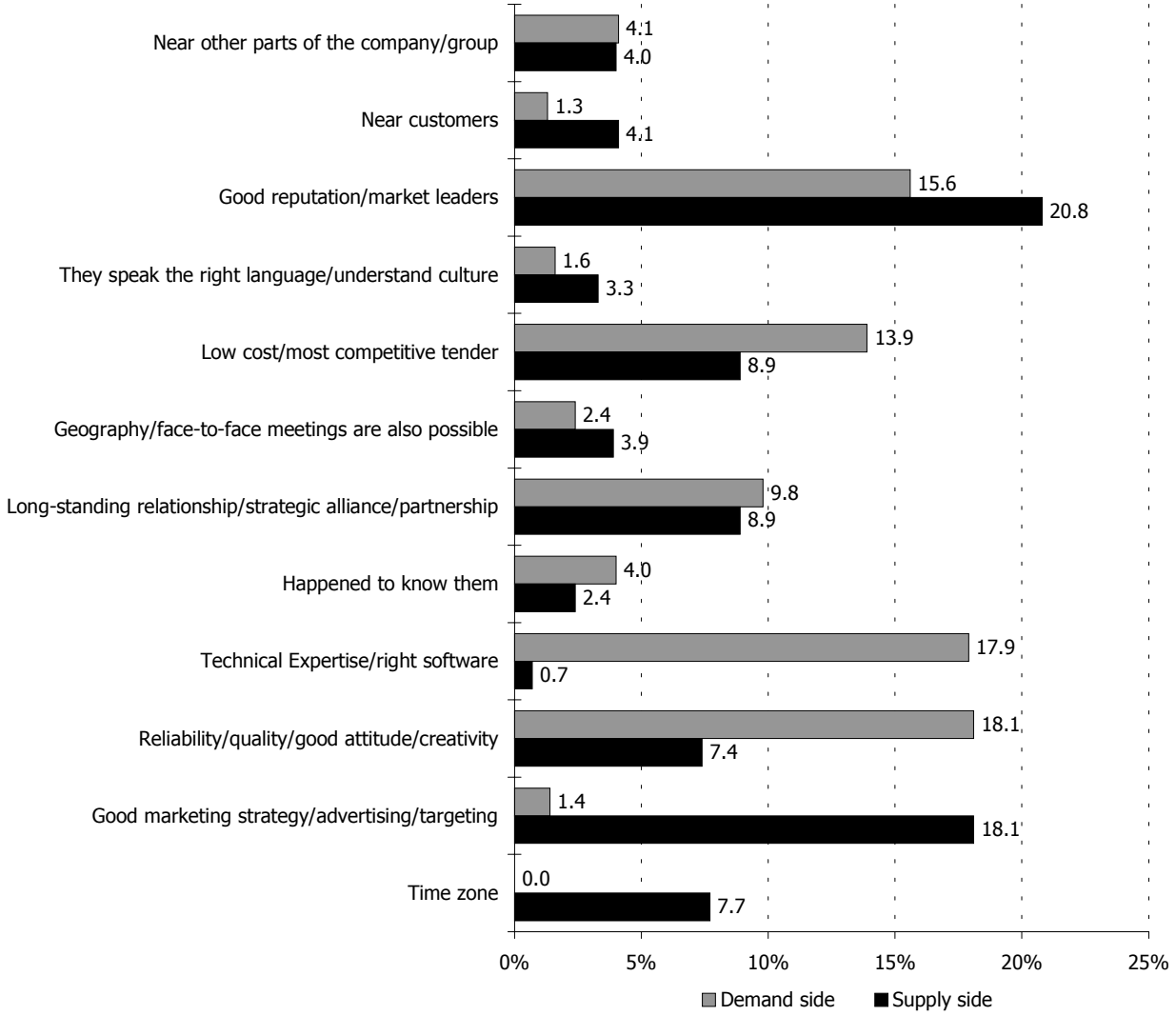
Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic.

