RESULTS OF THE EDC - SURVEY 1998

PART 1:

STATUS AND PRIORITIES OF GENERAL TELEMATICS DEPLOYMENT IN EUROPEAN CITIES AND REGIONS

(CROSS-SECTOR SURVEY)

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EXECUTIVE SUMMARY

This survey of local and regional public authorities was conducted in the context of the European Digital Cities Project (EDC). EDC is a support action of the European Union within the Telematics Application Programme (TAP) with the specific aim to monitor the status of local telematics deployment and to identify future needs and priorities of local authorities.

This report reviews the results of a questionnaire survey conducted during summer 1998 among decision makers in cities in all 15 European members states.[1] Its specific objectives were to investigate goals and perception of telematics, technologies and applications used, status and plans of service deployment, benefits and obstacles, partnerships and business models for urban telematics deployment in local and regional authorities.

Methodology and representativeness

For the purpose of this survey a representative database of decision makers was set-up which was designed to be representative in terms of authority size within countries and to reflect the share of each country's population in Europe. Effectively all cities above 100.000 and a random selection of smaller authorities was included in the database. In addition, contact databases of major local authority networks (Eurocities and Telecities) were used to create a sub-set of the overall sample.

An in-depth questionnaire was sent in the five major European languages to 908 individuals and online versions were made available. A 21% return rate could be achieved by several reminders.

The total of 192 returned questionnaires is identical to 4% of all European cities. Due to different return rates between countries, especially UK is over-represented and Spain is under-represented (low return rates of smaller countries are without any serious effect in absolute terms). In general the survey can be considered as reasonably representative on the European level and is certainly the best currently available quantitative reference source to local authorities' telematics implementation in Europe.

In order to compensate for any remaining imbalances, however different segments of the sample have been analysed separately and are reported whenever any significant differences materialised. These segments are population size, geographic location (Northern Europe vs. Mediterranean countries) and membership in a European network of local authorities.

Major urban problems

To judge the relevance of telematics for contributing to the solution of local authorities' major challenges, decision makers were asked about the main problems of their cities:

- Three out five local authority decision makers are concerned about social problems (reducing unemployment, social cohesion).
- Almost half are worried about related economic and regional development issues (e.g. adapting to structural change).

On this background results were checked whether they are perceived as providing solutions especially to these key problems. In other words, the perceived "problem solving capacity" of telematics for social and economic problems is established.

[1] Also available are reports of transport telematics and environment telematics surveys conducted among EU and Central and East European authorities.

Key perceived impacts of telematics

Overall decision makers believe that the impact of telematics is moderate.

There is some lack of conviction that telematics can be a motor for improved social and economic development. However, there is also great trust in using technology to improve services and internal efficiency. The necessity to consider telematics for enhanced economic development is quite appreciated, but its contribution to increased social balance and cohesion is seen very critically.

Little variation in geographic terms, network membership or city size suggests a stable and universally shared view on telematics impacts.

Strategic role of telematics

Almost all authorities state that telematics is an important or even essential element of their corporate strategy. This trend is even stronger among networked cities. Citizens appear to be critical of this self assessment. Consequently public awareness of cities' technology policy is limited.

The formalisation of promoting new technologies in the sense of written strategy plans is very high only for networked authorities, but quite limited for others (three quarters vs. one third). Almost all European authorities have established organisational structures for potentially co-ordinated strategic planning of technology policy.

Although decision makers personally have reservations on the positive societal impact of telematics, their authorities have officially recognised the importance of telematics and appear to have established adequate structures, even if few have formalised their strategy in a written policy document, except most networked authorities.

Internal use of basic telematics tools

Internal email is already widely available and rapidly growing (also in comparison to the 1996 EDC Survey). Email use is highest in northern authorities, but southern cities will be catching up soon. Medium-sized cities are obviously more pro-active. Networked cities, and generally authorities who are dedicated to promoting telematics, provide more often access to their employees.

Internet access for employees is more limited than email use, mostly only non-personal access is available (only 10% grant full and personal access). In networking cities access is 3-4 times higher overall (and 2 times higher for full and personal access)

Teleworking is still very limited in terms of number of cities and number of teleworkers, but is meeting higher interest than expected. 40% claim to have already or to plan teleworking, although this is apparently including a fair amount of "informal teleworking". Teleworking is more common in medium-sized authorities, in northern Europe, and among network members.

The most pro-active authorities in using new technologies internally, are medium-sized authorities. Large cities are relatively "backward" in providing access to email and internet or in undertaking teleworking trials, than smaller ones. This is surprising, as they are generally quite advanced. Likely reasons are mainly institutional problems (size of large organisations and differentiated hierarchy) as well as psychological barriers (new technologies as an empowering and "anti-hierarchical" tool).

Provision of access to citizens

For external email use, few authorities (around 20%) are fully equipped to allow for any substantial (and operationally useful) communication with citizens. Current geographic differences will be diminishing through high levels of planned system introduction in South European authorities.

Internet sites have rapidly grown since 1996. In the short term virtually all authorities will maintain their WWW sites and internet will soon become a standard medium for all cities. However the attractiveness of sites (as indicated in the EDC Survey only by number of visitors per month, but supported by other facts) appears to be fairly low.

Kiosk deployment levels are low (only one out of six cities have only a very low number). Kiosks appear to be used mainly as pilot applications, access to internet is available only by half of all kiosks

Availability of local communication networks (in the sense of an empowering tool and access medium for all) is very low. City administrations have a minor role in own implementations, but more assume a supportive role to other providers.

Only half of all authorities run own IT training courses for the general public or support other institutions in it.. Medium-sized cities are the most active group. .

Networked cities are leading in providing access to citizens. Especially in the Mediterranean, there is an identifiable group of authorities, which is extremely pro-active. However these differences are diminishing because internet, email (and to a much lesser degree also kiosk systems) are becoming adopted more generally. Cities in the North of Europe are tending to have a leading role in infrastructure related activities, although this difference will be reduced due to higher growth rates in Mediterranean countries.

Status of information service provision

Citizens' request for new ways of service delivery is extremely high. The IBM GISU Survey showed that 80% of citizens in the four covered countries expected "one point of contact for all government dealings". 56% called for "providing new service methods (phone, internet)".

Information services are currently supplied by almost all (85%) of authorities with about nine services on average. Interactive services are much less common. When excluding trivial "services", local authorities are quite remote from having an "electronic commerce infrastructure" - commerce in the sense of local government "business". But it becomes also clear that a minority of perhaps one quarter of cities have begun to implement some promising real services.

Key service areas are (general) information on the administration or the city and on leisure (tourism, events, city guides), but to a lesser degree on social services, information on environment and transport and business support. Information services are apparently not quite well in line with the core tasks of local government. They are for the largest part addressing the leisure and "fun" element or have a general promotional character.

There is a remarkable range of application areas among interactive services. These are somewhat better linked to essential local government tasks, but their overall scope is extremely limited, compared to cities' wide range of tasks and the high user expectations.

In terms of used media, internet is almost the universally accepted medium for electronic services. It is used by 90% of all authorities. Videotext / minitel (used by 23%) are declining in importance compared to 1996. There was also an increase in kiosk implementation (now at 38%) and telephone-based services (now 32%). Fax on demand is still not very widely used (12%).

The priority given to internet is at the same time an indication of local authorities' proactive approach to using this important new medium as well as an indication of not quite meeting citizens' preferences (who favour kiosks and telephones) and their access opportunities (considering the low availability of internet in most European households).

There are considerable differences between networked cities, who are much stronger in all service categories and southern cities, who are leading especially in (interactive) content.

Overall, public authorities have very actively provided new telematics services in the past years. There is a range of online information sources available, and the "internet revolution" included also the public sector. However services are supporting mainly leisure related activities, rather than addressing key urban policy areas and local government tasks. There is a low level of commercial approach with few real value-added services and low levels of interaction/ transaction.

Apparently, the establishment of telematics-based services is in many cities still considered as an activity of the IT department, rather than as a task of all departments which is providing new challenges and yielding new benefits. Services are often not well in line with user needs and access opportunities.

Use of new technologies

There is a remarkably high level of new technology use. Geographic Information Systems (GIS) and intranet are already common among most authorities. ATM, JAVA-based applications and smart cards are being used by one quarter.

Major growth markets will continue to be intranet and smart cards, but also ATM, call centre applications and JAVA will be growing at high levels.

Benefits and obstacles

Key perceived benefits are "better access for citizens to authority's services (e.g. independence of opening hours)" and "generally higher quality of public services". This points to a high degree of user orientation among decision makers in cities. Conversely, internal benefits are considered to be less important ("higher cost efficiency", "improved internal work flows" and "better technical integration").

A relatively high rank ("4,19") for "improved outside image of authority" indicates very clearly that the use of modern technology is regarded also as an "image" issue.

Since lack of social cohesion was identified as a major worry of decision makers previously, it is quite disturbing that "easier access for disadvantaged groups" is obviously not considered as a realistic goal to be achieved. Although of course authorities are also not very active in addressing this important area.

Major obstacles - apart from lacking funds - are related to "difficulty in supplying up to date and relevant information", "complexity of new services", "lack of awareness of services on the part of citizens".

"Hard" institutional/ legal factors or problems to implement successfully for the market are clearly considered as secondary ("legal problems", "technical problems", "users' reluctance to pay for new services"). "Lack of political support" is clearly the least problem. This indicates a very positive top-level commitment for telematics services in cities.

Concerns about delivering electronic services to citizens are common. Worries include security of transactions, user friendliness, user privacy and quality of content. Compared to users' concerns, decision makers seem to overestimate the importance of user comfort, but underestimate the need for continued personal interaction (or "telepresence" in technical terms).

Market approach

There is little indication of a commercial approach being followed by local authorities in delivering electronic services. There are almost no commercially operating services. Almost every service is free, conversely there are no reductions for using an electronic medium. Target group differentiation is low.

Private-public co-operation

Almost all urban services are public sector financed. Although there is substantial private-public sector cooperation, the background of private partners indicates that implementation is still in the pilot stage, since ICT suppliers are the major group (rather than for example service providers which would indicate full commercial operation).

Lacking commercial dimension is identified by urban decision makers as the key obstacle to greater private cooperation. Pro-active cooperation is made more difficult by perceived legal problems and a general reluctance which is indicated by a high ranking for the statement "Public and private roles are incompatible".

However, cooperation is generally seen as successful and there is in principle a high readiness to cooperate from the public-sector. Most urban decision makers believe that private-public cooperation will become more important in future years.

Networking cities are more positive towards cooperation, but are more dependent on other public sector grants. Geographic differences are not very marked, apart from European funding sources.

European cooperation

Authorities are quite satisfied with European cooperation.

Network membership appears to be the key "enabling factor" for receiving European RTD funding.

1 BACKGROUND AND METHODOLOGICAL APPROACH

1.1 CONTEXT OF EUROPEAN DIGITAL CITIES PROJECT

The European Digital Cities Project (EDC) is a support action of the European Union within the Telematics Application Programme (TAP) to support European cities and regions in the deployment of new economically and socially sustainable telematics applications. Its specific role within the TAP is also to monitor the status of local telematics deployment and to identify future needs and priorities of local authorities.

Part of the approach to these tasks was to conduct questionnaire surveys among local and regional decision makers in 1996 and 1998. This report reviews the results of the 1998 "cross-sector" or general telematics survey. Its specific objectives were to investigate into the following features of telematics deployment in European cities and regions:

- goals and perception of telematics
- technologies and applications used
- status and plans of service deployment
- benefits and obstacles
- partnerships and business models

1.2 ABSTRACT OF METHODOLOGY

Details of the methodological approach for conducting the survey are available in Annex 1. In summary the following steps were performed to ensure a state-of-the-art approach to the survey:

- Step 1: Set up of representative databases
- Step 2: Questionnaire design
- Step 3: Questionnaire mailing
- Step 4: Return control and reminders
- Step 5: Data entry and analysis

For the purpose of this survey a representative database of decision makers was set-up which was designed to be representative in terms of authority size within countries and to reflect the share of each country's population in Europe. Effectively all cities above 100.000 and a random selection of smaller authorities was included in the database. In addition, contact databases of major local authority networks (Eurocities and Telecities) were used to create a sub-set of the overall sample.

An in-depth questionnaire was sent in the five major European languages to 908 individuals and online versions were made available. A 21% return rate could be achieved by several reminders.

1.3 SURVEY RESPONSE

1.3.1 OVERALL

The total of 192 returned questionnaires is identical to 4% of all European cities. Due to different return rates between countries, especially UK is over-represented and Spain is under-represented (plus smaller countries, which are without any serious effect in absolute terms).

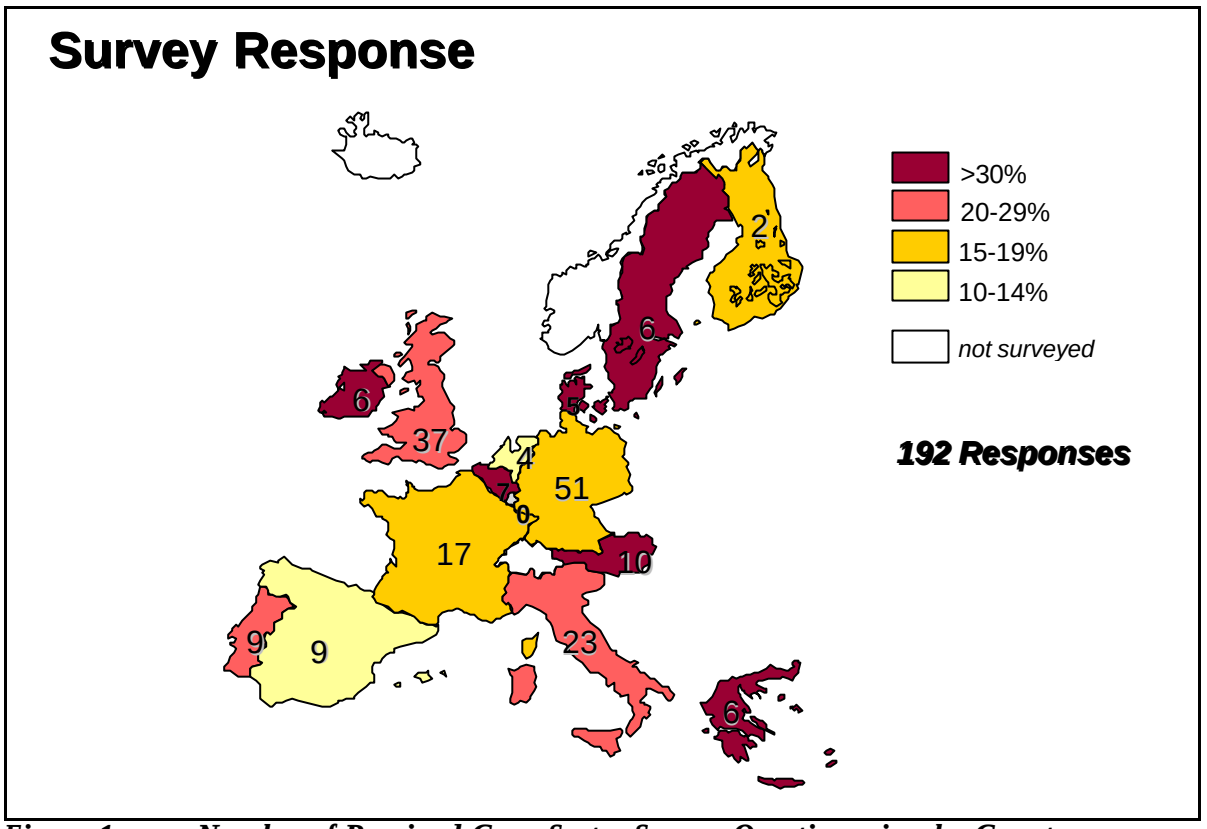

Figure 1 Number of Received Cross-Sector Survey Questionnaires by Country.

1.3.2 COMPARISON TO 1996 EDC SURVEY

Compared to the survey undertaken in 1996 the achieved number of questionnaires is almost four times larger (56 returns in 1996 vs. 192 returns in 1998). This is due to the systematically researched contact database and a larger number of language versions.

Although efforts were made to retain a fair amount of comparable questions between the 1996 and the 1998 surveys, results are not very well comparable due to the specific response patterns:

- for the 1996 survey representativeness had not been assured, it was mailed mainly to networked cities (only 21% of respondents were not allocated to Car Free Cities, Eurocities, POLIS or Telecities)
- the 1998 survey is not focused on networked cities (with 73% not being network members) and can be considered as fairly representative on the European level (cf. next section).

Therefore, the analysis in this report is necessarily limited to only occasional comparisons between results in the 1996 and 1998 surveys.

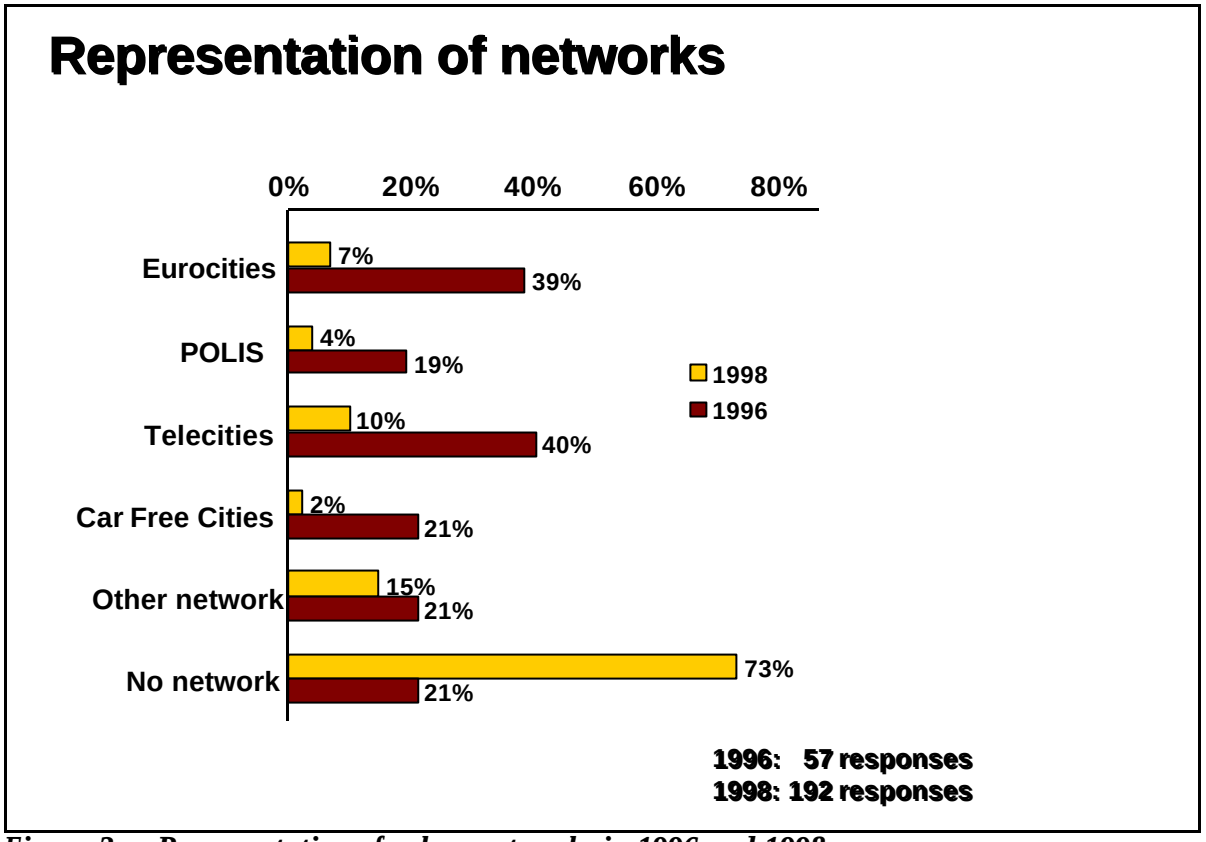

Figure 2 Representation of urban networks in 1996 and 1998 surveys

1.3.3 OVERALL REPRESENTATIVENESS

Full information on representativeness of the 1998 EDC Survey is given in Annex 1.

