

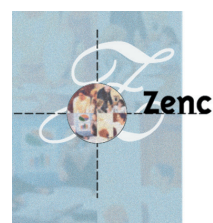
MEPSIR

Measuring European Public Sector Information Resources

Final Report of Study on Exploitation of public sector information
– benchmarking of EU framework conditions

Executive summary

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1 Context and background

In the context of the preparations for the review of the European Directive 2003/98/EC of 17 November 2003 on the re-use of public sector information (PSI), the MEPSIR study was undertaken in the period from November 2004 through April 2006 by the HELM Group of Companies of Moira, Northern Ireland, United Kingdom with Zenc of The Hague, The Netherlands for the European Commission, DG Information Society.

The main objectives of the study were:

1. To develop, document and test a repeatable methodology for measurement of PSI re-use; and
2. To perform a baseline measurement of PSI re-use in the European Union and Norway, including a comparison with the United States

The Directive 2003/98/EC (in the remainder of this report referred to as “the Directive”) states in Article 1 as its main objective: to establish “a minimum set of rules governing the re-use and the practical means of facilitating re-use of existing documents held by public sector bodies of the Member States”. From the preamble, it can be seen that the Directive sets out to establish a framework for fair, proportionate and non-discriminatory conditions for re-use of information held by public sector bodies in the European Union. This objective should be placed in the context of the wider goal of facilitating access to knowledge for citizens and business promoting the emergence of Community-wide services as an important part of the internal market. The Directive constitutes a minimal harmonisation effort to make approaches in the member states converge in order to make it easier for organisations wishing to use public sector information in their products or services to determine which information is available and what the conditions for its use are. For example, the Directive recommends the provision of standard, electronically available licenses governing re-use and provision of tools for finding information through asset lists or portal sites. It also defines basic rules for response times on requests for re-use of information as well as for charging mechanisms that should not exceed cost of distribution plus a reasonable return on investment.

The Directive applies to the 25 Member States of the European Union, and also, through the European Economic Area (EEA) Joint Committee, to the European Free Trade Association (EFTA) countries Norway, Iceland and Liechtenstein.

The Directive does explicitly not apply to documents the supply of which is an activity falling outside the scope of the public task of the public sector; documents for which third parties hold intellectual property rights; documents which are excluded from access by virtue of the access regimes in the Member States, e.g., because of national security or commercial confidentiality; documents held by public service broadcasters; documents held by educational and research establishments; and documents held by cultural establishments.

The MEPSIR study conducted the measurement in all 25 member states of the European Union and in Norway, while the same methodology was applied to the United States to allow for comparison between the two approaches.

The study was performed by a Core Study Team from HELM and Zenc with a group of country researchers covering all the countries under investigation.

2 Methodology

Taking into account the definitions and exclusions in the Directive, the MEPSIR study defined six main domains for investigation:

1. Business information, including Chamber of commerce information, official business registers, patent and trademark information and public tender databases;
2. Geographic information, including address information, aerial photos, buildings, cadastral information, geodetic networks, geology, hydrographical data and topographic information;
3. Legal information, including decisions of national, foreign and international courts, national legislation and treaties;
4. Meteorological information, including climate data and models and weather forecasts;
5. Social data, including various types of statistics (economic, employment, health, population, public administration, social);
6. Transport information, including information on traffic congestion, work on roads, public transport, and vehicle registration.

The methodology of the MEPSIR study identified three types of generic roles for organisations involved in (the re-use of) public sector information:

1. Public content holders: public bodies or bodies governed by public law which supply documents on a market and to whom the Directive applies;
2. Re-users: parties that supply information to the market, not being public content holders to whom the Directive applies;
3. Users: any user of the information.

The measurement conducted by the MEPSIR study took into account that the Directive has only indirect impact on national markets. Firstly, the Directive has to be transposed into national legislation. Secondly, changes in national legislation alter the framework conditions. Eventually, changes in the framework conditions may change the economic conditions.

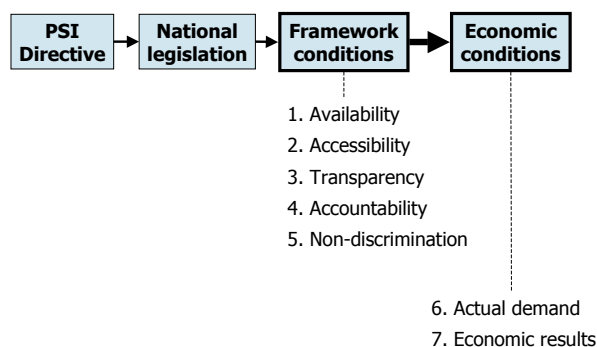


Figure 1: Framework and economic conditions

The study distinguished five types of framework conditions and two types of economic conditions that are logically related as described below.

1. **Availability:** If there is not at least some information *available* for re-use in a particular sub-domain, there will not be a market.
2. **Accessibility:** The availability of information, *per se*, does not lead to anything if it is not *accessible*.
3. **Transparency:** In turn, accessibility does not mean much without *transparency*, that is, it should be clear which conditions apply to the re-use of information.
4. **Accountability:** The suppliers of information should be *accountable* for adhering to these conditions.
5. **Non-discrimination:** Ultimately, the possibility to keep suppliers responsible for applying the same conditions to all users should guarantee *non-discrimination* among users.
6. **Actual demand:** Equal and fair access to information will boost the *actual demand*.
7. **Economic results:** This will eventually translate into direct (more turnover for re-users) and indirect (more commercial activity based on public sector information) *economic results*.

The measurements of these seven dimensions were conducted through desk research, a Web survey and two rounds of online questionnaires. In this approach, each of the dimensions was measured by an indicator that consisted of several items.

The first dimension, availability, was covered by desk research. The second (accessibility) and third (transparency) dimensions were measured by a Web survey conducted by the country researchers in all countries. For the remaining dimensions, the approach taken was based on self-reporting by a key respondent within the organisation using structured online questionnaires.

In a first round, respondents from public content holders were requested to answer various questions about their organisation and to identify the most important re-users and users of their information.

In a second round, respondents from all organisations that were identified during the first round as re-users were requested to answer various questions about their own organisation and about their supplier of information, the original public content holder.