Germany and one in the UK) which also featured as destinations for data processing work. Luxembourg, once again, presents something of a statistical anomaly, although it clearly does have strengths in this field. Finally, we find the ever-present Czech Republic, characterised by above-average outsourcing across all functions.

This mix of regions reflects the needs of employers to balance qualitative factors with cost-efficiency when selecting sources for creative inputs, as illustrated in Figure 9.9 which summarises the reasons given for locational choice for these activities.

Good reputation and high quality both feature as important reasons, but so also do low cost and a longstanding relationship. On the demand side technical expertise is also rated highly, although this hardly figures on the supply side.

Figure 9.9: Reasons for choice of location for creative services — supply and demand side



Source: EMERGENCE European Employer Survey, 2000 (IES/NOP). Weighted figures; establishments with >50 employees in EU (15) plus Hungary, Poland and Czech Republic. Percentage are based on total number of reasons. Demand Base=948. Supply Base=1,904.

On the supply side we find that providers of these eServices credit good marketing with making a substantial contribution to their success in gaining contracts. This is also the only function in which time zone features as a significant reason on the supply side.

The disparity between the supply and demand side views in relation to these two variables can probably be explained in terms of the markets concerned. A number of the suppliers of creative services interviewed in the survey were supplying to customers outside the EU for whom time zone may well have been an important criteria. Such distant customers may also have been reached only by means of determined marketing efforts.

On the other hand, on the demand side many of our respondents were describing small suppliers with fewer than 50 employees, who would have been missed in this round of the EMERGENCE survey.

10. Conclusions

Like most exploratory studies, the EMERGENCE employer survey raises as many questions as it answers. In doing so, however, it moves the research agenda forward.

We will summarise first the answers it delivers, and then go on to pose some of the further questions it raises, both for the remaining work of the EMERGENCE project and for future research.

Finally, we will summarise some of the issues it raises for policy-makers and other stakeholders in the economic and social development process.

10.1 Findings

The results of the survey confirm that eWork is indeed taking place on a significant scale in Europe, a scale of sufficient importance to have a direct impact on employment practices and to affect indirectly the levels of employment in a number of regions.

The dominant forms of eWork within organisations are the use of remote offices, many of them call centres, and the employment of multilocational workers. Fully home-based eWork by employees, although it can be found in all countries, remains a minority practice.

Such internal forms of eWorking by employees are, however, outweighed by external forms, using outsourcers. Whilst 43 per cent of establishments in Europe buy in outsourced eServices for at least one function, half as many, 21 per cent, are involved in supplying these eServices.

There can therefore be said to be a thriving European market for eServices, involving a significant amount of cross-border electronic traffic. This market is not geographically self-contained. It includes substantial inputs from and outputs to the rest of the world. However, trade in services within Europe still outweighs trade with the rest of the world, suggesting a considerable degree of internal cohesion.

The strongest driver of eWork is the search for technical expertise. Cost and quality considerations also exert powerful influences on the choice of a subcontractor or remote location. In some cases the need for proximity to other parts of the organisation or to customers is also decisive. A number of popular beliefs appear unfounded, however. Tax-breaks, government grants or subsidies to locate in certain regions appear to play a minimal role in locational choice. Neither do employers seem deterred by strong labour market regulation or trade unions (although it is possible that such considerations were concealed under the euphemism of 'low cost').

These developments offer both opportunities and threats to individuals and regions.

With over ten per cent of establishments employing multilocational workers and freelance suppliers of eServices, there are a multitude of opportunities in many regions for suitably qualified people to find forms of work which can be fitted in flexibly with other lifestyle demands.

At the regional level there are possibilities for attracting remote back offices or developing new enterprises to supply eServices. However, for most functions, these opportunities will depend on the ability to offer the appropriate technical expertise, combined with quality and reliability, at a competitive cost.

The information economy cannot be regarded as autonomous, however. Not only do many eService activities take place within organisations which are classified in other sectors; information processing sectors also both make inputs to and receive outputs from virtually all other sectors of the economy. The health of the information economy thus appears crucially dependent on other sectors and it seems unlikely that it can thrive in their absence. Conversely, these other sectors are unlikely to prosper without inputs from the information economy that makes a vital contribution not only to the innovation process within them but also to a range of other (increasingly generic) business functions.

