THE VISUAL LANGUAGE OF SPATIAL PLANNING

Strategic spatial planning is experiencing a renaissance in Europe. Stakeholders at all levels – transnational, national and regional – are faced with the challenge of communicating policy principles for sustainable and integrated development to an ever wider audience of professionals and the public. Cartographic representations can be powerful instruments in these planning processes and in communicating the key messages of spatial strategies.

Set against the background of ongoing European integration, Stefanie Dühr's book is a unique contribution to the rapidly growing area of teaching and research on European spatial planning. She discusses relevant theoretical perspectives on power and policy-making, cartographic communication and the use of cartographic representations in the planning process. In doing this, she provides both conceptual and practical tools to help students and practitioners to better understand maps and visualisations in strategic spatial planning processes.

The book investigates the style, content and use of cartographic representations in strategic spatial plans in the Netherlands, Germany and England as well as at European level, highlighting significant differences between planning traditions and the impact of these on transnational planning processes. It concludes by discussing practical implications for future strategic spatial planning processes in Europe and the best use of cartographic representations to reach agreement and to focus dialogue.

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THE VISUAL LANGUAGE OF SPATIAL PLANNING
EXPLORING CARTOGRAPHIC REPRESENTATIONS FOR SPATIAL PLANNING IN EUROPE

STEFANIE DÜHR
Im Andenken an meine Eltern
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European spatial planning is a dynamic field, and planning systems in Europe are constantly evolving. Institutional changes are implemented, new instruments are prepared, and the scope and content of planning develops continuously. While every care has been taken to present up-to-date information in this book, changes may have occurred since the completion of the manuscript in early 2006.
ABBREVIATIONS

ARL Akademie für Raumforschung und Landesplanung (Germany)
BauGB Baugesetzbuch (federal building code) (Germany)
BauNVO Baunutzungsverordnung (federal land use ordinance) (Germany)
BBR Bundesamt für Bauwesen und Raumentwicklung (federal office for building and regional planning) (Germany)
Benelux Belgium, the Netherlands and Luxembourg
BfLR Bundesforschungsanstalt für Landeskunde und Raumordnung (federal spatial research agency) (Germany) (now BBR)
BMBau Bundesministerium für Raumordnung, Bauwesen und Städtebau (federal ministry of spatial development, building and urban design) (Germany) (now BMVBW)
BMVBW Bundesministerium für Verkehr, Bau- und Wohnungswesen (federal ministry of transport, building and housing) (Germany)
BNSP Beroepsvereniging van Nederlandse Stedebouwkundigen en Planologen (Association of Dutch planners and Designers)
B-Plan Bebauungsplan (binding land use plan) (Germany)
BPZ Business Planning Zone (England)
BSR Baltic Sea Region (Interreg IIC/IIIB)
CADSES Central European, Adriatic, Danubian, and South Eastern European Space (Interreg IIC/IIIB)
CAP Common Agricultural Policy
CCC Central and Capital Cities region
CEC Commission of the European Communities (European Commission)
CEMAT European Conference of Ministers responsible for Regional Planning
CoE Council of Europe
CoR Committee of the Regions
CPMR Conference of Peripheral and Maritime Regions of Europe
CRONWEN Conference for Spatial Planning in North-west Europe
CSD Committee on Spatial Development
DATAR Délegation à l’Aménagement du Territoire et à l’Action Régionale (France)
DETR Department of the Environment, Transport and the Regions (UK) (now ODPM)
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>DG Ruimte</td>
<td>Directoraat-Generaal voor de Ruimte (Directorate General of Spatial Policy) (The Netherlands)</td>
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<tr>
<td>DRDNI</td>
<td>Department for Regional Development, Northern Ireland</td>
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<td>DTLR</td>
<td>Department for Transport, Local Government and the Regions (UK) (now ODPM)</td>
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<tr>
<td>DURP</td>
<td>Digitaal Uitwisselbare Ruimtelijke Plannen (Digital exchange of spatial plans) (The Netherlands)</td>
</tr>
<tr>
<td>EERA</td>
<td>East of England Regional Assembly (UK)</td>
</tr>
<tr>
<td>EMU</td>
<td>Economic and Monetary Union</td>
</tr>
<tr>
<td>ERDF</td>
<td>European Regional Development Fund</td>
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<tr>
<td>ESPON</td>
<td>European Spatial Development Perspective</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FNP</td>
<td>Flächennutzungsplan (preparatory land use plan) (Germany)</td>
</tr>
<tr>
<td>FUA</td>
<td>Functional Urban Area</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>GIZ</td>
<td>Global Integration Zone</td>
</tr>
<tr>
<td>GLA</td>
<td>Greater London Authority (England)</td>
</tr>
<tr>
<td>GOEE</td>
<td>Government Office for the East of England (England)</td>
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<tr>
<td>GOEM</td>
<td>Government Office for the East Midlands (England)</td>
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<td>GONE</td>
<td>Government Office for the North East (England)</td>
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<td>GONW</td>
<td>Government Office for the North West (England)</td>
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<td>GOSE</td>
<td>Government Office for the South East (England)</td>
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<td>GOSW</td>
<td>Government Office for the South West (England)</td>
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<tr>
<td>GOWM</td>
<td>Government Office for the West Midlands (England)</td>
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<tr>
<td>GVis</td>
<td>Geographic visualisation</td>
</tr>
<tr>
<td>HARA</td>
<td>Raumordnungspolitischer Handlungsrahmen (action programme for spatial planning) (Germany)</td>
</tr>
<tr>
<td>HMWVL</td>
<td>Hessisches Ministerium für Wirtschaft, Verkehr und Landesentwicklung (State Hesse ministry of the economy, transport and spatial development) (Germany)</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
</tr>
<tr>
<td>IGC</td>
<td>Intergovernmental Conference</td>
</tr>
<tr>
<td>IMRO</td>
<td>Informatie Model Ruimtelijke Ordening (Information model for spatial planning) (The Netherlands)</td>
</tr>
<tr>
<td>INSPIRE</td>
<td>INfrastructure for SPatial InfoRmation in Europe</td>
</tr>
<tr>
<td>IÖR</td>
<td>Institut für Ökologische Raumentwicklung (Institute for ecological spatial development) (Germany)</td>
</tr>
<tr>
<td>LDF</td>
<td>Local Development Framework (England)</td>
</tr>
<tr>
<td>LEP</td>
<td>Landesentwicklungsplan (state development plan) (Germany)</td>
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</table>
**LEPro**  
*Landesentwicklungsprogramm* (state development programme)  
(Germany)

**LTP**  
Local Transport Plan (England)

**MEGA**  
Metropolitan European Growth Area

**MKRO**  
Ministerkonferenz für Raumordnung (standing conference of *Bund* and *Länder* ministers of spatial planning) (Germany)

**MURL**  
Ministerium für Umwelt, Raumordnung und Landwirtschaft des Landes Nordrhein-Westfalen (State North Rhine-Westphalia ministry for environment, spatial development and agriculture) (Germany)

**NETHUR**  
Netherlands Graduate School of Housing and Urban Research

**NIROV**  
Nederlands Instituut voor Ruimtelijke Ordening and Volkshuisvesting (Netherlands Institute of Spatial Planning and Housing)

**NRW**  
Nordrhein-Westfalen (North Rhine Westphalia) (Germany)

**NSR**  
North Sea Region (Interreg IIC/IIIB)

**NWE**  
North West Europe (Interreg IIIB)

**NWMA**  
North Western Metropolitan Area (Interreg IIC)

**ODPM**  
Office of the Deputy Prime Minister (UK)

**ONS**  
Office for National Statistics (UK)

**ORA**  
*Raumordnungspolitischer Orientierungsrahmen* (guidelines for spatial planning) (Germany)

**OS**  
Ordnance Survey (UK)

**PIA**  
Potential Polycentric Integration Area

**PKB**  
*Planologische kernbeslissing* (Key Planning Decisions) (The Netherlands)

**PlanzV**  
*Planzeichenverordnung* ((federal) plan notation symbol ordinance) (Germany)

**PPG**  
Planning Policy Guidance Note (England)

**PPS**  
Planning Policy Statement (England)

**PUSH**  
Potential Urban Strategic Horizons (ESPON)

**R&D**  
Research and Development

**RDA**  
Regional Development Agency (England)

**REK**  
*Raumentwicklungskonzept* or *Regionales Entwicklungskonzept* (spatial development strategy or regional spatial development strategy) (Germany)

**RLP**  
Rheinland-Pfalz (Rhineland-Palatinate) (Germany)

**ROG**  
*Raumordnungsgesetz* (federal spatial planning act) (Germany)

**RPB**  
Regional Planning Body (England)

**RPD**  
Rijksplanologische Dienst (national planning agency) (The Netherlands) (now DG Ruimte)

**RPG**  
Regional Planning Guidance
CHAPTER 1

EUROPEAN SPATIAL DEVELOPMENT AND CARTOGRAPHIC REPRESENTATIONS

Cartographic representations in spatial planning in Europe

The conceptualisation of the territory through spatial images is an integral part of spatial planning. In most traditions of spatial planning in Europe, planning policy documents involve a symbolic representation of the territory in the form of icons, diagrams and maps. The illustration of spatial policy options through maps and other cartographic representations can be very powerful both in the planning process and in communicating the key messages of planning strategies. Drawn images are used to support verbal statements of policies, or they directly express policies (Faludi, 1996a), and through their communicative power and clarity might ‘contribute more to achieving certain political goals than legal and financial instruments’ (Kunzmann, 1996: 144).

During the planning process, communicating policy objectives through policy maps can help to reach agreement by revealing different parties’ priorities for spatial strategies for the territory. They are furthermore said to assist in mediating conflicting interests (Healey et al., 1997), setting agendas and shaping attention (Forester, 1989), and can help to incorporate different viewpoints (Robbins, 1997). Cartographic representations can help to focus dialogue and to shape discourses, but they may also be used to manipulate other participants in the process by distorting or highlighting certain facts (Pickles, 1992; Neuman, 1996, 2000). Setting up a certain form of discourse through visualisation as the central instrument of communicative interactions sets limits, defines agendas, and creates social hierarchies. Thus, the illustration of spatial policies can act as an instrument of cultural power (Robbins, 1997). The decision on what should be ‘put on the map’, and how it is going to be presented, opens up great potential to shape discourse, to empower some parts of the public or the territory, and to disadvantage others. The product of the planning process – the final key diagram or policy map – again can help to raise awareness of the planning strategy and the policy objectives. As a product, cartographic representations can help to shape attention for relevant spatial issues, to communicate messages and to stimulate action at lower tiers of government, or within the private sector.

There are examples of cartographic illustrations, notably the metaphor of the ‘Blue Banana’ (Reclus, 1989) (see Figure 1.1), that have been very successful in
raising awareness and understanding about complex spatial development trends at European level. The ‘Blue Banana’ identifies a highly developed area stretching from the south-east of England to the north of Italy. The ‘Blue Banana’ has often been criticised for the rather simplistic representation of core and periphery in Europe. Nevertheless, this powerful image has become central to transnational and national planning discourses, and has prompted an increasing number of alternative spatial conceptualisations of the European territory, such as the ‘European Bunch of Grapes’ (see Figure 1.2), which, rather than conceptualising economic realities, present a desirable (or normative) future for Europe by visualising a polycentric structure of competitive urban agglomerations instead of one economic core region (Kunzmann and Wegener, 1991).

The need for collaboration amongst countries and regions because of the increasingly transboundary nature of urban and regional development, and the growing interdependence of nations, is promoted by both the European Union and the Council of Europe. Transboundary collaboration, consequently, has steadily expanded at the European, multilateral and bilateral levels since the beginning of the 1990s. Cartographic illustrations are a central communication medium for the planning discipline, and their potential role in transnational spatial planning processes outside a formal legal competence and established planning discipline is unquestionable. In transnational planning processes, the use of cartographic representations can help to frame spatial policies (Faludi,
1996a) for an ‘unexplored’ territory (i.e. an area outside the ‘normal’ sphere of action of planners). Other authors have recognised that the use of images can support institution-building (Neuman, 1996, 2000) and help to overcome language barriers (Sinz, 1997; Kunzmann, 1996) when discussing policy options at supra-national scale.

However, conceptualisation and visualisation can be very difficult in multi-lateral strategic spatial planning processes, where different planning cultures come together (Zonneveld, 2000). The discussion of policy maps for the first ever spatial strategy for the EU territory, the ‘European Spatial Development Perspective’ (ESDP) (CSD, 1999), for example, was accompanied by controversial debates on the cartographic representation of future scenarios for the European territory. This potential for conflict might be rooted in different planning cultures: there are significant differences in how planning is conducted in different European member states, and these differences also extend to the form,
style and use of cartographic representations in different spatial planning systems.

These differences in European countries’ approaches to visualising spatial policy, and the influence of these differences on transnational spatial planning processes, are the focus of this book. In the following sections, the European territorial co-operation agenda will be discussed, followed by a review of experiences with visualising the European territory in transnational and national spatial strategies to date.

**European integration and spatial development**

Intergovernmental co-operation on the use of European space has a long tradition, and some agreements, such as the Rhine Treaty, date back to the nineteenth century. The interest in co-operation between European countries increased significantly after World War II, and the first supranational administrative authorities were set up in the 1950s. Many bilateral co-operation agreements between European countries, for instance the Benelux countries, have been in place now for several decades, and some multilateral conferrals have been institutionalised early on (for example the Conference on Spatial Planning in North West Europe, CRONWE, in 1962). The main reasons for these co-operation efforts can be found in the rapid urbanisation and industrialisation in north-west Europe, and the effects on the economy and standard of living that this implied.

However, a specific interest in supranational spatial development and European initiatives directly focusing on spatial planning only gained more importance during the 1990s. This growing interest in European spatial planning was fuelled by the recognition that in the light of ongoing European integration and EU enlargement there is a need to co-ordinate objectives and policies across the European territory (CEC, 1998). Territorial development effects stemming from globalisation, the Economic and Monetary Union (EMU) and the completion of the Single Market, the enlargement of the EU to twenty-five members in 2004, and the increasing functional interdependences of regions and nation-states due to technological changes in communication and transport are all reasons for improved European co-operation. The issue of spatial disparities and concern about the impact of global economic change are at the heart of European policy-making. Although this is not always explicitly referred to as spatial policy, there is growing recognition amongst policy- and decision-makers in Europe that sectoral policies have (sometimes counterproductive) spatial impacts and that spatial planning might provide a mechanism for co-ordinating the territorial impacts of various sectoral policies – both horizontally across different sectors as well as vertically among different levels of government (Williams, 1996).
THE COMPETENCE ISSUE: THE LEGAL BASIS FOR SPATIAL PLANNING AT EU LEVEL

Despite this increasing understanding of interdependences of the spatial impacts of policy sectors, the European Community has no legal competence in spatial planning. One of the main reasons for this are the very divergent views on the necessity, function and institutional capacity of a European spatial policy amongst the different EU member states (cf. Faludi, 2003). Yet, while there is no direct competence, there is a certain consideration of ‘spatial planning’ issues in the European Treaties, which are often related to the EU’s regional policy or other spatially relevant policy areas such as environment or transport.

The European Regional Development Fund (ERDF) was initiated on the basis of Art. 235 of the Treaty of Rome by a 1975 Council decision in order to deal with regional economic disparities within the European Community (Fit and Kragt, 1994). The regional policy objectives were reinforced in the Single European Act (1987), which stated that ‘the Community shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least-favoured regions’ (Art. 130a). The Single European Act removed restrictions and trade barriers in many areas of European activity. The ‘four freedoms’ of the single market were expected to contribute to economic growth, though mainly in the inner core of Europe and thus possibly leading to a more uneven distribution of development potential (Faludi and Waterhout, 2002).

The Treaty of Maastricht on the European Union of 1992 provided for a ‘Cohesion Fund’, which financially contributes to projects in the field of the environment, and in the area of transport infrastructure to Trans-European Networks (TENs). The Treaty of Maastricht gave a new emphasis to European spatial development policy by:

- increasing democratic control by the European Parliament in the form of a right of veto over the formulation of the structural funds (Art. 130d EU Treaty);
- introducing the principle of subsidiarity (Art. 3b EU Treaty); and
- establishing the Committee of the Regions (CoR) consisting of regional and local authorities (Art. 198a–c EU Treaty).

Beyond that, the treaty contained general ideas on the spatial development of the Union regarding ‘the creation of an area without borders’ and ‘the promotion of economic and social cohesion’, to be achieved through the following objectives and measures:

- reducing disparities between the levels of development of the various regions (Art. 130a EU Treaty);
development of Trans-European Networks (Art. 129b, para. 1 EU Treaty);
• preserving, protecting and improving the quality of the environment (Art. 130r, para. 1 EU Treaty);
• prudent and rational utilisation of natural resources (Art. 130r, para. 1 EU Treaty); and
• respecting the national and regional cultural diversity (Art. 128, para. 1 EU Treaty).

The Maastricht Treaty also for the first time mentions ‘town and country planning’ (Art. 130s EU Treaty) explicitly, although this is done under the environment title. However, the treaty clarifies that town and country planning is restricted to unanimous voting of the member states, and that therefore any future decision related to planning matters could be subject to a national veto of a single country.

The Amsterdam Treaty (1997) acknowledged the harmonious, balanced and sustainable development of the European territory as one of the essential aims of the European Community. One of the most significant aspects of the Amsterdam Treaty is that it introduced the term ‘territorial cohesion’ in Art. 16 of the consolidated version (which has since replaced the term ‘spatial planning’ in the European Commission’s vocabulary, albeit a clear definition of territorial cohesion is yet missing (cf. Faludi, 2005)). Whereas the promotion of social and territorial cohesion is a Community and member state task within their respective competences, the Amsterdam Treaty emphasised the significance of environmental protection and of improvement in environmental quality as Community tasks (Art. 2) (CSD, 1999).

The Treaty of Nice (2000) laid the ground for keeping European institutions well balanced in the light of enlargement of the EU. In May 2003 the Convention on the Future of Europe formally submitted a wide range of proposals for EU policy-making, the division of powers, the functioning of European institutions and voting systems. The draft ‘Treaty establishing a Constitution for Europe’ includes a clearer reference to the territorial dimension of cohesion, and defines territorial cohesion as one of the goals of the EU besides economic and social cohesion (Art. 3) and as a competence shared between the Union and the member states (Art. 13). However, many proposals in the draft Constitution have caused significant debate, and, following rejection of the Constitutional Treaty by France and the Netherlands in 2005, the process of ratification has been delayed.

INITIATIVES ON EUROPEAN SPATIAL PLANNING

Although the European Community has no direct competence for spatial planning, there are a number of initiatives that are relevant for the spatial development of the European territory. In 1968 the Council of Europe (CoE) recommended the setting up of a permanent Conference of Ministers (CEMAT), which held its first
conference in 1970, and has convened regularly since. In 1983 the European Charter for Spatial Planning (the ‘Torremolinos Charter’) was adopted, which set out an agreement on common principles for spatial policy to be pursued in the member countries of the Council of Europe. The charter promoted the idea that planning was an important political matter for all authorities from local to European levels, that it should seek co-ordination between policy sectors, and that it should be democratic, comprehensive, functional and future-oriented in order to contribute to a better organisation of the European territory (Williams, 1996). Based on the ‘Torremolinos Charter’, the legally non-binding ‘Guiding Principles for Sustainable Spatial Development of the European Continent’ (CEMAT, 2000) were approved by the forty-one member states of the Council of Europe in September 2000.

Within the EU, the joint elaboration and co-ordination of spatial policy and action across national boundaries increased considerably during the 1990s following the ratification of the Maastricht Treaty and the political support given to spatial planning initiatives at cross-border and transnational level. The need to develop strategies to guide the development of the European territory has since emerged as an important issue in the policy debate. The European Commission analysed spatial development trends primarily through the documents *Europe 2000* (CEC, 1991) and *Europe 2000/+* (CEC, 1994). *Europe 2000* stated that ‘it makes no sense for planning to stop artificially at national borders’ (CEC, 1991: 3), and this made a significant contribution to raising awareness about the wider processes which shape development at the transnational and European scale. At the root of initiatives that encourage transnational or European co-operation on spatial planning is the recognition that there are some issues that countries cannot take on independently, such as cross-national infrastructure, flood prevention, environmental pollution or ecological networks.

In the absence of a clear competence for spatial planning for the European Commission, the *Europe 2000*-studies recognised the importance of national and regional planning systems and policies for transnational planning initiatives. However, variations in the way the systems operate, and differences in the meaning of spatial planning across member states, were recognised as presenting a considerable challenge for further co-operation across national borders. A better understanding of the meaning and operation of planning systems in other countries was therefore seen as a prerequisite to more effective transnational working, and fuelled the interest in comparative studies. The *EU Compendium of Spatial Planning Systems and Policies* (CEC, 1997) was commissioned by the European Commission in order to provide a comparative perspective on the planning systems of the EU-15 member states.

The fall of the Iron Curtain and German reunification in the early 1990s presented new challenges for European co-operation in the field of spatial planning.
The Ministers of EU member states responsible for spatial planning therefore agreed on the preparation of a European Spatial Development Perspective (ESDP). The European Spatial Development Perspective regarding future spatial and urban development in Europe was prepared by the Committee on Spatial Development (CSD), an informal intergovernmental meeting of senior officials from the member states and the European Commission (DG Regio), which was set up in 1989 under the French EU presidency. Following the publication of two draft versions of the ESDP in 1997 (CSD, 1997) and 1998 (CSD, 1998a), the non-binding European Spatial Development Perspective was finally agreed in 1999 by the Informal Council of Ministers responsible for Spatial Planning. In order to support the application of the ESDP, funding for the promotion of transnational co-operation on spatial planning was made available through the EU Community Initiative Interreg, which is funded through the European Regional Development Fund (ERDF).

On the basis of the ‘mega-regions’ which were defined in the Europe 2000 reports (CEC, 1991, 1994), though with partly significant extensions, seven transnational regions were created under the Interreg IIC programme (1997–1999). These were intended ‘to encourage new ways of thinking about spatial prospects which are not limited by national boundaries and to stimulate a bottom-up approach to the development of links between regions’ (CEC, 1994: 69). Interreg IIIB (2000–2006) continued the efforts begun under Interreg IIC with a higher budget. Thirteen programme areas were defined, with further geographical extensions to the areas resulting in a complex overlap of transnational regions. Projects funded under Interreg IIIB are expected to follow an integrated spatial planning approach as promoted in the ESDP.

While the Community Initiative Interreg was set up to support the application of the ESDP through ‘action projects’, parallel initiatives aimed at improving knowledge and information on territorial issues at European level to inform future initiatives. The Study Programme on European Spatial Planning (SPESP) (1998/1999) was undertaken with a view to setting up the European Spatial Planning Observation Network (ESPON) (CSD, 1999; CEC, 2000a). The ESPON programme (2000–2006) is aimed at improving understanding of European territorial development patterns and trends; to specify the implications of the ESDP on particular transnational and national territories; to develop better understanding of the spatial dimension of the Structural Funds and other Community policies; and to promote better co-ordination of decisions on territorial development matters.

The current strategic goal for the EU, set out in the Lisbon–Gothenburg strategy, is to become the most competitive and dynamic knowledge-based economy in the world by 2010 and to achieve a more sustainable pattern of development (CEC, 2003). The EU’s regional policy programmes are seen as playing an important role
in implementing the objectives set out in the Lisbon–Gothenburg strategy through investment in research and development (R&D), innovation, higher education, skills and networks. The new structure for the EU’s Cohesion Policy for the period 2007–2013 is proposed around three priorities, one of which is ‘European territorial co-operation: ensuring harmonious and balanced development throughout the European Union’. This objective is intended to continue the Interreg initiative by supporting cross-border and transnational co-operation, though given the future concentration on thematic priorities as set out in the Lisbon and Gothenburg strategies, the integration of the spatial impacts of sectoral policies might be increasingly difficult to achieve.

**Cartographic representations at European and transnational level in Western Europe**

Co-ordinating spatial planning activities at European and transnational levels is of increasing importance. There is – at least theoretically – little doubt that the use of cartographic representations in these transnational planning processes could help to understand and communicate the complex spatial relationships in ‘unexplored’ territories. However, recent experiences with planning at supranational scale
demonstrate that it seems to be very difficult to reach consensus on how to represent spatial policies for a transnational territory.

The ESDP was developed over a period of many years, and the most difficult controversies in its development have been in relation to the visualisation of policy options (Faludi and Waterhout, 2002). While there were ‘policy maps’ included in earlier drafts of the ESDP (CSD, 1997, 1998a), and many more had been produced during the process, the final document (CSD, 1999) does not include any cartographic illustration of spatial strategy. The absence of policy maps makes the ESDP a curious spatial policy document. Many would regard spatial concepts or images as an integral part of spatial planning. However, it seems to be distinctly more difficult to reach consensus about maps than about verbal concepts. Zonneveld (2000: 275) has argued that ‘seen from the perspective of conceptualization, the ESDP is a disappointing document. The ESDP does not give any clue about ways to look at the spatial structure of the European territory’.

Co-operation on spatial planning issues in Europe has also prompted the increasing use of transnational spatial visions as a planning instrument, especially as part of the Community Initiative Interreg IIC (1997–1999) and IIIB (2000–2006). A comparison of the four spatial visions that have been established under Interreg IIC, however, shows that very few use cartographic representations to illustrate and communicate policy (Nadin, 2000). All documents contain numerous maps showing the existing state of the economy, disparities, infrastructure, and so on, but few illustrations showing policy options. Only two of the transnational spatial visions, the first VASAB plan (VASAB 2010, 1994a, b) and the NWMA Spatial Vision (NWMA Spatial Vision Group, 2000), attempt to communicate policy through some form of visualisation. The two other spatial visions, NorVision (for the North Sea Region) (Vision Working Group, 2000) and VisionPlanet (for the CADSES Region) (BBR, 2000) do not include any spatial expression of policy for the transnational territories. In the new generation of ‘visions’ or ‘frameworks for action’ that are being prepared under Interreg IIIB (2000–2006), there also seems to be a great reluctance to visualise spatial policy.

In terms of cartographic expression used in the VASAB plan and the NWMA Spatial Vision, both documents focus on a representation of policies for the development of the urban system and transport infrastructure. The first VASAB plan (see Figure 1.4) illustrates the now famous ‘pearls’ (the urban settlement system), ‘strings’ (interlinking infrastructure) and ‘patches’ (selected types of non-urban areas of distinct qualities) prominently. This image has not, however, been picked up by the subsequent project, VASAB 2010+ (VASAB 2010, 2001), which does not include any illustration of the key policy themes. The ‘Spatial Vision for North-west Europe’ includes a vision map for the sustainable and balanced development of North West Europe, and outlines priorities for territorial development in
Figure 1.4 Vision and Strategies around the Baltic Sea 2010 (VASAB): comprehensive integrated map

Source: VASAB (1994b: 40)
Figure 1.5 A Vision for North West Europe
sub-regions of the co-operation area, which have been defined as ‘Inland Zone’, ‘Central Zone’, ‘Open Zone’ and ‘Island Zone’ (see Figure 1.5). In the NWMA Spatial Vision process, there was considerable difficulty to reach agreement about the vision diagram, and the undertaking has even been described as a ‘rather risky exercise’ (Doucet, 2002: 71). Reasons for these difficulties were again political sensitivities about, for instance, how to present certain cities in the urban hierarchy, or how to categorise parts of the territory.

One explanation for this lack of commonly accepted policy maps for the EU or transnational territories is surely that European spatial planning is, after all, still in its infancy, and how to conduct it best is still under discussion. Furthermore, the capacity to conceptualise territories within the spatial structure of Europe as a whole is a skill that needs to be developed. Williams (1996: 97) suggested the term ‘spatial positioning’ for this process that would help to identify opportunities and comparative advantages, and generally make it possible to grasp spatial relationships in a wider territory than the own nation-state or region. The changing spatial structure of the EU is an additional complication for the conceptualisation of European space. Successive enlargements in combination with major infrastructure developments (e.g. the Channel Tunnel or the Öresund Bridge) or locational decisions (e.g. the decision to move the capital of Germany from Bonn to Berlin in 1991) all contribute to a rapidly changing ‘map of Europe’ which makes it difficult for even the most experienced planner to ‘think European’.

So far, therefore, there is no such thing as a ‘European Spatial Planner’ (Faludi, 2002a: 19), and the skill of spatial positioning is not necessarily well established amongst planners in European member states. Rather, planners from the EU member states involved in transnational spatial planning processes come from different planning traditions that may use or interpret policy maps differently. It has been suggested by various authors that the potential for conflict inherent in the debates on policy maps for the EU or transnational territories might be a result of different planning cultures, and national and regional differences in visualising policies (Faludi, 2000; Zonneveld, 2000; Dühr, 2003). At the heart of the problem, however, lie differences of opinion about spatial policy in the European Union and concerns about the representation of core and periphery, economically strong and weak regions. In addition, there continues to be limited understanding and lack of agreement across Europe about the appropriate agenda for planning at the transnational scale. In discussing the development of the Spatial Vision for North West Europe, which was prepared under the Community Initiative Interreg IIC, Nadin (2002: 31) has commented that the ‘transnational dimensions of spatial development are to some extent self-evident, but that there is still considerable scope for different interpretations on what issues should be addressed in transnational co-operation (even if the outputs have no formal status), and which should remain solely the concern of national and regional governments’.
Cartographic representations in strategic spatial planning processes in Western Europe

Spatial planning activities at European level are gaining in significance, and this in turn has led to a revival of strategic spatial planning in European member states. Strategic planning frameworks are now increasingly seen as useful instruments to shape ‘the minds of actors involved in spatial development’ (Faludi, 2001a: 664) and thus to co-ordinate the spatial impacts of sectoral policies. Cross-border co-operation efforts have increased over the last fifteen years, especially in areas where there are obvious and urgent common planning issues to address. Co-operation has generally been informal, although there are also examples of formal co-operation institutionalised through the setting up of joint working groups or committees. The Benelux countries (Belgium, the Netherlands and Luxembourg) have been most active. Joint policies have been prepared, although it has proved difficult to agree on central issues where the benefits of growth may be divided unequally between the regions involved. Following on from a first spatial development framework which was published in 1986, the Second Structural Outline for Benelux was published in 1996 and includes numerous illustrations of spatial policy (Secrétariat général de l’Union économique Benelux, 1996).

In addition to increasing cross-border co-operation initiatives on spatial planning, there have also been a wide variety of responses to ongoing European integration and the emerging European spatial planning agenda within EU member states. Generally, these can be divided into the ‘spatial positioning’ (Williams, 1996: 97) of the own territory within a wider European context through the inclusion of a transnational perspective in existing strategic planning instruments, and the introduction of new strategic spatial planning instruments, sometimes including the conceptualisation of the territory as spatial metaphor. Examples of national strategic spatial frameworks, which have presented the domestic territory in a European context since the 1990s, are the Dutch Notas Ruimtelijke Ordening (National Spatial Planning Reports)5 (cf. Plate 4), and the Danish national planning reports (see Figure 1.6).

Several EU member states have responded to European spatial initiatives with a reform of their planning systems, and/or the introduction of new strategic planning instruments. In the UK there have been many changes to the planning system since the early 1990s which have come in response to the developments in European spatial planning and the sustainable development agenda. Scotland, Northern Ireland and Wales, which have devolved planning powers since the early 1990s, now each have a territory-wide spatial planning framework, which includes a visualisation of the spatial development strategy (cf. Scottish Executive, 2004; DRDNI, 2002; Welsh Assembly Government, 2004) (cf. Figure 1.7).
In Belgium there has been a move towards strategic planning at the regional level since the early 1990s, which actively seeks to position the regional territories in the north-west European context. The *Schéma de développement de l'espace régional (SDER)*, published 1999, presents the Walloon region as part of a north-west European megalopolis (cf. Figure 1.8). The Spatial Structure Plan for Flanders (Ministerie van de Vlaamse Gemeenschap, 1997) uses the spatial metaphor of the ‘Flemish Diamond’, an urban network area covering Brussels, Ghent,
Figure 1.7 National Planning Framework for Scotland: strategy map

Source: Scottish Executive (2004: 83)
Antwerp and Leuven, to position Flanders in north-west Europe opposite other international networks such as the Randstad or the Rhine–Ruhr area.

**Concluding remarks and structure of the book**

Spatial images and cartographic representations can play an important role in transnational planning processes. However, recent European spatial planning experiences have also shown that map-making is very difficult in an international setting, and often reason for passionate controversies between officials from different European member states. In a transnational context, there are not only individual differences of the map user’s capacities but also societal and cultural factors which influence the communication through cartographic representations in a planning process. Spatial planning at the European level is faced with a difficult institutional structure and various uncertainties (Faludi, 2000; Zonneveld, 2000). However, one of the main reasons for the problems with ‘mapping’ at European level might be the different planning cultures and traditions, and the way in which different countries use spatial images in their plan- and decision-making processes (Faludi, 2000).

These differences in visualising spatial policy within European member states, and the communication problems that ‘maps’ can cause at transnational
level, are the focus of this book. In order to better understand the controversies surrounding the use of policy maps at transnational level, there is a need to identify the extent to which the form and style of cartographic illustrations vary in different planning traditions in Europe. This will be a precondition for the effective use of cartographic representations to communicate spatial policy at European and transnational levels.

The topic is approached through a cross-national comparison of the differences in the content and style of cartographic representations in strategic spatial planning in European countries, using the cases of the Netherlands, Germany and England, and at transnational level using the example of the European Spatial Development Perspective (CSD, 1999). In Chapters 2 and 3 of this book, theoretical perspectives on planning and power and cartographic communication are discussed, which can offer an understanding of the style, content and use of cartographic representations in planning processes. Chapters 4 and 5 focus on the empirical investigation of the design, content and use of cartographic representations in the three European countries and during the ESDP process. In Chapter 6, overall conclusions will be drawn which aim at providing a better understanding of the use of cartographic representations in domestic and transnational planning processes.
CHAPTER 2

THEORETICAL PERSPECTIVES ON POLICY-MAKING AND PLANNING, CARTOGRAPHIC COMMUNICATION AND THE USE OF CARTOGRAPHIC REPRESENTATIONS IN THE PLANNING PROCESS

There is little previous work that explicitly investigates the role of cartographic representations in spatial planning, let alone at European level. In this chapter, literature concerned with developing theoretical frameworks for analysing the relationship between language, information, knowledge and power in the planning process is discussed. Although the role of cartographic representations is not considered explicitly in most of this work, the different insights that it provides about how spatial policy is made and communicated, about the exercise of power in the planning process and about the distortive factors that influence communication in planning, have important implications for the functions that cartographic representations might be expected to serve in planning processes. The second body of relevant literature relates to theories on cartographic communication and cartographic aspects in map production in particular. In most cases, there is no explicit consideration of the use of cartographic representations in real-world planning processes, yet the selection, schematisation and synthesis of information are important for an understanding of the ‘power of maps’. In the last section of this chapter, analytical approaches explicitly considering the function and role of cartographic representations in planning processes are discussed.

Theories of planning and power, and their implications for the use and impact of cartographic representations

The body of literature on planning theory, and concerned with developing frameworks for the analysis of planning, is extensive. The review in this section has to be selective and focuses on work that offers an insight into issues related to communicative aspects, power and distortion in planning, as these can provide partial explanations for the role of cartographic representations in spatial planning processes.

RATIONAL PLANNING APPROACHES

The rational model is the starting point for many other planning approaches, which are either a modification of the rational planning approach or a reaction to it. In the
planning literature this model has also been called the ‘synoptic’ (Hudson, 1979: 388) or the ‘rational-comprehensive’ planning model (Sandercock, 1998: 169). The rational planning approach involved the specification of goals, the quantitative evaluation of means and their likely outcomes, and a continuous process of monitoring and feedback. A clear distinction is made between the politician who sets values and defines the overall strategy and the planner who, acting as a technician, compiles and processes the necessary technical information in order to decide on the best means to achieve the politically defined ends.

The rational model in planning theory is based on the implicit assumption that science and technology are the most influential factors in decision-making. The planner is the ‘expert’ who relies on the ‘objectivity’ of specialist experience in order to achieve the best results for ‘the public’ (Schönwandt, 2000). The model assumed that actors of the individual planning institutions not only have sufficient autonomy and authority to develop and design plans on the basis of ‘rational’ analysis but also have sufficient power to implement these plans. No particular attention is paid to the potential role of cartographic representations in the literature on rational planning theory, which might reflect the underlying assumption that ‘maps’ in the planning process are an objective and scientifically informed instrument for planners with no other role than to provide spatially relevant information which allows rational decision-making.

Criticisms of the rational planning approach focused on it being positivistic, science- and technology-trusting, and ignorant of history, societal values, norms and especially of politics. In particular, the assumption that there is consensus in values has been criticised by many, who recognise that ‘expert knowledge’ is based on values and norms and is hence not an independent factor (cf. Mandelbaum et al., 1996). Several theorists have tried to limit the weaknesses of the rational model by introducing modifications. Herbert Simon’s (1976) concept of ‘bounded rationality’ and ‘satisficing’ (rather than optimal) solutions, or Charles Lindblom’s (1959) strategy of ‘successive limited comparisons’ or ‘muddling through’, give an example of numerous different approaches that have been taken to develop the model further and to make it more appropriate to real-life situations.

