

The value of Europeana



seo economic research

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The value of Europeana

The welfare effects of better access to digital cultural heritage

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Executive summary

Research question

In 2008, Europeana was launched as a service platform for digital cultural heritage and content from libraries, archives, galleries and museums from all over the European Union. The aim was to make Europe's rich cultural heritage accessible for all. Since its launch, the number of records in the Europeana database, of Europeana Network members and of visitors to its website have grown rapidly.

At the end of 2014, project funding that supports Europeana provided under the ICT-PSP programme by the European Union will end. The aim is that this will be replaced by a more sustainable funding model under the new multi-annual framework, Connecting Europe Facility. Discontinuation of EU funding would mean that the Europeana Foundation would have to abandon its investments. As part of a proposal for continued funding in the years 2015-2020, Europeana has asked Atlas voor gemeenten and SEO Economic Research to assess the social-economic value of this investment. Hence the research question this report aims to answer:

What is the social economic value of continued investment in Europeana to maintain and extend its current ambition level in terms of services and infrastructure in the years 2015-2020?

This report presents the result of this assessment. Cost estimates are based on Europeana's *Strategic Business Plan 2015-2020* (v0.7) and amount to a net present value of € 57.3 million per 1-1-2015 (using a real discount rate of 5.5 %). This includes necessary funds to maintain the current network of partners.

Main conclusions on costs and benefits

Several groups of users and effects have been identified. Europeana either already provides substantial benefits to these groups or has the potential to do so in future:

- Hundreds of galleries, libraries, archives and museums make use of the infrastructure and services provided by Europeana – which are all open source – and benefit from this. It helps them improve their communication to their public and professional users, and at the same time it can help them to save on the costs of developing these services and the infrastructure for themselves.
- A second group of users who benefit from Europeana is the general public: people inside and outside Europe who are interested in arts, culture and heritage can visit the website Europeana.eu, visit the digital exhibitions, use the thematic access points such as Europeana 1914-1918 or Europeana 1989, follow Europeana on social media, download the Europeana Open Culture app or visit the real-life roadshows.
- A third group of interest are tourists who may make use of websites, apps and guide books that incorporate the rich database provided by Europeana. Better access to

information on arts, culture and heritage can improve the attractiveness of Europe for tourists, in particular for the less well-known regions and cultural heritage.

- The fourth group that can benefit from Europeana is the large and diverse set of industries commonly referred to as the creative industries: publishers who make books on arts, culture, heritage or traveling guides, journalists looking for historic information, artists and designers doing their research, and game or app developers who can benefit from the accessibility of content and metadata.
- The final group of beneficiaries distinguished here are educational institutions and researchers. Access to digital content to develop teaching material and e-learning tools may lead to cost savings and improve the quality and hence the output of education.

The figure below summarises these user groups, the possible effects and calculation methods.

Effects of Europeana: mechanisms and calculation method

User group	Examples / groups	Services / effect	Calculation
Institutions	<ul style="list-style-type: none"> • Galleries / Libraries / Archives / Museums 	<ul style="list-style-type: none"> • Shared infrastructure leading to cost savings for stand-alone use and co-operation 	<ul style="list-style-type: none"> • Estimated % cost saving on digitisation/ICT expenditures
General Public	<ul style="list-style-type: none"> • Online visitors Europeana website & social media • Offline visitors Europeana exhibitions & road shows • Online visitors institutions websites • Offline visitors institutions 	<ul style="list-style-type: none"> • Welfare/utility of visiting website • Welfare/utility of visiting virtual and offline exhibitions • Both directly via Europeana and via institutions through redirect or as a result of using Europeana inputs 	<ul style="list-style-type: none"> • Time spent at Europeana website, virtual exhibitions and social media • Time spent at Europeana offline exhibitions / roadshows • Estimated % growth in offline and online visitors at institutions
Tourism	<ul style="list-style-type: none"> • Non EU-tourists coming to EU • EU-tourists staying in EU 	<ul style="list-style-type: none"> • Better access to heritage information (through websites, apps, guide books) improves position of EU for tourism 	<ul style="list-style-type: none"> • Estimated % growth in tourism of various kinds (what-if) • Estimated growth in duration of stay or expenditures
Creative industries	<ul style="list-style-type: none"> • App developers, Game developers • Publishers, Journalists, Authors • Artists, Designers, Architects 	<ul style="list-style-type: none"> • (Machine-readable) database with metadata, making content accessible throughout institutions 	<ul style="list-style-type: none"> • Top-down business cases
Education & Research	<ul style="list-style-type: none"> • Researchers • Teachers / lecturers • Students 	<ul style="list-style-type: none"> • Access to content for digital teaching material • Access content, cost savings on travel expenses and improvement of productivity 	<ul style="list-style-type: none"> • Cost savings for education and research • Output improvement for education and research

Source: SEO Economic Research / Atlas voor gemeenten

The most significant *quantifiable* economic benefits of Europeana are cost savings for institutions and tourism. These benefits translate directly into cost savings for governments or institutions and into economic growth and jobs. Other non-monetary, but quantifiable welfare effects result from recreational website use by the general public. Additional benefits are achievable in creative industries, education and research. Although these benefits are likely to materialise, insufficient data was available in the course of this study to support detailed calculations.

Note that due to the innovative character of Europeana and therefore the time needed to build the database and infrastructure and to agree on the Creative Commons waiver that allows commercial re-use of the metadata (CC0), the calculations on the benefits from tourism are inevitably in terms of potential, as little hard evidence exists on these effects. Cost savings for institutions have already been achieved, but hard quantitative evidence is also lacking here. However, reality checks have been performed to ensure the potential is not overly optimistic.