10.2 New questions raised

The results suggest a need for further research in a number of areas:

- an extension of the EMERGENCE methodology to other developed countries in order to gain information on how they compare with Europe, to track inputs and outputs of information services both within and between countries and to map locational choice at a global level. At the time of writing, this is currently being carried out in Australia, but further resources are required to extend the study to North America, Japan and other regions.

- in-depth qualitative research on the dynamics of employment relocation, the costs and benefits to employers and to workers and the impacts on employment in both 'source' and 'destination' locations. This is currently being undertaken in Europe in sixty case studies being carried out by the EMERGENCE project. However, there will continue to be scope for further work in this area.
- further theoretical and empirical work on how the information economy (if it can be said to exist at all in a separately identifiable form) can be conceptualised, measured and modelled. This will involve identifying the sectors and occupations involved in information-processing activities, finding reliable indicators for them, and modelling their inputs to and outputs from other sectors of the economy (*ie* those involved in extraction, agriculture, the production of physical goods and personally-delivered services and other 'tangible' activities), regionally, nationally and globally. It may also involve exploring alternative concepts to that of the 'sector' which appears to be increasingly difficult to apply in a rapidly-changing global economy in which corporations typically span many different kinds of business activity. Panel studies which explore changes in business activity within establishments over time will be of value here. Some of this work will be carried out by the STILE project, funded by the IST programme to extend the work of EMERGENCE on eWork indicators. There remains, however, a large and challenging theoretical agenda to be tackled as well as a range of empirical tasks, including the development of methodologies for integrating new indicators into the official statistics-gathering processes.
- research on the impact of these developments on those who are excluded from them. The results of the companion study to this report, published by the EMERGENCE project under the title *Where the Butterfly Alights: The Global Location of eWork*, suggest that the majority of the world's countries, accounting for over a quarter of the world's population, are likely to be 'eLosers'. Added to those portions of the population who are excluded from participation in the information economy within the remaining countries, this suggests an enormous potential for social and economic polarisation — a global 'digital divide'. Are we seeing the emergence of a privileged minority of information workers who can work regardless of location against a backdrop of deprivation for those in 'rooted' employment or with no employment at all? Who stands to benefit from the further extension of eWork into developing countries? And what are the risks of exclusion? What are the relative impacts of different types of economic development strategy? These are just a few of the questions which require an urgent response.
- research on the impacts of work delocalisation on welfare systems, social protection and the social dialogue in order to inform policy choices in these areas.

- research on the impact of multilocational working on the quality of working life, including health and safety, stress and work-life balance.
- research on organisational culture — and the role it plays in facilitating or constraining eWork. In particular, the impact on local work cultures of the organisational practices of remote employers based outside national borders.

10.3 Policy issues

The development of eWork raises a number of questions for policy-makers.

10.3.1 Employment regulation and social protection

If the terms and conditions of employment of a substantial proportion of the workforce in any given region are determined beyond its boundaries, this has serious implications for the viability of the currently dominant European model of social dialogue. This presupposes that employers, workers representatives and the regional or national government:

- all share a common base and citizenship within the same regional or national borders
- are bound by the same regulatory system, customs and practice, and
- share the same culture and tacit understandings of the local 'social contract'.

A significant displacement of work beyond these borders places these shared assumptions and understandings into question and, arguably, makes it difficult if not impossible for national governments to play their traditional role of regulating employment and providing social protection for their citizens.

This has implications at both the supra-national and the sub-national levels. At the supra-national level, there is a need to explore ways in which employment regulation can be harmonised without on the one hand encouraging a 'race to the bottom', or on the other creating bureaucratic disincentives to locate in certain regions. There is also a need to explore ways in which social benefits can be rendered more portable across national borders.

At the sub-national level, it implies a closer co-ordination between a variety of partners in both the public and the private sectors to ensure that local employers and workers are equipped with the right skills and other resources (infrastructural and otherwise) to play a full role in the international information economy.