Answers given by re-users were used to check for biases due to self-reporting in the answers given by the public content holders.

Demand and economic performance were measured by directly asking both public content holders and re-users for key economic data.

3 Analysis

The research process started with the identification of public content holders followed by completion of Web surveys on these public content holders by the country researchers in each country. Subsequently, respondents for the public content holder and re-user questionnaire surveys were contacted through targeted mailings. Over a period of seven months (June 2005 – February 2006) more than 3,000 e-mails were sent all across Europe and the US. Both surveys were in English but were also available in other European languages (e.g., French and German). Support in the local language was made available via the local country researcher.

The average number of public content holders per country found in the Web surveys was 38¹, or 1.4 public content holders per sub-domain.

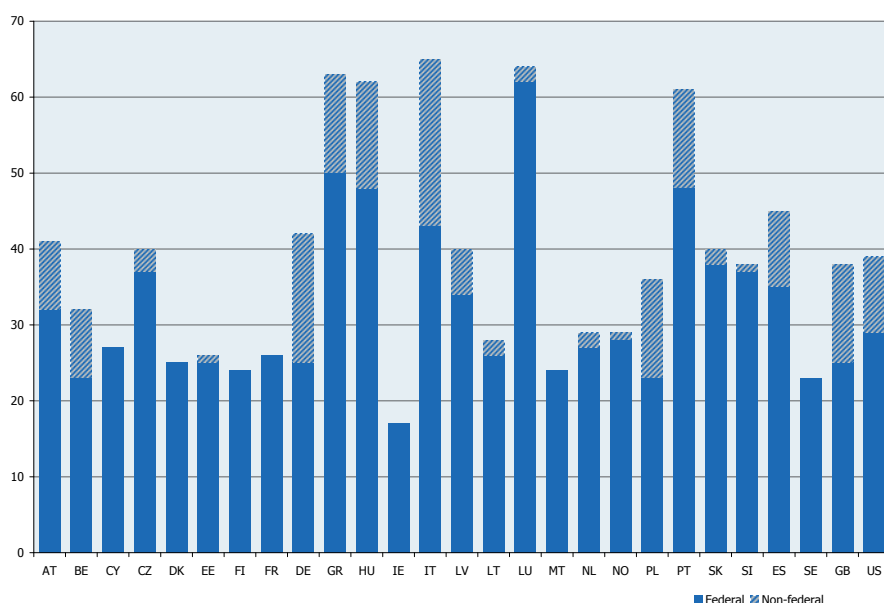


Figure 2 – Total number of public content holders per country identified during Web survey

The average response rate was 31%², or 11 public content holders per country.

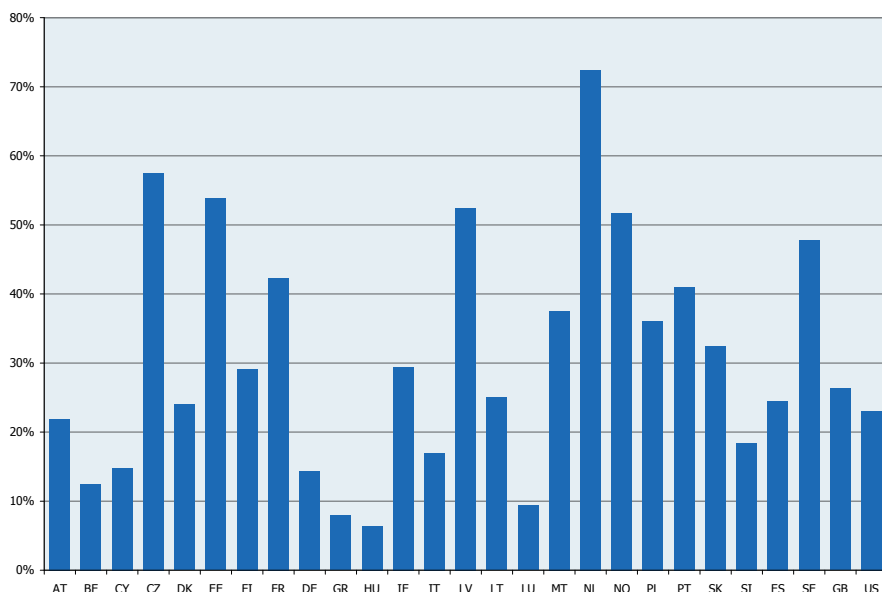


Figure 3 – Response rates per country on public content holder surveys (%)

¹ With a median value of 37 and a standard deviation of 14.

The following figure, which is based on a combination of the values of the previous two figures, gives a graphical representation of the coverage per country..

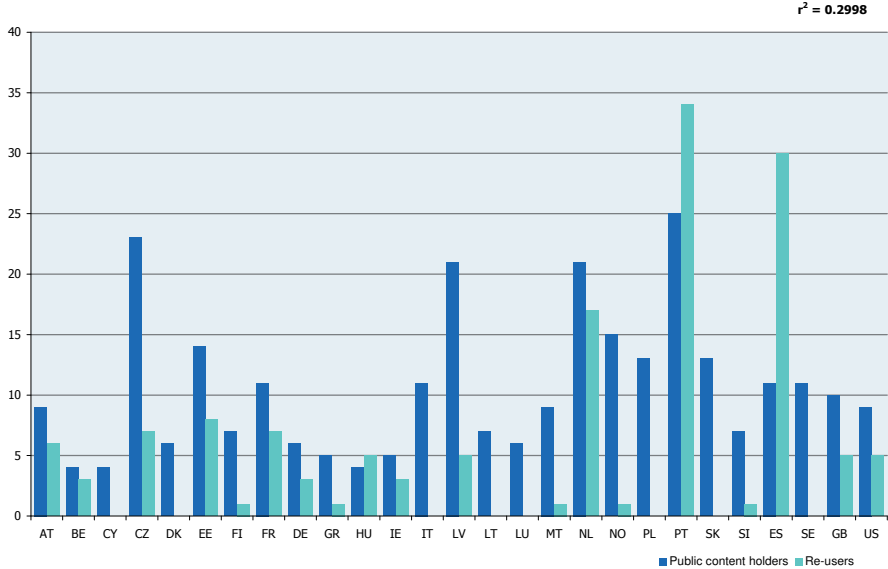


Figure 4 – Total number of public content holder surveys and re-user surveys submitted, per country

In most cases we found consistently lower scores from the re-users than from the public content holders. An example is shown in Figure 5, where the reported average response time on requests (in number of days) of public content holders is plotted against the same value reported by re-users for a subset of 16 countries.