**POLITICAL APPROACHES TO UNDERSTANDING PLANNING**

Although the work of most analysts of the rational planning model makes some reference to the issue of agreeing on values in planning, the stage of decision-making on which their work is focused presents planning as an essentially technical process removed from its political context. Long (1959, quoted in Taylor, 1998) represents a notable exception to this in being one of the first planning theorists to comment on the fundamentally political rather than technical nature of planning:
Plans are policies and policies, in a democracy at any rate, spell politics. The question is not whether planning will reflect politics, but whose politics it will reflect. What values and whose values will planners seek to implement? 
(Long, 1959, quoted by Taylor, 1998: 83)

A view of planning as being essentially political in nature has important implications for the perception of the role of cartographic representations in the process. Although not explicitly discussed in the literature, it can be assumed that in the rational planning model cartographic representations are seen as a tool to transmit ‘objective’ and ‘true’ information to support planners in choosing amongst alternative possible courses of action. If planning is viewed as a fundamentally political activity, ‘values’ rather than ‘facts’ become the most important criteria for decision-making. The crucial question then, as Long (1959, quoted in Taylor, 1998) points out, is ‘What values and whose values?’ The previously instrumental and scientific role of cartographic representations in the process, thus, might in a political debate change to promote particular values, and to persuade or even manipulate others. Yet this potential role for cartographic representations was either not realised or not deemed worthy of investigation, as ‘maps’ in planning are not explicitly considered in the political planning theory literature.

A pluralist stance on the way the political process limits rationality has been promoted by Lindblom in his classic article ‘The science of “muddling through”’ (1959). He argues that, through the process of political decision-making in which a solution is negotiated amongst various interest groups, important information is lost and the thorough analysis of the potential outcomes of action and possible courses of action becomes an impossible task. In contrast to the rational comprehensive approach, objectives and means are chosen simultaneously. Rather than seeking comprehensively rational solutions, political bargaining becomes the order of the day.

Lindblom identifies two factors that determine the influence of information: limitations on sources of information, and the decision-maker’s limited cognitive capacity to process it. Two further important issues relating to the importance of information in decision-making processes can also be deducted from Lindblom’s model. First, the pluralist idea of many competing interests all bargaining to have their values expressed in policy implies that information will be introduced into the decision-making process selectively and as a means to justify particular values. Naturally, this might also affect what is shown on cartographic representations in planning, and how it is presented. Second, Lindblom suggests that the more realistic trial-and-error model of decision-making (‘successive limited comparisons’ (Lindblom, 1959: 154)), which involves incremental changes to currently existing policies, means that the consideration of alternatives relies more on past experience for determining future action than on linear and objective calculations.
Transferring this understanding to the form of cartographic representations in planning could then imply that plans are always updated on the basis of the predecessor plan, thus providing a continuation of certain beliefs and values over time.

THE APPLICATION OF CONTEMPORARY SOCIAL THEORIES TO PLANNING

Over recent decades, planning theory has become increasingly aware of and interested in the analysis of how structural distortions of power are manifested in the practice and discourse of planning. Throgmorton (1993: 119), for example, has pointed out that planners

learn – and come to say – that planning and analysis are technical and disciplined by objective methods, but they also learn – and come to fear – that planning and analysis are political and subject to outrageous manipulations.

The focus on the interaction of meta and micro levels of planning and dimensions of power in planning is strongly influenced by contemporary social and political theorists and draws in particular on Habermas’s theory of communicative action (1984) and Foucault’s (1972, 1980) work. The Habermasian approach used in the model of communicative planning is based on thoughts of the so-called critical theory of the Frankfurt school (Habermas, 1984). This theory assumes that science or scientific methods cannot simply produce ‘truth’. Rather, science is an instrument which can be used to manipulate, and is formed by, power in society. Science may not only fail to show truth, but similarly may disguise it: while there might be truth or reality ‘out there’, it is hidden behind socially constructed agreements (assumptions, theories) for all people. These agreements represent the power relations in a society. They can dominate the life-world and make us blind to other or ‘deeper’ realities. This basic idea results in an understanding of critical theorists which is directed against the principle of unbiased science.

Some of Habermas’s ideas are explicitly concerned with the relationship between knowledge and policy-making, and his theory of communicative action marks an important shift in the conceptualisation of public policy-making. The new elements in Habermas’s approach are especially a different understanding of ‘expert knowledge’ or ‘knowledge’ in general, and the question of what constitutes valid knowledge. The monopoly of the experience of experts is broken down and the value of both expert knowledge and local knowledge recognised. Habermas thus seeks to answer not only questions of ‘truth’ (which in Habermas’s understanding refers to agreement or consensus reached through critical discussion) but also questions of justification of interests and norms. In his view, the explanation of (scientific) claims as well as the justification of norms can be achieved
without compulsion through a universal agreement – a pragmatic concept of ‘truth’: true is what the participants in ‘undistorted’ communication or a so-called ‘ideal-speech situation’ accept as being true. The essential criterion for such an ideal-speech situation is that all members of the group have the same information and all interests are represented. In such a symmetrically structured discursive process, people can equally raise a claim on the validity of a certain action or statement; they can suggest a good argument, ground or reason to justify or criticise it, and are expected to reach a rational agreement. Thus, for Habermas, the rationality of social action should be assessed in relation to the validity claims and the possibility of reaching agreement in critical discourse. Rationality, hence, is conceived as inherent in communicative practice which is intrinsically oriented towards consensus. This kind of learning or knowledge-building is what Habermas (1984) calls ‘communicative rationality’: a process of learning and decision-making according to certain principles such as assuring representation of all major points of view, equalising information among group members, and creating conditions within the group that allow the force of argument to be the deciding factor rather than an individual’s power. Validity and truth are the results of a rational argument within a discourse: the strength of an argument is determined by whether the argument is able to convince the participants in a discourse. In this context, two types of consensus are distinguished that can be reached through intersubjective communication: compromise and shared understanding. Compromise is the consensus that results from ‘strategic actions’, when people negotiate on rational grounds to try to reach a decision that satisfies most of them. A different sort of consensus is ‘communicative’, where people enter into dialogue, being prepared to relinquish their original ideas and replace them with shared understanding. Negotiation accepts the existence of inequalities in power, dialogue tries to remove them (Habermas, 1984). Central to communicative rationality is the role of language and the search for undistorted communication as a basis for communication and action.

Habermas’s theoretical approach has been highly influential in shaping contemporary planning theory because in this conception, planning and its contents are a way of acting that planners can choose through debate. The ‘argumentative turn’ has been posited in planning theory as the moving on from a rationally dominated view of the policy process (Fischer and Forester, 1993). Other authors refer to the ‘communicative turn’ in planning (Innes, 1995) or describe it as ‘collaborative planning’ (Healey, 1997). What is common to all these communicative or collaborative planning approaches is the objective of reaching consensus through discourse. This conception of planning accepts limits to power, empirical knowledge and the resolvability of moral dilemmas. It acknowledges that any planning framework embodies views and decisions about the nature of socio-economic forces, the public and other interests and the planning objectives. This reflects the
now widely held view that any planning framework exerts power over subsequent decisions, and that all communication is the exercise of power, whether exercised consciously or not.

Despite the increasing recognition of the importance of language and communication, however, work within the planning community has so far focused on words and not images. In the same way that using a certain style of language can help to get a strategy accepted, it could be argued that using familiar plan concepts (i.e. the images used to describe the components of the spatial structure) can help to communicate spatial policy and increase its acceptability (Needham, 1997). Therefore, it could be argued that, if communicative planning theory is to reflect the full range of modes and media of communication in planning and society, it needs to address images as well as words (Neuman, 2000).

Given that planning theory has so far largely ignored the consideration of the ‘visual language’, planning approaches that consider the role of information and knowledge in shaping planning processes provide a useful starting point for the analysis of communicative distortions through cartographic representations in planning processes, assuming that these illustrations are understood as a specific form of information, and ‘maps’ are treated as an extended concept of ‘text’ (cf. Chapter 3). The contemporary planning theorist John Forester has been concerned with the way in which political power imbalances influence and shape the planning system. Drawing on Habermas’s theory of communicative action (1984), Forester analyses the way in which information and language frame ‘reality’ in planning, and the way in which the ‘expectations, beliefs, hopes and understandings’ (Forester, 1993: 25) of planning actors are shaped through communication and interaction. Forester argues that informed, unmanipulated action depends upon four practical conditions of communication, i.e. information and communication in the planning process need to be (1) clear and comprehensive, (2) sincere and trustworthy, (3) appropriate and legitimate, and (4) accurate and true. Just as these conditions are never guaranteed to be satisfied, Forester (1989) argues, there is no guarantee against the presence of misinformation, or even manipulation, in planning.

Following Lukes (1974), Habermas (1984) and Foucault (1980), Forester identifies three types of power: first, the ability to make decisions (for instance over policies or resource allocations); second, the ability to filter issues on to or off decision-makers’ agendas; and third, the ability to shape others’ perceptions of issues, needs, and even themselves. Forester’s reformulated model of bounded rationality (Forester, 1989) thus integrates formal rational and the different political analyses of planning into a single model that conceptualises the potentially multiple roles that information may play in planning. According to Forester, there are several types of misinformation: inevitable or unnecessary, ad hoc or systematic; and related causes for distortion in communication in the planning process (see Figure 2.1).
In Forester’s typology, random inevitable distortions (‘type 1’) are the result of unintentional personal communication limits (cognitive limits). Information is incomplete, the definition of the problem is ambiguous and human ability to define and comprehend the full range of possible alternatives is limited. Structurally unavoidable distortions in communication (‘type 2’) occur through for example inequalities caused by ‘legitimate divisions of labor’ or through the ‘transmission/content losses that occur across organisational boundaries’. Both ‘type 1’ and ‘type 2’ distortions correspond to formal rational analyses of decision-making and the concentration on largely human, organisational and technical factors affecting the role of information.

Types 3 and 4 correspond to the work of theorists who have adopted a political analysis of decision-making. The ‘interpersonal deception’ and ‘interpersonal bargaining behaviour’ of ‘type 3’ corresponds to a pluralist analysis of decision-making. The systematically avoidable distortions of ‘type 4’ are rooted in political and economic structures and perpetuate their power biases. This analysis therefore corresponds to the political economy and critical analysis of decision-making. According to Forester, information is used for structural legitimation in two distinct ways in planning. First, it is used for the ‘ideological rationalization of class or power structure’, i.e. for the explicit legitimisation of decisions that reinforce the existing structures of power. Second, Forester, drawing on Lukes (1974), suggests

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<tr>
<td>Interpersonal bargaining behaviour; e.g. bluffing (interpersonal manipulation)</td>
<td></td>
<td>Ideological rationalisation of class or power structure (structural legitimation)</td>
</tr>
</tbody>
</table>

**Figure 2.1** Bounded rationality refined: communicative distortions as bounds to the rationality of action

Source: Forester (1989: 34)
that information is manipulated in order to keep public attention away from particular issues, thus avoiding that certain policy issues or policy options ever come into the public consciousness.

**Theories on the communicative function of ‘maps’**

In parallel to the developments in the planning discipline, the understanding of ‘maps’ changed significantly over time in the disciplines of geography and cartography. During the quantitative revolution, Robinson’s *The Look of Maps* (1952) was influential in defining a new goal for cartography: that maps had to be ‘correct’ graphically as well as portraying information correctly. This led to a greater interest in the map user, and ‘the development of design principles based on objective visual tests, experience and logic; the pursuit of research in the physiological and psychological effects of colour, and investigations in perceptibility and readability in typography . . .’ (Robinson, 1952: 13). A link between psychology and cartography was forged, which until the early 1970s mainly resulted in experimental stimuli–response studies where no specific meaning lies in or beyond the symbols used as stimuli. According to the behaviourist, only physically observable phenomena matter, and therefore mental processes that occur between stimulus and response, including all aspects of thought, are irrelevant because they are not directly observable. Most psychophysical studies made use of highly simplified maps with little base information or merely symbols within a frame. This restricted the types of questions that could be investigated and the application of the results to genuine and therefore more complex map-reading situations (Wood, 1993). In the late 1970s cartographic research developed in the direction of cognitive psychology and became concerned with how maps were mentally processed and remembered. This emphasis on cognitive issues in map use was stimulated in large part by Robinson and Petchenik’s *The Nature of Maps* (1976). Cognition, defined as the ‘intelligent processes and products of the human mind’ (Flavell, 1977), includes such mental activities as perception, thought, reasoning, problem-solving and mental imagery. Much of the work adopted a correspondence theory model of representation which understood the map as a record of the landscape, with which ‘distorted’ mental maps could then be compared.

The idea that the design of maps might be essential for the quality and quantity of information transmission led to the adoption of the paradigm of cartography as a communication science. Communication was by the 1970s regarded as the primary function of cartography. Cartographic communication describes the process whereby information is selected, symbolised on a map and subsequently perceived, recognised and interpreted. The goals of cartography according to this model were to produce a single optimal map ‘which presents information clearly,
and which is based on known factors of map use' (Crampton, 2001: 237). Communication is complete only when the coded message has been deciphered and interpreted. The first models to explain cartographic communication followed the general and rather mechanical scheme of transmission of information: the sender codifies information using sign vehicles, and these signs are submitted to the receiver, who has to decode the information. For a communication process to be complete, this requires a common repertoire of signs between ‘sender’ and ‘receiver’ of the information (Hake, 1973). The codification of signs within the communication process is crucial for their correct interpretation: all signification (the relation between sign vehicle and interpretant) is defined by an explicit or implicit ‘code’ or convention between the individuals for whom the sign serves a communication function. The measure of communication efficiency in the mapping process is related to the amount and accuracy of information transmitted. In this understanding, the cartographer’s task is seen as achieving better approximations between raw data and the map image in order to reduce distortion. The earliest models of cartographic communication treated each stage in the process as a black box, yet later models were concerned with a sub-process analysis of the communication system (cf. Koláčný, 1970). The more comprehensive models for example considered ‘seeing’ as an active process – a transaction between the individual and his environment, in which the viewer creates some kind of order from the essentially disordered array that is the visual stimulus. Of interest for cartographic research is then not just the map, its message and the uses to which it is put, but also the knowledge that the user brings to the map-using environment, such as personal experiences or spatial concepts of the world. Cartographers began to realise that it was vital to be specific about how maps were used, what map-using tasks were being performed, how mapped information was extracted and how its design influences that use (Hopkin and Taylor, 1979). This sparked interest in the processes of map reading, but also in the way in which the different elements in the map ‘were put together’ to communicate most efficiently the message that the map author wished to send.

Highly influential for cartographic science has been Bertin’s (1983) interpretation of the cartographic communication process in terms of semiology. Bertin argued that one should match the symbol to the referent, by for instance using discrete symbols (such as choropleth maps) to represent discrete data (such as sales tax rates), and continuous symbols (for example isarithmic maps) to show continuous data (for instance temperatures). These relationships are expressed in the ‘visual variables’, a set of map graphic building blocks which match spatial phenomena. Bertin’s systematic framework for the use of visual variables in thematic maps (dimensions of the map, size, brightness, colour, form, texture, orientation) is widely accepted by most cartographers nowadays (see Plate 1).
The interest in semiology and semiotics also led to an increasing recognition that all codes are polysemic in the sense of having two (or more) levels of meaning. While traditional cartographic theory presented the map as a purely denotative message,\(^3\) it is now unquestioned that maps and every individual sign can have other, possibly unintended, meanings than the one envisaged by the cartographer. The ‘connotation’ of signs describes the interaction that occurs when the sign elicits feelings or emotions in the user, which are often culture-dependent. For example, in cartography colour is frequently used to denote specific territorial entities, yet the choice of colour can also have profound effects on the symbolic meanings generated. Many of these choices are even intentional and play on culturally embedded connotations, as for instance the traditional colour given to maps of the British Empire, where the pale red/pink had connotations of ‘health/vigour’ (Vujakovic, 2002).

MAPS AS SOCIAL CONSTRUCTIONS

Recent developments in cartography have gone well beyond the model of cartography as a communication system with maps as presentations of stable, known information. Cartography is now increasingly understood as operating in a field of power relations, and maps as being created in exploratory mapping environments in which knowledge is constructed. According to Crampton (2001: 235), two main developments in cartography have marked an epistemic break with the assumption that maps are unproblematic communication devices. These are (1) investigations of maps as practices of power-knowledge; and (2) ‘geographic visualisation’ (GVis), which uses the power of mapping to explore, analyse and visualise spatial datasets to better understand spatial patterns.

The social constructivist approach to maps as practices of power-knowledge has been mostly linked with the work of J. B. Harley (1989), Denis Wood (1992) and John Pickles (1992). In discussing maps as practices and relations of power and knowledge, Harley, building on the work of Michel Foucault and Jacques Derrida, was particularly influential for changing the views on cartography and maps as unbiased representations of reality. Harley tried to unravel the relationships of political interests, power and the hidden agendas of maps: the ‘second text within the map’ (Harley, 1989: 9). This approach promotes a more subtle reading of cartography, and an understanding that maps ‘do not communicate so much as provide a powerful rhetoric, and therefore can be critically examined as texts themselves’ (Crampton, 2001: 238).\(^4\)

The second area which, according to Crampton (2001), supported the epistemic break with the understanding of the ‘map as mirror of reality’ is the area of geographic visualisation. By the early 1980s the interests of cartographers were occupied by microcomputers and the development of geographic information
systems (GIS). GIS were a new approach to electronically organising spatial data, by combining a database of attributes with one of geographical co-ordinates, where the attributes refer to points, lines or areas defined by the co-ordinates. Although the majority of GIS applications are concerned with mapping, the term GIS is increasingly used to describe a great diversity of computer-based applications involving the capture, manipulation, analysis and display of geographic information (Wegener, 1998).

Based on the technological possibilities offered by computers and GIS, ‘geographic visualisation’ has significantly gained in importance during the 1990s. Geographic visualisation refers to the ability of maps, graphics and images to make spatial relationships and underlying spatial data patterns visible. In particular, the term ‘visualisation’ refers to the added capabilities of interactive mapping software, such as three-dimensional views, adding or removing data layers during data exploration, and interactive map queries (Crampton, 2001). The emphasis is on the exploration of data (the process) rather than aspects of presentation (the product).

MacEachren (1994: 6) has defined visualisation in terms of map use, which he conceptualised as a three-dimensional space defined by three continua without clear boundaries (see Figure 2.2):

![Figure 2.2 MacEachren’s graphic characterisation of visualisation through the use of maps](source: MacEachren (1994: 6))
• map use that is private (where an individual generates a map for his or her own needs) versus public (where previously prepared maps are made available to a wide audience);
• map use that is directed toward revealing unknowns (where the user may more generally be looking for something ‘interesting’) versus presenting knowns (where the user is attempting to access particular spatial information); and
• map use that has high human–map interaction (where the user can manipulate the map(s) in substantive ways – such as changing the map that is being viewed, switching among different maps, superimposing maps, merging maps) versus low interaction (where the user has limited ability to change the presentation).

Cartography has traditionally emphasised public use, low interactivity and revealing knowns, whereas visualisation emphasises private use, high interactivity and exploring unknowns. In a cartographic process where only the end result is public (printed and disseminated), data exploration, generation and confirmation (or disconfirmation) of hypotheses, and the synthesis of these hypotheses are ‘hidden’ processes of map use (Crampton, 2001). Yet these processes are extremely critical, as they determine the content and layout of the product, and are central to geographic visualisation.

Besides the possibilities that GIS and geographic visualisation offer for the exploration of spatial data in various applications, including spatial planning (cf. Lutterbach, 1998), the technological innovations had two other interesting effects on the preparation and distribution of maps. These are (1) the ‘democratisation’ of the production of maps and (2) the increasing production and dissemination of cartographic products as a result of fast and cost-efficient map production. The ‘democratisation’ of the design and production of maps has blurred the cartographer–user dichotomy, as many cartographic products are nowadays produced by ‘cartographic lay people’ with the help of software packages, rather than professional cartographers (Crampton, 2001). This, as Ormeling (2000) has pointed out, often leads to intuitive-subjective results because lay people often lack the knowledge and experience necessary for the production of effective maps. Second, the possibilities presented by modern computer technology and software packages for the fast and cost-efficient production of maps have led to a significant increase in the production and use of maps, and cartographic products are now standard use in print media such as newspapers as well as electronic publications. It has been estimated that ten million maps and cartographic products are generated and disseminated via the Internet daily (Ormeling, 2000).

Several authors, including Crampton (2001), have argued that geographic
visualisation has helped the epistemic break in cartography by fostering the understanding that maps construct and do not reproduce the world, and that there is not necessarily a direct relationship between a map and the territory it represents. Yet others, including Pickles (1995) and Veregin (1995), have pointed out that new technologies such as GIS and the increasing use of remote sensing/satellite data appear to strengthen the belief in an unbiased and scientific cartography. However, the notion that technology is value-free is inherently misleading, and it has been demonstrated many times that neither cartography nor the new technologies of remote sensing and GIS are the impartial and unbiased tools that many seem to think they are (Robbins, 2001). For example, satellite images have to be interpreted, and in this interpretation categorisation and colour-coding play an important role. For the area of GIS, Pickles (1995: 12) has pointed out that ‘the epistemology\(^5\) and method that underpins GIS emerged in the 1960s under the auspices of positivist and empiricist versions of science and re-emerged as a result of the collaboration between, and a revitalization of, spatial analysis, cybernetics, and computer development of the 1970s’. Veregin (1995: 99) has emphasized that already the encoding of geographic and thematic data in a GIS database is rooted in a specific cultural context and scientific paradigm, and:

filtered and modified as a function of technological feasibility and necessity. For example this data model necessarily assumes that the features contained in a database represent unambiguous real-world entities, [i.e.] the three basic cartographic feature types – point, line and area – are viewed as representative of real-world entities even though they are abstractions of a world more complex than this simple categorization would allow.

Yet a GIS does not cater for the representation of the uncertainty which is associated with most geographical phenomena, given that most types of data, including soil, vegetation and land-cover classes, ‘exhibit neither recognizable areal boundaries nor strong spatial homogeneity within a given areal unit. Rather, these types of data are characterized by spatial heterogeneity and gradual transitions from one zone to an adjacent one’ (Veregin, 1995: 99). Arguably, thus, the technology available to a certain extent prescribes the questions that can be asked and the set of policies that might be considered as viable alternatives.

In summary, since the 1970s, many perception and cognition studies have been undertaken in cartographic science, and the effects of visual variables have been investigated systematically. There is now growing recognition amongst cartographers world-wide that there will never be an all-embracing theory of map reading, or of cartographic communication in general. This is due to the fact that there are certain variables which are difficult to control or even to identify in the
process, such as the map user’s skills and capacities, and the use the map is put to in different circumstances. Rase (1991: 196) for example stated that ‘we are not sure what really attracts the attention of the reader, how the essence of the map is extracted, how the content is stored in memory, or what makes a specific map type superior to another one under certain conditions’. As a result, empirical research and the theories proposed appear disjointed and unconnected. More recently, however, there has been a turn towards the understanding of maps as social constructions and forms of power-knowledge that go well beyond the goals of the cartographic communication model with its underlying assumptions of maps as containing ‘scientific’ and ‘objective’ information. Yet cartography is often still applied as a craft discipline rather than a science, and many cartographers create maps and cartographic illustrations following their knowledge and experience rather than any ‘universal’ and comprehensible rules and guidelines.

**Theories on the function and use of cartographic representations in the planning process**

There is a strong relationship between plans and cartographic representations and the planning discipline. Clearly, maps, plans, sketches, images or other cartographic representations are (besides language) the most important communication medium for planning, as only they are able to clearly visualise the complexity of different demands on space. Surprisingly perhaps, not much research has been undertaken into the use of cartography in planning, and Jarvis (1994, quoted by Faludi, 1996a) even commented that planning theory hardly touches ‘drawing’ at all. An explanation for this might be the understanding of planning as a craft discipline in many countries. The traditions of creating spatial plans are strongly rooted in nation-states’ planning discipline and were thus never questioned.

The literature on previous work which compares the use of cartographic representations in planning across different countries is also limited. The Austrian planner Otto Neurath, however, already in the 1930s argued for an internationally understandable sign language for planning. Faludi (1989, 1996b) has documented that Neurath undertook research into graphic symbols in planning, and the comparability of pictorial symbols across different planning traditions with a view to developing a ‘universal’ visual language or an international sign language for town planning. In a time when the scientific-rational view of planning was dominant, Neurath was notable for accepting uncertainty of knowledge in decision-making, and in scientific insights more generally. He argued strongly for better co-operation between different spatial disciplines, in particular architects, geographers and planners, in order to achieve the best possible results in planning and design. In particular, Neurath aimed
at designing planning symbols to be more coherent, substantively clear and optically effective in what he called the ‘Vienna Method of Pictorial Statistics’. The communication of statistics in a visual way was meant to make them more accessible to lay people. Faludi (1996b: 208) has argued that for Neurath ‘pictorial statistics was the answer to the question of how to involve the target groups’ in decision-making, by encouraging them to draw their own conclusions. This, besides reflecting Neurath’s pluralism and democratic values, also questions the roles of planners as ‘experts’ in the process. The method of pictorial statistics has, however, not been followed up in much detail following Neurath’s death.

Reflecting the increasing interest in informal and ‘visionary’ planning processes at transnational, national and regional levels, there has more recently been stronger interest in the potential role of spatial images in strategic planning at European level (Jensen and Richardson, 2004; Faludi and Waterhout, 2002) and at national and regional levels (cf. Healey, 1998, 2004). The use of cartographic representations in urban and city planning has also been given more attention, with the majority of this work being published in the ‘home country language’. Neuman (1996) for Spain, Lussault (1994) for France and Gabellini (1996) for Italy, for example, have investigated the communicative potential of visualisations in urban planning. Söderström’s work (1996, 2000) has concentrated on understanding how visualisations structure the activity of planners in a Swiss town. There is also some work on the communicative potential of architectural drawings (cf. Robbins, 1997).

Söderström (1996) has pointed out that, as part of the movement to establish the principle of zoning as the dominant urban planning procedure, the ‘plan’ established itself as a central notion in planning. Its definition after 1920, however, had changed to mean what can be expressed in graphic terms.

What resisted graphic treatment would be slowly pushed into the background, so that the diffusion of zoning therefore corresponded to the elaboration of a form of urban planning which essentially depended upon visualizations. This does not mean that urban planning was limited to dealing only with the visible forms of the city, but it does mean that the elements dealt with by urban planning would be taken into account all the more readily if they could be visualized. The passage through graphic representation became a condition of entry into the urban planner’s laboratory. (Söderström, 1996: 266)

Söderström (1996) further argued that the evolution of urban planning in the twentieth century was in large measure inscribed within the interconnected system of techniques situated at the heart of modern urban planning. In planning instruments such as master plans and zoning plans, only the visible and material objects of an
urban environment, which can be easily depicted, are represented. Likewise, Lussault (1994) has commented on the limitations of ‘traditional’ cartography and the static nature of plans, which cannot represent the interrelations between the different parts of the territory.

The style of spatial images is key to understanding spatial planning traditions as they ‘are forms and crystallizations of the thought of … planners as they go about their work’ (Söderström, 1996: 252). Cartographic representations in planning ‘process’ reality according to a system of procedures such as selection, schematisation and synthesis. These procedures are what Söderström (1996) called the ‘internal efficacy’ of representation, which enable the translation from one complex reality to its simplified configuration. Distinguished from this is what he called the ‘external efficacy’ of representation, which is related to the persuasive power of representations, thus the ‘capacity for certain representations to win over public opinion’ (Söderström, 1996: 252), and to co-ordinate action. Since planning is often confined to a group of professionals, this external efficacy and a certain code of representation can often be enough to persuade non-professionals of the legitimacy of the planning policies or intended actions. The external efficacy of any visualisation is therefore intrinsically linked with its internal efficacy, especially for the communication of planning policies outside the circle of professionals (Söderström, 1996). This implies that it is impossible to separate the ‘technical’ procedures for the preparation of cartographic representations from the social and political uses to which those representations are put in the outside world.

For the analysis of cartographic representations in (urban) planning processes, Söderström (2000) has proposed a model that he calls the ‘visual circuit’. This is made up of four interrelated fields: the context of elaboration, the process of production, the context of use of the visualisation, and the ‘materialisation’ or implementation (see Figure 2.3).

The context of elaboration is influenced by the social and historical conditions in which planning takes place, and which give meaning to visualisations. This relates for instance to the dominant conception of space, and the resulting visualisations (cf. Chapter 3). The second field in Söderström’s model, the process of production, concerns the study of practices of how visualisations are produced, of what is selected and how it is encoded. The traditional two-dimensional cartographic space is defined by selection, scale, and the schematisation and symbolisation of the physical elements of which it is composed. New visualisation techniques, which combine different forms of representation (such as static, animated, iconic, conventional or 3D), however, might influence the perception of space differently. The third field for analysis, the ‘use’ in Söderström’s model, relates to the process of decoding and, consequently, to the audience and the social use to which the cartographic
representation is put. The requirements of different user groups affect the design and the complexity of the cartographic representations, which for ‘lay people’ in particular should be clear and of limited complexity (Lutterbach, 1998). Visual instruments can effectively support consensus-building and the collective elaboration of knowledge in planning and decision-making processes. The last field for analysis as suggested by Söderström (2000) is concerned with the ‘materialisation’ or implementation of a plan, and focuses on the social, economic and cultural effects of the strategy in visually organising the territory.

**Concluding remarks**

Few approaches in the ‘disciplinary theories’ that were discussed in this chapter explicitly consider the role of cartographic representations in spatial planning processes, yet several ideas emerge that are of relevance to the topic. The review of theoretical approaches on planning and policy-making showed that the ideas of analysts following the rational planning approach conceive of planning as a process of rational choice, with decision-makers using information in an attempt to select the best or optimum course of action among a range of alternatives. Although the role of cartographic representations in the planning process is not especially mentioned, it can be assumed that spatial analysis maps (and possibly even policy maps) were also seen as providing an objective, scientific and quantifiable instrument to support the decision-making process. The same understanding of the infallible, reliable and objective representation of the territory has dominated cartographic science for several decades, and – one could argue – still persists in the minds of planners, decision-makers, GIS experts and cartographers today. This implicit assumption of trustworthy cartographic representation then might hinder
the acceptance of policy maps in planning as a negotiated and by definition selective planning instrument.

Habermas's theory of communicative action counters this conceptualisation of policy-making as a process of rational choice, as well as the perception of planning as an ultimately political process. The communicative rationality planning approach regards policy-making as choice-making, but is also concerned with the way in which actors in the process communicate and interact. In particular Forester’s model of bounded rationality (1989) links the idea that planning is both about choice-making and interaction to ideas about the instrumental and different political roles that information and knowledge may be expected to play in the planning process. His interactive level of analysis focuses on the relationship between language, information and power in planning, and although his model does not explicitly consider the role of cartographic representations in the process, the typology of communicative distortions is a useful framework for the analysis of communication of spatial policy through maps (as a particular form of knowledge).

The review of work related to cartographic communication theory has demonstrated that although this is a well researched area, most previous work has concentrated on explaining the graphical aspects of cartographic communication. Instead of continuing to concentrate on developing the ‘perfect’ model of cartographic communication, developments in the field of Geographic Information Systems (GIS) and geographic visualisation have been given increasing attention in the field of cartography over the last years, and potentially increased an understanding of how maps are constructed, and the processes and choices underlying the presentation of data. Furthermore, a social constructivist understanding of maps as forms and practices of power and knowledge also offers some tools to analyse the ‘meaning’ of maps.

Bringing the discussions of the theoretical perspectives on planning and cartographic communication together, it becomes obvious that they show some important parallels in their development over time. Both developed from positivist and rational approaches, which concentrated on ‘observable’ phenomena using ‘objective’, mainly quantitative methods in the 1950s and 1960s, to a more communicative, hermeneutic and social constructivist understanding today. The communicative, hermeneutic approach focuses on social interaction in a complex world, and increasingly employs qualitative methods. The need for communication and negotiation in such a shared-power world is evident. The new paradigms have also led to the acceptance that cultural differences in values and norms between nation-states and regions exist, and that these have to be dealt with in a European or even international context.

The literature review also showed that there has been little previous work explicitly analysing the role of cartographic representations in the planning process.
Söderström (1996), in analysing the history of cartography in planning, has pointed out that planning has come to mean ‘what can be expressed in graphic terms’, thus concentrating on objects, and what is ‘visible’. This strikes a chord in relation to both the types of structural distortion or structural legitimisation that Forester (1989) has set out in his bounded rationality framework (Figure 2.1) but also with regard to different conceptions of space, which will be discussed in Chapter 3. Furthermore, in this context Lussault (1994) has pointed out that the standardisation of zoning maps in planning leads to a perception of these as being reliable, neutral and objective, thus ‘scientific’ and trustworthy. This is reminiscent of the discussions on rational planning theory, and the traditional understanding of cartographic science, and illustrates that the epistemological understanding of an ‘objective’ and ‘realistic’ representation of the territory continues to be deeply embedded in planning theory and practice.

Söderström (1996, 2000), in analysing the use of cartographic representations in the planning process, has suggested two useful concepts. These are, first, his differentiation into the two interlinked functions of ‘internal’ and ‘external’ efficacy of representation, whereby the ‘internal efficacy’ relates to the cartographic production process (the technical procedures), and the ‘external efficacy’ to the communicative potential of cartographic representations and their use in co-ordinating action (the social and political uses to which cartographic illustrations are put). Second, Söderström’s model of the ‘visual circuit’ for the analysis of cartographic representations in the planning process is a useful starting point for the structuring of relevant factors that influence the form, style and use of cartographic representations in transnational planning processes.
CHAPTER 3

CONCEPTUALISING THE CONTEXT, FORM AND USE OF CARTOGRAPHIC REPRESENTATIONS IN FORMAL AND INFORMAL PLANNING PROCESSES

The discussion in this chapter concentrates on selected areas of the literature that can add depth to the disciplinary theories discussed in the previous chapter, and provide a basis for the analysis of cartographic representations in spatial planning. For the context of elaboration of cartographic representations in strategic spatial planning, possible categorisations of spatial planning traditions and theories on conceptions of space are discussed, as these provide a better insight into the context and the general understanding of planning in different European countries. In order to be able to analyse the significant differences of the cartographic ‘products’, i.e. the ‘policy maps’ in planning strategies in different planning traditions and at transnational level, a hermeneutic approach to map analysis is proposed, as well as literature that explicitly discusses types and functions of cartographic representations in legally binding and in informal planning instruments. Furthermore, theoretical approaches that can offer explanations for the use of strategic planning instruments in an informal and transnational setting are reviewed.

THE CONTEXT OF ELABORATION OF CARTOGRAPHIC REPRESENTATIONS IN STRATEGIC SPATIAL PLANNING

The design and use of cartographic representations in strategic spatial planning is influenced by a large number of contextual factors. This section will focus on a review of categorisations of spatial planning ‘traditions’, with particular consideration of the impact that certain approaches to spatial planning have on the style and content of cartographic representations in the planning process. The second area of the literature discussed in this section concentrates on the conceptions of space that underpin planning policies and practice. The past years have seen increasing interest in the effects of the new relational geography on the organisation of space, and some authors have begun to question how this might affect the cartographic representation of spatial policy. The section will conclude by discussing the role of spatial concepts and spatial metaphor in planning policies.
THE UNDERSTANDING OF PLANNING IN DIFFERENT PLANNING TRADITIONS
There is a growing literature which aims at categorising different countries’ approaches to the organisation of ‘spatial planning’ (cf. Fürst et al., 1994; Newman and Thornley, 1996), but the function of cartographic representations in communicating spatial planning policies has not been given much attention in any of these. One of the most comprehensive categorisations to date is the EU Compendium of Spatial Planning Systems and Policies (CEC, 1997), a project explicitly commissioned by the European Commission in order to provide a better understanding of different planning traditions (see Box 3.1).

Generally, in using classifications of planning traditions like this, one should bear in mind that planning systems change over time. For example, since the late 1990s planning law in Germany has undergone major revisions in order to increase the flexibility of the system, and non-statutory or informal planning instruments such as regional development concepts, in addition to the legally binding regulatory plans, are of increasing importance. In the UK, the policy agenda for planning has broadened significantly over recent years following devolution in the early 1990s and reflecting the commitment to sustainable development by the Labour government.

While the factors that influence the design and use of cartographic representations are not given much consideration in previous classifications of planning systems, they give a notion of the importance of the dominant professions in planning, which are influenced by the organisation of planning and likewise shape planning practice and determine the ability of a planning tradition to ‘think spatially’. For example, the use of cartographic representations is well established at all or most levels of planning in member states that follow the comprehensive integrated approach, as it could be argued there is a strong emphasis on streamlining and clarifying information for lower levels of planning. Emphasis is also usually put on cartographic representations in those member states which follow the ‘urbanism’ tradition. This could be explained by the dominance of architects in the planning domain in these planning systems.

