Exploring emerging ICT-enabled governance models in European cities

EXPGOV Project

Methodological Paper

Methodology and Guidelines for Case Study Research

D.5 - DRAFT V.1.0, 15.03.2010

- DRAFT -

This document has been prepared by Gianluca Misuraca, Scientific Officer at the Information Society Unit of IPTS as part of the Research Line on ICT for Governance. The document is based on the preliminary analysis conducted as part of the Exploratory Research on Emerging ICT-enabled governance models in EU cities (EXPGOV) and upon consultation with the Secretariat of EUROCITIES and representatives of city governments.

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For more information about the EXPGOV Project visit: http://is.jrc.es/pages/EAP/EXPGOV.html
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0. Management Summary

Background
The Information Society Unit of the Institute for Prospective Technological Studies (IPTS) of the European Commission's Joint Research Centre is conducting an exploratory research on ICT-enabled governance models in EU cities (hereinafter referred to as EXPGOV).

The EXPGOV Project aims at deepening the understanding of the interplay between ICTs and governance processes at city level in the EU by providing evidence of the changes that ICTs are producing on city governance models.

The focus of the research is on the way the different stakeholders interact when introducing ICTs in governance systems and the way these interactions affect institutions and communities, and the related decision-making process. Two main issues will be specifically investigated: 1) the changes produced by ICTs on the governance processes, (e.g. regulatory and legal frameworks, organisational and administrative procedures, roles of various stakeholders involved, etc.) and consequently the effects on decision-making, public management and service delivery; and 2) the socio-economic implications at policy level.

Objectives of the Methodological Paper
This document presents the methodology for case study design, selection and analysis. Based upon the literature review (Deliverable 3) and the theoretical framework (Deliverable 4) developed during the first phase of the research, as well as the results of the analysis of the mapping survey conducted by IPTS in collaboration with EUROCITIES to identify key city governance policy areas most impacted by ICTs and significant case studies (Deliverable 2), the guidelines for selection of case studies, as well as the methodological approach for their analysis are discussed.

This document should therefore be read as a working paper to be further finalized after discussion with representatives of cities, other experts and researchers.

The document will also serve to set the basis for further implementation of the EXPGOV exploratory research, conducted by IPTS in collaboration with cities within the framework of the Knowledge Society Forum of EUROCITIES.

In particular, the methodological approach will also inform the fieldwork activities to be conducted by local researchers in the implementation of the analysis of case studies for the selected cities.

The methodological approach will be further elaborated and validated with experts and city managers during the various Events of the Knowledge Society Forum.
1. Methodological approach

The methodological approach we will follow for the case study research is composed of three main steps: 1) Case studies design; 2) Case studies selection and 3) Case studies analysis. Each step of our methodological approach is briefly described here below.

1.1. Case studies design

Case studies enable a rich and in-depth description of data that, besides providing evidence, can enable the discovery of theory. Research design should offset the intrinsic limits of case studies and respond to the needs of using them to inform extrapolations. Solid evidence from case studies is the cornerstone to go beyond earlier extrapolations (European Commission 2007b; Cullen et al 2008) by embedding them into empirical realities. Therefore, a careful research design is crucial particularly for what concerns the more in-depth case level evidence and corresponding case studies.¹

In this regard, it should be underlined in fact that, first of all, generalisation from case studies may be of dubious credibility if the cases are not selected according to a reasoned research design and especially when the cases are exemplary (best practices) rather than representative of the average situation in a given field. The purpose of case level evidence is not only that of building a case study per se, rather they must provide evidence to be used to generate the scenarios and coefficients for eventual quantitative extrapolations. As such, they cannot be only best practices otherwise the generated case level evidence will bias the extrapolations. Second, case studies should be context embedded in the sense of reflecting the peculiarities of the sectors they operate and of their size. This requires a careful selection of cases to reflect sectoral and size difference and, thus, enable more granular and credible extrapolations. Third, case studies selection should be transparent (to allow other to replicate it in the future) and used systematically.

The reasoned approach to research design that will be applied to this research, inspired by the epistemology of the social science research, will produce a limited set of case level evidence from which input for extrapolation will not be possible to be extracted in a systematic way, however, the reappllication of the principle of solid research design to any future real world case will enable a steady collection of case level evidence and build the fundamental basis for further qualitative and quantitative research. So our approach, while ensuring a high quality output for this specific research, will also achieve the outcome of setting the basis and agenda for future research and studies in this field.

1.2. Case studies selection

From the typology of case study approaches developed by Yin (2003) we will adopt the multiple-cases embedded approach, where several cases embedded into different contexts are considered in order to increase the potential for generalisation and to check evidence from case studies among each other. This approach is adopted to investigate a general phenomenon that it is known to take different forms in different contexts. In our case we assume that ICTs shall influence (according to our hypothesis) the kind of governance benefits organisations can achieve and to some extent also the magnitude of costs. So the specific case studies will be chosen as the context where multiple governance effects shall be generated. On the other hand also size matters, and this will be considered in the selection of cases within each city governance model (context).