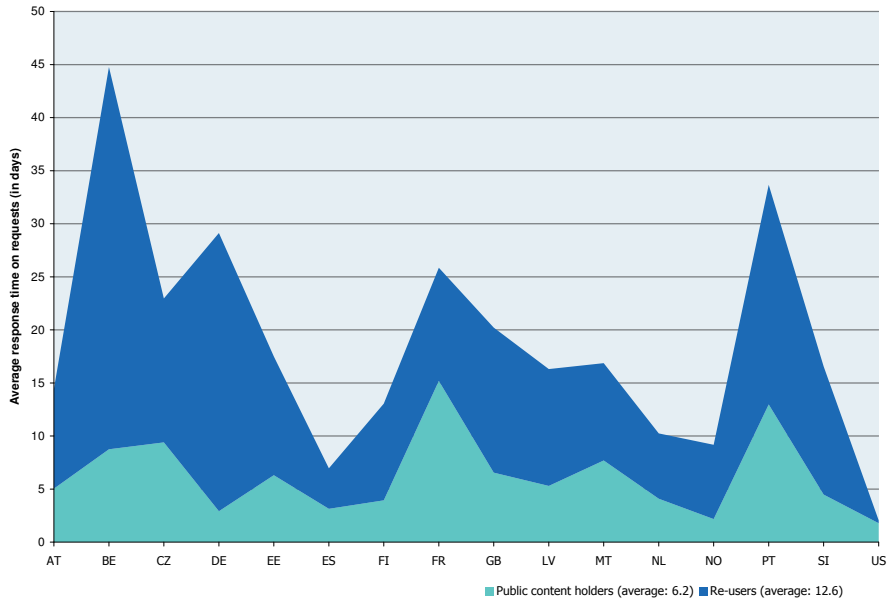


Figure 5: Average response time as reported by public content holders and re-users

² With a median of 28%.

The last two variables (respectively ‘Demand’ and ‘Economic performance’) were merged into one variable, ‘Economic Performance’. This variable was not presented as an index. The individual items were kept apart but cross-comparison was used to improve the robustness of the estimates of the key performance indicators (such as the overall size of the domestic market for public sector information).

By way of disclaimer it needs to be stressed that the MEPSIR study created a sample of small and larger players in the various sub-domains and countries. As the methodology relies on self-reporting, the results do not necessarily include all important public content holders and re-users and therefore are not necessarily representative for the sub-domains or countries.

The economic indicators of the MEPSIR study as presented in this report are estimates provided by a sample of stakeholder themselves, and therefore do not necessarily accurately reflect the current market situation. Our own estimates are in turn based on these market estimates. They are corroborated by a second set of estimates provided by the stakeholders (see chapter 4). To some extent, all estimates may be seen as ancillary to illustrate the (possible) correlation between certain framework conditions and economic output from the perspective of the main actors involved. They should however not be used or relied upon as objective market data for other purposes.

4 Main results

In order to be able to compare domains and countries, a number of indexes were defined that could be considered to indicate the level of “maturity” of domains and countries in the light of the main aspects of the Directive.

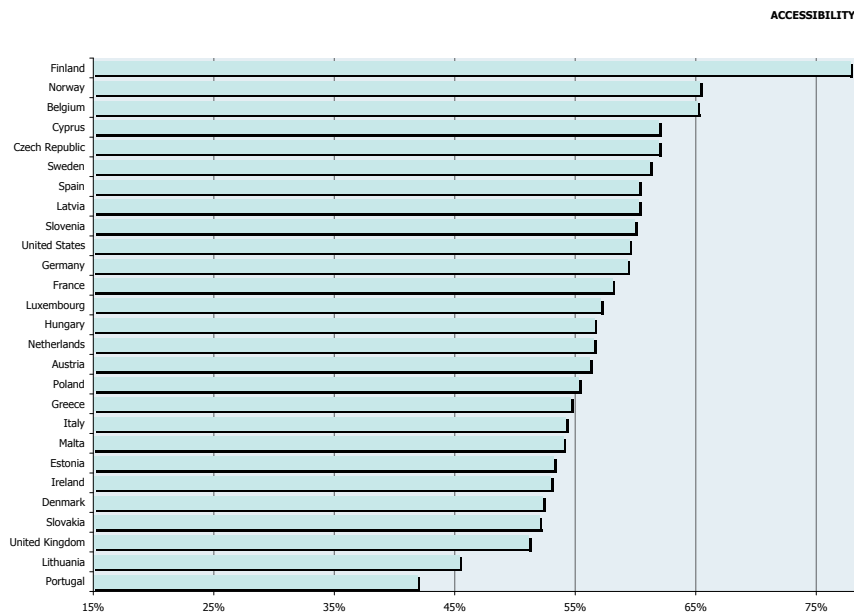
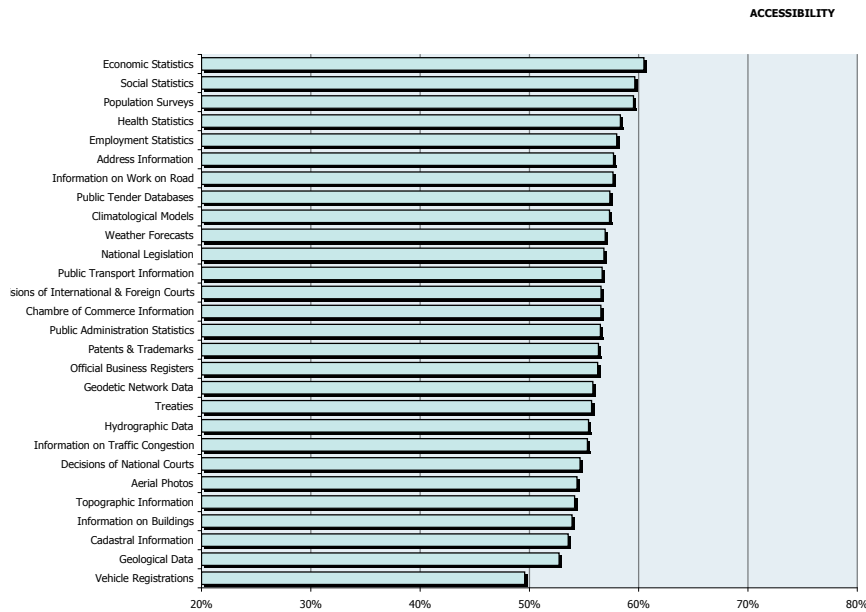
It should be noted that the study focused on the main categories of public sector information, covering the areas that are considered to be the most valuable. Furthermore, some were left out, such as scientific information and cultural information, which are outside the scope of the Directive.