‘SPATIAL CONSCIOUSNESS’
The concept of ‘spatial consciousness’ (Healey, 2006) explains the ability to think spatially through the historical and geographical context of a planning tradition. In the mid-twentieth century, planning policy cultures in Europe were intellectually dominated by concepts of urban form and physical structure. But, as Healey (2006) pointed out, the capacity of these concepts to ‘travel’ and interrelate with wider policy cultures and political assumptions varied between countries. A spatial consciousness informed by physical planning concepts was strongly developed in
Box 3.1 Categorisations of spatial planning systems in the EU-15 according to the *EU Compendium of Spatial Planning Systems and Policies*

The Compendium identifies four major traditions of spatial planning in the European Union:

1. **The regional economic planning approach.** In this tradition, spatial planning very broadly relates to the pursuit of social and economic objectives, especially in relation to the reduction of regional disparities. Spatial planning issues are integrated into regional development policies, and spatial planning is therefore not defined for the whole territory, but is rather understood as compensatory spatial development where the use of the territory is left to sectoral planners and the private sector. The department responsible for spatial planning intervenes only in the case of socially undesirable developments. Central government inevitably plays an important role in managing development pressures across the country and in undertaking public-sector investment. The planning systems in France and to a lesser extent in Portugal are associated with this approach.

2. **The comprehensive integrated approach.** This has also been described as ‘framework management’ and is characterised by a spatial planning system that is conducted through a very systematic and formal hierarchy of plans, from national to local level, which co-ordinate public-sector activity across different sectors but focus more specifically on spatial co-ordination than on economic development. Planning is separated from other sector policies and concentrates on co-ordinating their spatial impacts by defining guiding principles for the whole of the territory which are aimed to help avoid undesirable spatial developments. This spatial planning approach requires sophisticated and responsive planning institutions and mechanisms and considerable political commitment to the planning process. Public-sector investment is important for the realisation of the planning framework. The Netherlands are closely associated with this tradition of planning. The *Compendium* differentiates two sub-categories in this approach: the Nordic countries, which use a rational planning approach and significant public-sector investment, and where local authorities share responsibilities with central government; and the federal countries Austria and Germany, where a similar systematic structure and process is followed but the regional governments (Länder) play a very important role.

3. **The land use management approach.** This planning tradition is more narrowly defined as controlling land use change at the strategic and local levels. The UK is the main example of this approach, with the local authorities undertaking most of the planning work but the central administration also exercising a significant degree of power, either through supervising the system or by setting central policy objectives.

4. **The ‘urbanism’ tradition.** This approach is typical of the Mediterranean member states and is strongly concerned with architecture, urban design and building control. Regulation is undertaken through rigid zoning and codes.

Source: CEC (1997).
the Netherlands, underpinned by geographical and technical necessities and a strong multi-level state. Within France and Germany, notions of settlement hierarchy and regional identity were sustained by the long-standing cultural recognition of local territorial identities. In the UK, planning was focused on the defence of the countryside. In all cases, the cultural identities and lifestyles of elites gave support to spatial organising concepts.

But since then, according to Healey (2006), the force of sectoral policy development, the critique of the narrow determinism of architectural concepts of spatial organisation and the growing influence of neo-liberal economics in national politics and administration has undermined the traditional ‘spatial consciousness’ associated with planning. Planning practices in the 1970s and 1980s moved increasingly away from plans and strategies to focus on projects and regulations, and traditional spatial concepts were sealed in governance processes. Healey (2006) argued that this lack of explicit spatial consciousness was particularly strong in highly fragmented states where individual property owners were privileged, as in Belgium, or in highly centralised states, such as England, where in addition public policy has been strongly shaped by the commercial and financial sectors. The example of the connections to the Channel Tunnel rail link in France and Britain illustrates the differences in spatial thinking:

On the French side, [the] spatial relationship to the TGV system was thought through in a way that led to a national strategy for transport and infrastructure, while the UK was totally preoccupied with the issue of the rail link to London and exhibited a total lack of thinking at the national spatial scale. (Williams, 1996: 98)

The shortcomings of a non-spatial approach to planning are increasingly recognised in many European countries. However, efforts to reawaken a spatial consciousness in contexts with a more project-oriented or sectoral policy-guided approach to planning have been problematic. For example, in Flanders, Albrechts (2001) has highlighted the political effort needed to develop a capacity to ‘see’ the Flanders region/state in spatial terms. He emphasised the importance of reawakening traditional concepts of landscape (such as river valleys), and combining these with a new image of unity in polycentricity in the ‘Flemish Diamond’.

**THEORIES ON THE CONCEPTION OF SPACE AND PLACE**

The debate about the ‘network society’ (cf. Castells, 2000; Graham and Marvin, 1996) has also prompted the planning discipline to question their underlying assumptions about space and spatial relations, and how this is visualised in planning instruments and strategies. This section will focus on setting out the two con-
ceptions of space that are most often discussed in the literature, that is, 'space' in the Euro-American common sense, which is Euclidean or Cartesian in character, and a conception of space of networks. This is followed by a discussion of the challenges that a cartographic representation of ‘network space’ in planning implies.

**CONCEPTIONS OF SPACE AND PLACE**

Graham and Healey (1999) have argued that while a lot of attention has been paid to conceptualising and theorising the new ‘communicative’ turn in planning theory over recent years, much less interest has been given to the changing socio-spatial nature of the places that are being ‘planned’. Yet the impacts of globalisation and of new information and communication technologies on the geography and social activity are obvious, as is their relevance for planning theory and practice.

Spatiality is usually expressed through the continuity of shapes, and through related issues such as their proximity or relative location. Continuity is concerned with the question of how an object (or more precisely a shape) can be moved through space while still retaining the essential relations which secure its continuity as that shape, and permit it to move without distortion (Law, 2000). In the Euclidean version of spatiality, shapes retain their continuity if a set of Cartesian co-ordinates (i.e. $x$ and $y$ co-ordinates which depict geographical location and proximity) remains stable relative to one another as the shapes and objects are displaced through time and space. It has been argued that in the Euro-American common sense space is seen as a neutral container in which objects exist, that ‘space comes before us’ (Law, 2000). Cartesian space and its co-ordinate system are thus seen as defining the conditions of im/possibility within which Euclidean objects can exist.

Cartesian space therefore implies some important restrictions, and certainly with regard to visualisation. Healey (2004) has argued that Euclidean geography focuses on the material dimensions of cities and regions, and 'visions' about the future are anchored in the idea that the physical future can be built according to a plan, and that social relations can be ‘read off’ from physical relations. Classical location and agglomeration theory, starting from either the supply side or the demand side to explain concentrations of activity in space, is strongly rooted in an Euclidean conception of space. Many of these economic or geographic theories have influenced planning thought over the decades. For example, Weber (1909) has, besides transport costs and regional differences in wages, also considered advantages connected with spatial closeness, i.e. the understanding that regional concentration creates benefits for production. Lösch (1940) and also Christaller (1933) have seen the advantage of agglomeration as a large market. The object-centred, Euclidean conception of space is strongly related to the paradigm of
instrumental rationality in planning, dating back to the 1960s, which assumed that cities were physically integrated places amenable to local land use and development policies. The physically integrated structure was presented as a surface upon which economic and social activity took place, with the planner’s task being to manage the structure to remove economic, social and environmental problems.

Traditionally, the tools of spatial representation which planners use (master plans, development plans, etc.) are two-dimensional and purported to offer single and (seemingly) objective representations of space in Euclidean terms (Graham and Healey, 1999). The area on the plan is depicted as a ‘jigsaw’ of adjacent, contiguous land use parcels, connected through infrastructure networks and laid out within a bounded, Euclidean, gridded plain. The use of object-oriented and Euclidean depictions of space often implicitly supports the idea that single, unbiased representations of places are possible, even desirable. However, it is increasingly recognised that the cartographic illustration of spatial policies is a partial perspective, chosen through ‘treacherous selective vision’ (Shields, 1995: 245), which focuses on certain parts of a territory and spatial development whilst inevitably neglecting others (Harvey, 1996). In these traditional representations, time tends to be either ignored completely in planning practice and theory, or is assumed to be a single universal container for events which flow in a linear, one-directional way. Often, conceptions of space thus remain divorced from conceptions of time, even though it would be necessary to consider the multiple, overarching and interlacing webs of space–time in a territory (Thrift, 1996). Graham and Healey (1999: 627) have claimed that planning practice ‘remains unable to respond to the now widespread recognition that spaces and times are effectively produced and created through social actions within and between places’. Friedmann (1993) even argued that the ‘conventional concept of planning is so deeply linked to the Euclidean mode that it is tempting to argue that if the traditional model has to go, then the very idea of planning must be abandoned’ (Friedmann, 1993: 482). He therefore advocated that planning must explicitly strive for ‘non-Euclidean’ forms of planning which recognise the existence of time–space geographies, centring on open-ended processes and dynamics rather than static normative forms.

The discussion about what Castells (2000) has called the ‘network society’ is increasingly reflected in the planning literature, and planners have begun to apply these ideas to planning policy and practice. The concept of the network society acknowledges that social arrangements stretch across space, and in comparison with ‘traditional’ networks operate with a substantially different sense of time and distance. One indicator of this change in socio-spatial relationships is the rise in mobility, and the most direct consequence for planning is that in a network structure ‘proximity’ is less relevant for social organisations than connectivity. Techno-
logical innovation in transport management has resulted in the speeding up of movement and the ‘shrinking of space’, though sometimes with large interregional differences. This notion of ‘shrinking space’ has been visualised in time–space maps by Spiekermann and Wegener (1993) for the impact of high-speed train networks in the European Union (see Figure 3.1). The emergence of telematics and increasing use of modern information and communications technologies (ICT) has led to a revolutionary change in the organisation of production processes, allowing for a spatial separation of functionally interdependent activities through complex logistics systems, thus contributing further to the erosion of proximity. Since distances are increasingly measured in time, ‘locational strategies tend to opt for places that are optimal in terms of “connectivity”’ (Hajer and Zonneveld, 2000: 348), i.e. places well connected in terms of logistics and transport technologies. This poses a significant challenge for key planning concepts in European countries, which use spatial proximity as their organising principle, such as the ‘Theory of Central Places’ (Christaller, 1933), one of the main organising spatial concepts in German planning, which aims at providing goods and services in a hierarchy of settlements based on spatial proximity.

THE CARTOGRAPHIC REPRESENTATION OF ‘NETWORK SPACE’

The ability to represent space schematically is influenced by the existence of signs and symbols to visualise that space. Spatial policies are represented in certain ways in a Euclidean-oriented understanding of planning, where proximity is the guiding principle. The dominant diagrammatic expression for different patterns in a Cartesian representation are point, line and area symbols. The cartographic representation of spatial policies in ‘network space’, however, has to take on a different appearance. This presents problems for the in many cases still scientifically dominated cartographic representation of spatial policy, and raises questions about how to represent functional relationships, dynamic aspects of planning and planned objects, and connectivity. These questions have until recently been largely ignored in the planning literature, and there are only a few exceptions that have discussed the cartographic representation of ‘network space’.

Graham and Healey (1999), for instance, have pointed out that a relational theory of space regards space as a field of opportunities which are defined in relation to actors that use and modify the territory for their purposes. Hence, the cartographic visualisation of such a viewpoint of space needs to be necessarily different from the traditional master plan. The spatial representation will take the form of a key diagram or suchlike, identifying opportunities but leaving areas, where no opportunities have been identified, blank. Healey (2006: 542) has argued that strategic spatial planning informed by ideas of ‘network complexity’ is
Shrinkage of the European space

Note: The map shows how distances are deformed in relation to the time taken to travel between regions by high-speed train. Planned improvements will, for a constant time scale (6 hours), effectively bring regions closer together.

Figure 3.1 ‘Shrinkage of the European space’ through high-speed train connections

Source: Spiekermann and Wegener (1993)
decidedly not ‘comprehensive’ in its approach. It needs to be highly selective, focusing on the distinctive histories and geographies of the relational dynamics of a particular place. It may recognize borders and cohesions, but also the tensions, exclusions and conflicts which these generate. It needs to be able to identify the different timescales of different kinds of relations, to mix fixities and fluidities, while recognizing the multiplicity of ‘citizenships’ and forms of ‘stake’ which all kinds of people, groups and interests have in a place.

Graham and Healey (1999) have argued that planning should consider relations and processes rather than objects and forms, and stress the multiple meanings of space and time. This, Graham and Healey (1999: 642) recognised,

requires careful attention to the representation of policies and projects in map form, and the expression of time periods. Where two-dimensional representation and fixed time periods (for example the ‘5 year plan’, the ‘structure plan period’) are used, clarity is needed with respect to whose space and time this is and why it is helpful to use the particular form of expression.

What is more, in order to attempt to capture the multiple, dynamic and contingent worlds of places, several authors have stressed the need for maintaining multiple perspectives of the territory simultaneously (Harvey, 1996; Shields, 1995). This task is facilitated through parallel developments in GIS and computer visualisation and the use of computer animation techniques which allow the fast and easy representation of a number of spatial alternatives (cf. MacEachren and Taylor, 1994). Planning practice also needs to

represent places as multiple layers of relational assets and resources, which generate a distinctive power geometry of places. This emphasizes the need to recognize that privileging one experience of space and time (for example TGV stations, optic fibre grids, mega airports etc.) may necessarily undermine other, equally important, but less powerful interests. The multiple layering is thus neither neutral nor value-free. (Graham and Healey, 1999: 642)

In order to explore how cartographic representations in contemporary spatial strategies express ‘network complexity’ ideas, Healey (2006) suggested considering two qualities: scalar consciousness and relational dynamics. Scalar consciousness is described as the way in which the ‘area’ or ‘territory’ on which attention is focused is conceptualised, in relation to both its external positioning and its internal differentiation. With this, Healey primarily picks up on the difference between placing a spatial strategy within contained (usually legal-administrative) borders
(the Euclidean perspective) versus the attempt to represent the relational reach of significant living and working patterns, and of production and distribution chains, based on functional relationships rather than existing boundaries. However, Healey (2006) argued that many of the current exercises in spatial planning continue to focus largely within defined borders, concentrating attention on the distribution of major infrastructure and development investments.

However, although planning theory might still be struggling with the conceptualisation of network space, there are various examples of cartographic representation which represent a practical application of a more relational approach. Most notably, this is the work by Roger Brunet (1980, 1987) on chorèmes. Chorèmes are signs that represent dynamic phenomena or organisational mechanisms (see Figure 3.2), and that can be combined according to the characteristics of the area to be depicted and thus used to represent different spatial structures in a carte-modèle. Chorèmes aim to highlight underlying spatial development trends by visualising these through dynamic and innovative graphical expressions, and thus to communicate complex messages more openly (cf. Brunet, 1980, 1987). One of the first and the probably best-known example of a carte-modèle is the ‘Blue Banana’ (Reclus, 1989). The main difference between Brunet’s models and ‘traditional’ thematic maps is that the latter only locate elements, and do not render relationships, apart from distances and infrastructure, between these objects, nor do they include dynamic aspects. Chorèmes do, and in order to do so, geometric accuracy is sacrificed, and space and spatial relations are often distorted (cf. Ormeling, 1992). Although initially intended as a framework for regional geographic studies, Brunet’s ideas have proved very influential in Europe, and have reportedly inspired the German Raumordnungspolitischer Orientierungsrahmen (ORA) (guidelines for spatial planning) (BMBau, 1993) (cf. Plate 7).

**SPATIAL CONCEPTS AND SPATIAL METAPHOR**

In order to convey guiding planning principles and to structure the territory, planners often use spatial development concepts. Spatial planning concepts can be defined as the verbal or visual expression of the desirable spatial organisation of society (strategic concept) and the kind of interventions it requires (instrumental concept) (cf. Zonneveld and Verwest, 2005). Spatial concepts are often presented as metaphor, thus making them more memorable. Metaphors are sometimes used as aids to either understand place qualities and the spatiality of relations (for example ‘the web’), or may be used to focus policy attention and mobilise support (‘growth pole’, ‘clusters’, ‘compact city’). Often they are put forward in the context of developing a vision for a desirable future of a place (‘polycentric development’, ‘global integration zones’). These three functions can also be combined in a single
spatial metaphor, for instance ‘network’ (Healey, 2004). The cartographic representation of spatial concepts is often key to its success and to convey its meaning. Well known examples of spatial metaphor for the European territory are the ‘Blue Banana’ (Reclus, 1989, see Figure 1.1) and the ‘European Bunch of Grapes’ (Kunzmann and Wegener, 1991; see Figure 1.2).
The ‘product’ of the planning process: style and content of cartographic representations in strategic spatial planning

In this section, relevant cartographic literature on a hermeneutic analysis of maps will be discussed, followed by a review of previous work that has explored types and functions of cartographic representations in planning documents. Cartographic representations in legally binding documents versus informal planning strategies will be differentiated, as they are assumed to serve different purposes according to the status of the plan.

Elements of map design: hermeneutic approaches to understanding maps and cartographic representations and their role in planning

The traditional view of maps as a form of ‘scientific’ and ‘objective’ knowledge is now increasingly replaced by an understanding of maps as being socially produced and discursively embedded within broader contexts of social action and power (Harley, 1989; Crampton, 2001). For the interpretation of maps, Pickles (1992) suggested to think of two different internal structures of the map, one graphical, the other linguistic. In this section, graphic key features of maps and cartographic representations will be reviewed that will help to identify significant differences in the design and layout of cartographic representations in strategic spatial planning documents. A hermeneutic understanding of map interpretation, and the ‘linguistic’ structure of maps, are discussed subsequently. Every single element of a map is a source of distortion, as – consciously or unconsciously – selection, generalisation and schematisation procedures have influenced what is finally depicted. The discussion in this section is aimed at breaking the assumed ‘scientific rationality’ of cartographic representations and at explaining how they exercise power.

The graphical structure of cartographic representations

Maps have three basic attributes: projection, scale and symbolisation, and the selection, schematisation and generalisation process of map production includes innumerable possibilities of choice and therefore distortion. Every map is thus just one possible cartographic expression of a topic. In this section the graphic elements of map design will be reviewed, as they help to understand how cartographic representations are constructed and perceived.

Generalisation is the process of reducing the amount of detail in a map in a meaningful way (Kraak and Ormeling, 1996). Graphic generalisation is characterised by simplification, enlargement, displacement, merging and selection, and mostly deals with the geometric component of spatial data. None of these
processes affects the symbology. For some maps, geometric accuracy is less important than linkages, adjacency and relative position. Among the more effective highly generalised maps are linear cartograms portraying subway and rapid transit systems, such as the London Underground ‘map’, where scale is relatively large in the inner city and smaller towards the outer areas where development is less dense. By sacrificing geometric accuracy, these schematic maps are more effective in addressing the Underground user’s basic question of how to get from ‘A’ to ‘B’ on the system than a ‘geographically true’ map would be. As geometric generalisation seeks graphic clarity by avoiding overlapping symbols, content or conceptual generalisation promotes clarity of purpose or meaning by filtering out details irrelevant to the map’s function or theme (Monmonier, 1996). Conceptual generalisation thus mainly affects attribute data, and requires knowledge of the map contents. It has two essential elements: selection and classification. Selection, which serves geometric generalisation by suppressing some information, promotes content generalisation by choosing only relevant features. Classification, on the other hand, makes the map informative as well as usable by recognising similarities among the features chosen so that a single type of symbol can represent a group of similar features. This is necessary because the graphic vocabulary of most maps is limited to a small set of standard, contrasting symbols, thus requiring the emphasis on similarities of map features. However, different classifications can easily manipulate the message of a map and carry substantially different political interpretations.² Monmonier (1996) has used the example of homes lacking telephones in the 1960s to illustrate this. Depending on where map-makers chose to put the class break, the resulting map could present most states either as poorly connected or as well served (see Figure 3.3).

There is much use of standardised symbols in topographical maps, which are effective because people have learned to read them. However, thematic maps, to which planning maps belong, have other objectives than to describe the terrain and its fixed assets. Because of the ever changing themes and ever changing aspects of reality that are represented, information transfer is not primarily governed by convention but by trying to use the innate characteristics of symbols (such as shape, colour, size and texture). It was the French geo-cartographer Bertin (1983) who placed the variations in graphical aspects in a logical structure, which are now commonly known as the graphic variables (see Plate 1). The perceptual characteristics of the differences in the graphic variables help map designers in selecting those variables that provide a sensation which matches the characteristics of the data or the communication objectives (Kraak and Ormeling, 1996). For example, a series of five grey tones evenly spaced between light grey and black makes decoding simple when darker means more and lighter means less for quantitative and ordered data (Monmonier, 1996).
The use of colour in cartographic representations is dependent on the context: where the context is correct and appropriate, associations promote efficient decoding. Colour perception has psychological aspects, physiological aspects, connotative/subjective and conventional aspects. People respond emotionally to some colours, such as blue and red, and some of the responses are predictable enough to be tools of the cartographic propagandist. However, even where no deliberate manipulation is intended, because of embedded emotions or culturally conditioned attitudes some colours carry subtle added meaning that can affect the interpretation. Moll (1993) has demonstrated the use of colour to communicate a positive association with the territory depicted using the example of the planning document for the Ruhr area from 1966 (Plate 2). The use of warm colours and ‘organic’ symbols in this plan convincingly communicates that this is an area with a ‘healthy’ spatial structure, although in reality the regional green spaces depicted existed only on paper.

The dimensions of paper maps are generally characterised using \( x \) and \( y \) coordinates in a Cartesian system. Due to the two-dimensional and static nature of paper maps, the multidimensional representation of complex geo-spatial and temporal data is limited. There are examples, however, of shaded relief maps, based on for instance contour lines, that can be very convincing in portraying the landscape and the third dimension. The visualisation of time is also a complicated matter for static paper maps, and is limited to either the use of dynamic symbols (for example, arrows) or the representation of a series of maps. The presentation of the third (height) and fourth dimension (time) can, however, be very important in strategic spatial planning, which communicates socio-economic developments over a period of several years for large territories. Developments in computer visualisations and animations offer an important advantage in this respect (cf. Chapter 2).

Figure 3.3 Example of the effect of different class breaks on the political message of a map
Source: Monmonier (1996: 41)
THE LINGUISTIC STRUCTURE OF CARTOGRAPHIC REPRESENTATIONS

Whereas the graphical structure of the map and the effective use of symbols and graphic variables have been subject to extensive study in cartographic science over the last decades, the linguistic components have largely been ignored by cartographers and geographers alike. However, according to Pickles (1992), the graphical and linguistic elements in maps are almost inseparable, with the linguistic elements being embedded within the image. In order to understand the message of a map, it is therefore important to ‘read between the lines’ (Harley, 1989: 3) and to uncover the ‘linguistic structure’ (Pickles, 1992: 219) of the map. Both Pickles and Harley have used historical and propaganda maps to demonstrate their arguments and to discuss the underlying discourses. Although propaganda maps are rather bold examples of wilful map distortion, the theories of the two authors are a useful starting point for an analysis of cartographic representations in spatial planning strategies.

What Harley (1989) termed the ‘deconstruction of maps’ builds on the idea of discourse analysis and is aimed at breaking ‘the assumed link between reality and cartographic representation, which has dominated cartographic thinking, has led it in the pathway of “normal science” since the Enlightenment, and has also provided a ready-made and “taken-for-granted” epistemology for the history of cartography’ (Harley, 1989: 2). Harley suggests an alternative epistemology, rooted in social theory rather than scientific positivism, in order to show that ‘even “scientific” maps are a product not only of “the rules of the order of geometry and reason” but also of the “norms and values of the order of social tradition”’ (1989: 2). Drawing on Foucault and Derrida, Harley sets out to search for the social forces that have structured cartography, to locate the presence of power and its effects in all map knowledge, and thus to unravel the hidden agendas of cartography. At the same time, however, he acknowledges ‘that there are many aspects of their meaning that are undecidable’ (Harley, 1989: 8).

Harley (1989) differentiates between two distinct sets of rules in the history of Western cartography since the seventeenth century. One set governs the technical production of maps, the other relates to the cultural production of maps. The first set of cartographic rules is defined in terms of a scientific epistemology, which regards the object of mapping as to produce a ‘correct’ relational model of the terrain. The underlying assumptions of this model are that the objects to be mapped are real and objective, that their reality can be expressed in mathematical terms, that systematic observation and measurement offer the only route to cartographic truth, and that this truth can be independently verified. Cartographers evaluated maps according to standards of ‘objectivity’, ‘accuracy’, ‘factuality’ and ‘truthfulness’, and thus increasingly differentiated between their standardised and ‘scientific’ maps and other, non-conforming maps, thereby implying that Western maps are value-free (Harley, 1989).
However, it is now widely acknowledged that maps cannot be understood independently of their context of use, the world view, cognitive schema or the culture of the map-maker (Turnbull, 1989). The second set of rules of mapping, according to Harley (1989), therefore relates to the cultural production of the map. These rules are related to values, such as those of ethnicity, politics, religion or social class, and they are also embedded in the map-producing society at large. This aspect of the possibilities of map knowledge, however, is never openly discussed in cartographic discourse. Harley (1989) gives two examples to show how manifest these rules are in maps. The first is the well known adherence to the ‘rule of ethnocentricity’, which has led many historical societies to place their own territories at the centre of their world maps. Map projections introduced during the scientific Renaissance in Europe, such as Mercator’s projection, with its Greenwich meridian, helped to confirm a new myth of Europe’s ideological centrality, and in addition to this through its distortion of the geography of northern latitudes makes Europe appear much larger than it really is. The ideological fixation on ‘north at the top maps’, and the ridicule which greets ‘the Australian’s view of the world’ are other well known examples of these socially constructed rules in map-making (Turnbull, 1989). Harley’s second example relates to the ‘rules of social order’, and how these appear to insert themselves into the smaller codes and spaces of cartographic transcription. The history of European cartography since the seventeenth century provides many examples of a hierarchicalisation of space, with for instance the symbols for a castle implying that it is more important than a peasant’s house. However, this is not necessarily a conscious act of cartographic representation, but rather implying an unspoken rule of ‘the more powerful, the more prominent’ (Harley, 1989: 7), with the distinctions of class and power being legitimised through cartographic signs. The rules of society and the rules of measurement are mutually reinforcing the same image, thus making those maps very convincing in this respect. According to Harley (1989), this illustrates that much of the power of the map as a representation of social geography operates behind a mask of a seemingly neutral science.

Besides the discussion of their ‘intertextuality’, the social constructivist understanding of maps also highlights that they function as forms of power and knowledge. Maps, diagrams, texts (‘discourses’ in general) embody power in a variety of ways. Discourses set the agenda of what kinds of question can be asked, what kinds of answer are ‘possible’, and equally what kinds of question and answer are ‘impossible’ within that particular discourse. However, to understand how power works through cartographic discourse and the effects of that power in society is a complicated process. Harley (1989), drawing on Foucault’s ideas about power-knowledge, proposes a distinction between external and internal power in cartography. By external power Harley means power that non-cartographers have over cartographers (Andrews, 1994): power exerted on cartography and exercised with
cartography. Behind most cartographers there is a patron; and because maps were crucial to the maintenance of state power in modern Western society, cartography was early nationalised. From this external power Harley differentiates a power internal to cartography, which is central to the effects of maps in society. With ‘internal’ power Harley describes the power of cartographers over non-cartographers (Andrews, 1994); it is the power embedded in the map text or the politics of maps. The key to internal power is the cartographic process: the way maps are compiled and the categories of information selected and generalised (Harley, 1989). This process of standardisation and normalisation leads to a standard image of the world, and a reduction to a graphic formula. However, this process is not a conscious one, and power is in general not deliberately or centrally exercised. Still, the effects of abstraction, uniformity, repeatability and visuality in shaping mental structures, and in imparting a sense of the places of the world, is important to the understanding of the effect of cartography in society. Ultimately a map is just one of many alternative visions of what the world is, or what it might be, but, by articulating the world in mass-produced and stereotyped images, maps express an embedded social vision. For example, road atlases are among the best-selling maps in the developed world, but they promote a certain picture of the world: that of gross simplicity and lack of context beyond motorways and intersections.

TYPES AND FUNCTIONS OF CARTOGRAPHIC REPRESENTATIONS IN LEGALLY BINDING PLANS AND PLANNING PROCESSES

There is little previous work on the role of cartographic representations in the planning process, and what is available is usually in the ‘home-country language’ and thus requires translation and interpretation. This lack of attention in the literature to the methods and procedures for preparing planning maps might be related to the understanding in many planning traditions of the ‘plan map’ as a specialised tool which is prepared by planners for other planning experts, with little attention given to non-expert users and therefore little need for explanation (cf. Hake, 1991).

The literature explicitly discussing the types of cartographic representations used in statutory planning processes reflects to a certain degree the differences in the planning systems, and is predominantly focused on the urban or local level. The exception to this are some German publications on planning cartography in the hierarchy of spatial plans, including Länder and regional spatial plans (cf. ARL, 1991; Moll, 1991, 1992), which are concerned with an improved perception of complex ‘plan maps’ and technical aspects of conceptualisation and reproduction (reflecting the regulatory nature of the planning system). The role of cartographic representations in formal planning processes has also been considered in some other countries. For example, Neuman (1996), Gabellini (1996) and Lussault (1994) have discussed the function of cartographic representations in the local or
urban planning process in Spain, Italy and France respectively. Reflecting the differences in the organisation of planning, there is less interest in the technical aspects of map production in comparison with the discussion in the German literature, but instead a stronger emphasis on communicative and design aspects.

The opportunities that GIS and computer visualisation offer for the digital production of plans and the involvement of non-expert groups since the early 1990s have changed the context of planning cartography. In Germany, this led in the 1990s to increasing interest in the graphic and design requirements of new communication media (cf. Rase, 1991), the requirements of different user groups (experts and lay people) for efficient cartographic representations in planning (Lutterbach, 1998), and in methods and techniques for the presentation of continuous and qualitative planning data using computer visualisation (Rase, 1998).

Reflecting the differences in the planning systems, different scholars (Moll, 1991, 1992; Neuman, 1996; Gabellini, 1996; Lussault, 1994) place slightly different emphasis on individual instruments, though there is some overlap between the different categorisations of ‘maps’ in use in the planning process. The typology suggested by Moll (1991, 1992), complemented by other references wherever suitable, presents a useful starting point for a better understanding of types of ‘maps’ in planning. For the process of preparing legally binding plans, Moll (1992) suggested a functional differentiation into internal and external maps (Box 3.2). *Internal maps* are predominantly used for analysis and reference: they are working maps for internal use within the public administration. They do not have specific requirements in terms of attractive design, but it is important that they are available quickly and that they represent factually relevant information. With *external maps*, Moll (1992) describes those ‘planning maps’ that are intended for reproduction. Base maps in the planning process have the primary function of information, whereas participation and ‘final’ maps in German planning are usually legally binding (Moll, 1992). This implies that quality and attractive design are more important than for internal maps.

Moll’s categorisation (1991, 1992) reflects the regulatory and largely depoliticised nature of German planning, but other scholars have put more emphasis on aspects of planning such as political reporting and the involvement of wider user groups. Lussault (1994), although suggesting a similar typology of ‘planning maps’ to Moll, has highlighted the central role of the planner in the process. He has argued that the effective use of cartographic representations in the different phases of the planning process requires two essential kinds of expertise: (1) to understand and represent the complexity of the urban reality and at the same time the virtual space and consequences of the proposed planning project, and (2) well developed communication skills for mediation between a wide range of social actors with the aim of reaching consensus.
Box 3.2 The three main types of external maps in the planning process (according to Moll, 1991, 1992)

1 **Base maps, which are often analytical maps showing topographic and geographic information.** Base maps provide the starting point for the planning process and possibly a compilation of results of other planning exercises, though they do not include policy objectives. Base maps are often of a thematic nature, and represent information relevant to the planning procedure, such as geology, demography, infrastructure or nature protection areas.

   In contrast to the largely standardised production process in Germany, though undoubtedly also reflecting the situation in many other countries, Lussault (1994) has observed many of the analytical cartographic products (or base maps) that prepared in the process are in fact of poor quality. Lussault finds two explanations for this frequent nonconformity with cartographic norms: first, what Lussault calls the ‘delegated explanation’ (l’énonciation déléguée) refers to the internal planning process. Planners are not usually responsible for producing cartographic documents but rather pass their sketches and drafts to the department responsible for graphics and cartography. a Second, and in addition to this potential loss of information through transmission, Lussault (1994) has pointed out that there are few professional cartographers amongst the staff working in cartography departments in France, and that other professions with a ‘visual’ background such as graphic designers or architects dominate the scene.

2 **Cartographic representations for participative purposes.** These emerge as a result of searching and testing, the development of policy objectives and the application of guiding principles to concise planning objectives. Participation maps clarify specific statements towards the resolution of conflicts, co-ordination and evaluation, consideration of alternatives and variations, elimination of deficiencies, attention to the state of planning as well as presenting a link to other plans or planning approaches.

   For other ‘interim’ products in the planning cartography process, Lussault (1994) has highlighted that an ‘imperfect’ appearance (such as hand-drawn, missing frames and sketchy appearance) can in fact be the intention of the plan author, as signs of ‘non-finish’ demonstrate that the process of visualisation is still underway, and that this is a reflection of work in progress.

3 **Cartographic representations that lay down the objectives of the plan in its final form, aimed at reproduction, and with a prescriptive and/or communicative function depending on the role within the planning system.**

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**Note**

a This is what Forester (1989) has called structural inevitable distortion in communication through the legitimate division of labour (see Figure 3.1).
TYPES AND FUNCTIONS OF CARTOGRAPHIC REPRESENTATION IN NON-BINDING PLANNING INSTRUMENTS

In the context of ongoing European integration, there is growing interest in the creative expression of normative concepts both within EU member states and at transnational and EU levels, and it is recognised that this requires different approaches to cartographic design from visualisations in binding plans at regional or local levels. Since the early 1990s, consequently, there has been some more interest in planning cartography at national or supranational scale. However, reflecting the relatively recent interest in strategic planning at higher spatial scales, there is little previous work that attempts to theorise the role of cartographic representations in informal planning. Literature and recent experiences with informal planning instruments and planning cartography will therefore be reviewed in this section in order to try and conceptualise the function of cartographic representations in planning at this level of scale.

The method of developing spatial scenarios is increasingly used as a basis for the preparation of informal planning strategies at higher spatial scale, such as spatial visions, guiding principles or Leitbilder. Yet, owing to the relatively recent increase in use of these instruments, the process of their preparation and the link between the different instruments has not been clearly discussed in the literature to date. On the basis of the literature review, the relationship between these informal planning instruments can be conceptualised as set out in Figure 3.4. The term

![Figure 3.4 Conceptualisation of the relations between spatial scenarios, spatial visions and Leitbilder](image-url)
geodesign, which has been mainly used in the German literature (cf. BfLR, 1993), refers to the design aspects of the (carto)graphic representation of highly abstract and generalised policy instruments at national or transnational spatial scale. The following sections will present recent experiences with these informal planning instruments in Europe.

**SCENARIOS**
The method of scenario-building is an instrument for the exploration of future spatial development trends, and has been described as a particularly suitable way to visualise and communicate complex and slow processes such as those of territorial development (BBR, 2003). Stiens (2004a) has commented that visions of the future which are based on different spatial development scenarios facilitate the discussion of a ‘desirable future’. The following categories of scenario types can be distinguished according to their function (Stiens, 2004a):

- **Descriptive scenarios or trend scenarios.** These show the continuation of existing development trends, and the impacts on the territory if no policy intervention occurs.
- **Leitbild or strategy scenarios.** These are normative scenarios which illustrate the realisation of certain spatial Leitbilder.
- **Alternative scenarios.** These show favourable spatial structures in comparison to the present situation. These ‘visions’ are the most radical and utopian amongst the scenarios presented, given that effective application models and related institutional framework conditions for these utopian visions do not (yet) exist. In contrast, alternative strategy scenarios show spatial developments which can be achieved through certain actions and policy options.

Any of these can be presented as ‘carto-scenarios’ (Stiens, 2004b), which are highly generalised synthesised representations of the prognosis/trends or a normative picture in cartographic form. The cartographic synthesis can help to make the main message accessible and comprehensible also for lay people and non-experts (Stiens, 1996).