In general the survey can be considered as reasonably representative on the European level and is certainly the best currently available quantitative reference source to local authorities' telematics implementation in Europe.

In order to compensate for any imbalances, however different segments of the sample have been analysed separately and are reported whenever any significant differences materialised. Segments are population size, geographic (Northern Europe vs. Mediterranean countries) and European network members vs. non networking authorities.

This approach fully balances any shortcomings in full representativeness on geographical or authority size level as well as any bias resulting from the specific role of networked cities in the EDC Survey.

Occasionally throughout the report the results are compared with a representative telephone omnibus survey conducted on behalf of IBM Global Government Industry (IBM GISU) in July 1997. 900 citizens above 18 years of age were contacted in the each of the following UK, France, Germany and Italy and asked questions on electronic service delivery by governments. Although this is not strictly related to local government and it was not carried out only in a few EU members states it is nonetheless

an indication of some trends in public perception. These results will be contrasted to the decision makers' views contained in the EDC survey.[2]

[2] Unpublished IBM Global Government Industry survey undertaken by NOP Solutions, July 1997.

2 ROLE AND IMPACTS OF TELEMATICS

To provide a starting point for researching local public sector awareness and practice of telematics solutions it was decided to enquire first about decision maker's *personal* views and perceptions. The goal was to identify the key problems faced by decision makers (who are mostly from the technology departments). On the basis of perceived problems and impacts, the overall "problem-solving capacity" of telematics solutions can then be determined for identified key urban problems.

The second step considers the official role given to telematics by cities in terms of its formalisation in an explicit strategy plan and institutional arrangements for planning policies.

2.1 KEY URBAN PROBLEMS

Initially respondents were asked to indicate their city's largest general problems: "Q8. What do you feel are currently the three largest problems in your own city or region (in order of priority)?"

Respondents could put down three major problems ("most pressing", second/ third ...) in free text. For the analysis they were grouped into broader categories.

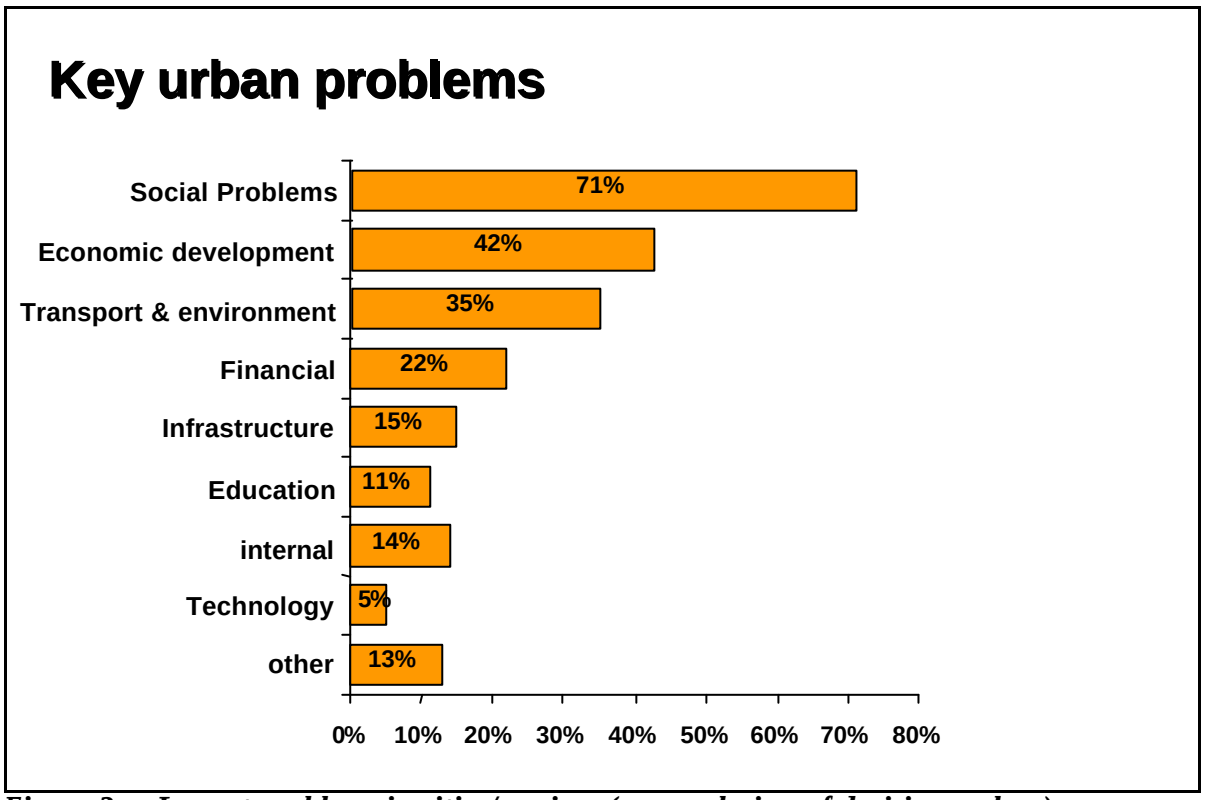

Figure 3 Largest problems in cities/ regions (personal view of decision makers).

As the overview of aggregated categories shows very clearly in Figure 3, three out five local authority decision makers are concerned about social problems, just under half about related economic and regional development issues. Technology in itself is not considered as a challenge by any substantial number of respondents.

In a less aggregated form the specific areas of concern are (in order of importance):

- reducing unemployment (the "number one" problem for one third of respondents)
- adapting to structural change
- ensuring generally the quality of life of citizens
- overcoming financial problems
- making essential infrastructure available

On this background it will be essential to reconsider in the following chapters how far telematics-based applications are perceived as providing solutions especially to these key problems. In other words, to establish their perceived "problem solving capacity" for social and economic problems.

Secondly, the systems and services currently offered will have to be checked how far they are targeted to wards the solutions of these essential areas of local government concern.

2.2 KEY IMPACTS OF TELEMATICS IN NEXT 2-3 YEARS

The perceived relevance of telematics solutions was investigated by asking "What do you personally believe the impact of modern technologies might be in the next 2 - 3 years?" (Q9). A list of 14 items was given and respondents were asked to indicate the relevance of each item as low, moderate or significant.

The overall average impact of telematics for all items was considered to be "moderate (i.e. some benefits are expected)".

Table 1 presents ratings in detail.

Not surprisingly, a large majority of decision makers believe that telematics can help them to provide better services to citizens, increase internal efficiency, improve education and economic development. For theses areas almost no respondent said that impact might be low. These issues reflect important goals for local authorities when implementing telematics.

However, respondents are less convinced that telematics can be a motor of economic and social development in specific terms; only one third believe that the support for local industry may be significantly improved, new employment can be generated, new tourism business can be created, or civic participation can be improved by using new technologies. Although positive responses are still dominating, the share of negative statements is not unsubstantial.

On the opposite side, the following picture emerges. A substantial proportion of decision makers believe that new information and communication technologies will only marginally help to preserving the cultural heritage, improving the environment or transport system, or caring for the sick and disadvantaged, or, in fact enhancing the cohesion of modern society. These areas however include key urban challenges - as perceived by the same group of respondents.

It should have been expected that advanced or pro-active cities would take on a more positive role. But surprisingly there is little variation in response patterns and results are extremely stable between all sub-sets of the sample (northern/ southern and networked/ non-networked cities).

Table 1: Perceived impacts of telematics

Items	Percentage "significant" impact	Percentage "low" impact
Providing better service to citizens	75	2
Making public administration more effective	66	3
Improving education and training opportunities	59	6
Helping to improve economic development	50	5
Supporting local industry (especially SMEs)	38	15
Generating new employment	33	14
Increasing the participation of citizens in public affairs	32	18
Creating new opportunities in tourism	29	22
Provide better health	22	28
Improving urban transport	20	30
Better quality of life for disadvantaged people	24	33
Enhancing social and economic cohesion	16	37
Creating a healthier environment	10	38
Preserving cultural heritage	13	48

In summary, it can therefore be concluded:

- Apparently, there is quite a lack of conviction that telematics can help to solve the fundamental problems of cities since decision makers are sceptical towards the "problem solving capacity" of telematics solutions for key social and economic problems in cities.
- However there is great trust in using technology to improve public services and internal efficiency. The benefits of telematics for enhanced economic development are quite appreciated, but a contribution to increased social balance and cohesion is seen very critically.
- Overall, decision makers believe that the impact of telematics is moderate.

2.3 STRATEGIC ROLE OF TELEMATICS

The following sections deal with the "official" view of authorities and the role assigned to telematics. The following questions were asked in that respect:

- Q4. What is your authority's position on using and promoting telematics?
- Q6. Is there a written strategic plan for the implementation of technology by your authority?
- Q5. Who in your authority is responsible for strategic planning of technology policy?

2.3.1 OVERALL POSITION

The promotion of new technologies is often considered as an essential tool for improved regional development. It is argued that authorities should play an active role in stimulating the application of modern technologies in all areas of economic and social life in their communities.

Apparently this is recognised by almost half of European authorities who state that telematics is an essential component of their corporate strategy. However, as figure 4 shows, one in five authorities say, exactly the opposite, i.e. they consider it not as a major activity.

There is a clear geographic pattern, with northern European authorities being less convinced, than their Mediterranean counterparts.

Differences are even greater when distinguishing between network members and non-networked cities. Two thirds of network members claim that telematics plays an essential role in their policy making, compared to only one third for other cities and regional authorities.

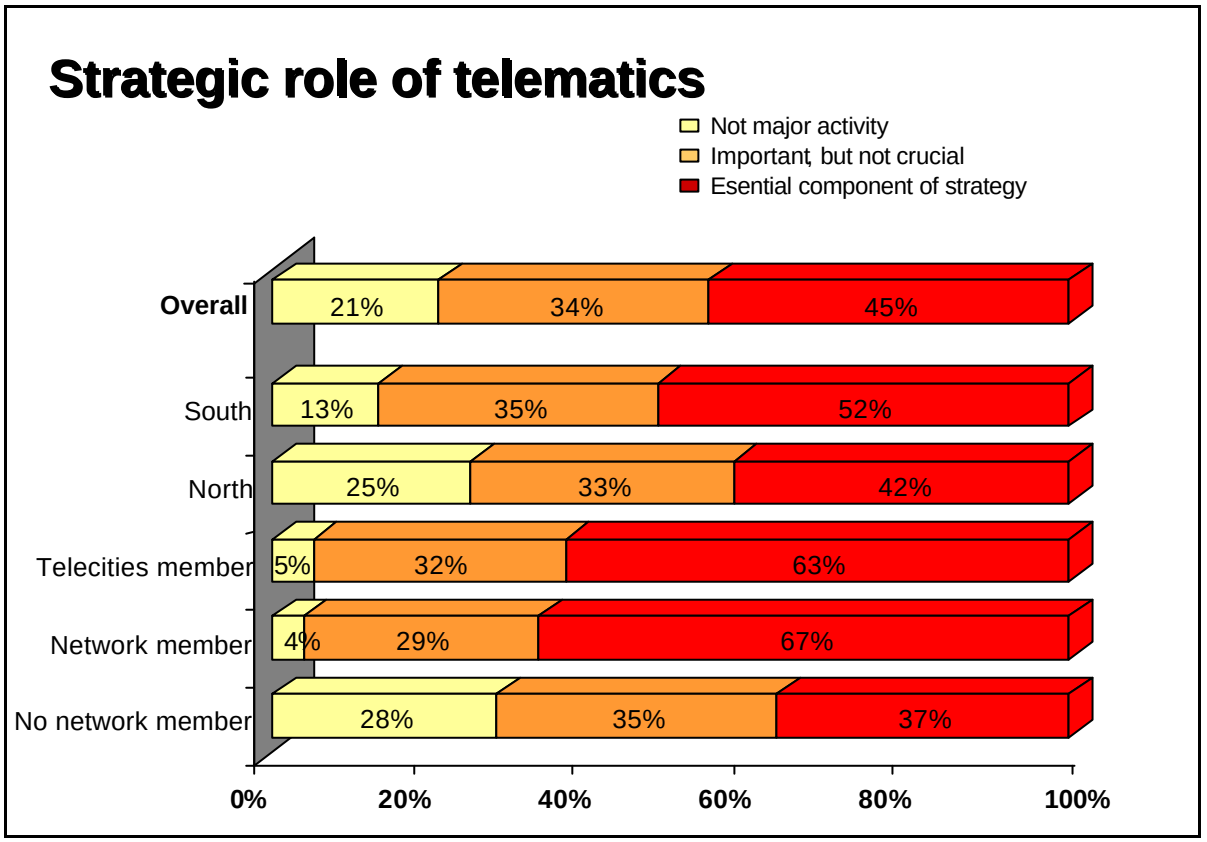

Figure 4 Authorities position on using and promoting telematics

These findings should be compared to the results of the IBM GISU survey of European citizens, which asked "Is government actively promoting the use of information technology within its departments to improve its services to the citizen?" The IBM report concludes on that question: "Only in France and Italy, a small majority believe that government is actively promoting the use of IT to improve services, in Germany and the UK the situation is reversed."[3]

[3] IBM GISU, 1997

Considering that 80% of local authorities claim to be more or less active in promoting telematics, there appears to be a considerable communication problem of city administrations to make their citizens aware of what they are promoting.

2.3.2 STRATEGIC PLANING

A similar, although clearer pattern emerges even, when analysing responses to the question "Is there a written strategic plan for the implementation of technology by your authority?" (Q6).

Equal parts of respondents state "yes" and "no", however this overall result is obscuring other important features:

- There is only a small and insignificant difference between North and South.
- A similar pattern emerges for authority size: large authorities are much more likely to formalise the importance of technology planning (e.g. 65% of authorities above 500.000 have a technology plan, 80% of very small authorities have not).
- Three quarters of networked authorities have a strategic technology implementation plan, whereas two thirds of other authorities have not.

Table 2: Is there a written strategy plan for the implementation of technology by your authority?

Strategy plan available?	Non-member	Network member
No	65%	26%
Yes	35%	74%
Total	**100%**	**100%**

This result is very important, because the availability of a written strategy plan for telematics implementation has been identified often as one of the key success factors of using telematics in a coherent and beneficial way.[4] In the context of this survey the existence of an explicit telematics strategy plan is also an indication for the maturity of authorities' technology policy.

Although there is no information on the direction or quality of planning, it can be concluded that *potentially* half of European authorities are in a position to address telematics implementation successfully. However there are critical differences for specific groups of cities.

2.3.3 RESPONSIBILITIES FOR PLANNING

One of the legacies of bureaucratic tradition is a highly differentiated and formalised structure of public administration. The overcoming of these traditions is an important theme in public sector reform. How far local authorities are already equipped to coordinate the new horizontal policy area of "telematics" across their classical departments must be considered as another precondition to generate synergies between application areas and to maximise benefits of telematics.

[4] Compare for example the results of the EDC Good Practice Case Studies, 1998, p. iv.

There are different models for enhancing coordination (in contrast to "individual planning" of departments, i.e. *no* coordination):

- centralised strategic planning by one specific department or the chief executive/ mayor
- co-operative planning by a working group of concerned departments

As can be seen in figure 5, few authorities admit to no coordination, most favoured is central planning.

Network members appear to favour rather the "co-operative" approach. While Southern authorities, institutionally are more in favour of centralised planning. These differences are however quite small and can be explained by a dominance of larger, i.e. more complex organisations in networks and the strong legal position of mayors in Mediterranean countries.

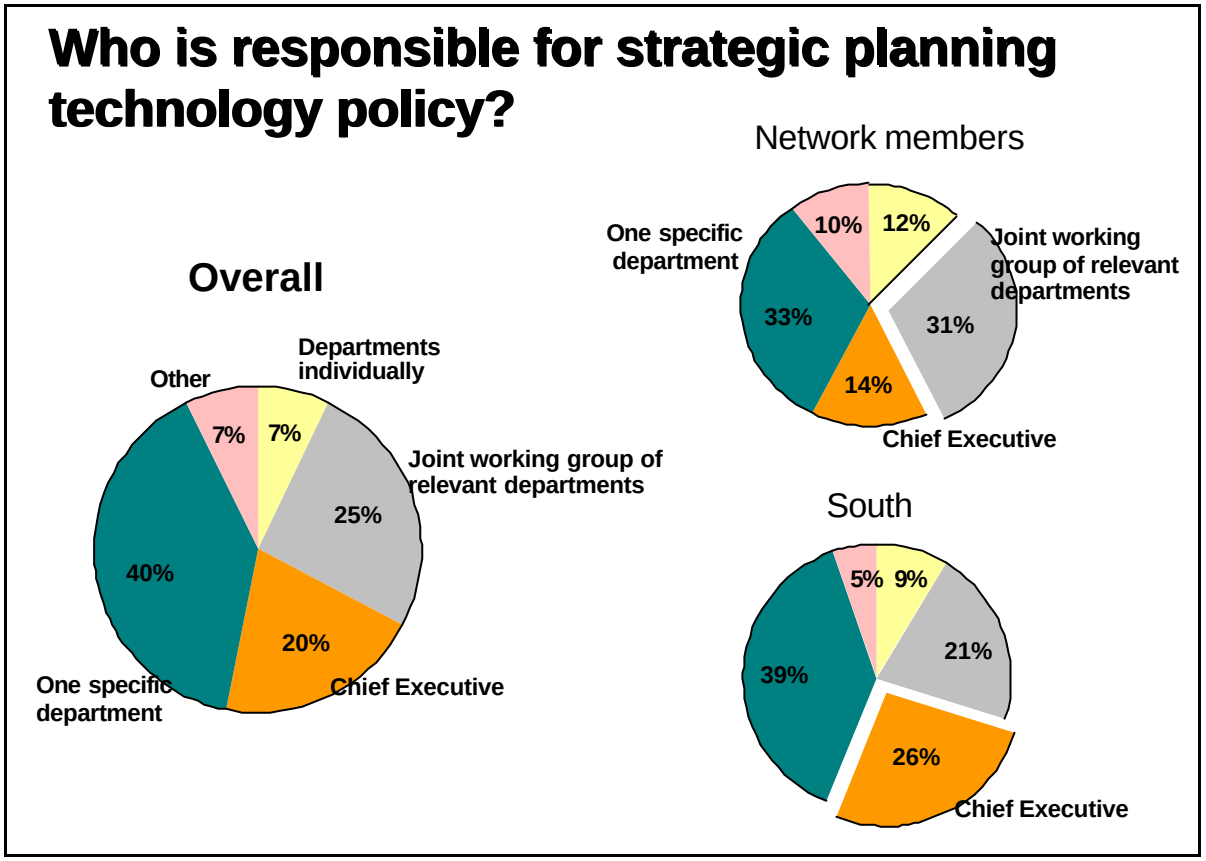

Figure 5 Responsibility for strategic planning of technology policy

2.3.4 SUMMARY

In summary, it can be concluded that:

- Almost all authorities state that telematics is an important or even essential element of their corporate strategy. This trend is considerably stronger among networked cities.
- Citizens appear to be more critical to this self assessment. Consequently public awareness of cities' technology policy is limited.
- The formalisation of promoting new technologies in the sense of written strategy plans is very high only for networked authorities, but quite limited for others (three quarters vs. one third)

- Almost all European authorities have established structures for *potential* co-ordinated strategic planning of technology policy.

- Although decision makers personally have reservations on the positive societal impact of telematics, their authorities have officially recognised their importance and have established (at least potentially) adequate coordination structures, even if few have formalised their strategy in a written policy document, except most networked authorities.