For the cross-section based on sub domains the answers of re-users were treated differently than in the case of countries. In contrast to public content holders, many re-users were found to be active in multiple sub-domains (albeit nearly always within the same country). This did not have much impact on the drafting of the country-based cross-section. For the cross-section based on sub-domains, the scores of the re-users on all items were divided equally across the sub-domains in which they had reported to be active. Because of this the overall averages for each index sometimes differ slightly between the two respective cross-sections.

Index 'Accessibility'

This index was derived from scores for 'request for information', 'delivery of information' (available channels), 'search facilities' (search engines, asset lists) and 'translations'.

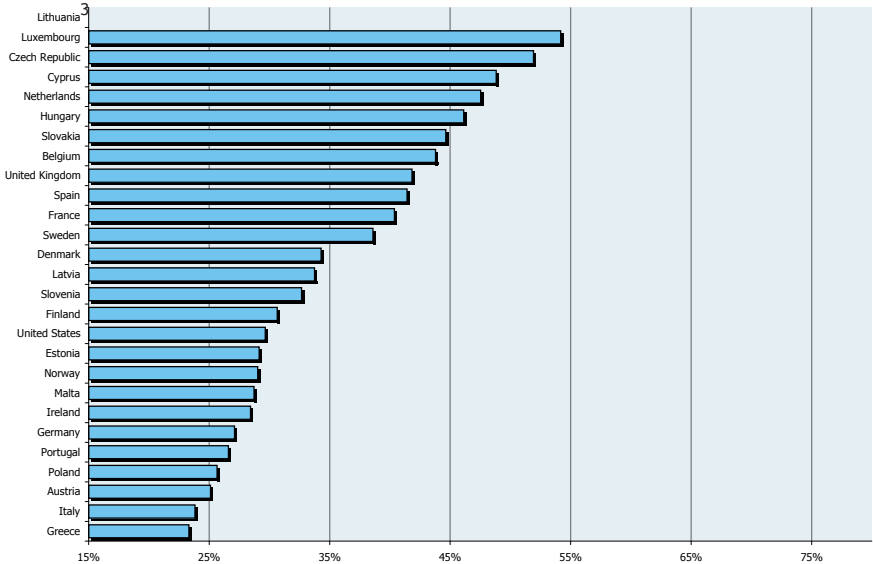
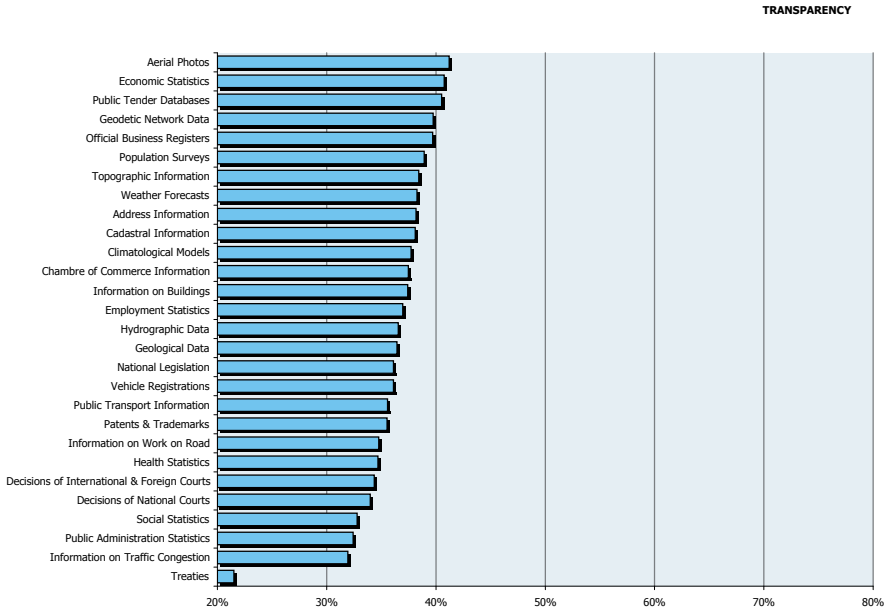
The average score for accessibility was 56% for the sub-domain dimension and 57% for the country dimension.



Index 'Transparency'

This index was derived from scores for '% of licences' (both commercial and non-commercial), '% licences online', 'financial transparency' (standard prices, standard accounting methods), and 'channels for request and delivery of licences'.

The average score for transparency was 36% for both the sub-domain dimension and for the country dimension.