The recent popularity of qualitative spatial scenarios, especially at transnational levels, is undoubtedly an effect of the ESDP process and the subsequent revival of strategic spatial planning approaches. The publication of the European Commission study documents Europe 2000 (CEC, 1991) and Europe 2000+ (CEC, 1994) was fundamental to the thinking about transnational co-operation and the future spatial development of the European territory (cf. Chapter 1). Transnational regional development studies were undertaken on the basis of Europe 2000, which included the development of ‘trend scenarios’ and ‘active scenarios'
(cf. Figure 1.3) and were influenced by French planning ideas. For the preparation of the ESDP, trend scenarios were prepared under the French presidency in 1995, which are discussed in Chapter 5. Following the publication of the ESDP, which left many open questions on how agreement can be reached on the visualisation of spatial development policy in informal planning processes, the interest in scenario-building at European level continues, as one of the ESPON projects on ‘spatial scenarios and orientations towards the ESDP and the Cohesion policy’ (www.espon.eu) demonstrates. A notable example of an attempt to translate the concept of polycentricity as promoted in the ESDP into cartographic representations is a study by the Conference of Peripheral and Maritime Regions of Europe (CPMR, 2003). Two scenarios were elaborated as part of the project: one ‘straight-line’ (or prospective) scenario, which would quickly lead to a gradual expansion of the ‘Pentagon’ and overall concentration and polarisation of the central area of Europe, and one proactive (or ‘voluntarist’) scenario, which would require the implementation of specific public policies in favour of polycentric development over the next twenty or thirty years (see Figure 3.5).

The work on the ESDP trend scenarios under the French presidency in 1995 also prompted EU member states to experiment with this technique within their nation-states. The influence of EU policy on spatial planning is evident in these national approaches. The French national planning agency, DATAR, which initiated the work on the ESDP trend scenarios, has since proposed four scenarios for France in the year 2020 (DATAR, 2002). The scenarios range from unhindered continuation of current trends (described as the ‘The Shattered Archipelago’ (cf. Figure 3.6)) to a policy scenario called ‘The Networked Polycentrality’, which has subsequently been operationalised as a model for the future spatial development of France (see Plate 3). Based on proposals of the French presidency to the CSD in 2000, the document further considers the European dimension of French spatial planning and, as a reaction to the ‘Pentagon’ proposed in the ESDP, suggests a ‘tentative spatial definition of peripheral Global Integration Zones (GiZs)’ for the European territory (cf. Figure 3.9).

Stiens (2004a) has pointed out that in Germany spatial prognoses have declined in significance since the mid-1970s whereas scenarios have gained in importance, especially since the preparation of the German contribution to the ESDP trend scenarios. In preparation for a review of the spatial Leitbilder, four long-term spatial scenarios for the German territory up to the year 2040 have been produced (cf. Figure 3.7).

Besides these ‘official’ scenarios produced by public administrations, there have over the years been many proposals by academics on the spatial future of the EU territory. These scenarios aim to provoke discussion and debate by giving an often extreme view of the future spatial structure (cf. Kunzmann, 1998a; Reclus,
Figure 3.5  CPMR study: polycentric development in the European territory – proactive scenario
Source: CPMR (2003: 101)
1989; van der Meer, 1998) (cf. Figures 1.2 and 3.8). In contrast, scenarios prepared by public administration tend to be much more ‘operational’, based on a critical analysis of the present situation, and presenting a comprehensible projection of future spatial development trends which allow the formulation of strategies and actions.

**Spatial Visions**

Spatial planning strategies outside legal frameworks can take various forms, and have often been described as ‘spatial vision’, structural outline, spatial development perspective, *Leitbild* or spatial guiding principles, depending on the context and the planning cultures involved in their preparation. The terms will be used interchangeably in this book.
Figure 3.7 German scenario A: ‘Trend – spatial polarisation’

Source: BBR (2003: 80)
Since the mid-1980s the terms ‘vision’ and ‘visioning’ have become very popular in planning practice and theory worldwide. Yet they are often not clearly defined in the planning literature, but cover a variety of strategic planning techniques and ‘products’ (Shipley and Newkirk, 1999). The word ‘vision’ generally refers to a predicted future state of affairs, perhaps a desired outcome in the long term, and increasingly, in recognition of past failures to predict, to a vision of the future that can be ‘invented’ (Shipley, 2002). Shipley and Newkirk (1999) have suggested a categorisation of functions of visions in planning, and in particular four of these models are useful for the analysis of spatial visions at national and transnational scale:

- The vision as master plan, which provides a view of what the region will be like in \( x \) years’ time. The vision may incorporate the views of a wide range of interests and thus present a collective view of goals and objectives on the spatial structure and development patterns. Similar to any other master plan, these visions tend to concentrate on physical development, with maps clearly setting out the future spatial distribution of different land use functions and connections between them.

- The vision as the truth is an authoritative forecast of what the region will be like in \( x \) years’ time. The purpose is to stimulate action, and therefore many such visions are ‘worst-case scenarios’.

Figure 3.8 The ‘Red Octopus’ scenario

Source: van der Meer (1998: 13)
The vision as utopia or dystopia may be used to promote action by presenting a possible perfect situation, or the worst-case scenarios.

The vision as mission statement, rather than presenting a picture of the future, defines fundamental principles that should govern future action. Nadin (2000) gives examples of substantive principles (for example the environmental sustainability agenda), or governance principles (for example transparent decision-making processes, establishing partnerships) which visions can take on board with the aim of improving planning policy and practice in the long term.

The roots of transnational spatial visioning in Europe can be found among the national and transnational regional planning strategies prepared by smaller countries in north-west Europe. First ideas of thinking about and conceptualising transnational territories came up in the early 1960s, primarily from the Dutch National Spatial Planning Agency, and the ‘Conference of Regions in North-west Europe’ (CRONWE). The idea of explicitly preparing a strategic framework for transnational territories has only recently been applied more widely in Europe, especially in the context of the European Spatial Development Perspective (CSD, 1999), and the Community Initiatives Interreg IIC (1997–1999) and Interreg IIIB (2000–2006) (cf. Chapter 1). The thinking behind the requirement for visions has not been made explicit in the Interreg guidelines, but the main purposes of a transnational spatial vision in the European context can be deducted from recent experiences as:

- to understand the transnational and long-term implications of spatial development trends;
- to provide a statement of shared goals for the spatial structure of the region;
- to give direction and inspiration to transnational, national and regional planning processes;
- to assist in the formulation and selection of transboundary spatial planning programmes and projects (Nadin, 2000: 19).

Since the first Interreg transnational spatial visions were prepared between the mid and late 1990s a wider debate has started on their function, and the first experiences are being ‘deconstructed’ with a view to developing a better understanding of their role in transnational planning processes in future. Questions about the ownership of and audience for these strategies have been raised, and the potential for implementation of these usually non-binding spatial strategies (Zonneveld, 2003). The lack of illustrations showing policy options in most of the spatial visions prepared to date (cf. Chapter 1) has been interpreted as a result of uncertainty about the status of the vision document and the competence for spatial planning at
transnational level (Nadin, 2000). Zonneveld (2003) pointed out that the current generation of transnational spatial visions are overloaded with (sometimes contradictory) functions and expectations, that stand in sharp contrast to the status of the documents, which essentially are the expression of consensus reached within small groups of experts.

Besides the Interreg spatial visions there have also been initiatives to develop non-binding planning strategies for larger territories. Most notably, these are the CEMAT Guiding Principles for Sustainable Spatial Development of the European Continent (CEMAT, 2000) and the ESDP (CSD, 1999) – which both lack policy maps. Following the adoption of the ESDP, the French presidency in 2000 suggested a ‘Long-term polycentric vision of the European space’ (DATAR, 2002). The French proposals included a cartographic representation of a possible ‘polycentric Europe’ (see Figure 3.9), and have strongly influenced the CPMR study on polycentrism in peripheral urban areas (CPMR, 2003) (cf. Figure 3.5).

At cross-border level, there are several examples of spatial development concepts which promote a visualisation of joint policy options (cf. AG REK SLL+, 2002; BMVBW and IÖR, 2003), even though these are sometimes in highly abstract form and therefore mainly aimed at supporting ‘spatial positioning’ (Williams, 1996: 97) at this level of scale (Figure 3.10), rather than the communication of spatial policy options.

At national level there are also various examples of ‘spatial visions’. For example, over the last fifteen years the Nordic countries have been very active in preparing spatial development perspectives (cf. BÖVERKET, 1995a; Ministry of the Environment Finland, 1995). In Denmark, the National Planning Reports have since the early 1990s increasingly sought to clarify Denmark’s position in a European context and to foster transnational co-operation (Ministry of Environment Denmark, 1992; Ministry of Environment and Energy Denmark, 1997) (cf. Figure 1.6). Outside the legal planning system, and in response to the changing context following reunification, increasing attention has been given to the preparation of spatial Leitbilder or guiding policy principles for the federal German territory (cf. Chapter 4). Generally, these national planning reports or ‘visions’ are non-binding, and therefore rely on the communicative and persuasive power of policy text and images for implementation at regional and local level.

In summary, there has been growing interest in scenario-building as well as the elaboration of spatial visions both within European member states and at transnational and European levels over recent years. Although the differences between ‘scenarios’ and ‘visions’ are not always explicit in the literature, scenarios can be understood as a method to arrive at the development of a normative ‘spatial vision’ or Leitbild. There is strong emphasis on the methodology or technique for scenarios, which is – although based on quantitative data, analyses, indicators and
Figure 3.9 Proposal by the French presidency II/2000 for a long-term polycentric vision of the European space

Source: DATAR (2002: 101)
Figure 3.10 Deutsch-polnisches Städtefünfeck ('German–Polish house')

Source: BMVBW and IÖR (2003: 42)
prognoses – ultimately of a qualitative character and involves expert knowledge and subjective assessments. In comparison, the procedure for arriving at a certain spatial vision is not always explicitly discussed. Generally speaking, a number of scenarios which present alternative ‘futures’ are usually presented, whereas there is just one agreed and consensual spatial vision or perspective in the relevant planning documents. The differences between scenarios and visions are most blurred as regards their function. Scenarios can be separated into prospective, explorative or trend scenarios versus proactive, normative, policy or strategy scenarios. Depending on the content of the normative scenarios, these can indeed take the form of a vision, by being for example utopian or dystopian, and thus forging an emotional reaction.

**GEODESIGN**

The growing interest in spatial scenarios and non-binding spatial visions, and the problems encountered with the cartographic representation of spatial policy at European and transnational levels, have highlighted the fact that a different approach to their cartographic design is required than for statutory plans. Schmidt-Seiwert (2003) has argued that a shift from regional to spatial analysis is needed to make cartographic representations at European level more acceptable. Traditionally, regional policies require an analysis on a regional basis, such as the delineation of eligible areas for the EU mainstream Structural Funds. However, due to increasing interlinkages between different parts of the territory, this traditional regional analysis approach on the basis of administrative boundaries proves increasingly inadequate to describe spatial structures and trends. Furthermore, to be politically acceptable at transnational or European level, spatial policies need to be more abstract, generalised or ‘fuzzy’ than at lower spatial scales.

Cartographic methods are therefore required that go above and beyond ‘traditional’ thematic cartography. For instance, regional boundaries could be discarded so that spatial phenomena can be viewed by their appearance and distribution in the EU territory. ‘Geodesign’ is what Kunzmann (1993) called cartographic representations in planning which contain a minimum of information and are highly generalised, with often fuzzy boundaries. Artistic and aesthetic elements appear more important for the communication of key messages and to reach agreement than the factually correct representation of details and topography in planning processes without clear legal competences (Moll, 1993). Furthermore, in moving from spatial analysis to the cartographic representation of spatial policy options at higher spatial scale, spatial references are easily lost or at least a significant challenge, as policies may not apply universally across the EU territory. The compromise in some of the recent transnational spatial vision processes has resulted in generalised territory-specific concepts (see Figures 1.4 and 1.5), whereas the
‘vignettes’ or ‘icons’ (Figure 5.3) in the final ESDP are an example of a generic (or non-territorial) and highly abstract representation of spatial policies – with the only spatial aspect in representing the EU territory being a highly generalised nose-shaped outline of Europe. While the use of ‘geodesign’ or abstract cartographic representations in planning at higher spatial scales is undoubtedly important to get informal planning strategies accepted, Kunzmann (1993) also pointed out their manipulative potential, by offering highly simplistic and therefore subjective and biased interpretations of spatial development trends.

The use of cartographic representations in transnational planning processes

There are significant differences between the informal planning processes at transnational and European levels and processes aimed at the preparation of legally binding plans within a sovereign state. These differences in function of planning strategies, different audiences and different mechanisms for the implementation of the plan objectives also affect the cartographic representation of spatial policy. Planning theory offers limited explanations for this changing context of planning (cf. Chapter 2). This section will therefore give an overview of relevant previous work that explicitly considers the function of spatial planning in transnational and cross-border contexts.

One of the few examples of an application of planning theory to a cross-border or transnational context is the work by De Vries (2002). He argued that planning theory assigns two primary functions to planning: co-ordination and steering. Spatial planning as co-ordination is concerned with the prevention of conflicts between social actors, which arise from multiple claims on space. Spatial planning as steering is aimed at achieving spatially formulated objectives, such as establishing a ‘main ecological structure’. According to De Vries, a continuum exists between the co-ordination and steering functions of planning, as neither in theory nor in practice is it always easy to determine exactly where one kind of planning begins and the other ends.

The operational aspects of planning, i.e. the relationship between the planning subject (those responsible for making plans) and the object of planning (the decision-making process), can be conceptualised in two ways: as communication and as programming. Planning as programming refers to the ambition to actively implement spatial plans. A necessary precondition for this is the availability of instruments that give form and substance to the implementation of the plan. If planning is perceived as communication, then the main function of spatial planning is the provision of interpretative frameworks. The effect of planning must then mainly
be sought in changes to the reference framework of actors (De Vries, 2002). Spatial outlines and maps fulfil an important role in planning perceived as communication through their potential for ‘spatial positioning’ (Williams, 1996: 97). However, planners positioning their country or region in a European context tend to place themselves in the centre of the map, as that is what has been taught in school and is common practice in national and regional planning, and this can lead to controversies in transnational planning processes. Furthermore, plans can often serve as a legitimisation framework because they have legal status in a sovereign state, yet this does not apply in transnational or cross-border regions and these plans must therefore make a case why and for whom they provide a framework. For this to happen, Needham et al. (1997) have differentiated two approaches to the development of the plan, which they see as two poles on a continuum. First, in the consultation model the plan-makers enter into discussions with those who can directly shape the physical environment (the target groups) at an early stage of the plan preparation, with the aim of generating support for the new plan. Consultation must lead to agreement about the problems, the solutions and the desired development. By involving the target groups in the elaboration of policy in the new strategic plan, it is expected that they are committed to the strategic plan, and the policy in that plan becomes part of the framework within which the target groups make their own decisions and translate it into their own policy. Second, in what Needham et al. (1997) call the ‘vision model’, the design is central. The plan-makers try to make a plan ‘so powerful and attractive that all those whose support is needed willingly range up behind it. The plan challenges and motivates, it convinces. Plan-makers give their own version of how the territory must develop, they set the framework for their own actions’ (Needham et al., 1997: 876). Although not explicitly aimed at the particularities of plan-making at supranational scale, Needham et al.’s distinction is useful for a better understanding of the relationship between the ‘packaging’ and presentation of a plan and the support it will receive. This is where cartographic representations can play an important role.

On the basis of the distinction between the operation and function of planning, De Vries (2002) identified four dimensions of spatial planning (see Figure 3.11). The dotted lines between these dimensions indicate the conceptual character of the distinction. The black/white shading refers to the degree of required consensus and the availability of instruments – the latter being especially important for the degree to which planning as programming can take place: the darker the colour in the matrix, the more agreement and more (and more powerful) instruments are necessary. De Vries emphasises that planning can be successful only if the planning approach and the degree of agreement and availability of instruments coincide. The level of agreement and availability of instruments can, however,
change over time in a planning process, for instance depending on the degree of consensus achieved between actors.

For the planning processes of the Second Benelux Structural Outline and the Spatial Development Perspective of the Rhine–Scheldt Delta, De Vries (2002) argued that the initial approach was directed towards planning as steering, and significant attention was given to programming. This is a remarkable observation considering that both a high level of consensus and a large number of effective instruments were absent in the processes, yet are crucial if planning as programming aimed at steering is to be a success. However, although programming was an important goal in both processes, neither plan was very explicit about the target group – something which might be partly explained by the focus on spatial structures in the process. Thus, by formulating problems and objectives in terms of spatial structure (for instance, main ecological structure and open space), the explicit identification of actors remained largely absent. Similarly, the approach in both processes under study was generally oriented towards steering, and only limited attention was given to concrete co-ordination issues. However, it is difficult to achieve the required level of consensus on spatial objectives needed for steering. Co-ordination issues frequently involve situations where actors have conflicting interests, and compromise is therefore often the most that can be achieved. On the basis of his research, De Vries (2002) concluded that process management should clearly distinguish between the communicative and programming dimensions of transnational and cross-border planning but not separate them completely.
Concluding remarks

The discussion in this chapter has focused on theoretical approaches and other relevant literature that—in combination with Chapter 2—add depth to the theoretical understanding of the design, content and use of cartographic representations in strategic spatial planning in Europe. With regard to the context of elaboration of cartographic representations in planning, the concept of the ‘spatial consciousness’ (Healey, 2006) of different planning traditions can offer some first explanations for the different approaches of planning cultures to the cartographic representation of spatial policy. Maps influence people’s conception of space, but dominant conceptions of space likewise influence the style of cartographic representations. The effect is one of mutual reinforcement, leading to a hegemonic conception of the world, supported and influenced by a standardised image of the territory. The two dominant conceptions of space—Cartesian and relational—have fundamentally different implications for how space is perceived and depicted. A Cartesian understanding sees space as a ‘neutral container’ that can be planned, which results in two-dimensional, static and object-related representations. This— it has been argued—largely neglects the dimension of time and social interactions. The emerging new relational geography in contrast regards space as a network of relations and functional interdependencies, in which proximity is less relevant than ‘connectivity’. This has important implications for the cartographic representations used in spatial planning processes, as many of the established spatial concepts in planning (such as the ‘compact city’ in the Netherlands or the ‘hierarchy of central places’ in Germany) are based on proximity. A relational understanding of space thus implies that a dynamic representation of different viewpoints and different functional relationships should be achieved. The depiction of network ideas in planning needs to be fundamentally different from ‘traditional’ policy maps such as master plans, and needs to be more selective, by considering relations and processes rather than objects and forms. It has been argued that this is a difficult task, as traditional approaches to conceptions of space appear to be deeply embedded in cartographic representations in planning today, albeit discourse has often moved on to discuss network relations (cf. Graham and Healey, 1999). In this context a link should be forged between the requirement to visually represent network space in planning and the exercise of power through cartographic representations (Harley, 1989), or the potential for distortion in communication, as discussed by Forester (1989, see Chapter 2). ‘Traditional’ and seemingly scientific cartographic representations have been accused of using certain rhetorical styles and standardisation to reproduce power by presenting a standard image of the territory, which in turn has led to a common perception of maps as correct representations of the world (Harley, 1989). Relational representations, however,
equally underlie the cartographic process of selection, schematisation and synthesis, and because there is no standard procedure for a representation of a ‘correct network world’, one might wonder whether this might place even more power in the hands of the cartographer. Brunet’s models (Figure 3.2) for instance have demonstrated that cartographic illustrations that represent functional relations are indeed highly selective, generalised, and require a significant amount of interpretation by the cartographer. There is therefore ample scope for all types of distortion in the communication process as discussed in Forester’s model of bounded rationality (Figure 2.1).

Some scholars, especially those in the field of history of cartography or history of geography, have suggested to treat maps as an expanded concept of text in order to better understand the meaning they communicate. Most notable in this area is the work by J. B. Harley (1989), who suggested a ‘deconstruction of the map’, not unlike discourse analysis, and John Pickles (1992), who proposed treating maps as constructed of two interrelated structures, one being graphical, the other linguistic. Furthermore, contemporary scholars have begun to accept that cartographic representations are discursively embedded within broader contexts of social action and power (Crampton, 2001). Harley (1989) for example has differentiated the power exercised through maps into ‘internal’ and ‘external’. The ‘internal’ power of maps is what Harley describes as the power of cartographers over non-cartographers, and related to the cartographic process of information selection, generalisation and schematisation. The ‘external’ power relates to what Harley (1989) calls the power of non-cartographers over cartographers, that is, the client commissioning the map, the institutional aspects of map production, and the question of who is involved in the process. These questions complement Forester’s typology of distortion in communication in the planning process (Figure 2.1) with aspects directly related to map use.

The discussion of types and functions in the planning process presented a variety of different categorisations for cartographic representations in planning in different European countries. Despite the differences in the analyses presented by different scholars, it becomes obvious that there are always a large number of different planning ‘maps’ with significantly different functions in the planning process. For the German system, these have for example been described as base maps used to inform the planning strategy (and to help planners understand and represent the complexity of reality and the consequences of the proposed policies), participation maps used for consultation, and the final ‘plan’ used for reproduction. The two latter functions involve an ‘external’ communication function, that is, they are intended for use outside the planning department, by other planning actors or even the wider public. Clearly, these different types and functions of cartographic representations in the planning process imply certain graphic and linguistic
characteristics, as function dictates the form and style of the ‘planning map’. These can be categorised into detailed versus abstract/generalised, and ‘finished’ (in the meaning of ‘map-like’ with topographic base information, frame, title and legend) versus ‘sketchy’/unfinished (with fuzzy boundaries that give the illustration a provisional feel).

Increasing European integration has also prompted an interest in the representation of spatial policies for larger territories, and a debate has begun on the function of ‘spatial visions’ at transnational levels as well as of cartographic representations of spatial policy in informal planning instruments at higher spatial scale more generally. The debate about how best to present spatial policy at transnational scale is ongoing, but pointers about the cartographic expression which should reflect the informal and non-binding status of these documents have been given by analysts such as Kunzmann (1993) and Moll (1993) for the experience at federal level in Germany. They identify high simplification, extreme generalisation as well as artistic and aesthetic presentations as important components in winning support for a strategy. At transnational level, a further differentiation can be made with regard to the level of generalisation, and that is the cartographic expression of spatial policy in a territory-specific way (as for the Spatial Visions under Interreg IIC, see Chapter 1), or as generic concepts without much territorial relevance (as for the ‘vignettes’ used in the final ESDP, see Chapter 5).

For a better understanding of the ‘use’ of cartographic representations in transnational spatial planning processes, De Vries’s (2002) distinction of planning as communication and as programming in a transnational context provides a useful starting point. His work raises important questions about the relationship between the intended function of a non-binding spatial strategy and its intended audience and mechanisms for the ‘implementation’ of spatial policy.
CHAPTER 4

THE STYLE AND CONTENT OF CARTOGRAPHIC REPRESENTATIONS IN STRATEGIC SPATIAL PLANNING IN THE NETHERLANDS, GERMANY AND ENGLAND

Earlier chapters in this book have shown that the analysis of cartographic representations in planning processes is a complicated matter. Yet, there are several pointers in the literature which can offer partial explanations for the style and content of ‘planning maps’. In this chapter a framework for the comparison of ‘maps’ in planning is proposed, based on the literature and theoretical approaches reviewed. This framework is then used to analyse strategic spatial plans in three north-west European countries: the Netherlands, Germany and England. The chapter concludes with a discussion of the significant differences in the style and content of cartographic representations in different ‘planning traditions’.

AN ANALYTICAL TOOL FOR THE COMPARISON OF THE CONTEXT OF ELABORATION, AND OF THE STYLE AND CONTENT OF CARTOGRAPHIC REPRESENTATIONS IN STRATEGIC SPATIAL PLANNING

The different disciplines and theoretical notions discussed in the earlier chapters of this book can offer partial explanations for the content, style and use of cartographic representations in spatial planning processes. The argument for combining these different perspectives into one comprehensive framework lies in their epistemological underpinnings, which could be described as being post-structuralist. All theory strands presented in earlier chapters have undergone a paradigm change from a scientific and rational approach towards a more communicative, reflective, hermeneutic and interpretative epistemological position. The underlying thesis of the different theoretical approaches presented in the previous chapters can therefore be seen as converging, and their epistemological turn towards the understanding of the production of power with their related factors such as user or actor focus and the influence of the social context on the creation of meaning offers the possibility of combining elements of the different theoretical approaches into one conceptual framework.
THE CONTEXT OF ELABORATION OF CARTOGRAPHIC REPRESENTATIONS IN FORMAL AND INFORMAL PLANNING PROCESSES

Within the context of elaboration of cartographic representations in spatial planning, the conceptual framework builds on the categorisations of ‘traditions’ of spatial planning as suggested in the *Compendium of Spatial Planning Systems and Policies* (CEC, 1997; see Box 3.1), with a view to discussing the different understandings of planning as these affect the form, style and use of cartographic representations. However, there have been significant changes to most planning systems in Europe over recent years (cf. PRP Planning and UWE, 2002), which imply that they increasingly deviate from the types distinguished in the *Compendium*. Furthermore, there has not been any particular attention to the role of cartographic representations in the planning system in any of the categorisations of planning systems reviewed in Chapter 3. In order to support the categorisation provided by the *Compendium*, other factors that influence the style and use of cartographic illustrations in spatial planning have therefore been included in the framework. These factors include what Healey (2006) has termed the ‘spatial consciousness’ of a planning tradition, i.e. the extent to which concepts of place, spatial organisation and territorial identity are embedded in policy cultures and political assumptions. This spatial consciousness, it is argued, is in turn influenced by whether a planning system is more flexible and discretionary or more regulatory in its approach to planning and decision-making. Furthermore, the dominant professions in planning (as well as planning education) have been credited an important role in shaping the style and content of cartographic representations in planning.

The underlying conceptions of space and the use of spatial concepts in planning are also very important for an analysis of the role of ‘maps’ in planning processes, as these affect the understanding of planning in the different planning traditions. While most planning systems now increasingly aim to respond to challenges that stem from the so-called new relational economy and geography, Graham and Healey (1999) have pointed out that ‘mapping’ in planning has in the majority of cases not caught up with these new developments and continues to visualise spatial policies in a traditional, two-dimensional and static way. However, there are examples, such as Brunet’s *chorèmes* (Brunet, 1980, 1987), that show how functional relationships can be visually represented (cf. Chapter 3).

THE PRODUCTION OF CARTOGRAPHIC REPRESENTATIONS IN PLANNING: CARTOGRAPHIC ASPECTS OF FORM AND STYLE

The production or construction of cartographic representations is closely related to the context of elaboration. Especially those aspects that relate to the function and types of maps that are used at certain stages in the planning process are at least
partly a result of the organisation of the planning system. This part of the framework relates to what Harley (1989) has called the ‘internal power’ of the map, that is, the power of cartographers over non-cartographers embedded in the cartographic process as such: how maps are produced, information is selected and generalised. The analysis of cartographic products is a complicated matter and involves much uncertainty about the graphic language used, and especially the intended message and meaning (cf. Chapter 3). The majority of approaches to the analysis of maps can be found in the areas of history of cartography or history of geography. Thus, although the work by for example Harley (1989) or Pickles (1992) provides a useful starting point for the analysis of cartographic representations, it does not offer comprehensive tools for the analysis of the contemporary situation of the planning process, and the role of cartographic illustrations in this. The elements of this part of the framework, which is related to the cartographic aspects of form and style of cartographic representations in spatial planning, were therefore constructed by borrowing from a variety of sources.

The first two aspects in the field of the ‘production’ of cartographic representations in planning are founded on Pickles’s (1992) work on regarding maps as being based on two structures, one graphic and one linguistic, and on Harley’s (1989) work on ‘deconstructing the map’, which employs a hermeneutical approach to map analysis (cf. Chapter 3). However, neither Pickles’s nor Harley’s work provides a very detailed account of the ‘elements of a map’ with regard to its graphic or linguistic structure. The framework criteria related to the graphic structure of maps are therefore borrowed from cartographic literature on map design and semiotics, whereas the criteria related to the linguistic aspects of maps are derived mainly from Harley’s (1989), Pickles’s (1992) and Söderström’s (1996, 2000) work.

Three categories were chosen for the comparative analysis of the ‘graphic structure’ (Pickles, 1992) of cartographic representations in strategic planning instruments, which relate to the abstraction, the level of complexity and the use of associative colours and symbols ‘on the map’ (cf. Box 4.1):

• The level of abstraction relates to a more detailed (or ‘scientific’) versus a more abstract (‘artistic’) cartographic representation in spatial plans. The rationale for this criterion for analysis is that a ‘scientific’ mapping approach is still predominant in many planning traditions, which communicates the message of ‘objective’ and trustworthy information. In contrast, a highly generalised approach to cartography, as for instance suggested by Brunet (Reclus, 1989; Ormeling, 1992), communicates a more tentative, ‘guiding principles’ understanding of the plan’s content. The level of abstraction can therefore give clues about the understanding of planning with regard to a
more regulative or discretionary approach, but also about experiences of different planning traditions with ‘mapping’ in more informal planning processes. The level of abstraction, thus, communicates much about the reliability and binding character of planning policy. Where the graphic structure shows a high degree of abstraction and generalisation, the message that the content of the plan is ‘tentative’ and/or negotiable is more clearly communicated (a guiding principles approach). Is the graphic representation in contrast very detailed, site-specific and strict, possibly presented on a topographic map.
base, then the message comes across that the policies are irrevocable and that the information contained in the plan is reliable, trustworthy and 'scientific' (a regulatory approach). Several criteria have been chosen to operationalise the 'level of abstraction' of cartographic representations. First, this is the graphic representation of the outline of the territory (i.e. whether it is very detailed, generalised, or a 45° outline, as has been employed for the German Raumordnungspolitischer Orientierungsrahmen (BMBau, 1993) and the French trend scenarios within the ESDP process (see Chapter 5)). Second, the 'logical differentiation' of elements on the 'map' is analysed. Junius (1991b) has differentiated between the 'site-specific', 'schematised' or 'schematic' cartographic representation of symbols (cf. Box 4.1). The third criterion chosen to operationalise the 'level of abstraction' of policy maps relates to the graphic differentiation of area symbols. A strict delineation communicates certainty with regard to the impact of the spatial policy (that is: 'in' or 'out'), whereas fuzzy boundaries imply a transition area or flexibility with regard to the territorial effect of spatial policy. Likewise (and as the fourth criterion to describe the level of abstraction), Junius (1991b) has differentiated between 'territorially true' and 'locationally true' point and line symbols on 'plan maps'. This criterion, clearly, has a close link with the scale used and the availability of a topographic map base. The last criterion to operationalise the 'level of abstraction' of cartographic representations relates to the use of colour, which can vary from very strong and solid colours (possibly communicating certainty) to pale, soft or mute colours (which might communicate a more tentative proposal). The distinction of the level of abstraction according to the criteria set out is of course conceptualised as being fluid and transitional. In order to be able to establish a certain grading, two 'extremes' were assumed to limit the scale, that is, a very precise planning map based on a topographic map base with site-specific boundaries on the far left-hand side to represent the 'scientific' and detailed model (as for example a binding local land use plan in Germany), and the carte-modèles as suggested by Brunet (1987) as an extreme to represent the far right-hand side of 'artistic' and abstract cartographic representations. Clearly, there is a certain degree of subjectivity involved in an analysis according to these criteria. However, if undertaken in a systematic manner, and by relating the different cartographic representations under study to each other, such an approach can provide an interesting insight into the 'message' of cartographic representations in planning.

- The complexity of cartographic representations is understood as an expression of the number of elements (symbols), and the number of categories listed in the key. By categories, overall 'themes' are meant, such as for
instance ‘transport network’, under which road and rail infrastructure would be grouped, or ‘nature protection sites’, under which habitats or any nature protection designation are listed. Assuming that there is limited overlap of elements within one category, the policy map can still be expected to be of medium complexity and easy to read (even if the number of elements is high, but the number of categories low). Nevertheless, the more elements (symbols) and categories are included in the cartographic representations of planning instruments the more complex the ‘map’ appears overall, which might give hints about the role of this instrument in the planning process as well as about the intended audience, as a very complex map might not easily be understood by lay people.

- The use of associative and conventional colour and (pictorial) symbols in planning can arguably communicate a message more easily within one planning tradition (through the standardisation of planning symbols among planning professionals). However, there might be differences in association and convention between different planning cultures, which can cause communication problems when discussing policy options in a transnational setting.

For the analysis of the ‘linguistic structure’ (Pickles, 1992) in strategic spatial plans, three categories have been defined (cf. Box 4.2). These categories and their operationalisation are as follows:

Box 4.2 Criteria for the analysis of the ‘linguistic structure’ of cartographic representations in strategic spatial plans

<table>
<thead>
<tr>
<th>STYLE AND CONTENT: LINGUISTIC STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relation between text and cartographic illustrations in the plan document</td>
</tr>
<tr>
<td>Number of pages in planning document</td>
</tr>
<tr>
<td>Number of cartographic illustrations in planning document (excluding photographs and other ‘non-cartographic’ diagrams)</td>
</tr>
<tr>
<td>Content analysis: themes and policy options discussed in text</td>
</tr>
<tr>
<td>Content analysis: themes and policy options represented on ‘policy map’</td>
</tr>
</tbody>
</table>

Visual hierarchy/‘rules of social order’ (Harley, 1989)
Visually dominant elements in cartographic representation of spatial policy

Spatial positioning/‘connectivity’
‘Rule of ethnocentricity’ (Harley, 1989)
Representation of planning context (neighbouring regions, regional, national or European context)
Representation of connections with neighbouring regions/representation of functional interdependencies/underlying conception of space
• The relative weight given to text and cartographic representations in the document was chosen as a criterion to assess the emphasis given to cartographic representation in strategic spatial plans in different planning traditions. The rationale behind this criterion is that the more use is made of ‘visual language’ in existing spatial plans the better prepared planning actors are to ‘read’ and communicate through cartographic representations in other settings than their domestic one. Further, it gives an indication of how ‘spatially conscious’ (Healey, 2006) a planning tradition is. If the majority of policy options discussed in the policy text are also represented on the ‘policy map’, then this could be an indication that much thought has been given to the ‘spatial impacts’ of policy aims and options in a particular planning tradition.

Several aspects have been chosen to analyse this relationship between ‘text’ and ‘maps’. First, by setting the number of pages in the planning document (i.e. the written text) in relation to the number of cartographic illustrations (i.e. analytical and policy maps, but excluding photographs and other non-cartographic illustrations). Second, by undertaking a content analysis to explore the relationship between the themes and policy options discussed in the plan text, and those that are represented on the ‘policy map’. This again gives an insight into the ‘spatiality’ of the chosen policy options, and the comprehensiveness of the cartographic representations, and will help to discover patterns of those themes that generally tend to be cartographically represented to the detriment of others (or, in Forester’s (1989) words, lead to structural distortions).

• The criterion of the visual hierarchy, or what Harley (1989) has called the ‘rules of social order’, relates to the visually most dominant elements in the cartographic representation of spatial policy. This is a subjective method to identify those elements on the policy map that ‘stand out’ and therefore attract the attention of the reader. This can give clues about the issues that are deemed most important for cartographic representation.

• The last category to express the ‘linguistic structure’ of ‘policy maps’ relates to the spatial positioning and ‘connectivity’ of the planning area. This focuses on an analysis of how the ‘geographical context’ of the planning region is depicted (i.e. whether neighbouring regions, or the wider geographical context are represented, or whether the planned area is represented as an ‘unconnected island’). Furthermore, the analytical framework covers an assessment of the ‘connectivity’ of the region, i.e. a representation of ‘network space’ (cf. Graham and Healey, 1999; Hajer and Zonneweld, 2000) or of underlying functional interdependences (cf. Ormeling, 1992). This appears particularly relevant in collaborative planning processes where planners are expected to think outside their own territories, and where experience
with seeing their own region in a wider and changing relational spatial context might help them to adapt to planning agendas at higher spatial scale (Williams, 1996).

**The context of elaboration of strategic spatial plans in European countries: the Netherlands, Germany and England**

In this section, the spatial planning systems in the Netherlands, Germany and England will be compared with a view to highlighting relevant aspects for the preparation and understanding of cartographic illustrations in the different planning traditions.

**Strategic spatial planning in the Netherlands**

According to the *Compendium* (CEC, 1997), the Dutch planning system follows the comprehensive integrated approach, and the vertical and horizontal co-ordination of policies with spatial impacts and of different levels of government is therefore of great importance. Plans in the Netherlands are generally indicative and non-binding on citizens (except for the *bestemmingsplan* at local level), although central government has effectively considerable control over planning at lower levels of government due to funding mechanisms. Co-ordination of the content and procedures of spatial planning in the Netherlands is achieved through the formal requirements for spatial planning at the three different levels (national, provincial and local) together with the practice of informal co-operation (Kragt et al., 2003).

The key legislative basis for spatial planning in the Netherlands is provided by the 1965 *Wet op de Ruimtelijke Ordening* (Spatial Planning Act) with its accompanying *Besluit op de Ruimtelijke Ordening* (decree). This legislation has the character of ‘framework legislation’ for the three planning levels. The Act specifies several plans and instruments which shall provide for an integral spatial planning approach in the Netherlands. The main instruments at different planning levels in the Netherlands are at national level the *Planologische kernbeslissing* (key planning decision) in different forms, and at provincial level the *Streekplan* (provincial plan). At local level, the two main planning instruments are the indicative *Structuurplan* (structure plan) and the binding *Bestemmingsplan* (binding local land use plan) (see Box 4.3).