10.3.2 Mobility

It has for some years been an aim of the European Union to encourage the mobility of labour between countries, both to increase the general efficiency of the single European market and to encourage European cohesion. This goal of mobility is generally interpreted to mean the movement of people to jobs. The development of eWork makes it possible to propose an alternative form of mobility: the movement of jobs to people.

The time has come to assess the relative merits of these two options, in particular to explore their respective impacts on the quality of life for individual workers or job-seekers, on the cohesiveness of local communities and families, on the preservation of Europe's cultural diversity, on sustainability, on the economic development of peripheral and rural regions and on European cohesion.

This subject also raises awkward questions about mobility into and from Europe. For instance is it better (and for whom), for a German company to overcome a local skill shortage in software engineering by outsourcing to a company in Bangalore, or to apply for green cards for the Indian personnel to come to Germany as migrant workers? In a situation where there is a free flow of capital, information and intellectual property across borders, what is the logic of preventing a similar flow in labour? And how can an acceptable balance be struck between completely open frontiers at one extreme and rigid and inflexible labour markets at the other?

10.3.3 Skills

The paramount importance of technical expertise in determining the source of eWork supply emphasises the critical importance of skills in the information economy. There is not only a need to develop and put into place strategies for continuous learning and updating of technical skills; there is also a need to develop those social and organisational skills which make it possible for people to work remotely without injury to their family lives, their physical and mental wellbeing, their career prospects, their productivity or their economic or social security.

10.3.4 Social exclusion

The existence of a large and probably growing body of eWorkers (or potential eWorkers) in the European economy draws attention to the existence of an even larger body of workers or job-seekers who are not engaged in any activity which has even the potential for becoming eWork. Whether they are unemployed, in manual occupations, or in occupations which require physical co-presence on a given site, there is a danger that their interests may be

neglected in the general rush to adapt regulations and systems to meet the new requirements of eWorkers and their employers.

There is a need to ensure that policies relating to the 'information society' are rooted in the recognition that it involves the 'real' activities of 'real' people in 'real' time and 'real' space and that the 'information economy' is not an autonomous realm but is integrally linked to all other sectors of the economy. A neglect of the 'old' sectors of the economy and of non-information workers will result in damage to the 'new' economy, since ultimately it is they who provide markets for the new information products. Ensuring the continuing survival and prosperity of these sectors and workers is therefore not just a goal to be pursued for ethical and social reasons; it is also a sound economic objective.

Strategies for the avoidance of social exclusion need therefore not be focused narrowly on trying to turn everyone into an eWorker, but should aim to develop diverse local economies with a varied range of industries and occupations. This is not an argument against ensuring universal access to basic ICT skills and equipment, which are becoming essential tools of consumption and of citizenship right across the population. Rather it is an argument for developing an holistic model of local economies in which the provision of the eService sector takes its place alongside other activities, from which it receives 'material' inputs and to which it contributes 'immaterial' outputs: a local economy which is sufficiently varied to offer a productive place for all its citizens, whatever their abilities.

Appendix A: Structure of the EMERGENCE questionnaire

Where is this activity (eg software development) carried out?
Do you supply this service (eg software development) to external customers?
Where are these customers based?
Why chosen?
Within the organisation
Outsourced
At this address (establishment)
Not at this address (establishment)
In another region
In the same region
Telecommunications Link?
Freelances
Companies
Why chosen?
At workers' homes (ie Homeworkers)
At multiple locations (ie Mobile workers)
At other offices owned by this organisation
At telecentres owned by third parties
Is it a call centre?
Is it a call centre?
Why chosen?
In another region
In the same region
In the same region
In another region
Why chosen?