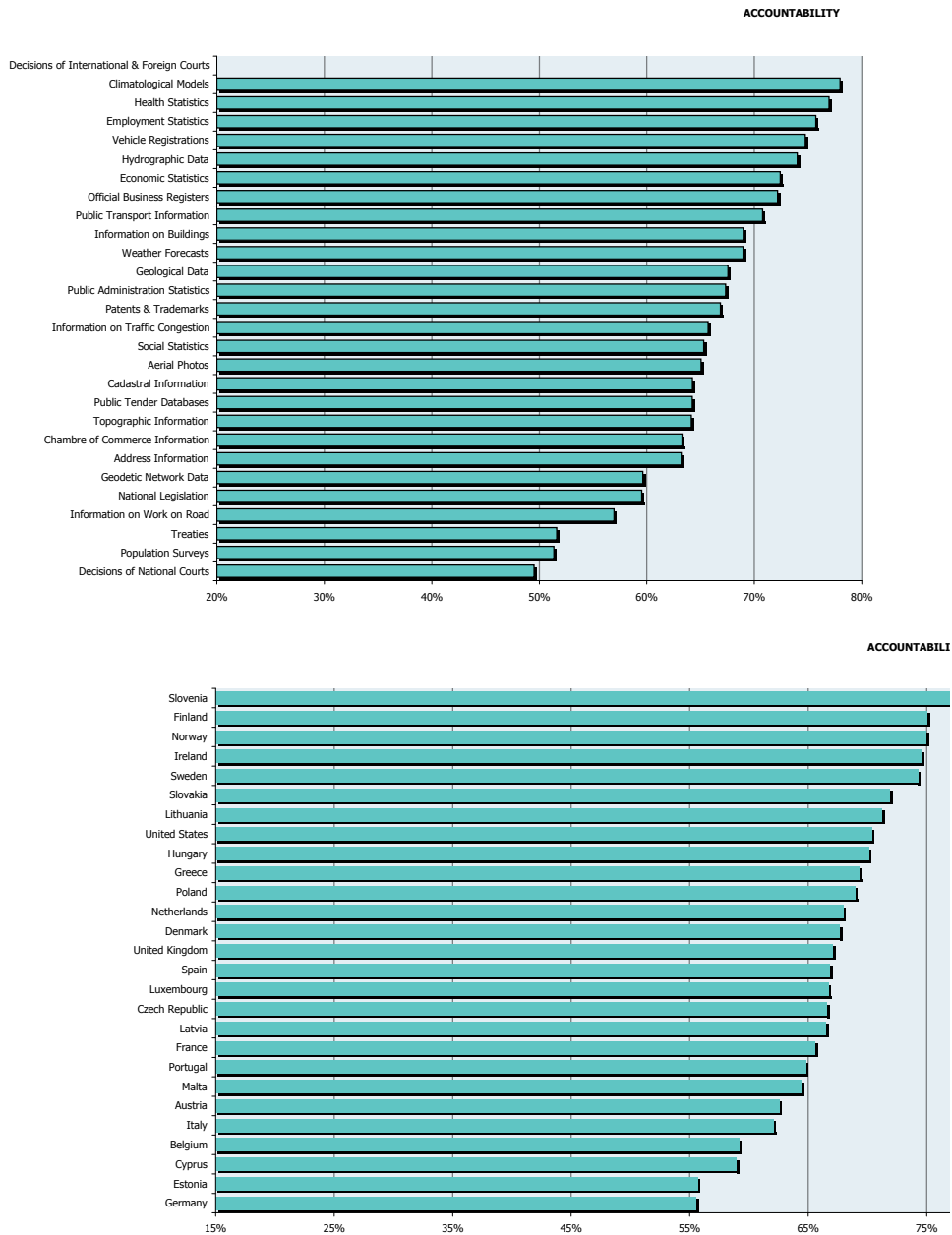


³ Insufficient data available for Lithuania.

Index 'Accountability'

This index is based on scores for response time, % of requests rejected, information of legal remedies, and quality of information taken from the public content holder survey.

The average score for accountability was 66% for the sub-domain dimension and 67% for the country dimension.

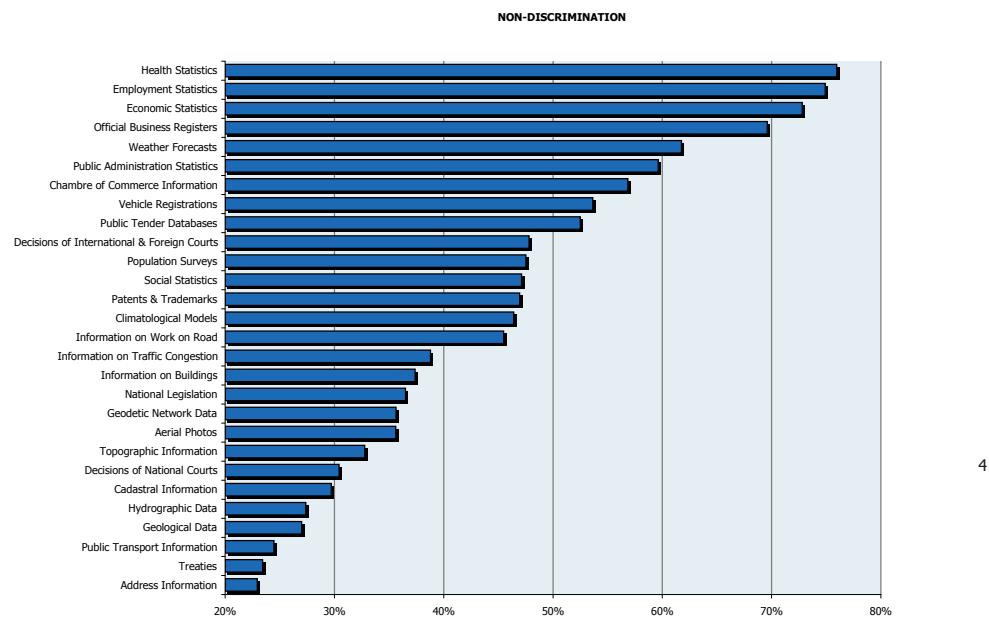


Index 'Non-discrimination'