The main responsibility for national spatial planning lies with the Ministry for Housing, Spatial Planning and the Environment (VROM). The Ministry is supported by the DG Ruimte (Directorate-General Space) and the Ruimtelijk Planbureau (Netherlands Institute of Spatial Research). The *Nota Ruimtelijke Ordening*
<table>
<thead>
<tr>
<th>Government level</th>
<th>Legislation</th>
<th>Plan title</th>
<th>Responsible representative</th>
<th>Scale of maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>National level</td>
<td>Wet op de Ruimtelijke Ordening 1965/1986/1994 (Spatial Planning Act)</td>
<td>Planologische kernbeslissing (spatial planning key decision) in its various forms, for example</td>
<td>De Staten-Generaal (Parliament (first and second chambers))</td>
<td>Whole country</td>
</tr>
<tr>
<td>Ministries</td>
<td>Besluit op de Ruimtelijke Ordening 1965 (Spatial Planning Decree)</td>
<td>Nota Ruimte (National Spatial Strategy), 2004</td>
<td>Directoraat-Generaal voor de Ruimte (Directorate General for Spatial Policy)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Woningwet (Housing Act)</td>
<td>Strucutuurschemas (12) (Sectoral Planning Guidelines)</td>
<td>Rijksplanologische Commissie (National Spatial Planning Commission)</td>
<td></td>
</tr>
<tr>
<td>Ministries</td>
<td>Wet op de stads- en dorpsvernieuwing (Act on Urban and Village Renewal)</td>
<td>Structuurschets</td>
<td>Rijksplanologische Commissie (National Spatial Planning Commission)</td>
<td></td>
</tr>
<tr>
<td>Provincial level</td>
<td>Streekplan (Provincial plan)</td>
<td></td>
<td>Provinciale Planologische Commissie (Provincial Spatial Planning Committee)</td>
<td>Whole province</td>
</tr>
<tr>
<td>Provinciale Staten (12) (Provinces)</td>
<td></td>
<td></td>
<td>Provinciale Staten (Provincial Council)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gedeputeerde Staten (Provincial Executive)</td>
<td></td>
</tr>
<tr>
<td>Local level</td>
<td>Structuurplan (preparatory land use plan, structure plan)</td>
<td></td>
<td>Gemeente (municipal government) and its organisation</td>
<td>Entire municipality or part of it</td>
</tr>
<tr>
<td>Gemeente (548) (municipalities)</td>
<td>Bestemmingsplan (allocation plan = binding local land use plan)</td>
<td></td>
<td>(Gemeenteraad (Municipal Council) College van Burgemeester en Wethouders (Municipal Executive))</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stadsvernieuwingsplan (Urban Renewal Plan)</td>
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<tr>
<td></td>
<td>Leefmilieuverordening (Living-conditions ordinance)</td>
<td></td>
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</tbody>
</table>

Source: CEC (1999b), amended.
(National Spatial Planning Report) at national level sets out the main principles and
guidelines for national spatial planning policy for the medium and long term. Notas
are strategic planning documents with key diagrams which have been prepared
since 1960. They are meant to synthesise spatially relevant policies into one overall
scheme to express national aspirations. All political statements in the Nota are
described as Planologische Kernbeslissing (PKB) (key planning decisions).

The current National Spatial Strategy for the Netherlands, the Nota Ruimte
(VROM, 2004), lays down national spatial policy (PKB) until 2020. This new
spatial planning policy document is based on the Vijfde Nota Ruimtelijke Ordening
(VROM, 2002) (which had never been adopted due to changes in government),
but overall the emphasis within the document has changed in comparison with previous Notas, not least from a ‘spatial planning’ to a ‘spatial development’ focus. The
Nota Ruimte continues the approach promoted in the Vijfde Nota of conceptualis-
ing the space of the Netherlands as consisting of three ‘layers’ (or strata), i.e. first,
the surface or ground layer (formed by water, soil and the life forms in those envi-
ronments). The second layer is formed by networks, i.e. all forms of visible and
invisible infrastructure such as railways, roads, waterways and ICT. The third layer
is the occupation layer, formed by the spatial patterns as a result of human use (cf.
VROM, 2004). One of the arguments for this approach is that national borders can
be transcended by thinking in terms of layers.

The twelve Dutch provinces (see Figure 4.1) are not legally required to prepare
a Streekplan, though there is an expectation at national level for such an instrument
to be in place. In preparing Streekplannen, provinces are not subject to any form of
national government control. However, the national government has reserve powers
(which are hardly ever used) to ensure that in cases of conflict national concerns
prevail. Streekplannen are administratively (though not legally) binding on municipali-
ties and other public sector agencies and outline the future development for the
whole or parts of the province. The Streekplan should give a vision of the future
spatial development of the territory. It contains a policy map (usually to a scale of
1:50,000 or 1:100,000) as well as an explanatory text which contains the results of
the analysis and policy statements. Streekplannen are the basis for approval of lower-
tier plans (goedkeuring bestemmingsplannen). Only exceptionally can a bestem-
mingsplan (binding local land use plan) which contradicts the essential decisions in a
Streekplan be approved by the Provincial Executive.

The responsibilities of municipalities are characterised by autonomy of action
within their own areas, but this is only loosely defined in the constitution. In taking
any initiative, their actions are subject to supervision – municipal plan proposals
and budgets need the approval of provinces. However, provinces do not command
the municipalities on what they should do; the relationship is more one of checking
and negative control – a ‘blocking power’ (Hupe, 1990). Two kinds of plan are pre-
pared at the municipal level: the *Structuurplan* (structure plan) and the detailed *Bestemmingsplan* (local land use plan). The indicative *Structuurplan* is intended to provide a context for the *Bestemmingsplan*, though this instrument is predominantly in place only in urban areas. The most important planning instrument at local level is the *Bestemmingsplan*, which is the only plan that is legally binding on citizens, organisations and public bodies (also at national and provincial levels), but only after it has been approved by the province (Kragt et al., 2003).

*Figure 4.1* The Dutch provinces
Source: Kragt et al. (2003: 332)
Spatial planning in the Netherlands is not a discrete professional activity, in the sense that the related activities are almost exclusively carried out by people trained as spatial planners (Needham, 1999). Professional backgrounds of those working in the field range from planologie (spatial planning), human geography, law and political sciences to policy sciences. Spatial policy is thus made and implemented by many people without a special training in spatial planning (Needham, 1999). However, much emphasis is given to methods and techniques for analyses and for making plans in the education of planologen and related spatial disciplines, and the close links between higher education and planning practice ensure a continuation of the importance given to visual communication in Dutch planning practice.

There are numerous spatial concepts in use in the Dutch planning system, and at least some of these have changed significantly over time and been replaced by others. Two of the main planning concepts, the Randstad and Green Heart, were already introduced during the 1950s and received much international attention (Faludi and van der Valk, 1994). The ‘Randstad’ refers to the ‘City Ring’ of Amsterdam, Utrecht, Rotterdam and The Hague, which surrounds a large (semi-natural) area called the ‘Green Heart’. It has been argued that the vagueness of both concepts is their strength, and that they survived changes in society for so long because they were robust and vague enough to be ‘subtly emphasised, de-emphasised or reinterpreted’ (Hall, 1993: 44), thus meant different things at different times. Van Eeten and Roe (2000: 64), in analysing the policy controversy surrounding the Green Heart in the Netherlands, have pointed out that the iconographic approach of reading maps into texts and maps from texts is the larger context in which planning generally takes place in the Netherlands, and it is within this context that controversies about planning, such as that over the Green Heart/City Ring scenario, occur. This profoundly increases the sense of plausibility (and thus the verisimilitude) of the Green Heart and City Ring concepts. . . . Maps are always fictional in some sense, and recognizably so to their users, if simply because they leave out all the details of what is really happening on the ground. Yet maps become useful precisely by leaving out all this detail. This is exactly the case for the Green Heart and City Ring concepts.

Besides the prominent concepts of the Green Heart and the Randstad, there are many other spatial concepts in use in Dutch planning, and there is ample use of spatial metaphor to express these. This ensures that the concepts are more memorable and accessible to the general public. The publication of the draft Vijfde Nota Ruimtelijke Ordening, however, broke with many long-standing spatial concepts, and some of these new concepts are taken forward by the current Nota Ruimte.
Influenced by discussions at European level and the interest to achieve international economic competitiveness, the *Vijfde Nota* identified six national urban networks (replacing the long-standing ‘compact city concept’). The report also introduced the concept of ‘spatial quality’, which is explained in terms of spatial and cultural diversity, economic and social functionality, social justice, sustainability, attractiveness and ‘human measure’.

**STRATEGIC SPATIAL PLANNING IN GERMANY**

The *Compendium* (CEC, 1997) has described the German approach to spatial planning as following the comprehensive integrated model, similar to the Dutch approach, yet of a federal nature and more regulatory and more hierarchical than Dutch planning. Spatial planning in Germany is based on the fundamental principles of federalisation and subsidiarity, and the integration of sectoral policies (based on strong territorial responsibilities) through comprehensive planning instruments and procedures. The German planning system and building law are very complex, not least because of the federal structure of the country. Reflecting the general legal approach, with its strong emphasis on codification, the planning laws are set out very precisely and there is considerable attention to legal interpretation (Hooper, 1989).

A principal objective of the federal legislation is the achievement of equality of living conditions throughout the country. Supra-local spatial planning in Germany is based on the concept of *Raumordnung* (‘spatial ordering’). *Raumordnung* is understood as comprehensive planning aimed at establishing spatial order and setting the direction for development by co-ordinating and harmonising the spatial impacts of various policy sectors (Turowski, 2002). In Germany the planning system generally operates at the level of the state (*Land*) or below. The *Länder* and municipalities have constitutionally guaranteed powers to organise planning and express spatial policies for their territories. The *Bund* (federal level) has limited competences for spatial planning, but ensures a certain level of conformity in the planning legislation of each *Land* by issuing general regulations on spatial development policy. This is done in close co-operation with the *Länder*, in the Ministerkonferenz für Raumordnung (MKRO) (Standing Conference of *Bund* and *Länder* Ministers for Spatial Planning). Following German reunification and increasing European integration, efforts have since the 1990s been aimed at introducing more flexibility into the planning system and at following a more proactive spatial development approach. This was expressed in the overhaul of the major pieces of federal framework legislation that regulate spatial planning in Germany: the *Raumordnungsgesetz* (ROG, 1998) (Federal Spatial Planning Act), which is the framework federal legislation on spatial planning, and the *Baugesetzbuch* (BauGB, 1998) (Federal Building Code), which contains legislation on land use planning.
and development control. Thus, besides stating the new overarching principle of spatial planning as ‘sustainable regional development’, new informal planning instruments have been introduced (such as regional development concepts or urban networks) which are to be used alongside the established formal (and often seen as inflexible) hierarchy of plans and programmes. There is increasing emphasis on the region as the most appropriate level for action, and to reflect functional interdependences, and a more co-operative approach to spatial planning is encouraged.

The federal system and limited competences of the Bund in the field of spatial planning means that there is no binding spatial plan which covers the whole Federal Republic of Germany. At this level, spatial development is guided by the models and guidelines which have to be devised jointly by the federal government and the Länder. The Raumordnungspolitischer Orientierungsrahmen (ORA) (BMBau, 1993) (guidelines for spatial planning) and the Raumordnungspolitischer Handlungsrahmen (HARA) (BMBau, 1995a) (action programme for spatial planning), were prepared in co-operation between Bund und Länder under the umbrella of the MKRO to provide for guiding principles for the whole of the reunited territory. The cartography for the Raumordnungspolitischer Orientierungsrahmen was partly prepared in parallel to the work on the national contribution to the French trend scenarios for the ESDP (see Chapter 5). Although spatial planning in Germany is generally practised at the level of the Länder and below, the revised ROG has given the Bund a stronger mandate for co-operation on spatial planning matters at transnational and European levels. The preparation of informal spatial Leitbilder at federal level will therefore be given increasing attention in future.4

The German system of spatial planning is identified by its distinction of two planning functions: supra-local spatial planning, and local land use planning. These two planning functions are linked through the Gegenstromprinzip (counter-current principle). This principle implies that supra-local plans cannot be prepared without the participation of the local authorities, and that local plans must conform to the aims of the supra-local plans (cf. Box 4.4). Supra-local spatial planning is a top-down system and is documented in the spatial guidelines of the Bund, the Landesentwicklungspläne or Landesentwicklungsprogramme (LEPs/LEPros) (state development plans or programmes) of the Länder and the Regionalpläne (regional plans). The Federal Republic is made up of sixteen Länder (states), thirteen of which are Flächenstaaten (area states) and three are Stadtstaaten (the city states Berlin, Hamburg and Bremen) (Figure 4.2). Comprehensive spatial planning within the individual Länder is called Landesplanung, and is that component of public administration which is responsible for producing spatial structure plans of a comprehensive nature and aimed at the co-ordination of plans and measures with a
spatial impact. *Landesplanung* thus performs both a planning function as well as one of co-ordinating spatial development and securing the spatial structure. Each of the sixteen Länder has its own *Landesplanungsgesetz* (State Planning Act), and these have to take the provisions of the *Raumordnungsgesetz* (ROG) into account. The Länder are obliged to set up a comprehensive plan for the whole territory, which defines mid-term ‘aims of spatial planning’ for the respective planning territory by adding more concrete detail to the principles of spatial planning as set out

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**Figure 4.2** The German Länder

*Source: BBR; reproduced in Faludi (2001b: 270)*
in the ROG. The types of plan, procedures for drawing up and adopting spatial plans as well as the actual content differ significantly between Länder (Moll, 1994).

Spatial plans at Land level normally contain broad statements of development intentions covering issues such as population projections, settlement hierarchies and priority areas. Spatial plans draw on a number of planning elements of both conceptual and instrumental importance such as zones/land use categories, central-place system, axes, functions and planning targets (Turowski, 2002). Federal legislation regulates the content of Länder and regional spatial plans, and these have to be presented on a topographic map base, although there is flexibility with regard to the symbolisation. The LEP/LEPros comprise concrete spatial and sectoral objectives illustrated in a diagrammatic manner usually at a scale of 1:200,000 to 1:500,000 (or smaller) and covering the entire territory of the Land, and are supported by an explanatory text (which is usually non-binding) (CEC, 1999a). Plankarten (plan maps) at this level are not site-specific but should rather provide a guiding framework and leave lower planning tiers (sectoral planning and development planning) enough scope for specification. Plans at Land level are primarily aimed at other professionals in sector departments or at lower planning tiers, but not the general public (Moll, 1991).

With the exception of the small state of Saarland and the three city-states, all Länder have responded to the option in the ROG to introduce a distinct and intermediate tier of spatial planning. The regional tier of spatial planning thus forms the link between the comprehensive spatial planning at Länder level, and local land use planning. Regionalpläne (regional plans) have to conform to the Raumordnung- and the relevant Landesplanungsgesetz (federal and Länder spatial planning Acts), as well as to the state development plans or programmes by giving concrete detail to the aims of spatial planning for the specific region. The ROG provides the Länder with two options for the organisation of regional planning in their territories: first, regional planning may be conducted by regional planning associations, consisting of a number of municipalities and counties and set up specifically for the purpose of regional planning, or second, it may be conducted by state planning authorities (in which case a formal procedure allows local authorities to participate in regional planning). Both options have been applied by the Länder, albeit with sometimes quite major modifications. This, in addition to vastly diverging definitions of the term ‘region’, has led to significant diversity across the German territory as to how spatial planning at regional level is conducted. There have been several attempts to harmonise and systematise the cartographic design of regional plans in Germany (cf. Junius, 1991a), yet to date no agreement on the content and symbolology for higher level plans has been reached.

The second planning function in the German system, local land use planning, is a bottom-up process. The principal regulations regarding land use and
### Box 4.4 The system of spatial planning in the Federal Republic of Germany

<table>
<thead>
<tr>
<th>Government level</th>
<th>Tiers of planning</th>
<th>Legal foundations</th>
<th>Planning instruments</th>
<th>Material content</th>
<th>Scale of maps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bund</strong> (federation)</td>
<td>Spatial planning at federal level</td>
<td>Raumordnungsgesetz ROG 1998 (Federal Spatial Planning Act)</td>
<td>n/a</td>
<td>Principles of comprehensive spatial planning</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Länder</strong> (states)</td>
<td>Spatial planning at Land level</td>
<td>Federal Spatial Planning Act and Land planning legislation</td>
<td>Comprehensive, supra-sectoral plans</td>
<td>Spatial structure plan (Landesentwicklungsprogramm LEPro) (state development programme)/Landesentwicklungsplan (LEP) (state development plan)</td>
<td>Aims of comprehensive spatial planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Spatial and sectoral sub-plans</td>
<td></td>
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<tr>
<td></td>
<td>Regional planning</td>
<td></td>
<td></td>
<td>Regional plan</td>
<td>1:200,000–</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Regional master plan</td>
<td>1:500,000</td>
</tr>
<tr>
<td>Municipalities</td>
<td>Local land use planning</td>
<td>Bundesbaugesetz BauGB 1998 (Federal Building Act)</td>
<td>Local land use plans</td>
<td>Flächennutzungsplan (preparatory land use plan)</td>
<td>Representation of land use type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Baunutzungsverordnung (Federal Land Utilisation Ordinance)</td>
<td></td>
<td></td>
<td>1:10,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Planzeichenverordnung (Federal Plan Notation Symbol Ordinance) and respective Länder regulations</td>
<td></td>
<td>Bebauungsplan (binding land use plan/local development plan)</td>
<td>Designations of urban development</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1:1,000</td>
</tr>
</tbody>
</table>

Source: based on Moll (1994); CEC (1999a); Turowski (2002).
development control, the contents of the local development plans and the procedures for their preparation are contained in the *Baugesetzbuch (BauGB)* (Federal Building Code), which applies uniformly across the country. These regulations assign the responsibility of implementing control to the local level. There are two types of local land use plans, which are both statutory and for which content and symbolisation are regulated by federal law and highly standardised. These are the *Flächennutzungsplan* (FNP) (preparatory land use plan) and *Bebauungsplan* (B-Plan) (binding land use plan). The *Flächennutzungsplan* is binding on public authorities but has no legal effects on the rights of private landowners. The *Bebauungsplan* (B-Plan) is drawn up for a clearly delineated section of the municipal territory, which determines the accepted land use of plots and contains an environmental assessment. It has to conform to the *Flächennutzungsplan*, and is formally adopted by the municipality as a local statute (or by-law), which means that it is binding on everyone.

Similar to the Dutch situation, planning is not institutionalised in Germany, and professionals come from a wide variety of disciplines, some of which are less spatial in orientation than others (such as law and economics). Nevertheless, the central function attached to ‘planning maps’ in statutory spatial planning means that mechanisms for producing these are well established, thus offering little scope for variation and experimentation and requiring a high degree of professionalism in their preparation. The increasing use of informal planning instruments – explicitly encouraged by the revised *ROG* – will most likely result in different and possibly more innovative approaches to cartographic representations than those prepared as part of the formal planning system.

The ‘spatial’ and integrated approach to *Raumordnung* (spatial ordering) and *Landesplanung* (state planning) in Germany means that much attention is given to the availability of comprehensive systems for the collection, maintenance and cartographic representation of geo-spatial data at all planning tiers. *Raumordnungsberichte* (Spatial Planning Reports) (cf. BBR, 2005) are produced at regular intervals at federal and Länder level which are increasingly aimed at the general public. There is much use of spatial concepts, and most of these have been in use for several decades. The concepts of central places and development axes, for instance, are still cornerstones of German planning, despite the fact that they have been criticised for relying on outdated theoretical assumptions and proximity considerations. Despite all criticisms and increasing recognition of its shortcomings, the central place concept (the hierarchical model for the supply of the population with services and employment, comprising higher, middle and lower-order centres) is again included in the most recent overhaul of the *ROG* (1998) as one of the fundamental principles for spatial planning and as a rule to govern Land-level spatial structure plans. Similarly fundamental to the principles of spatial planning in
Germany and in use since the 1970s are the concepts of development centres and
development axes (as transport, communication and supply routes, and of networks
of settlements), defined to help achieving the equality of living conditions across the
territory (CEC, 1999a). The concept of priority areas (Vorranggebiete) was
developed partly as a reaction to perceived shortcomings of the model of central
places. This concept, rather than trying to achieve an interregional balance, aims at
developing the perceived strengths of certain areas for the benefit of the whole terri-
tory. The identification of priority areas such as water or nature protection areas, or
open spaces in urban settlements, should help to avoid conflicts of use in these
areas. Although the concept has been criticised for intensifying rather than over-
coming regional disparities, it still features in strategic spatial plans and programmes
in Germany alongside the model of central places, and has had a renaissance in the
revised ROG. In the 1990s the combination of the different theories on centres
(theory of central places and growth-pole theory), axes and large-scale decentralisa-
tion experienced an important renaissance as the concept of ‘decentralised concen-
tration’ (dezentrale Konzentration). This concept was seen as a model for
sustainable development, as it aims to achieve large-scale decentralisation along-
side small-scale concentration, i.e. a polycentric settlement pattern in the territory as
a whole based on compact and contained urban areas to avoid urban sprawl and
reduce the need to travel. The concept strongly influenced the debates at European
level, and has been incorporated as an objective for ‘polycentric and balanced urban
development’ in the ESDP (CSD, 1999). There is also increasing emphasis on
‘European metropolitan regions’, which aim at introducing network ideas into what in
many respects remains a rather statist and regulatory planning system.

STRATEGIC SPATIAL PLANNING IN ENGLAND

The United Kingdom (UK) is a unitary state, but it includes four countries (England,
Wales, Scotland and Northern Ireland) and three legal systems (Figure 4.3). Scot-
land and Northern Ireland have separate planning legislation and thus their own
systems of planning, although they follow the same principles as the system in
England and Wales. This section will concentrate on the English planning system.

There is no written constitution for England or the UK, and rights or duties in
relation to spatial planning are thus defined only by laws, which can be changed
relatively easily. The principles of land use control were laid down in the Town and
Country Planning Act 1947, which has since been changed only incrementally.
However, the Planning and Compulsory Purchase Act 2004 in parts amends the
Town and Country Planning Act by introducing new planning instruments at
regional and local level that will replace existing plans. The courts have only a
supervisory role in relation to spatial planning, concerning the legality of actions of
the administration, and rights of appeal are in practice comparatively limited.
Figure 4.3 The UK: devolved administrations and English regions

The overriding comparative characteristic of the English town and country planning system is that of discretion in decision-making. National and regional guidance and local policy instruments are the primary consideration for decision-making, but they have merely a guiding function, and plans and strategies are not legally binding. Policies and guidance at national level provide an effectively non-spatial framework, and the general policies they set out are only expected to be translated by local and regional actors into local and regional policies and initiatives. The statutory framework is essentially procedural; it is almost devoid of substantive content. For example, local authorities are given the duty to prepare development plans, but what the plan should cover is very imprecise (Cullingworth and Nadin, 2002). However, there have been attempts since the early 1990s to implement a plan-led system, which aims at reducing the amount of ad hoc planning control.

The English planning system is notable for the comprehensive regulation of land use and development, which is, however, strongly sectoral and largely separated from controls on building, pollution and transport. There is a tradition of departmental autonomy in the UK, both in central and in local government, and there are few mechanisms which ensure integration. The lack of co-ordination of the spatial impacts of sectoral policies, especially environment, transport, land use planning and economic development, was extensively criticised in the late 1990s. Over recent years, there have been improvements with regard to sectoral integration, especially in the areas of planning and transport.

Planning in England has until recently been mostly equated with the local control of land use. Social and economic matters are relevant for considerations in formulating plans and determining applications for development, but the objectives, policies and proposals themselves were limited to specific land use matters. However, a major reform of the planning system was initiated in 1998, with the focus on new planning instruments at regional and local level. The reform of the planning system has come in response to calls for a more 'spatial' approach to planning and greater integration and coherence of the various strategies with territorial impacts in England, and is driven by the European agenda on spatial planning and the aspiration to achieve more sustainable patterns of development. Thus, the regional planning level in England will continue to increase in importance, and while the Compendium (CEC, 1997) still considered the English planning system as following the 'land use management' approach, this is now moving towards a more comprehensive and integrated understanding of planning. Yet, at the time of writing, it is difficult to clearly describe the English planning system, given the considerable changes introduced by the Planning and Compulsory Purchase Act 2004 which are currently being implemented. Therefore the review of the English planning system in the following sections will cover both the 'old' and the 'new' planning systems.
There is no national spatial plan for England, but the system is – despite devolution efforts – still strongly centralised. Central government can introduce changes to planning policy and procedures quickly, which will then have to be implemented by lower planning tiers. The most important body of government planning policy at national level is found in Planning Policy Guidance notes (PPGs), which influence planning practice at regional and local levels (Box 4.5). These notes, of which there are twenty-five, cover different aspects of planning and can best be described as sectoral, although some deal with *procedural* rather than *substantive* issues. There is no reference to specific locations or ‘spatial content’ in the national guidance. The recent planning reform means that PPGs are being replaced by Planning Policy Statements (PPSs) (Box 4.6), though these appear to remain largely non-spatial in character and hence continuing much along the lines of PPGs. Despite the more ‘spatial’ intentions for planning, it is doubtful whether the intended changes will actually have a major influence on the cartographic representation of spatial policies in the short to medium term.

The reform of the planning system has also made provision to replace Regional Planning Guidance (RPGs) and county structure plans by a single tier of integrated and statutory Regional Spatial Strategies (RSSs) that are to be prepared by Regional Planning Bodies (RPBs). County councils are to have a statutory role in acting as agents for the RPBs in providing technical expertise on the sub-regional aspects of the Regional Spatial Strategies. RSSs will provide the strategic spatial framework within which the new planning instruments at local level, i.e. Local Development Frameworks (LDFs) and Local Transport Plans (LTPs) can be prepared. They will – like the RPGs before them – identify the scale and distribution of provision for new housing and priorities for the environment, transport, infrastructure, economic development, agriculture, minerals and waste treatment and disposal. While RSSs are expected to increasingly take on the role of an integrated regional spatial strategy, the exact differences between RPGs and RSSs (besides the label and the statutory nature) are uncertain at this point in time and the mechanisms for achieving integration in what has to date been a largely sectoralised system are unclear. The draft national guidance on the preparation of RSSs sets out the same general criteria for the preparation of key diagrams, which also implies that these might remain of much the same diagrammatic and abstract character as previous RPGs, thus graphically not giving any clearer guidance for lower planning levels. At the time of writing, work on RSSs was still under way in most of the English regions, but the draft versions that are available reinforce the impression that while considerable effort is aimed at a spatial planning discourse and changing the planning system to become more spatially oriented and more integrated, much will remain the same in the ‘modernised planning system’.
<table>
<thead>
<tr>
<th>Government level</th>
<th>Tiers of planning</th>
<th>Legal foundations</th>
<th>Planning instruments</th>
<th>Material content</th>
<th>Scale of maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local government associations/ Standing Conference/ Regional Chamber</td>
<td>Regional planning</td>
<td>Town and Country Planning Act 1947/1990</td>
<td>Regional Planning Guidance Notes (RPGs)</td>
<td>Framework for Structure Plans and context for UDPs and local plans for twenty year period or longer for each of the eight English regions</td>
<td>Key diagram (not to scale, usually A4 format)</td>
</tr>
<tr>
<td>County Councils</td>
<td></td>
<td></td>
<td>Structure Plan</td>
<td>Mandatory, authority-wide broad framework for fifteen years or longer</td>
<td>Key diagram, often with inset map (not to scale, usually A4 or A3 format)</td>
</tr>
<tr>
<td>District Council</td>
<td>Development planning/local land use planning</td>
<td>Town and Country Planning Act 1947/1990</td>
<td>Local Plan</td>
<td>Mandatory authority-wide plan setting out detailed policies and proposals to guide development control, ten-year horizon</td>
<td>Site-specific on OS map</td>
</tr>
<tr>
<td>Metropolitan District Council/Unitary Authority</td>
<td></td>
<td></td>
<td>Unitary Development Plan</td>
<td>Mandatory authority-wide framework of general policies and detailed policies and proposals to guide development control, ten-year horizon</td>
<td>Key diagram for whole authority and site-specific detailed proposals on OS map</td>
</tr>
</tbody>
</table>

Source: based on Cullingworth and Nadin (2002); CEC (2000b).
<table>
<thead>
<tr>
<th>Government level</th>
<th>Tiers of planning</th>
<th>Legal foundations</th>
<th>Planning instruments</th>
<th>Material content</th>
<th>Scale of maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Planning Bodies</td>
<td>Regional planning</td>
<td>Town and Country Planning Act 1947/1990 Planning and Compulsory Planning Act 2004</td>
<td>Regional Spatial Strategies (RSSs)</td>
<td>Framework for Local Development Frameworks and sub-regional strategies for twenty year period or longer for each of the eight English regions</td>
<td>Key diagram (not to scale, usually A4</td>
</tr>
<tr>
<td>Regional Planning Bodies (in collaboration with other RPBs and County Councils)</td>
<td>Sub-regional planning (where necessary)</td>
<td>Town and Country Planning Act 1947/1990 Planning and Compulsory Planning Act 2004</td>
<td>Sub-regional spatial strategies/growth areas defined in Sustainable Communities Plan</td>
<td>Voluntary strategies at sub-regional level to reflect functional relationships/non-statutory frameworks across administrative boundaries predominantly aimed at urban areas</td>
<td>Key diagram (not to scale, usually A4 or A3 format)</td>
</tr>
<tr>
<td>Unitary Authorities/ District Councils</td>
<td>Local planning/development planning</td>
<td>Town and Country Planning Act 1947/1990 Planning and Compulsory Planning Act 2004</td>
<td>Local Development Frameworks</td>
<td>Mandatory spatial planning strategy for the local planning authority's area, comprised of a ‘portfolio’ of a local development scheme (LDS); development plan documents (DPDs), including core policy and action plans; local development documents (LDLs), including a statement of community involvement (SCI); and supplementary planning documents</td>
<td>Key diagram for whole authority and site-specific detailed proposals on OS map</td>
</tr>
</tbody>
</table>

At local level, two instruments were in place until the recent reform: a strategic Structure Plan, prepared by county councils, and a local plan, prepared by district councils, which sets out development proposals on a topographical map base. Plans must be in conformity with national and regional guidance, which has become a very important source for guiding and challenging planning decisions. The reform of the planning system will introduce new planning instruments at local level and effectively abolish county structure plans.

In the absence of a clear regulatory framework and administrative procedures, the English planning system relies for its operation on the professional judgement of its planners, and planning practice and education are more strongly professionalised and institutionalised than in other European countries. Yet the communicative and discretionary approach to planning to date also means that not much attention has been given to spatial analysis or ‘mapping’ in planning education. Overall, the absence of a strong approach to strategic planning and a generally non-spatial and policy-led understanding of planning mean that spatial concepts have played a minor role in English planning, with the exception of the well known example of ‘green belts’ around major urban areas. The reform of the English planning system towards more integrated spatial strategies at regional and local levels suggests that spatial concepts will now be given increasing attention. Furthermore, network ideas are being introduced into regional planning (expressed as the recognition of functional interdependences and connections with neighbouring regions, for which sub-regional spatial strategies can be prepared) as well as zoning ideas (such as Business Planning Zones). This new mixed approach will pose challenges for English planners in the cartographic representation of spatial policies in regional plans, where key diagrams have to date played a rather minor role.

The style and content of cartographic representations in strategic spatial plans in the Netherlands, Germany and England

In this section, strategic spatial plans from national/federal and regional level in the Netherlands and Germany and from regional level in England are analysed and compared according to the criteria set out in Boxes 4.1 and 4.2.

For the Netherlands, the Nota Ruimte (VROM, 2004) (Plate 4) at national level and three provincial Streekplannen are considered, i.e. Streekplan Noord-Holland Zuid (Provincie Noord-Holland, 2003) (Plate 6), Streekplan Noord-Brabant (Provincie Noord-Brabant, 2002), and Streekplan Friesland (Provinciale Staten van Friesland, 1994)\(^5\) (Plate 5). Due to the indicative nature of PKBs and Streekplannen, much effort is spent on presenting attractive and convincing documents. The
documents come in a wide variety of styles, sizes and layout, and all are presented in a highly professional way. In all cases, there is extensive use of illustrations, covering the range from photographs, sketches, ‘artist’s impressions’ of landscapes and parts of the territory to more digital-cartography-oriented representations of spatial policy in the actual Plankaart, and analytical maps presented on a topographic map base.

For Germany, the Raumordnungspolitischer Orientierungsrahmen (ORA) at federal level (BMBau, 1993) (Plate 7), and three Landesentwicklungspläne/Landesentwicklungsprogramme, i.e. Landesentwicklungsplan Nordrhein-Westfalen (MURL, 1995) (Figure 4.4 and Plate 8), Landesentwicklungsprogramm III Rheinland-Pfalz (Staatskanzlei Rheinland-Pfalz, 1995) (Plate 9), and Landesentwicklungsplan Hessen (HMWVL, 2000) were analysed. Reflecting the federal structure, the Raumordnungspolitischer Orientierungsrahmen is of an informal and non-binding nature, and this is also clearly reflected in the cartographic design of its Leitbilder. In comparison, federal law (as set out in the ROG) ensures a high level of coherence among Landesentwicklungspläne- and programme, which are detailed both in content as well as cartographic expression.

There is no national spatial plan in England, but three English regional plans were analysed. In order to reflect the changing nature of the planning system, two adopted Regional Planning Guidance Notes (RPGs) and one of the draft Regional

Figure 4.4 LEP NRW Landesentwicklungsplan Nordrhein-Westfalen, Zeichnerische Darstellung, Teil A
Source: MURL (1995), separate plot, original size 42 × 30 cm, scale 1:1,000,000
Spatial Strategies (RSSs) were chosen for analysis, i.e. RPG 1 for the North East (GONE, 2002), RPG 10 for the South West (GOSW, 2001) (Figure 4.5) and draft RPG 14 for the East of England (EERA, 2004) (Plate 10). In line with the requirements set out in PPG/PPS 11 on Regional Planning/Regional Spatial Strategies, and PPG/PPS 12 on Development Plans/Local Development Frameworks, the key diagrams in all documents are all strictly diagrammatic and schematic in style to avoid clear locational references. Also in line with the guidance, the legend of the key diagram includes a cross-reference to the written statement of policies.

**THE GRAPHIC STRUCTURE**

**THE LEVEL OF ABSTRACTION/GENERALISATION**

In this section, the level of abstraction of cartographic representations in strategic spatial plans in the three countries is discussed according to the criteria set out in Box 4.1. The analysis reflects the indicative nature of strategic planning documents in the Netherlands, with rather general and abstract representations (Figure 4.6). There is much flexibility in the Dutch planning system that allows provinces to choose whether to prepare a strategic planning instrument and which form it might take, and this flexibility is reflected in a non-standardised approach to the illustration of spatial policy.

In German strategic plans there is a clear difference between the informal ORA and the binding (on public authorities) plans at Länder and local level (Figure 4.7).
4.7). While the indicative nature of the ORA is expressed through a highly abstract and generalised cartographic representation of policy, the other plans show a much greater level of detail and therefore certainty – not least because of the required underlying topographic map bases which allow a more precise location of policy options and the level of scale. There is a high degree of uniformity at Länder level. Generally, there is a preference for saturated and solid colours in German strategic plans – even for the indicative ORA.

Key diagrams in English RPGs/RSSs by definition have to be diagrammatic and should not indicate precise locations, and the analysis shows that this has on the whole been achieved (Figure 4.8). Yet there are a few elements which might give a contradictory message, and these are primarily related to the outline of the territory, which in some cases is comparatively detailed, and the use of strong colour. The lack of generalisation of the territorial outline might be related to the use of Geographic Information Systems or digital mapping software, which do not usually allow for a significant generalisation. Likewise, the use of potentially inappropriate colours (including the use of difference in value, i.e. an ordered appearance from low to high, instead of difference in colour) can give an insight into the production process, and that the person in charge of preparing the key diagram might not necessarily be a cartographer familiar with Bertin’s ‘graphic variables’ (cf. Plate 1).

