



Permanent Committee on Cadastre
in the European Union



The cadastral parcel in NSDI's and in INSPIRE



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Executive Summary

Introduction

A framework directive for an Infrastructure for Spatial Information in the European Community (INSPIRE) is now a fact. The INSPIRE directive of European Parliament and Council was published on the 25th April in the Official Journal of the European Union and entered into effect on the 15th May 2007. In Annex I of this directive the cadastral parcel is mentioned as an important spatial data theme.

While the cadastral parcel is briefly defined in Annex I ('Areas defined by cadastral registers or equivalent'), a joint working group consisting of members of the Permanent Committee on Cadastre (PCC) and EuroGeographics' expert group on Cadastre and Land Registry (ExgCLR) took the opportunity to specify this INSPIRE definition by investigating the relevant elements of a cadastral parcel that are already in place in European countries and that are linked to spatial data. In order to do so, two questionnaires were issued between August 2005 and February 2006 in more than 25 European countries. Important elements related to the definition of a cadastral parcel were surveyed in the first questionnaire. The use of the cadastral parcel in society was the central theme of the second questionnaire.

5 key elements

From the responses, we derived five general key elements that define the cadastral parcel. These are:

- Unique identifier;
- Area;
- Cadastral boundaries;
- Geo-reference;
- Origin and history.

Besides these five elements the questionnaires included other elements that were investigated (like ownership, rights and use). Regardless of their importance to cadastres, these elements usually have more administrative or legal relevance, whilst the INSPIRE directive focuses on the spatial geographic component.

Relevance in society

In general, cadastral parcels are commonly used as an information object in important aspects of the real estate market (conveyance of property, mortgaging, easements and land/property taxation). Besides, in many countries the cadastral parcel is being used for planning purposes, environmental monitoring, subsidy-programmes, infrastructure management, public restrictions, public safety, geo-marketing and socio-economic analysis.

Accessibility of cadastral information

While cadastral information is available and can be provided by European countries, improvements in exchange of and direct access to this information will be the challenge for the near future. Due to developments in data-concentration, electronic (portal and/or web-oriented) access is technically possible in the countries. A focus on promoting improvement of open access to information is recommended.

Conclusions

- The surveys confirm the importance of the cadastral parcel and strengthens the justification of it in Annex I of the INSPIRE directive;
- There are five key-elements that specify the cadastral parcel;
- The cadastral parcel can be used as a locator. Besides differences between countries in definition, coverage and quality of the (elements of the) cadastral parcel, the parcel is basically the smallest spatial object that is widely used across Europe for numerous applications in national spatial data infrastructures;
- The cadastral parcel is used for many purposes;
- In most countries cadastral information is available. It is however the access to this information that can be improved.

Future developments

The cadastral parcel is an important component in national and European spatial data infrastructures. In order to create effective infrastructures and promote efficiency, a focus on interoperability of data and services is recommended. Improvements in standardisation of data and the access to this data and information are from a working group-perspective the main topics for the near future.

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1 Introduction

History and scope

The political process regarding agreement on INSPIRE at a European level has recently been finalized by publishing a directive. Now, drafting teams are working on implementing rules and an appeal is made by the European Commission for organisations who can provide ready made solutions for theme specifications. In the work plan¹ issued by EuroGeographics' expert group on Cadastre and Land Registry, the importance of the cadastral parcel in national spatial data infrastructures (SDI's) and INSPIRE was already recognised. In order to specify the cadastral parcel, a joint working group with delegates from the Permanent Committee on Cadastre was established. The idea was to examine as early as possible what the European countries are able to deliver concerning data related to the cadastral parcel.

The group's main task was to inventorise the role of the cadastral parcel within European and national SDI's in general and in INSPIRE in particular. To get a complete picture two questionnaires were sent to the European countries. Topic of the first questionnaire was to define the role of the cadastral parcel as well as to make a general inventory of its relevant characteristics. Based on the results of the first questionnaire the second one focuses on the use of the cadastral parcel within the national SDI's and its current importance in society. This report presents the general results of the questionnaires.

Response

A substantial number of European countries completed the questionnaires. The first questionnaire was issued in August 2005. More than 25 European countries responded to the questionnaire; the second one, issued in February 2006, received more than 20 responses. Both original questionnaires are attached to this report (annex A and B); the combined general results can be found on the websites of EuroGeographics (www.eurogeographics.org) and the PCC (www.euroidastre.org).

Addressee of this report

Central theme of the report is the role of the cadastral parcel in European and national spatial data infrastructures as well as the relation with the recently issued INSPIRE directive. Therefore this report is aiming at the cadastral organisations in the countries in order to give them an overview of common characteristics and relevance of the cadastral parcel within Europe. The potential value of the cadastral parcel can also be of interest to the European governmental institutions. Regarding the INSPIRE directive, this survey provides useful information for its drafting teams.

Structure of the report

Starting with an introduction in which the reason, goals and approach are briefly described, the report focuses on definition and role of the cadastral parcel in spatial data infrastructures, including INSPIRE. An overview of the different purposes for which the cadastral parcel is being used is described in the next chapter. Besides availability of cadastral information also its accessibility is, in direct relation to the INSPIRE directive, important and presented. The report concludes with future developments.

¹ Last version, 26 July 2006

Characteristics of the report

This report simply documents the findings of the surveys – a factual description of the information provided by the respondents. As such, analysis is simple and quantitative. Most important issues are depicted in maps.

Notes

The surveys have provided information on the role and the use of the cadastral parcel within NSDI's and INSPIRE. While every effort has been made to ensure that data and interpretation are accurate and reflect the current situation, it must be acknowledged that in several cases, error or bias may have been introduced through misunderstanding.

In visualising the most relevant questions and its responses in maps, text is kept to a minimum. The maps represent the situation as accurate as possible. However, situations might have been changed during the time between issuing the questionnaires and the presentation of the results in this report. It is also possible that results reflect a situation that needs explanation or is valid for parts of countries and do not represent the country as such.

Due to technical limitations, in processing the available information of England/Wales and Scotland it was not possible to divide the information in two separate responses. Maps regarding the first questionnaire are based on the data of England/Wales. Deviations with Scotland are mentioned under the maps concerned. The maps that deal with the second questionnaire are based on the Scottish information.

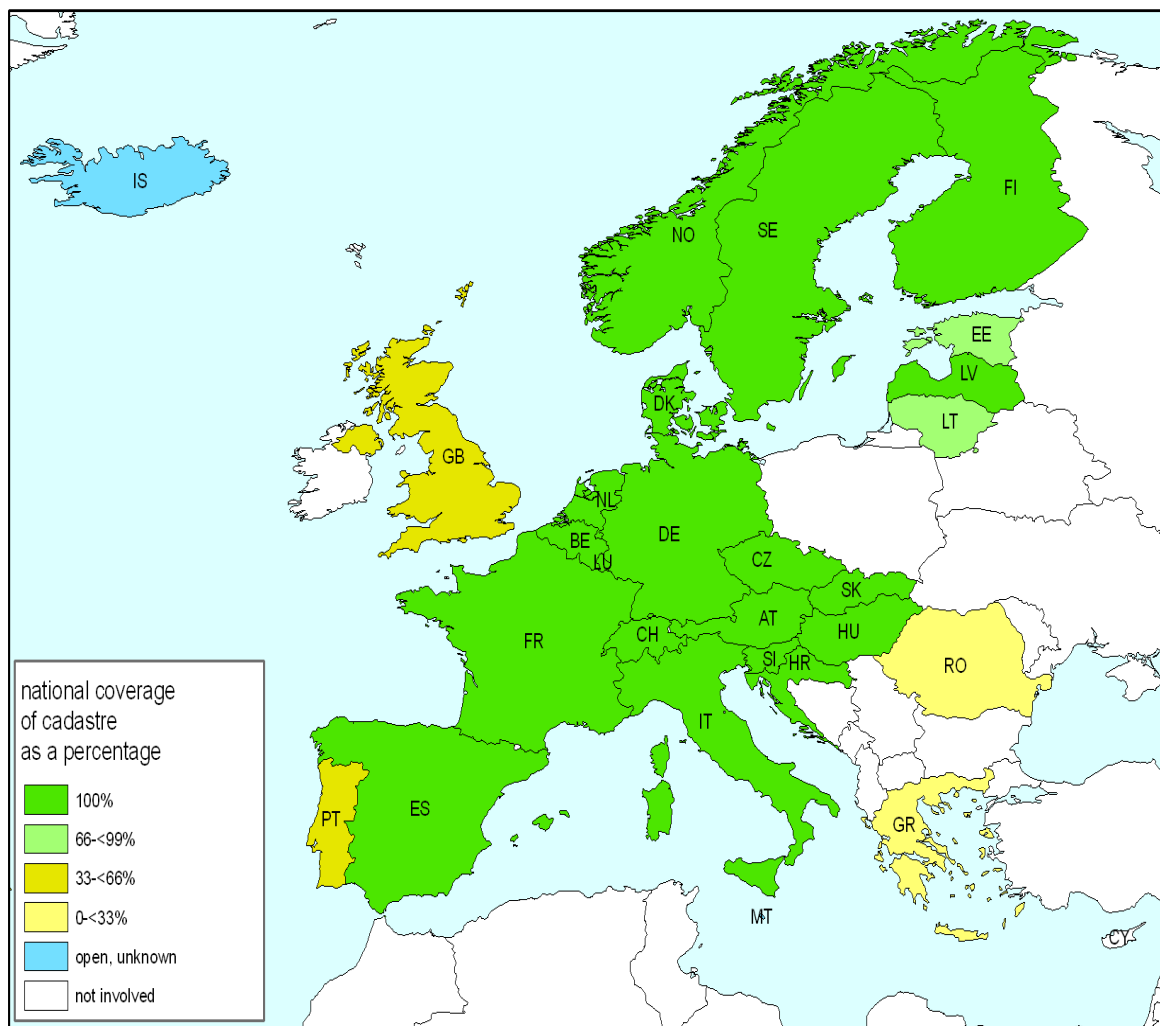
An overview of the included maps can be found in annex C. In the maps, abbreviations for each participating country are used. These abbreviations can be found in annex D.

2 Role of the cadastral parcel in NSDI's

2.1 General information

If a more detailed definition of a cadastral parcel could have been given, the INSPIRE directive should certainly have done so. However, the current definition of a parcel itself in the directive is general and brief: 'Areas defined by cadastral registers or equivalent'. In order to give some direction to this definition the working group used the definition as is issued by the Working Party on Land Administration (WPLA) in its questionnaires. In this definition a cadastral parcel is 'a single area of land or more particularly a volume of space, under homogeneous real property rights and unique ownership'. Objective of the working group was to investigate which elements are parts of the cadastral parcel within the spatial data context of the countries participating in the questionnaire.

In order to find out the existence and registration of the cadastral parcels some general questions were added to the first questionnaire. These questions deal with the coverage of the cadastre and their formal basis. The question regarding the coverage of the cadastre is presented in the map below.



Map 1: National coverage of cadastre

Coverage Scotland: 100%

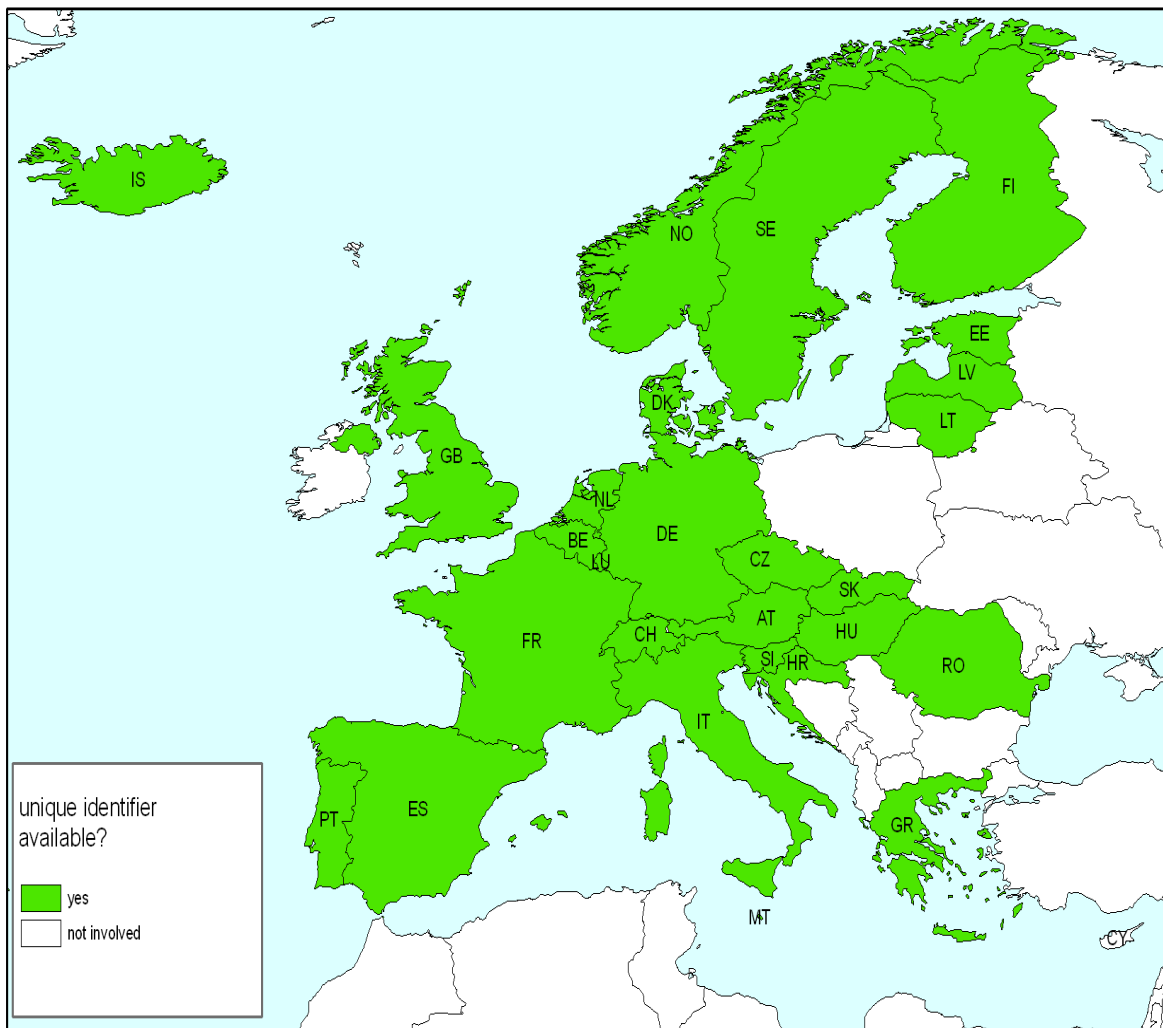
2.2 Core-elements of a cadastral parcel

In order to identify and specify a cadastral parcel, the results of the questionnaire showed that five core elements can be indicated that are quite common in the countries. These are: Unique identifier, area, boundaries, geo-reference and origin and history. Although these elements may vary in definition and quality-standards, they can sufficiently be used as a basis for the cadastral parcel within SDI's. We advise to use the cadastral parcel as a locator because it is being used, as common lowest denominator, for many applications in national spatial data infrastructures.

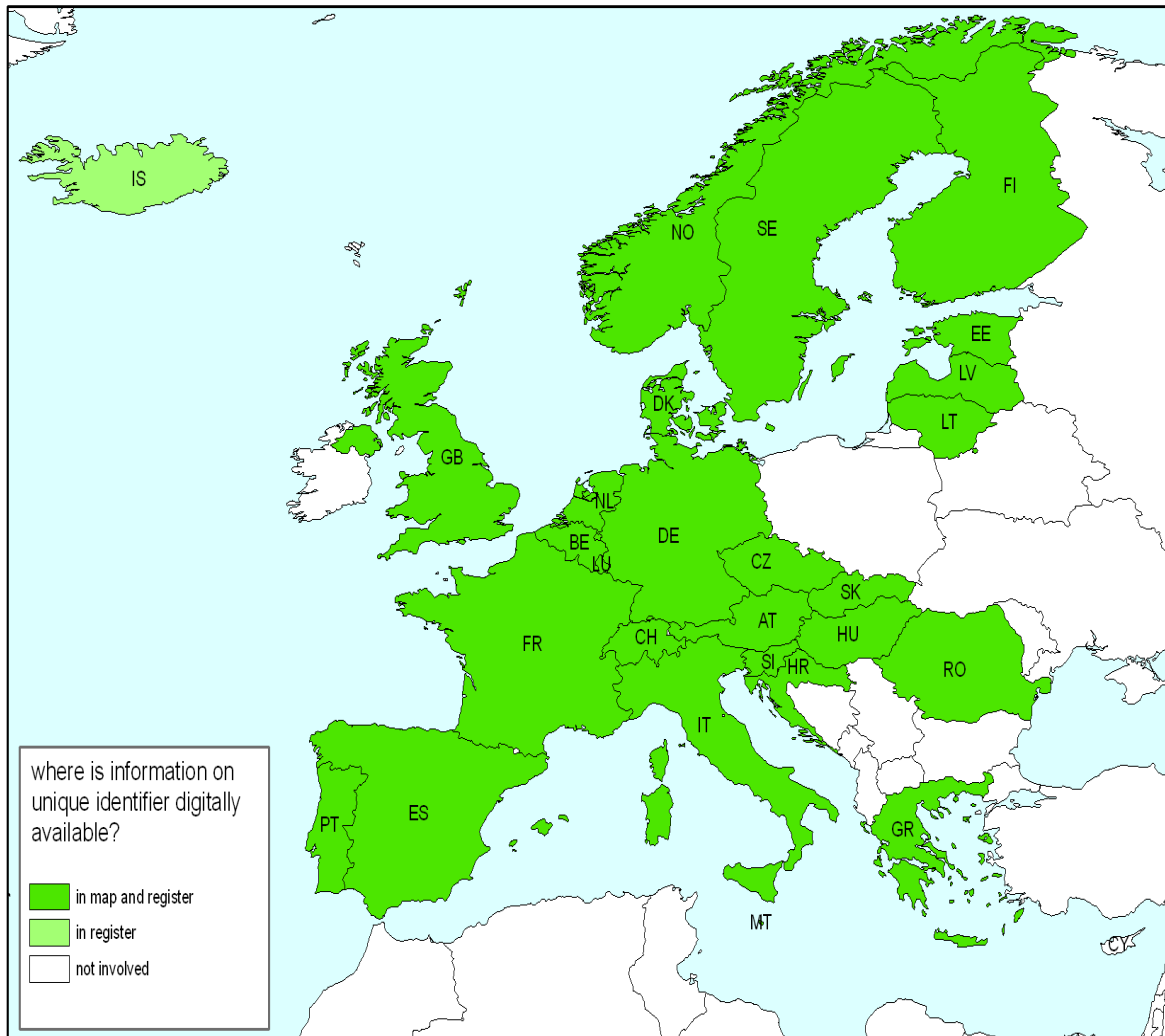
Each of the five elements is presented in two pictures. The first image shows the availability of the specific element in the countries involved in the questionnaire, while the second one focuses on the place where the information is digitally available. In the images that depict the location of information the word 'map' refers to the 'cadastral' map; 'register' refers to the 'land' register.