3 BASIC TELEMATICS APPLICATIONS

The key objective of the EDC Survey 1998 was to investigate the status and future plans for telematics deployment in local authorities. Since there is a multitude of individual technical systems and applications available, the following approach was chosen.

1. First the use of some basic telematics applications is investigated. As "basic" those are considered which have become widely available and are expected to enable local government to conduct operations on a new level of quality in the future. Considered "applications" are the use of email, internet and kiosks in authorities' internal and external communication, and the availability of community networks. In addition we will look at teleworking and support for IT training.

This wide scope was chosen to establish the framework in which specific services are offered.

2. The next chapter looks at information and interactive services provided by authorities to citizens, its application areas and communication media.

3. Finally the current and future use of some specific advanced technologies for service delivery is considered.

3.1 INTERNAL IMPLEMENTATION

The internal use of email is commonly regarded as an important precondition for improving internal work processes. Internet access and teleworking, although assumed to be not very widely used in the public sector, can also serve as an indicator for a "progressive" approach to the use of new technologies.

In the questionnaire the following questions were asked:

- Q10. Which technical systems are available internally in your organisation? What is the level of access by employees? (email/ internet)
- Q11. Are any of your employees teleworking?

3.1.1 EMAIL

The access of public authority employees to email has apparently become a common feature. Almost half the respondents claim that many of those who need to have access, can use email. Although there is clearly a subjective element involved in this statement ("many who need it"), a clear path to increased use of email is apparent.

Even if it may take considerable time to provide full access to those employees who could *objectively* make good use of this medium, email will soon become a standard communication medium in the public sector.

3.1.2 INTERNET

Internet access is less widely spread. Only one out of ten authorities grants access to all, another fifth provides internet use for "many", two thirds only to "very few" employees. Again, only a negligible proportion has no plans for using the internet.

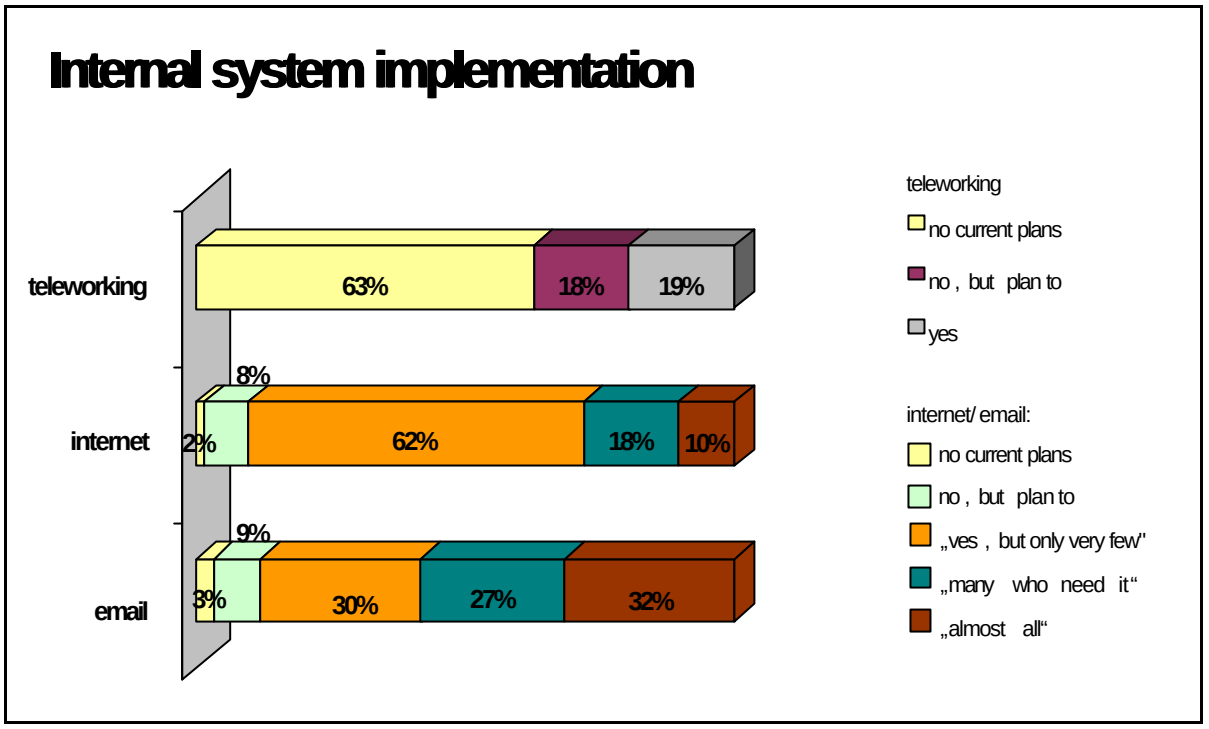

Figure 6 Use of email/ internet and teleworking

3.1.3 TELEWORKING

Teleworking is of course much less common. However it is quite surprising to see that in the public sector, which is usually considered to be even less prepared to consider teleworking than commercial entities, already one fifth of administrations have gained some experience with telework. The same proportion is planning to test it. Apparently, these high figures include "informal teleworking".[5]

As the low average number of teleworkers (197 for those who state that they have teleworkers) shows, teleworking is however far from becoming a common feature.

But still the overall level of interest may lead to more substantial interest in the public sector in the near future.

3.1.4 SEGMENTATION

Geographically, email and internet access is still more limited in southern authorities. They have a lower proportion of universal access, but a correspondingly higher rate of planned installation. Therefore their lower implementation level will be reduced in the short term.

Teleworking is less common in southern authorities, both in terms of overall levels and the number of teleworkers. The average is 245 for northern and only 35 for southern European authorities.

Network members are more pro-active in using email and internet for internal purposes. As figure 7 shows, full access to either email or internet by employees is significantly higher among them; Telecities

[5] C.f. "Status Report on European Telework - TELEWORK 98". 3,1 % of the European workforce or 4 million workers are teleworking.

members are quite in line with this general observation. Considering internet access alone (not contained in figure 7) networked cities have a 3-4 times higher internet penetration rate.

Access is however highest among those cities who state that telematics is "an essential component" of their corporate strategy (Q4). This fact is the key explanation for pro-activeness in this area.

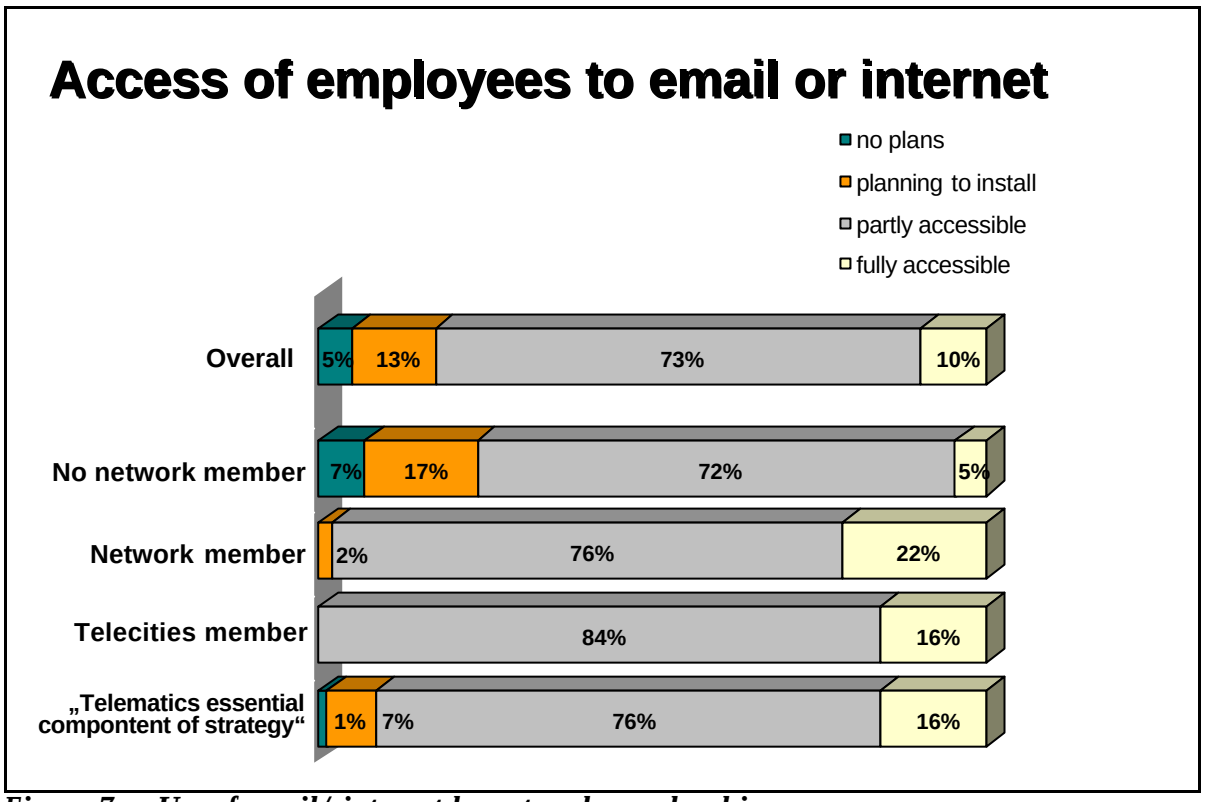

Figure 7 Use of email/ internet by network membership

3.1.5 SUMMARY

To summarise the internal use of "basic applications", the following issues are observed:

internal email use

- already widely available and rapidly growing (also in comparison to the 1996 EDC Survey)
- highest in northern authorities, but southern cities will be catching up soon
- medium-sized cities are obviously more pro-active
- networked cities, and generally authorities who are dedicated to promoting telematics, provide more access to their employees

internet access

- more limited than email use, mostly only non-personal access is available (only 10% grant full and personal access)
- in networking cities access is 3-4 times higher overall (and 2 times higher for full and personal access)

teleworking

- still very limited in terms of number of cities and number of teleworkers, but is meeting higher interest than expected

- more common in medium-sized authorities, in northern Europe, and among network members

Generally, it should also be noted that the most pro-active authorities in using new technologies internally, are medium-sized authorities. Large cities are considerably "backward" in providing access to email and internet or undertake teleworking trials than smaller ones. This is surprising, as they are generally quite advanced - as will be seen later. Obviously there are institutional problems, due probably to their large organisations and a very differentiated hierarchy.

Both technologies, internet and email as well as teleworking, however have a capacity to empower employees in the sense that they make them more independent from the "official" flow of information: Current email systems - unless integrated in a sophisticated workflow system - allow messages to arrive directly at the employee's PC, without going through a sometimes long hierarchy. For internet access there is a similar situation with employees having access to "unlimited" information. The relative independence of teleworkers may in practice not be so substantial, but may be perceived as high.

Therefore it can be concluded that it is mainly due to institutional and related problems of perception that large organisations encounter obstacles in introducing email and internet and are less interested in teleworking. This is a significant disadvantage since the potential benefits for larger organisations are higher than for small units.

3.2 PROVISION OF ACCESS TO CITIZENS

3.2.1 AVAILABILITY OF EMAIL AND INTERNET

Changing perspective and looking at external communication of public authorities, the following questions were asked:

- Q12. Which technical systems is your authority using to provide public services?
  (Does your authority maintain its own Internet site? Are any publicly accessible kiosks available?)

- Q13. Can your citizens contact employees in the administration (or politicians) directly by email?

Apparently local regional authorities are less inclined to use email for external communication than they do internally:

- Only every fifth authority enables citizens to contact "all employees with an external role", and in half of all cities at least some can be contacted.

- 15% are currently not considering email as an external communication medium at all.

It was not asked what the level of actual external communication was (because it had not produced reliable results in the 1996 survey), and again there may be a subjective element of who has "an external role". It is nonetheless apparent that email is increasingly recognised as an important external communication medium for authorities and their citizens.

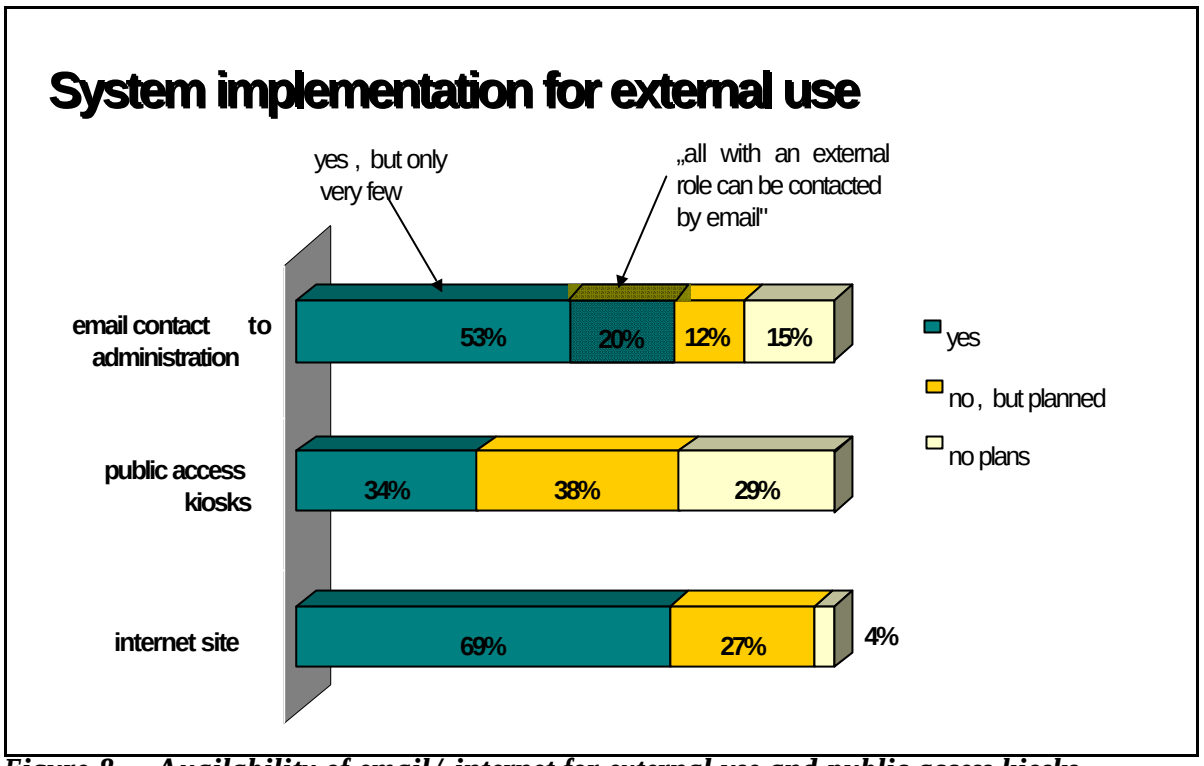

Figure 8 Availability of email/ internet for external use and public access kiosks

A similar situation is apparent for communicating through the internet, i.e. disseminating information on the WWW. There are almost no authorities in Europe who are not at least planning an own internet site, over two thirds already maintain one.

For both internet and external email use there is a clear indication of networking authorities being more advanced (e.g. email contact to "all" employees is two times higher). And again, northern cities have a higher level of deployment, but southern administrations are planning to catch up soon.

The "take-off" for installing own internet sites was in 1996, when 30% were maintaining an own site. In 1997 already 71% of northern and surprisingly 83% of currently existing southern sites had been installed.

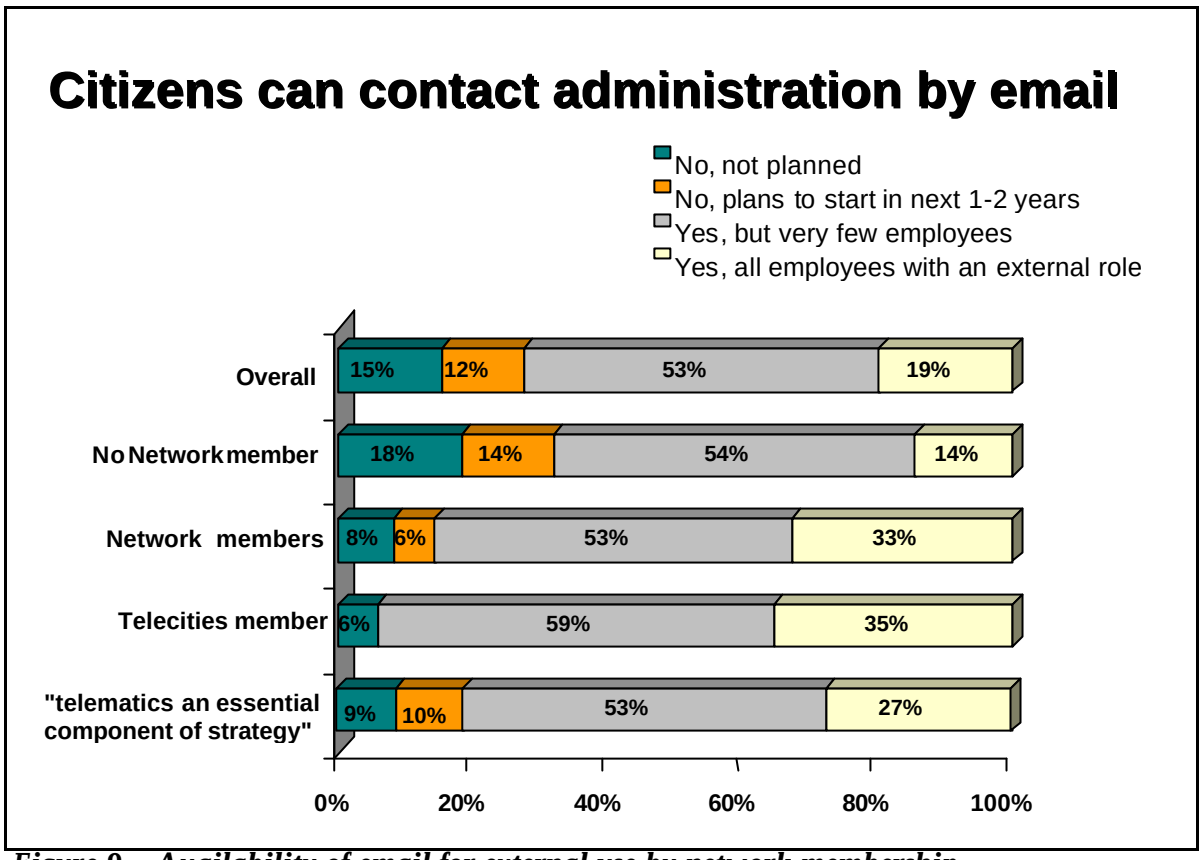

Figure 9 Availability of email for external use by network membership

3.2.2 LEVELS OF INTERNET USE

No information was available on the quality of the WWW sites. This information is available from other sources.

There are a number of studies, which indicate low quality of urban authorities internet sites:

- According to a study of the "Deutsches Institut für Urbanistik" in Berlin, the digital city in Germany is still "a chimera".[6] There is also a similar statement by M. d'Udekem-Gevers for Belgian web sites.

- A comprehensive study of 213 urban WWW sites in Europe found that the majority are simply "cheap promotional tools for marketing purposes." Only 30% are well-run information desks.[7]

These arguments are supported by the results of the EDC survey: The number of visitors per month is comparatively low. Only 500 hits or less per month are registered for half the sites, and only 20% have more than 20.000 visitors on average. Considering the size of cities/ regions, i.e. taking the size of the potential target group as a measure, this points very clearly to a low overall attractiveness of local authorities' internet services. In addition, there may be the awareness problem of some users not expecting a good quality site from a public sector institution.

[6] Busso Grabow, in: Proceedings of the 3rd EDC Conference, 1997, p. 23 and M. d'Udekem-Gevers, ibid., p. 101

[7] Allessandro Aurigi, in Proceedings of the 3rd EDC Conference, 1997, p. 89, 97-100.