The table below gives an overview of these effects. The projected costs are shown with a negative mark; the benefits for which calculations have been made have a positive one. Benefits for the creative industries, education and research could not be quantified but are included for the record (*pro memoria*, PM).

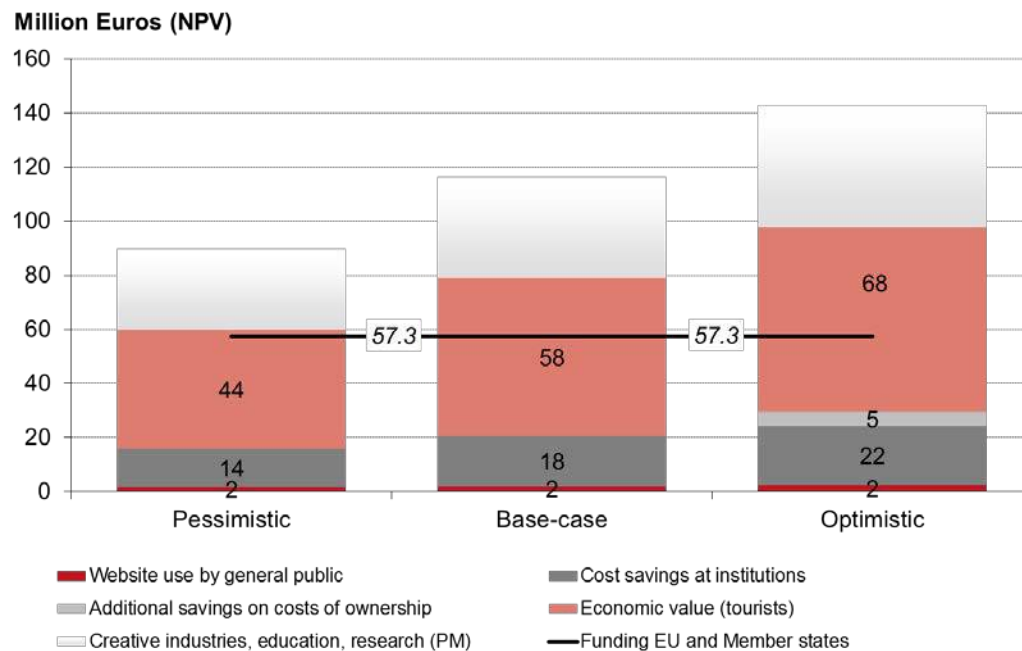
The table shows that in the base case scenario, the benefits outweigh the cost by € 21.5 million (or 37%) in terms of net present value, exclusive of any benefits for the creative industries, education and research. Even in a pessimistic scenario, there is a slight surplus of benefits over costs. In an optimistic scenario, the net present value of the benefits outweighs the costs by 70%. These main conclusions are graphically represented in the figure below.

Summary of effects (net present value per 1-1-2015 in million €)

	Base case	Pessimistic	Optimistic
Funding EU and Member states	€57.3-	€57.3-	€57.3-
Usage value			
Cost savings at institutions	€ 18.5	€ 14.2	€ 22.1
Additional savings on costs of ownership	-	-	€ 5.1
Website use by general public	€ 2.0	€ 1.5	€ 2.2
Economic value (tourists)	€ 58.4	€ 43.9	€ 68.3
Creative industries, education, research	+ PM	+ PM	+ PM
Total welfare effects	€78.8 + PM	€59.6 + PM	€97.7 + PM
Net welfare effects	€ 21.5 + PM	€ 2.3 + PM	€ 40.3 + PM

Source: SEO Economic Research / Atlas voor gemeenten

Benefits of Europeana versus costs



Source: SEO Economic Research / Atlas voor gemeenten

Market failure

Apart from the actual costs and benefits of a project, an important question is 'Why should the EU and Member States be involved?' In a welfare economic framework, government intervention in a market through funding or other measures can be justified to correct market failures, such as market power, public goods, external effects, information problems and transaction costs. Market failures prevent private companies and individuals from materialising potential welfare gains.

On a general level, arts, culture and heritage are widely acknowledged to be subject to market failures: they enhance the attractiveness of cities, regions and countries for people to live in, for companies to be based in and for tourism. They also feed into the creative industries. To a large extent, these are external effects or indirect effects that cannot be internalised/appropriated. Arts, culture and heritage are also considered merit goods, the value of which is underestimated by citizens. Hence, many governments subsidise these goods to stimulate their consumption.

More specifically for Europeana, there are a number of reasons as to why private incentives fall short of achieving the socially desirable investments in (linking and disclosing) databases of cultural heritage:

- Europeana reduces *transaction costs* (costs of uncovering or finding heritage and cultural information and possibly of licensing content to third parties). This creates *spill-over effects* for creative industries, app developers, consumers, creative industries and scholars using/looking for heritage content. Benefits accrue for numerous users, while due to transaction costs that may be high compared to individual benefit, these users or beneficiaries cannot (always) be charged and will not reach co-ordination in their investment decisions.
- Without the standardisation brought about by Europeana, the likely scenario is a *fragmentation* of databases used by different institutions, a multiplication of development costs and a *loss of synergy* due to *lock-in* into sub-optimal solutions. In particular, smaller institutions that lack the economies of scale to invest in digitisation will benefit from standardisation, as well as apps and websites that aim to integrate the metadata of a wide variety of collections (e.g., for tourism).
- Europeana counterbalances *market power* (based on economies of scale) that would exist if a commercial party were to lead the way.
- It creates positive *external effects* for copyright holders if it leads to additional licensing (through a reduction of transaction costs).
- Institutions and digitisation projects tend to *underinvest* in enhancing and maintaining digital resources already created, thereby foregoing the economic and welfare impact of digitisation effects. Europeana helps to reduce the costs of ownership and balance this underinvestment.
- Providing co-ordination and setting standards for digital infrastructure may also give a first mover advantage vis-à-vis countries outside the EU that adopt the Europeana standards. This is likely to reduce the costs of adaptations to standards set elsewhere.