1. Unique identifier

A national unique cadastral parcel identifier is available in every country. The composition of the identifier within the countries can differ (for example only digits (44880090222) or a combination of digits/characters (APD00 F 2345). In general, the identifier is digitally available in register and map.



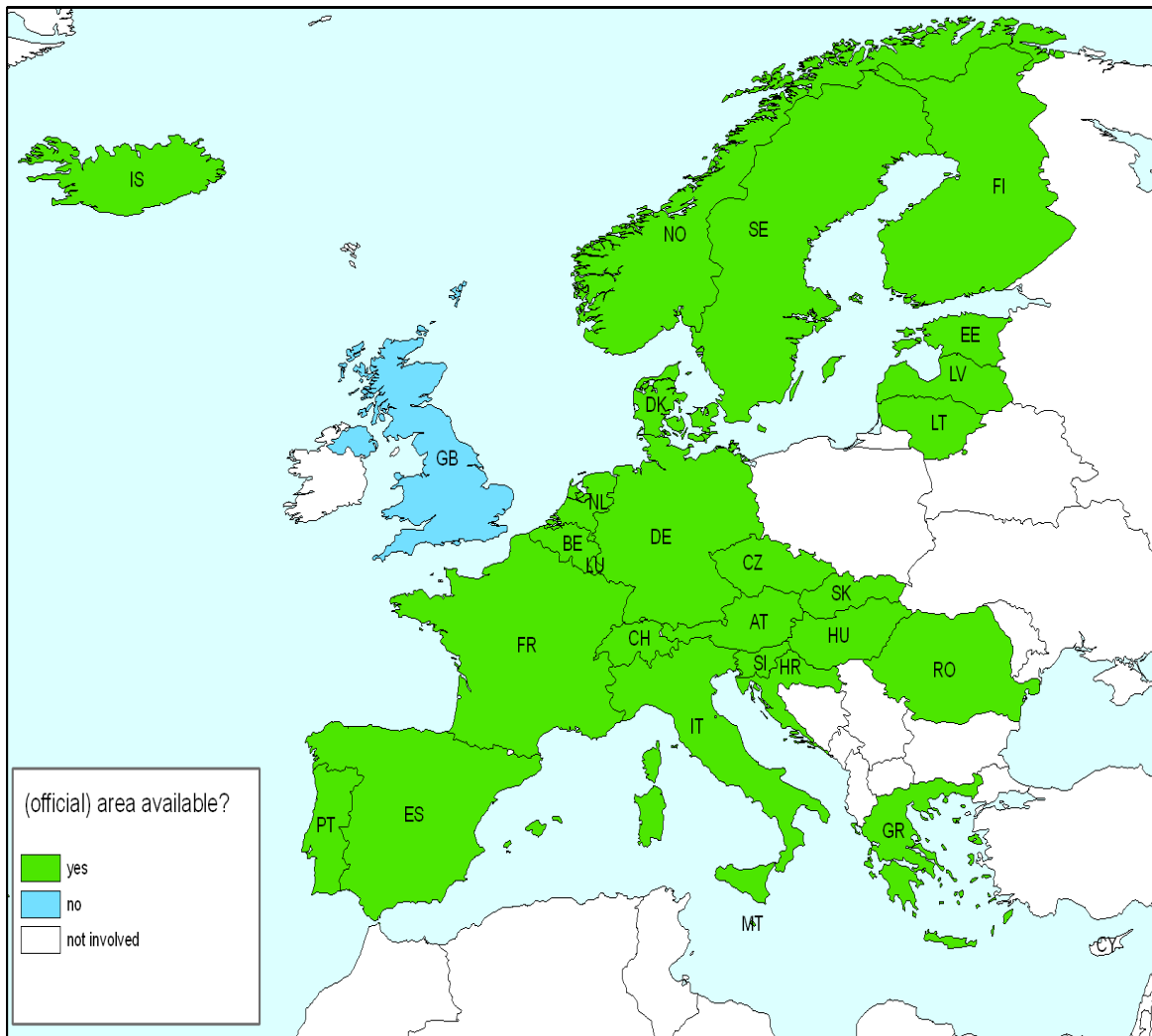
Map 2: Availability of unique identifier



Map 3: Location unique identifier

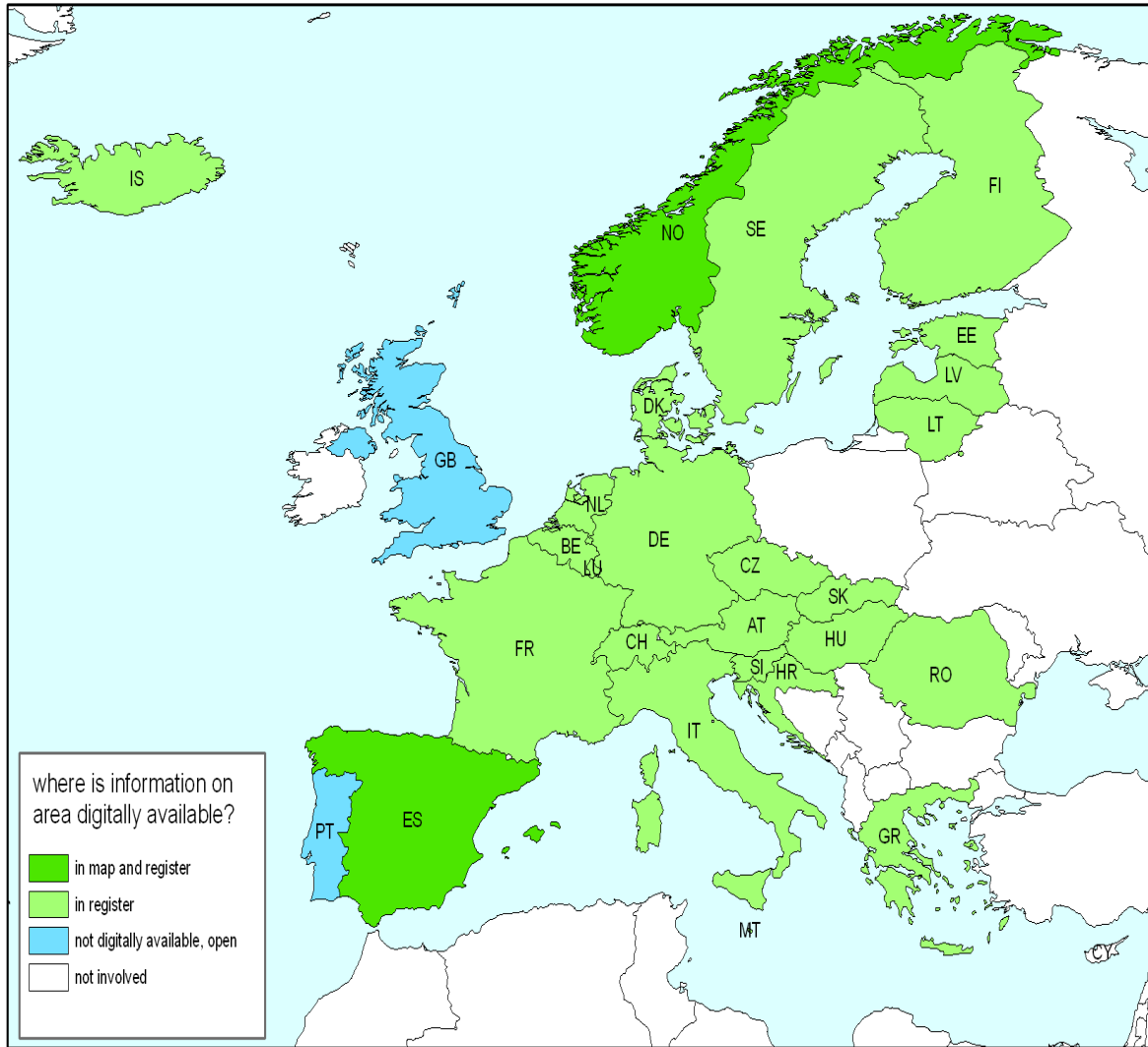
2. (Official) area

A cadastral parcel consists of an area. An area can be defined as ‘a physical quantity expressing the size of a part of the surface’². However in the context of an SDI a single definition as well as quality guidelines are difficult to give. In almost all countries information on areas is directly available from or can be obtained through the cadastre (with the exception of England, Wales and Scotland). The use or status of areas can also differ; fiscal, legal or technical guidelines can be of influence. Maintenance and updating of the metadata-information by the countries is eminent in order to continuously deliver valuable information.



Map 4: Availability of (official) area

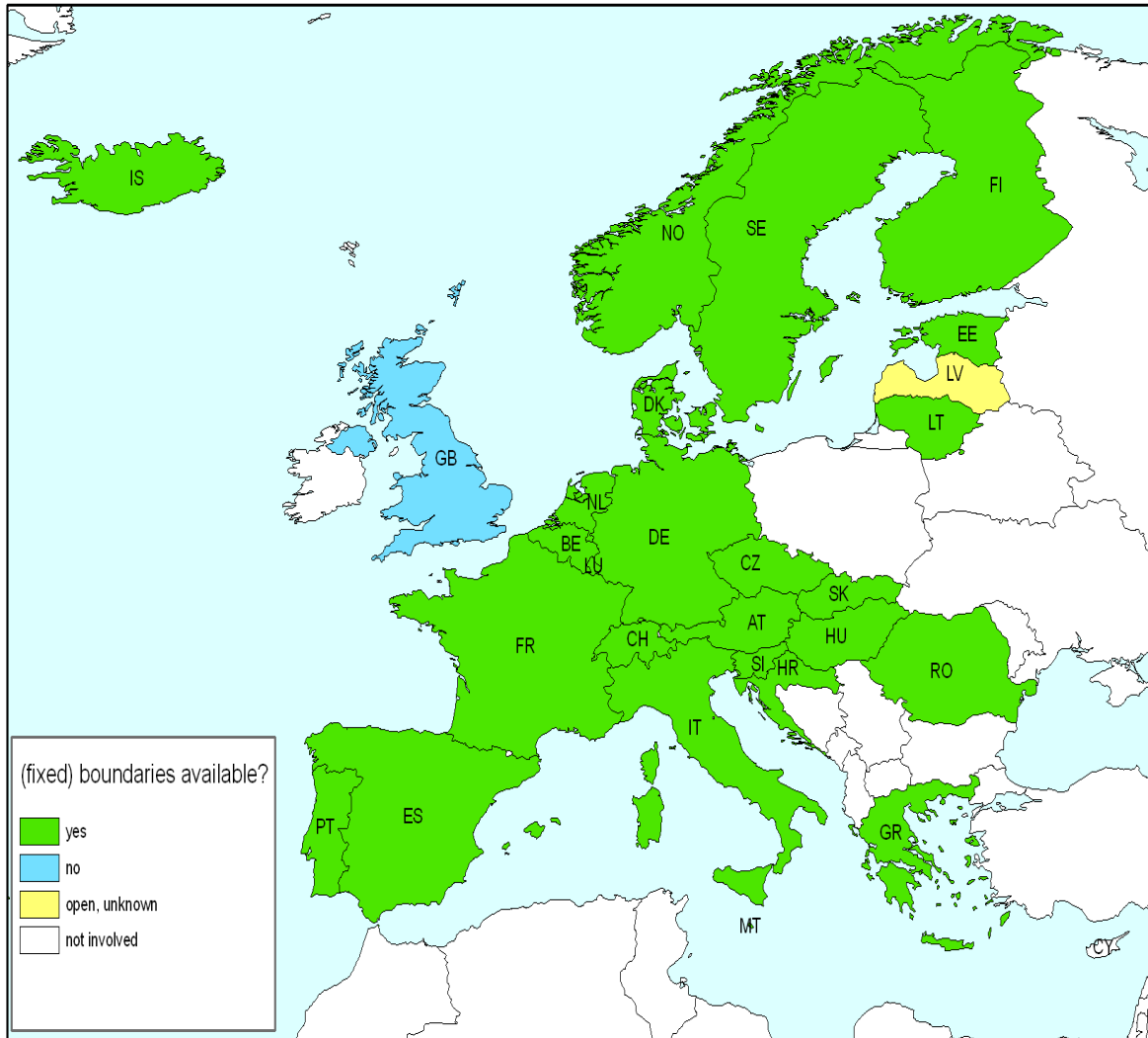
² see Wikipedia-definition, www.wikipedia.org/wiki/area



Map 5: Location area

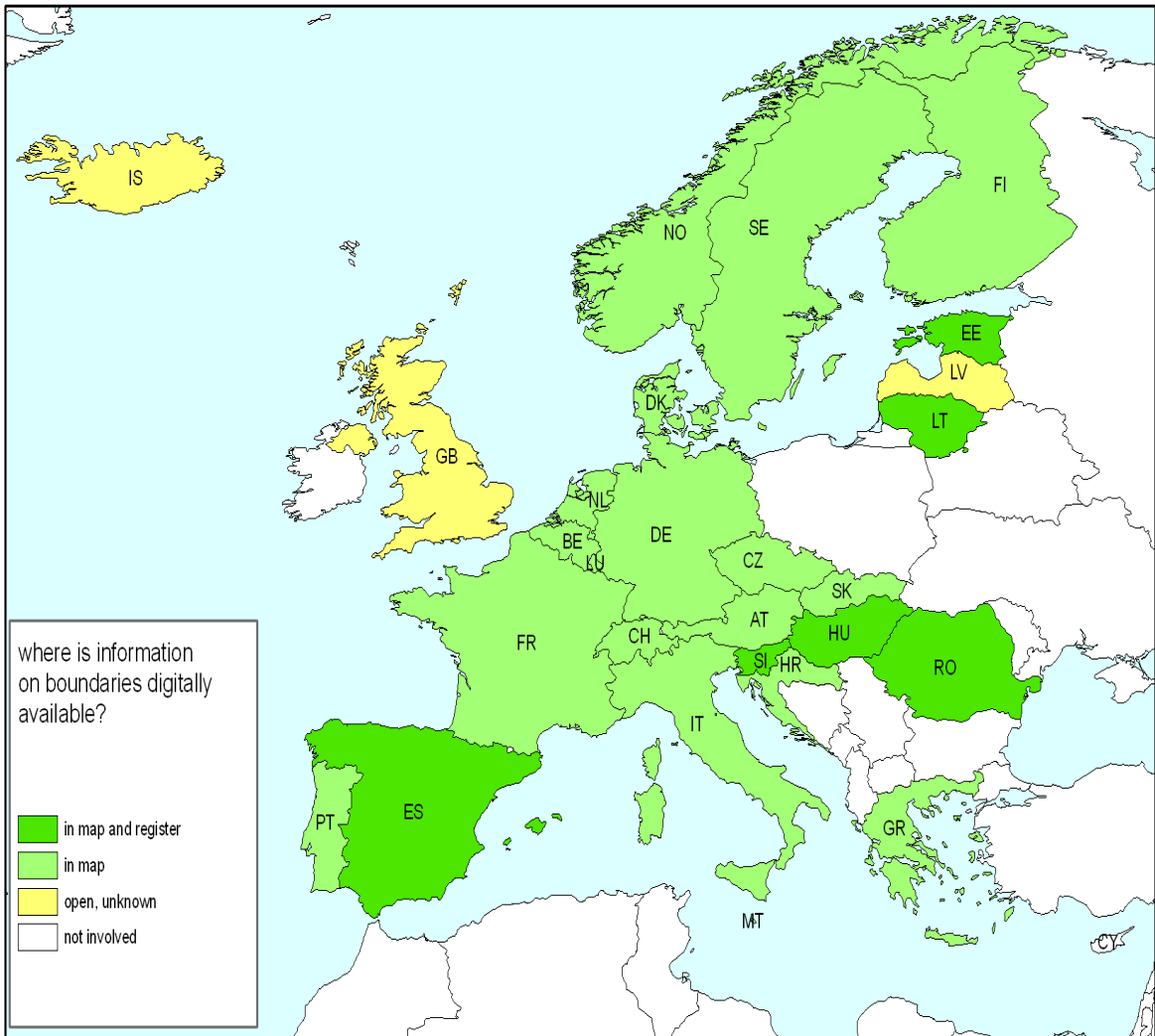
3. (Fixed) boundary

Fixed boundaries can be found in all countries with, more or less, the exception of England, Wales and Scotland where general boundaries exist. In almost all cases these boundaries are available in digital form on either the map or in both map and register. The accuracy of the boundaries may vary. Regarding this digital availability, the questionnaire shows that both raster and vector data structures are used. Both data structures can be used as a reference; however usage of vector data offers more flexibility, especially in automatic analyses and scale possibilities.