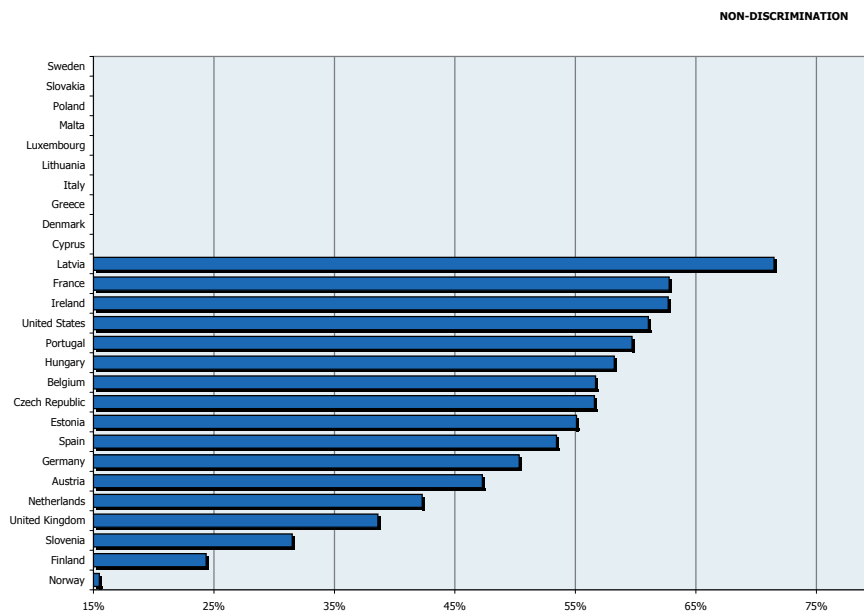
This index is based on the same scores as the previous one (response time, % of requests rejected, information of legal remedies, quality of information) but taken from the re-user survey.

The average score for accountability was 46% for the sub-domain dimension and 49% for the country dimension.

One particularly striking finding is the extreme low score on 'non-discrimination' for Norway. This is mainly due to the fact that the number of reported exclusive agreements is much higher over there than in other countries -- 35% against the average of 14%.



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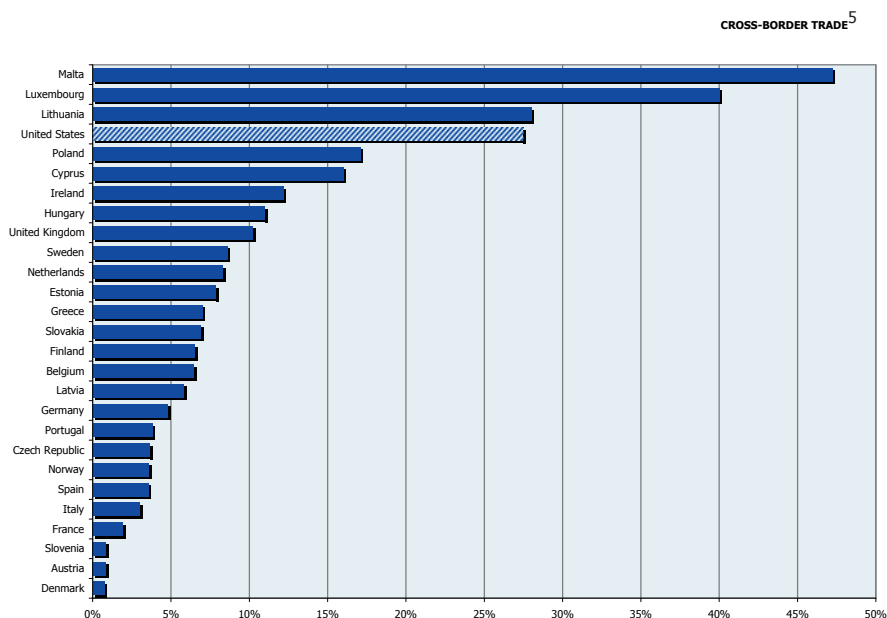
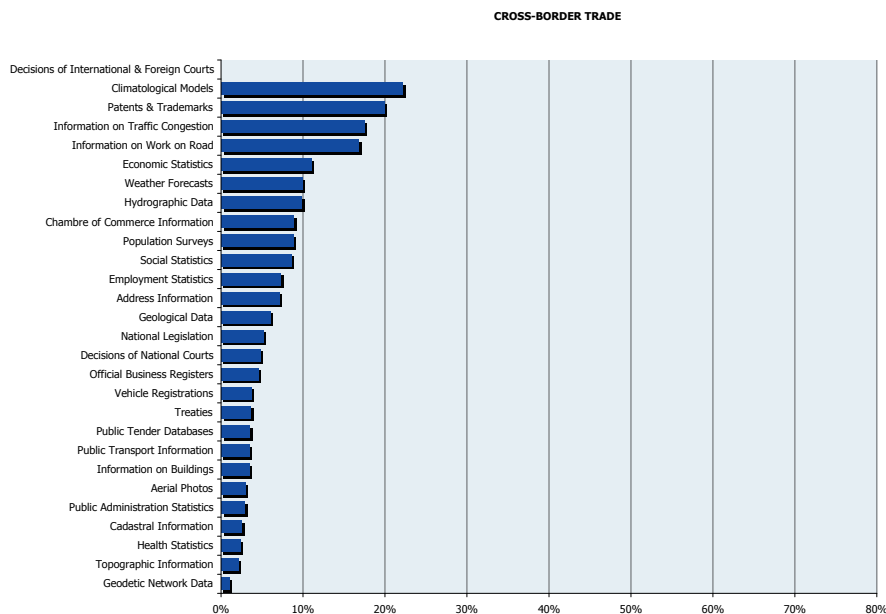


⁴ Insufficient data available for Cyprus, Denmark, Greece, Italy, Lithuania, Luxembourg, Malta, Poland, Slovakia, and Sweden.

Cross-border trade

The variable 'Cross-border trade' is based on two questions: one taken from the public content holder survey ("Where are your re-users located?") and one from the re-user survey ("Where are your clients located?").

The average of both public content holders and re-users was 8% hence the grand average is also 8%.



⁵ Scores for Cyprus, Greece, Hungary, Italy, Lithuania and Luxembourg are extrapolations based on either the cross-border trade volume stated by public content holders or re-users. Based on the correlation between the two sets of scores ($R^2 = 0.69$) a fixed ratio between the two sets could be derived (Public content holders:Re-users = 10:9). Missing values were in turn calculated by using the ratio (e.g., if the score for the public content holder is missing and the score for re-user = 4.5%, the calculated score for public content holder = $10/9 \times 4.5\% = 5\%$).

Estimate of overall PSI market size based on estimates of respondents

To assess the size of public sector information markets, both public content holders and re-users were asked to estimate the size of the domestic market for the sub-domain(s) in which they are active. The results are based on responses given by public content holders and re-users in the domains that were investigated, thus excluding scientific and cultural information, which are outside the scope of the Directive.