¹ The epistemological and methodological literature on the use of the case study as research instrument is vast and inter-disciplinary and it is naturally beyond the scope of this research to review it even in a limited fashion. We limit ourselves here to establish some key elements extracted from some classical works (among others Denzin 1978; Eisenhardt 1989; Miles and Huberman 1996; Silverman 2000; Stake 1995; Yin 1984, 2003) that inform our research design. Source: EC working documents, unpublished.
In order to maximise the possibility to generalise from case level evidence and to provide relevant input for extrapolation, the selection of cases will respond to two methodological criteria: 1) **Representation.** Within each context (city governance model) cases will be selected to be representative of different EU cities. Moreover, different city governance models will be chosen as the context for multiple cases; 2) **Contrasting situations.** In order to maximise the extraction of theory and generalisation cases should be chosen as to represent contrasting polarised situations (Eisenhardt, 1989). Having positive and negative cases with respect to a given phenomenon it is the equivalent of using a control group in experimental research design. In each given context (city governance model) we will select one case where significant governance changes seems to be produced by ICT-enabled services. For our purpose this will provide different reference points for the coefficients and scenarios assumptions needed for further extrapolations and will avoid the bias of looking only at exemplary cases.

The final element to consider in case study research design is the **number of cases.** In this regard the literature does not establish any specific threshold to produce solid results. Given the nature of the problem and the exploratory nature of this research, and the two principles defined earlier: contrasting situations and representation of sectors (policy area) and context (city governance), it derives that for this specific research, we would select 4 cases. For this purpose, in collaboration with city networks organisations information about a number of potential case studies in the domain under investigation have been collected through an exploratory mapping survey and based on specific evaluation criteria defined a limited number of cases will be selected for deeper assessment (see later Section 2).

1.3. **Case studies analysis**

The analysis of case studies will be conducted through qualitative analysis: i.e. defining a semi-structured questionnaire for interview of city managers and representatives of other relevant stakeholders involved as well the identification of a panel of experts to be surveyed using a micro-Delphi technique. In addition to this, desk research and analysis of available data and documentation will be conducted to identify the main drivers of success/barriers to implementation of the specific initiatives selected and the effects on city governance models.

Reports of the specific case studies will be produced (in a narrative manner but indicating when possible already available quantitative data in terms of inputs-outputs and outcomes of the specific initiatives). This will allow for identification of data available and required and eventually the design in a future step of a survey to be conducted on a larger scale in order to gather quantitative data on the specific cases (in terms of outputs, outcomes and perception of users' satisfaction as well as when possible cost/benefit of each intervention), in order to eventually link this to an impact assessment model (based on the system of indicators designed and the measurement framework under development, see Deliverable 4).

For this purpose, we will follow the principle of methods and data **triangulation** typical of case studies research. Qualitative and quantitative data within a single case, as well findings of different cases, will be triangulated to confirm findings. We will also extend the principle of triangulation in the sense of checking case level evidence against the aggregate statistics and information gathered and vice versa and eventually linking case level evidence to aggregate extrapolations. For case studies this means we will gather all kind of available evidence (quantitative metrics from administrative records, quantitative estimates produced by the involved stakeholders, qualitative judgements, etc). Given the rich description that case

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3 The expression ‘triangulation’ is used in the relevant literature to indicate the practice of using different sources of data and collection methods to reinforce the robustness and solidity of the analysis.
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studies provide and using the triangulation principle we will gather evidence and/or attempt to construct estimates on costs and benefits of specific ICT-enabled services under investigation and look at the influences these have on the city governance models and the decision-making process in each specific policy domain.

2. Selection of Case Studies

2.1. Review of candidate case studies

Out of the 62 cities that responded the survey, 22 cities expressed interest in participating actively in the research and provided examples of projects and initiatives as possible case studies. The candidate case studies have been proposed by cities belonging to 14 different European countries, namely Belgium (1), Denmark (1), Estonia (1), Germany (1), Hungary (1), Ireland (1), Italy (4), Malta (1), Netherlands (2), Poland (1), Portugal (1), Slovakia (1), Spain (4), and United Kingdom (2).

According to the typology of European governance systems defined in terms of administrative structure of the state (see Deliverable 4 – Concept Paper), we can identify 3 candidates case studies (from 3 different countries) as part of the typology 1 (Unitary states) (Tallinn in Estonia, Cork in Ireland and Lisbon in Portugal); 8 candidates from 6 countries, as part of the typology 2: Decentralised Unitary states (Aarhaus in Denmark, Szombathely in Hungary, Valletta in Malta, Eindhoven and Enschede in Netherlands, Bratislava in Slovakia, and Manchester and Norwich-Norfolk in the UK); 9 candidates from 4 countries belonging to the typology 3: Regionalized Unitary states (Bologna, Trento, Turin and Venice in Italy, Barcelona, Bilbao, Seville and Zaragoza in Spain, Lodz in Poland); and finally 2 candidates as part of the typology 4: Federal states (Berlin in Germany and Ghent in Belgium) (see Figure 1 for their Distribution of candidates per typology of State governance system).