Appendix B: Glossary of terms: some definitions of eWork used in the EMERGENCE survey

Term (derived variable)	Description
eWork	An establishment uses *eWork* if its managers do any of the following:
	outsource, using a telecommunications link, customer services, telesales, DP/typing, software development/support, accounting, management/training/HR, or design/editorial/creative work
	employ home-based teleworkers in any of the above functions,
	employ mobile teleworkers in any of the above functions, excluding mobile sales representatives
	have a remote back offices which is a call centre dealing with any of the above functions
	have employees working in a telecentre owned by a third party which is a call centre
eWork including travelling sales representatives	An alternative definition of eWork is occasionally used which is similar to the definition above, but also includes establishments which employ travelling sales representatives who use a laptop or other computer with a telecommunications link.
	However, unless otherwise specified the first definition is used throughout the report.
eEmployees	Establishments have *eEmployees* if their managers employ any of the following:
	homeworkers using a telecommunications link to transmit work electronically who are engaged in customer services, telesales, DP/typing, software development/support, accounting, management/ training/HR, or design/editorial/creative work
	multilocational workers (*ie* working partly from home and partly from the office or from clients' premises or on the move) in any of the above functions who use a telecommunications link to transmit work electronically, excluding mobile sales representatives
	office-based staff working in back offices, call centres or other distant sites
	staff working in a telecentre owned by a third party (non-domestic facility equipped with PCs and telecom links)
eOutsource	An establishment *eOutsources* if its managers outsource, using a telecommunications link, customer services, telesales, DP/typing, software development/support, accounting, management/training/HR, or design/editorial/creative work
eLinked outsourced call centre	An establishment has at least one *eLinked* outsourced call centre if the people at the location to which the establishment outsources, deliver work via a telecommunications link and the location is described as a call centre

Remote

The survey included questions about three possible types of shared work premises — the offices of companies to which the respondent establishment outsources work, back offices of the respondent establishment, and telecentres owned by third parties where employees of the respondent establishment are based. The prompts that interviewers used when asking respondents about the employment of staff in back offices and telecottages made it clear that they were being asked about sites that were located at a distance.

NUTS1

Nomeclature of Territorial Units for Statistics (NUTS) is the European Union's standard geographical classification system. Within each country, up to three levels of detail are included, with NUTS1 giving the least and NUTS3 giving the most level of detail. A large country like Germany has 16 NUTS1 regions, while a small country like Ireland has only one NUTS1 region. Respondents were asked whether an outsourced company, own back office or telecentre that they used was in the same region or another region. The boundary of the region in such questions was NUTS1.

Source or Demand

The *source* of work is the location of the establishment where work is required, *ie* the establishment which 'demands' the work, from other companies, own back offices or telecentres.

The source is captured in one of two ways — the respondent establishment may be a source of work. In addition, the respondent establishment may be a 'destination' for other establishments. Each respondent is asked about the location of establishments to which it supplies work (the 'sources' of such work), *ie* establishments which outsource work to the respondent.

The questionnaire has a 'mirror' design. The first half of the interview asks about *the respondent establishment as a source of work* and about the locations where its work is conducted: the 'demand side' (or 'top down') perspective. The second half of the interview asks about the respondent establishment as a destination of outsourced work and about *the locations of its clients*: the 'supply side' (or 'bottom up') perspective.

Destination or Supply

The *destination* of work is the location of the establishment(s) where work is conducted, *ie* the supplier.

The destination is captured in one of two ways — the respondent establishment may itself be a destination for outsourced work. In addition, the respondent establishment is asked about the location of remote establishments on which it depends for the completion of work; these may be outsourced companies, remote back offices or telecentres owned by third parties where its own employees work.

The first half of the interview asks about the respondent establishment as a source of work and about *the locations where its work is conducted*: the 'demand side' (or 'top down') perspective. The second half of the interview asks about *the respondent establishment as a destination of outsourced work* and about the locations of its clients: the 'supply side' (or 'bottom up') perspective.

eServices

eServices are outsourced business services which are supported by ICTs.

An establishment is defined as being an eService *user* if it outsources, using a telecommunications link, customer services, telesales, DP/typing, software development/support, accounting, management/training/HR, or design/editorial/creative work.

An establishment is defined as being an eService *supplier* if it supplies any of the above functions using a telecommunications link.