Table 1 gives an overview of the estimates and the corresponding aggregate values for individual countries and for the total of the European Union plus Norway. Given the large variation in the sets of values, the median rather than the average is used as a base value – the average could instead be regarded as an upper boundary. Based on the estimates of the re-users (which tended to be more stable than those of the public content holders) the overall market for public sector information in the European Union plus Norway is €26.1 billion with an upper boundary of €47.8 billion.

Table 1 - Estimates of overall EU markets for public sector information based on estimates of respondents (millions of Euros)

				Average domestic market		EU25 + Norway	
	AVR	(STDEV)	MED	base	upper limit	base	upper limit
Public content holders	36.4	(54.4)	7.8	218	1,019	5,678	26,499
Re-users	65.6	(74.2)	35.9	1,005	1,837	26,135	47,757

Estimate of overall PSI market size based on turnover

An alternative way to calculate the overall size of public sector information markets is to construct proxies based on economic figures (such as turnover and number of staff) that were also included in the surveys. The quality of the data sets of these economic numbers was considerably higher than those of the direct estimates of the size of the market. The overall size of the market is the sum of the turnover of all individual re-users – minus the money they spent on acquiring public sector information from the public content holders.

It should be kept in mind that the results are based on responses given by public content holders and re-users in the domains that were covered, excluding scientific and cultural information, which are outside the scope of the Directive.

Table 2 - Estimates of overall EU markets for public sector information based on estimates of turnover from public sector information (millions of Euros)

	number	Average domestic market ⁶		EU25 + Norway	
		base	upper limit	base	upper limit
Average annual turnover from PSI per re-user		1.92	6.73	1.92	6.73
[A] Minimum number of re-users⁷	238	456	1,602	11,881	41,645
Total domestic income from PSI (public content holders) ⁸	28	-62	-62	-62	-62
Net market size		395	1,540	10,279	40,044
[B] Base number of re-users	266	511	1,790	13,279	46,545
Total domestic income from PSI (public content holders)	28	-62	-62	-62	-62
Net market size		449	1,729	11,677	44,943

The total turnover and the split between total turnover and turnover from public sector information have been used to calculate average turnover from public sector information (6). Both numbers appeared to be more robust than the direct estimate from the re-users. Therefore, the results from the indirect method were used, again with the median as base value and the average as upper limit. Average total annual turnover where respectively €8.7 million (median) and €18.7 million (average), with PSI shares of respectively 22% and 36%. Hence overall annual turnover from PSI is respectively €1.92 million and €6.73 million.

Assuming that the total income received by public content holders for the sales of public sector information in a specific sub-domain equals the total amount of money spent by the re-users in that sub-domain to acquire public sector information, the average number of re-users (7) can be calculated. The number of re-users goes up when the price charged for public sector information goes down. Price elasticity determines whether the income from public sector information (equal to the price multiplied by the number of re-users) increases or decreases. A positive correlation was found between the average income from public sector information and the number of re-users ($R^2 = 0.526$, $n = 11$). In other words, decreases in prices charged were more than offset by increases in the number of users. Based on the ratio found, the average number of re-users per sub-domain for the European Union plus Norway as a whole could be calculated. This average amounts to 9.5 re-users (or 266 per country), with a median of 8.5 (or 238 per country). Since the total income from public sector information from public content holders represents a maximum value – re-users could also acquire the same public sector information for lower prices or even free of charge – the median [A] represents the lower limit. The average [B] was used as the base value.

To avoid double counting, the income received by public content holders in a country (which was already used to calculate the average number of re-users per sub-domain) should be subtracted from the turnover from public sector information from the re-users in that country. The average and median value are nearly equal and amount to €2.2 million. Assuming one public content holder per subdomain (or an equal total income divided by multiple public content holders) the average total income per country is $28 \times €2.2 = €62$ (8). Using the lower limit for the total number of re-users per country (238) the overall market for public sector information in the European Union plus Norway is €10.3 billion. Using the base number of re-users, the total amounts to €11.8 billion. Using the upper limit for the average annual turnover from public sector information per re-user, total net market sizes are respectively €40.0 billion and €44.9 billion.

Comparing these results with the totals based on the direct estimates from the respondents, it appears that the maximum values for the overall EU market (€47.8 billion, against €46.5 for the gross overall market size) are almost equal. Furthermore, the average from the minimum and maximum values in Table 2 (€27.6 billion) comes close to the base value of Table 1 (€26.1 billion).

To sum up, estimates for the overall market size for public sector information in the European Union range from €10 to €48 billion, with a mean value around €27 billion. This amounts to 0.25% of the total aggregated GDP for the European Union and Norway (€10.730 billion). For the estimation of the total market size per country the mean value was distributed across the countries according to GDP.

⁶ There is a general lack of data about the economic significance of public sector information. Nearly all earlier estimates can be traced back to PIRA (2000) which mentioned two distinctively different values: an 'investment value' (public sector investments in the acquisition of PSI) of €9.5 billion and an 'economic value' (part of national income attributable to industries and activities built on the exploitation of PSI) of €68 billion. PIRA used a markedly different approach than MEPSIR. The estimation of the investment value was based on a limited number of in-depth studies. Consequently, the individual values of PIRA might be more robust but the subsequent aggregated value less robust. The estimation of the economic value on the other hand was based on information derived from national accounts. This implies a rather broad definition of market size. This explains why the base value (€68bn) is higher and the range wider (€28 to €134bn). The total of MEPSIR is solely based on the total added value by all first-order re-users. The total of PIRA encompasses all firms which are in one way or another related to PSI. The heart of the matter is not whether the information industry represents a significant part of a national economy (esp. in the USA) but how much of the added value can be traced back to public sector information.

5 Conclusions

5.1 Introduction

Our findings clearly indicate that there still exist a considerable gap between the current 'baseline' situation and the one sought by the Directive. We expect that the Directive will have its effect on the economic performance in the value chain soon, whereby the various indicators, such as transparency and accountability and non-discrimination will serve as 'leads' and the market results as 'lags'. For instance it is likely that the substantial number of exclusive arrangements found in a number of areas, such as the sub-domains in the domain of geographical information, will go down as the deadline for phasing out such arrangements will approach (31 December 2008). As this deadline approaches increased equality of re-use conditions will result entrance of new market players, increased innovation and more competition, bringing benefits to companies and citizens throughout Europe.