With regard to the policy areas of the proposed initiatives, we can identify 5 in the area of Economic Development (Aarhaus, DK, Bratislava, SK, Manchester, UK, Seville, SP, and Trento, IT); 3 in the area of Social inclusion (Norwich-Norfolk, UK, Bologna and Turin, IT), despite they also concern healthcare in the case of Bologna and more general information and communication activities in Norwich-Norfolk and Turin. The case proposed by Eindhoven, NL, is related to the policy area of healthcare. The 2 cases proposed by Barcelona, SP, and Venice, IT, are instead focused on Urban Planning and Management, but also involve Information and Communication activities. The 4 cases proposed by Berlin, GE, Lisbon, PT, Enschede, NL and Zaragoza, SP, refer to Information and Communication policy activities, and more specifically in the domain of citizens’ engagement. While Enschede in fact is in particular in the area of Web2.0, the initiatives proposed by Berlin, Lisbon and Zaragoza are in the area of participatory budget. Finally, the 4 cases of Bilbao, SP, Ghent, BE, Szombathely, HU, and Valletta, MT, are related to several governance policy areas (see figure 2 Distribution of candidates per city governance policy area).
2.2. Criteria for selection of case studies

In addition to the indications coming from the survey, the selection of case studies is based on the following criteria that are in part implicit in the design and target audience of the survey or are emerging from the analysis of the responses to the survey:

1) Large/Middle size municipality representative of one of the EU governance models;
2) Recognized use of ICT-enabled user-driven innovations and applications to improve governance mechanisms and public services in "high-impacting" (both for internal and external processes) policy areas
3) Project maturity/State of advancement of the project/initiative (running from a significant period of time);
4) Innovativeness (in terms of service or process)
5) Potential for scalability and/or transferability/replicability
6) Data and documentation availability
7) Potential for high socio-economic impact
8) Policy-relevance (and eventual possibility of comparison within a cluster of policy areas).
9) Active participation of city government representatives in the EUROCITIES Knowledge Society Forum (Working Group on e-Government 2.0)
10) Research interest and availability of city government representatives in supporting the case study analysis during the research timeframe.

It is clear in fact that, for practical reasons, but also to guarantee the robustness of the methodological approach, the case studies will be selected among the initiatives that have been proposed by cities responding to the survey and that further confirmed their interest in participating in the research.

Therefore, further to discussion with city representatives following the Knowledge Society Forum of EUROCITIES (winter event, Brussels, 27 January 2010), the following shortlist of candidates has been defined. It includes 11 cities out of the 22 cities that proposed initiatives to be considered as possible case study:

**Table 1 Shortlist of Case Study Candidates**

<table>
<thead>
<tr>
<th>#</th>
<th>City</th>
<th>Country</th>
<th>Project/Initiative</th>
<th>Policy area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barcelona</td>
<td>Spain</td>
<td>BCN AUTORITAS: the new inspections system of the Barcelona City Council</td>
<td>Urban Planning &amp; Management</td>
</tr>
<tr>
<td>2</td>
<td>Berlin</td>
<td>Germany</td>
<td>Bürgerhaushalt Lichtenberg (Participatory Budget)</td>
<td>Information &amp; Communication (citizens' engagement)</td>
</tr>
<tr>
<td>3</td>
<td>Bilbao</td>
<td>Spain</td>
<td>Digital Agenda 2012</td>
<td>Across all or many city governance policy areas</td>
</tr>
<tr>
<td>4</td>
<td>Bologna</td>
<td>Italy</td>
<td>OLDES Project</td>
<td>Social inclusion / Healthcare</td>
</tr>
<tr>
<td>5</td>
<td>Enschede</td>
<td>Netherlands</td>
<td>Enschede 2.0 Collaboration</td>
<td>Information &amp; Communication (citizens' engagement)</td>
</tr>
<tr>
<td>6</td>
<td>Manchester</td>
<td>UK</td>
<td>Manchester City</td>
<td>Economic development / Information &amp; Communication / Social Inclusion</td>
</tr>
<tr>
<td>7</td>
<td>Norfolk (Norwich)</td>
<td>UK</td>
<td>HomePage (Timely Information for Citizens)</td>
<td>Information &amp; Communication / Social inclusion</td>
</tr>
<tr>
<td>8</td>
<td>Seville</td>
<td>Spain</td>
<td>Seville a Economy in Person</td>
<td>Economic development</td>
</tr>
<tr>
<td>9</td>
<td>Tallinn</td>
<td>Estonia</td>
<td>National ID-card based public transportation ticket; City digital document management information system</td>
<td>Information &amp; Communication / Urban Planning &amp; Management / Across all or many city governance policy areas</td>
</tr>
<tr>
<td>10</td>
<td>Turin</td>
<td>Italy</td>
<td>Talking to the Heads: communication for integration of non native Italian residents in the city</td>
<td>Information &amp; Communication / Social Inclusion</td>
</tr>
<tr>
<td>11</td>
<td>Venice</td>
<td>Italy</td>
<td>Amministrazione 2.0 and broadband programme</td>
<td>Information &amp; Communication / Urban Planning &amp; Management / Across all or many city governance policy areas</td>
</tr>
</tbody>
</table>
2.3. **Discussion and results**

The following tables present an overview of the proposed candidates for case studies with respect to their typology of governance model, and cluster of reference, as well as preliminary consideration with regard to the criteria for selection defined.