3.2.3 PUBLIC ACCESS KIOSKS

Deployment rates of public access kiosks are given in figure 8. One third of authorities state to have kiosks, and another third claims to plan installation. However it should also be noted that:

- half of all installations were only done in 1997 or 1998
- half of all authorities have only 5 or less kiosks, only 10% have 25 or more
- in half of all authorities kiosks provide internet access

This should be contrasted with arguments in the discussions on universal access in the information society: High value is being put on kiosk systems on providing equal access to all. They are sometimes even referred to as the modern equivalent to the public telephone box.

Considering actual deployment levels however, this is (at best) wishful thinking:

- Kiosks are available in few cities and in extremely low numbers.
- There is no indication from comparing the growth rate between the 1996 and 1998 EDC Surveys that any substantial penetration rate can be achieved in short or even medium terms.

This fact gains particular importance when taking user expectations into consideration. In the IBM GISU Survey "self service kiosks" were those access media, which most respondents had ever used. 67 to 79% adults in France, Germany, Italy and the UK had used kiosks, only 12 - 18% the internet. All countries also "gave the highest mean rating to self service kiosks - between quite and very convenient".

The question of access will be reconsidered in chapter 4 in a wider context.

3.2.4 COMMUNICATION NETWORKS

The problem of universal access has another facet: can citizens interact with each other by using the new media via local communication networks - and are cities supporting their implementation? The questionnaire asked "15. Is your administration (directly or indirectly) involved in setting up a local communication network for the public?"

Responses were as follows:

- One sixth of authorities (16%) stated that they do so and that they are leading the implementation.
- Another 23% indicated that they have a supportive role, but that other organisations are the key partners. Yet another quarter said they have plans to have a communication network implemented.
- 38% of cities have no plans for setting up a local network.

Deployment in very large cities is considerably higher; only one in five have no plans. Network members are also more advanced. Southern cities are about to achieve similar deployment levels as in the North in the next two years.

Regarding overall deployment, there will soon be local networks in around half the cities. The role of local authorities will however be mainly limited to supporting other organisations.

Obviously a fair amount of positive responses are due to purely technical implementation[8] rather than applications to support citizens' active interchange and content provision by local people on the net. Therefore, the actual availability of local community networks in the sense of an empowering tool and access medium for all is very low. Administrations have a minor role in this respect.

This must be regarded as a severe problem. In its report the UK National Working Party on Social Inclusion (INSINC)[9] advised local authorities to provide public access facilities taking account of the needs of community groups. "Policy is needed to stimulate the development of 'neighbourhood areas' in community networks." Apparently this recommendation (and similar statements from other parties) has not had the expected effect yet.

3.2.5 TRAINING SUPPORT TO USERS

Finally another aspect of "access" was investigated: "Q16. Are you supporting your citizens in learning how to use new technologies?" Not knowing how to use of new technology is the major barrier to being part in the information society. Knowledge of IT is a key qualification on the labour market. In strategic terms, a workforce which is well qualified and a population that is actively using new technologies are major factors for regional economic development.

Therefore, cities should be extremely proactive in supporting their citizens through IT training - are they?

- Half of all cities say that they are "not active at the moment".
- From the other half most maintain own training institutions and a considerable proportion support also other organisations.

These statements do not contain any indication of the quality of the training, the pro-activeness of making citizens aware of education possibilities, the involved cost etc. So availability of training in practical terms may be quite more limited as these figures suggest.

As training in new technologies is such an important issue the role taken by local authorities must be judged to be not proactive overall.

There is some comfort when looking at the segmentation between groups of authorities:

- Northern and Southern cities are different in the role of the authority, but not overall availability. Own institutions are preferred in the North.
- Network members are much more active. Only one quarter "are not active".
- Medium-sized cities are the most active group in terms of size segments.

3.2.6 SUMMARY

In summary, the use of "basic telematics applications" by local authorities for providing access to citizens is characterised by the following factors:

[8] Some of the responses were cross-checked.

[9] Report of the National Working Party on Social Inclusion (INSINC): The Net Result - Social Inclusion in the Information Society, 1996, p. 10.

email contacts

- few authorities (around 20%) are fully equipped to allow for any substantial (and operationally useful) communication by email
- email use has spread for external communication, although availability is much more limited than for internal communication
- current geographic differences will be diminishing through high levels of planned system introduction in South European authorities

internet sites

- since 1996 there was a rapid growth of WWW sites
- in the short term virtually all authorities will maintain their internet sites; internet will soon become a standard medium for all cities
- the attractiveness of sites (as indicated in the EDC Survey only by number of visitors per month) appears to be fairly low

kiosks

- deployment levels are low (only one out of six cities have only a very low number); kiosks appear to be used mainly as pilot applications
- access to internet is available only by half of all kiosks

local communication networks

- actual availability in the sense of an empowering tool and access medium for all is very low
- city administrations have a minor role in own implementations
- more assume a supportive role

training

- only half of all authorities run own and/ or support other institutions in providing IT training to the general public
- medium-sized cities are the most active group

In general it is worth noting also that networked cities were again leading in providing access to citizens. Especially in the Mediterranean, there is an identifiable group of authorities, which is extremely pro-active. However these differences are diminishing because internet, email (and to a much lesser degree also kiosk systems) are becoming adopted generally.

Cities in the North of Europe are tending to have a leading role in infrastructure related activities, although this difference will be reduced due to higher expected growth rates in Mediterranean countries.

4 STATUS OF SERVICE PROVISION

This section examines which services are provided by authorities and on which technical platforms. Target groups and conditions of use are investigated as supplementary information. The questions in the survey were:

- Q17. What information and services does your authority provide for your citizens? And which technical platform are you using to deliver them?
- Q18. Do users have to pay for any of your electronic services (in addition to the usual price of the service)?
- Q19. Are there specific target groups for any these services?

Two types of services are investigated separately:

- "information" services where users can put a request, but cannot interact directly (e.g. a standard web page)
- "interactive" services where users can request information, but can also provide feedback immediately as part of the service (e.g. a transactional web-based application)

In terms of delivery platforms a wide range of media has been included, i.e. non-internet technologies. The questionnaire contained a list of services (cf. Annex 2). For each provided service respondents were asked to specify the used dissemination media from the following list:

- videotext/ minitel (for interactive services: "*(interactive)* videotext or minitel")
- own Internet site
- public access kiosks/ terminals
- telephone call centre
- (automatic) fax on demand (not for interactive services)

During analysis it became obvious that respondents adopted a very wide interpretation of "telephone call centre" and "(automatic) fax on demand". After checking some of the individual statements, it became obvious that

- "telephone call centre" should be interpreted as any telephone-based information service, not strictly call centre applications with voice recognition etc.
- "(automatic) fax on demand" should be interpreted as a service based on providing information by fax, not necessarily as an application where users can demand the sending of a fax from a server without operator interaction

4.1 INFORMATION SERVICES

Almost all authorities (85%) are offering some sort of "electronic" information by means of videotext/ minitel, internet, kiosks, telephone call centre or fax on demand.

On average, those authorities offering any service at all, indicated nine service/ media combinations on average (e.g. three services delivered on three dissemination platforms).

4.1.1 MEDIA

The single, most used medium (across all services) is already internet, used by almost all respondents, followed by kiosks and telephone-based services (with about one third of responses). Compared to the 1996 EDC Survey these media have risen sharply in importance. Videotext/ minitel are in decline. Fax-based applications are not yet very common (used by only one in ten authorities).

Table 3: Media used by authorities for information services

Medium	Percent of all service-providing authorities
internet	87%
kiosks	38%
telephone call centre	32%
videotext/ minitel	23%
fax on demand	12%

This situation should be compared with the actual use, access potentials and stated preferences of users: In the IBM GISU Survey European citizens were asked about which new media they had ever used. Results are as follows:[10]

Table 4: Media ever used by citizens

Medium	Percent of users in four European countries	Convenience Rating*
self service kiosks	67-79 %	1,4 - 1,6
PCs	43-49 %	-
touch tone telephone info services	38-39 % (Italy 53%)	0,1 - 1,2
telephone direct services	30-31 % (Germany 12%)	0,1 - 0,8
touch screen terminals	15-31 %	-0,1 - 1,2
email	13-14 % (UK 23%)	-
internet	12-18 %	-0,2 - 1,0
no answer	12-16 % (Italy 0%)	-

Source: IBM GISU, 1997; countries were France, Germany, Italy, UK
* The given scale ranged from -2 (not convenient), to 0 (neither), to +2 (convenient).

As internet is clearly the preferred medium by authorities, another relevant fact is the rate of internet users. The recent European Telework Report quoted IDC estimates for internet use in 1997 as follows:

[10] C.f. "Status Report on European Telework - TELEWORK 98", p. 31.

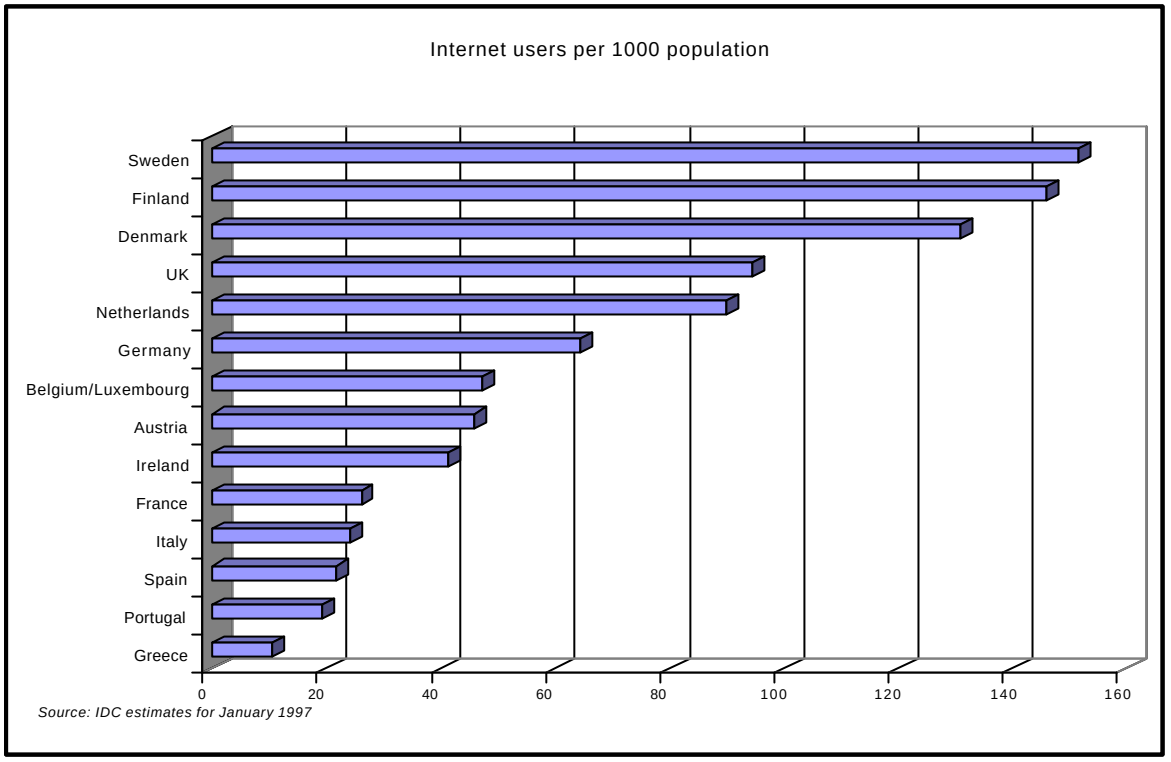

Figure 10 Internet use in Europe

Apparently only in the Scandinavian countries, where use rates are highest, around 15% of the population have internet access. In Greece and Portugal only less than 2% have access. The Telework '98 Report estimates that in Europe only one in hundred people have "begun to integrate the use of internet into their daily activities as a matter of routine".[11]

These figures suggest very clearly:

- Kiosks are clearly the preferred medium by a very large number of users.
- Telephone-based services are the second preferred medium.
- Videotext (not covered in the quoted IBM GISU figures) and telephone are certainly the most universally available access media to new information services.
- Internet use is still very limited in most European countries and local authorities would be ill-advised to concentrate on this medium exclusively.

In summary therefore it can be concluded that cities are not concentrating their service delivery on the media which are most wanted or most accessible by citizens.

[11] Ibid., p. 31.

4.1.2 SERVICES

The survey has produced the following "hitlist" of information services.

Table 5: Status of provision of information services (providers only)

Service area	Percent of all service-providing authorities	
	all media	Internet
directory of responsibilities in administration	83 %	69 %
tourism-related information	81 %	68 %
calendar of events (theatre, cinema etc.)	81 %	60 %
information on available social services	60 %	44 %
environmental information	59 %	43 %
electronic city guide	50 %	43 %
special support for local businesses	48 %	38 %
transport-related information	48 %	38 %
information on educational opportunities	48 %	35 %
decisions of the council	42 %	29 %
information on job vacancies	42 %	29 %
notices on public tenders	32 %	20 %

Note: The basis for percentages (=100%) are authorities providing any service, which are 85% of all responding authorities.

The information services delivered by most authorities (around 80%) are:

- "directory of responsibilities in administration"
  Obviously this item has been interpreted very widely as a (general) "guide" to the administration, rather than as a comprehensive "directory" of responsibilities.
- tourism-related information
- calendar of events (theatre, cinema etc.)

Of lesser importance (around half of all authorities delivering any service at all) are information on available social services, electronic city guide, environmental information, special support for local businesses, transport-related information, information on educational opportunities.

Approximately every third service delivering authority is offering also information on decisions of the council, on job vacancies, and notices of public tenders.

4.1.3 SERVICE-MEDIA PROFILES

The service profiles of the different media are given in figure 11. There are however few clear distinctions:

- Kiosks are strongest in applications related to leisure (events, tourism) and transport.
- Videotext has an emphasis also on events, but includes also useful daily information on transport, environment, education.
- The more recently introduced media for information services (fax and telephone) have not developed a sharp service profile.
- Internet is regarded as the universal delivery medium by cities.

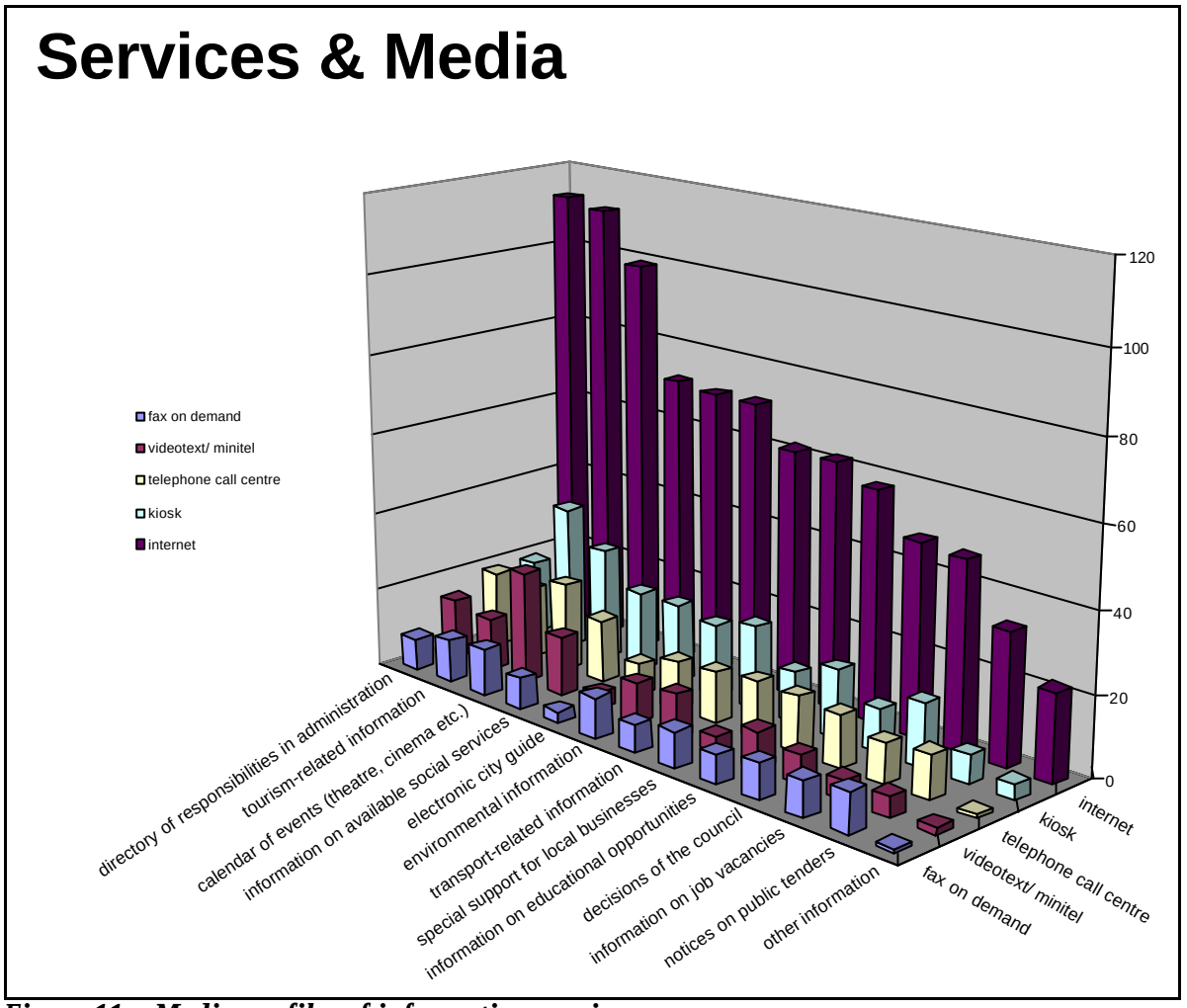

Figure 11 Media profiles of information services
(Note: The numerical basis of the figure is the total number of responses.)

4.1.4 SUMMARY

This service "hitlist" is in so far remarkable as the key information delivered, is either of a fairly general nature (directory of responsibilities) or targeted at least partly to non-residents (tourism and events).

The most important result is that those services offered most widely are not part of the core tasks of local government. Key government tasks (in legal terms but also following the statements of policy priorities quoted earlier) are to increase employment, social cohesion, ensuring sustainable environment and transport systems, supporting business and providing education. These tasks however are less supported by the offered services. There is almost a reversed priority, with most important policy areas, covered least by electronic services.

The reasons for this phenomenon are manifold:

- The task for setting up new services is internally mostly assigned to technical/ IT departments. Due to their technical expertise they are less aware of the specific communication needs and information potentials of other departments, unless there is a very good communication and internal steering along defined strategic priorities.
- Especially the internet is (not only in public authorities) mainly perceived as a leisure medium like TV and consequently mainly leisure related content is provided. There is apparently not yet sufficient conviction that the internet will become a medium for "serious" applications. Internet is still often perceived as a "play ground" for IT people.
- User requirements are often insufficiently investigated before setting up new services.
- Although the priority medium is internet, its penetration is still very low in most parts of Europe and the user group is very narrowly defined in terms of age, gender and income. The potentials of alternative, more commonly available media (as telephone/ fax services and kiosks) are not fully understood or exploited. Internet is "trendy", other media carry less charisma for the providing organisations (and responsible individuals).

4.2 INTERACTIVE SERVICES

Interactive services are more rare than purely "one way" information delivery. This is understandably due to the much higher amount of technical effort, especially in the back office area, as well as security and privacy implications.

Overall around half of all authorities are offering any service.[12]

4.2.1 MEDIA

Again the most used medium (across all services) was the internet, used by almost all respondents. However telephone-based services play an almost equally important role in real transactional services, while kiosks and interactive videotext/ minitel are much less used.

[12] Only those authorities who are providing any service are included in the following analysis.

4.2.2 SERVICES

The survey has produced the following "hitlist" of information services.