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1 Introduction and research question

In 2008, Europeana was launched as a prototype for a service platform for digital cultural heritage and content from libraries, archives, galleries and museums from all over the European Union. The aim was to make Europe's rich cultural heritage accessible for all. Since its launch, the number of records in the Europeana database, of Europeana Network members and of visitors to its website have grown rapidly. By the end of 2012, the Europeana dataset contained over 24 million digitised objects, including books, paintings, films and audio, representing 2,200 contributing organisations such as museums, libraries, audio-visual collections and archives throughout Europe (Europeana, 2013a). In July 2013, the number of records in the dataset had risen to 27.4 million (Europeana, 2013b).

At the end of 2014, project funding that supports Europeana provided under the ICT-PSP programme by the European Union will end. The aim is to replace this with a more sustainable funding model under the new multi-annual framework, Connecting Europe Facility. Discontinuation of EU funding would mean that the Europeana Foundation would have to abandon its investments. As part of a proposal for continued funding in the years 2015-2020, Europeana has asked Atlas voor gemeenten and SEO Economic Research to assess the social-economic value of this investment. Hence the research question this report aims to answer:

What is the social economic value of continued investment in Europeana to maintain and extend its current ambition level in terms of services and infrastructure in the years 2015-2020?

This report presents the result of this assessment. The structure of this report is as follows: Chapter 2 presents the framework for analysis, the project definition and assumptions about the timing of effects, as well as an overview of the current or expected effects of Europeana which translate into 'welfare economic' effects. Chapters 3-6 treat those effects in more detail and presents the welfare economic calculations of several of these effects. Chapter 7 gives a synthesis of the overall costs and benefits.

2 Methodology and overview of effects

Several welfare economic benefits of arts, culture and heritage can be distinguished. The focus in this cost benefit analysis is on the usage value for institutions, the general public, creative industries and education and research, as well as the indirect economic effects Europeana can have on tourism.

2.1 Cost benefit analysis of digital cultural heritage

Arts, culture and heritage have long been associated with immaterial or soft values that are perceived to be at odds with 'hard' economic values such as Gross Domestic Product (GDP), income and jobs. This is, however, a false dichotomy. On the one hand, economists and policy-makers have, over the past two decades, become more and more aware of the significant and growing contribution of the cultural and creative industries to the growth of GDP, jobs and exports (e.g., European Commission, 2010). On the other hand, a welfare economic framework is very capable of capturing the soft values of arts, culture and heritage.

The value of arts, culture and heritage for the attractiveness of cities, for instance, is currently widely recognized (e.g., Glaeser 2001, Florida, 2002, Currid, 2007). Apart from growth in terms of jobs and regional GDP (Faria 2004), this attractiveness leads to higher housing prices near to cultural events and cultural heritage (Marlet, 2009). To put it differently, on average, people are willing to pay a higher price for a house in a city with cultural amenities such as theatres, museums and heritage. This mark-up turns out to be much higher than the admission price they pay or even the consumer surplus they experience on top of this. Even people who do not go to the theatre often value the option to do so (Marlet, 2010).

Other values that are associated with arts, culture and heritage can be understood and given a place in a welfare economic framework. By doing so, they can in principle be incorporated in a welfare economic *cost benefit analysis* (CBA) which analyses all costs and benefits of a project and makes them comparable by calculating their net present value (NPV) for a specific date. The latter is required because costs or benefits that lie in the far future are not directly comparable with costs and benefits in the present: time-preference and economic uncertainty dictate that costs and benefits that occur further in the future be given a lower weight.

From surveying the literature on the economic effects of arts, culture and heritage, five broad categories of effects can be distinguished (Marlet, Poort & Laverman, 2007; Marlet & Poort, 2011; Marlet, Poort & Van Woerkens, 2011). Figure 1 gives a schematic representation of these five effects, focusing on digital cultural heritage. This framework is congruent with the general welfare economic framework common to social cost-benefit analysis (as accepted by academics as well as policy-makers), but at the same time tailored to the value perception in arts and culture and in the creative industries:

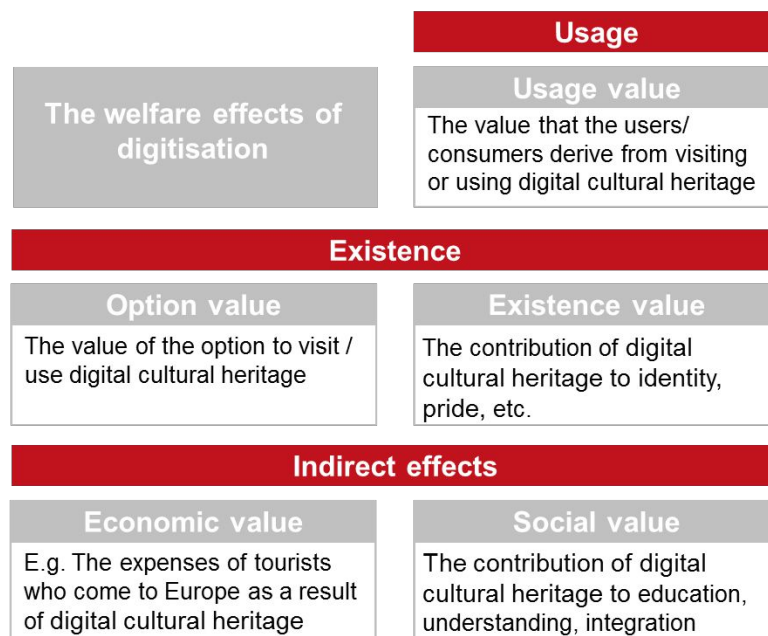
- The *usage value* (e.g. Heilbrun, 1998) follows from the money and time consumers and professionals (e.g. in the creative industries) are willing to invest to make use of the material and services offered by Europeana, and the additional consumer or producer surplus they derive from this use. Note that this usage value can be created not only at

the aggregate Europeana level, but also at the level of the participating institutions and their communication to the public and the creative industries.

- The *option value* derives from the mere fact that Europeana and its services exist. Option value is based on the value consumers and professionals attribute to the option to make use of the material and services on offer. As is illustrated in the example of theatres above, this option value is different from the value of the actual use and can even exist for people who are (currently) not using Europeana.
- The *existence value* also originates from the existence of Europeana, but in a more abstract way. The existence value derives from the plain fact that Europeana exists and, for instance, contributes to a person's pride or identity.
- The *economic value* (e.g. Plaza, 2000) is an indirect effect which follows from the expenditures of tourists that can be associated with Europeana (for instance by means of apps and interactive guides for tourists that can be created based on the material offered through Europeana) or the productivity gains and exports resulting from its use.
- The *social value* (e.g. Stanziola 1999) is an indirect effect which may derive from the positive effect of consuming arts, culture and heritage on health, education, understanding and overall wellbeing.

In this report, the focus is on the *usage value* of Europeana on the one hand and the *economic value* on the other hand. Estimating the other values is too time-consuming for the scope of this study and the outcomes tend to be relatively speculative and controversial. A more detailed description of the welfare economic effects of Europeana that are envisaged is given in the next section.

Figure 1 The welfare effects of digital cultural heritage



Source: Atlas voor gemeenten

2.2 Overview of effects

As discussed in the preceding section, the focus in this cost benefit analysis of Europeana is on the usage value and the economic value. So who are the users of Europeana? Several groups of users can be identified.

Institutions

First, there are the institutions that make use of the infrastructure and services provided by Europeana. Hundreds of galleries, libraries, archives and museums make use of this infrastructure and these services – which are all open source – and benefit from this. It helps them to improve their communication to their public and professional users, and at the same time it can help each of them to save costs in developing services and infrastructures for and by themselves. In particular, smaller institutions, who lack the economies of scale to develop adequate digital service platforms themselves, can benefit from this. Moreover, Europeana helps institutions all over Europe (as well as outside Europe) to achieve co-ordination in the development of digital services which enables them to integrate their digital collections. These effects are elaborated on in Chapter 3.

General public

A second group of users who benefit from Europeana is the general public: people inside and outside Europe who are interested in arts, culture and heritage can visit the website Europeana.eu, visit the digital exhibitions such as the First World War project, follow Europeana on social media, download the Europeana app or visit the real-life roadshows. Indirectly, the general public can benefit from Europeana through the improved digital services of the institutions that make use of the infrastructure and services provided by Europeana. These effects are elaborated in Chapter 4.

Tourism

A third group of interest are tourists who may make use of websites, apps and guide books that incorporate the rich database provided by Europeana. Better access to information on arts, culture and heritage can improve the attractiveness of Europe for tourists, in particular the less well-known regions and cultural heritage. The potential economic benefits associated with this are calculated in Chapter 5.

Creative industries

The fourth group that can benefit from Europeana is the large and diverse set of industries commonly referred to as the creative industries: publishers who make books on arts, culture, heritage or traveling guides, journalists looking for historic information, artists and designers doing their research, and game or app developers who can benefit from the accessibility of content and metadata. These effects are discussed in more detail in Chapter 6.

Education and research

A final group of beneficiaries distinguished here are educational institutions and researchers. Access to digital content to develop teaching material and e-learning tools may lead to cost savings or improve the quality and hence the output of education. ¹ Europeana is already working

¹ There is also some evidence that as an indirect effect, residential ICT adoption is increased by ICT in schools (Tengtrakul & Peha, 2013).

with Historiana (for history teachers), Europeana Schoolnet (for teachers in general) and Promethean, the whiteboard producer. Likewise, researchers may benefit from improved accessibility to better quality, searchable metadata on culture and heritage. This can lead to cost savings or improve the output of research by inspiring new research techniques.

Figure 2 summarises the groups and welfare effects discussed above. The last column gives an impression of the way these effects can be calculated. Due to constraints in time and budget, as well as the innovative character of the Europeana project, it was not possible to perform all of these calculations and to put a Euro-value on all of the effects. Moreover, some of the calculations had to rely on assumptions and expert opinions on the impact of Europeana rather than 'hard evidence'. In such cases, reality checks have been performed to ensure the assumptions made were not overly optimistic. For each main effect/group identified above, Figure 3 gives the potential impact of this effect in welfare economic terms, and an impression of the extent to which this effect can be quantified given the current constraints. Effects on tourism and cost savings for institutions can be quantified in a plausible way, but need more assumptions about the effect of Europeana than the benefits for the general public which are based on the time spent at the Europeana website. Welfare effects in the creative industries, as well as those in education and research could not be quantified. Although these effects may very well occur, there was insufficient evidence and information to support calculation.