**Table 2 Analysis of case study candidates according to key governance dimensions**

<table>
<thead>
<tr>
<th>#</th>
<th>City</th>
<th>Project/Initiative</th>
<th>Policy area</th>
<th>Typology of administrative structure</th>
<th>ICT cluster</th>
<th>State structure typology</th>
<th>administrative tradition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barcelona</td>
<td>BCN AUTORITAS: the new inspections system of the Barcelona City Council</td>
<td>Urban Planning &amp; Management</td>
<td>Regionalised unitary states</td>
<td>1</td>
<td>French-Napoleonic</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>2</td>
<td>Berlin</td>
<td>Bürgerhaushalt Lichtenberg <a href="http://www.buergerhaushaltlichtenberg.de/">http://www.buergerhaushaltlichtenberg.de/</a> Participatory Budget</td>
<td>Information &amp; Communication (citizens' engagement)</td>
<td>Federal state</td>
<td>4</td>
<td>Germanic-organicist</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>3</td>
<td>Bilbao</td>
<td>Digital Agenda 2012</td>
<td>Across all or many city governance policy areas</td>
<td>Regionalised unitary states</td>
<td>1</td>
<td>French-Napoleonic</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>4</td>
<td>Bologna</td>
<td>OLDES Project</td>
<td>Social inclusion / Healthcare</td>
<td>Regionalised unitary states</td>
<td>1</td>
<td>French-Napoleonic</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>5</td>
<td>Enschede</td>
<td>Enschede 2.0 Collaboration</td>
<td>Information &amp; Communication (citizens' engagement)</td>
<td>Decentralised unitary state</td>
<td>1</td>
<td>Germanic-organicist</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>6</td>
<td>Manchester</td>
<td>Manchester</td>
<td>Economic development / Social Inclusion</td>
<td>Decentralised unitary state</td>
<td>2</td>
<td>Anglo-Saxon</td>
<td>Public Interest</td>
</tr>
<tr>
<td>7</td>
<td>Norfolk (Norwich)</td>
<td>HomePage (Timely Information for Citizens)</td>
<td>Information &amp; Communication /Social inclusion</td>
<td>Decentralised unitary state</td>
<td>4</td>
<td>Anglo-Saxon</td>
<td>Public Interest</td>
</tr>
<tr>
<td>8</td>
<td>Seville</td>
<td>Seville a Economy in Person</td>
<td>Economic development</td>
<td>Regionalised unitary states</td>
<td>2</td>
<td>French-Napoleonic</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>9</td>
<td>Tallin</td>
<td>National ID-card based public transportation ticket; City digital document management information system</td>
<td>Information &amp; Communication / Urban Planning &amp; Management</td>
<td>Unitary state</td>
<td>3</td>
<td>Scandinavian</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>10</td>
<td>Turin</td>
<td>Talking to the Heads: communication for integration of non native Italian residents in the city</td>
<td>Information &amp; Communication / Social Inclusion</td>
<td>Regionalised unitary states</td>
<td>1</td>
<td>French-Napoleonic</td>
<td>Rechtsstaat</td>
</tr>
<tr>
<td>11</td>
<td>Venice</td>
<td>Amministrare 2.0 and broadband programme</td>
<td>Information &amp; Communication / Urban Planning &amp; Management</td>
<td>Regionalised unitary states</td>
<td>3</td>
<td>French-Napoleonic</td>
<td>Rechtsstaat</td>
</tr>
</tbody>
</table>
### Table 3 Analysis of case study candidates according to Project-specific criteria

<table>
<thead>
<tr>
<th>#</th>
<th>City</th>
<th>Project/Initiative</th>
<th>Project maturity</th>
<th>Innovativeness</th>
<th>Potential for STR</th>
<th>Potential socio-economic impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barcelona</td>
<td>BCN AUTORITAS: the new inspections system of the Barcelona City Council</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>2</td>
<td>Berlin</td>
<td>Bürgerhaushalt Lichtenberg <a href="http://www.buergerhaushalt-lichtenberg.de/">http://www.buergerhaushalt-lichtenberg.de/</a> Participatory Budget</td>
<td>M</td>
<td>M</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>3</td>
<td>Bilbao</td>
<td>Digital Agenda 2012</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>4</td>
<td>Bologna</td>
<td>OLDES Project</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>5</td>
<td>Enschede</td>
<td>Enschede 2.0 Collaboration</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>6</td>
<td>Manchester</td>
<td>Manchester Living Lab for Next Generation Access</td>
<td>H</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>7</td>
<td>Norfolk (Norwich)</td>
<td>HomePage (Timely Information for Citizens)</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>8</td>
<td>Seville</td>
<td>Seville a Economy in Person</td>
<td>L</td>
<td>M</td>
<td>M</td>
<td>H</td>
</tr>
<tr>
<td>9</td>
<td>Tallinn</td>
<td>National ID-card based public transportation ticket; City digital document management information system</td>
<td>H</td>
<td>M</td>
<td>H</td>
<td>M</td>
</tr>
<tr>
<td>10</td>
<td>Turin</td>
<td>Talking to the Heads: communication for integration of non native Italian residents in the city</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>11</td>
<td>Venice</td>
<td>Amministrare 2.0 and broadband programme</td>
<td>L</td>
<td>H</td>
<td>H</td>
<td>M</td>
</tr>
</tbody>
</table>

In order to guarantee the presence of cities representing different governance models, both in terms of administrative structure and cultural traditions, as well as different ICT clusters (as defined by the analysis of the results of the survey), and at the same time study cases that have an high level of project maturity, innovativeness and potential for scalability, transferability and replicability, and also with the aim of assessing the potential impact in different policy areas, the following cities have been then proposed for selection as possible case studies representatives of the four governance models identified.