Map 6: Availability of boundaries

Scotland: boundaries are available

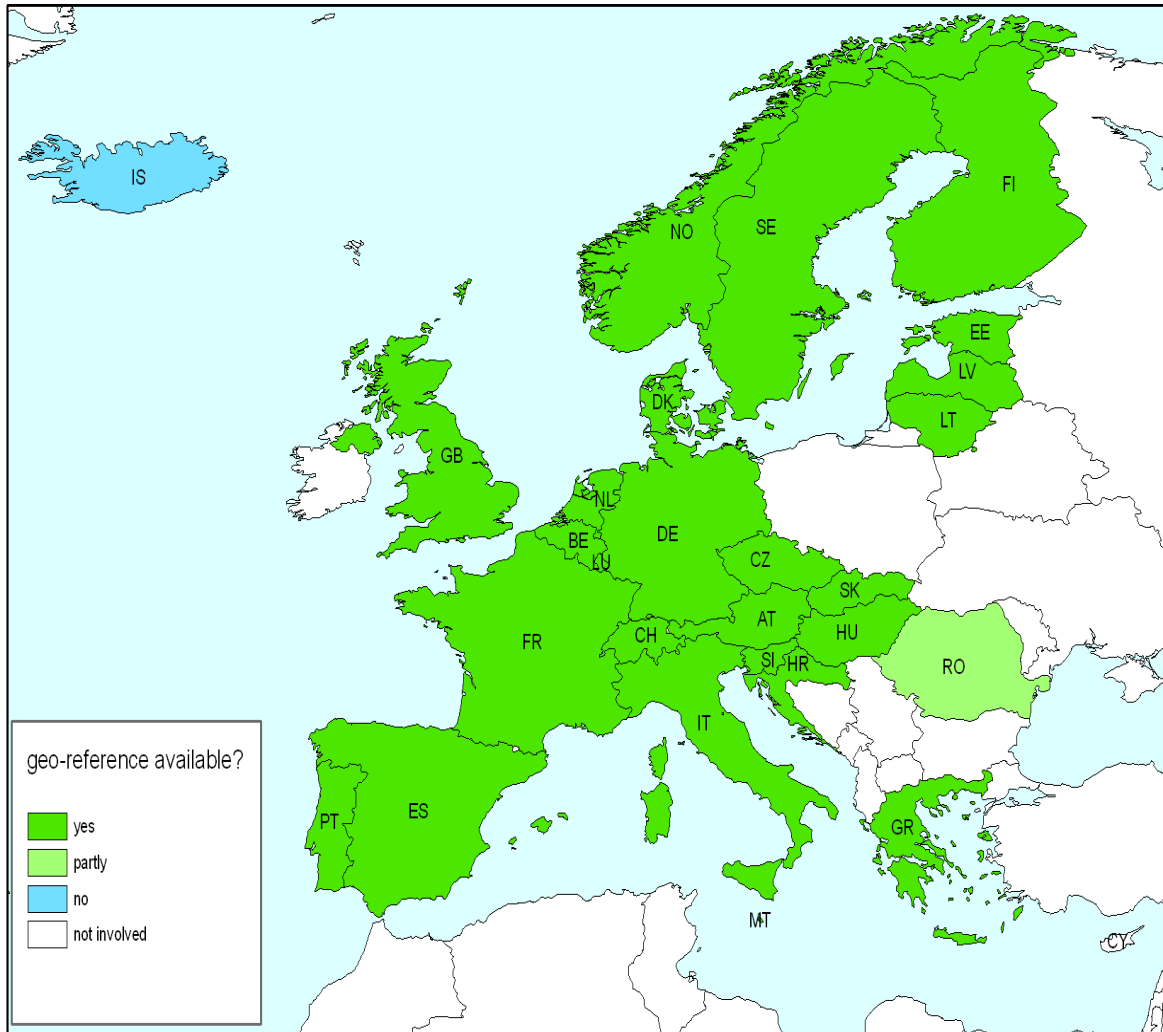


Map 7: Location boundaries

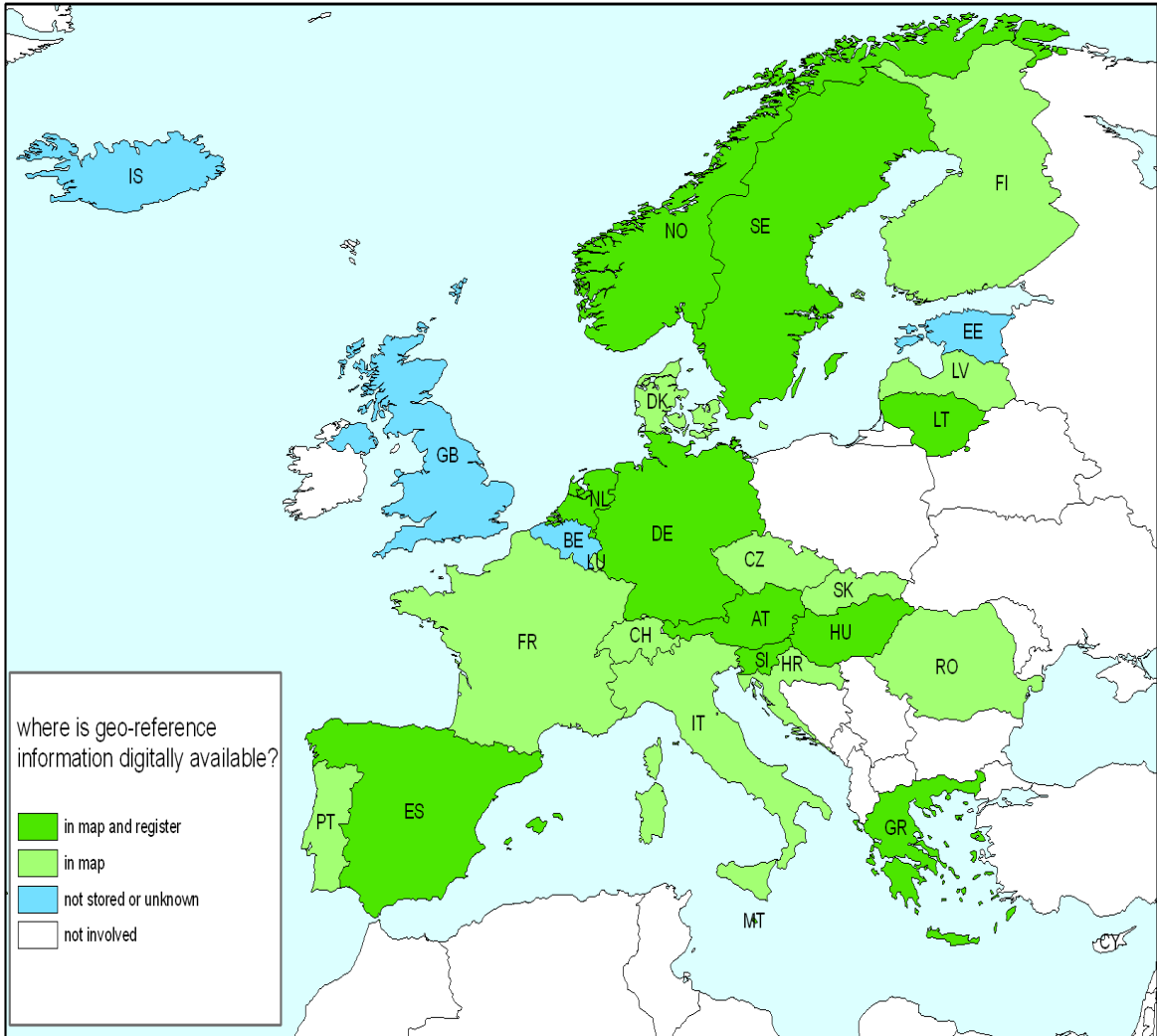
Scotland: digitally available in map

4. Geo-reference in a national coordinate reference system

In every country with the exception of Iceland and partly Romania, geo-reference information is available. The working group supports the importance of existing geo-references based on the national grid-system, because this provides a sound, coordinate-oriented, basis for the establishment of a European reference system. We also looked at the postal address as a reference. However, in many countries addresses are not available for all cadastral parcels; as a result the address cannot serve as primary identification of a parcel.



Map 8: Availability of geo-reference

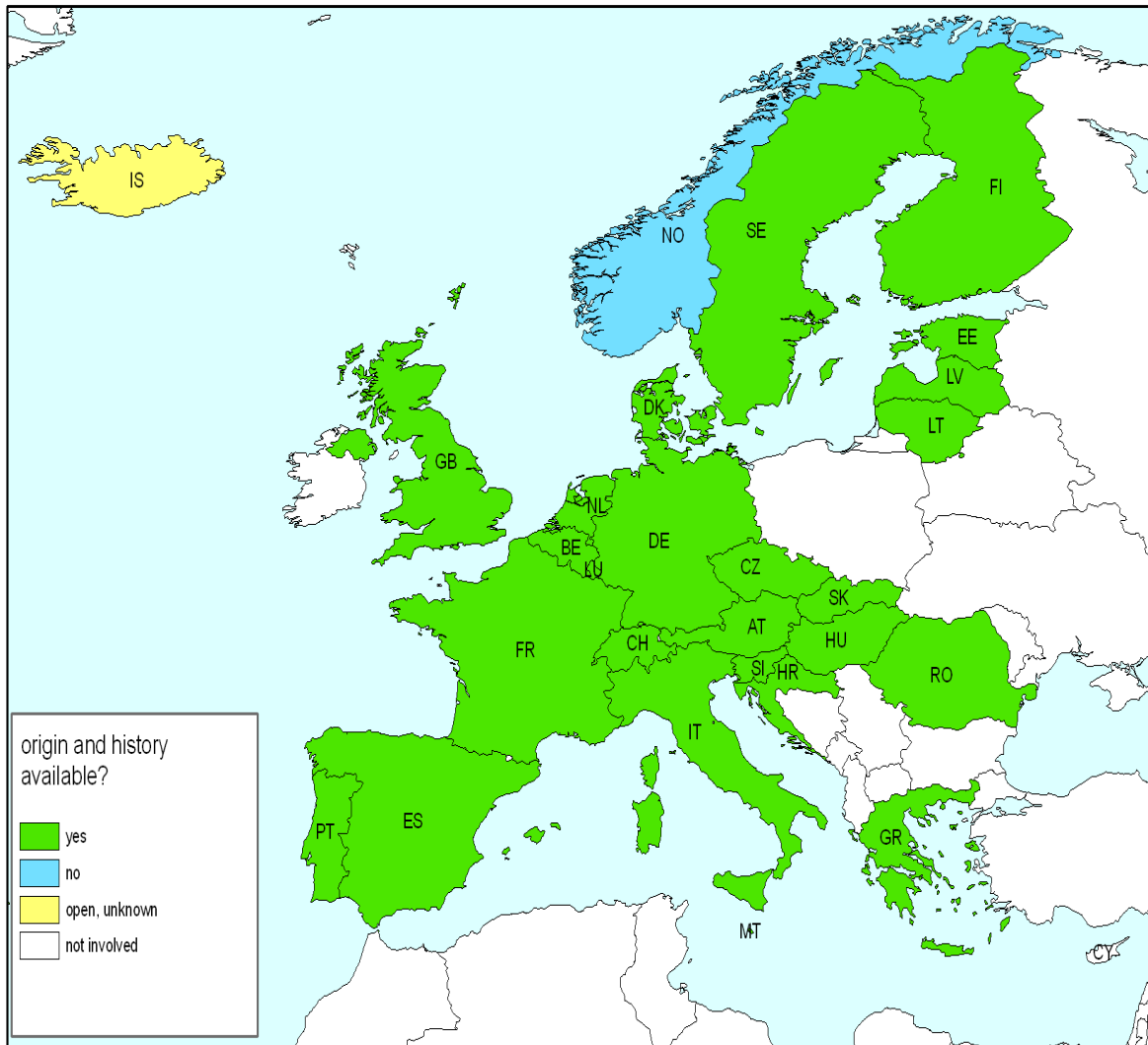


Map 9: Location geo-reference information

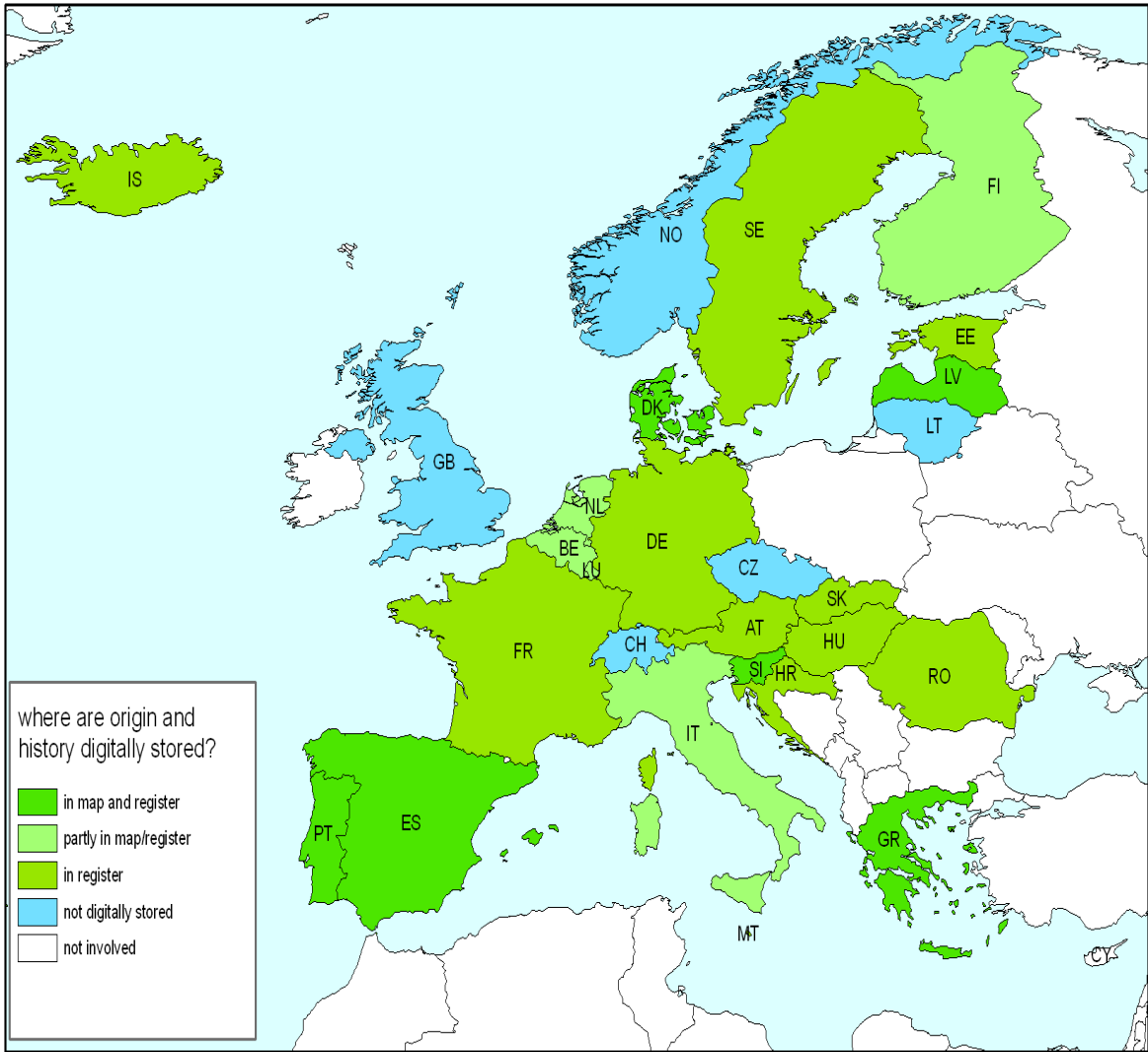
Scotland: digitally available in map

5. Origin and history of the parcel

In our view the origin and history of a parcel have especially a legal relevance. For purposes related to SDI's this element is considered to be additional to the previous four. However, history (at least a link to the last change) can be relevant especially in relation to land use and land cover. In many countries the history and origin of a cadastral parcel are traceable (in all countries with the exception of Norway) and digitally available.



Map 10: Availability of origin and/or history



Map 11: Location of origin and/or history

Scotland: digitally available in map and register

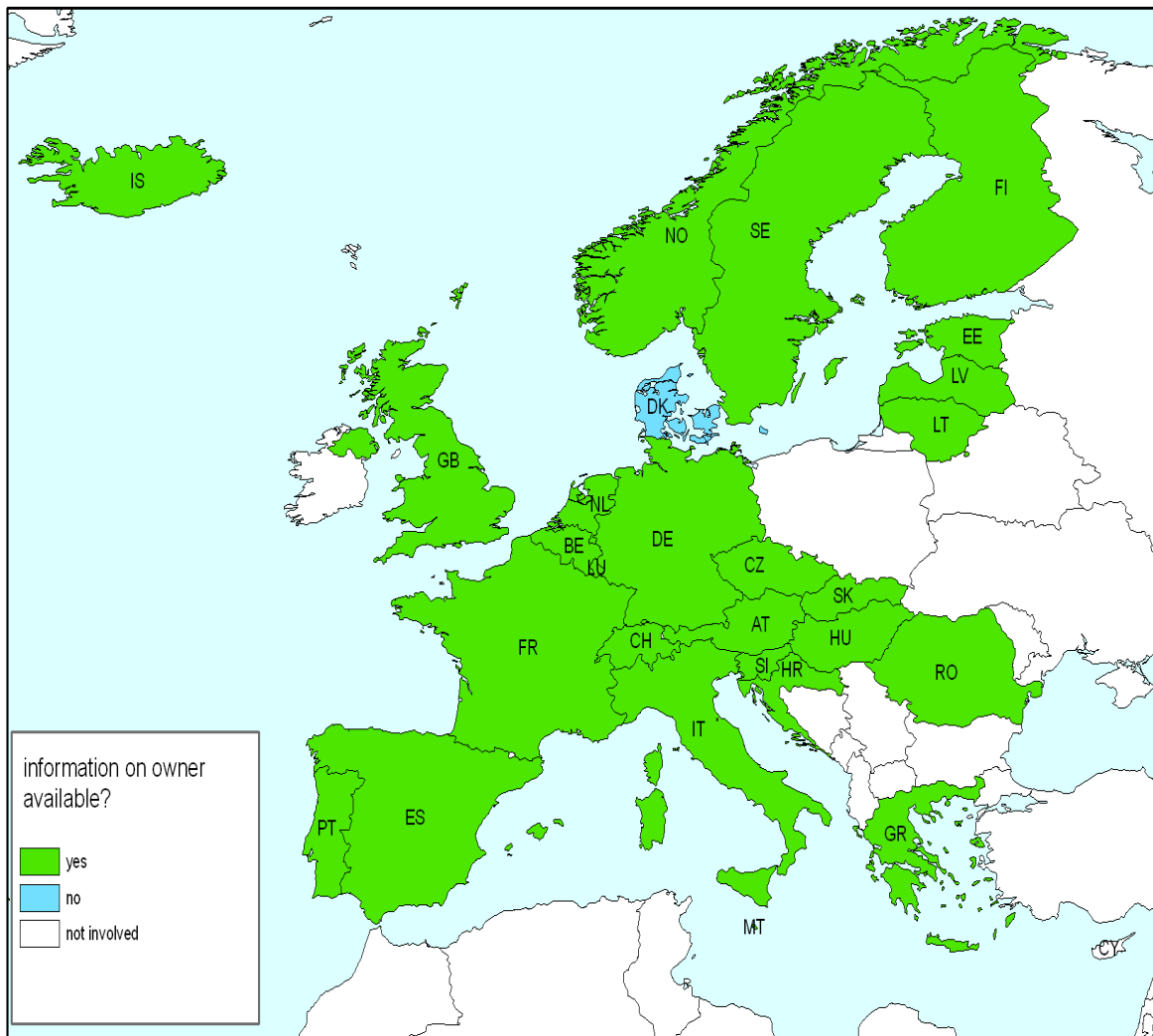
2.3 Other analysed elements

In the questionnaire also other elements were investigated to find out their relevance with SDI's. Questions surveyed the following elements: Ownership, users of the parcel (who lives/works on the parcel), rights and restrictions, administrative (not parcel bound) boundaries, buildings, land use, land cover, value and addresses. For all these elements a link could be provided directly or indirectly through cadastres and/or land registers (or other systematic register; for example a transcription/inscription-register). We selected the topics that are presented in maps in this paragraph. For a full overview we refer to the completed questionnaire.