Table 6: Status of provision of interactive services (providers only)

Service area	Percent of all service-providing authorities		
	all media	Internet	telephone call centre
make suggestions to council/ enter complains	89%	57%	18%
search library catalogues	45%	30%	2%
book municipal services	42%	15%	19%
request public documents	38%	17%	13%
book tickets	37%	16%	12%
apply for jobs	34%	14%	7%
check status of admin. processes	34%	14%	11%
request social services	33%	11%	15%
request certificates	33%	10%	12%
participate in planning processes	30%	10%	9%
participate in discussion groups/ community networks	27%	16%	6%
submit offers in public tenders	21%	6%	10%
pay online for services	10%	4%	4%
other	2%	1%	0%

The one "interactive service" delivered by almost all authorities (89%) is to "make suggestions to council/ enter complains". Obviously this item has been interpreted very widely as a general possibility to contact the administration by email, including the possibility to "make suggestion/ enter complaints", rather than as a comprehensive application linked for example to an internal workflow system. It is also not necessarily an "interactive" service in the sense of real time interaction, but should be regarded only as the most basic "interactive" element.

There is quite a wide range of services as can be seen in table 6. The services offered least are participation in electronic tendering and online payments.

4.2.3 SERVICE-MEDIA PROFILES

The service profiles of the different media are given in figure 12. Due to overall low levels of service provision, it is not advisable to outline any overall trends yet.

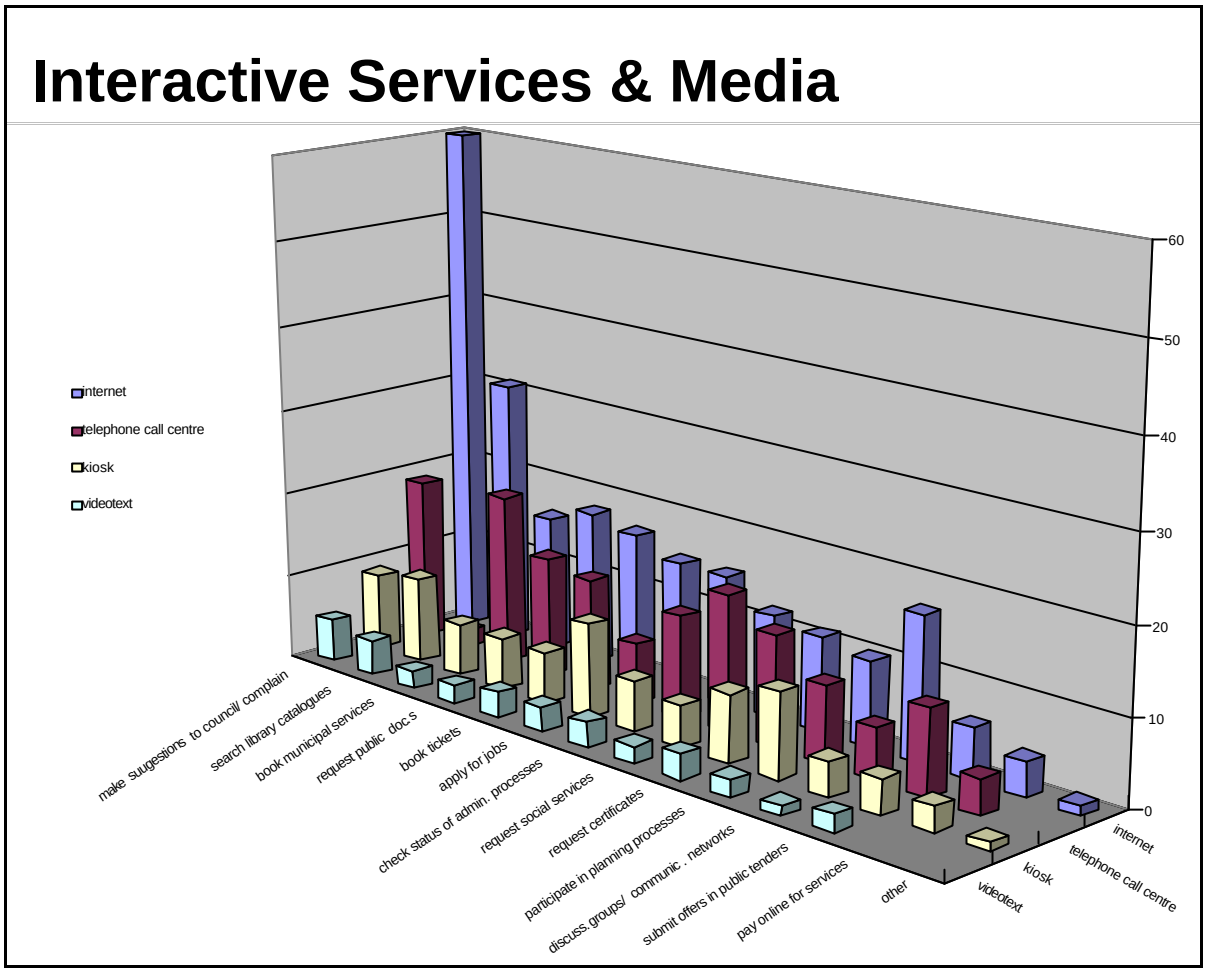

Figure 12 Media profiles of interactive services
(Note: The numerical basis of the figure is the total number of responses.)

4.2.4 SUMMARY

Again, authorities are not concentrating on their key governmental tasks when delivering interactive services. Users' most preferred or most available media are not as much supported as one should expect.

Interactive services are much less widespread than pure information services. Only half of all cities offer any service at all. Since feedback via email from authorities' web sites should not be included in this category, real services are offered by only one quarter of cities.

The minority of authorities offering any interactive services, offer a quite remarkable list. These are reasonably in line with key governmental tasks.

A high amount of these services is based on telephone; internet is not as widely accepted as an interactive communication medium. While telephone is a widely available and acceptable medium, there are also some overstatements of "service" included (e.g. participate in planning processes, participate in discussion groups/ community networks by telephone).

Citizens mainly need to interact with authorities. Pure information is not the "core business" of local authorities. Therefore the service most badly needed by citizens (and least covered by cities) are interactive services.

4.3 SEGMENTATION

The following observations are necessary to differentiate in terms of city size, geography and network membership.

Network members

- They are offering a significantly higher amount of information and interaction services.
- Their general media preferences are similar to other authorities', but they use more media platforms.
- They maintain a higher amount of videotext, kiosk and telephone-based applications, but there is no significant difference for internet and fax-based services.

North / South

- Northern authorities are more inclined to using the internet. There is a higher preference for telephone and fax-based services in the South.
- Southern cities are supplying generally a higher amount of services, most remarkable in the interactive area.

Authority size

- Differences in terms of authority size are comparatively small.
- Only larger cities are providing a somewhat greater variety of services and are using more platforms (especially kiosks).

4.4 OVERVIEW

The request for new service delivery methods by citizens is extremely high. The IBM GISU Survey showed that 80% of citizens in the four covered countries expected "One point of contact for all government dealings". 56% called for "Providing new service methods (phone, internet)".

Against this background and the other information on users requirements, the public service offer needs to be judged.

Level of service provision

Information services are supplied by almost all (85%) authorities, with about nine services on average. Interactive services are much less common. Including also telephone-based services and simple exchange of email, about half of all authorities are providing interactive services.

There are apparently gross overstatements of "service", when checking responses with reality. Local authorities are quite remote from having an "electronic commerce infrastructure" - commerce in the sense of local government "business". But it becomes also clear that a minority of perhaps one quarter of cities have begun to implement some promising real services.

Key service areas

Most often supplied services are (general) information on the administration or the city and on leisure (tourism, events, city guides), but to a lesser degree on social services, information on environment and transport and business support. Information services are apparently not well linked to the core tasks of local government, but are addressing rather the leisure and "fun" element.

There is a remarkable range of application areas in interactive services. They are somewhat better linked to essential local government tasks. But still their overall level is extremely limited compared to the wide range of tasks and high user expectations.

Key media

Internet is almost the universally accepted medium for electronic services, it is used by 90% of all authorities. Videotext/ minitel (used by 23%) are declining in importance compared to 1996. There was also an increase in kiosk implementation (now at 38%) and telephone-based services (now 32%). Fax on demand is still not very widely used (12%).

The priority given to internet is at the same time an indication of local authorities' proactive approach to using this important new medium, as well as an indication of missing their citizens' preferences (which favour kiosks and telephones) and their access opportunities (considering the low availability of internet in most European households).

Segmentation

There are considerable differences between

- networked cities, who are much stronger in all service categories and
- southern cities, who are leading especially in (interactive) content.

Overall

Public authorities have very actively provided new telematics services in the past years. There is a range of online information sources available, and the "internet revolution" included also the public sector.

However services are supporting mainly leisure related activities, rather than addressing key urban policy areas and local government roles. There is a low level of commercial approach with few real value-added services and low levels of interaction/ transaction.

Apparently, the establishment of telematics-based services is in many cities still considered as an activity of the IT department, rather than as a task of local government as a whole which is providing new challenges and yielding new benefits. Currently provided services are not quite in line with user needs and access opportunities.

5 ADVANCED TECHNOLOGIES

The aim of this section is to provide an overview on the current status of the use of some advanced technologies for delivering electronic services.

As before, an approach was chosen where a list of technologies was provided and respondents were asked to indicate which they are using "fully" or on a "trial basis", or if they are not using them, to indicate whether they have plans to do so or not. The technologies were chosen to cover some advanced, but meanwhile standard items, as well as some particularly sophisticated technologies. (cf. table 7)

5.1 USE AND PLANS

The current overall status of advanced technology use is visualised in figure 13.

Table 7: Status of current technology use

Most used (i.e. fully available or in trial use)	Percentage of users
Geographic Information Systems (GIS)	70 %
an own (internal) intranet	54 %
high speed multimedia networks (e.g. ATM)	28 %
JAVA-based applications	24 %
smart cards	22 %
intelligent software agents	18 %
telephone call centre with automatic speech processing	14 %
satellite-based positioning (GPS)	9 %
virtual reality applications	9 %
expert systems/ artificial intelligence	7 %

Obviously, this list of technologies is in no way exhaustive and can only serve as an indication of readiness to adopt advanced technologies.

A clear divide emerges:

- For technologies like GIS and intranet the benefits of every day use are already evident and they are becoming standard technology.
- A middle layer of technologies is "in the waiting room" , as ATM, smart cards, etc., for which already some (mostly) prototypical applications exist.[13]

[13] GPS which was expected in this category, is a technology that is more oriented to the transport sector (cf. transport survey).

- There are other technologies whose usefulness is not at all evident to authorities (e.g. virtual reality).

Another divide is of a geographic nature. Northern European authorities are still significantly better equipped with advanced technology. This is particularly striking for technologies requiring large and costly infrastructure such as ATM (36% usage in the North, 14% in the South), but less for technologies which have a clear application or even market implication (e.g. GPS or smart cards). In the application of call centres southern authorities are leading (11% usage in the North, 26% in the South).

Network membership is another major divide of technology use. The phenomenon is extremely:

- Network members are much more pro-active in applying advanced technologies (all items).
- The more advanced - and remote from market - a technology is, the greater is the difference between networking and non-networking authorities.

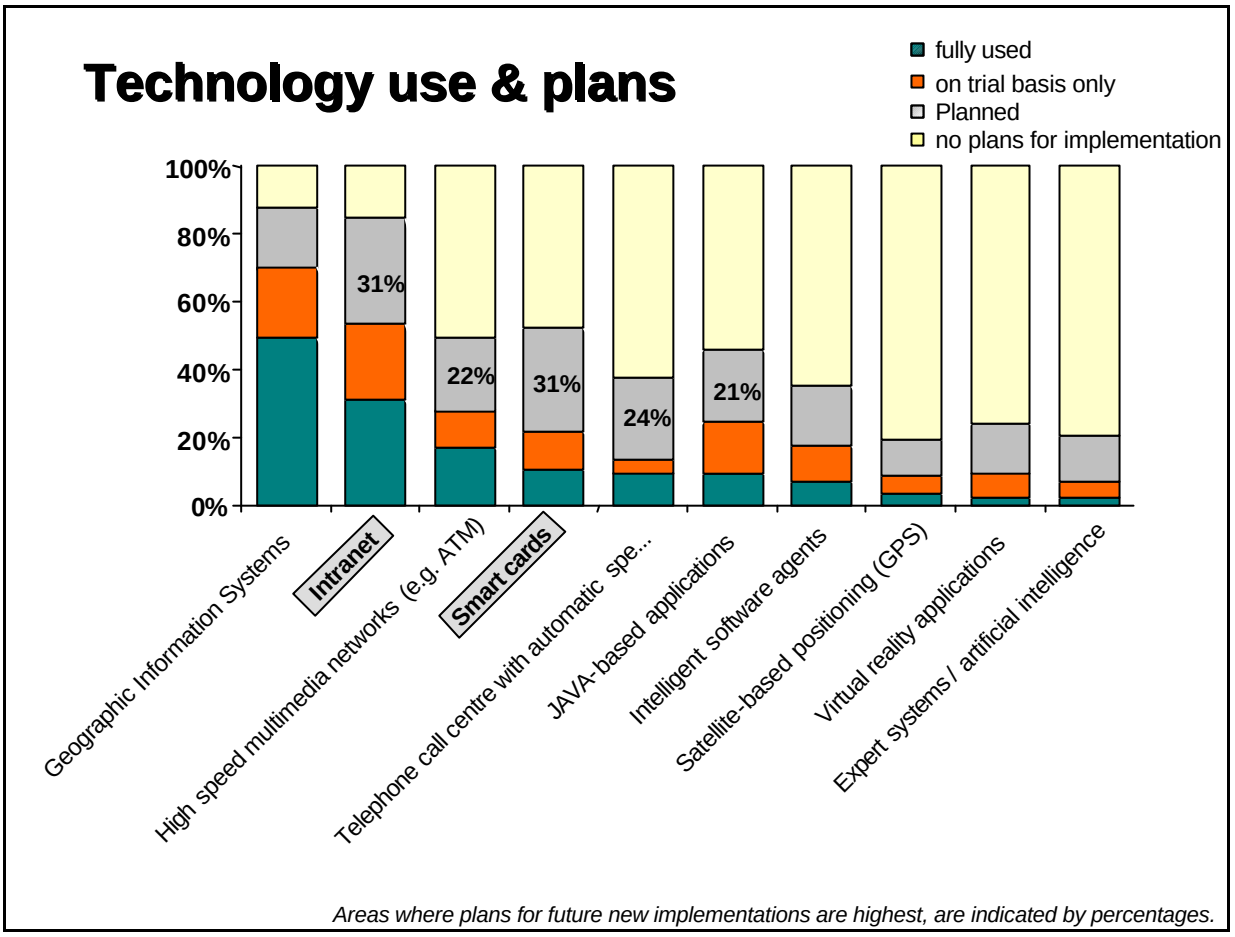

Figure 13 Current and future technology use

5.2 GROWTH AREAS

More interestingly perhaps are future plans of technology use, or "telematics growth" areas.

Figure 14 visualises the major areas of growth (categories are "used on a trial basis", i.e. extension implicit, plus "planning to" install):

- New installations or extensions to existing intranet implementations are planned by almost two out of three authorities.
- Smart cards are the most rapidly growing technology compared to 1996.
- There is still substantial demand for GIS, but market saturation is already quite high.
- JAVA and call centre technology are areas of major *relative* growth.
- ATM and software agent technologies are being planned by one third of authorities.

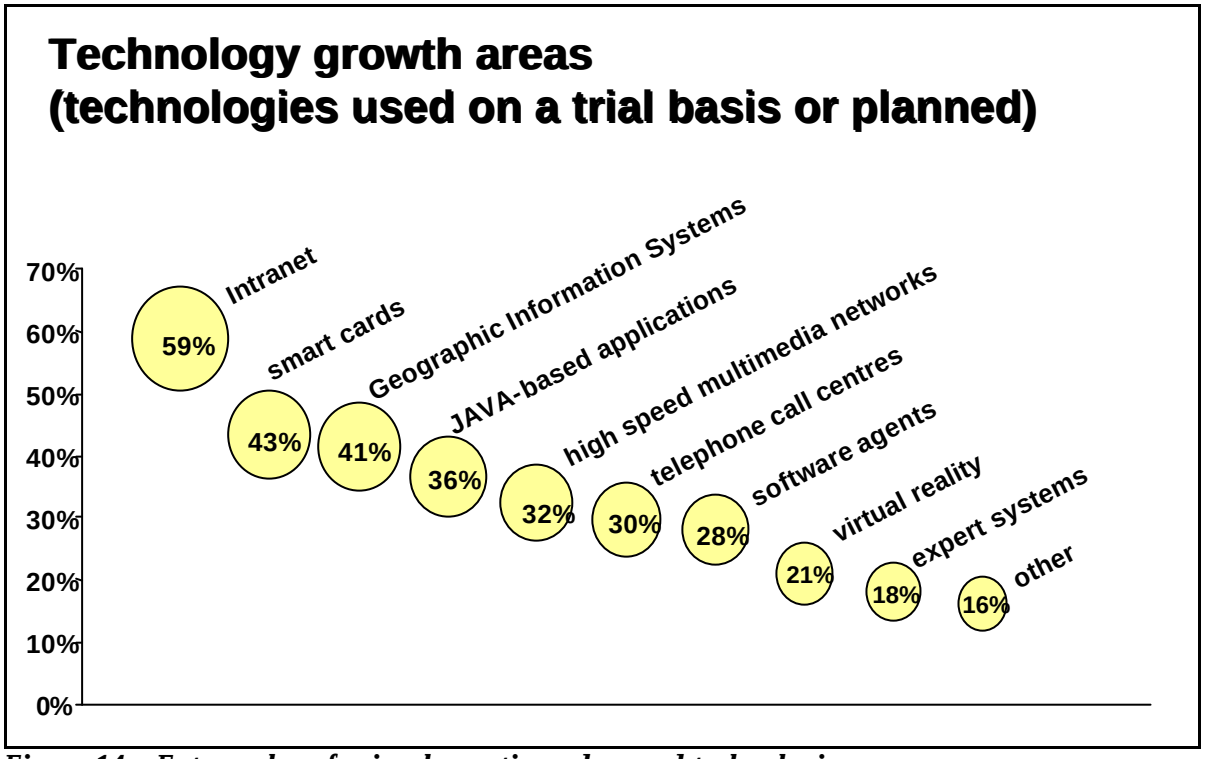

Figure 14 Future plans for implementing advanced technologies

The relevance of the findings for smart cards is supported also by the IBM GISU Survey, which asked how "convenient" citizens would regard smart cards as a tool for "interacting with the government electronically". A scale of 1 (not at all useful) to 5 (very useful) was given.

The report summarises: "The French gave the smart card an enormous 4.4 rating, followed by the UK with 3.9 and Italy with 3.5. Germany was less impressed with 2.8."

So apparently, cities are rightly judging the likely acceptance of smart cards to be high and are therefore in line with users expectations.

6 BENEFITS AND OBSTACLES

This section changes focus again towards the perception of decision makers. The intention is to identify some of the driving forces of telematics use by looking at benefits and - perhaps more importantly - experienced obstacles.

Respondents were asked to assign ranks to a given list of items in order of importance (1 was indicated as most important benefit / obstacle):

- Q21. What benefits do you expect from supplying electronic services to citizens?
- Q22. What obstacles do you face in supplying or extending electronic services to citizens?

6.1 EXPECTED BENEFITS FROM SUPPLYING TELEMATICS SERVICES

Mean ranks were calculated from all responses and the following picture emerges:

- There is remarkable general uncertainty as to what are the benefits of using telematics. When comparing the ranks assigned to the given items, very similar numbers of respondents gave high and low ranks for most items.[14]
- The two key benefits clearly identified were: "better access for citizens to authority's services (e.g. independence of opening hours)" and "generally higher quality of public services". This points to a high degree of user orientation among decision makers in cities.
- Conversely, internal benefits are considered to be less important ("higher cost efficiency", "improved internal work flows" and "better technical integration").