The cross-national comparison of the level of abstraction of the cartographic representations used in Dutch, German and English strategic spatial plans is shown in Figure 4.9. This is a generalised synthesis of the individual country analyses (Figures 4.6–4.8), and is therefore indicative: it is clearly dependent on the criteria for analysis (as set out in Boxes 4.1 and 4.2), their application and the sample of planning documents chosen (as the cartographic style varies over time in some planning traditions more than others). Figure 4.9 shows that the different functions of the plans are reasonably well communicated through the level of abstraction of ‘policy maps’ in different countries and at different spatial scales, though the approach is more consistent in some countries than in others. Cartographic representations in Dutch and English strategic spatial plans are considerably more varied than in German plans. In the Netherlands, the national plan is clearly the most abstract, thus communicating the indicative nature of the strategy and the hierarchy of planning. At provincial level, there is considerable variation between the strategies with regard to the level of abstraction of cartographic representation. Overall, however, the indicative nature of Dutch spatial plans in comparison with the binding nature of German plans at regional level is evident when comparing the respective cartographic representations of spatial policy. The approach to visualising spatial policy at regional level is even less consistent when analysing English plans. There is much variation with regard to the level of abstraction in key diagrams, which
Figure 4.6 Level of abstraction in the *Nota Ruimte* and Dutch *Streekplannen*

Figure 4.7 Level of abstraction in ORA and German *LEP/LEPros*
clearly indicate that comparatively little attention is given to this instrument in a policy-led planning system, and also give an insight into the lack of experience with visualising spatial policy at regional level. Generally, however, the key diagrams are significantly more diagrammatic and abstract than binding German plans and even than indicative planning instruments in the Netherlands.

THE COMPLEXITY OF CARTOGRAPHIC REPRESENTATIONS

The cross-national analysis of the complexity of cartographic representations in Dutch, German and English strategic spatial plans is presented in Figure 4.10. The complexity of key diagrams is expressed through the number of individual elements listed in the key and the number of categories of planning policy as discussed in the key. Given that not all elements are differentiated into clearly identifiable categories (except for the German plans), and a certain amount of interpretation was involved in determining these, the number of elements listed in the key is in this case the more ‘objective’ criterion to express the level of complexity.

Overall, there are certain differences in the complexity of cartographic representations in strategic plans in the three countries, with a generally higher complexity of German LEPs/LEPros and Dutch Streekplannen than of English RPGs/RSSs. The identification of categories in the English key diagrams was to a certain degree subjective as categories are generally not distinguished. In the Streekplannen for Noord-Holland and Noord-Brabant, a series of analytical and
Thematic maps are developed over the course of the document, which are then represented on one (sometimes two or more) integrated *plankaart*. This approach determines the comparatively high complexity of the ‘policy map’. The *Streekplan* Friesland, and also the *Nota Ruimte* which breaks with the tradition in previous *PKBs* of providing an integrated *PKB* ‘map’, instead show several thematic ‘policy maps’.

In all plans at *Länder* level in Germany, categories are clearly distinguished in both the key as well as the written statement. This is guided by legal requirements laid down in the *ROG*, which for certain categories have to be covered by plans. The *ORA*, because of its informal nature and somewhat ‘unique’ status in the hierarchy of plans and programmes, is different in many respects. First, rather than

**Figure 4.9** Cross-national comparison of the level of abstraction in Dutch, German and English strategic spatial plans

<table>
<thead>
<tr>
<th></th>
<th>The Netherlands</th>
<th>Germany</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Federal</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Provincial</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Regional</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Regional</td>
<td>- -</td>
<td>- -</td>
<td>- -</td>
</tr>
</tbody>
</table>
combining all relevant themes in one ‘integrated’ map, as is required for Länder, regional and local level plans in Germany, the ORA formulates five different Leitbilder, four of which are cartographically represented, thus keeping the complexity of each diagram to a minimum. Second, because each Leitbild covers only one theme or theme complex, the number of symbols used is also very limited. The different strategies are thus efficient with regard to their envisaged audience: while the binding plans at Länder and regional levels are aimed at other professionals (planners, public authorities, other sector departments), the ORA is intended for a much wider audience, including the general public, thus putting different requirements on its design and complexity.

**ASSOCIATION: THE USE OF COLOUR AND SYMBOLS**

In Dutch and German strategic spatial plans the whole planning territory is often represented in colour (and thus is the object of planning, which could be interpreted as the understanding of the plan as a ‘master plan’), whereas in English spatial plans usually much of the territory where policies are not expected to apply is left white. This again demonstrates the different understanding of planning between the Netherlands and Germany on the one hand, and England on the other.

There is generally use of associative colours for those objects that easily lend themselves to being represented in a certain colour, such as ‘green areas’ and water (cf. Table 4.1). The exception to this are the English key diagrams, where there is more variation in the colours used to depict such areas. There is variety across the three countries as regards the use of conventional colours, although in
most cases settlements and built-up land are represented in red shades or black/grey. The English planning instruments are also notable for sometimes inappropriate use of colour, such as blue to depict road infrastructure.

There is a difference between Dutch and German plans on the one hand and English key diagrams on the other in the use of pictorial symbols. While the pictorial symbols used in the former are often geometric, such as stars or circles, there is more use of pictorial and associative symbols in the English plans. This, together with the great variation in, and often unsuitable choice of, colours indicates that cartographic representations are often not prepared by professional cartographers and/or that there is confusion about the intended audience for the key diagrams. The widespread use of arrow symbols in Dutch strategic spatial plans is intended to communicate dynamic elements such as (ecological or transport) connections, and, increasingly, network functions.

**LINGUISTIC STRUCTURE**

**THE RELATION BETWEEN TEXT AND ILLUSTRATIONS**

The analysis of the ‘linguistic structure’ of cartographic representations in Dutch, German and English strategic spatial plans confirms the observations made above: while much emphasis is put on the visualisation of spatial policy in Dutch and

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**Table 4.1** Cross-national comparison of the use of associative colours and pictorial symbols in Dutch, German and English strategic spatial planning instruments

<table>
<thead>
<tr>
<th></th>
<th>Dutch</th>
<th>German</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Unplanned’ areas in colour?</td>
<td>Generally yes</td>
<td>Generally yes (except ORA)</td>
<td>Varied</td>
</tr>
<tr>
<td><strong>Associative colours</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlements/built-up areas/urban areas</td>
<td>Red shades</td>
<td>Red shades or black/grey</td>
<td>Varied (grey or red shades)</td>
</tr>
<tr>
<td>Transport network/development axes</td>
<td>Varied</td>
<td>Varied</td>
<td>Varied</td>
</tr>
<tr>
<td>Nature protection areas</td>
<td>Generally green</td>
<td>Generally green</td>
<td>Varied</td>
</tr>
<tr>
<td>Water</td>
<td>Blue</td>
<td>Blue</td>
<td>Varied</td>
</tr>
<tr>
<td>Use of pictorial symbols</td>
<td>Scarcely (and then mainly geometric)</td>
<td>Scarcely</td>
<td>Yes</td>
</tr>
</tbody>
</table>
German spatial plans, this is much less so for English policy documents. Figure 4.11 shows the results of the cross-national comparison of the relative weight given to cartographic representations in comparison to text in strategic spatial planning in the three countries. Generally, in all three countries there is much variation between the different instruments both with regard to how comprehensive and detailed the policy text is as well as how much attention is given to ‘visuals’.

Nevertheless, certain trends can be identified, with the English plans being much more ‘text-heavy’ in relation to the number of cartographic representations than either the German or the Dutch documents (which have a similar ratio of maps and text). While both English RPGs/RSSs and Dutch strategic plans are quite extensive with regard to text, the Dutch plans contain considerably more cartographic illustrations than the English documents in relation to the written text. Where there is an integrated *plankaart*, it is usually developed over the course of the document on the basis of individual thematic illustrations, and in addition there is also much use of analytical maps or architectural sketches. As in German plans, the themes discussed in these additional ‘maps’ cover issues such as the broader planning context, thematic aspects (such as nature protection designations), as well as more detailed spatial development perspectives for parts of the territory.

Table 4.2 shows the results of the cross-national comparison of the link between written and visual expression of spatial policies in Dutch, German and English strategic spatial plans. The table was prepared on the basis of the analysis undertaken, and policy themes included in the different plans were grouped together to allow a certain amount of comparison. The information is organised according to the policy principles set out in the ESDP, i.e. polycentric spatial devel-

![Figure 4.11 Cross-national comparison of the relative emphasis given to cartographic representations in strategic spatial planning documents in the Netherlands, Germany and England](image-url)
Table 4.2 Cross-national comparison of policy aims in text and graphical expression in strategic spatial planning documents in the Netherlands, Germany and England

<table>
<thead>
<tr>
<th>POLICIES AND INSTRUMENTS</th>
<th>Nota Ruimte</th>
<th>Stapelplan Noord-Hollands Zuid</th>
<th>Stapelplan Noord-Brabants</th>
<th>Stapelplan Friesland</th>
<th>OFA</th>
<th>LEP NRW</th>
<th>LEPpro RLP</th>
<th>LEP Messen</th>
<th>RPP 1</th>
<th>RPP 10</th>
<th>Draft RPP 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthen the international competitive position / strengthen the main economic areas</td>
<td>X</td>
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<tr>
<td>Strengthen decentralised spatial and settlement structure</td>
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<tr>
<td>Strengthen urban networks and/or cross-border connections</td>
<td>X</td>
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<tr>
<td>Improve co-operation between cities and towns</td>
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<tr>
<td>Urban areas in Germany including: system of central places (centres of higher, medium and lower order)</td>
<td>X</td>
<td>X</td>
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<td>X</td>
<td>X</td>
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<tr>
<td>Promote mixed-use development and multifunctional land uses</td>
<td>X</td>
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<tr>
<td>Containment of urbanisation and urban sprawl / promotion of brownfield development</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Preservation of open space within surrounding urban areas for leisure and recreation uses</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Safeguard green belts</td>
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<td>X</td>
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<tr>
<td>Improve availability and performance of rural areas / promote rural diversification</td>
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<td>X</td>
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<tr>
<td>Strengthen agriculture</td>
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<tr>
<td>Provision of housing land</td>
<td>X</td>
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<tr>
<td>Promote recreation and tourism / sports and recreation facilities</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Provision of retail facilities / retail development</td>
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<td></td>
<td></td>
<td>X</td>
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<tr>
<td>Economic regeneration areas / strengthening of business clusters</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Conversion (military sites, industrial areas) to strengthen the regional economic structure</td>
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</tbody>
</table>

...continued...
European context (expressed through policies on cross-border connections and main transport infrastructure), this has not been picked up in the English plans, which appear to tacitly reconfirm the ‘island perspective’. Furthermore, both Dutch and German plans at least attempt to communicate interrelationships between different parts of the territory (expressed through policies on co-operation between cities and towns, city and countryside, accessibility of urban networks, as well as ecological and biotope connections), whilst a discussion of any functional relationship, or integration of policies, is notably absent from English plans. On the contrary, while Dutch and German strategies increasingly seek to overcome the barriers that administrative boundaries present to integrated spatial strategies, English regional plans discuss the definition of sub-regions and sub-areas in great detail – reflecting the new policy agenda at regional level. Key diagrams in English plans seem to have the main function of identifying the location of objects in the territory – and these are more often than not existing, rather than planned, objects or policies. There is a strong emphasis on replicating the status quo rather than communicating future prospects by focusing on the representation of road and rail networks, ports and

Table 4.2 Continued

<table>
<thead>
<tr>
<th>POLICIES AND INSTRUMENTS</th>
<th>Note Ruimte</th>
<th>Streekplan Noord-Holland</th>
<th>Streekplan Noord-Brabant</th>
<th>Streekplan Friesland</th>
<th>CRa</th>
<th>LEP NW</th>
<th>LEP RLP</th>
<th>LEP Hessen</th>
<th>RPG 1</th>
<th>RPG 10</th>
<th>Draft RPG 14</th>
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<tr>
<td>Safeguard main infrastructure / European level and supra-regional development axes</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Improve accessibility and transport infrastructure in and between urban networks</td>
<td>(X) b</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Road infrastructure network</td>
<td>X X X X X X X X X X</td>
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<td>X X X X X X X X X X</td>
<td>X X X X X X X X X X</td>
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<td>Rail infrastructure network</td>
<td>(X) b</td>
<td>X</td>
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<td>Ports and waterways</td>
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<tr>
<td>Modal shift / reduce traffic impacts</td>
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<td>Public transport</td>
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<tr>
<td>Cycling and walking</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Traffic management and parking</td>
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<tr>
<td>Information Communications Technology (ICT) / Improve conditions for research and higher education</td>
<td>X</td>
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continued
Table 4.2 Continued

<table>
<thead>
<tr>
<th>POLICIES AND INSTRUMENTS</th>
<th>Note Ruime</th>
<th>Streekplan Noord-Holland</th>
<th>Streekplan Brabant</th>
<th>Streekplan Friesland</th>
<th>ORA</th>
<th>LEP NRW</th>
<th>LEP RLP</th>
<th>LEP Hessen</th>
<th>RPG 1</th>
<th>RPG 10</th>
<th>Draft RPG 14</th>
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<tbody>
<tr>
<td><strong>Integrated water management</strong> (including groundwater)</td>
<td>X</td>
<td>X</td>
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<tr>
<td><strong>Integrated Coastal Zone Management</strong></td>
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<tr>
<td><strong>River policies and prevention of flood risk</strong></td>
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<tr>
<td><strong>Nature and landscape protection</strong></td>
<td>X</td>
<td>X</td>
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<tr>
<td><strong>Ecological and biotope connections</strong></td>
<td>X</td>
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<tr>
<td><strong>Forestry and woodland</strong></td>
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<tr>
<td><strong>Increase use of renewable energy / energy efficiency / location for wind turbines</strong></td>
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<td><strong>Waste management and treatment / sewage treatment</strong></td>
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<tr>
<td><strong>Minerals and aggregates</strong></td>
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<tr>
<td><strong>Air quality and emission protection</strong></td>
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<tr>
<td><strong>Climate protection</strong></td>
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<td><strong>Redevelopment of contaminated land</strong></td>
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<tr>
<td><strong>Protection of cultural heritage</strong></td>
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<tr>
<td><strong>Define and strengthen sub-regions / sub-areas</strong></td>
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<td>X</td>
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<tr>
<td><strong>Defence and military sites</strong></td>
<td>X</td>
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<tr>
<td><strong>Technical infrastructure (oil, gas, pipelines)</strong></td>
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</tbody>
</table>

**Key**

- X Represented on 'policy map'.
- Discussed in policy text (written statement).

**Notes**

a The analysis presented here relates to the integrated two main *Plankaarten* (that is, 1 on Rural areas, and 5 on Cities, villages and connections).

b Implicitly through national key projects.

Airports; nature protection designations; urban and rural regeneration or generally economic development areas. Thus, in the RPGs/RSSs the purpose of the key diagrams beyond defining areas for regional policy or economic development is often unclear. Regional planning is an emerging agenda in England, and the analysis of the three RPGs/RSSs shows that English planners might still feel more comfortable putting their policies into words rather than 'on the map'.

**Airports; nature protection designations; urban and rural regeneration or generally economic development areas. Thus, in the RPGs/RSSs the purpose of the key diagrams beyond defining areas for regional policy or economic development is often unclear. Regional planning is an emerging agenda in England, and the analysis of the three RPGs/RSSs shows that English planners might still feel more comfortable putting their policies into words rather than 'on the map'.
There are of course also certain policies related to dominant spatial concepts or planning discourse that have no relevance in the other planning traditions, but which explain some of the gaps and differences in the table. Examples are dominant concepts such as the German decentralised spatial and settlement structure and the system of central places, or the English green belt concept (the underlying idea of which is reflected in the ‘protection of open space’ in Dutch and German strategies). These differences in the understanding of planning aside, it is notable that there are also important commonalities with regard to what is represented in strategic spatial plans in all three countries. First and foremost, policies for urban areas are extensively discussed in all plans and are also depicted without exception. This is much less so for policies on rural areas, which – although discussed in the majority of plan documents under study – are hardly ever visualised. Besides this urban bias, there is also a clear dominance of linear transport infrastructure (road, rail and waterways) on all ‘plan maps’, which is often defined as a structuring device for the territory (e.g. development axes) but nonetheless reflects the understanding that accessibility equals economic competitiveness. Despite current concerns about the ‘network society’ and its effects on the use of space (cf. Chapter 3), the use of Information and Communications Technology (ICT) and its impact on the spatial structure are virtually ignored and certainly no attempt at illustration is made. A similar observation can be made for the area of the third policy principle that the ESDP defines, i.e. the protection of natural and cultural heritage. While there is much discussion of natural resources in all planning documents under study, and water, landscape and nature protection areas are visualised on the majority of the key diagrams, there is significantly less attention given to the protection of cultural heritage.

**THE ‘RULES OF SOCIAL ORDER’: AN ASSESSMENT OF THE VISUAL HIERARCHY**

An assessment of the ‘visual hierarchy’, i.e. a subjective assessment of the most prominent elements in strategic spatial planning instruments in the Netherlands, Germany and England, confirms these observations (cf. Table 4.3): urban areas, transport infrastructure and ‘green’ spaces are the most prominent in the majority of the plans.

**THE GEOGRAPHIC CONTEXT OF THE PLAN AREA: SPATIAL POSITIONING AND ‘CONNECTIVITY’**

Turning to the cross-national analysis of the ‘spatial positioning’ of the planning territory, although sensibly the planning territory is always represented in the centre of the ‘map’, there are significant differences in how surrounding areas are represented and in how linkages and connections are visualised. In most plans, the wider
Table 4.3 ‘Visual hierarchy’: dominant elements in cartographic representations of strategic spatial plans in the Netherlands, Germany and England

<table>
<thead>
<tr>
<th>(a) The Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nota Ruimte</strong></td>
</tr>
<tr>
<td>Map 1 Economy and agriculture:</td>
</tr>
<tr>
<td>Economic core area</td>
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<tr>
<td>Reconstruction area</td>
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<tr>
<td>Map 2 Urbanisation:</td>
</tr>
<tr>
<td>Concentration area</td>
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<tr>
<td>National city key project</td>
</tr>
<tr>
<td>National urban network</td>
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<tr>
<td>Map 4 Water:</td>
</tr>
<tr>
<td>Space for the rivers</td>
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<tr>
<td>Indicative emergency overflow areas</td>
</tr>
<tr>
<td>Map 5 National Ecological Network:</td>
</tr>
<tr>
<td>Delimited ecological network: large expanses of water</td>
</tr>
<tr>
<td>Delimited ecological network</td>
</tr>
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</table>

continued
<table>
<thead>
<tr>
<th>Leitbild Settlement structure:</th>
<th>LEP NRW</th>
<th>LEPro RLP</th>
<th>LEP Hessen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban network with particular alleviation needs</td>
<td>Part A:</td>
<td>Centres</td>
<td>Agricultural priority areas</td>
</tr>
<tr>
<td>Urban networks with particular development needs</td>
<td>Dense urban areas</td>
<td>Long-distance motorway network</td>
<td>Ecological priority areas</td>
</tr>
<tr>
<td>Protect and improve connections of nature and landscape potentials</td>
<td>Large-scale axes of European significance</td>
<td>Focal area for protection of species and habitats</td>
<td>Central places</td>
</tr>
<tr>
<td>Safeguard and improve open space functions surrounding metropolitan areas</td>
<td>Part B:</td>
<td>Locations with particular development impulses (Bonn–Berlin transfer, development impulses stemming from high-speed train or motorway development)</td>
<td></td>
</tr>
</tbody>
</table>

**Leitbild Environment and spatial use:**

- Protect and improve connections of nature and landscape potentials
- Safeguard and improve open space functions surrounding metropolitan areas

**Leitbild Transport**

- Transfer from road traffic to rail in high-impact corridors
- Integrated transport concepts in high-impact agglomeration areas
- Connections for transit transport
**Leitbild Order and development:**

Very high development needs
Order needs

(c) England

<table>
<thead>
<tr>
<th>ORA</th>
<th>LEP NRW</th>
<th>LEPo RLP</th>
<th>LEP Hessen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RPG1</strong></td>
<td><strong>RPG10</strong></td>
<td><strong>Draft RPG14</strong></td>
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</tr>
<tr>
<td>Green Belt</td>
<td>Areas of special need</td>
<td>Road and rail network</td>
<td></td>
</tr>
<tr>
<td>AONB</td>
<td>Principal Urban Areas</td>
<td>Greater London Authority (outside planning region!)</td>
<td></td>
</tr>
<tr>
<td>World Heritage Site</td>
<td>Airports</td>
<td>Milton Keynes South Midlands sub-region</td>
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<td>Main Retail/Commercial/Leisure Centre</td>
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<td>Cambridge and Peterborough sub-region</td>
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<tr>
<td>Existing Strategic Employment Site</td>
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<td>Norwich sub-region</td>
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<td>Green belt, Strategic Employment Sites and Priority areas for regeneration</td>
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planning context, including the European, cross-border or national dimension, is represented on a separate diagram. The 1994 Streekplan for Friesland puts the territory in the context of the ‘Blue Banana’ study which had been published a few years earlier (see Figure 4.12). The cross-border context is also extensively discussed in all LEPs/LEPros under study, and is cartographically represented on a dedicated diagram in all three plans (cf. Figure 4.13). The European context for planning is increasingly discussed and partly also cartographically represented in English regional plans. In most cases, this is done with a diagram showing the outlines of the United Kingdom and North-west Europe and the location of the regional planning area, and sometimes the diagrams also include boundaries for European Structural Funds or Interreg funding. A notable exception to this rather traditional approach to representing the European context is the Regional Planning Guidance for the North East (RPG 1) (see Figure 4.14), which challenges spatial positioning assumptions by showing that the distance between the North East of England and Cornwall for instance is longer than that between the North East and the Netherlands.

Figure 4.12 Friesland in the international context
Source: Provinciale Staten van Friesland (1994: 86)
Figure 4.13  Cross-border planning and urban networks in Hessen

Source: HMWVL (2000: 12), original A4
However, there is little acknowledgement of functional interdependences on the actual ‘plan maps’. In Dutch plans, the surrounding territories are generally represented either through a topographic map base or by showing a continuation of land uses – often by using arrow symbols. The *Nota Ruimte* is an exception to the rule in representing the Dutch territory in the wider European context without
administrative boundaries (cf. Plate 4). Many spatial concepts that are in use in the Netherlands aim at the integration of spatial impacts, though there is also much use of ‘zoning’ instruments (such as red contour) in some of the plans. The ‘connections’ that are referred to frequently (ecological connections, development axis, urban networks) are generally represented through arrow symbols. This means that zoning instruments and more network-oriented ideas coexist in many Dutch plans (cf. also Healey, 2006), which inevitably raises questions about the effective combination of these two different conceptions of space.

In comparison, while in statutory German plans the surrounding territory at Länder level is represented through a topographic map base, there is no acknowledgement of spatial interdependences with neighbouring areas on the actual ‘plan map’, thus strictly reflecting the planning competences which end at the administrative boundary. The dominance of neoclassical and therefore ultimately static spatial planning concepts leaves little room for the consideration of relational aspects in the ‘plan map’ content and symbols used. The only possible exception is the LEPro RLP (Plate 9) which identifies areas with development impulses following the Bonn–Berlin compensation. Arguably, planners may have given a little more thought to the underlying spatial structures, and how they could be visually represented in this respect, and thus, within the regulatory framework, have begun to deviate from their established ‘scientific’ representation of policies. The ORA, being an informal instrument, is of course an exception to this, by showing the German territory in a wider context on all four Leitbild illustrations.

In England, reflecting the overall heterogeneous approach to ‘mapping’, there is variation in the representation of surrounding territories. In some of the key diagrams, the planning territory is represented as an ‘island map’ with surrounding territories left white, while in others, which are ‘frame maps’, there is much variation with regard to the depiction of connections with neighbouring areas. In some cases there is for instance a continuation of transport connections into the neighbouring areas (often shown using arrow symbols), while on other key diagrams there is no depiction of planned – or even existing – objects outside the administrative boundary. This lack of ‘spatial positioning’ (Williams, 1996: 97) in the majority of English plans seems highly problematic, as one could argue that if planners are not familiar with the wider context of planning, and the connections of their planning territory with surrounding areas, then the consideration of national or even European connections will pose an insurmountable challenge. Furthermore, the illustrations in English key diagrams are overall strictly static – often focusing on a representation of designations or certain locations – and there is no evidence that any consideration has been given to the cartographic representation of functional relationships.

Thus, although overall functional interdependences and networks are given increasing attention in policy text, the form and style of cartographic
representations in strategic spatial plans in the three countries have to date not been significantly affected. For instance, while much rhetoric in spatial policy documents concentrates on ideas of network space, such as functional interdependences or relational dynamics, the accompanying ‘policy maps’ and key diagrams do not reflect this changing discourse but remain in most cases strictly Cartesian in representation. In terms of underlying geographical analysis and imaginative use of symbols, the analysis showed that – with the exception of some Dutch strategies – none of the key diagrams is particularly ‘artistic’. There are certain elements identified in the cartographic illustrations which represent spatial relations or networks, but the overall impression is of ‘scientific’ but rather traditional policy maps in the German plans, and of generally not very comprehensive or elaborated key diagrams in the majority of the English RPGs. The Dutch plans show an interesting ambiguity in this respect, with on the one hand an obvious interest in experimental and innovative ideas for spatial development (expressed through integrated spatial connections and concepts), yet on the other hand – at least in some of the plans – insistence on the (subconscious) belief in the ‘objective’ and ‘unbiased’ map by using remote sensing data and GIS.

In terms of the users of these plans one can assume that the planning instruments in Germany and England are predominantly directed at lower planning tiers and other sectoral departments, i.e. other professionals, and not necessarily the wider public. The obvious differences in style can then be explained by the function of this planning instrument in the system, rather than different user groups. Whereas the German approach in many respects seems to fulfil its requirements by providing a ‘scientific’ and therefore ‘trustworthy’ representation, a certain standardisation and hence planning certainty for lower levels, the cartographic representations in English key diagrams seem somewhat less well prepared for their role. The flexibility and discretion in the English planning system, and the strong emphasis on communication and consensual planning, would ideally find their visual expression in an indicative and somewhat fuzzy representation, but one which is nevertheless attractive and convincing. That the RPGs under study seem to fall short in this respect can be explained through the relatively new requirement of preparing strategic regional plans in England, and possibly also through the notable absence of mapping and visualisation in planning education. In this respect, English planners could learn much from other countries about the ‘mapping’ of spatial policies. Although indicative in nature, Dutch plans are clearly directed at the wider public, besides a professional audience, and are overall presented in a highly attractive and professional format, which ensures their support.
Concluding remarks

The role of a plan in the system as well as the underlying planning concepts determine both what is visualised as well as how it is visualised. This becomes very obvious when comparing the detailed, territorial and comprehensive approach in regulatory and binding plans in Germany with the sectoral and policy-oriented approach to visualising indicative guidelines in the English plans. The analysis showed that generally spatial policies are more comprehensively visualised in the German and Dutch spatial plans, thus giving certainty to lower planning tiers, although the two countries rely on different mechanisms to achieve conformity within the system. Germany follows a hierarchical and regulative planning approach and a ‘scientific-rational’ approach to mapping, while the Netherlands rely on the power of consensus, persuasion and ‘golden reins’ of national government funding, which leaves more room for different visualisation techniques, from complex GIS-based mapping to more ‘artistic’ representations. In comparison, although all English plans are required to contain a key diagram, this is in many cases merely an instrument to highlight future road improvements and to allocate regional policy funding, rather than an attempt to visualise the complex spatial interrelations facing the territory. Hence, there is much stronger emphasis on the written statements in English plans, which give more general guidance on principles for territorial development in the region. The maturity of a system also affects the approach to visualising, as the new agenda for regional planning in England and the wide variety in the visualisation of policy demonstrate in comparison with the well established German and Dutch systems. Furthermore, the still largely sectoral approach to spatial planning in England may also at least partly explain a certain inhibition to visualise the interaction of different policies on the territory. However, in a planning tradition which is primarily based on communication and consensus one would expect a somewhat more sophisticated use of powerful communication tools such as key diagrams. This, and the wide variety of approaches to visualisation in the RPGs under study, indicates the relatively new and inexperienced use of planning instruments at this level.

In contrast to the well established tradition of visualising in strategic planning in the Netherlands and Germany, there is no tradition of cartographic representation of integrated spatial policy at national level in England. This is of particular concern for regional planning, which will be given ever more attention under the reformed planning system. The analysis showed that in some cases not much thought had been given to the preparation of the key diagrams in English plans. However, they could potentially provide examples of how to prepare attractive, meaningful and convincing cartographic representations of spatial policy at transnational levels, given the emphasis on guiding principles and communicative
planning approaches in the UK. Yet the key diagrams in the documents under study disappoint in this respect in their rather non-imaginative representation of infrastructure, urban areas and economic development and environmental designations. It remains to be seen how the regional planning agenda in England will develop, and whether more emphasis will be placed on cartographic illustrations in regional plans in the future.

Above and beyond these differences that relate to the organisation of the planning system, there are some observations on the basis of the analysis which apply more generally. First, there is a structural distortion in favour of urban areas, infrastructure and designations (for example for environmental protection or economic development). Rural areas for example tend to be underrepresented in the visualisation of spatial policy. This structural distortion is of course partly influenced by dominant spatial concepts and policies (urban networks and development axes in the Netherlands, central places and development axes in Germany; green belts in England), but the power of ‘being on the map’ could imply an in-built disadvantage for areas that are not easily delineated and located. Second, the analysis also demonstrated that while current planning discussions pay much attention to the ‘network society’ and the spatial impacts it may have, including increasing functional interdependences predominantly at regional level, there is not much evidence that these changing conceptions of space are being applied to the cartographic aspects of planning. As there should be a thorough analysis of the territorial structure before plan preparation, one could expect certain geographical relations to be visualised on the key diagrams, especially in plans with a predominantly communicative function. Brunet’s chorèmes demonstrate how spatial interpretation can even lead to geometric transformation (cf. Chapter 3). Clearly, none of the documents under study has taken this rather radical step yet and incorporated elements resembling Brunet’s models, and there is little evidence of any interpretation of spatial relations in the majority of plans. Instead, a traditional and strictly Cartesian cartographic representation of spatial policy still appears to dominate the planning approach in the three countries under study. Third, and reflecting experience at European level, is the expanding scope of European planning systems to include ever more policies without a clear territorial reference, such as ICT or social cohesion issues. Clearly, the visual representation of their spatial impact is a very difficult task, possibly requiring new approaches to visualisation. Structural distortion in favour of objects with clear territorial delimitation is already evident in the plans under study in this book, and by integrating a large number of other sector policies in spatial planning systems, which the European ‘spatial planning approach’ implies, the integrative representation of spatial policies in the territory will become even more challenging.

Overall, the cross-national analysis of the form and style of cartographic
representations in Dutch, German and English strategic spatial plans demonstrates that despite the fact that European planning systems increasingly converge, following – amongst other influences – developments in European spatial planning, and many European planning systems have undergone more or less far-reaching reforms over recent years, the cartographic representations of spatial policy appear to remain unaffected by this evolution and continue to carry forward traditional approaches. This is of particular concern given the considerable expansion of spatial policy text over recent years, as this might result in significantly diverging messages from the two main ‘media’ in strategic spatial plans in Europe.
This chapter examines the use of cartographic representations in the most notable example of transnational co-operation on European spatial planning to date: the European Spatial Development Perspective (ESDP). The ESDP was prepared by the Committee on Spatial Development (CSD), an informal intergovernmental meeting of senior officials from the member states and the European Commission (DG Regio) and adopted in 1999. In parallel to this intergovernmental work, spatial development studies, such as *Europe 2000* and *Europe 2000+* (CEC, 1991, 1994) were undertaken by the European Commission, which provided a more ‘European’ perspective on spatial development and proved to be an important reference for European spatial planning initiatives such as the Community Initiative Interreg.

The development of the ESDP has been well documented by Faludi and Waterhout (2002), and the power struggles over maps in the process have been investigated by Jensen and Richardson (2004). In this chapter, particular attention will be given to the question of how cartographic representations are constructed in transnational spatial policy processes, and how they are used to communicate spatial policy. In doing so, the analysis will draw on the framework provided by John Forester (1989) on power imbalances in planning processes (see Figure 2.1). In addition, there are a number of aspects directly relevant to the analysis of the ‘cartographic outputs’. These will be investigated by analysing the graphical and linguistic structures of the illustrations according to the dimensions set out in the conceptual framework in Boxes 4.1 and 4.2. The identification of distortions in communication through ‘maps’ that were produced in the ESDP process might help to avoid similar problems in future transnational co-operation processes. This can help to make best use of spatial images in supporting European planners to work across their differences in the understanding of planning.
certain direction, but that they may also give voice to disadvantaged parts of society and the territory. The criteria to assess the use of cartographic representations in planning processes with regard to the distortion and exercise of power in communication build on Forester’s (1989) bounded rationality framework. Forester’s framework has previously been mainly applied to the analysis of ‘written language’. However, based on Harley’s (1989) and Pickles’s (1992) work, which suggests treating ‘maps’ as expanded concepts of text, the framework was considered useful to structure the analysis of distortive factors in communication through cartographic representations (see Box 5.1).

**Box 5.1** Criteria for the analysis of power and distortion in communication through cartographic representations in transnational spatial policy processes

<table>
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<tr>
<td><strong>Power and distortion through cartographic representations in strategic spatial planning</strong></td>
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<tr>
<td><strong>Socially ad hoc/inevitable distortion</strong> for instance caused by:</td>
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<tr>
<td>• Cognitive limits</td>
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<td>• Incomplete information</td>
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<td>• Ambiguous definition of a problem</td>
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<td>• Individual differences in perception</td>
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<td>• Emotional factors</td>
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<td>• Mistakes in map design</td>
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<td><strong>Structural/inevitable distortions</strong> for instance caused by:</td>
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<tr>
<td>• Legitimate division of labour</td>
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<td>• Transmission/context loss across organisational boundaries</td>
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<td>**Socially ** ad hoc/unnecessary distortions for instance caused by:</td>
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<td>• Interpersonal manipulation</td>
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<td>• Interpersonal deception</td>
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<td>• Interpersonal bargaining behaviour/bluffing</td>
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<tr>
<td><strong>Structural/socially unnecessary distortions</strong> for instance in order to:</td>
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<tr>
<td>• Help to maintain power relations</td>
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<td>• Keep public attention away from certain issues</td>
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The use of cartographic representations in the preparation of the European Spatial Development Perspective

The preparation of the ESDP until its adoption in 1999 lasted for more than ten years, but there was little discussion on the visualisation of possible policy options for the EU territory until the mid-1990s. However, theories on the use of cartographic representations in planning processes have pointed out that ‘maps’ can have an important role in shaping the debate and setting agendas, if introduced early on in the process (cf. Söderström, 1996, 2000; Neuman, 1996, 2000). Clearly, this potentially central role of cartographic illustrations was not recognised in the first years of ‘searching’ for the appropriate function of an EU spatial strategy, and their introduction into a process that was already well under way proved difficult.

The discussion in this chapter will concentrate on those stages in the ESDP process that were crucial to the discussions on ‘mapping’. The examination will concentrate on the preparation of ‘trend scenarios’ under the French presidency in 1995, the tactics under the Spanish and Italian presidencies, and the renewed emphasis on ‘mapping’ under the Dutch presidency in the run-up to the first draft of the ESDP. Further, the developments under the UK presidency in preparation for the complete draft ESDP (Glasgow document) in 1998, and for the final ESDP under German presidency in 1999 will be discussed. The chapter will also briefly consider developments with regard to the cartographic representation of spatial policy for the EU territory after the adoption of the ESDP. The chapter concludes with a synthesis of the underlying factors affecting the debate on policy maps for the ESDP.

The French Trend Scenarios (Strasbourg, 1995)

The trend scenario exercise, initiated by the French EU presidency in 1995, was the first important step in intergovernmental working towards the cartographic representation of spatial policy options for the EU-15 territory, and undoubtedly one of the high points in the ‘mapping history’ of the ESDP process. The scenario approach was a new experience for all involved, including the French presidency. The time horizon for the scenarios was 2015, and they were meant to present a future scenario on the assumption that no significant policy changes would occur. The trend scenarios were based on the ‘Principles for a European Spatial Development Policy’ (the so-called ‘Leipzig principles’), on which the EU ministers responsible for spatial planning had agreed in 1994 (BMBau, 1995b). The three ‘Leipzig’ policy themes related to a more balanced and polycentric urban system; parity of access to infrastructure and knowledge; and the wise management and sustainable development of Europe’s natural and cultural heritage. The trend scenarios
were prepared by the fifteen EU member states for their domestic territories according to a methodology and outline provided by the French presidency. The French delegation synthesised the individual national contributions into three European trend scenarios, according to the three themes (urban system = red (see Plate 11), transport infrastructure = blue, and natural heritage = green). The French presidency proposed that the member states would elaborate the desired vision or policy scenario for their respective nation-state, and the ESDP would be derived from a synthesis of these proactive scenarios (DATAR, 1995). However, subsequent presidencies did not follow up these ideas.

The trend scenario exercise was notable for the innovative approach to understanding spatial development patterns and trends, and because it made people for the first time in the process consider the spatial implications of the ESDP policy options – even if only for their own territory. The trend scenarios have reportedly helped to clarify the content and purpose of the ESDP and to overcome language barriers in the intergovernmental working group (Sinz, 1997). This stage in the ESDP process was therefore highly productive in facilitating the exploration of different understandings about spatial development among member states. In some countries, the work on the scenario exercise has influenced domestic policy approaches, as for instance in Germany, where the work on the trend scenarios and the Raumordnungspolitischer Orientierungsrahmen (BMBau, 1993) were undertaken in parallel (cf. Rase and Sinz, 1993).