1) Barcelona
2) Berlin
3) Manchester
4) Tallinn
3. Operational guidelines

3.1. Overview of activities

The research will proceed with the following steps. First of all, the proposed selection of case studies will be presented to city government representatives in view of the forthcoming EUROCITIES Knowledge Society Forum, Spring Event (Tallinn, 24-26 March 2010) for discussion and validation.

Starting on April 2010, the methodology for case study analysis will be further defined, and a process to recruit one local researcher in each of the City selected as case studies will be initiated. In this regard, active members of EUROCITIES participating in the Working Group on e-Government 2.0 will act as an Advisory Board to comment and validate the findings of the research, in view of further development and possible application of the measurement framework and eventual generalization to all interested European cities.

The timeframe for the conduction of the case studies will cover May-October 2010. A draft outline of the report of the case study should be made available for the end of May 2010 in order to be presented to the EUROCITIES Knowledge Society Forum, Summer Event (Linkoping, 9-11 June 2010) for discussion and validation. The final report of case studies must be finalized by end of September 2010, in order to be presented to the EUROCITIES Knowledge Society Forum, Autumn Event (Birmingham, 19-20 October 2010) for discussion.

The local researcher will play an important role in supporting IPTS Scientific Officers in conducting the research, and in particular he/she will be responsible of the following activities:

1) Collect relevant documentation and data with regard to ICT policies, strategies and activities, and the application of ICTs for public services and improvement of governance processes (according to the public value drivers and related indicators developed as part of the measurement framework);

2) Describe and analyse the governance models of selected cities and the impact of ICT-driven changes which affect both: a) the changes produced by ICTs on the governance processes, (e.g. regulatory and legal frameworks, organisational and administrative procedures, roles of various stakeholders involved, etc.) and consequently the effects on decision-making, public management and service delivery; and b) the socio-economic implications at policy level.

3) Qualitative in-depth interviews (with 10-15 experts, representatives of various relevant city governance stakeholders (e.g. city government officials, representatives of the private sector, civil society organisations and academia) and the running of a focus group with a multiple-stakeholders approach).

4) Evaluation (in a qualitative and quantitative way) of collected data and indicators and synthesis of findings;

5) Draft a Report of the case study inclusive of a discussion of policy implications and future research needs. The report should follow a structure agreed with IPTS Scientific Officer common to all case studies, in order to facilitate comparison and cross-case analysis.

6) Further to the drafting of the final reports of case studies, IPTS will conduct a cross-case analysis and will draft conclusions and policy recommendations. Local researchers will be requested to contribute to the cross-case analysis and conclusions with comments. The final report of the research, in addition to be discussed with city government representatives and experts during the EUROCITIES Knowledge Society Forum, Autumn Event (Birmingham, 19-20 October 2010) for discussion, will also be presented and validated in a specific Expert Validation Workshop to be organized by IPTS in the period November-December 2010.
3.2. Description of Tasks and research methods

In the following, a more detailed description of each phase of the case study analysis is reported. This will serve as a guideline for local researchers in conducting the case studies.

1) Documentation and data collection

A structural analysis of each selected city is required to get a better understanding of the governance systems of the respective cities before entering into a more focused investigation. In order to collect comparable data it is proposed to identify and gather a limited number of commonly available indicators for a relevant period of time (e.g. the last 5 years).

- Demographic development: natural population development (birth rate, death rate); household/population structure (household size, age, etc.); migration rates, etc.
- Economic development: occupation structure (shares of sectors); unemployment rate; per-capita income; Gross Added Value per capita; budget development of community; etc.
- Technological development: equipment of households (PC, phone, Internet access, etc., per capita); ICT infrastructure of city communities (e.g. broadband access); city Internet-providers/service providers, etc.

In addition to this, and in order to enrich the data with experts-opinion in a structured way, a micro-Delphi exercise will be prepared for gathering opinions on specific issues related to the research focus and the case study under investigation. This will involve the same experts that will be interviewed (10-15) as well as additional experts (up to a maximum of 30 experts) to provide with first hand comments and visions concerning both the impact of ICTs on city governance policy areas and the characteristics of the emerging ICT-enabled governance model in the city. Experts will be chosen out of two main communities of specialists: practitioners (e.g. city government officials, representatives of the private sector and civil society organizations) and researchers (from both academia and local research communities).

A specific questionnaire for the micro-Delphi will be developed by the local researcher under the guidance of IPTS and it will be carried out with a two round online questionnaire supported by preparation and follow-up interactions carried out by phone. Key questions of the micro-Delphi inquiry will follow a classical morphological methodology (scanning of all possible options), based on three generic steps: 1) Which are the main dimensions of new ICT-enabled governance models emerging in the city? 2) What are the effects of the changes driven by ICTs on the interaction 1) within the city administration and 2) between the city government and other stakeholders in specific policy domains? and 3) What are the implications of the new ICT-enabled governance model on specific policy domains?