Figure 2 Effects of Europeana: mechanisms and calculation method

User group	Examples / groups	Services / effect	Calculation
Institutions	<ul style="list-style-type: none"> Galleries / Libraries / Archives / Museums 	<ul style="list-style-type: none"> Shared infrastructure leading to cost savings for stand-alone use and co-operation 	<ul style="list-style-type: none"> Estimated % cost saving on digitisation/ICT expenditures
General Public	<ul style="list-style-type: none"> Online visitors Europeana website & social media Offline visitors Europeana exhibitions & road shows Online visitors institutions websites Offline visitors institutions 	<ul style="list-style-type: none"> Welfare/utility of visiting website Welfare/utility of visiting virtual and offline exhibitions Both directly via Europeana and via institutions through redirect or as a result of using Europeana inputs 	<ul style="list-style-type: none"> Time spent at Europeana website, virtual exhibitions and social media Time spent at Europeana offline exhibitions / roadshows Estimated % growth in offline and online visitors at institutions
Tourism	<ul style="list-style-type: none"> Non EU-tourists coming to EU EU-tourists staying in EU 	<ul style="list-style-type: none"> Better access to heritage information (through websites, apps, guide books) improves position of EU for tourism 	<ul style="list-style-type: none"> Estimated % growth in tourism of various kinds (what-if) Estimated growth in duration of stay or expenditures
Creative industries	<ul style="list-style-type: none"> App developers, Game developers Publishers, Journalists, Authors Artists, Designers, Architects 	<ul style="list-style-type: none"> (Machine-readable) database with metadata, making content accessible throughout institutions 	<ul style="list-style-type: none"> Top-down business cases
Education & Research	<ul style="list-style-type: none"> Researchers Teachers / lecturers Students 	<ul style="list-style-type: none"> Access to content for digital teaching material Access content, cost savings on travel expenses and improvement of productivity 	<ul style="list-style-type: none"> Cost savings for education and research Output improvement for education and research

Source: SEO Economic Research / Atlas voor gemeenten

Figure 3 Effects of Europeana: potential impact and quantifiability

User group	Calculation	Potential impact	Quantifiable
Institutions	Cost saving on digitisation/ICT expenditures	+++	++
General Public	Time spent at Europeana website, virtual exhibitions and social media	+	+++
	Growth in offline and online visitors at institutions	++	–
Tourism	Growth in number of tourists, length of stay and expenditures of tourists	+++	++
Creative industries	Input cost savings and new business development	++	–
Education & Research	Costs savings at education and research	+	–
	Output improvement at education and research	+	–

Source: SEO Economic Research / Atlas voor gemeenten

2.3 Project funding and timing of effects

The intended second funding period for Europeana starts in 2015 and ends in 2020: a six-year period. Four sources of funding are foreseen: funding from the EU; from Member States; from commercial parties such as sponsors and premium memberships to the services of the Europeana Foundation; and funding from joint ventures and incubators for 'Europeana Inc.'. Table 1 presents the proposed budget, based on the draft *Strategic Business Plan 2015-2020* (Europeana 2013b) and presents the intended funding per source for each year. The second-last column gives the total funding from each source.

Table 1 Europeana Foundation Budget Funding 2015-2020 (in million €), draft

Funding Source	2015	2016	2017	2018	2019	2020	Total	NPV per 1-1-2015
EU	12.10	12.10	12.10	12.10	12.20	12.20	72.80	56.93
Member States	0.08	0.08	0.08	0.08	0.11	0.11	0.54	0.42
Market	0.41	0.68	1.03	1.36	1.75	2.25	7.48	5.49
Europeana Inc.	0.10	0.35	0.75	1.30	1.80	2.20	6.50	4.65
Total	12.69	13.21	13.96	14.84	15.86	16.76	87.32	67.49

Source: SEO Economic Research / Atlas voor gemeenten based on Europeana 2013b (Appendix 1, p.1)

However, as mentioned in Section 2.1, in order to compare the costs and benefits in a cost-benefit analysis, numbers referring to different years should not simply be added together. Instead, the Net Present Value (NPV) of all future costs and benefits at a specific date should be calculated. This is the total value of these costs and benefits at this point in time, taking account of the fact that future costs and benefits are more uncertain and have a lower 'present value' as a consequence of inflation. In principle, any date could be chosen for this calculation as long as the same date is used for all costs and benefits. In practice, the starting date of a project is commonly chosen as a reference date. Hence, the last column of Table 1 gives the NPV for each source of

funding per 1-1-2015. The *real* discount factor used throughout this CBA is 5.5 %.² Assuming the intended budget is in nominal amounts and assuming 2.0% inflation in each year, a nominal discount rate of 7.5% is used to obtain the Net Present Values in the last column.

A final question on the cost side is ‘Which sources of funding should be included?’. As the benefits that market parties will derive from their participation in terms of sponsoring and premium memberships and the benefits derived from Europeana Inc. have not been calculated in this analysis, and as commercial parties can be assumed only to partake in this if benefits outweigh the costs, it seems fair to exclude these costs from the present analysis. Thus, only the EU and Member State funding are included on the cost side, amounting to a total NPV of € 57.3 million per 1-1-2015 at a nominal discount rate of 7.5%.