Yet the fact that all member states had significant influence over the representations of their territories in their national contributions affected the validity of the end result significantly. The categories suggested by the French presidency on the one hand allowed enough flexibility for different definitions and indicators to be employed, but on the other hand were perceived in the more sparsely populated EU member states as being drawn up by and for the urbanised core of Europe. The Swedish contribution to the European trend scenarios, for instance, pointed out the significant differences in the urban system in Sweden by comparison with the rest of the EU territory, and the problem of fitting this into ‘descriptions of the development of urban systems in Europe. [The Swedish towns’] regional importance is often greater than for centres of corresponding size in Europe’ (BOVERKET, 1995b: 1). This, in addition to the fact that member states worked only on their domestic territories, without consideration of the European context, implies that the fifteen national contributions cannot be compared, as they were based on distinctly different assumptions, definitions, and indicators, and the outcome has therefore been called a ‘rather jumbled fifteen-piece jigsaw puzzle’ (Bastrup-Birk and Doucet, 1997: 309).

The lack of comparative data for the European Union, which are often based on national and regional data sources and different criteria for data collection
between different European countries, continues to be a major concern in European spatial development initiatives. Differences in the organisation of planning systems also become obvious here: whereas some countries such as Germany, the Netherlands or Denmark regularly publish national spatial planning reports based on sophisticated spatial information systems, other countries such as the UK are much less well equipped for the task. Consequently, only issues for which data were available for all fifteen member states could be represented, and this resulted in a lowest common denominator approach for the synthesis at EU level. Partly related to this is the problem of ‘hybridisation’ of functions assigned to the cartographic outcomes. The scenarios were meant to depict spatial trends affecting the territory in the year 2015. However, lack of experience with such an exercise and lack of relevant data meant that in some instances merely an analysis of the current situation was depicted.

Furthermore, the ESDP process overall was characterised by uncertainty over the relationship between the work on this spatial strategy and EU regional policy, and this was already apparent during the preparation of the trend scenarios. In the ‘red’ trend scenario, for example, aspects of competitiveness and economic development in the urban system were omitted ‘because it was decided that first the relationship between an economic typology and the eligibility criteria of the Structural Funds’ (BfLR, 1995a: 4, own translation) should be clarified.

The efforts under the Spanish and Italian presidencies concentrated on spatial analysis and at developing a geo-referenced database, rather than progressing the work on policy scenarios. This came partly in response to the concern expressed by several member states, including the Netherlands and the UK, about the qualitative nature of the French trend scenarios, which they considered not ‘scientific’ enough. Similar to the French exercise, the Spanish and Italian presidencies suggested an outline for each member state to describe the spatial structure in their country. Even though the national contributions varied greatly, due to reasons of different interpretations and lack of data, the Italian presidency digitised the individual illustrations and produced a series of six GIS-based maps (cf. Figure 5.1). The change in direction and the delays caused by undertaking similar exercises on the collection of spatial information for the national territories have been interpreted as an expression of the fears by Mediterranean countries, in particular Spain, that the ESDP could be used to determine the allocations of Structural Funds in the 2000–2006 programming period (Rusca, 1998).

The Italian presidency’s initiative to transfer the national contributions on to a GIS meant that all the underlying problems (related to different definitions, non-comparable data and information, etc.) were also transferred. Furthermore, the
Figure 5.1 Cartographic representation produced under the Italian presidency in 1996: ‘polycentric and balanced urban system’

Source: archives of VROM, original A3
representation of spatial information with a GIS has – in the view of many – much more credibility and objectivity than a qualitative and highly generalised cartographic representation such as that used for the French trend scenarios, which openly communicates that the illustration is not exclusively based on ‘hard’ facts but also involves a certain amount of interpretation. The reports and maps prepared under the Spanish and Italian presidencies were eventually discarded by the other member states as ‘scientific studies of little political relevance’.2

THE FIRST OFFICIAL DRAFT ESDP (NOORDWIJK, 1997)
The next important steps in visualising the European territory in the ESDP process were taken under the Dutch presidency in preparing the first official draft of the ESDP. A cartographic group was set up, comprising experts from the Netherlands, the European Commission, Germany, France, Italy and Spain, and co-ordinated by the Dutch presidency. The focus was on providing a spatial analysis database as well as spatial policy maps for each of the three ‘spheres of activity’.

Numerous cartographic representations were prepared by the cartographic group during the Dutch presidency to illustrate the spatial characteristics of the territory for the analytical part of the draft ESDP. Many of the illustrations had been revised numerous times, according to comments received by CSD delegates, only to be abandoned in the end as no agreement could be reached. For example, the cartographic team put much work into an illustration of the ‘Territorial Framework’ (see Plate 12), which differentiated between urban and rural areas having a stronger and weaker economic structure. The illustration was in the end vetoed by the Spanish delegation, because of its possible connection with the EU Cohesion Policy. In an internal note from the cartographic group to the CSD the following explanation is given for the omission of the ‘territorial framework’ map:

Important arguments in favour of taking the typology example along were the fact that it illustrates well the added value of the spatial approach and that it sketches clearly the further direction into which the ESDP would develop. Also the fact that the majority of member states have reacted constructively with amendment proposals was given due consideration.

Nevertheless, the political risks... especially the risk of misinterpretation as a proposition instead of an example and its unintended influence on current negotiations on the reform of Structural Funds as well as the CAP, ultimately turned the scales in favour of not including the example in the present draft ESDP.
(Note dated 26 May 1997, archives of VROM)

An illustration depicting the spatial organisation of the EU in terms of urban and rural areas (see Plate 13) was heavily criticised as an oversimplified presentation of
the spatial structure of the EU territory and as the perspective of a single member state from the highly urbanised part of north-west Europe, which would regard all other countries as ‘rural’ and ‘green deserts’ in comparison. The discussions surrounding the maps for the draft ESDP thus exemplify the difficulty of finding the right level of abstraction at a scale higher than the nation-state, and the need for careful consideration of the specificities of intergovernmental working in order to avoid a nationally biased perspective on spatial development issues. The question of who is involved in the process of producing maps and who makes decisions on what to represent is a crucial one in planning processes in general, but particularly so in intergovernmental ones. While all member states were invited to send a delegate to participate in the cartographic group set up under the Dutch presidency, in practice this was limited to those countries that had the staff and financial resources to do so, and also the appropriate expertise and interest in the task. Countries not represented on the cartographic group, therefore, had the possibility to comment on the suggestions made by the cartographic group, but had little opportunity to initiate proposals for cartographic illustrations.

Most of the cartographic illustrations that were prepared under the Dutch presidency were discarded, and instead four geo-referenced maps in A3 format were included in the appendix of the first draft ESDP (CSD, 1997) (see Figure 5.2). Much of the information for these illustrations originated from the work on the French trend scenarios and the maps prepared under the Italian presidency. However, this is a problematic approach, as it attempts to give scientific credibility to what are effectively highly subjective assessments. Reflecting the controversies about ‘maps’ in the ESDP process, these four illustrations carried a note saying that:

This representation is only an illustration of certain spatial elements referred to in the text of the ‘First Official Draft’ of the ESDP.... They in no way reflect actual policy proposals and there is no guarantee that the elements displayed are exhaustive or entirely accurate. (CSD, 1997, annexe)

Many notes can be found in the VROM3 archives on the discussions surrounding the development of maps for the ESDP, and the increasing confusion at this stage about the information base for, and purpose of, the illustrations. For instance, Finland, Germany and Spain expressed their view that ‘maps should be objective (descriptive or statistical) – not political’ (Archives of VROM, 15 December 1997). Besides the persistent understanding by several delegates that statistical maps can be objective and unbiased (although clearly every map is an interpretation and therefore distorts reality), the comments also express the unease with a political message that might be misunderstood, and a certain confusion about the function...
N.B. This representation is only an illustration of certain spatial elements referred to in the text of the First Official Draft of the ESDP, presented at the informal meeting of ministers responsible for spatial planning of the Member States of the European Union in Noordwijk, 9/10 June 1997. They in no way reflect actual policy proposals and there is no guarantee that the elements displayed here are exhaustive and entirely accurate.

**Figure 5.2** Cartographic representation included in the first official draft ESDP: ‘Diversity, complementarity and co-operation’

of the cartographic representations (‘not clear whether transport corridors on the map exist or are wishful thinking’ (Portugal) (ibid.)).

The preparation of ‘maps’ for the first official draft of the ESDP highlights three critical aspects for map-making in transnational planning processes. This is, first, the question of audience and users of the ESDP, which became manifest in the attempt to find the right cartographic expression for a function that had not been clearly defined. Second, the competence issue, and also the mandate that members of the CSD had from their home countries to undertake work on the ESDP became important for the first time in the ESDP process in the run-up to the Noordwijk draft – even if it was not always openly discussed. While members on the CSD tried to improve the cartographic representations proposed by the cartographic group (as in the case of the ‘Territorial Framework’, Plate 12), this individual involvement was challenged when the results of the CSD meeting had to be presented to those ‘back home’ – and resulted in the veto of the Spanish delegation. Third, the question of the appropriate spatial issues to be discussed at European level, which affects the level of abstraction for cartographic representations, is an important aspect for consideration. The ‘spatial positioning’ (Williams, 1996: 97) skills of CSD members had hardly been challenged until the cartographic group under the Dutch presidency took up their work (given that earlier ‘mapping’ tasks of CSD members had been mainly concentrated on their own familiar territories), and this resulted in discussions in this phase of the process on what transnational planning and cartographic representations at this scale actually entail.

THE COMPLETE DRAFT ESDP (GLASGOW, 1998)

Following the agreement of the first draft of the ESDP at the meeting of ministers in Noordwijk in 1997, and reflecting earlier controversies about ‘policy maps’, the UK presidency proposed to focus exclusively on analytical maps showing the spatial character of the EU territory. The analytical part of the ESDP and the accompanying maps were the responsibility of a ‘core group’ with members from the UK, the Netherlands and Luxembourg. Except for the Dutch cartographer, who had been involved in the Noordwijk process, all were relatively new to the process. The core group intended to revise the four Dutch maps in the annexe of the first draft ESDP (cf. Figure 5.2), in order to separate ‘technical – as distinct from policy – content’ (Note to expert group, December 1997, archives of VROM), thus aiming to clarify their function and present them as indicator-based analytical maps. The distinction between analytical-technical maps versus policy (or political) maps reflects the continuing belief in the existence of an ‘unbiased’ and objective map – although clearly any selection of what to present, also on analytical maps, implies a (political) decision. In any case, the translation of the Noordwijk maps into analytical maps proved to be an insurmountable challenge, as CSD members began to
question the validity of the depicted issues, such as for instance the information basis for the definition of ‘gateway cities’ and ‘potential cross-border co-operation’ in one of the maps (see Figure 5.2).

Yet even the decision to concentrate exclusively on analytical maps for the ESDP proved difficult, as a note from an internal communication between the core group members on the inclusion of an illustration of the TEN-T network demonstrates:

the maps on transportation issues still cause many problems. The initial decision to use the maps included in the official TEN-document (TEN directive no. 1692/96(EC)) to illustrate the existing transportation networks in order to avoid any discussion among member states, proved not to be a solution, at least not for all modes of transportation. It appeared that the keys with these maps contain also planned links, while the [CSD] desires not to map any planned items in Chapter II [of the ESDP], since this describes existing situations and trends, and moreover because consensus about planned issues turns out to be difficult to achieve. Unfortunately the planned links cannot be removed from the TEN-maps without harming the correct representation of the existing networks. (Note to ESDP group of experts, dated 18 March 1998, archives of VROM)

THE FINAL ESDP (POTSDAM, 1999)
After the work on the Glasgow draft had focused on analytical maps, and the decision was taken to finalise the ESDP under German presidency, no further attempts were made to develop other policy-oriented illustrations. The Potsdam ministerial meeting and the anticipated wide dissemination of the ESDP meant that the strategy was lifted out of the relatively closed circle of the CSD into a much wider domain, and besides these ‘micropolitical’ relations increasingly ‘macropolitical’ considerations came to the fore. A further consideration of an illustration of policy options therefore seemed impossible at this stage. In order to illustrate the ESDP policy options in the final ESDP, generic, non-territory-specific ‘vignettes’ were prepared (see Figure 5.3), based on a highly abstract representation of Europe as a peninsula of the Eurasian continent (dubbed the ‘European nose’).

‘Post-adopter’ of the ESDP
This section will give a selective overview of the attempts to visualise and spatially interpret the EU policy options following the adoption of the ESDP. The discussion of the appropriate depiction of EU policies is still ongoing, and a review of these
‘post-ESDP’ experiences will provide a more complete picture of ‘mapping’ in transnational planning processes.

Many efforts have been made since the completion of the ESDP to define and operationalise the concepts promoted in the document. The concepts, such as ‘polycentricity’, are sufficiently vague to allow consensus, yet this also implies that the concepts mean different things to different people and are interpreted and used differently in different circumstances. Furthermore, their vagueness implies that most policy options in the ESDP lack a spatial reference and merely express general policy principles which cannot easily be depicted without further interpretation. Yet, although the ESDP process did not generate any policy maps, in the final document there is mention of a spatial concept for the European Union. The ‘pentagon’, one of the ‘global economic integration zones’ stretching between London, Paris, Milan, Munich and Hamburg, which was identified in the ESDP text as the area in which 50 per cent of the EU’s total GDP is produced by 40 per cent of the EU’s population on 20 per cent of the total area (CSD, 1999: 8), has been conceptualised subsequently by a German expert (see Figure 5.4).

Figure 5.3 Summary of the thirteen ESDP policy focus areas
Source: CSD (1999); reproduced in VROM (2000: 54–55)
An example of an alternative development perspective for Europe and which suggests possible new co-operation areas is Figure 5.5, drawn up by an independent consultant previously involved in the ESDP process. The suggested co-operation zones are not based on any analytical foundations, and not all member states would agree with the proposed ‘groupings’, yet this representation is an interesting attempt to interpret the ESDP policy options spatially, and to stimulate the debate outside the political context.

THE STUDY PROGRAMME ON EUROPEAN SPATIAL PLANNING AND THE EUROPEAN SPATIAL PLANNING OBSERVATION NETWORK
The development of the ESDP document showed that there is a lack of sufficient knowledge on European spatial development issues, and of experience in illustrating European spatial policy. During the ESDP process it was therefore agreed to set up ESPON, the European Spatial Planning Observation Network. As a preparation for ESPON, three strategic studies were undertaken under the Study Programme on European Spatial Planning (SPESP) (1998–2000), one of which
was on ‘cartographic illustrations of selected transnational options’ (spatial images) (CEC, 2000a; Rase, 1998).

The study on spatial images aimed at exploring possible concepts for the cartographic representation of spatial policy on an experimental basis, and ‘to illustrate policy aims and options in a way that effectively communicates them to viewers’ (CEC, 2000a: III). Reflecting the controversies surrounding the work on policy maps for the ESDP, the work on SPESP was expected to make progress on a universal cartographic language:

Experiences from the ESDP-process so far show that the elaboration of European maps of a strategic nature can not be undertaken within a short
time.... This work [on the SPESP] will be aiming to define a cartographic language common to all member states and applicable to all relevant geographical scales. (CSD, 1998b: 3)

However, during the project it quickly became obvious that agreement on a common cartographic language was impossible. This is an interesting result, given that SPESP was somewhat detached from the political process that guided the development of the ESDP. In the end, a variety of methods and images were produced, which aimed at visualising underlying spatial structures and complex functional relationships in expressive and ‘catchy’ images, but which clearly show different member states’ approaches and understandings of the appropriate approach to ‘mapping’ at this level of scale (see Figure 5.6). The Dutch and British examples in particular are notable for a highly analytical-deductive approach to the cartographic representation of spatial policy options, whereas others approached the topic from a more design-led angle.

During the process the working group coined the term ‘infographics’ to
describe the combination of cartography and graphic design (CEC, 2000a: III). According to their understanding, cartography follows a rational approach using systematic methods in order to develop maps starting from GIS software tools. Infography, on the other hand, may use cartography as an input, but also allows for more creative methods to produce images based on symbolic languages. This view represents the still widespread belief that maps are the unbiased and realistic image of the territory by suggesting that ‘cartography aims at providing an objective representation of reality (in the form of maps based on data), while infography aims at giving meaningful representation of aims as interpreted by human imagination (in the form of images)’ (CEC, 2000a: 95).

The SPESP working group on spatial images was made up of experts from nine European countries: Belgium, France, Denmark, the UK, Germany, the Netherlands, Finland, Spain and Italy. This team quickly encountered problems with the cartographic communication of policy objectives in a cross-national context, and particularly with finding a balance between their understanding of a realistic representation of present facts (i.e. ‘cartography’) and an artistic transformation of spatial relationships to represent a desirable strategy for the future territory (i.e. ‘infography’). Furthermore, they found that the policies in the ESDP on polycentric spatial development and a new urban–rural relationship, parity of access to infrastructure and knowledge, and wise management of the natural and cultural heritage (CSD, 1999) offer no or little spatial reference to places but rather express a general set of policies and aims at the European level. The team recognised that any attempt to produce images for policies without a spatial reference will always imply the introduction of a high level of abstraction and subjectivity in their representation.7

The results of the SPESP study on cartographic images have been criticised by many as being not far-reaching enough, and for failing to offer a commonly acceptable view on how to cartographically represent spatial policy options for the EU territory. Despite these problems and constraints, the visualisations of ESDP policy options provide interesting insights into different ways of looking at the European territory and representing spatial policy. The results of the project also give an impression of the relevance of the professional background for the spatial representation of policies. The examples produced in SPESP show a clear distinction between visualisations produced by professions with a ‘scientific’ or rational approach (for example cartographers), and those with an ‘artistic’ or creative background (for example architects or urban designers). Furthermore, the project picked up the idea of preparing ‘icons’, ‘vignettes’ or infographics, which was a guiding feature during the ESDP process, i.e. an attempt to achieve a highly abstract but nevertheless attractive and convincing depiction of spatial policy that is appropriate for informal transnational planning processes.
The ESPON programme (2000–2006) was set up to improve understanding of European territorial development patterns and trends; to specify the implications of the ESDP on particular transnational and national territories; to develop better understanding of the spatial dimension of the Structural Funds and other Community policies and to promote better co-ordination of decisions on territorial development matters. The first projects funded by the ESPON initiative were concerned with thematic studies on the ESDP policy options, but since 2003 policy impact studies and cross-thematic projects have been commissioned. ‘Mapping’ is an important aspect of the ESPON programme, and all projects are encouraged to visualise relevant project outputs. The different objectives of the project priorities reflect the understanding that mapping at European level will have to consider at least two directions: to provide a detailed comparable spatial analysis base, and to continue exploring the possibilities of scenario-building and ‘geodesign’ in European spatial planning.

Conclusions: analysing cartographic representations for the ESDP

Cartographic representations are highly sensitive instruments for the communication of policy because they are clearer than verbal expressions. Whereas vague concepts in the text of planning policy documents can be subject to a multitude of interpretations, cartographic representations of spatial policy clearly demand a higher degree of consensus (Faludi, 2002a). This clarity of expression, however, is also the strength of cartographic representations in transnational planning processes. Besides supporting the communication across language barriers, they also helped to frame the discussions and revealed different representatives’ priorities more clearly than might have been possible without maps. The French trend scenarios, for example, have been instrumental in facilitating the exploration of different understandings of planning and the function of the ESDP among the different planning traditions involved. The previous sections have investigated the development of cartographic representations of spatial policy for the European territory during the ESDP process. This section will concentrate on a discussion of the graphic and linguistic structure of the ‘maps’ produced in the process, and the main communicative distortions that were experienced in the development of policy maps during the ESDP process. This review of the problems encountered with spatial images in the process will help to clarify the potential role of these powerful instruments in future transnational planning processes.
THE GRAPHIC AND LINGUISTIC STRUCTURE OF CARTOGRAPHIC REPRESENTATIONS IN THE ESDP

In this section, the mapping products of the ESDP process will be reviewed. The analysis focuses on those ‘policy maps’ under the French, Italian and Dutch presidencies (cf. Plate 11 and Figures 5.1–5.2) which aimed at illustrating the three ESDP policy aims, i.e. polycentric spatial development and a new urban–rural relationship; parity of access to infrastructure and knowledge, and wise management of the natural and cultural heritage. The criteria for analysis, such as the level of abstraction, the complexity and the policy issues covered, are based on the framework as set out in Boxes 4.1 and 4.2 (Chapter 4).

Figure 5.7 gives an overview of the level of abstraction in the three groups of ESDP ‘maps’. Clearly, the French trend scenarios are the most generalised in graphic terms, in comparison with the other two. This is related to the production technique (graphic design software versus GIS/spatial analysis software), which allows different

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**Figure 5.7** Level of abstraction in cartographic representations on the polycentric urban system, access to infrastructure and knowledge, and the natural and cultural heritage in the ESDP process
levels of geographic generalisation of the territorial outline. However, the maps prepared under the Italian and Dutch presidencies on the whole are presented in more detail than the French trend scenarios and are of higher complexity. This, together with the member states’ push for spatial analysis and more ‘scientific’ mapping, demonstrates the continuing belief by some that this level of detail can be achieved and would be appropriate at transnational level. Yet earlier chapters have shown that the uncertainty related to the actual content of the illustrations together with the interpretation and subjective assessment of much of what is represented, and the scale of representation, would require a much more abstract and generalised representation in order to communicate this tentative status to the reader.

Table 5.1 gives an overview of the policy issues discussed in the ‘maps’ prepared under the French, Italian and Dutch presidencies under the three policy themes. There was a certain amount of interpretation involved in order to combine the policies and make them comparable across the three ‘map groups’. What was noticeable during this process, however, was that clearly the largest variation in the content of the cartographic representations under different presidencies can be found under the theme ‘polycentric and balanced urban system’. In comparison, the themes covered under ‘natural and cultural heritage’, and even under ‘infrastructure and knowledge’, remained similar during the process. The ‘urban bias’ of the ESDP has been mentioned before in this book, and the evolution of policy responses in the ‘urban’ theme maps might be a reflection that much of the debate in the CSD was focused on the appropriate responses for polycentric development and urban–rural relationships. The evolution also most clearly shows the development from trend scenarios to what were drafts of ‘policy maps’. Thus, while the French trend scenarios covered the size and level of agglomerations, concentration of urban functions, and territorial dynamics (i.e. growth or decline of urban functions), the Italian presidency maps interpreted these trends for a somewhat lower level of scale, and talk much about urban sprawl and internal problems of cities. In contrast, the maps of ‘Diversity, complementarity and co-operation’ and ‘Rural–urban relationships’ prepared under the Dutch presidency have started to define gateway cities, potential for cross-border co-operation and functional specialisation of cities, as well as land use pressures and types of rural areas. There has generally been less evolution towards a representation of ‘policy options’ for the other two themes, and part of the reason for this – besides the clearly dominant interest in urban issues – might be lack of comparable data to appropriately represent natural and cultural heritage, as well as lack of agreement on the spatial impacts of less ‘tangible’ sector policies, such as the knowledge industry.

Generally, what becomes apparent when comparing the three ‘policy maps groups’ is the different emphasis given to certain issues between the French and Dutch presidency maps on the one hand and the maps prepared under the Italian
Table 5.1 Comparison of policy aims on the polycentric urban system, access to infrastructure and knowledge, and the natural and cultural heritage in cartographic representations in the ESDP process

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<tr>
<td>Size and level of agglomerations (large international level metropolises, national level metropolises or large towns, average regional level towns)</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>Concentration (monocentre, polycentred)</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Territorial dynamics: growth of urban functions, stability of urban functions, or fragility of urban areas</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>Cities over-dependent on a specific economic sector</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>Land use pressure: expanding urban sprawl and congestion</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Gateway cities</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>(Potential) cross-border co-operation</td>
<td></td>
<td>x</td>
<td></td>
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<tr>
<td>Relatively sparsely populated areas / rural areas</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Main European networks (rail, road, water)</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Congestion: urban area</td>
<td>x</td>
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<tr>
<td>Congestion: transport corridor</td>
<td>x</td>
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<td>Major traffic axes and exchange nodes (port, airport, logistics)</td>
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<td>x</td>
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<tr>
<td>Inadequate accessibility (remote areas, missing transport connections)</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Geographical factors affecting the development of transport networks</td>
<td></td>
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<td>x</td>
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<tr>
<td>Presence of areas of natural beauty or cultural importance on which new infrastructure or sharp increase in traffic might generate serious environmental problems</td>
<td>x</td>
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<tr>
<td>Insufficient research and development capacity</td>
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<tr>
<td>University / Science and technology park</td>
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<td>x</td>
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<tr>
<td>Main nature conservation areas</td>
<td>x</td>
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<tr>
<td>Main nature areas: estuaries, deltas and coastal wetlands, including major cross-border river basin and coastal and/or transnational aquifers</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Other rural areas</td>
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<td></td>
<td>x</td>
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<tr>
<td>Areas under pressures from human influence (urban or suburban pressures, intensive agriculture or forestry, agricultural decline, tourist pressures, water pollution, acid rainfall, management difficulties and co-operation problems, conflicts over resource use)</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Area subject to severe natural risks (soil erosion, high seismic activity, flooding, extreme climatic conditions)</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Areas prone to drought/water resource problems</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Abandonment of the cultural heritage/Significant landscape/Significant cultural value</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Cultural heritage: High risk of degradation/Management difficulties/Conflicts over heritage use</td>
<td>x</td>
<td></td>
<td>x</td>
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Note
X Represented on 'policy map'.
presidency on the other. Already for the trend scenarios a paradigm change in spatial development policy was taking place, notably with regard to transport policy, with a shift in emphasis from new infrastructure projects towards traffic prevention and modal shift strategies. This approach is also evident in the 1997 maps. However, the phrasing on the maps prepared under the Italian presidency and the selection of what is represented provide interesting evidence for the dominant view of southern member states that these maps might help to identify gaps and shortcomings for which EU funding could be made available. For instance, the Italian presidency maps talk about ‘missing transport connections’ and ‘weakness and backwardness of the economic system’. Furthermore, they demonstrate that a discussion of the appropriate agenda for European spatial planning had not (or not sufficiently) taken place and that domestic issues were ‘upgraded’ to the European level. Several issues are represented which would more appropriately be a policy concern for regional or local level planning (for instance: internal problems of cities (congestion, segregation, etc.) in the ‘polycentric spatial development’ map).

DISTORTIONS IN COMMUNICATION THROUGH ‘MAPS’ IN THE ESDP PROCESS

The agenda for the ESDP was not clearly defined during the early years of cooperation, which might have been the reason for the late consideration of possible spatial representations in the process. Yet, this – besides the lack of competences for spatial planning at this level of scale and the differences in understanding of an appropriate agenda for planning – has played an important part in the problems experienced later on. The ‘searching’ for a European spatial development agenda until the mid-1990s meant that much effort had already been spent on agreeing general policy principles without a clear spatial dimension, which then created problems for ‘mapping’. There are other examples of transnational planning processes, such as the Second Benelux Structural Outline (Secrétariat général de l’Union économique Benelux, 1996), where draft maps were successfully used to structure discussions and define policy priorities. One could argue that the ESDP process might have been rather different if cartographic representations of spatial patterns, but also of intended future spatial developments, had been incorporated earlier and used to illuminate the issues facing the EU territory and to decide on appropriate spatial concepts.

Introducing policy maps early in the process can, besides aiding a discussion on the spatial impact of certain policies, also help to decide on the function that the informal spatial strategy should take. As De Vries (2002, Chapter 3) has shown, it is important to identify the role of a spatial strategy, as this will help to decide the necessary mechanisms for its application or implementation. The ESDP process is interesting, because by definition (reflecting the lack of competence) the strategy was aimed at communication, and therefore a ‘vision model’ (Needham et al., 1997)
would have been appropriate. This would, however, have required much more attention to attractive and convincing ‘packaging’ of the document, including catchy spatial images, yet during much of the process this was not part of the discussion. What might have rescued the ESDP from becoming a ‘paper tiger’ (Kunzmann, 1998b: 54) is the suggestion to link the emerging agenda on spatial planning with the EU funding mechanism of Interreg, thus moving the document more towards a ‘programming’ function aimed at co-ordination.

The ESDP process has shown that particular attention needs to be given to working methods in a transnational spatial planning context without legal competence. A balance needs to be achieved between a member state taking the lead and the equal involvement of all parties in the process. For the purposes of simplification, one can distinguish an approach that requires an input from everybody in the final policy maps (as was done for the French trend scenarios), and the situation where a small group of experts take the lead in developing visualisations on which the wider group can comment (as was done under subsequent presidencies). The first approach has the benefit that every member of the group feels equally valued and has some active participation in the content of the map, but at the same time this can lead to policy maps that are a jigsaw of different definitions (for example ‘urban area of international significance’) and concepts (for example ‘gateway city’). Such a jigsaw of fifteen different perspectives implies that national agendas are merely projected to a higher-level scale, but without actually challenging the ‘spatial positioning’ skills of individual member states. Thus, it is almost impossible to compare the information contained in such a map, as the same ‘neutral’ viewpoint has not been applied to the European territory (which for example would attempt to represent the size of small and large countries in relation to each other). The expert group approach, in contrast, might lead to a comparable map which applies the same standards and definitions across the territory, yet can lead to geo-political sensitivities (i.e. the feeling of ‘someone else drawing on our territory’). Such an approach can easily be criticised for being non-democratic, for introducing a certain member-state bias and thus leading to distortion. This demonstrates the overarching need for transparency: to consider and share information on the data basis and categorisations used to demonstrate to members of the wider group how certain conclusions on policy maps have been reached, as otherwise such an approach could result in lack of trust in the mapped outcome and insecurity in the team.

The ESDP process has made it obvious that different countries look at maps in different ways, and that different planning traditions and planning education had a significant influence on the debates that took place in the CSD. In some countries a map is a ‘plan’, a blueprint of how things should be. In other countries more indicative maps are used, that are not blueprints but ‘target images’ which are intended as a framework for the co-ordination of actions but are not to be taken as
literal reality (VROM, 2000). In planning traditions following the ‘comprehensive integrated approach’ (CEC, 1997), such as the Netherlands, Germany or Denmark, such ‘target images’ are a favoured means of steering everybody towards an often abstractly formulated long-term goal. In countries that follow an ‘urbanism’ tradition, such as Spain or Italy, maps are interpreted more as a blueprint.

Besides these different understandings of ‘planning’, the ESDP process also made the differences in approach and understanding about the European territory obvious, which might be a reflection of planning traditions and dominant disciplines in planning, but also influenced by individual’s preferences and initiative. On the one hand, one can distinguish the ‘qualitative’ approach, as used for the French trend scenarios. Here, maps were not geo-referenced, but instead highly generalised (using what the French call a 45° map), and putting emphasis on attractive design and layout. Subsequently, and in order to arrive at a comparable database for Europe, this moved towards a more quantitative approach using GIS and geo-referenced data. However, the GIS software packages currently available restrict the level of generalisation that can be achieved, resulting in somewhat more detailed maps with clearer boundaries (and thus making the identification of one’s territory easier). Furthermore, and possibly more fundamental than the actual layout and design of the map, there is the still dominant understanding of analytical mapping and GIS as presenting a scientific and unbiased picture of the territory. The layout and production process of any cartographic representation thus needs to be considered carefully, as besides the actual content of the map its appearance will communicate a certain status to the user. There is a place for both spatial analysis maps as well as highly abstract policy maps in transnational spatial planning processes, yet it needs to be clear what their respective functions are. The purpose and function of a map are extremely important in a transnational spatial planning process, and need to be discussed openly in order to avoid misunderstandings. Clarity needs to be achieved early on whether an analysis of the current situation, trends or policy intentions are represented, and this has to be reflected in the cartographic design. Different aspects need to be considered for different types of map at this level of scale. For spatial analysis, GIS software packages might be the appropriate tool, and the major determining factors are the availability of comparable data, definitions and indicators. In contrast, for abstract policy maps a highly generalised design should be chosen for which graphic design software packages might be more appropriate. The basis of these policy maps might be analytical geo-spatial data, though the emphasis for the representation of policy (or of spatial trends) is clearly on communicative aspects. In order to gain approval for an informal strategy in a diverse planning community due attention therefore needs to be given to an attractive representation.
With regard to the quest for consistent methodologies for documenting spatial characteristics that would be appropriate for any level of scale or any part of the territory, which equally applies to their cartographic representation, Bengs (2002) has pointed out practical problems arising from the significant differences in spatial characteristics across the EU territory, as well as the different interests associated with these characteristics. For example, the vast forests of northern Europe could for Western European planners be conceived as land reserves for European recreational needs, whereas for northern countries these areas are the basis of the forestry industry, and thus of great significance to the northern economies. These different perceptions of parts of the EU territory by ‘insiders’ versus ‘outsiders’ have also been an issue during the ESDP process, when the Alps were depicted as a ‘barrier’ in one of the draft illustrations prepared under the Dutch presidency, which prompted the Austrian delegation to point out that this mountain range is actually an important living environment for many European citizens. Another challenge is the appropriate representation of spatial characteristics at EU level. Bengs (2002: 14) argued that a generic approach to the differentiation of urban characteristics might be useful in the densely populated areas of the EU, but tends to flatten out essential differences in the sparsely populated areas of Northern Europe. A more sensitive instrument with respect to Northern differentiation, would however simply have turned the graphic representation of central Europe into an indigestible porridge. Obviously variety in its totality cannot be encompassed by a uniform scale or by applying a uniform set of classification criteria. Therefore the requirement that ‘all projects should aim at the observation of the whole European territory’ actually implies a set of other prerequisites, including a flexible application of criteria and scale.

Besides the lack of experience of considering the spatial differences across the EU territory, there is also generally an ‘urban bias’ of spatial perspectives. The experiences at EU level, in this respect, are in many cases just a reflection of national planning traditions, and the relative emphasis given there to urban areas to the detriment of under-represented peripheral and rural areas (cf. Chapter 4). The discussions surrounding the lack of comparable data on the natural and cultural heritage, and the definition of the spatial issues for the EU territory and related indicators, show this often unreflected understanding of spatial development from an urban perspective.

The ESDP process has furthermore shown some interesting interplay between micro- and macro-politics. One could argue that the initiatives to visualise spatial policies for the European territory could be more ‘daring’ at the beginning of the process, when the audience was rather limited, the document was still a draft.
for discussion and mainly used for internal consultation. Towards the end of the ESDP process, the circle of planning officials involved in the process were preparing to present the ESDP to a wider audience and had to discuss it with other sector ministries. This resulted in higher political sensitivity towards any cartographic product, as conflict with other interests in the national context had to be avoided. This tension between individual and national interests can be illustrated by the support given to the ESDP by the Spanish delegate at one of the last CSD meetings prior to the finalisation of the strategy, who – until the decision over the EU Structural Funds allocation had been reached – had demonstrated a rather unsupportive attitude. Overall, however, the discussions on policy maps for the ESDP were of a highly political nature, and political struggles were possibly most pronounced in the discussions on spatial development policy versus regional policy. The reluctance of southern member states to engage in the spatial representation of aspects related to the economic competitiveness of territories reflects their political interest in keeping public attention away from any aspects that could have affected the future distribution of Structural Funds.

In many ministries and public administrations the tasks of ‘planning’ and ‘mapping’ are separated, and sometimes cartographic services have been outsourced (as in the UK). Where there are cartographic units within planning departments, these often have a strong emphasis on GIS and spatial analysis, and might consider a more design-led approach ‘unscientific’. Whether a more qualitative, highly generalised (and non-geo-referenced) design approach is favoured, or whether quantitative, GIS-based and geo-referenced maps are deemed more appropriate, appears to depend at least partly on the cartographers and graphic designers involved in the process, and thus ultimately on the dominant discipline, curriculum and education of planners and cartographers. In the ESDP process, the teams often consisted of individuals with a wide variety of professional backgrounds, and some with a much stronger inclination to concentrate on the use of GIS than others.

Working with maps can be deeply emotional, and during the ESDP process emotions have in the main provoked controversies. However, it has been argued that ways should be found to use the emotional power of maps to make them convincing and help to ‘sell’ a spatial strategy or spatial policies better (Roeleveld, 2003). Thus, involving graphic designers (or even artists) as well as cartographers in the process of preparing cartographic representations of spatial policies at transnational or EU level can prove beneficial, as graphic designers are experts in influencing emotions through visual expressions. The discussion on the form and content of cartographic representations in European spatial planning has not been resolved, and questions that need to be answered in the future will also be about the appropriate projection, scale and level of generalisation in mapping for transnational planning.
CHAPTER 6

THE VISUAL LANGUAGE OF SPATIAL PLANNING IN EUROPE: CONCLUDING REMARKS

The potential of spatial planning for the co-ordination of territorial impacts of sectoral policies is increasingly recognised, and there have been several important spatial development initiatives both at EU level as well as in the wider European context over recent years. Cross-border and transnational co-operation on spatial development is now well established in many parts of the EU, often supported by the European Commission’s funding instrument of Interreg. There have also been many initiatives within EU member states to prepare informal spatial planning strategies for national and regional territories, which often reflect a wider territorial context than the nation-state’s.