These questions, quite generic in most morphological methods, have then to be intertwined with the core research question under investigation: What new ICT-enabled governance models are emerging at city level in Europe? in order to: (i) better understanding if ICT-enabled innovations are defining a radical shift or an increment in the current ICT trends, and (ii) how to measure effective changes in governance processes and mechanisms taking into account not only the supposedly positive impacts of ICT-enabled services and innovations, but also some inherent risks, forms of distortive impact and multi-factor implications likely to play a role in shaping ICT-enabled governance models in the years to come. In designing the questionnaire, these two sets of questions will be combined and tested, with optional suggestions asked for the most promising and/or risky developments, related to each case study. A brief description of the micro-Delphi method is reported in the following methodological note.
The micro-Delphi exercise will be conducted using an online questionnaire. Ideally the first round of the exercise should be conducted before the face-to-face interviews and preliminary results should be discussed during the focus group meeting, in order also to prepare for the second and final round to be conducted just after interviews and focus group meeting.

**Methodological note: Micro-Delphi approach**

Delphi is one of the oldest forms of futures studies methodologies, created in the wake of World War II within the RAND corporation, which formalized it in the 1960s (Helmer-Hirschberg 1967; Dalkey 1968; Brown 1968; Sackman 1974). It is convenient, productive and relatively easy to roll out. Its history is already substantial (see in particular http://www.iit.edu/~it/delphi.html, but also the handbook approach by Turoff and Lindstone (2002). Only recently criticisms appeared, addressing the limitations of Delphi exercises in general, but above all the large scale operations (Heraud 1997; 2002; Shin 1995; 2000), among others.

Wanting to take advantage of the interactive expert group management procedure of the Delphi method, but without several of its shortcomings, Rossel, Bosset, Glasey and Mantilleri (1999), having to deal with the technology assessment of the Swiss born Maglev project Swissmetro, developed a down-sized version of the method that they called micro-Delphi

**Basic characteristics of Micro-Delphi**

It conserves some principles of the Delphi technique:

- the lead researcher as a scattered group dynamics and opinion harvesting facilitator
- experts chosen, diverse and representing ideally the several facet of the examined topic, experts may mean something very focused (specialists) or very broad (stakeholders)
- definition of the topic
- expressing / sending out questions (through a questionnaire, written, on-line or on the contrary, when possible, through direct interviewing)
- harvesting answers, producing a first synthesis
- re-question the experts on the one hand with the results of the first round and on the other hand with new questions that the first round raised
- re-harvesting and making a final synthesis.

In practice, the Delphi method can have more than two rounds or undergo a continuous process. Micro-Delphi, which aims at simplifying the procedure, keeps the idea of two rounds but no more.

Characteristics proper to the Micro-Delphi concept:

- Short time available, focused topic
- Fewer experts, but all of them already having to cope with the topic’s challenges, stakes and dilemmas in their professional activities
- Fewer questions, but also less open and broad, in fact looking essentially for key problems to reflect upon (prior good knowledge of the topic is necessary)
- Functions best in emerging or even breakthrough situations where an important indeterminacy is still prevailing (experts do not know, they can only make stimulating suggestions)
- Not statistics-minded as sometimes Delphi can be (hence the huge number of experts of those operations), but depth-, conditions-, reasoning, multi-dimensions and options-minded
- The consensus-minded operation linked with the second round should leave room for highly qualitative perceptions and differences, possible overlapping of questions, and therefore of answers, may be useful.

Source: Rossel and Misuraca, 2008 (COSTA22 - Project 'Exploring new ways to explore the future', Swiss component titled 'The Shape of things to come in the ICTs sector: trends, shifts and diversity', funded by the Swiss National Research Foundation.)
2) Qualitative description of the ICT-enabled city governance models

Additionally, a qualitative description of governance structures and ICT developments (policies, strategies and activities) is required. Being issues related to ICT-enabled governance mostly very complex, it is adequate to describe city governance models in a narrative manner, highlighting key aspects linked to policy and governance development and their relations with ICTs. This description should look in particular at the following aspects:

- Policies and strategies for urban development with specific regard to the use of ICTs and the development of city-wide ICT infrastructures and ICT-enabled services;
- Organisation of the governance structure, functional relations between various administrative departments with specific regard to the policy areas under investigation and roles of actors/players involved in the city governance system (with specific focus on the administrative processes and services enabled by ICTs);
- Implications of the use of ICTs in governance processes with regard to organizational and legal/regulatory changes, administrative processes and service delivery innovation, and impacts of ICTs in the specific policy areas under investigation.

3) Qualitative in-depth interviews

Further to the identification of 10-15 experts, representatives of various relevant city governance stakeholders (e.g. city government officials, representatives of the private sector, civil society organisations and academia), influencing or working in the field of ICTs and governance at city level, the interviews will be conducted as semi-structured (half-standardised / half-open) qualitative interviews based on an interview guide (i.e. problem-centred interview) (see later). All subjects, indicated by the guide, should be elicited during the interview, but it would be left to the interviewee to shape the discussion, and introduce new subjects. Soft inquiry means no immediate proceeding to the next question, but following the associative flow of the interviewee.