It was stated before that current public authorities' services are not very much inline with user requirements, access opportunities and expectations - and consequently (at least internet) services are not very much used. But still decision makers main expectation are service improvements for citizens. Therefore, the high expectations for improving service quality must be interpreted as a goal rather than as a view of reality, unless it is assumed that decision makers were unaware of users' perceptions.

Rank 4 for "more participation by citizens in issues of public interest" needs to interpreted in the same way.

The relatively high rank ("4,19") for "improved outside image of authority" indicates very clearly that the use of modern technology is regarded also as an "image" issue.

Since lack of social cohesion was identified as a major worry of decision makers previously, it is quite disturbing that "easier access for disadvantaged groups" is obviously not considered as a realistic goal to be achieved. Although of course authorities are also not very active in addressing this important area.

[14] Therefore, there is little variation in averages in figure 15.

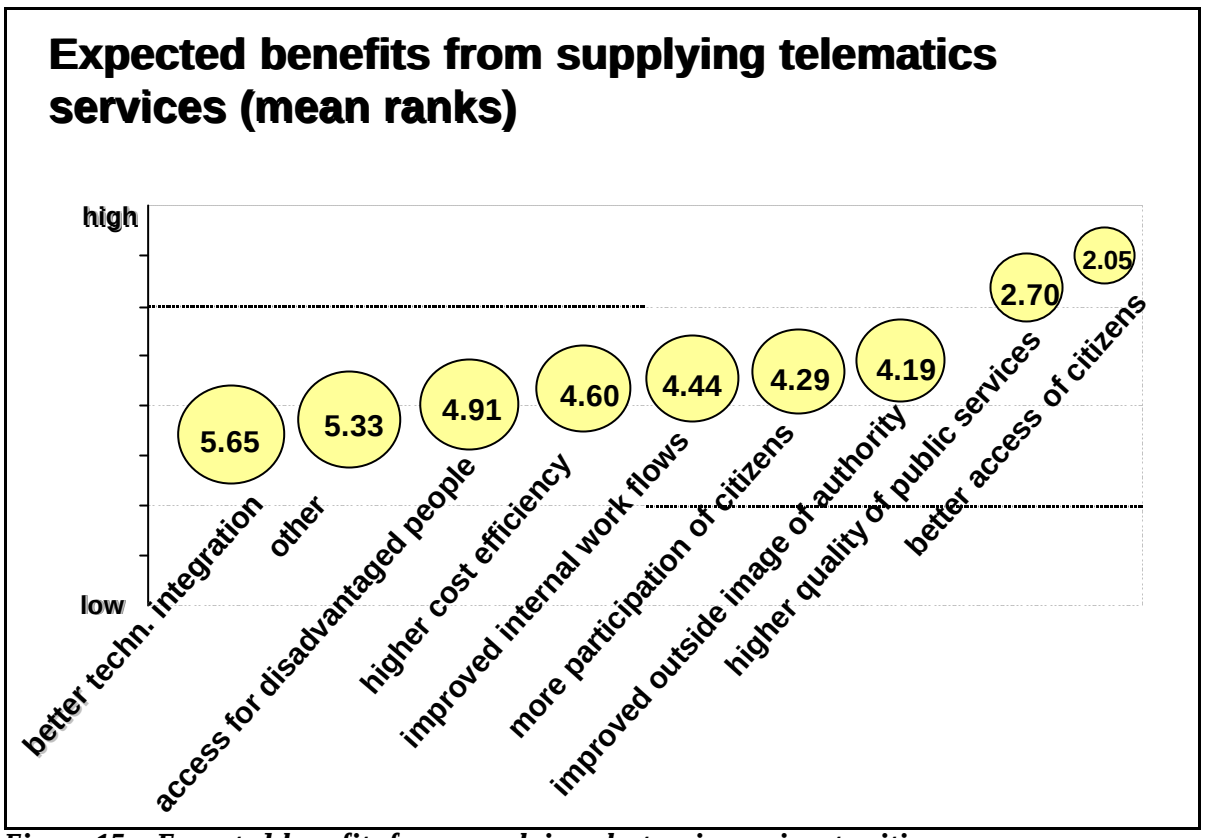

Figure 15 Expected benefits from supplying electronic services to citizens

There is also some geographic variation in perceived benefits:

- Northern authorities appear to expect even more strongly higher levels of service quality and improved technical integration is more important to them.
- Southern cities are more eager to achieve wider access to new services.

6.2 OBSTACLES TO TELEMATICS SERVICE INTRODUCTION

Looking at the negative balance, there is a much clearer common understanding for obstacles that for benefits. The following key obstacles emerge:

- The "number one" concern is lack of funds.
- There is a rage of issues which are of medium importance ("difficulty in supplying up to date and relevant information", "complexity of new services", "lack of awareness of services on the part of citizens").
- "Hard" institutional / legal factors or problems to implement successfully for the market are clearly considered as secondary ("legal problems", "technical problems", "users' reluctance to pay for new services")
- Finally "lack of political support" is clearly the least problem. This indicates a very positive top-level commitment for telematics services in cities.

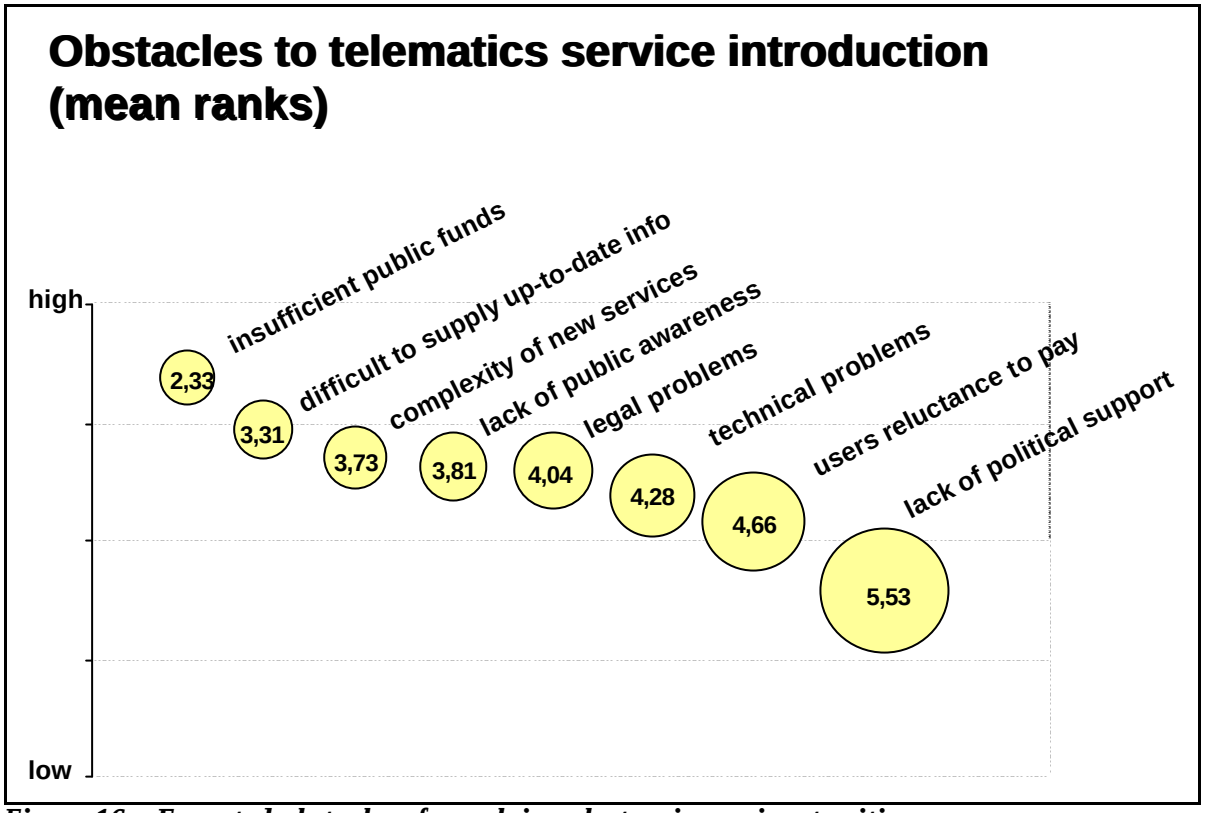

Figure 16 Expected obstacles of supplying electronic services to citizens

6.3 CONCERNS OF USING TELEMATICS

The relatively high uncertainty of decision makers of benefits is found also in the results to the following question: "In delivering electronic services, are you concerned about any of the following?" Respondents were asked to indicate all items they consider as relevant from a given list; no ranking was asked for in this question.

Almost all respondents share concerns, only 6 % indicated that none of the given issues is troubling them. If those questionnaires where a response to that question was missing, would all be considered as "no concern" - which may well be done as the number of non-response was extremely high at 22% for this question - still more than two out of three respondents would be "concerned".

The following table is however only considering those respondents who have provided an answer. However it should be borne in mind that the given percentages are exaggerating the level of concern for every item (each may be 15 percent points lower).

Table 8: Concerns when delivering electronic services

	Percent* of concerned urban decision makers
Security of transactions	60
User friendliness of services	49
Personal privacy of users	46
Quality of service content	45
Loss of personal interaction with citizens	26

** Base: 100% = all concerned respondents, i.e. not considering "missing response".*

Interpreting this result, it is surprising that security of transactions is still a major worry, since substantial progress has been made in recent years. So unless there is a problem of awareness, the offered solutions are still not perceived as sufficient. This concern could either refer to an expected low acceptance by users ("anticipated problem") or problems due the very little experience of the public sector in this new area.

Quite reassuring is that relatively high uneasiness is expressed about ensuring quality of content. In expert discussions, availability of good content is considered as a major challenge.

Taking again the IBM GISU Survey as an indication of users' perceptions, an interesting perception problem arises:

European citizens were asked: "If the government was to follow business and use the new information technology to improve their service to citizens, would you be concerned about ...?"

	Percent of concerned respondents
Loss of personal/ human service	70 - 79 % UK/ France/ Germany 51 % Italy
Security of transactions	74 - 78 % UK/ France 62 % Germany 40 % Italy
Safekeeping of personal data	71 -78 % UK/ France/ Germany 39 % Italy
Personal privacy	68 - 67 % UK/ France/ Germany 45 % Italy
Ability to use the new technology	35 - 37 % Italy/ Germany 51 - 59 % UK/ France

Source: IBM GISU Survey 1997.

Apart form the interesting national patterns, especially for Italy, it is quite obvious that decision makers are much less concerned overall than citizens (except for Italy, where levels are perhaps identical).

A common high concern of both citizens and urban authority staff is security of transactions and privacy of data.

Decision makers may overestimate the importance of user friendliness, *in relative terms*. Users are least concerned about their own abilities, although of course users' requirements are known to be high from other research.

It is most striking that loss of personal interaction is a major concern of citizens, but decision makers are almost least concerned about it. This indicates an enormous misconception of users' worries when using new electronic services. It also indicates a need to reconsider "telepresence media", where personal elements are still dominating, e.g. video interaction, telephone.

7 COMMERCIAL AND INSTITUTIONAL ASPECTS

This section considers the current status of system implementation from an institutional and commercial point of view. Its objective is to establish how far authorities adopt a market approach to service delivery. The current level and future perspectives of partnerships for telematics system implementation on the local and European levels are investigated.

The particular interest is to identify "business models" of private-public cooperation, as this is considered as a key element for the introduction of economically sustainable telematics applications.

7.1 MARKET APPROACH

The following questions were asked in the questionnaire in relation to this section:

- Q18. Do users have to pay for any of your electronic services (in addition to the usual price of the service)?
- Q19. Are there specific target groups for any these services?
- Q23. How much is your organisation planning to spend this year on infrastructure / equipment and services (excluding internal costs and training)?[15]
- Q24. Which sources of funding has your authority mainly used in implementing new technologies in the past?

7.1.1 PAYMENTS

Turning to the question on payment. There is so far little indication of a "commercial approach" neither in the sense that users are charged for services nor that they get a rebate (because the authority might yield savings in service delivery due to lower opportunity costs). Only 2 respondents are charging, 2 are granting a reduction for any service.

7.1.2 TARGET GROUPS

The second element indicating a "market approach" is the level of user (or "customer") differentiation of services. As a general rule in the commercial sector, the ability to target very specific groups of consumers is a major success factor. Intensive market research is undertaken by industry to target customers as closely as possible.

[15] Unfortunately there were several problems associated with financial data in the EDC Survey: In addition to coding problems, the response rate was for questions requesting financial information was low and showed national patterns. It was also discovered during analysis that apparently there was not a common understanding of budget lines to be included in the telematics spending budget, which led to several outliers. In order to avoid conclusions on the basis of unreliable data, this question was not included in the following analysis.

Table 9: Target groups of services

Target Group	Percent
General public	91
Tourists (not resident in our area)	62
Own employees (internal purposes)	54
Local (small and medium sized) businesses	53
School children/ young people	38
Investors form other areas/ countries	34
Disabled or elderly people	32
Voluntary organisations/ charities	28
Socially excluded people or ethnic minorities	18
Other groups	5

There is obviously some range of specific target groups addressed by city telematics services. Particularly important are the following points:

- Own employees are a major target group (especially for large cities - with large administrations - and for authorities in the North of Europe).
- There is substantial interest in reaching beyond the own geographic area of responsibility since tourists and outside investors have a high priority; so services are seen also as a "window to the world".
- Several targeted groups have an economic relevance (e.g. tourists, businesses, investors). Although the authority would not earn own income by addressing them, this is seen as a local business support (and image) function.
- Targeting of social groups is apparently less important, except for young people. Especially the socially or ethnically excluded are not considered as a priority area, although social cohesion is a major worry of decision makers.
- In the South of Europe economically relevant groups and social groups are less well targeted.
- Network members show a higher interest in targeting own employees and particular social groups, but there is less differentiation in the economically relevant groups.

Overall only two target groups were indicated on average (i.e. "general public" and one other).

Considering the wide range of responsibilities and "products" a city administration has to offer, there is a low level of target group orientation. This is lowest for the own "local market", the citizens in the own area of responsibility, and particularly for specific social groups.

As major reasons for the low level of target group differentiation it is assumed that authorities

- have are not well aware to provide target-group specific services (especially for key groups of their own citizens),
- have insufficient specialised content available (which is the precondition for targeting),

- are still more concerned about launching a web presence rather than thinking about using new technologies as tools for service delivery in their core areas of responsibility.

7.1.3 FUNDING SOURCES

Finally, the question on used sources of funding for implementing new technologies is relevant.

On average, two thirds of authorities use one other source of funding in other than own funds. The level of private sector contributions seems to be quite high, although it is unclear how far common funding is based on joint commercial agreements with the private sector (rather than enterprises controlled by the public sector). The percentage of commercially operating services however appears to be very small, since only 5% state that they are reinvesting operating revenues, which would be the core of any commercial activity.

Table 10: Funding sources for services

Source	Percent overall	Network members	Non-Network members
Own funds of the authority	93	94	92
Private sector contributions	31	20	35
National/ regional funds	19	30	15
European Research Programmes	14	25	9
European Cohesion/ Structural Funds	11	25	5
Reinvestment of operating revenues	5	8	4

Apart from the difference in European funding patterns (i.e. more structural and cohesion funding in the South, more research funding in the North) there is no significant geographic difference.

The difference between network members and other European cities/ regions is striking. Network members, who were in previous chapters identified as technically advanced, are more dependent on (national and European) funding sources and the level of private sector contributions is much lower.[16]

7.1.4 SUMMARY

There is little indication of a real market approach followed by cities in delivering electronic services:

- There are almost no commercially operating services. Almost every service is free, conversely there are no reductions for using an electronic medium.
- Target group differentiation is low.

7.2 PRIVATE-PUBLIC CO-OPERATION

The following questions were asked in the questionnaire in relation to this section:

[16] The difference in the "reinvestment" category is (statistically) insignificant due to low absolute numbers.

- Q25. What part does the private sector play in the provision of the existing electronic services of your administration?
- Q26. Who are your private sector partners?
- Q27. Considering your authority's experience of working with the private sector in recent years! Was it in balance ... ? (ranks from fully successful to completely unsuccessful)
- Q28. What are your organisation's plans for new electronic services? Do you envisage a more intensive cooperation with the private sector?
- Q29. What in your experience are the main barriers preventing fuller private sector participation?

7.2.1 STATUS

In further pursuing the points of the last section, it is worth considering

- the level private sector involvement in existing services
- the background of any private cooperation partners

As can be seen from the pie chart in figure 17, there is a low level of commercial involvement. This confirms the results of the previous section. Almost all electronic services are fully public sector funded. There are no significant geographic differences. However 10% of network members state that there is often a private involvement over one quarter (compared to 4% of non-members).

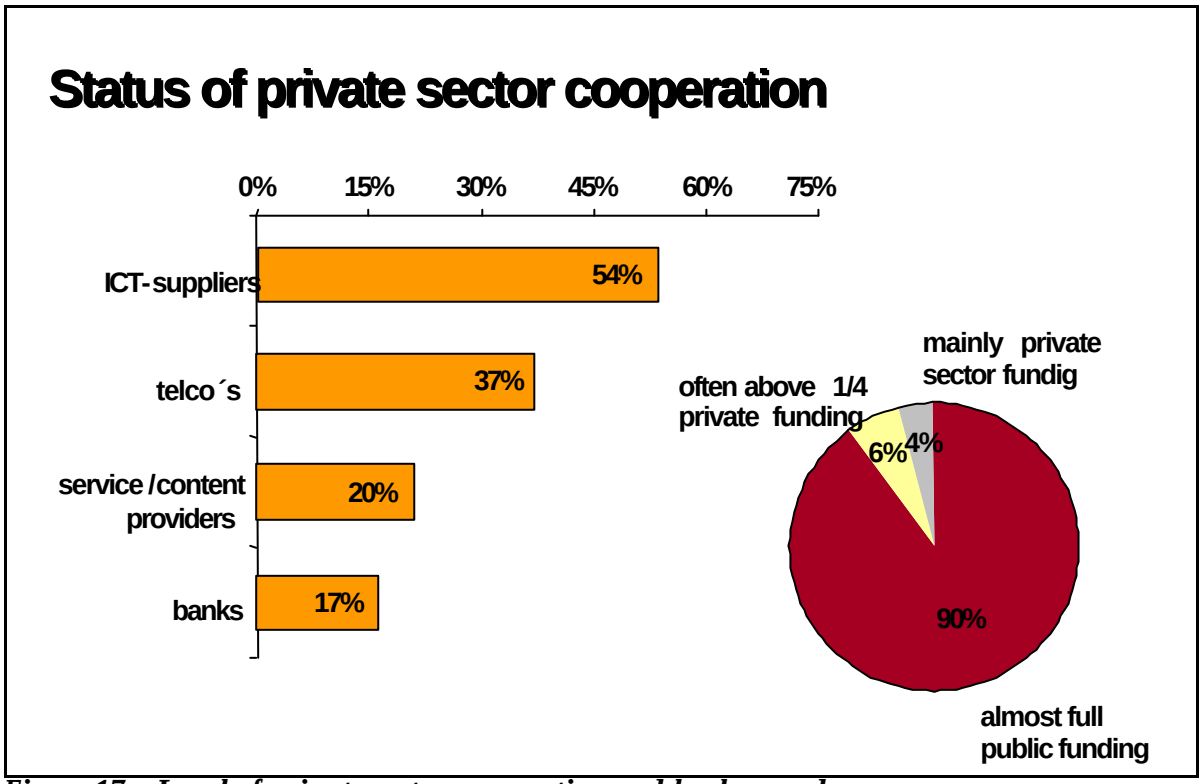

Figure 17 Level of private sector cooperation and background

The largest private sector group are ICT suppliers, almost every second authority stated to cooperate with them, followed by telecommunication and cable network providers. This seems to indicate a substantial level of involvement. However from the perspective of setting up commercially sustainable

services, hardware and software suppliers have a very minor role. Only telecommunications providers would be interested in generating network traffic and therefore would also want to establish attractive services. Key partners would be service and content providers whose genuine interest is the quality of the service. But with those cooperation is not as well advanced.