Cartographic representations can be powerful instruments in strategic planning processes and in communicating the key objectives of the spatial strategy. In a transnational context, they have the potential to frame spatial policies for a territory outside the experience of many planners, and can help to overcome language barriers. However, despite the potential of cartographic representations in spatial planning, visualisation has been a particularly difficult and controversial exercise in transnational spatial planning processes – and indeed one is hard pushed to find examples of cartographic representation of spatial policy options in the spatial strategies and spatial visions that have been produced at transnational level in Europe over recent years. This potential for controversies in the debate about cartographic illustrations for transnational territories might be rooted in different planning traditions, and different member states’ experiences with ‘visualising’.

Ongoing European integration has also increased awareness that the way planning is conducted in different member states, and the way planning systems are organised vary considerably across Europe, and that this might also have an impact on how different countries use cartographic representations in spatial planning processes. These differences in the form, style and use of cartographic representations in strategic spatial planning in different planning traditions, and the controversies that they can cause in the communication of spatial policy at transnational level, were the focus of this book.
The style and content of cartographic representations in strategic spatial plans in Europe

The analysis of the form and style of cartographic representations in strategic spatial plans in the Netherlands, Germany and England showed that there are significant differences in how planning is understood and conducted in the different systems, and this also affects the content and layout of ‘plan maps’ (cf. Chapter 4). Despite more or less far-reaching reforms of the planning systems in the countries under study, the approach to 'mapping' has to date remained largely unaffected and the ‘traditional’ approach to the cartographic representation of spatial policy continues in most cases, although planning discourse has moved on significantly in the meantime. Thus, while planning systems and professionals and their policies are interacting more (and possibly converging), there continue to remain significant differences in the way these policy options are cartographically represented. The analysis showed that generally spatial policies are expressed in a more ‘spatial’ way and therefore represented more comprehensively in the Dutch and German system than the indicative policy guidelines in the English plans. However, even between planning systems within one ‘planning tradition’, there are differences in the approach to mapping. While the binding German plans at Länder level present a detailed, territorial and comprehensive approach to visualising, indicative Dutch strategic plans are also comprehensive and very complex, yet generally less detailed and ‘scientific-rational’ than German ‘plan maps’. The approaches to mapping thus reflect the different mechanisms within the two systems for achieving conformity between plans at different levels of scale. In Germany a hierarchical and regulative planning approach is followed, whereby federal framework legislation provides a large degree of uniformity and standardisation in the content and symbolisation of spatial plans across the territory. The Dutch planning system, in comparison, relies on the power of consensus, which leaves more scope for different visualisation techniques. Indeed, Dutch planning strategies generally present a wide variety of different mapping techniques, ranging from more ‘scientific’ GIS-led approaches to highly abstract ‘artist’s impressions’. The plankaart, however, is often a highly complex and integrated map, which is developed through the course of the document and combines the various thematic ‘maps’ into one comprehensive illustration that is aimed at showing the spatial impacts of sector policies on the territory. In contrast, the key diagram in English RPGs/RSSs is exactly that: highly diagrammatic in style and of limited complexity. In many cases, the function of these diagrams beyond allocating regional policy funding or highlighting future road improvements remains unclear, and overall, the analysis reconfirmed the impression that English planners feel more comfortable putting policy guidance into words than 'on the map'.
The complexity and general layout of cartographic representations of spatial strategies should also be a reflection of the intended audience of the plan. This is what Söderström (1996) has called the ‘external efficacy’ of cartographic representations in planning, which implies that if the strategy is directed at a wider audience, including lay people, more attention needs to be given to communicative aspects and limited complexity in the ‘plan maps’. In Germany, the complex and integrated Plankarte is generally directed at other professionals in sector departments and planners at other levels of planning. In the Netherlands, the layering approach means that plankaarten are generally of high complexity, yet much emphasis is given to the communicative aspects of these indicative planning instruments, which are also directed at the wider public. The lack of standardisation, and general interest of Dutch planners in experimenting with new approaches to mapping, however, imply that misunderstandings cannot be ruled out. The lack of experience with visualising spatial policy at regional level in England implies that not much attention has been given to the expected audience for these instruments. Yet the ‘communicative turn’ in English planning and the increasing emphasis on regional-level planning will require a clearer definition of the users of these strategies.

There is no doubt that cartographic representations in planning are powerful instruments, as they often communicate messages more clearly than text does. However, cartographic representations also exercise power by representing certain parts of the territory while neglecting others. The dominance of urban issues, transport infrastructure, and environmental and (sometimes) economic designations or ‘zones’ on cartographic representations to the detriment of peripheral and rural areas, public transport, social infrastructure, cultural heritage or for instance the impact of Information and Communication Technologies on the territory is evident in all the plans reviewed for this book. The widespread use of Geographic Information Systems for the data storage, spatial analysis, reproduction and in some cases online presentation of German and Dutch, and increasingly also English, spatial plans means that only elements and ideas that are technically feasible in the systems in use will actually be implemented and represented – and these might often be those elements that are easy to locate in a Cartesian system.

Furthermore, the high level of standardisation and uniformity in the German planning system means that the established rules for cartographic representations are almost impossible to change. An example of this is the persistence of the central place concept in the German planning system despite fundamental criticisms over the years (cf. Blotevogel, 2002). Moreover, it could be argued that the complex representation of spatially relevant policies – although undoubtedly useful in assessing the impacts on all parts of the territory – communicate a much more powerful role of land use planning than is actually realistic.
Landesplanung are very much understood as being cross-cutting and co-ordinative, yet German planners are very much aware of the fact that the influence of spatial planning over for example decisions related to the federal transport infrastructure is extremely limited. Clearly, the representation of urban areas and transport infrastructure networks (including airports) helps to convey a message of a powerful, accessible and economically successful area. Likewise, the designation of economic regeneration areas and strategic employment sites might pave the way for future (or already agreed) funding priorities. With regard to the depiction of nature conservation areas, this is often in response to national and international legislation, and thus also supports the preservation of existing dichotomies between ‘development’ and ‘conservation’ – something which, one could argue, stands in contrast to the increasingly formulated goal of achieving integrated development and use in most natural areas. The diligent depiction of ‘green belts’ surrounding urban areas in the majority of English planning documents under study conveys another message: that of the belief that the countryside can be protected and urban sprawl contained through the designation of green space around cities and towns. There is evidence that suggests that ‘green belts’ do not actually prevent urban sprawl, but rather force commuters to leapfrog the designated areas and thus increase travel distances with all related negative impacts on the environment (cf. Elson, 2003), yet the strong land preservation ethics in the UK and the public and political support for protecting the countryside from development means that this continues to be a dominant policy – and the depiction on key diagrams in regional and local plans ensures that the underlying objective will not be forgotten. There is also interest in ‘corridor development’ (combining multi-modal transport infrastructure, economic development and housing) in planning documents in all three countries. Likewise, this is an idea aiming at ‘channelling’ development whilst at the same time limiting development in the surrounding areas and thus making efficient use of available space, but it is also a concept that is easily depicted and therefore memorable and easy to communicate.

Besides the dominant elements in cartographic representations in planning strategies, it is also of interest to consider the policy themes that have not been depicted on the key diagrams. Whilst one could argue that it requires ‘new’ cartographic approaches to illustrate the variety of rural areas, ICT, agriculture, air quality and social infrastructure, one underlying reason for leaving these issues ‘off the map’ could also be either that they are considered not to be at the heart of the plan, or that public attention should be kept away from these issues. For example, although undoubtedly many policies on air quality and waste management aim at behavioural changes, there are also clear land use implications, which are often (in the case of air quality) related to transport, or (in the case of waste) related to housing density and economic activity. Yet these links are not visualised in any of
the ‘policy maps’ under study and many of the key diagrams – although sailing under the flag of ‘sustainable development’ – therefore give the message of ‘business as usual’ with the depiction of built-up areas and transport networks.

The power of ‘being on the map’ should not be underestimated, and the lack of consideration of heterogeneous areas (such as rural areas) and policy issues without a clear geographical ‘location’ (such as ICT) shows that although planning discourse has moved on to reflect a wider understanding of ‘spatial planning’, the insistence on the ‘traditional planning agenda’ in visualising presents a problem. The debate about the ‘network society’ and relational and dynamic aspects in planning demonstrates the need to adapt the traditional mapping approaches, and maybe to begin to question the underlying conceptions of space which are based on proximity. The visualisation of ‘network space’ might require geographical distortion, as has been shown by Brunet (1980, 1987) with his cartes-modèles, though the in many cases still dominant belief in the undistorted, unbiased and objective map might hinder the general acceptance of approaches to mapping that represent dynamic aspects and functional interdependences to the detriment of a well known Cartesian representation of space.

**The design and use of cartographic representations in transnational spatial policy processes**

The analysis of how cartographic representations are constructed and used to communicate spatial policy in transnational spatial policy processes was undertaken by using the example of the development of the European Spatial Development Perspective (ESDP) (cf. Chapter 5). The development of the ESDP was a novel experience, and this was reflected in the uncertainty about the function that this strategy should have in influencing the spatial development of the EU territory. This uncertainty also affected the approach to ‘mapping’, which was left rather late in the process, although it could be argued that visualisations as a central element in the discussions could have helped to structure the debate on appropriate policy responses and to overcome language barriers in a transnational policy process. The consensus-led approach to agreeing spatial policy options for the EU territory furthermore meant that many of the ESDP policy principles are of a rather vague nature, and therefore do not lend themselves easily to cartographic depiction.

However, although the function that the strategy should take was not always clear during the process (and has only after adoption of the ESDP been more widely discussed), different EU presidencies have been quite successful in
introducing their understanding of ‘planning’ in the process, and thus shaping the debate. These were in particular north-west European countries with mature planning systems and equipped with sufficient financial and staff resources to bring the debate forward as well as maybe a clearer ‘vision’ of the appropriate agenda for European spatial development. The development of the ESDP showed that the ‘strategy of the first move’ (Faludi, 2002b) has been of high relevance with regard to the introduction of ‘mapping ideas’ by individual member states (France, the Netherlands), but also in shaping the approach taken to cartographic representation (qualitative and highly generalised in the French trend scenarios versus quantitative-oriented and GIS-based for the policy maps prepared under the Italian and Dutch presidencies), as well as with regard to withdrawing from the attempt to visualise spatial policies for the EU territory altogether under the UK presidency. Both the Netherlands and Germany have had a long-standing interest in European spatial development, reflecting their central position on the European continent and the interdependence with neighbouring countries. This means that both countries have significantly influenced and shaped the debates on the European Spatial Development Perspective and other European or transnational initiatives. In comparison, and reflecting the different understanding of the organisation of planning, the political nature of planning and the generally Euro-sceptic approach of previous governments, the UK has until more recently played a minor, even at times openly critical and oppositional, role in the progress on a spatial development agenda for the EU territory.

The ESDP process has shown that the development of informal transnational spatial strategies over a long period of time implies the danger of ‘institutional information loss’, in the sense of a missing ‘authority’ that could safeguard the consistency in approach and continuation of previous experiences and joint knowledge. For the ESDP process, this relates not only to the change in approach that could be introduced by every presidency but, more importantly, to the development of cartographic products in the process. The analysis in Chapter 5 has shown that after the French trend scenarios had been produced, they were strongly criticised for being subjective and a ‘jigsaw’ of different definitions, categorisations and interpretations. Yet the very same information was subsequently transferred on to a GIS system and provided the basis of what were meant to be ‘objective’ spatial analysis maps – an approach which by implication has to lead to confusion among participants. There is a place for both spatial analysis maps and trend or policy scenarios in a ‘spatial vision’, yet it needs to be clear to all involved what type the illustrations represent, as this will also affect their layout and design. The ‘linguistic structure’ (Pickles, 1992) communicates a clear message to the reader, and an illustration of policy proposals represented on a GIS base implies more certainty about the spatial structure than would be appropriate. Furthermore, the ideas of the French
presidency in 1995 to prepare trend scenarios, which would subsequently be further elaborated into policy scenarios or spatial visions, i.e. an illustration representing the desired future spatial structure and the policy instruments needed to achieve it, were never followed through. This is possibly because there had not been a ‘diffusion’ of these ideas in the group but, more important, because the function of these cartographic illustrations had not been clearly defined and subsequent presidencies had a different perception of how to approach the ‘mapping’ issue and the preparation of the ESDP in general. These experiences, however, show that it is very difficult to keep an overview of the function and construction process of complex instruments such as ‘maps’ over a long period of time, and the resulting confusion can lead to insecurity and mistrust in the group.

While the audience for spatial plans is usually well known in the established planning systems of member states, there is much less certainty about this at transnational level. The discussion of the ESDP process has shown that although the strategy at least since the mid-1990s was directed at the integration of sectoral impacts, the consultations with sector departments within member states and with other Directorates General within the European Commission were left until the late 1990s, which then in turn led to additional political sensitivities. Towards the end of the ESDP process, the question of the audience for the strategy resulted in higher political sensitivity within the CSD towards any cartographic representation, and a return to ‘safer’ and more traditional approaches of spatial analysis than the attempt to visualise spatial policy for the EU territory. The current definition of spatial planning covers a very wide range of actors, not just because sector departments in all EU member states are addressed, but also because the understanding of strategic spatial planning implies that informal instruments are increasingly directed at the wider public rather than ‘just’ other professionals, as is usually the case with strategic plans at regional and sub-regional levels. A discussion about the intended audience for transnational spatial visions or strategies would also, in turn, influence the discussion on the function of the plan, and the appropriate auto-graphic representation.

Lessons for planning practice

What are the lessons that can be learned from the discussions in this book for planning practice and future transnational planning processes? The first guiding question for every transnational spatial planning process concerns the function that this informal spatial strategy is expected to fulfil. Depending on whether a ‘programming’ or a ‘communicative’ function of spatial planning (De Vries, 2002) is deemed more appropriate, this will in turn allow an informed discussion about the
content, layout and use of the most appropriate cartographic representations. Related to the question of the function of spatial planning at this level of scale is also the intended audience for the strategy, and discussions on how the strategy will be applied. If the strategy is expected to have a ‘programming’ function, then effective instruments need to be in place to ensure its implementation, and a more detailed and zoning-oriented representation of spatial policy could support the message of the plan. If planning is understood as ‘communication’, the strategy will have to rely on its persuasive power in order to be commonly acceptable, and the cartographic representation of spatial policy therefore needs to be abstract (so as not to interfere with other planning levels’ competences) as well as highly attractive and convincing. If the planning strategy is directed at the wider public, particular consideration should be given to limiting the complexity of information presented, and to present ‘catchy’ cartographic representations of spatial policy.

Many different types of maps can be in use during the planning process, ranging from topographic base maps, over spatial analysis maps to trend forecasts and the final ‘policy map’. Without a doubt, all have their place in planning, yet there has not been much discussion to date on the different functions of different types of maps within the planning process, not even in a domestic environment. At transnational level, this can easily lead to significant confusion among participants about whether what is depicted is the current situation, trends, the ‘spatial vision’ and desired spatial structure, or a combination of these functions. Indeed, many cartographic representations in recent transnational planning exercises appear to be not very clear about this, and it should therefore be no surprise if the message of the ‘policy map’ is obscure even to experienced map users.

The different types of ‘maps’ in use in transnational spatial planning processes have certain questions attached to them that may affect their effectiveness. While technical concerns dominate the preparation of spatial analysis maps, such as the availability and comparability of data, indicators and definitions, for the preparation of scenarios or ‘spatial visions’ the political component becomes more important, such as the question of the function and audience of the strategy. The preparation of any planning map, and its expected design, needs to be clearly discussed, as the layout carries its own message. Spatial analysis maps that have been prepared with GIS software continue to be understood by many as unbiased and objective representations of the territory, yet the information used, its decoding and representation include as many decisions with regard to selection, schematisation, generalisation and interpretation as do qualitative and design-led spatial images. Thus, in a transnational spatial planning process, it might be advisable to avoid this connotation of the ‘truthful’ and ‘factual’ GIS-map whenever suggestions or expectations for the future spatial development of the territory are discussed. Certain graphic tools can help to communicate tentative and subjective policy pro-
posals and avoid the misunderstanding that these could be a representation of ‘facts’. For instance, using sketch-like depictions, high levels of generalisation, such as the 45° maps suggested by the French delegation in the ESDP process, pale colours, or signs of ‘un-finishing’ on the ‘plan image’ will help to communicate the message that it is ‘work in progress’ or just a sketch, but does not necessarily offer certainty.

What is depicted on a ‘policy’ or any other map is only ever one among countless alternatives. In an informal planning process which can stretch over a long period of time this can easily lead to confusion, because participants have possibly forgotten the origin of the illustration. It is therefore very important to keep a log of the data used and how the final depiction has been prepared in order to allow for a comprehensible ‘mapping process’ for all participants and thus help to avoid misunderstandings. The Dutch approach to developing an integrated plankaart is an example of the ‘chain of evidence’ used to arrive at a certain representation of spatial policy. The use of computer visualisation and ‘virtual realities’, which allows a certain degree of user interaction and data manipulation, might be another alternative to demonstrate a certain flexibility and stimulate discussion on what is represented.

With regard to the transnational planning process as such, it appears that if cartographic representations are expected to play a role, they should be introduced early in the process to help in structuring the discussion and setting the agenda. Whenever cartographic representations are introduced into the process after significant agreement has been reached on written policy, it seems to be very difficult to broaden the discussion to consider visual components and the cartographic representation of spatial policies. This is because in informal networks it is much easier to reach agreement on more general ‘bridging concepts’, which often do not have a clear spatial expression. In processes where cartographic representations were used to frame the discussion and set the agenda from the outset (such as the Second Benelux Structural Outline), it has been easier to reach agreement on the appropriate depiction of spatial policy. Thus, cartographic representations can play a much more powerful role if the planning process is organised around them, and possibly many misunderstandings in a transnational context could be avoided.

Furthermore, there needs to be more reflection in future on how ‘policy maps’ are prepared in the process, and by whom. The ESDP experience has shown that those member states taking the lead or being represented on the cartography expert groups had significant power and influence over the ‘mapping’ outcomes and the approaches chosen for the cartographic representation of both spatial analysis as well as spatial policy. There are many aspects in the approach to ‘mapping’ in planning that remain unreflected, and the application of a certain
planning tradition’s viewpoint to a transnational planning process is inevitable. It is for this reason that the involvement of a more neutral actor could be beneficial in such a process, i.e. a ‘third party’ which can maintain an overview of the planning process and the cartographic representation of spatial policy, and that can introduce a more ‘European’ perspective to the process to even out national biases.

Many planners do not have much experience with the ‘mapping’ aspect of planning practice, and certainly not with the production of these powerful planning tools. Lussault and Forester have both highlighted the potential for distortion in communication on the basis of what they called *l’enonciation déléguée* (Lussault, 1994) or ‘legitimate division of labor’ (Forester, 1989). In most planning traditions the cartographic aspects are dealt with in another department than the preparation of planning policy text. Besides this lack of experience with the cartographic language by many spatial planners, there is also an institutional component that hinders the effective use of cartographic representations in transnational spatial planning. This relates to the differences in approaches to mapping, the rational-scientific epistemology of which has until recently not been openly discussed in most EU member states. The graphic language of these ‘rational-scientific’ representations has been perfected over the years and supported by standardisation of content and graphic symbols as well as the use of tools such as GIS software. The analysis of the form and style of cartographic representations in the German planning system, where the ‘maps’ communicate a certain reliability and trustworthiness for lower planning tiers, has demonstrated this rational-scientific epistemology. To break through these underlying assumptions to raise awareness that every cartographic representation is a selection and interpretation of reality, thus that cartography is always subjective, will require much effort. Interest in informal planning strategies and a more qualitative approach to the cartographic representation of spatial policy has increased considerably in many EU member states over recent years (cf. Chapter 3), and this changing understanding in turn might influence policy processes at transnational levels in due course. The cartographic principles and a cartographic ‘language’ have yet to be agreed at transnational level. How this will be achieved is an important question. There is unlikely to be a standardisation of visual languages at EU level, given the limited competences for spatial planning. In order to support cross-national visual communication, the setting up of interdisciplinary teams with different expertise and skills, such as graphic designers, cartographers or artists in the process of preparing policy maps for a transnational territory could therefore prove beneficial.

Related to the difficulty of agreeing on spatial policy ‘maps’ in many of the recent transnational planning processes is the generally broadening scope of the understanding of ‘spatial planning’ in Europe. In the current Cartesian understanding of ‘planning cartography’, the spatial impacts of many of the policy issues that
are now on the agenda, such as ‘knowledge society’ or social infrastructure, are
difficult to depict. The ‘relational turn’ in planning and the spatial implications of the
network society are currently not reflected in ‘policy instruments’ in EU member
states, and neither has the debate at transnational levels been able to make
progress on this. While in the current understanding of planning, many of the policy
options appear to lack a locational reference that would make them easy to depict
in a ‘traditional’ way, planning theory and practice may have to move on to consider
more relational approaches to visualise spatial policy. This would require discus-
sion of many of the underlying principles of spatial planning, such as proximity as
the guiding principle for many spatial concepts, and would instead call for a
consideration of ‘connectivity’ aspects (cf. Chapter 3).

Likewise, there is evidence of an ‘urban bias’ in how spatial development is
perceived and discussed, both within the national planning systems investigated in
this book as well as at transnational level. The emphasis on urban areas, transport
infrastructure, environment and economic development designations reflects both
a certain perception of the world from an urbanised perspective, as well as a con-
centration on static aspects and objects that can be easily delineated. This is what
Söderström (1996) has described in his historical analysis of zoning maps as only
those elements are ‘planned’ which can be expressed in graphic terms. The urban
bias has been strongly criticised by countries and regions in the more peripheral
and rural parts of the EU territory, who feel that categories which appropriately rep-
resent the urbanised core of Europe tend to flatten out the differences in the more
peripheral parts of the territory. Besides the need to reconsider the Cartesian and
static representation of spatial policy, there is therefore a need to discuss the
appropriate perspective on European spatial development, and indicators that
reflect the diversity of the EU territory appropriately. However, as long as ‘eco-
nomic competitiveness’ is the guiding principle for spatial development in Europe,
cities are seen as the engines of the economy, and geographical accessibility as a
guarantor of economic success, a wider and more varied debate on European
spatial policy is unlikely.

Many of the problems experienced with the cartographic representation of
spatial policy in informal transnational policy processes have their roots in a Carte-
sian understanding of planning, and the continuation of a static ‘rational-scientific’
representation of spatial policy in many formal planning instruments. Like planning
theory, which has now begun to consider relational aspects of planning, this
change in understanding also needs to be expanded to include the visual commu-
nication media in planning. Furthermore, the ‘division of labour’ between policy-
makers and cartographers in many planning departments at national, regional and
local levels means that those planners who find themselves on a transnational com-
mittee are to a certain degree stumped at being expected to cover the wide range
of planning practice and communication media in planning. Likewise, the increasing use of informal planning instruments at all strategic levels of planning, and the ongoing debate about the appropriate agenda for transnational spatial planning, also require planners to think ‘outside the box’, and to consider new ways for the appropriate cartographic representation of dynamic and relational aspects of non-binding spatial policy at a higher level of scale. The new agenda on European spatial planning means that this will be an ongoing process, characterised by mutual learning and incremental progress. The need to break with traditional epistemological assumptions of a rational-scientific cartography in planning, and to prepare planners for future challenges arising from co-operation on informal spatial strategies, and the appropriate cartographic representations for these, will require significant changes in planning education.
Many people have contributed to the work presented in this book by giving generously of their time and resources. The majority of interviews were undertaken between 2003 and 2004, and took place in Brussels, Paris, Lille, Bonn, Berlin, Düsseldorf, Dortmund, London, Edinburgh, The Hague, Utrecht, Delft and Luxembourg. The position of the interviewee is noted for the time of the interview.

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CHAPTER 1

1 The term ‘spatial planning’ is used in most European countries to describe the system or systems of physical planning, land use planning or regional planning. In order to accommodate all the varying national approaches to managing spatial development at the European or transnational level, spatial planning is often used as a generic term which refers to the methods and processes through which public policies aim at influencing the territorial distribution of activities and at co-ordinating the spatial dimension of sectoral policies. The Amsterdam Treaty in 1997 introduced the term ‘territorial cohesion’, which has since largely replaced the terms ‘spatial planning’ and ‘spatial development’ in the European Commission’s vocabulary. Yet both terms continue to be used to describe spatial policy co-ordination and a more integrated and territorially focused approach to land use planning in the member states. Strategic planning can be defined as the ‘preparation of a strategy or framework, identifying the broad patterns of growth but not detailed land allocations or zoning. Strategic planning is generally long-term and comprehensive, bringing together social, economic and spatial considerations’ (CEC, 1997: 156).

2 The terms ‘cartographic representation’ and ‘cartographic illustration’ are used interchangeably and as generic terms in this book to describe the wide variety of cartographic products or information graphics used to depict spatial policies in formal and informal strategic planning documents in Europe. The terms thus include ‘policy maps’, key diagrams, spatial visions, scenarios, spatial images, spatial metaphors and suchlike. The terms ‘cartographic representation’ and ‘cartographic illustration’ are used in order to highlight the differences between those forms of information graphics that depict spatial policies in sometimes highly generalised form, and ‘maps’ in the more traditional understanding of the word.

3 The principle of subsidiarity requires that policies should be developed at EU level only if the objectives of the proposed action cannot be sufficiently achieved by the member states.

4 Which reads: ‘Without prejudice to Articles 73, 86 and 87, and given the place occupied by services of general economic interest in the shared values of the Union as well as their role in promoting social and territorial cohesion, the Community and the member states, each within their respective powers and within the scope of application of this Treaty, shall take care that such services operate on the basis of principles and conditions which enable them to fulfil their missions’ (Amsterdam Treaty, 1997, Art. 16).

5 The literal translation of country-specific planning terminology can lead to ambiguity and misunderstandings. In this book, literal translations of words with specific
meanings are therefore avoided as far as possible. Important country-specific terms with particular meaning are usually explained in the text in their first mention, and used in their original language and italicised throughout. In order to allow for a certain frame of reference in the main body of the text, the original terms are sometimes followed by an English translation in brackets, though the limitations to these translations should be borne in mind when reading the text.

CHAPTER 2

1 The literature on cartographic communication employs the term ‘map’ for all cartographic representations ranging from topographic and thematic maps to simple test bases for experiments in laboratory settings. In order to differentiate these from cartographic illustrations as used in planning processes, the term ‘map’ will be retained in this chapter.

2 Semiology, or semiotics, is the study of signs and symbols, especially the relation between written and spoken signs and their referents in the physical world or the world of ideas.

3 ‘Denotative’ means having a conscious and explicit meaning which allows perfect and undistorted communication between the cartographer, the map and the map user.

4 The ‘deconstructivist approach’ to map-reading that Harley (1989) and Pickles (1992) have promoted is discussed in more detail in Chapter 3.

5 Epistemology is defined as the theory of knowledge embedded in the theoretical perspective and thereby in the methodology (a way of understanding and explaining how we know what we know) (Crotty, 1998: 3). Epistemology has also been described as the strategies through which a particular theory gathers knowledge and ensures that its reading of phenomena is superior to rival theories (Rosamond, 2000: 199). Ontology, in comparison, is the view held by a theory about the nature of the world (Rosamond, 2000: 202).

6 Hermeneutics (hermeneutic means interpretive) is a particular approach to the study of texts, and is considered by some as the art or science of interpretation. The discipline emerged in the fifteenth century as a methodology for explaining the correct analysis of the Bible. Subsequently the discipline has detached itself from this task and especially during the twentieth century broadened its spectrum to include all texts, including multimedia. Advocates of the approach claim that texts, and the people who produce them, cannot be studied using the same methods as the natural sciences. Furthermore, they claim that such texts are conventionalised expressions of the experience of the author, and thus the interpretation of the text will reveal something about the social context in which it was formed, and, even more significantly, provide the reader with a means to share the experiences of the author. Maps, too, are increasingly understood as texts in the sense that they are authored and socially constructed, thus opening them to a hermeneutic analysis (Harley, 1989; Pickles, 1992).
CHAPTER 3
1 There is much controversy over the meaning of metaphor. However, there is some agreement that metaphor is an application of a name or description to something to which it is not literally applicable; a figure of speech that goes further than a simile, either by saying that something is something else that it could not normally be called or by suggesting that something appears, sounds or behaves like something else (Oxford Dictionary).

2 The process of classification and the manipulation of boundaries (of constituency etc.), for instance to gain unfair electoral advantage (Oxford Dictionary), is called ‘gerrymandering’. It was used in the 1992 electoral map of North Carolina to empower minorities.

3 Discourses are understood to be frameworks that embrace particular combinations of narratives, concepts, ideologies and signifying practices, each relevant to a particular realm of social action. Between discourses, words may have different connotations, causing people who ostensibly speak the same language to talk at cross purposes, often without realising it. This is because words or other signifiers within discourses have no natural connection with their signifieds (concepts) or their referents. Rather, the relation is socially constructed and therefore variable. In this view, discourses are practices of signification, thereby providing a framework for understanding the world, and are thus both enabling as well as constraining: they determine answers to questions, as well as the questions that can be asked. However, discourses are subject to negotiation, challenge and transformation. Power relations within a social formation are communicated, and sometimes resisted, through the medium of particular discourses (Barnes and Duncan, 1992; Hajer, 1995). Much of the work in discourse theory derives from Foucault’s (e.g. 1972, 1980) studies of the relations between knowledge, discourses, representations and power. The theory assumes that discourses, and the ‘truths’ that they construct, vary among cultural groups and other groups, whose interests may clash. Although competing discourses may evolve among opposing interest groups, there may be a relatively stable discursive formation in which these competing discourses coexist. All the politically engaged classes or other interest groups in a society may support, albeit not uncritically, the hegemonic discourses.

4 Harley’s ‘Deconstructing the map’ (1989) has been termed ‘probably the most significant journal article on the theory of cartography of the last decade’ (Taylor, 1994: 53), yet his work has also been heavily criticised, mainly for his apparent misinterpretation of Foucault’s and Derrida’s work (cf. Belyea, 1992).

5 This ‘scientific epistemology’ is also reflected in the rational planning theory approach (cf. Chapter 2).

6 The ‘Pentagon’ was identified in the ESDP as one of the ‘global economic integration zones’ stretching between London, Paris, Milan, Munich and Hamburg. The Pentagon covers the area in which 50 per cent of the EU’s total GDP is produced by 40 per cent of the EU’s population on 20 per cent of the total area (CSD, 1999: 8).

7 While in the French- and English-speaking context normative and non-binding planning strategies are frequently referred to as ‘spatial visions’, the German-speaking planning community has made more use of the terms Leitbilder or guiding principles.
CHAPTER 4
1 Post-structuralism theorises knowledge and truth as both an effect and a mechanism of relations of power. This interplay of power relations builds on the production of truth through power, and the exercise of power through the production of truth. The post-structuralist understanding is therefore that modern knowledge is the product of power and not of objective, universal reason operating independently of power. Post-structuralism sees subjects as created through their cultural meanings and practices, and ‘reality’ as fragmented, diverse and culture-specific.

2 The Wet op de Ruimtelijke Ordening was in the process of being overhauled at the time of writing. The revised legislation is expected to come into force in 2007.

3 Both previously Rijksplanologische Dienst (National Spatial Planning Agency).

4 New Leitbilder for the German territory were in preparation at the time of writing (cf. www.bbr.bund.de).

5 A new Streekplan for Friesland is under development.

6 Although an exception to this is the treatment of the ordering principles of central places and development axes in some cases, which for the LEP NRW (see Figure 4.4 and Plate 8) are represented separately, and for the LEP Hessen visualised on an inset to the general ‘plan map’.

CHAPTER 5
1 The CSD was institutionalised in May 2001 as a sub-group of the Committee on the Development and the Conversion of the Regions (CDCR), which is the Structural Funds’ management committee. The working group, called the Sub-Committee on Spatial and Urban Development (SUD), acts in an advisory capacity only and co-operates closely with the CDCR.

2 Interview with German planner at federal level.

3 The Rijksplanologische Dienst of the Dutch Ministry of Housing, Spatial Planning and the Environment (VROM) led the work on the ESDP under the Dutch presidency in 1997.

4 Interview with UK planner and European Commission official.

5 Interview with German planner at federal level.

6 Interview with representatives from Germany, the Netherlands and Spain on the SPESP working group.

7 Interview with representatives from Germany, the Netherlands and Spain on the SPESP working group.

8 Interview with representative from the Secrétariat général de l’Union économique Benelux.

9 Yet only those standards and definitions that find agreement within the expert group. The composition of expert groups in international working is therefore of the utmost importance in gaining the wider group’s agreement.
APPENDIX: NOTES ON CONTRIBUTORS

1 The Bundesforschungsanstalt für Landeskunde und Raumordnung (BfLR) and the Federal Building Directorate (Bundesbaudirektion) merged in 1998 to create the Bundesamt für Bauwesen und Raumordnung (BBR) following its reorganisation.

2 The Bundesforschungsanstalt für Landeskunde und Raumordnung, now BBR.

3 DG XVI A.3 was the unit within the European Commission responsible for coordinating the ESDP process. DG XVI (Directorate General of Regional Policy and Cohesion), alongside the other Commission structures, underwent significant restructuring in 2000 under Commission President Romano Prodi, and has since been called DG Regio (Regional Policy Directorate General).
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Plate 1: Bertin's basic graphic variables

Source: Kraak and Oomling (1996: Plate 1)
Plate 2. The spatial structure of the Ruhr area as visualised in the Gebietsentwicklungsplan 1966.

Plate 3 Aménager la France de 2020: a polycentric vision

Source: DATAR (2002: 76)
Plate 4  (a) Nota Ruimte: National Spatial Planning Key Decision, Map 2, Urbanisation

Source: VROM (2004: 19), original size 25 × 25 cm
Plate 4 (b) Nota Ruimte: National Spatial Planning Key Decision, Map 2, Urbanisation, key
Source: VROM (2004: 18)
Plate 5  (a) Streekplan Friesland 1994, Plankaart 1, Landelijke Gebieden (rural areas), extract

Source: Provinciale Staten van Friesland (1994), separate plot, original size 53 × 43 cm
Plate 5 (b) Streekplan Friesland 1994, Plankaart 1, Landelijke Gebieden (rural areas), key
Source: Provinciale Staten van Friesland (1994), separate plot, original size 53 × 43 cm
Plate 6 Streekplan Noord-Holland Zuid: Streekplankaart, extract

Source: Provincie Noord-Holland (2003), separate plot, original size 96 × 60 cm
Plate 7 Raumordnungspolitischer Orientierungsrahmen, Leitbild settlement structure

Source: BMBau (1993: 9)
Plate 8  (a) LEP NRW Landesentwicklungsplan Nordrhein-Westfalen, Zeichnerische Darstellung, Teil B, Regierungsbezirk Münster, extract

Source: MURL (1995), separate plots, original five plans for sub-regions (Regierungsbezirke) in Northrhine-Westphalia (Detmold, Münster (89 × 61 cm), Arnsberg, Düsseldorf, Köln), scale 1:200,000
Siedlungsräumliche Grundstruktur und zentralörtliche Gliederung
(siehe TRL A)

- Ballungskerne, Solitäre Verdichtungsgebiete
- Ballungsrandzonen

KÖLN
Hann
Hamb
TüL

Industrieansiedlungen/Kraftwerksstandorte

- A 4.3 Würf Gebiete für flächenintensive Großvorhaben
- B 1.2 Alpen Standorte für die Energieerzeugung

Freiraum und Freiraumfunktionen

- Freiraum
- Gebiete für den Schutz der Natur
- Feuchtgebiete
- Gebiete von internationaler Bedeutung, aufgrund von Merkmalen europäischer und anderer internationaler Konventionen
- Waldgebiete
- Grundwasserfarkommene
- Grundwassergefährdungsgebiete wegen ihrer geologischen Struktur

Plate 8 (b) LEP NRW Landesentwicklungsplan Nordrhein-Westfalen, Zeichnerische Darstellung, Teil B, Regierungsbezirk Münster, key

Source: MURL (1995)
Plate 9 Landesentwicklungsprogramm III Rheinland-Pfalz, extract

Source: Staatskanzlei Rheinland-Pfalz (1995), separate plot, original size 91 × 114 cm, scale 1:200,000
Plate 11 Trendscenario prepared under the French presidency in 1995: urban system

Source: reproduced in BILR (1995b: 42)
Plate 12  Draft cartographic representation prepared under the Dutch presidency in 1997: the territorial framework

Source: archives of VROM
Plate 13  Studies of urban–rural relations for the ESDP: preparation under the Dutch presidency 1997

Source: archives of VROM