1. Ownership

In all countries information on the owner is available in or through the land register. In these countries information can be found in either the registers itself or in register and map. In Denmark the information regarding the owner (as well as the next issues on addresses, land use and value) is not directly available in the cadastre but can be found in other public institutions; key object between different registers is as such the unique identifier of the cadastral parcel.

We like to stress that from a legal point of view, ownership-rights as well as other rights and/or restrictions combined with parcel information, are the core-components belonging together to give an accurate view of the extent of and the rights in a parcel. In almost all the countries this information is available (taken into account that restrictions can vary in type and content). From a geo-referencing point of view the components regarding ownership and rights and restrictions are less relevant.

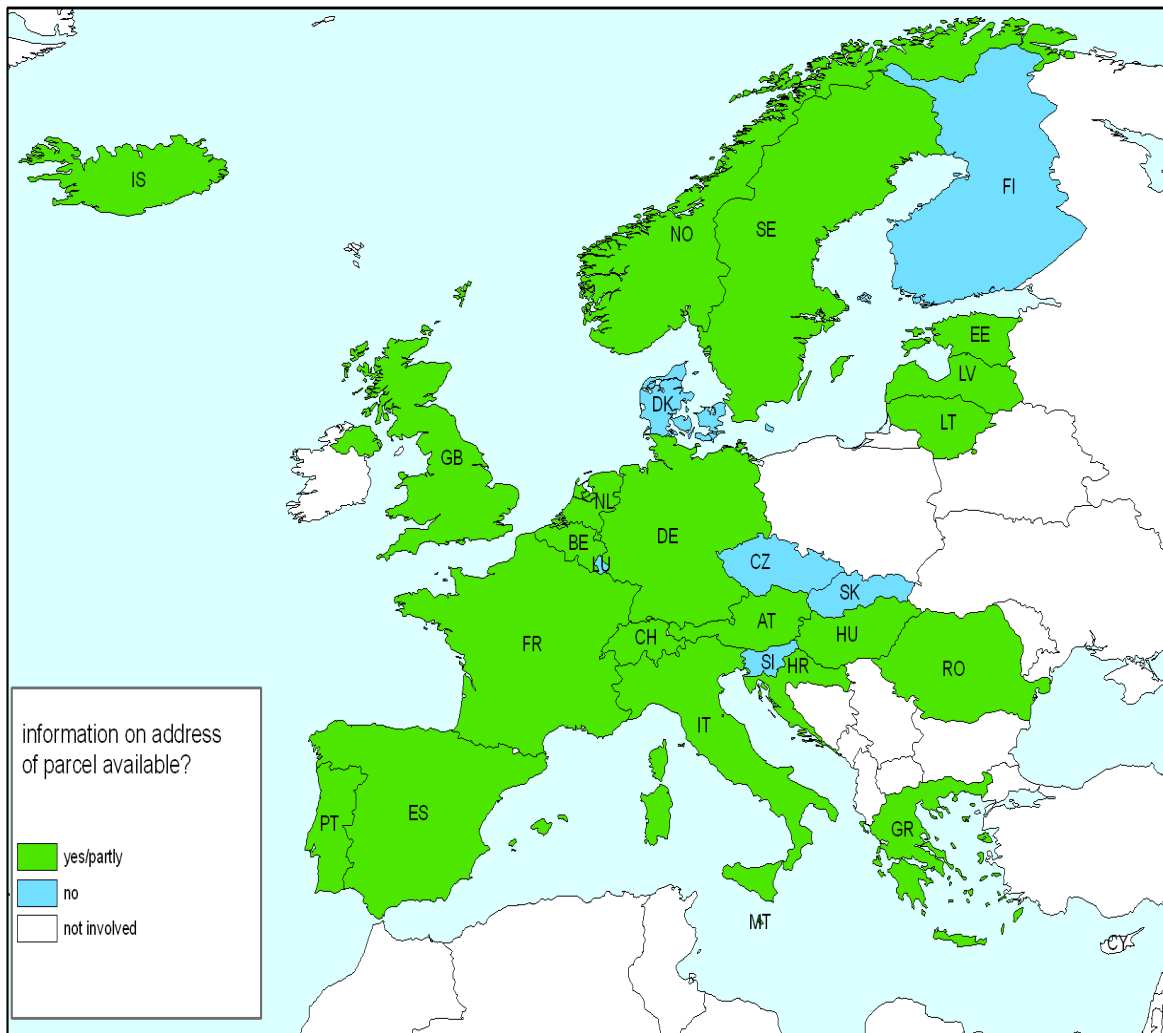


Map 12: Availability of ownership-information

2. Addresses (Annex I)

A description of an address can be found in the INSPIRE directive in Annex I: 'A location of properties based on address identifiers, usually by road name, house number and postal code'. The questionnaire shows that addresses are in most countries available in (or through) land registers or cadastral maps. The reliability of the address as key element is however not recommended.

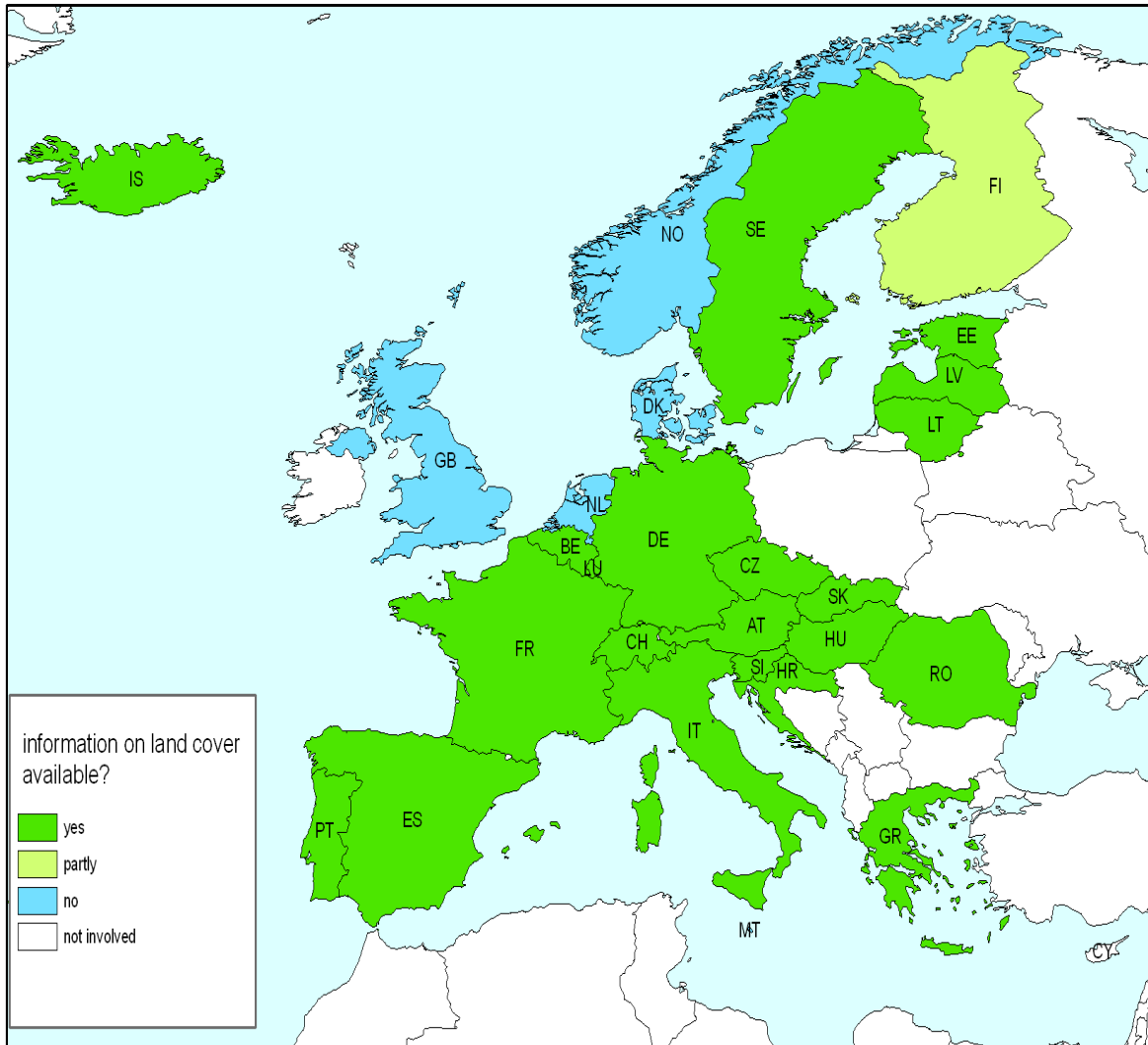
Addresses are usually connected to a parcel; however, this is not the case in all situations. Also maintenance of addresses can be a responsibility for municipalities. Therefore the working group supports the idea that an address is regarded as a useful secondary locator instead of a key element.



Map 13: Availability of address information

3. Land cover (Annex II)

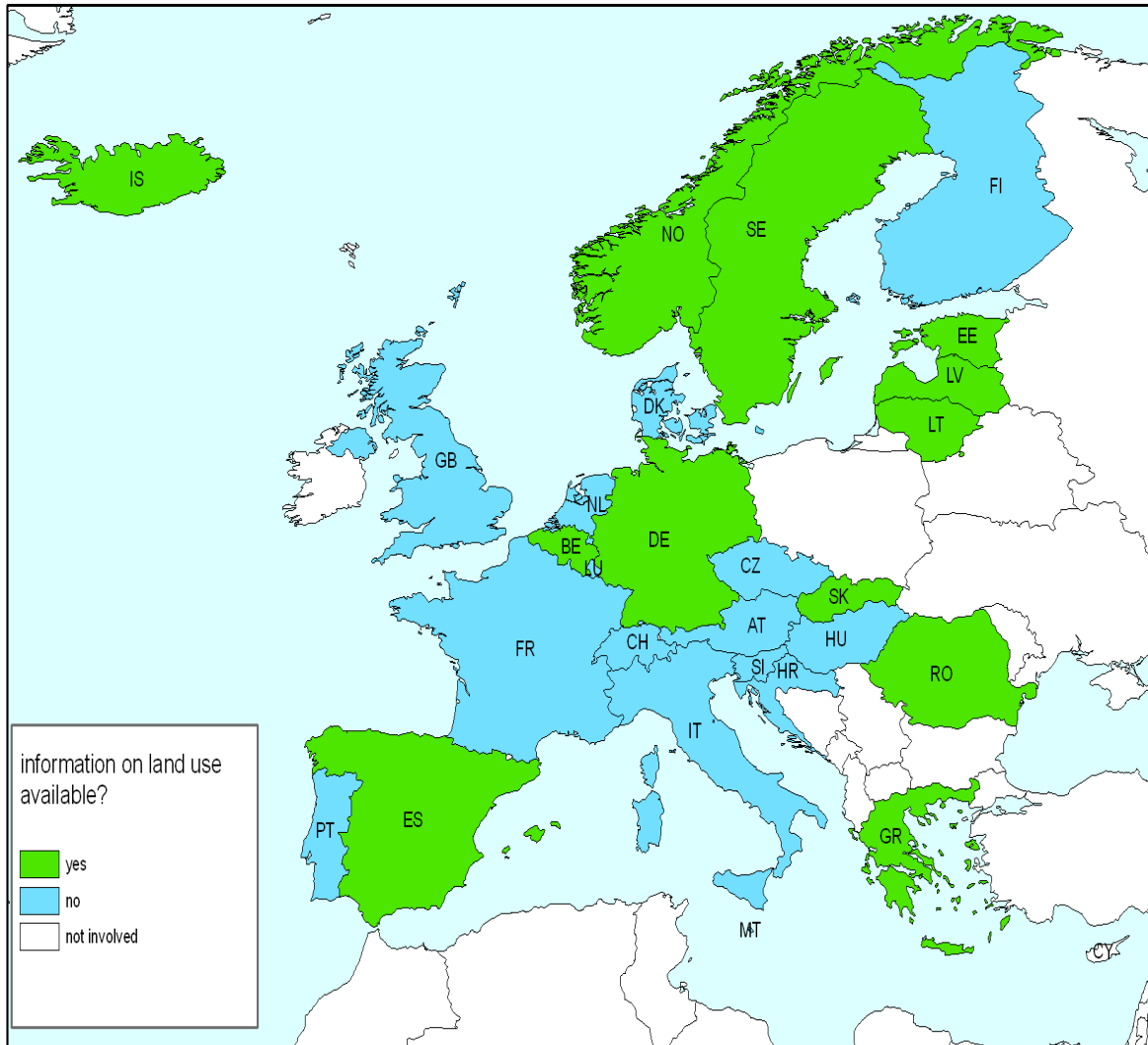
Land cover is defined in the INSPIRE directive in Annex II. It is the 'physical and biological cover of the earth's surface, agricultural areas, forests, (semi-)natural areas, wetlands and water bodies'. This type of information is registered within the majority of countries involved. It is digitally available in most countries either in or through the map and/or in the land register. It has to be mentioned that quality and precision can vary widely.



Map 14: Availability of land cover information

4. Land use (Annex III)

In the INSPIRE directive the theme 'land use' is described in Annex III. It states that it is 'a territory characterised according to its current and future planned functional dimension or socio-economic purpose (e.g. residential, industrial, commercial, agricultural, forestry, recreational)'. Regarding the fact that there are variations in defining land use in the countries, around 50 percent of the respondents stated that information is available (and if so, almost always digitally stored).

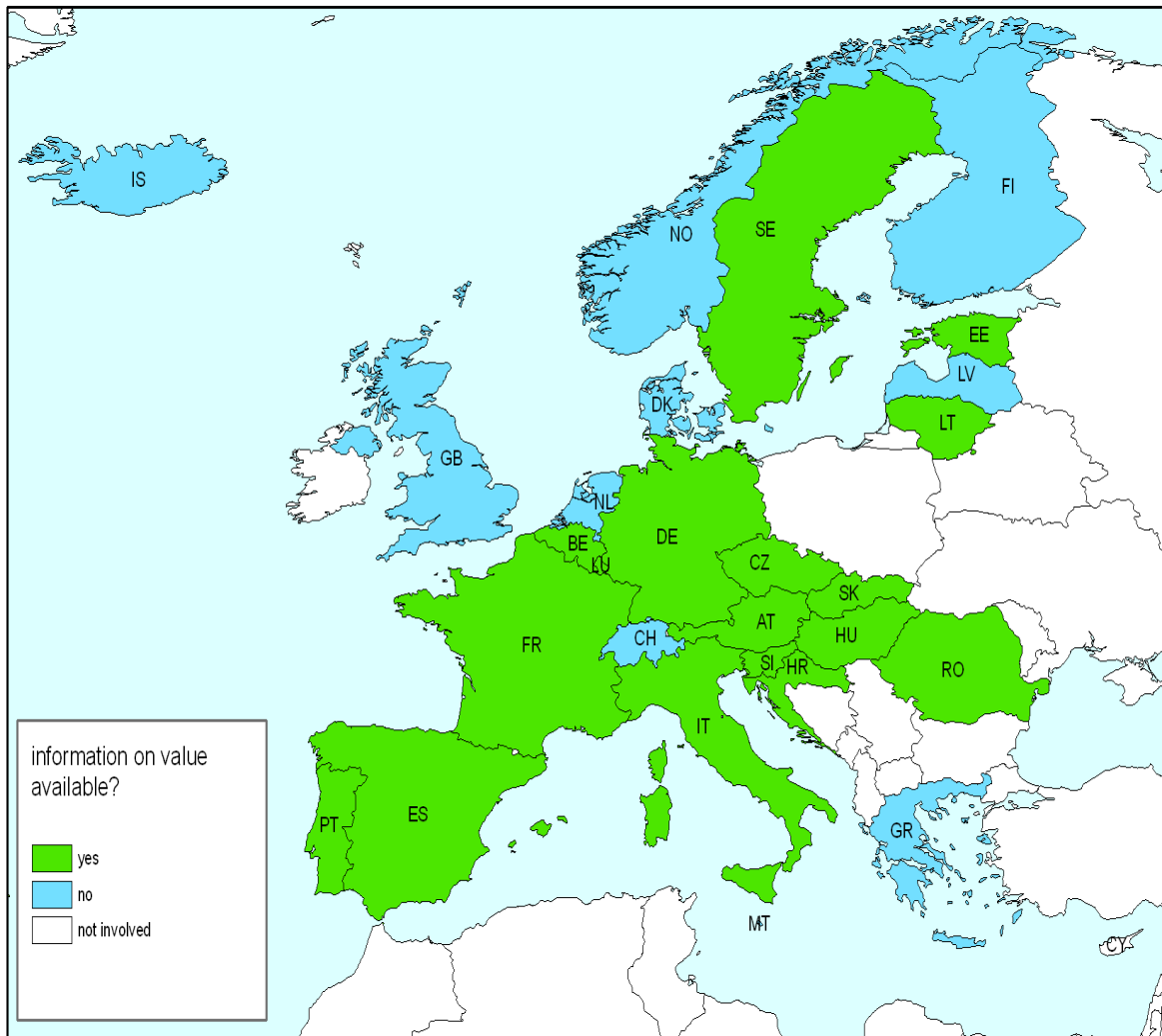


Map 15: Availability of land use information

Scotland: land use information is available

5. Value

From a land market perspective it is also interesting to include an image regarding the availability of information on value that can be obtained from cadastres and/or land registries. The word 'value' represents the monetary worth of real estate. Because prices, and therefore the value of real estate are subject to change, it is necessary to measure 'value' on a regular basis. In a majority of countries information on value is digitally available. However variation exists in basis (to what extent is the parcel taken into account), definition and purpose (for example a fiscal or legal purpose).