Differences between North and South are minor, except for lower cooperation levels with telecom providers (possibly due to less deregulation). Private-public cooperation of networking authorities is significantly higher for all industry sectors, except for banks.

7.2.2 SATISFACTION

Changing scope towards the perception side of cooperation, the level of satisfaction with existing cooperation agreements is to be kept in mind.

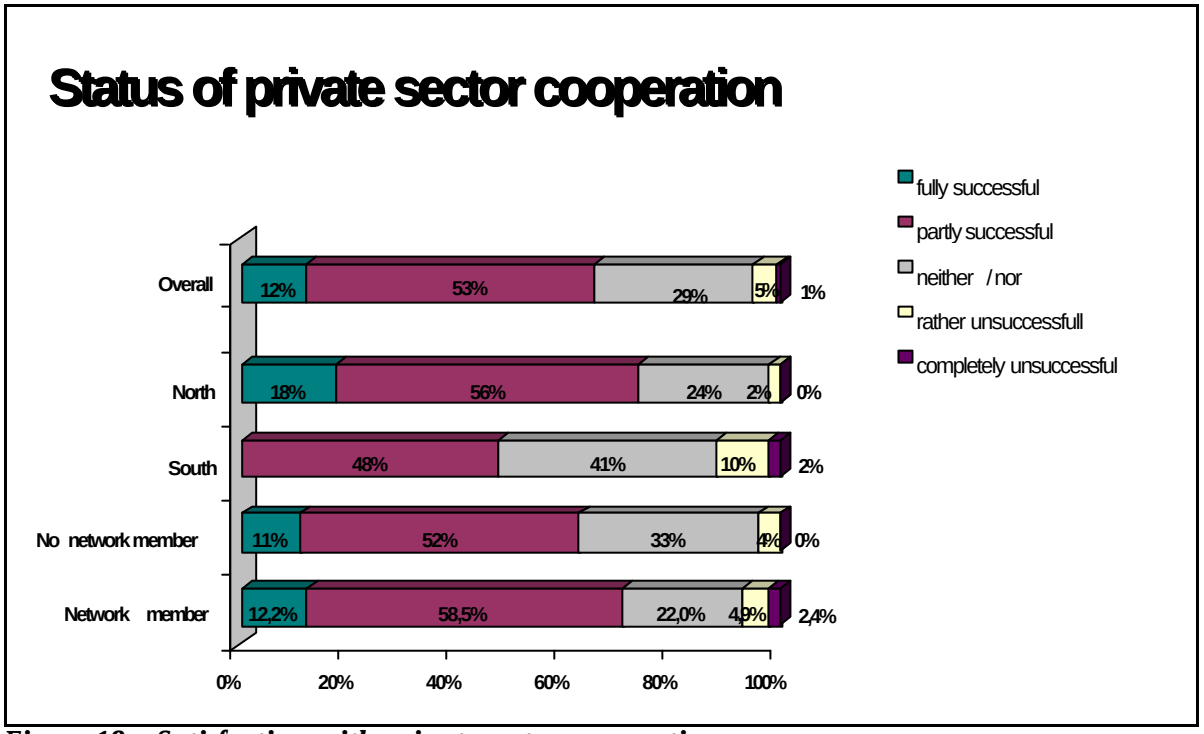

Figure 18 Satisfaction with private-sector cooperation

Overall levels are quite positive with two thirds stating that cooperation was fully or at least partly successful, although only half of Southern authorities say so. Network members perceive their cooperation as more successful, than others.

7.2.3 BARRIERS

What are the perceived barriers to stronger cooperation with the public sector? Table 11 provides an overview of the mean ranks assigned by decision makers.

The key results are:

- Own lack of interest is the least problem, so there is considerable readiness to cooperate from the public side.
- The most essential problem is seen as the difficulty to establish a clear business case for services of mutual interest.

- There are two issues which indicate a lack of information on viable co-operation models. (Unless a at miss-perception of the institutional or legal reality is assumed) These are the statements "Public and private roles are incompatible" and "Legal problems of cooperation"

- Another substantial barrier, although put in rank 1 or 2 by half the respondents is "Lack of interest from private sector"

Table 11: Barriers to private sector cooperation

Issue	Average rank
Difficulty to establish a clear business case	2,2
Public and private roles are incompatible	2,6
Legal problems of cooperation	2,6
Lack of interest from private sector	2,8
Own lack of interest	3,7

Note: Higher ranks identify lower importance

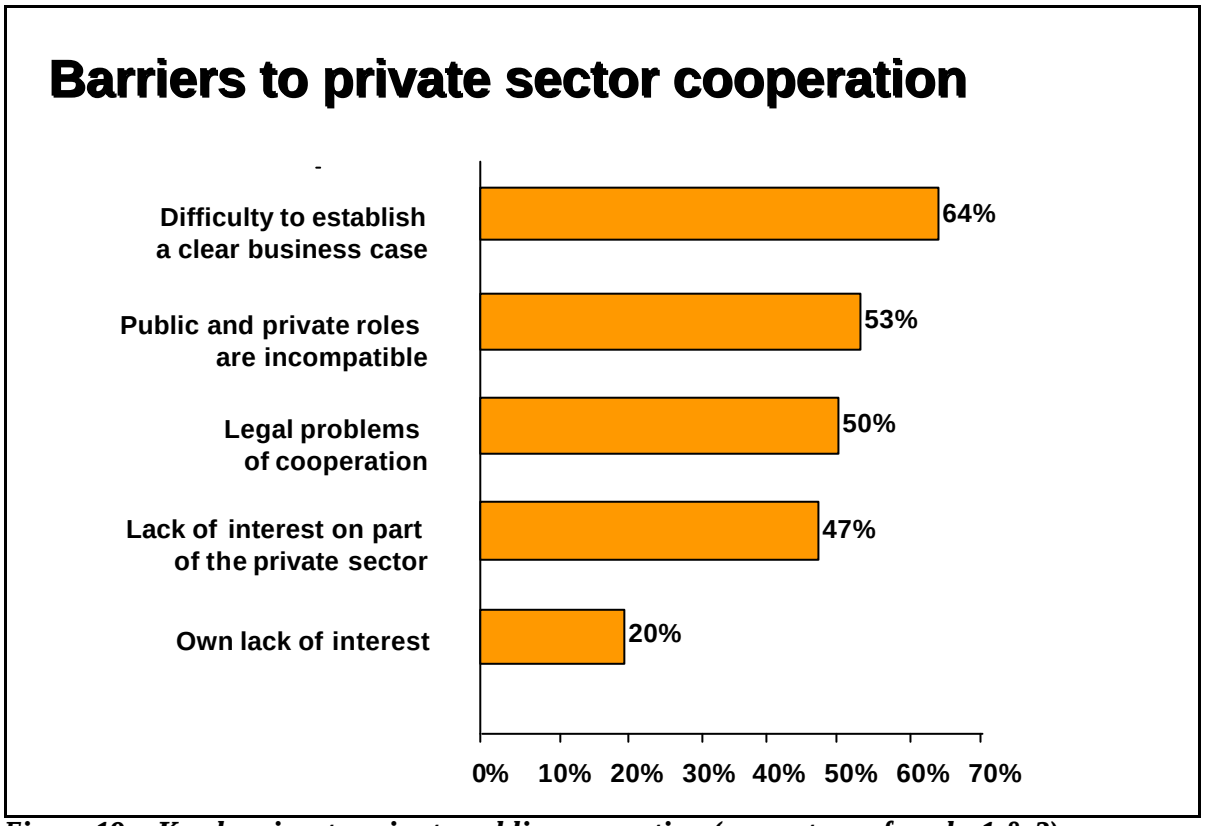

Figure 19 Key barriers to private-public cooperation (percentage of ranks 1 & 2)

In the North of Europe the perceived "incompatibility of roles" seems to be felt more strongly, while South European decision makers are more troubled about legal problems and lacking private interest.

Network members are more concerned about lacking private sector interest, but much less about the interest of their own authorities. "Incompatibility of roles" seems to be a lesser problem for them.

7.2.4 FUTURE PLANS

Considering the previous points it should be interesting to check how decision makers see the future of private-public cooperation:

- There is only a small group of one quarter of respondents who believe that their authorities will be able to maintain high levels of public funding.
- Two thirds believe that the private sector will play a greater role in the provision of new services in the future.

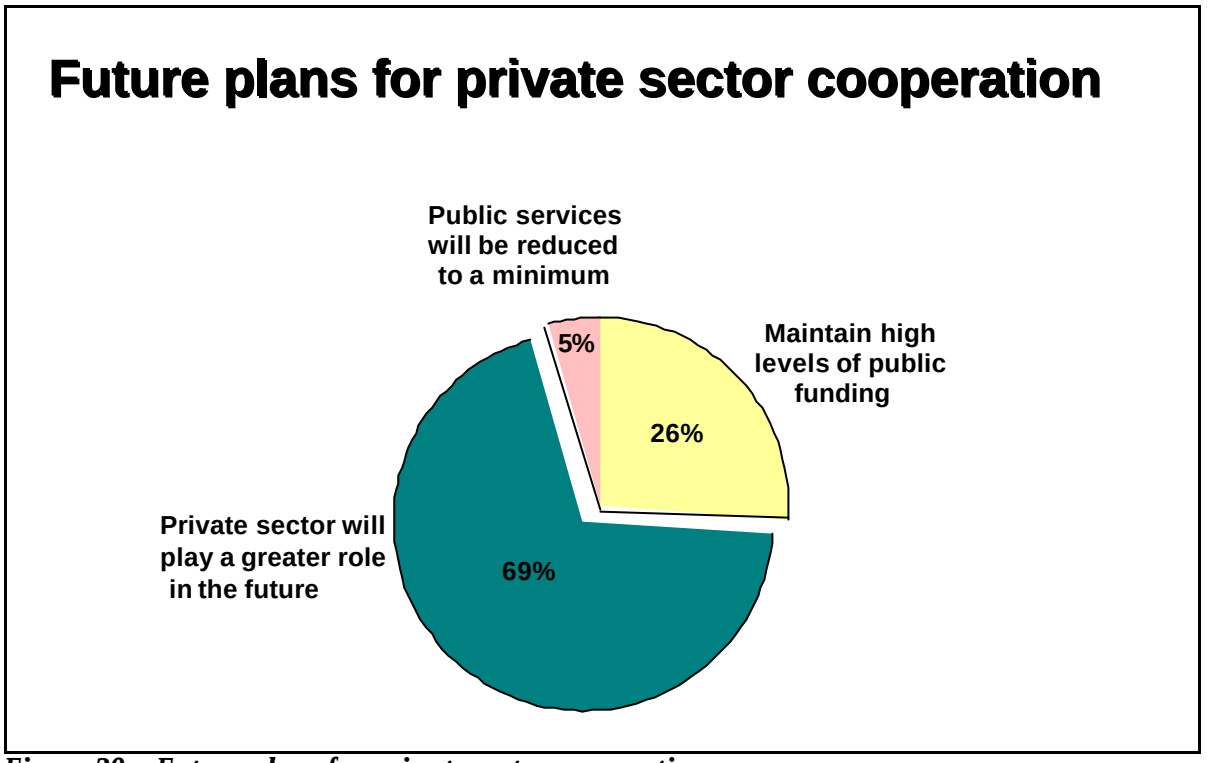

Figure 20 Future plans for private sector cooperation

7.2.5 SUMMARY

In summary, the following points are important:

- Almost all services are public sector financed.
- Although there is substantial private-public sector cooperation, the background of the private partners indicates that implementation is still in the pilot stage, since ICT suppliers are the major group.
- Lacking commercial dimension is identified by urban decision makers as the key obstacle to greater private cooperation (as well as it is confirmed by the analysis in previous chapters).
- Pro-active cooperation may be made more difficult by perceived legal problems and a general reluctance which is indicated by a high ranking for "Public and private roles are incompatible".
- Generally cooperation is seen as successful, there is in principle a high readiness to cooperate on the public side and most decision makers believe that cooperation will become more important in future years.

- Networking cities are more positive towards cooperation, but are more dependent on other public sector grants. Geographic differences are not very marked, apart from European funding sources.

7.3 EUROPEAN COOPERATION

The following questions were asked in the questionnaire in relation to this section:

- Q30. Has your authority participated in any European Research and Development Programmes in the last three years?
- Q31. What funding have you received over the last three years? ! Please estimate, if you do not know the exact figure![17]
- Q32. Overall, how would you summarise your authority's experiences of working on the European level?

7.3.1 LEVEL OF COOPERATION

About one quarter of responding authorities have participated in European Research and Development Programmes in the last three years; interestingly almost two thirds of the very large cities (above 500.000) did so. Participation levels in the North are at 33%, in the South at only 18%.

The key difference however is to be explained by network membership. Over half of network members participated in joint European RTD projects, compared to only 18% of non-networking authorities.

7.3.2 SATISFACTION

Table 12: Satisfaction with EU-Cooperation (Percent)

	Non-Network Members	Network Members	All Authorities
fully successful	5	21	12
partly successful	45	55	49
neither/ nor	31	21	27
rather unsuccessful	15	3	10
completely unsuccessful	4	0	2
Total	**100**	**100**	**100**

Almost two out three local/ regional decision makers consider their authority's participation in European cooperation fully or at least partly successful, only one in ten would call it "unsuccessful". Geographic variations between North/ South are minor.

Network members are considerably more positive than the average however.

[17] As stated before, the analysis of financial information is not producing reliable results and is therefore omitted.

7.3.3 SUMMARY

Authorities are quite satisfied with their European corporations.

Network membership appears to be the key "enabling factor" for receiving European RTD funding.

ANNEX 1: METHODOLOGICAL APPROACH AND REPRESENTATIVENESS

1 METHODOLOGICAL APPROACH

In summary the following steps were performed to ensure a state-of-the-art approach to the survey:

Step 1: Set up of representative databases

The aim of the research was to achieve results which are representative for local/ regional authorities on the European level and which can be generalised sufficiently to draw reliable conclusions in the main areas of interest of the survey. In order to achieve also a high return rate it was considered important to send questionnaires directly to decision makers, which required personalised mailings in several languages.

Since there was no suitable mailing database available, this had to be produced prior to the field work. The basic selection principles for ensuring representativeness of authorities were as follows:

- all 15 EU Countries were to be included
- the budget allowed for a mailing of not more than 1000 questionnaires in the cross-sector part of the EDC survey
- due to their importance (as potential "pacemakers" and the substantial size of population affected by their policies) all authorities of 100.000 or more inhabitants were included
- from the remaining authorities below a population of 100.000 a random selection was drawn
- the minimum size of authorities considered in the random selection was set at a population of 20.000. For Finland and Ireland, which are characterised by a particularly low average size of authorities, the minimum was set at 5.000 inhabitants

The number of selected authorities for each country was specified in order to match the following criteria:

- the overall number of authorities per country should be roughly equivalent both to the share of that country's share of population among all 15 EU member states and its share of authorities among all European authorities
- the relative weight of large (100.000 or more inhabitants) and small authorities should roughly reflect their proportion within each country

In order to reconcile these conflicting demands averages were used to calculate the final number of target authorities per size/country segment. This was achieved without creating any substantial imbalances. Therefore, it can be claimed that a database of local and regional authorities was used as the basis of the mailing which is essentially representative in terms of

- overall geographic balance on the European level (i.e. population weights between countries)
- size distributions between large and small authorities within countries (i.e. share of authorities over/ under 100.000 inhabitants)

Since the focus in the EDC survey was on local authorities, only that layer of local decision making was to be included in the sample which would effectively make the relevant implementation decisions. Since responsibilities in European members states differ widely an analysis was carried out to establish the appropriate layer of government for each country. Details of exact mailing numbers are available in table 13.

Table 13 Database and mailing details

	Database			Share of Country (EU level)				Mailing					
	Total number of authorities			Authorities		Population	Average (population & authorities)	Overall share	Tranport questionnaire		Cross-sector questionnaire	
COUNTRY	<=100.000	100.000+	All authorities	% of all authorities	% of auth. 100.000+	% of population			Number of question.	% of all authorities in country	Number of question.	% of all authorities in country
Austria	20	15	35	0,8%	1,1%	2,2%	1,3%	1,3%	12	34%	12	34%
Belgium	124	22	146	3,3%	1,6%	2,7%	2,5%	2,5%	22	15%	23	16%
Denmark	54	18	72	1,6%	1,3%	1,4%	1,4%	1,1%	10	14%	10	14%
Finland	224	23	247	5,6%	1,6%	1,4%	2,9%	1,4%	13	5%	13	5%
France	393	174	567	12,8%	12,5%	15,7%	13,6%	10,3%	95	17%	92	16%
Germany	673	405	1.078	24,4%	29,0%	22,0%	25,1%	31,0%	280	26%	283	26%
Greece	78	8	86	1,9%	0,6%	2,8%	1,8%	1,4%	13	15%	13	15%
Ireland	57	15	72	1,6%	1,1%	0,9%	1,2%	1,2%	10	14%	11	15%
Italy	382	206	588	13,3%	14,8%	15,4%	14,5%	12,5%	114	19%	113	19%
Luxemburg	9	-	9	0,2%	0,0%	0,0%	0,1%	0,2%	1	11%	2	22%
Netherlands	185	31	216	4,9%	2,2%	4,2%	3,8%	3,2%	30	14%	29	13%
Portugal	199	28	227	5,1%	2,0%	2,6%	3,3%	4,2%	39	17%	38	17%
Spain	268	123	391	8,8%	8,8%	10,7%	9,4%	8,8%	80	20%	79	20%
Sweden	110	35	145	3,3%	2,5%	2,4%	2,7%	2,1%	19	13%	20	14%
United Kingdo	252	292	544	12,3%	20,9%	15,7%	16,3%	18,7%	170	31%	170	31%
Total	3.028	1.395	4.423	100,0%	100,0%	100,0%	100,0%	100,0%	908	21%	908	21%

Working from the assumption that membership in a large European network of local or regional authorities might have a particular significance in local policy making, it was considered useful to include also all relevant authority contacts of the network supporting the EDC survey (Car Free Cities, Eurocities, POLIS and Telecities) as a special subset in the mailing database.

For the cross-sector part, all authority contacts of Telecities and relevant contacts of Eurocities were included (the other networks were included in the transport part of the survey). A match was performed between the random selection database and the network database to avoid double sending of questionnaires to one authority (giving preference to network contacts).

Step 2: Questionnaire design

The survey was designed to enable an in-depth analysis of local authority decision makers perceptions and the state of the art and future plans of telematics deployment in their cities or regions. Therefore a questionnaire of several pages (cf. Annex 2) with in-depth questions was designed and agreed with EDC and the European Commission.

The main section covered in the questionnaire were:

- background information (general data, overall role of telematics, information on respondent)
- key policy areas (key problems, perceived impact)
- status of technologies used and services provided (key section covering a wide range of internal and external implementation issues)
- financing of services and private-public cooperation
- cooperation on European level

Step 3: Questionnaire mailing

The questionnaire was made available in five languages (English, French, German, Spanish and Italian) and its quality was checked by local authority personnel in the respective countries.[18]

A total of 908 questionnaires was finally sent out in a personalised mailing to

- decision makers in charge of "technical services" (or related areas were this information was not available) in cities / regional authorities of 100.000 or more inhabitants
- chief executives of authorities below 100.000 (due to their responsibilities mayors were contacted in Italy, Spain, Portugal and Greece)
- appropriate contacts from supporting networks (Telecities and Eurocities)

A cover letter was attached and signed by the Presidents of Car Free Cities, Eurocities, POLIS and Telecities.

In addition, an online version for interactive response and electronic files containing the questionnaire for download were made available at the EDC WWW site. This was also publicised to EDC and TAP participants by email.