Appendix C: Most popular destinations for eWork for European customers

Most popular destinations for eWork for European establishments, in order of importance (absolute and per capita)

Absolute	Per capita
POL Poland	BE1 Region Bruxelles
CZE Czech Republic	DE5 Bremen
UKI London	NL1 Noord-Nederland
DE1 Baden-Wurttemberg	CZE Czech Republic
DEA Nordrhein-Westfalen	POL Poland
ES2 Noreste	DE6 Hamburg
ES3 Comunidad de Madrid	UKI London
IT2 Lombardia	DE3 Berlin
HUN Hungary	LUX Luxembourg
DE2 Bayern	ES6 Sur
SWE Sweden	DE1 Baden-Wurttemberg
IT3 Nord Est	ES2 Noreste
USA United States (unspecified)	IT2 Lombardia
DE9 Niedersachcen	ES3 Comunidad de Madrid
DE7 Hessen	DE7 Hessen
BE1 Region Bruxelles-cap. Brussels HFDST-Gewest	IT3 Nord Est
DE3 Berlin	DE4 Brandenburg
DEU Germany (unspecified)	SWE Sweden
NL3 West-Nederland	ES1 Noroeste
UKJ South East	HUN Hungary
FR1 Ile de France	NL2 Oost-Nederland
NL1 Noord-Nederland	NL4 Zuid-Nederland
BE2 Vlaams Gewest	DE9 Niedersachcen
FR2 Basin Parisien	GR3 Attiki
ES1 Noroeste	NL3 West-Nederland
IT1 Nord Ovest	DE2 Bayern
UKG West Midlands	UKC North East

Absolute	Per capita
DE6 Hamburg	BE2 Vlaams Gewest
DE5 Bremen	DEA Nordrhein-Westfalen
GBR United Kingdom	UKG West Midlands
ES5 Este	IT4 Emilia_Romagna
GR3 Attiki	IT1 Nord Ovest
NL2 Oost-Nederland	DEB Rheinland-Pfalz
NL4 Zuid-Nederland	UKJ South East
PT1 Portugal	AT1 Ostosterreich
IT4 Emilia_Romagna	DED Sachsen
IT6 Lazio	IT6 Lazio
CHE Switzerland	BE3 Region Wallonne
DE4 Brandenburg	UKF East Midlands
DEB Rheinland-Pfalz	FR1 Ile de France
DED Sachsen	Western Australia
ES6 Sur	FR2 Basin Parisien
AT1 Ostosterreich	ES5 Este
SVK Slovak Republic	CHE Switzerland
FR7 Centre-Est	SVK Slovak Republic
UKC North East	FI1 Manner-Suomi
UKF East Midlands	PT1 Portugal
FI1 Manner-Suomi	UKK South West
FR8 Méditerranée	FR7 Centre-Est
BE3 Region Wallonne	FR8 Méditarranée
UKK South West	IRL Ireland
FRA France (unspecified)	DEE Sachsen-Anhalt
NOR Norway	GR1 Voreia Ellada
NLD Netherlands (unspecified)	NOR Norway
IRL Ireland	AT3 Westosterreich
UKE North West	FR3 Nord — Pas de Calais
ES4 Centro (E)	UKE North West
Western Australia	FR6 Sud-Ouest
GR1 Voreia Ellada	UKD North West
UKD North West	IT5 Centro (I)
AUT Austria (unspecified)	AUT Austria (unspecified)
Texas	ES4 Centro (E)
IND India	Georgia
California	NLD Netherlands (unspecified)
ITA Italy (unspecified)	Michigan

Absolute	Per capita
FR6 Sud-Ouest	DEU Germany (unspecified)
FR3 Nord — Pas de Calais	GBR United Kingdom (unspecified)
DEE Sachsen-Anhalt	Pennsylvania
RUS Russian Federation	Texas
AT3 Westosterreich	California
IT5 Centro (I)	USA United States (unspecified)
Georgia	FRA France (unspecified)
LUX Luxembourg	ITA Italy (unspecified)
Pennsylvania	JPN Japan
Michigan	RUS Russian Federation
JPN Japan	IND India