Map 16: Availability of information on value

2.4 The cadastral parcel within INSPIRE

The questionnaire gives an overview of information related to elements that are stored and maintained in or through cadastral and/or land registers. Some of the investigated elements were relevant to cadastral without having a direct relation to spatial data infrastructures, while others could be relevant but due to quality requirements did not fit in the description of a stable identifier (such as addresses).

In all countries involved in the first questionnaire there is an *unique identifier* that is digitally available in land registers and/or cadastral maps. While there are differences in definition, quality and usage, official *areas* are available in all countries, except in England, Wales and Scotland. Official areas are always mentioned in registers. (Fixed) *boundaries* are available in all countries. In the UK, general boundaries are used while in other countries existing boundaries have a legal or an administrative character. A fourth characteristic is *geo-reference*. In every country (except Iceland and partly Romania) geo-reference is available. It is also digitally stored in maps and/or registers in most countries. Of importance is the connection with the own national grid-system. The element concerning the *origin and history* of a parcel is in our view not directly related to the definition and identification of the cadastral parcel because it is primary of legal (instead of geo-referencing) relevance. However, when land use and land cover are part of datasets the history of a parcel can be relevant. We conclude that these 5 elements can provide a *basis* for the cadastral parcel within SDI's.

Other elements like ownership, registration of users (of a parcel), rights, buildings, addresses, land use and land cover were also analysed. However, great deviation and variety in quality and coverage between the involved countries as well as the lack of a relevant geo-relation (being for example of legal importance) excluded these components from being a key element.

We stress the importance of geo-referencing. We conclude that the availability of this element in practically all the countries involved in the questionnaire is a main asset and therefore a major advantage that can help in drawing the specification for the themes 'cadastral parcel', 'addresses' and 'buildings' mentioned in Annex I and III of the INSPIRE directive.

Conclusion

Considering the answers to the questionnaire we conclude that there are five core elements that identify a cadastral parcel in European and national SDI's in general and INSPIRE in particular. These elements are:

- Unique identifier;
- (Official) area;
- Boundary;
- Geo-reference;
- Origin and history.

We distinguish the cadastral parcel as a locator. We come to the conclusion that the parcel has primarily a use as a locator in the geo-information sector in general (although by origin it has always been, and still is, a meaningful object in its own right in the land market and for taxation purposes). Information on rights and ownership is not always available due to legal restrictions. The cadastral parcel is however basically the smallest spatial object that is widely used across Europe for numerous applications in national spatial data infrastructures. Therefore we promote the parcel primarily as a locator in the context of INSPIRE (notwithstanding and still fulfilling its important classical purposes).

Implementation issues

In order to diminish the variations in the elements and to promote interoperability between European countries we recommend that for each of the five key-elements some minimum requirements need to be met:

- **Unique identifier:** at least the unique national identifier should be used. Regarding a European unique identifier, we propose a composition of a country identifier and the (national) unique parcel identifier.
- **Area:** should be stated in square metres. Also an indication of the quality and the type (derived geometric or legally binding) regarding the metadata should be mentioned.
- **Cadastral boundaries:** at least raster data should be available as well as coordinates in the national system. Also an indication of its quality is important. Optional is closed polygon's information.
- **Geo-reference:** coordinates in a national system are necessary. The coordinates have to exist as a point *within* the cadastral parcel because the reference point of the parcel, which is the basis of geo-referencing, has to be part of the parcel. We recommend using the geo-information already available in countries as a starting point.
- **Origin and history:** basically required is the date of the last change. Future developments might require extra details.

3 Use of the cadastral parcel in NSDI's

The importance of the cadastral parcel in society has been recognised. Not only by mentioning the parcel explicitly in Annex I of the INSPIRE directive but also by the knowledge that the cadastral parcel is being used in many ways by clients and stakeholders. In order to get a general overview of its practical value a second questionnaire was issued. Answers to the questionnaire give an indication but leave nevertheless space for discrepancies. Taking these discrepancies into account, we conclude that the cadastral parcel is a valuable object of information that serves many purposes.

3.1 Surveyed purposes

The responses received from 21 countries that participated in this questionnaire show that the cadastral parcel is used as information object in:

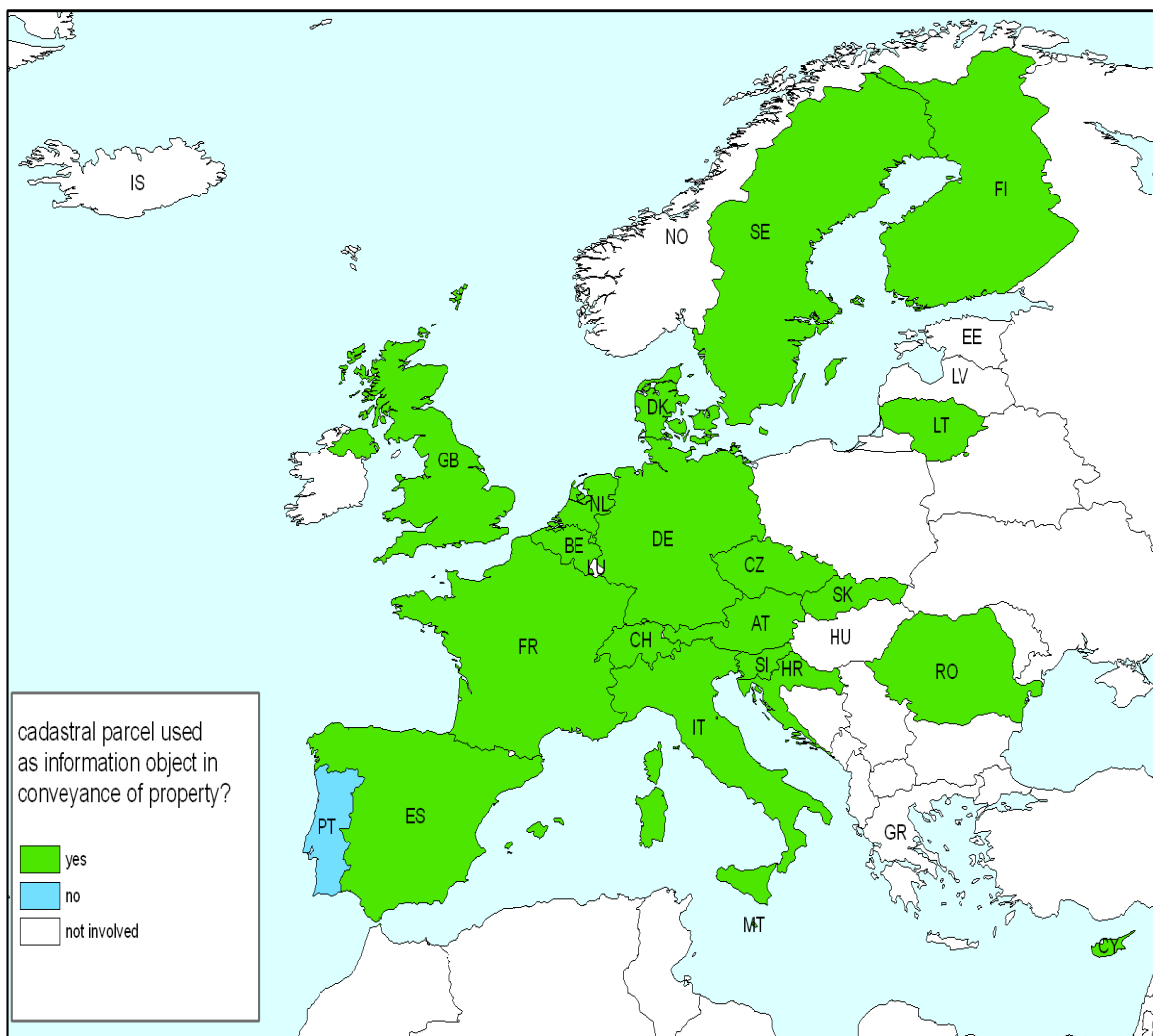
- Conveyance of property and mortgaging;
- Taxation and valuation;
- (European and national) agricultural subsidies;
- Environmental monitoring;
- Planning purposes;
- Infrastructure management (designing, constructing and operating actions);
- Public safety (prevention, monitoring and disaster management);
- Restrictions on land use;
- Administrative purposes (revenue, districting, granting subsidies);
- Socio economic analysis (statistical data and demographic issues).

3.2 Some examples

In order to give an overview the main purposes are presented in a map. For an overview on all purposes we refer to the completed questionnaire.

1. Conveyance

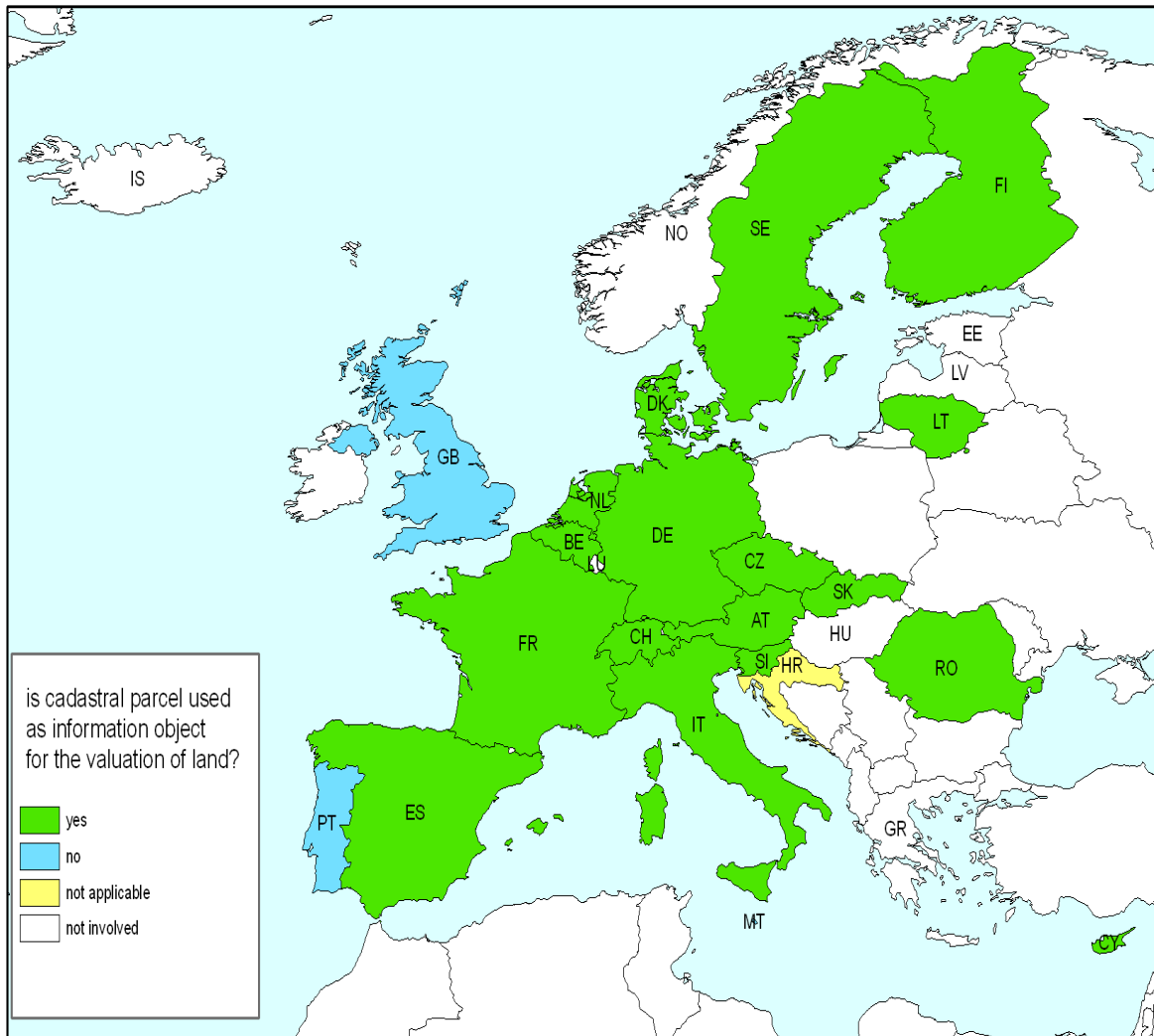
All countries with the exception of Portugal use the cadastral parcel as the main information element in the conveyance and mortgaging of property. It is also used for easements. In all cases usage of the parcel is legally required. Information is being used by public authorities, companies and citizens.



Map 17: Use related to conveyance

2. Valuation of land

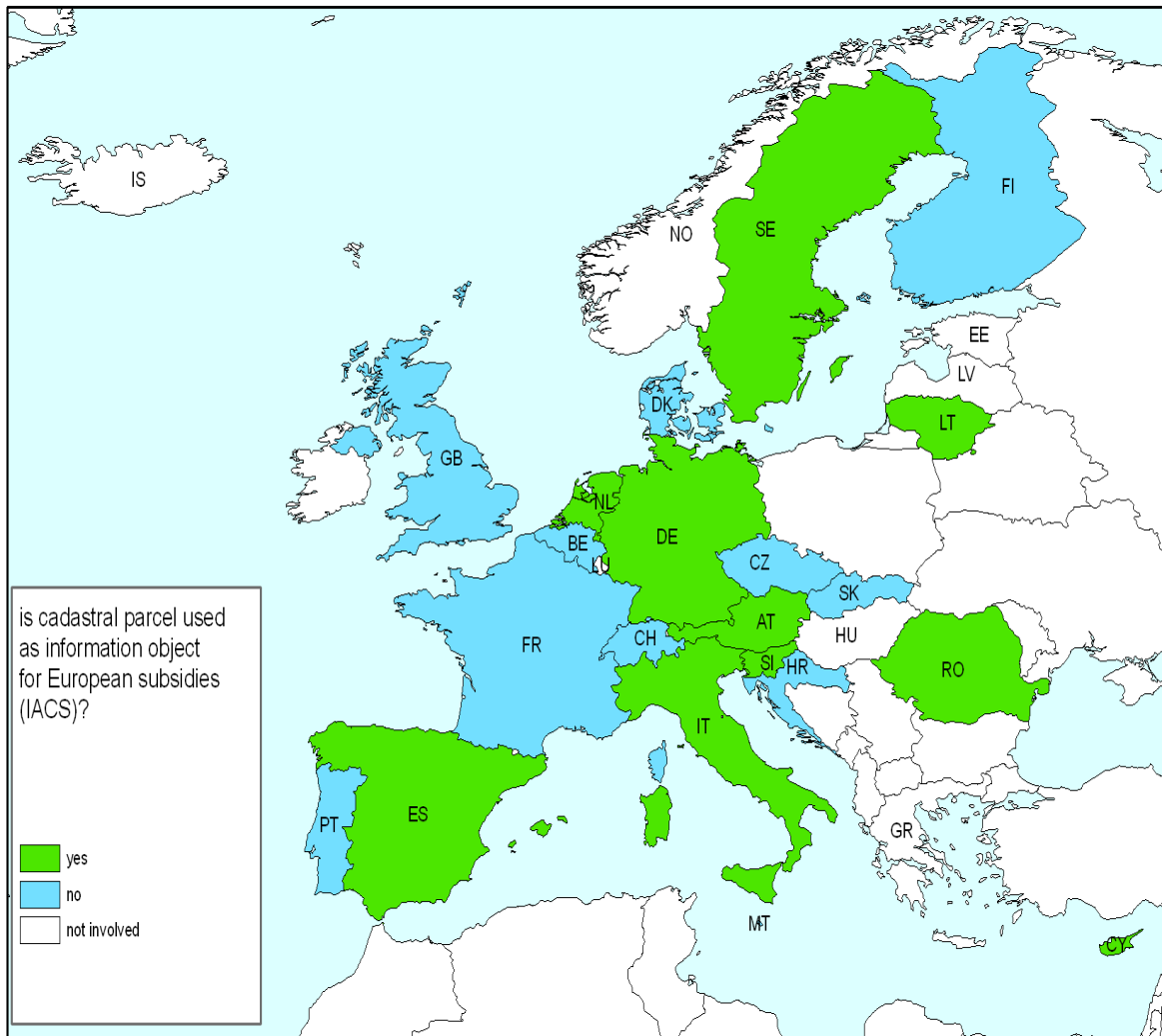
In more than 80 percent of the responses countries use the cadastral information for taxation and valuation purposes. While the usage for taxation is usually legally determined this is less the case for valuation.