The interviews will be conducted primarily by the local researcher, and in some cases a Scientific Officer of IPTS will be also participating (when possible). If possible, a Focus group will also be organised with all or most of the people interviewed. In this case, both the local researcher and a Scientific Officer of IPTS will participate and, preferably, lead the discussion, while the local researcher will take care of taking notes of the Focus Group meeting and intervene when necessary.

In both interviews and Focus Groups meetings the focus should be in both the objective acquaintance with ICT-driven changes and effects on the city governance system and the subjective evaluation of the perceptions of impacts on city governance processes and policy areas, including (if possible) socio-economic implications directly linked to ICT-enabled services. The interviewed in fact are both informants as well as objects of the research. It is therefore important to take this into account during interviews and the consequent analysis.

The discussions for interviews and Focus Groups should be arranged well in advance and the estimated duration of the interviews should not exceed 1-1,5 hours. All interviewees should have equal information about the project and the research interests. If possible, all discussions should be recorded on audio-tape, by permission of the interview partners. Personal specifications should be noted by hand, following a standardised short questionnaire. After the interview, the researcher(s) will comment on the main findings of the interview.

After every interview, a short report of each interview will be prepared in bullet points summarizing the main issues discussed and findings of the interview. This summary report
should provide the most important impressions, the specific peculiarities, and the non-verbal communication patterns. Eventually, the tape recording could be transcribed and evaluated by means of a qualitative evaluation method (e.g. partial standardised content-structuring case analysis - PCCA), in order to structure the essential contents of the interview in significant categories. (This method contains three steps: 1. Quotations from the text concerning the subject 2. Comments and summary by the compiler 3. Short characterization (e.g. positive/negative). The short characterisations should be displayed in a table in order to allow for easy comparison of the cases.

**Interview Guide**

The following interview guide should be applied to each interview:

1. **General questions concerning the governance structure and socio-economic situation of the city in relation to main ICT trends and emerging governance challenges:**
   - Which do you consider to be the main governance characteristics of your city?
   - Which are considered, by official assessment, the main socio-economic conditions in the city?
   - How does the city government react to emerging social and economic challenges?
   - What can the public administration do/what is done?
   - What can you do/What are you doing?
   - Are general guidelines/action strategies/goals pursued? Which?
   - What are the tasks assigned to your division/department?
   - Which image does the city have with respect to its inhabitants/ externally?
   - Which image should be pursued/is pursued?
   - What are the future visions in terms of governance models for improving the socio-economic conditions of the city and the quality of life of its citizens?

2. **Information Society development in the city:**
   - What does ‘city in the Information Society’ mean to you?
   - Which effects do ICTs have for the city in general/for your city?
   - Can changes be observed/ be expected in the governance structure of the city? Since when have these changes been occurring? (decentralisation/centralisation, concentration/ deconcentration, intensified trends, roles of new actors/players)
   - Which part, in this respect, is impacting business and private households? And what role are playing (if any) civil society organisations?
   - What differences in the quality of service delivery / satisfaction of citizens for services provided by the city government can be identified?
   - Which opportunities and challenges can be identified as a consequence?
   - What should the city do? / What does it do?
   - Are there any action strategies in place? How does the city use ICT? Since when? What is your opinion about it?
   - What is your role with regard to ICT-enabled services of the city?
   - What is your opinion of applying ICTs in the city’s administration?
   - Does the decision-making process change? (democratisation/ transparency/ improved cooperation of departments/ effectiveness/ information-access/ ...)
   - Could you explain this with an example?
   - Which meanings do these considerations have in general in the administration/with respect to your work?
   - How do you keep yourself informed, concerning the matter just discussed?
- On which topics do you feel well-informed/on which topics would you like to know more?
- What efforts have the city/ your department made to train employees? Do you have any suggestions about what would be necessary?

3. ICT-enabled changes in the city governance system:
- Can changes produced by ICTs on the governance processes, (e.g. regulatory and legal frameworks, organisational and administrative procedures, roles of various stakeholders involved, etc.) and consequently the effects on decision-making, public management and service delivery be observed/be expected?
- What specific changes have been proceeded in the administration during the last 5 years? (reorganisation/restructuring) What was the reason?
- Who decides what has to be done?
- What is up to yourself to decide?
- With whom do you co-operate?
- Which problems can be identified concerning this governance mechanisms?
- Which role is performed by the citizen? (participation) and how ICTs enable citizens' participation? What could be improved?
- What are the specific innovations in terms of governance (if any) enabled by ICTs?
- How do you perceive your role, compared to other actors? (influence) / Which are the challenges and opportunities? What could be improved?

4. Socio-economic implications of the emerging ICT-enabled governance city model
- What are in your opinion the key socio-economic implications that ICTs are generating in your city? (e.g. in terms of economic growth, employment, health, education, social inclusion, urban environment, and in general increase in the well-being of individuals and groups of citizens)
- Based on your experience, what are the main drivers of changes that ICTs are producing on specific policy areas? (e.g. socio-cultural or economic issues, specific strategies or legal or organisational measures developed by the city or other stakeholders, self-organisation of citizens or other formal or informal groups, etc.)
- Based on your experience, what are the main barriers to change and the main foreseeable risks?
- Based on your experience, what are the main enablers of change and the main opportunities?
- Based on your experience, which are the key characteristics of these new governance models?
- What will the future city governance model look like? And what will be the role of ICTs?