Another issue to be addressed is the *development of the effects in time* that is assumed. This has much to do with the *counterfactual*, i.e.: the situation that would occur should funding not be awarded. In this counterfactual situation, it is assumed that no new generic investments will be made in shared infrastructure and services for galleries, libraries, archives and museums. However, the benefits all user groups derive from the investments to date need not disappear instantly. It is assumed that minimal necessary investments will be made to ensure that the fruits of past investments can still be reaped in the first few years after the current funding ends. So, not all effects that occur in 2015 and the ensuing years should be attributed to the second funding period. By symmetry, a similar assumption is made for the years after the second funding period ends: effects will not simply end as of 1-1-2021, but instead effects will fade out in a few years’ time after the funding ends.

Different assumptions can be made about the pace at which effects will fade in and out:

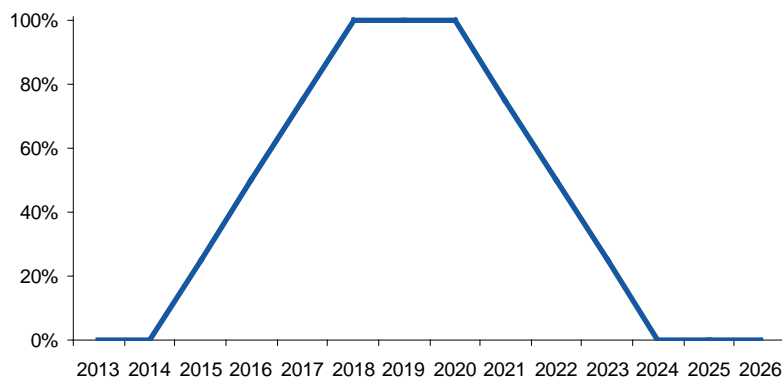
- In the base case of this analysis, effects build up over three years to a maximum level that is reached in year four (2018). After the last year of funding (2020), effects fade out over three years.
- In an optimistic case, effects build up faster to reach maximum level in two years.
- In a pessimistic case, the period to reach the maximum level of effects takes five years and effects fade out in two years’ time.

These different assumptions for the timing of effects are depicted in Figure 4a-c.

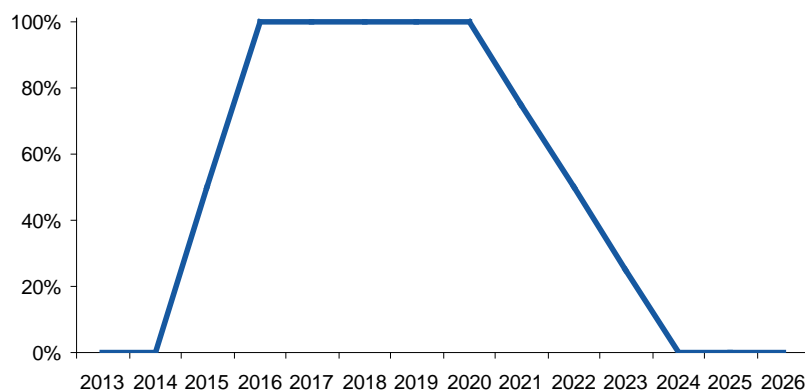
² This is in line with the discount factor prescribed in the CBA guidelines of the Dutch Government. See Parliament Letter ‘IRF/2011/605 U’, *Reële risicovrije discontovoet en risico-opslag in maatschappelijke kostenbatenanalyses* [Real risk-free discount rate and risk premium in social cost benefit analyses], 24 August 2011.

Figure 4 Timing of effects

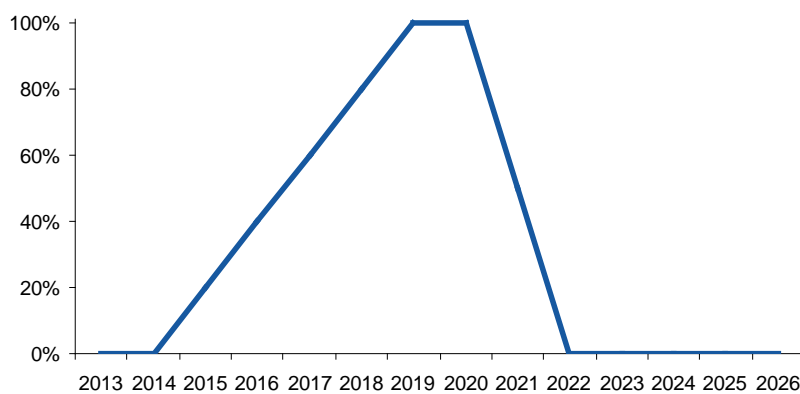
a. Base case



b. Optimistic case



c. Pessimistic case



Source: SEO Economic Research / Atlas voor gemeenten

2.4 Market failures

As well as considering the actual costs and benefits of a project, it is also important to ask 'Why should the EU and Member States be involved?' After all, most private companies perform cost benefits analysis when considering an investment, but a positive outcome for such an analysis normally does not call for government funding.

In a welfare economic framework, government intervention in a market through funding or other measures can be justified to correct market failures, such as market power, public goods, external effects, information problems and transaction costs. Market failures prevent private companies and individuals from materialising potential welfare gains. There are a number of reasons as to why private incentives might fall short of achieving the socially desirable investments in (linking and disclosing) databases of cultural heritage, such as Europeana. First, benefits accrue to numerous users, and due to transaction costs, these users cannot (always) be charged. Second, users attach value to the content but are not used to paying for it. Put differently, they enjoy consumer surplus but are not willing to pay. Third, benefits accrue to future generations. Fourth, a project such as Europeana thrives by linking and connecting various objects from different sources. Network externalities and complementarities therefore play a role and may lead to underinvestment if the government does not intervene.