Map 18: Use of the cadastral parcel related to valuation of land

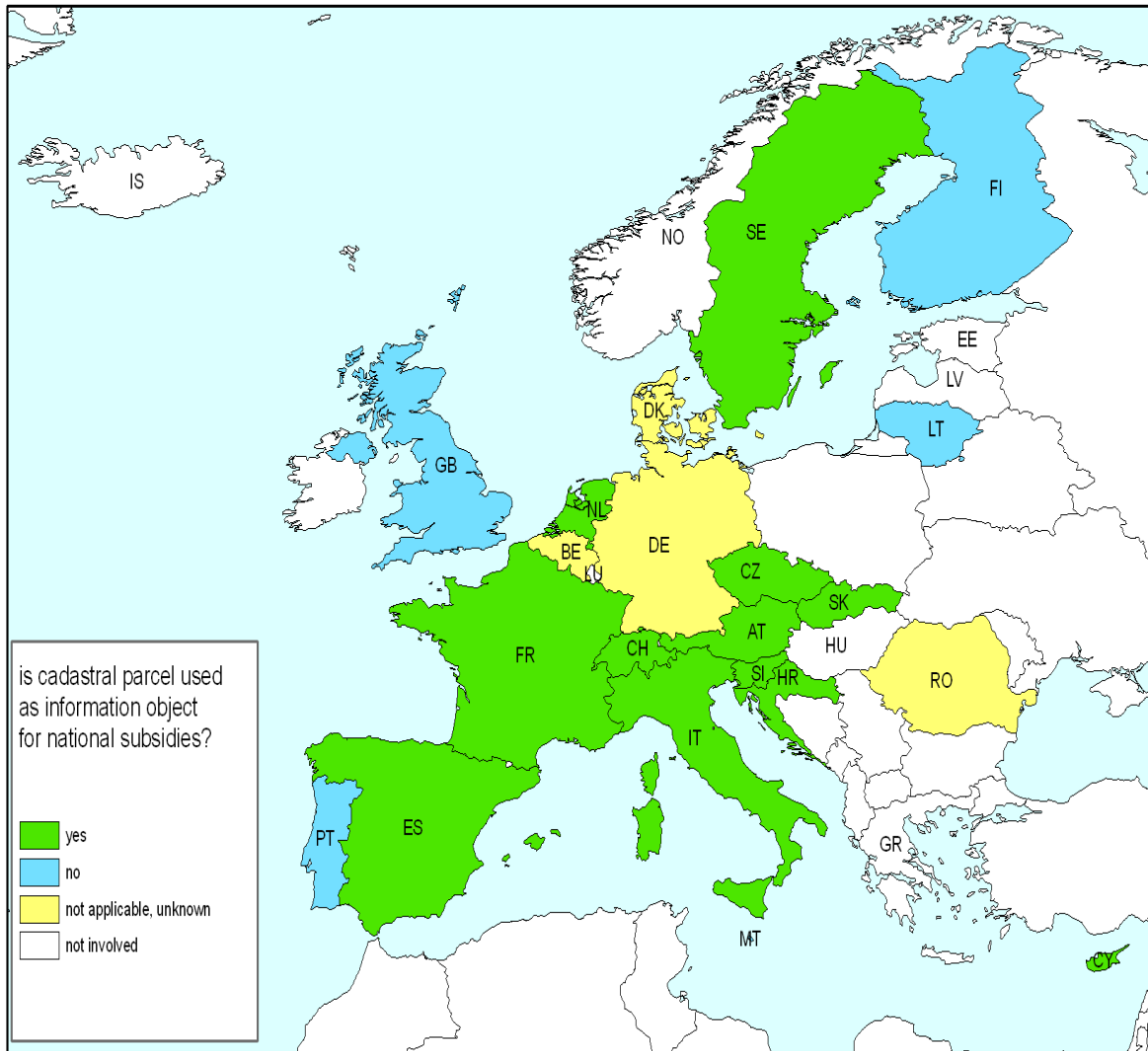
3. European and national agricultural subsidies

The cadastral parcel is used for European or national agricultural subsidies. When the parcel is used in the case of European subsidies, a legal requirement exists in 7 countries (Austria, Cyprus, Italy, Romania, Slovenia, Spain and Sweden). In two countries, where the information on the cadastral parcel is used, there are no legal obligations in place for using the cadastral parcel (the Netherlands and Lithuania).



Map 19: Use related to European subsidies

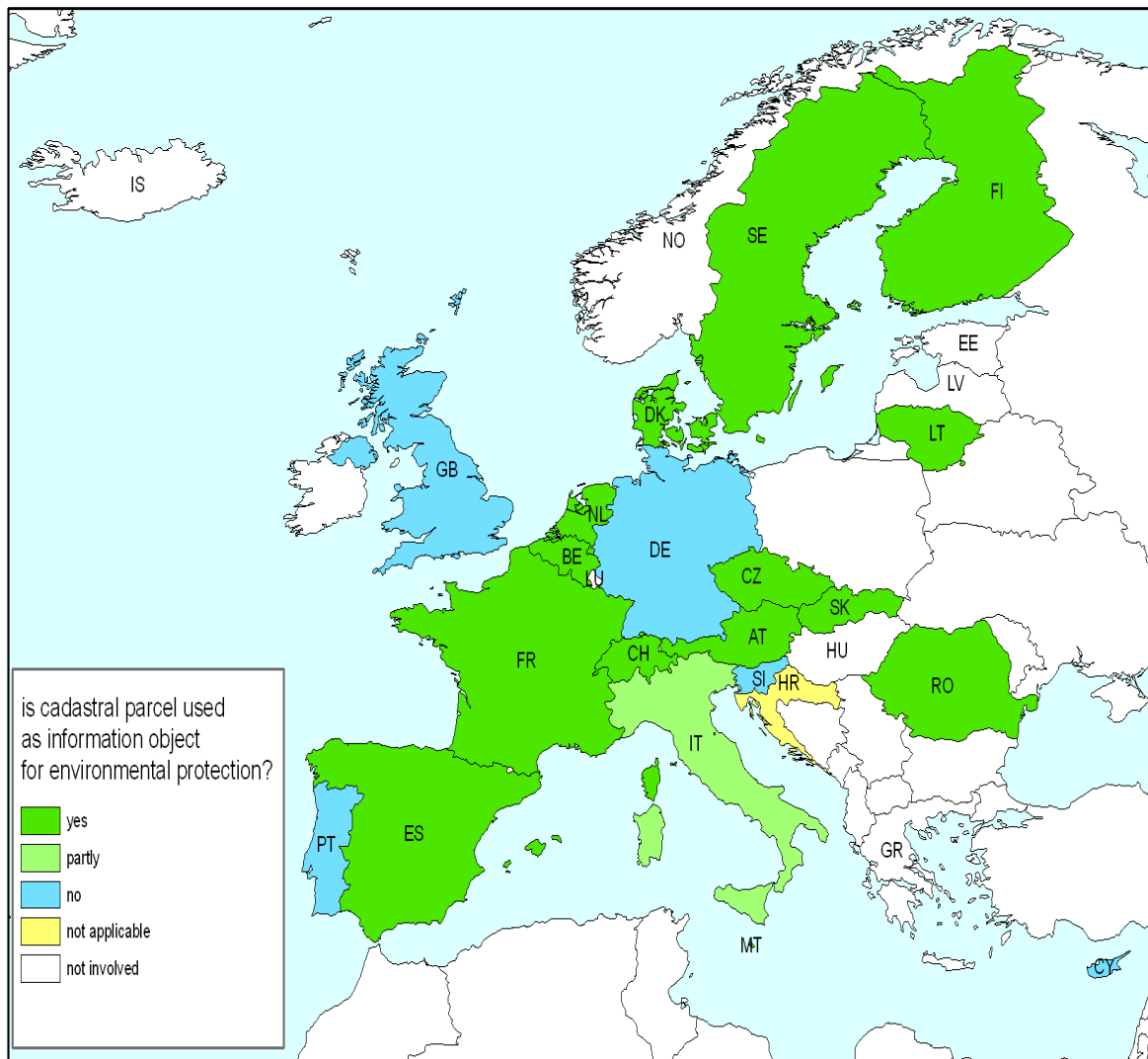
When the cadastral parcel is used for national agricultural subsidies a legal basis is in place in nearly all the cases.



Map 20: Use related to national subsidies

4. Environmental protection

The cadastral parcel is often used in case of natural resource management (for example on soil or water) and the identification of areas that are subject to environmental protection. Considering the environmental protection, no legal requirements are in place in half the countries that use the cadastral parcel as information.

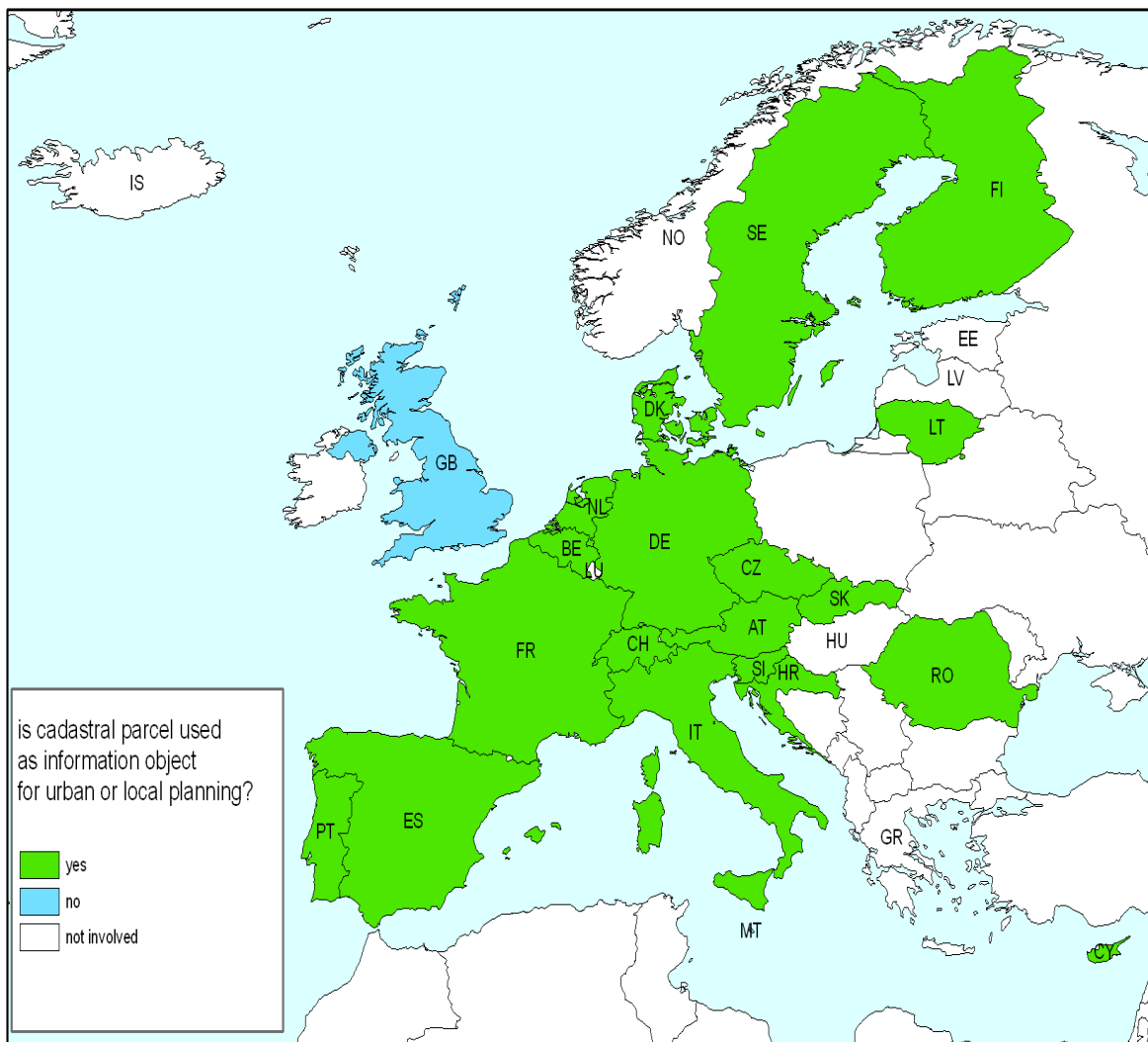


Map 21: Use related to environmental protection

5. Planning purposes

Almost all responses showed that the cadastral parcel is intensively used for planning purposes. Most commonly the parcel is being used for a more detailed urban or local planning (19 out of 21).

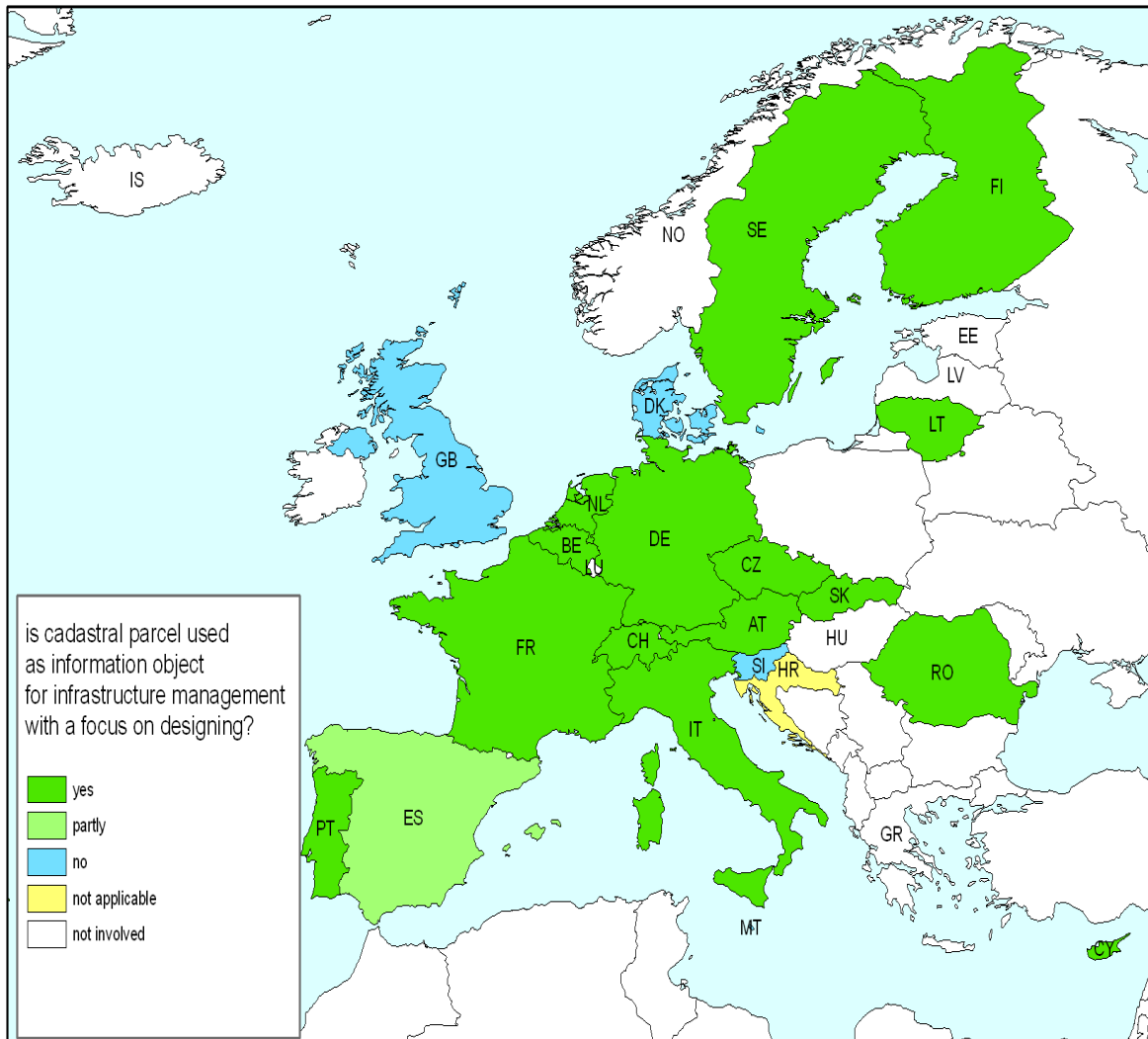
However, responses show that general planning purposes (zoning and land use) are also served (in 10 countries). Both planning purposes have in common that usually legal obligations are in place that require reference to the parcel. Exceptions to these legal requirements exist. In case of general planning purposes no requirements are in place in Finland and Portugal; regarding the urban or local planning, no requirements exist in the Netherlands, Finland, Portugal and Spain.



Map 22: Use related to planning

6. Infrastructure management

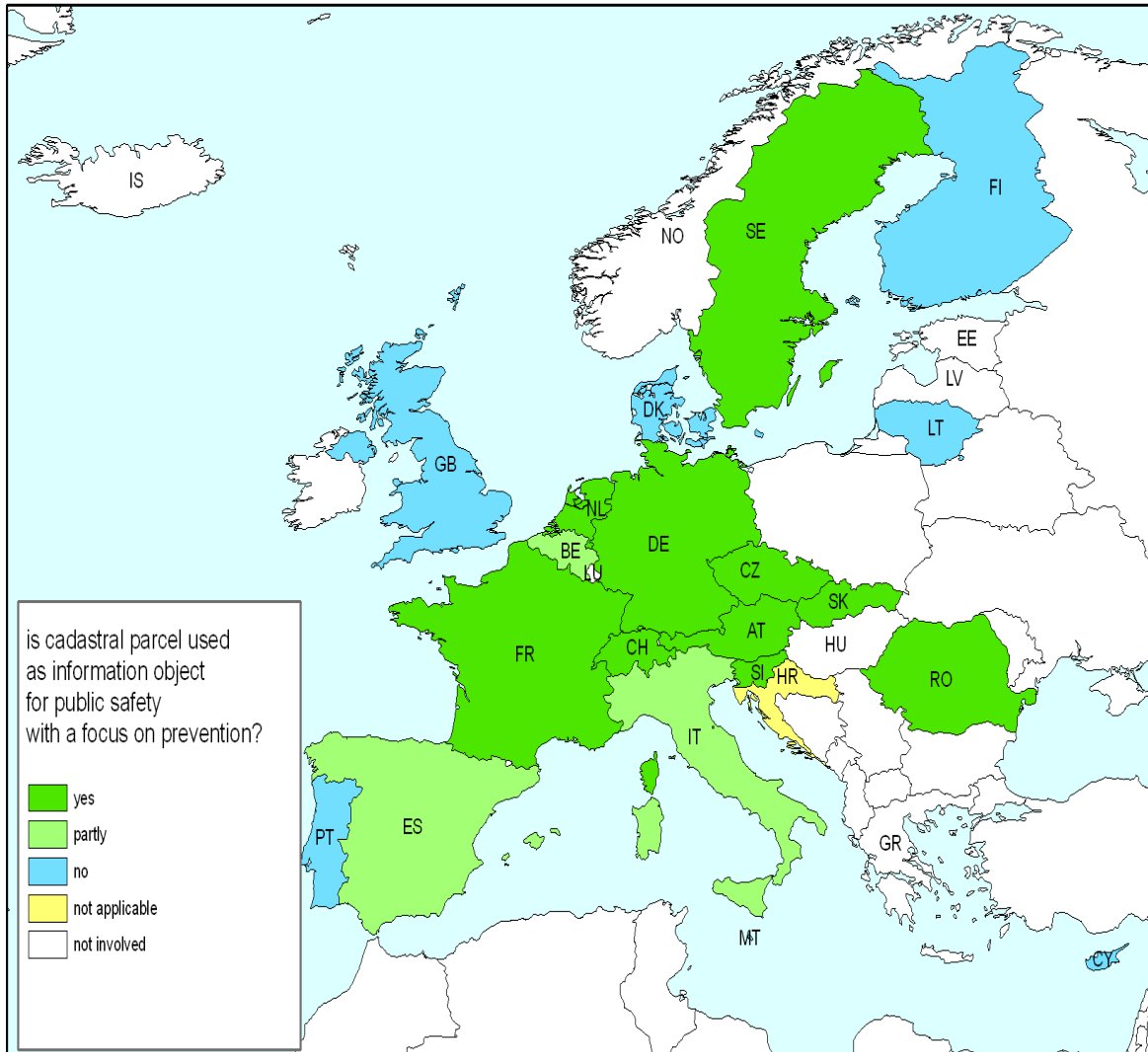
The cadastral parcel is often involved in designing and constructing infrastructures. It is especially at the start of new projects that cadastral information is consulted. The questionnaire shows that in approximately 50 percent of the affirmative responses a legal requirement to do so, is in place. That is less the case when the designing and construction phase turns into the operation itself; in this phase parcel information is (still) often consulted, however a legal requirement to do so is only in a few countries obligatory. Theme of the map displayed here is the designing phase. An overview on the construction and operation phase is not depicted but can be found in the completed questionnaire.