Step 4: Return control and reminders

During the return phase two reminders were send to non-responding authorities in order to ensure the highest possible amount or returns (i.e. every authority was contacted up to three times). The target number of 20% return was thereby achieved.

Step 5: Data entry and analysis

Upon receipt responses to open questions were translated into English. All returned data was entered by using the SPSS Data Entry software.

The analysis was performed with the professional software product Statistics Package for the Social Sciences (SPSS).

2 SURVEY RESPONSE

RESPONSE OVERALL

Return rates were very different between countries and authority size segments. This response pattern is not obviously related to the fact whether a national language questionnaire was available. For example Spain showed low return rates to national language versions, whereas Denmark and Sweden had average rates, although there were no questionnaires available in these languages. There is also no clear North-South pattern, and different results emerge between the transport and cross-sector surveys.

A total of 192 questionnaires were returned for the cross-sector part of the EDC Survey 1998. This is equivalent to a response rate of 21%, a rate which is above average for comparable exercises among this target group.

This rate is equivalent to around 4% of all European cities, or ca. 6% of cities above 100.000 inhabitants. It could be confirmed during analysis that the resulting database produces stable results and

[18] Initially, versions in all official European languages had been prepared, but were not used in subsequent mailings due to problems of quality control and eventual complexity of mailing logistics.

is therefore currently one of the best sources of information on telematics deployment issues among local and regional authorities in European member states.[19]

REPRESENTATIVENESS

Full information on representativeness of the 1998 EDC Survey is given in table 14. The main conclusions are as follows:

On the level of authority size

- 4% of all authorities below 100.000 are included, whereas there is a 6% representation of authorities of 100.000 or more population
- the number of large and small authorities is almost equal (93 small and 86 large)
- within countries differences between large and small cities appear to be sometimes uneven according to the database used, but there is also too little detailed knowledge about real distributions in size

In summary the survey results overemphasise larger authorities. This is however not considered as a drawback, because their policies are affecting a proportionately larger share of the population and these must also be considered as "pacemakers" on the national levels. At the same time there is a sufficient number of small authorities to balance overall results.

On the level of distribution between member states

- total numbers of authorities are for most countries insufficient to justify analysis on the national level
- Austria and United Kingdom are over-represented
- Netherlands and Spain are under-represented
- Finland is also under-represented, however this is due to the inclusion of a too large number of small authorities[20]

In conclusion, only the mis-representation of UK and Spanish authorities is influencing the sample negatively, since there are too little differences in returns vs. target numbers in absolute terms for Austria and Netherlands to have any serious effect. Overall however, the EDC 1998 Survey can be considered as an adequate representation of cities on the European scale.

There was no attempt made to apply any weighting factors to responses. This would have required substantial background research on the real distribution of local authority size for each European country beyond any readily available contact database. There is, in addition, also substantial concern on producing "artificial" results through extensive "weighting".

[19] See figure 1 (Number of Received Transport Survey Questionnaires by Country) above.

[20] The lower limit for inclusion of Finnish authorities was a population of 5000 rather than 20.000 for other countries.

Table 11 Return rates and representativeness by country

	Cross-Sector						
	Return Rate	Representation			Comments		
COUNTRY	All authorities	<=100.000	100.000+	All authorities	Response	Representativeness	
						within country	overall (EU)
Austria	83%	35%	20%	29%	very high	very high for small authorities	over represented
Belgium	30%	3%	14%	5%	high	high for large authorities	±
Denmark	50%	4%	11%	7%	very high	high for large authorities	±
Finland	15%	1%	0%	1%	low	low for large authorities	under represented
France	18%	3%	3%	3%	±	low for large authorities	±
Germany	18%	3%	7%	5%	±	±	±
Greece	46%	3%	50%	7%	very high	high for large authorities	±
Ireland	55%	5%	20%	8%	very high	±	±
Italy	20%	5%	1%	4%	±	low for large authorities	±
Luxembourg	0%	0%	0%	0%	only 2 questionnaires were sent which were not returned		
Netherlands	14%	1%	16%	2%	high	high for large authorities	under represented
Portugal	24%	3%	7%	4%	±	±	±
Spain	11%	1%	2%	2%	low	low for large authorities	under represented
Sweden	30%	4%	6%	4%	high	low for large authorities	±
United Kingdom	22%	4%	8%	7%	±	±	over represented
Total	**21%**	**3%**	**6%**	**4%**	**compara-tively high return rate**	**no serious imbalances in general**	**positive**

In order to ensure the highest level of validity of general conclusions in the 1998 EDC Survey, the following conclusions were drawn for analysis:

- geographic differentiation will be restricted to categories "North" (Germany, Belgium, Netherlands and Scandinavian countries) and "South" (Mediterranean countries, including France)
- differentiations in terms of authority size will be made
- networked and non-networked cities will be analysed separately

During data analysis separate analyses were made for these three basic categories for all items in the questionnaire and are reported in this report whenever there are any apparent significant, non-trivial features emerging along these lines.

This approach fully balances any shortcomings in full representativeness on geographical or authority size level as well as any bias resulting from the specific role of networked cities in the EDC Survey, since differing results for these basic sub-groups are always reported differently.

ANNEX 2: QUESTIONNAIRE

1998 SURVEY ON THE USE OF TELEMATICS IN EUROPEAN CITIES AND REGIONS: 1000 decision makers state their priorities!

Please respond by and return the completed questionnaire to the following address: EDC Survey 1998, ... address ... , or fax to: ... fax number .

Background information on your area and organisation.

1. In order to compare and analyse your responses we need some background information.
Please give some basic information on your city or region?

Name of authority:[21] ..... Country: .....

Population: ..... Current rate of unemployment: approx. .....%

Institutional role of your organisation? ☒ *Tick the most appropriate box, please!*

☐ an independent city (not subject to a larger regional authority)
☐ a regional authority (containing several dependent municipalities)
☐ a municipality (administratively subject to a larger regional authority)

☐ Other role ..... (*Please specify*).

2. Please provide some information on your organisation! *Estimate the following figures, please:*

Number of employees (white collar only) .....

What is your organisation's total projected expenditure this year? ..... currency: .....

3. In which European networks is your authority actively involved? ☒ *Tick all appropriate boxes, please!*

☐ Car Free Cities ☐ Eurocities ☐ POLIS ☐ Telecities

☐ Other networks ..... (*Please specify*).

4. What is your authority's position on using and promoting telematics?[22] ☒ *Tick one box which describes your position!*

☐ Not an area of major activity at the moment.
☐ Important, but currently not crucial for us.
☐ An essential component of our strategy.

5. Who in your authority is responsible for strategic planning of technology policy? ☒ *Tick one box only, please!*

☐ The different departments individually. ☐ A joint working group of the relevant departments.
☐ The Chief Executive's or Mayor's office. ☐ One specific department.
☐ Other ..... (*Please specify*).

6. Is there a written strategic plan for the implementation of technology by your authority? ☒ *Tick one box only, please!*

☐ Yes. ☐ No.

7. What is your role or primary responsibility in your organisation? ☒ *Tick only the most appropriate box, please!*

☐ I am a **manager** in the department responsible for ...
☐ Technical services/ information technology ☐ European affairs
☐ Economic development/ urban regeneration ☐ Finances/ budgeting
☐ Town/ Country Planning ☐ Building/ architecture
☐ Public Relations ☐ Transport
☐ Other department ..... (*Please specify*).

☐ I am a member of **staff** directly responsible to the mayor, chief executive etc.
☐ I am an elected representative (e.g. mayor, councillor, chief executive)

☐ I have **another** role ..... (*Please specify*).

[21] *If you prefer you can answer anonymously.*

[22] *Instead of telematics some people also refer to „new information and communication technologies."*

What are the key policy areas of your city or region?

8. What do <u>you</u> feel are currently the three largest problems in your own city or region (in order of priority)? *Please give a few keywords!*

Our most important problem is: .....

Our 2nd most pressing problem is: .....

Our 3rd most pressing problem is: .....

9. What <u>do you personally</u> believe the impact of modern technologies might be in the next 2 - 3 years?
☒ *Tick <u>one</u> box for each area, please!*

... in these areas ...	**low** (i.e. no or very little actual change)	**moderate** (i.e. some benefits are expected)	**significant** (i.e. major improvements will be achieved)
preserving the **cultural heritage**	☐	☐	☐
providing **better services** to citizens	☐	☐	☐
enhancing the quality of life for **disadvantaged people**	☐	☐	☐
creating a healthier **environment**	☐	☐	☐
generating new **employment**	☐	☐	☐
helping us to improve **economic development**	☐	☐	☐
enhancing **social and economic cohesion**	☐	☐	☐
improving **education and training** opportunities	☐	☐	☐
enabling us to provide better **health care**	☐	☐	☐
supporting **local industry** (especially small and medium sized enterprises)	☐	☐	☐
increasing the **participation of citizens** in public affairs	☐	☐	☐
making public **administration more effective**	☐	☐	☐
creating new opportunities in **tourism**	☐	☐	☐
improving urban/ regional **transport**	☐	☐	☐

Overview of technologies and services used and provided.

10. Which technical systems are available <u>internally</u> in your organisation? What is the level of access by employees?
☒ *Tick <u>the most appropriate</u> box only for each question, please!*

- Are you using an <u>electronic mail</u> system?

  Yes, ☐ but only **very few**, selected employees have direct access.
  ☐ **many** employees who need it, have direct or indirect access to it.
  ☐ almost **all** have direct access.

  No, ☐ but we are **planning** to install a system this or next year.
  ☐ due to **financial** problems we have currently no plans to do so.
  ☐ due to **technical/ security** problems we have currently no plans to do so.

- Are you using <u>Internet</u> services?

  Yes, ☐ but only **very few**, selected employees have direct access.
  ☐ **many** employees who need it, have direct or indirect access to it.
  ☐ almost **all** have direct access.

  No, ☐ but we are **planning** to provide access this or next year.
  ☐ due to **financial** problems we have currently no plans to do so.
  ☐ due to **technical/ security** problems we have currently no plans to do so.

11. Are any of your employees <u>teleworking</u>? ☒ *Tick <u>one</u> box only, please!*

☐ Yes. How many? approx.. ..... (✎ *Add approximate number, please*).
☐ No. But we plan to set-up a trial scheme during the next 1-2 years.
☐ No. We have currently no plans to do so.

12. Which technical systems is your authority using to provide <u>public</u> services?

- Does your authority maintain its <u>own Internet</u> site? ☒ *Tick <u>the most appropriate</u> box only for each question, please!*

☐ Yes. When was it published?..... (✎ *Add year, please*).
How many visitors does it have per month ? approx. ..... (✎ *Add average number, please*).
☐ No. But we plan to set-up our own site over the next 1-2 years.
☐ No. We have currently no plans for one.

- Are any publicly accessible kiosks/ terminals available in your city/ region?

  ☐ Yes. When was the first one installed? ..... (✎ *Add year, please*).

  How many kiosks are there at the moment? Approx. ..... (✎ *Add number, please*).

  Do they allow users Internet access ? ☐ Yes. ☐ No.

  ☐ No. But we plan to set-up kiosks during the next 1-2 years.

  ☐ No. We have currently no plans for any.

13. Can your citizens contact employees in the administration (or politicians) directly by e-mail? ☒ *Tick one box only!*

☐ No.

☐ No, but we plan to start this service in the next 1-2 years.

☐ Yes, but only very few employees can be contacted directly.

☐ Yes. All employees with an external role can be contacted.

14. Is your authority using any of the following technologies? ☒ *Tick one box for each item, please!*

	Yes, **fully** used.	**Yes**, but on a **trial** basis only.	**No**, but we are **planning** to.	**No**, we have no plans.
Geographic Information Systems	☐	☐	☐	☐
telephone call centre with automatic speech processing	☐	☐	☐	☐
satellite-based positioning (GPS)	☐	☐	☐	☐
expert systems/ artificial intelligence	☐	☐	☐	☐
smart cards	☐	☐	☐	☐
high speed multimedia networks (e.g. ATM)	☐	☐	☐	☐
intelligent software agents	☐	☐	☐	☐
an own (internal) intranet	☐	☐	☐	☐
virtual reality applications	☐	☐	☐	☐
JAVA-based applications	☐	☐	☐	☐

15. Is your administration (directly or indirectly) involved in setting up a local communication network for the public? ☒ *Tick the most appropriate box only, please!*

☐ Yes. We are leading the implementation.

☐ Yes. We have a supportive role. (Other institutions are leading.)

☐ No. But we have plans to do so in the next 1 or 2 years.

☐ No. We have currently no plans to do so.

16. Are you supporting your citizens in learning how to use new technologies? ☒ *Tick all appropriate boxes, please!*

☐ Yes. We have our own training centre offering multimedia courses etc. to the public.

☐ Yes. We support other initiatives to provide training.

☐ No. We are not active in this respect at the moment.

17. What information and services does your authority provide for your citizens? And which technical platform are you using to deliver them? ☒ *Tick all relevant boxes for each item, please!*

Our citizens can get the following information: ... via ...	**videotext/ minitel**	**own Internet site**	**public access kiosks/ terminals**	**telephone call centre**	**(automatic) fax on demand**
calendar of **events** (theatre, cinema etc.)	☐	☐	☐	☐	☐
directory of responsibilities in administration	☐	☐	☐	☐	☐
electronic **city guide**	☐	☐	☐	☐	☐
environmental information	☐	☐	☐	☐	☐
notices on **public tenders**	☐	☐	☐	☐	☐
decisions of the council	☐	☐	☐	☐	☐
information on **educational** opportunities	☐	☐	☐	☐	☐
information on **job vacancies**	☐	☐	☐	☐	☐
information on available **social services**	☐	☐	☐	☐	☐
special support for **local businesses**	☐	☐	☐	☐	☐
tourism-related information	☐	☐	☐	☐	☐
transport-related information	☐	☐	☐	☐	☐
other (✎) _____	☐	☐	☐	☐	☐
other (✎) _____	☐	☐	☐	☐	☐

Our citizens have access to the following <u>interactive services</u>: ... via ...	**(interactive) videotext or minitel**	**own Internet site**	**public access kiosks/ terminals**	**telephone call centre**
apply for **jobs** online	☐	☐	☐	☐
request **social services** (e.g. apply for crèche)	☐	☐	☐	☐
book **municipal services** (e.g. collection of rubbish)	☐	☐	☐	☐
book tickets for **theatre** etc.	☐	☐	☐	☐
check on actual status of **administrative processes**	☐	☐	☐	☐
participate in **discussion groups**/ community networks	☐	☐	☐	☐
make **suggestions** to council/ enter **complaints**	☐	☐	☐	☐
submit offers in **public tenders**	☐	☐	☐	☐
participate in **planning processes**	☐	☐	☐	☐
pay online for services	☐	☐	☐	☐
request **certificates** or legal documents	☐	☐	☐	☐
request **public documents** (e.g. council proceedings)	☐	☐	☐	☐
search in **library** catalogues	☐	☐	☐	☐
other (✎) _____	☐	☐	☐	☐
other (✎) _____	☐	☐	☐	☐

18. Do users have to <u>pay</u> for any of your electronic services (in addition to the usual price of the service)?

☐ Yes, for ..... (✎ *Put name of the services or mark with an **X** above*).
☐ No, all services are free of charge.
☐ No, there is a discount for using electronic services.

19. Are there specific <u>target groups</u> for any these services? ☒ *Tick <u>all</u> appropriate boxes, please!*

☐ Own employees (internal purposes)
☐ General public
☐ Tourists (not resident in our area)
☐ Local (small and medium sized) businesses
☐ Socially excluded people or ethnic minorities
☐ Disabled or elderly people
☐ Investors form other areas/ countries
☐ School children/ young people
☐ Voluntary organisations/ charities
☐ Other groups .....(✎ *please specify*)

20. In delivering electronic services, are you <u>concerned</u> about any of the following? ☒ *Tick <u>all</u> relevant boxes, please!*

☐ Personal privacy of users.
☐ Security of transactions.
☐ Quality of service content.
☐ User friendliness of services.
☐ Loss of personal interaction with citizens.
☐ **No**, we have no such concerns.

21. What <u>benefits</u> do you expect from supplying electronic services to citizens? ✎ *Please rank the following issues in the order of importance (1 = highest)!*

Rank

..... higher **cost efficiency**
..... improved **internal work flows**
..... generally higher **quality** of public services
..... better **access** for citizens to authority's services (e.g. independence of opening hours)
..... improved outside **image** of authority
..... better **technical integration**
..... easier **access** for disadvantaged groups
..... more **participation** by citizens in issues of public interest
..... others ..... (✎ *Please specify*).

22. What <u>obstacles</u> do you face in supplying or extending electronic services to citizens? Please rank the following issues in the order of importance! ✎ *Please rank the following issues in the order of importance (1 = highest)!*

Rank

..... insufficient **public funds**
..... **legal** problems
..... difficulty in supplying up to date and relevant **information**
..... lack of **awareness** of services on the part of citizens
..... **technical problems**
..... **complexity** of new services
..... users' reluctance to **pay** for new services
..... lack of **political** support
..... others ..... (✎ *Please specify*).

Financing of services.

23. How much is your organisation planning to spend this year on infrastructure/ equipment and services *(excluding internal costs and training)**?***

✎ *Please give an approximate figure! ..... currency: .....*

24. Which sources of funding has your authority mainly used in implementing new technologies in the past?
☒ *Tick all relevant boxes, please!*

- ☐ National/ regional funds
- ☐ Own funds of the authority
- ☐ European Research Programmes
- ☐ European Cohesion/ Structural Funds
- ☐ Reinvestment of operating revenues
- ☐ Private sector contributions

Cooperation with the private sector.

25. What part does the private sector play in the provision of the existing electronic services of your administration?
☒ *Tick one box only, please!*

- ☐ Our services are almost completely funded by **public money**.
- ☐ The **private sector** contribution is often **above ca. 25%**
- ☐ Most **advanced** services operate **mainly on a private sector** basis.

26. Who are your private sector partners? ☒ *Tick all relevant boxes, please!*

- ☐ Information technology **suppliers** (hardware/ software).
- ☐ Telecom and cable network **operators** (private or public).
- ☐ **Banks**.
- ☐ **Service or content providers**.

27. Consider your authority's experience of working with the private sector in recent years! Was it in balance ...?
☒ *Tick one box, please!*

☐	☐	☐	☐	☐
fully successful	partly successful	neither/ nor	rather unsuccessful	completely unsuccessful

28. What are your organisation's plans for new electronic services? Do you envisage a more intensive cooperation with the private sector? ☒ *Tick the most appropriate box only, please!*

- ☐ No, our strategy is to maintain **high levels of public funding**.
- ☐ Yes, in **some areas** the private sector will play a greater role in the future.
- ☐ Yes, public services will be reduced to a **minimum** in the future.

29. What in your experience are the main barriers preventing fuller private sector participation?
✎ *Please rank the following issues in the order of importance (1 = highest)!*

Rank

..... **Legal** problems of cooperation.
..... Difficulty to establish a clear **business case**.
..... Public and private **roles are incompatible**.
..... **Own** lack of interest.
..... Lack of interest from **private sector**.
..... Other reasons: ..... (✎ *Please specify*).

European Cooperation.

30. Has your authority participated in any European Research and Development Programmes in the last three years?

- ☐ Yes
- ☐ No

31. What funding have you received over the last three years? ✎ *Please estimate, if you do not know the exact figure!*

European funding was: ..... currency: .....

32. Overall, how would you summarise your authority's experiences of working on the European level? ☒ *Tick one box!*

☐	☐	☐	☐	☐
fully successful	partly successful	neither/ nor	rather unsuccessful	completely unsuccessful

Thank you for participating in this survey!

If you would like to receive a copy of the results, please give the contact details of the person to receive it:

Name: .....

Organisation: .....

Postal address: .....

.....

Email: .....

Do you have any additional comments? *Please, write them below (if necessary, add a new page)!*