Moreover, arts, culture and heritage are widely acknowledged to be subject to market failures. As discussed in Section 2.1, they enhance the attractiveness of cities, regions and countries for people to live in, for companies to be based in and for tourism. They also feed into the creative industries. To a large extent, these are external effects or indirect effects that cannot be internalised/appropriated. The consumption of arts, culture and heritage is an experience good which means that consumers cannot gauge the benefits of the good or the trip to the institution beforehand. This, in turn, implies that information is key.

Non-economic justifications for government intervention can be based on redistribution, paternalism, and political considerations. Arts, culture and heritage are generally considered merit goods, the value of which is underestimated by citizens. Hence, many governments subsidise these goods to stimulate their consumption.

How does Europeana fit into this framework of market failure analysis? Europeana creates a service platform for digital cultural heritage and content from libraries, archives, galleries and museums. As such, it works as an enabler for those institutions in their public task to generate social and economic spill-overs. This means that investment in Europeana can be justified on the same grounds as other investments in arts, culture and heritage, provided that the social return of investment in Europeana (in terms of spill-over effects and merit goods) is at least comparable to the social return of these other investments. The specific market failures that Europeana addresses are:

- Europeana reduces *transaction costs* (costs of uncovering or finding heritage and cultural information and possibly of licensing content to third parties). This creates *spill-over effects* for creative industries, app developers, consumers, creative industries and scholars using/looking for heritage content.

- Europeana counterbalances *market power* (based on economies of scale) that would exist if a commercial party were to lead the way.
- Europeana creates positive *external effects* for copyright holders if it leads to additional licensing (through a reduction of transaction costs).
- Europeana *resolves co-ordination failure*.
 - Without the standardisation brought about by Europeana, the likely scenario is a *fragmentation* of databases used by different institutions, a multiplication of development costs and a *loss of synergy* due to *lock-in* into sub-optimal solutions. In particular, smaller institutions that lack the economies of scale to invest in digitisation will benefit from standardisation, as will apps and websites that aim to integrate the metadata of a wide variety of collections (e.g., for tourism).
 - Institutions and digitisation projects tend to *underinvest* in enhancing and maintaining digital resources already created (Poole, 2010), thereby foregoing the economic and social impact of digitisation effects. By providing infrastructure and services, Europeana helps to reduce the costs of ownership and balance this underinvestment.
 - Providing co-ordination and setting standards for digital infrastructure may also give a first mover advantage vis-à-vis countries outside the EU that adopt the Europeana standards. This is likely to reduce the costs of adaptations to standards set elsewhere.

3 Cost savings at institutions

Museums, archives, libraries and galleries benefit from the infrastructure and services provided by Europeana. This can lead to significant savings on the costs of digitising their collections as well as on ownership costs of digital collections.

3.1 Cost savings and other benefits for institutions

Thousands of galleries, libraries, archives and museums make use of the infrastructure and services provided by Europeana – which are all open source – and benefit from this. Europeana does not help in the actual digitisation of cultural and heritage collections but helps to expose what has been digitised to a wider audience and helps in the creation of standardised metadata so that the digitised items can be exposed through multiple platforms. For instance, data from 2,200 institutions has been standardised by Europeana (Europeana, 2013b). In the coming years, the same could hold for many more.

Thus, Europeana helps institutions throughout Europe to realise significant savings on the costs involved with dissemination, content management, metadata creation and the like. In addition, institutions can achieve substantial savings on the costs of ownership. The lifetime costs of ownership are generally estimated to be 50-100% of the costs of the original digitisation (Poole, 2010). By helping institutions to save on the costs of ownership, Europeana can help them to create maximum social value with their digital collections. On top of these cost savings, Europeana improves the visibility and accessibility of institutions' digital collections, leading to a better service for professionals and the general public. In particular, smaller institutions that lack the economies of scale to develop adequate digital service platforms themselves can benefit from this. Moreover, Europeana helps institutions all over Europe (as well as outside Europe) to achieve co-ordination in the development of digital services enabling them to integrate their digital collections.

Specifically, benefits are acknowledged in:

- Reducing maintenance costs by sharing services (ingestion tools, hosting etc.);
- Creating cost efficiencies by sharing development costs of tools and services (such as virtual exhibition platforms or thematic micro-sites);
- Further development of data models and APIs to enable interoperability;
- Further development of licensing models, facilitating easier ways of using and re-using digitised material from all partners and generating new ways of increasing revenue;
- Improved visibility and increasing visitor numbers through the Europeana website;
- Increased visibility through new channels like Wikipedia and Pinterest at lower marketing costs as well as through the API.

The rest of this chapter provides a conservative estimation of the cost savings that are expected to occur at institutions. Benefits resulting from improved visibility are more speculative and have not been estimated.

3.2 Estimating the potential for cost savings

In order to calculate the cost savings achievable at institutions, the following steps have been taken:

1. Investigate the annual investments in digitisation of collections and the costs of ownership.
2. Investigate the percentage of these investments/costs that can benefit from Europeana.
3. Estimate the savings on these costs that Europeana can help achieve.