Map 23: Use related to infrastructure

7. Public safety

Flooding, fires, tornados and other disasters have a big impact on society. In order to prevent, monitor and repress these (possible) disasters, the cadastral parcel is being used as a source in all three stages. Responses show that in most countries involved the cadastral parcel is being used. However, a legal requirement to do so, is only in a small number of countries in place. The map illustrates the use of the cadastral parcel in relation to prevention; responses regarding monitoring and repression can be found in the completed questionnaire.



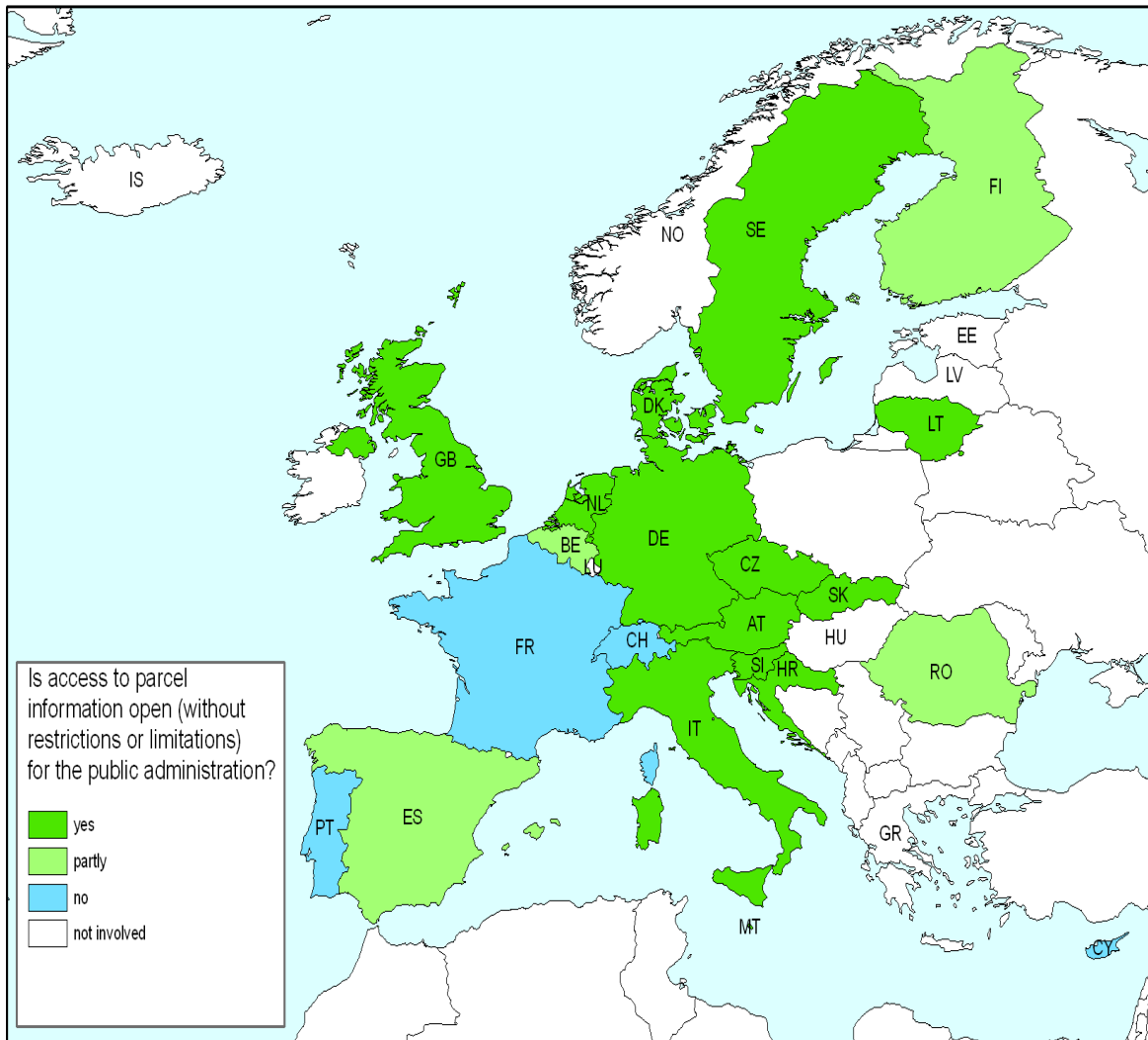
Map 24: Use related to public safety

4. Availability and accessibility

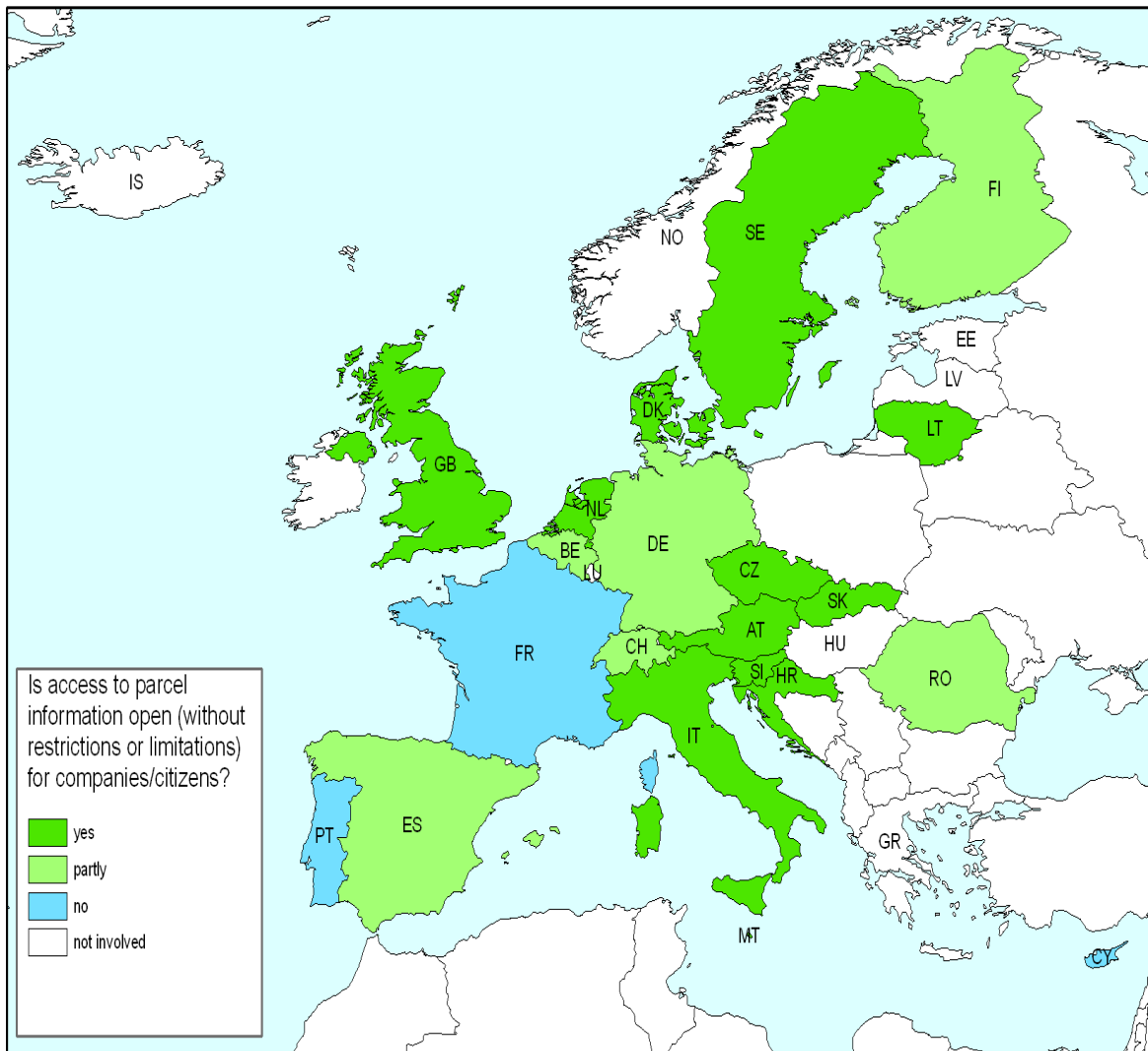
The possibility of using the cadastral parcel as an information object, and therefore to serve society, depends on its availability (right to use the data) and accessibility (ease of access). These aspects were also surveyed in order to get an overview of the recent situation. In this survey we have focused on cadastral information in general. We are aware that many developments take place regarding accessibility and availability (both on the policy and technical level) and therefore the surveys provide a snapshot of the situation in the fall of 2006. It is important to notice that in the surveys concerning accessibility and availability a distinction was made between the following sectors: public administration and businesses/citizens. The surveys show that both accessibility and availability vary for the different sectors.

4.1 Availability of cadastral information

Cadastral data is in a majority of the countries involved in the questionnaire available via a portal and/or a web-service. Both public administrations as well as companies and citizens have (more or less) equal access to the cadastral data via a portal and/or a web-service. Limitations to availability are mainly related to the legal information on objects (parcels) and subjects (persons and businesses). We have not executed a survey regarding availability, concerning only the proposed 5 key elements of the parcel. Although this cannot be substantiated by the survey we think that in general availability of the 5 key elements will not be subject to legal limitations.



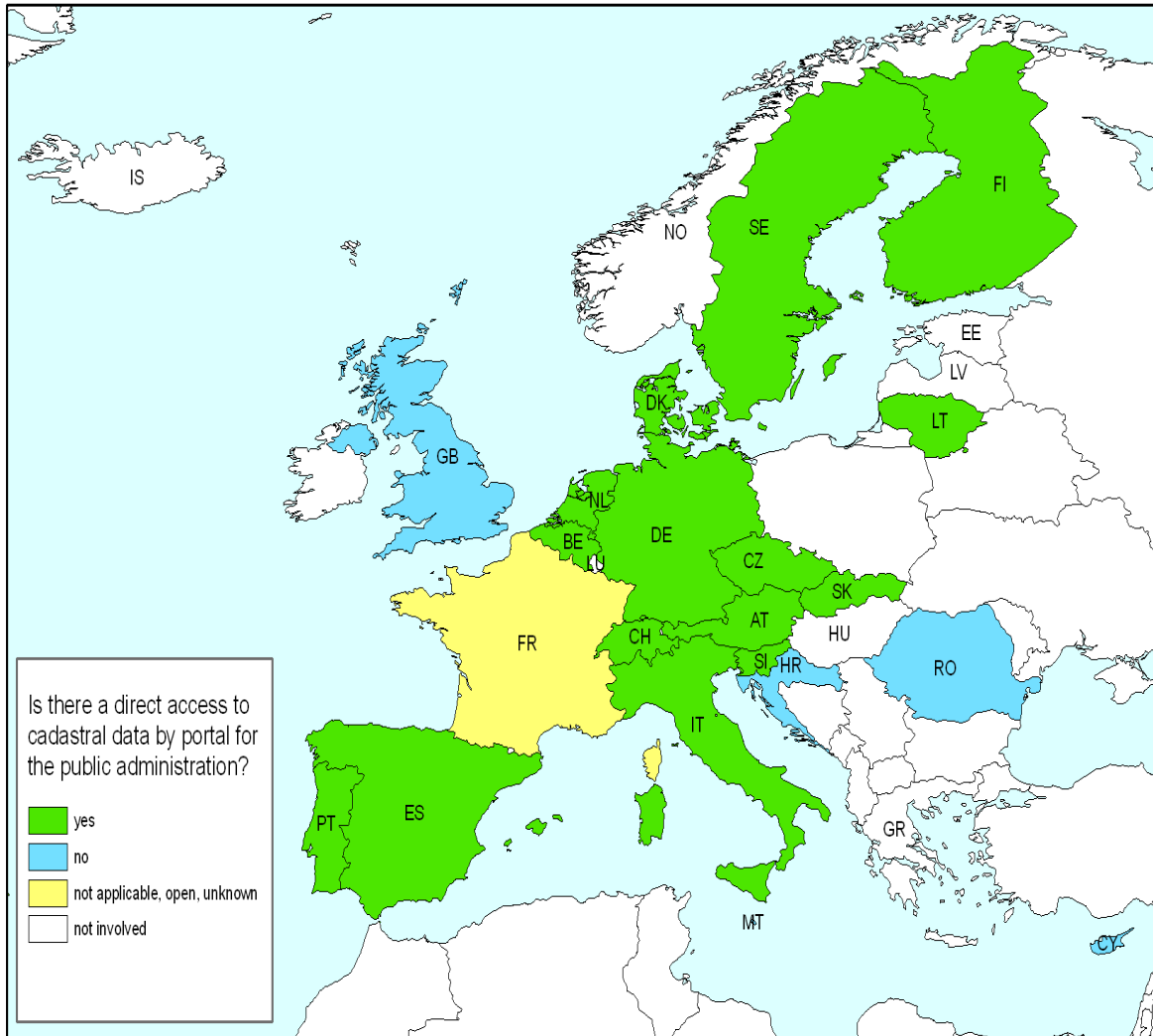
Map 25: Availability of cadastral information for the public administration



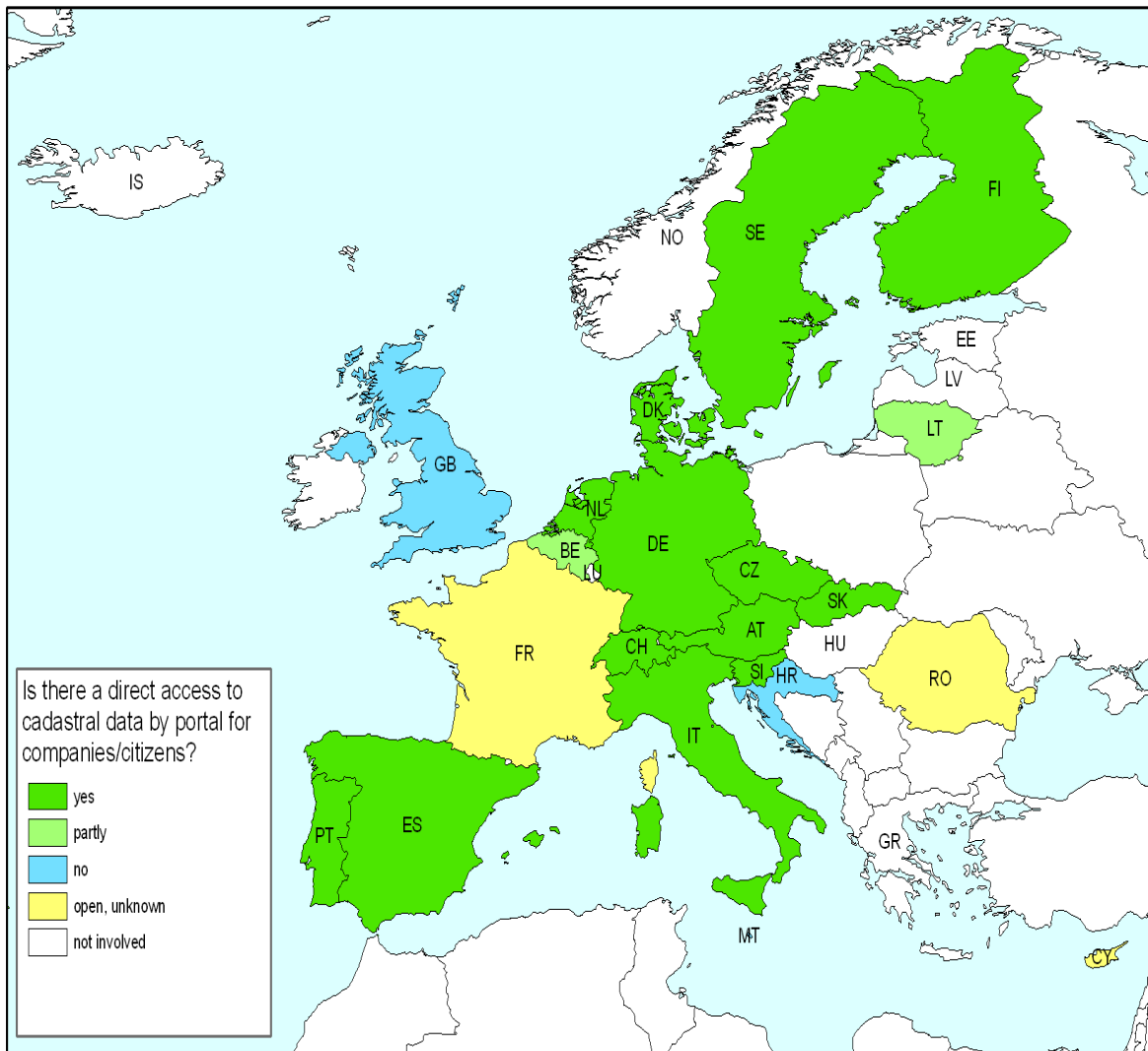
Map 26: Availability of cadastral information for private companies and/or citizens