After the dust comes down, the next question is what kind of effects (as a result of the interaction between these three elements) are we talking about? We think that the Directive will bring about the following 10 effects:

1. Direct price effect: the costs of purchasing public sector information from the government will decrease;
2. Fading price effect: this lowering of costs is (partly) translated into lowered prices in the successive parts of the chain;
3. Quantity effect: re-users will buy more products, due to lowered prices and increased accessibility;
4. Entry effect: through the disposal of exclusive arrangements, more companies will enter the value chain, at various points;
5. Diversification effect: new and diversified products will be developed and brought to the market;
6. Quality effect: new entrants will force 'older' suppliers to increase quality;
7. Elimination effect: parts of the value chain may disappear since their basis for adding value may be lost;
8. Competition effect: the country will increase its competitive strength in relation to other countries, resulting in increased export;
9. Income effect: cash streams of the governmental agencies selling the information will decrease;
10. Revenue effect: tax revenues will increase under increased economic activities. However, the places where the benefits and losses land are different.

The Directive will most likely also bring about all sorts of welfare effects like better informed citizens, a cleaner environment, less transaction costs (which also includes litigation) etc., which in turn may lead to positive economic effects.

5.2 Sub-domain perspective

Public sector information represents a wide range of information types generated by public sector organisations. Every individual sub-domain seems to have its own peculiarities. For instance, the value contained in geological information is of a principally different nature than the value of cadastral information, or the value of topographic information.

As a result of this heterogeneity, it turns out to be impossible to draw conclusions at the level of the domains of public sector information (e.g. legal information, social data, meteorological information, geographical information, and business information) as every sub-domain has its own characteristics and drivers.

However, we have come to the conclusion that there are some commonalities between various sub-domains of public sector information, linking in with the framework conditions and the likely impact of the Directive. This has led to the identification of three 'Directive impact typologies': the closed shop, the battlefield and the playground.

1. The closed shop

This represents a situation where the production of very valuable information is in the core of the public task and the value chain, up to the level of distribution, is controlled by the public sector. On one hand, in the environment where there is only one supplier, price elasticity is low. On the other hand, the public content holders are closely watched and therefore the terms of service delivery are transparent. Good examples for the closed shop are business registers and cadastral information.

The Directive is not expected to influence this environment dramatically. The statutory prohibition on cross-subsidising may turn out to be highly effective.

2. The battlefield

At the other end of the spectrum there is the battlefield: like in the closed shop, the information is very valuable. However, here the position and involvement of the public sector is disputed, with the argument that the production of, or at least the value adding to, this information is not a public task at all. Both meteorological data and topographical data are good example of this type of information.

Most likely the impact of the Directive on the value chain of this typology of public sector information will be significant: the stakes are high and the private sector is therefore ready to attack and take over value-adding from the public sector using the instruments that the Directive offers.

3. The playground

Finally, there is a third area where the Directive will have an impact: the playground. In the playground the effects result from the government opening up their resources, providing the data against significantly lower costs or even for free. Transforming its information into a non-economic good, the government can take two significantly differing roles: stepping in or stepping out:

a. The government stepping in

First of all, there is the area where traditionally the government did not see a role for itself, limiting its activities to the core public task and leaving the value adding and distribution to the private sector. However, under the influence of the enhanced possibilities of information technology, that perception is changing rapidly and, interestingly, governments all over Europe are in the process of taking on board additional tasks within the value chain. Legal information is a typical exponent of this area.

Here the Directive can have a catalysing effect. Where public content holders will increasingly provide their raw data for free in accessible formats, primary re-users will have to shift their attention towards the provision of value-added services.

b. The government stepping out

Secondly, within the playground, the government may decide to actually step out, simply providing the data for free and leaving the value adding completely to the private sector. Although the impact of the Directive may be low here, a lot of new activities may emerge, due to the readiness of the market to pick up public sector information that is made available. Typically, this involves public sector information that is made available for free, as it is regarded to be in the core of the public task, however, without any charges. Often these types of information are closely connected with democratic and policy processes, like social and economical statistics and traffic congestion data.

Here, a slight improvement in availability of this data for reuse can lead to all sorts of new services, as the potential in and readiness of the market is high.

To wrap up, the table below summarises up the three typologies, putting them into the Directive impact matrix (this matrix demonstrates the conceptual model and does not represent a metric scale).

Figure 9: The Directive impact matrix

		Value added by the public sector body	
		Low	High
Impact of the three driving elements in the Directive value chain	High	The playground: government stepping in (e.g. legal information)	Battlefield (e.g. weather information)
	Low	Closed shop (e.g. cadastral information)	The playground: government stepping out (e.g. traffic information)

5.3 Country perspective

Looking at the ranking of countries with respect to the four indexes, no clear winners or losers appear. Countries that are above average in one index may be low on another and conversely. The relative position of a country in these rankings is not a matter of main concern. Some of the characteristics of a country are the result of historical development of the sectors of public sector information and, possibly, of other structural and cultural differences.

After all, this measurement is only a first step in the review of the effects of the Directive. At the time the measurement is repeated in 2008, a general shift towards meeting the objectives of the Directive should be observed with a general rise in average levels.

A general caveat has to be made when comparing the situation in Europe with the situation in the USA. The study gathered the data for the USA in exactly the same way as in each of the European countries. The amount of data gathered for the USA is therefore of a different level than the combined data of Europe as a whole. As a result, care needs to be taken when drawing conclusion from the comparison between Europe and the USA.

From the identical measurement that was conducted in the United States, it shows in the indexes that that country scores high on Accessibility, Accountability and Non-discrimination as may have been expected with the open approach that is taken there. The relatively low score on the index for transparency can be explained by the fact that in an environment where re-use is generally allowed, there is no need to advertise explicit licenses or usage conditions.

The amount of data for the US did not allow for a comparison of economic aspects, but from the limited data that the study gathered, it appears that the number of re-users per public content holder is higher in the US than in Europe.

6 Acknowledgements

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Note:

The opinions expressed are the view of the authors and their sole responsibility and not necessarily those of the European Commission or any of its services.