4) Evaluation of collected data and indicators and synthesis of findings
An evaluation report of main data collected according to the main value drivers selected in the measurement framework and related indicators of output-outcome-impact (eventually customized to the specific policy areas under investigation will be prepared.
The evaluation report will in particular provide also the analysis of the data collected through the micro-Delphi exercise in a quantitative and qualitative manner.
The results of the evaluation will be then summarised in a report commenting main findings and highlighting emerging trends linked to the application of ICTs into governance processes, and the implications these have generated on the city governance model, as well as impacts in socio-economic terms.
5) Draft Report of the case study

The consolidated results of the various components of the case study analysis will provide the elements for the elaboration of a draft Report of the case Study. This should identify the key characteristics of the emerging ICT-enabled governance model in the city and define the crucial challenges and key drivers of change associated with ICT-enabled services and governance innovations, in specific policy areas under investigation.

The draft report will then be disseminated to interviewed people and experts that contributed to the micro-Delphi exercise, as well as presented for discussion to relevant events of the EUROCITIES Knowledge Society Forum.

Comments will be incorporated in the Final Report of Case Study that will be presented for validation during a specific Expert Workshop to be organised by IPTS.

In particular, the Final Report of the Case Study should include policy recommendations and indications for further research in the area of assessing ICT-enabled governance models in European cities.

3.3. Expected results and deliverables

The main deliverables deriving from the case study analysis will be the following:

1) A simple database containing relevant documentation and data with regard to ICT policies, strategies and activities, and the application of ICTs for public services and improvement of governance processes (structured according to the public value drivers and related indicators developed as part of the measurement framework). The database containing all references to a) literature: research papers, scientific articles, books, etc, b) Policy documents: strategic and programme documents, etc; and c) Project documents: technical reports, monitoring and evaluation reports, etc.; will be constructed all along the duration of the project and will be made available to IPTS during the research activity and a copy of it will be delivered to IPTS at the end of the research. The database will contain documents in both English and local language. A first version shall be prepared by the local researcher and made accessible to IPTS by end of May 2010.

2) A draft Report presenting an overview and analysis of the governance model of the selected cities and the impact of ICT-driven changes which affect both: a) the changes produced by ICTs on the governance processes, (e.g. regulatory and legal frameworks, organisational and administrative procedures, roles of various stakeholders involved, etc.) and consequently the effects on decision-making, public management and service delivery; and b) the socio-economic implications at policy level. The report will be produced in English and should be of about 10-20 pages maximum. The report shall be prepared by the local researcher and submitted to IPTS by end of May 2010.

3) Summary reports of the qualitative in-depth interviews (with 10-15 experts, representatives of various relevant city governance stakeholders, e.g. city government officials, representatives of the private sector, civil society organisations and academia) and the focus group (conducted with a multiple-stakeholders approach). The reports will be in English and should summarize the main issues discussed in a brief manner. In total they should not be more than 20 pages. The summary reports shall be prepared by the local researcher and submitted to IPTS by end of June 2010.

4) A draft report of evaluation (in a qualitative and quantitative way) of collected data and indicators with synthesis of findings. This should include the results of the micro-delphi
survey and the analysis of the data collected, illustrated with graphs and making reference to the main areas and indicators defined in the measurement framework. The report should be between 10 and 20 pages maximum. It shall be prepared by the local researcher and submitted to IPTS by end of July 2010.

5) Draft Final Report of the case study comprehensive of the main findings of the previous activities and deliverables and inclusive of a discussion of policy implications and future research needs. The report should follow a structure agreed with IPTS Scientific Officer common to all case studies, in order to facilitate comparison and cross-case analysis. The outline of the Final Report will be prepared by end of May 2010 in order to be discussed and validated during the EUROCITIES Knowledge Society Forum, Summer Event (Linkoping, 9-11 June 2010). The draft final Report of the case study shall be prepared by the local researcher and submitted to IPTS by end of August 2010.

6) Further to the review of the draft final report of the case study by IPTS and EUROCITIES, as well as the city government (during the first half of September 2010), a Final Report incorporating the observations provided will be prepared by the local researcher and submitted to IPTS by mid-October 2010 in order to be presented to the EUROCITIES Knowledge Society Forum, Autumn Event (Birmingham, 19-20 October 2010) for discussion and validation.

7) The local researchers shall also contribute to the cross-case analysis and conclusions with written comments provided to IPTS 15 days after receiving the draft of the final report of the research that will include a cross-case analysis, conclusions and policy recommendations and that will be prepared by IPTS.

8) The local researchers may also be requested to participate to some of the EUROCITIES Knowledge Society Forum Events or in a specific Expert Validation Workshop to be organized by IPTS in the period November-December 2010 (in this case travel and subsistence costs will be covered by IPTS).

9) The final reports of case studies and the final report of the research will be then edited for publication as IPTS Technical and Scientific Reports, jointly co-authored/co-edited with the local researchers, EUROCITIES, and the city government representatives. The local researchers in particular will be requested to further review and edit the case studies in order to be published.

10) In addition to this, specific conference or research paper, scientific articles or policy briefs may be prepared on an ad-hoc basis. The local researchers may be requested to contribute as it may be appropriate.