4.2 Accessibility of the data

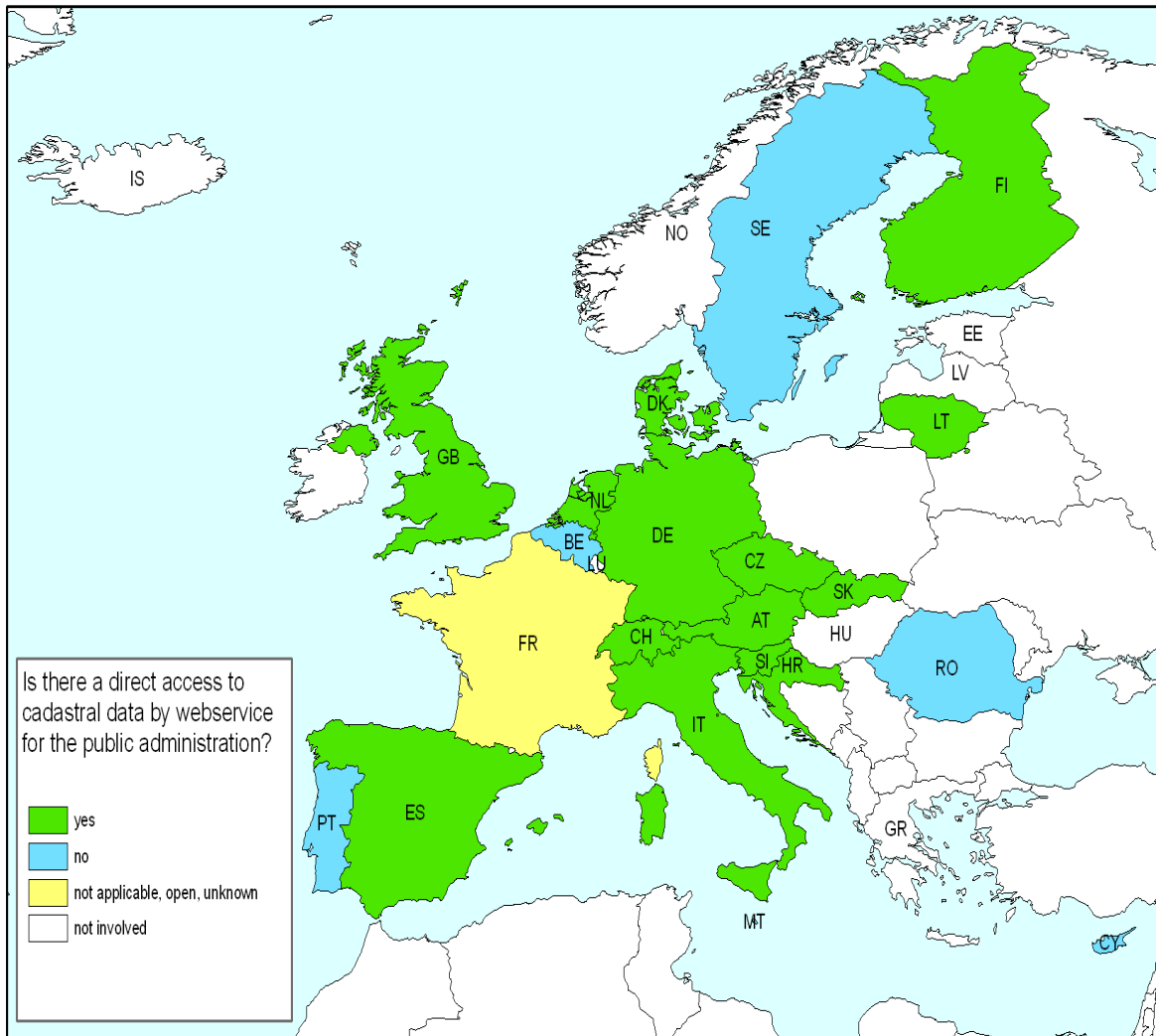
The majority of countries have indicated that information on the cadastral data is available via the internet. Access via the internet can be provided through portals, via messaging-services or web-services (as for example Web Mapping Services (WMS)). In analysing the results we think that a more precise definition of the type of access is required to obtain an exact overview. Many countries are in the process of improving the access to their data. Because of the ongoing developments in this field we strongly advise to monitor the developments.



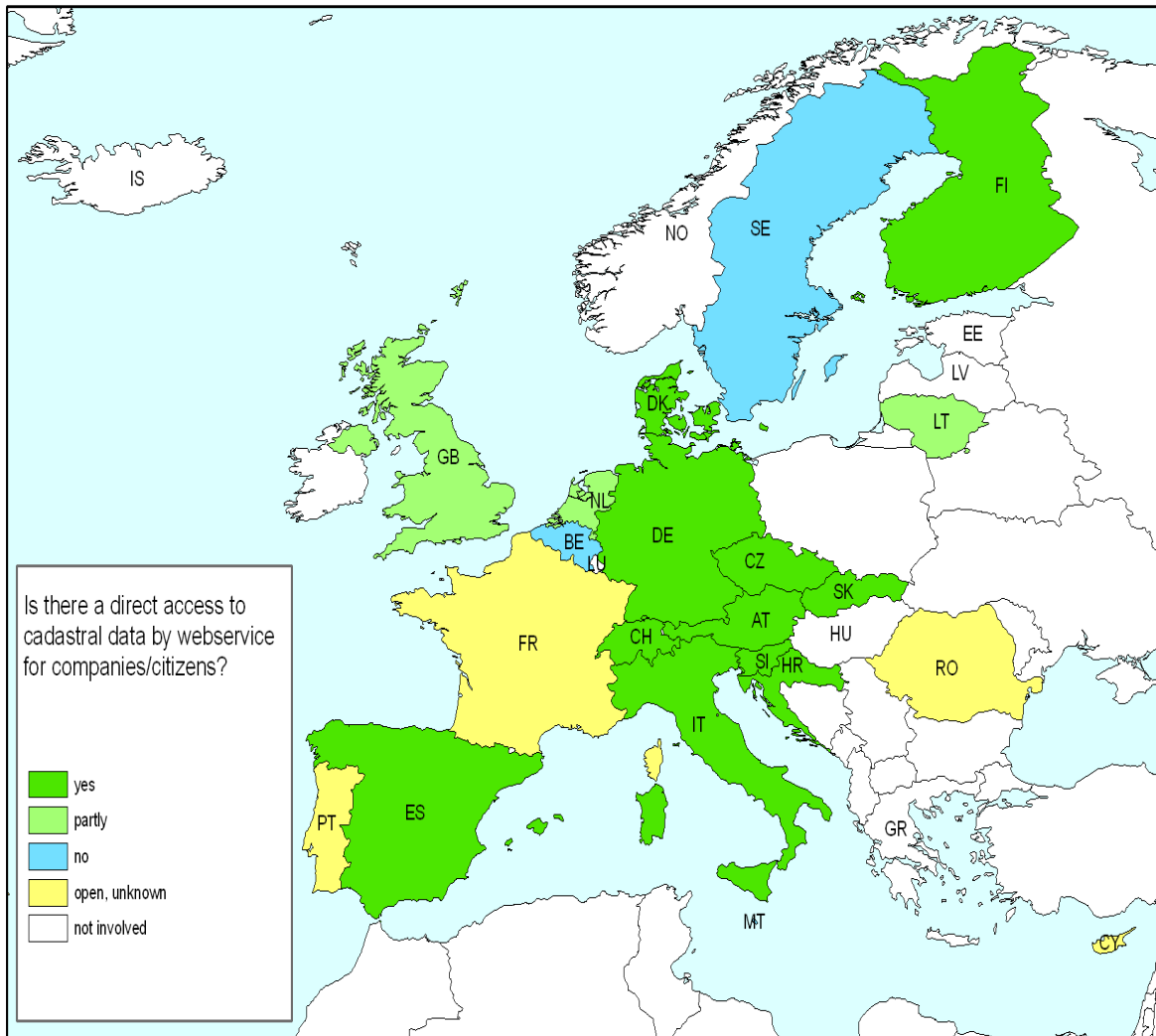
Map 27: Access by portal to cadastral information for the public administration



Map 28: Access by portal to cadastral information for private companies and/or citizens



Map 29: Access by web-service to cadastral information for the public administration



Map 30: Access by web-service to cadastral information for private companies and/or citizens

5 Future developments

Like all surveys, these questionnaires represent the recent situation of the involved countries. Harmonisation, exchange of cadastral information and enhancement of SDI-interoperability at European and national level are already recognised but will become more important in the near future. Awareness of this importance can also be found in the vision-document of EuroGeographics ('Cadastre and Land Registration in Europe 2012'), which is available on its website.

In fact all ingredients for the exchange of information are in place: The cadastral parcel consists in all countries more or less of the same elements, plays an important role in society, what is recognised at European level by adopting the cadastral parcel in Annex I of the INSPIRE directive, and is accessible according to technical standards and developments. However, different types of influence (cultural, financial and communicational), play a role in the speed of harmonisation. These influences will have to be taken into account but have not been considered by the working group. We like to mention here that from our perspective improvements especially related to the access to information (particularly by electronic means) will be the topic for the future. We recommend supporting the initiatives that promote access to cadastral information beyond borders (like EULIS or others).

ANNEXES

- Annex A 1st questionnaire: The cadastral parcel within SDI's and INSPIRE
Click for the completed 1st questionnaire [here](#)
- Annex B 2nd questionnaire; Use of the cadastral parcel
Click for the completed 2nd questionnaire [here](#)
- Annex C List of included maps
- Annex D List of respondents questionnaires

ANNEX A: Questionnaire 1; the cadastral parcel within SDI's and INSPIRE

GENERAL INFORMATION
National coverage of Cadastre [%]
Availability of parcel maps in digital form [% in relation national coverage]
Raster data [% in relation to digital availability]
Vector data [% in relation to digital availability]
Availability of parcel registers in digital form
Please indicate the structure of the unique identifier (Example)
National official definition of a parcel [L=Legal, A=Administrative, N=None]
INTERPRETATION
Availability of Raster Data in % of national coverage
Availability of Vector Data in % of national coverage
CORE ELEMENTS
Unique Identifier available [Yes/No]
Unique Identifier in digital form in Map [M] and/or register [R]
Area available [Yes/No]: Note: fiscal or legal or used for other official purposes
Official Area available in Map [M] and/or Register [R]
Boundaries available [Yes/No]
Boundaries in digital form in Map [M] and/or Register [R]
Geo-reference/Spatial reference available [Yes/No]
Geo-reference/Spatial reference in digital form in Map [M] and/or register [R]
Origin and history available [Yes/No]; Note: If such information is available in analogue archives the answer should be yes in the first column.
Origin and history in digital form in Map [M] and/or Register [R]; Note: If available in digital form in register and/or map, this column should be marked
ADDITIONAL CONTENT
Owner available [Yes/No] Note: the questionnaire should be filled in with a "national view"; a) Indicate whether the information of owner is available in the cadastre or elsewhere. In the case owner is registered elsewhere, what is the key between the cadastre and the other register; b) Which institution is initially responsible for maintaining the information about owner; c) Are there restrictions in access to the information about owner.
Owner in digital form in Map [M] and/or Register [R]
User (e.g. rent, lease) available [Yes/No]
User (e.g. rent, lease) in digital form in Map [M] and/or register [R]
Rights and restrictions available [Yes/No]; Note: a) Are rights and restrictions part of the registrations in the cadastre or in the land register and b) can the cadastral institution provide access to information about rights and restrictions? [Yes/No] (National view)
Rights and restrictions in <u>digital form</u> in Map [M] and/or register [R]
Administrative boundaries available [Yes/No]
Administrative boundaries in digital form in Map [M] and/or register [R]
Buildings or parts of buildings available [Yes/No]
Buildings or parts of buildings in digital form in Map [M] and/or register [R]
Land use (INSPIRE Def.): e.g. residential, industrial, available [Yes/No]
Land use (INSPIRE Def.): e.g. residential, industrial, in digital form in Map [M] and/or register [R]
Land cover (INSPIRE Def.): e.g. agricultural areas, forests, wetlands,...available [Yes/No] Note: "what you can see (e.g. on an orthophoto-image "
Land cover (INSPIRE Def.): e.g. agricultural areas, forests, wetlands,...in digital form in Map [M] and/or register [R]
Values/level of productivity available [Yes/No]
Values/level of productivity in digital form in Map [M] and/or register [R]
Address of parcel available [Yes/No] Note: Is the address part of the cadastre or exists a link between the parcel and an address?
Address of parcel in digital form in Map [M] and/or register [R]

ANNEX B: Questionnaire 2; use of the cadastral parcel

Role of the Cadastral parcel/cadastral information in National Spatial Data Infrastructure (NSDI)							
<p>Descriptions of NSDI:</p> <p>"A Spatial Data Infrastructure (SDI) consists of reference data, geo specialist data and their metadata. Based upon a geo database, a geo information network, services and standards, a SDI allows to acquire, analyse and use geo information. It is used in public administration, in the commercial and non-commercial sector, in science and by citizens."</p> <p>For example, Australia, NZ Land Information Council define SDI as an umbrella of policies, standards and procedures under which organisations and technologies interact to foster more efficient use, management and production of geo-information. Generally, SDI can be defined as the facilitation and coordination of the exchange and sharing of information between stakeholders in the spatial data community (Rajabifard, 2002)</p>							
If existing please indicate your country's definition for a NSDI:							
Applications, products, services	Examples	Use of the cadastral parcel		Users			Remarks
		Is the cadastral parcel used as an information object for this activity?	If YES, is it legally required?	Public Authority	Companies	Citizen	
Look at the current situation in your country. Is the cadastral parcel information used for the following applications, products and services? Who uses it?							
Real estate market							
	Conveyance of property						
	Land and property taxation						
	Valuation of land						
	Valuation of Buildings						
	Mortgaging						
	Easements						
	others						
Subsidies on landuse							
	European agricultural subsidies (IACS)						
	National agricultural subsidies	olive trees, viniculture, etc					
	maintain landscapes and natural values	e.g. national parks					
	others						
Environmental monitoring							
	Natural resource management	soil, water, air					
	Environmental protection areas	flora, fauna, landscape,..					
	others						
Urban / rural / regional planning							
	Zoning/land use plan	general planning					
	urban/local plan	detailed planning					
	others						

ANNEX B: Questionnaire 2; use of the cadastral parcel, continued

Applications, products, services	Examples	Use of the cadastral parcel		Users			Remarks
Restrictions on landuse							
Public restrictions	restrictions not included in the Cadaster/land registry						
others							
Infrastructure management							
Design	traffic, utilities, buildings,..						
Construction	traffic, utilities, buildings,..						
Operation	traffic, utilities, buildings,..						
Public Administration							
administrative support to "day by day" activities	revenue collection, granting subsidies,..						
basis for administrative units	e.g. voting districts, school district						
Public Safety							
prevention	e.g. Civil protection, flood area plan, forest fires, police uses, etc.						
monitoring	surveillance						
disaster management	handling of emergencies						
Socio-economic analysis							
monitoring statistical data							
demographic analysis	e.g. census						
Geomarketing	e.g. market research, location of stores,..						
others							
Other Examples							
Some additional questions about cadastral information							
	Public Administration	Companies	Citizens	Remarks			
Is access to the parcel information restricted? If "partly", please explain.							
Availability of the cadastral information							
direct access to cadastral data via portal							
direct access to cadastral data via webservices							
availability of metadata							
If metadata are available, in what standard? ISO, OGC, National, others							

ANNEX C: Included maps

	map
Defining the cadastral parcel	
National coverage of cadastre as a percentage	1
Unique identifier available?	2
Where is information on unique identifier digitally available?	3
(Official) area available?	4
Where is information on area digitally available?	5
(Fixed) boundaries available?	6
Where is information on boundary digitally available?	7
Geo-reference available?	8
Where is geo-reference information digitally available?	9
Origin and history available?	10
Where are origin and history digitally stored?	11
Information on owner available?	12
Information on address of parcel available	13
Information on land cover available?	14
Information on land use available?	15
Information on value available?	16
Use of the cadastral parcel	
Is cadastral parcel used as information object in conveyance of property?	17
Is cadastral parcel used as information object for the valuation of land?	18
Is cadastral parcel used as information object for European subsidies (IACS)?	19
Is cadastral parcel used as information object for national subsidies?	20
Is cadastral parcel used as information object for environmental protection?	21
Is cadastral parcel used as information object for urban or local planning?	22
Is cadastral parcel used as information object for infrastructure management with a focus on designing?	23
Is cadastral parcel used as information object for public safety with a focus on prevention?	24
Access to cadastral information	
Is access to parcel information open for the public administration?	25
Is access to parcel information open for companies/citizens?	26
Is there a direct access to cadastral data by portal for the public administration?	27
Is there a direct access to cadastral data by portal for companies/citizens?	28
Is there a direct access to cadastral data by web-service for the public administration	29
Is there a direct access to cadastral data by web-service for companies/citizens?	30

ANNEX D: Respondents questionnaires

Countries, organisations and abbreviations as used in the maps			
Country name	Country code	Organisation	Org. code
Austria	AT	BEV - Federal Office of Metrology and Surveying	BEV
Belgium	BE	General Administration of Patrimonial Documentation	GAPD
Croatia	HR	State Geodetic Administration	DGU
Cyprus	CY	Department of Land & Surveys	DLS
Czech Republic	CZ	Czech Office for Surveying, Mapping and Cadastre	CUZK
Denmark	DK	National Survey and Cadastre	KMS
England/Wales	GB	Land Registry, England and Wales	HMLR
Estonia	EE	Estonian Land Board	ELB
Finland	FI	National Land Survey of Finland	NLS(FIN)
France	FR	France IGN	IGN(F)
Germany	DE	AdV on behalf of the Laender	AdV
Greece	GR	Hellenic Mapping and Cadastral Organisation	HMCO
Hungary	HU	Institute of Geodesy, Cartography and Remote Sensing	FOMI
Iceland	IS	The Land Registry of Iceland	FMR
Italy	IT	Agenzia del Territorio	AdT
Latvia	LV	State Land Service of the Republic of Latvia	VZD
Lithuania	LT	State Enterprise Centre of Registers	KADA
Luxembourg	LU	Administration du Cadastre et de la Topographie	ACT
Malta	MT	Malta Land and Public Registry	LPR
Netherlands	NL	Kadaster	Kadaster
Norway	NO	Norwegian Mapping Authority	NMA
Portugal	PT	Portuguese Geographical Institute	IGEO
Romania	RO	National Agency on Cadastre and Land Registry	NACLAR
Scotland	GB	Registers of Scotland	ROS
Slovakia	SK	Geodesy Cartography and Cadastre Authority	GCCA
Slovenia	SI	Surveying and Mapping Authority of the Republic of Slovenia	SMA
Spain	ES	Spanish Cadastral General Directorate	CGD(ES)
Sweden	SE	Lantmäteriet	LM
Switzerland	CH	Swisstopo	Swisstopo