3.2.1 Investments in digitisation

In 2009, IPF published a study that aimed to measure the progress towards digitising the cultural heritage of Europe, the 'NUMERIC study' (IPF, 2009). To this end, a survey was conducted amongst a large number of cultural institutions in EU Member States. The study identified 5,752 institutions for which digitisation of collections was believed to significantly enhance access to the country's cultural heritage.³ A sample of 1,539 of these was selected to partake in a survey with a response of 788. Out of these, 48% had a budget for digitisation, adding up to an annual budget of € 80 million (1.1% of the overall budget of the relevant institutions). The respondents reported planned investments of € 408 million for projects up until 2012, which implied that an increase in budgets was foreseen. Given this and given the partial response to the numeric study, € 80 million can be assumed to be an underestimation (or lower bound) of the annual investment in digitisation.

A second more recent source for estimating the annual investments in digitisation is the ENUMERATE study (Stroeker & Vogels, 2012). This report is based on the response of 1,951 institutions from 29 countries in reaction to an open call to participate in a survey. 1,623 of these (83%) responded that they had digitised their collections or had undertaken digitisation activities. The report does not give a direct estimate of the aggregate investments in digitisation. However, these investments can be estimated along two different calculations:

- Institutions are asked their *annual budget per paid FTE (full time equivalent) staff member engaged in digitisation activities* (N = 1,584) and their *digitisation paid FTE staff members* (N = 948), both for 2011 and for 2012.
- Institutions are asked their *annual budget for digitisation activities in % of total institutional budget* (n=703) and their *annual institutional budget (class size)*, both for 2011 and for 2012.

Based on this information, four different estimations can be derived for the annual investments in digitisation of the entire response group. The approaches based in the budget per FTE and the percentage of the total budget yield quite different outcomes:

- Based on the budget per digitisation FTE, total investments are estimated at € 210 million for 2011 and € 233 million for 2012.

³ Out of a total of 106,000 archives, broadcasting and film institutes, museums, libraries and heritage agencies.

- Based on the budget as a percentage of the total institutional budget, total investments are estimated at € 79 million for 2011 and € 83 million for 2012.⁴

Based on these calculations, annual investments are assumed of € 160 million (base case), while a high scenario of € 240 million/year and a low scenario of € 80 million/year are also evaluated. These investments are assumed constant in real terms in the project period 2015-2020.

These assumptions seem to be fairly conservative, taking into account that calculations based on the NUMERIC and ENUMERATE reports do not cover the entire population of institutions involved in digitisation in Europe. Moreover, the estimated total costs of digitising the collections of all museums, archives, libraries etc. in Europe are around € 100 billion, or € 10 billion per year for the next 10 years (Poole, 2010).

3.2.2 Breakdown of investments and costs

The next step is to investigate the percentage of these investments and costs that can benefit from Europeana. The costs of equipment for scanning photos or documents and the manpower involved will not be influenced by Europeana. But the costs of, for instance, creating metadata, of hosting and of developing system architecture can benefit significantly.

To estimate the percentage of digitisation costs that are eligible for cost savings, the breakdown of costs for various digitisation projects have been looked at. Table 2 presents a breakdown of the costs of five digitisation projects. Cost savings related to Europeana are expected for, at a minimum, the categories *metadata*, *IPR*, *website*, *dissemination*.⁵ Averaged over the five projects presented in Table 2, these four cost categories comprise 27 % of total project costs.

Table 2 Breakdown of costs of various digitisation projects

Project	Project management	Capital	Digitisation	Metadata	IPR	Website	Dissemination	Overheads	Other	Material
John Johnson	7%	1%	12%	13%	1%	6%	8%	39%	13%	print
LBC / IRN	9%	2%	18%	27%	0%	5%	0%	39%	0%	print + audio
OldBaileyOnline	9%	2%	36%	22%	1%	2%	1%	22%	6%	print
ASR	20%	3%	35%	12%	4%	12%	3%	11%	0%	audio
Freeze Frame	15%	20%	10%	11%	0%	0%	8%	21%	15%	Photos
Average	12%	6%	22%	17%	1%	5%	4%	26%	7%	

Source: SEO Economic Research / Atlas voor gemeenten based on Hammond & Davies (2009)

⁴ For the calculation based on the percentage of institutional budget, the budget classes used give rise to an additional complexity. Calculations presented here are the average of a calculation based on the lower limit and of the upper limit of each class (assuming an upper limit of € 50 million for the class > € 10 million).

⁵ Savings may also very well occur on the costs of *project management*, *overheads* and in the category '*other*'.

Table 3 Breakdown of costs of the BOPCRIS/JISC Parliamentary Archives Digitisation project

Item	Cost (€)	% of total costs
Equipment (scanner)	582,187	35
Content Management System	155,298	9
Other capital expenditure	106,117	6
Digitisation	585,594	35
Production of end-user formats	42,399	3
Delivery channels (website)	187,461	11

Source: SEO Economic Research / Atlas voor gemeenten based on Poole (2010)

Table 3 gives an alternative categorisation of the costs of a different digitisation project. Following this breakdown, cost savings related to Europeana are expected for the categories *content management system*, *production of end-user formats* and *delivery channels*, adding up to 23% of the total costs. Based on these breakdowns, it is assumed that 25% of the investments in digitisation are eligible for cost savings resulting from Europeana (base case), while a high scenario of 30% and a low scenario of 20% are also evaluated.

The final step required for this calculation is an estimation of the actual savings on these costs. Since no ex post estimations or case studies were available, an expert judgement had to be used: in the base case, an estimate of 10% is adopted (at the maximum level, see Section 2.3), while a high scenario of 20% and a low scenario of 5% are also calculated.

3.2.3 Lifetime costs of ownership

As stated above, the lifetime costs of ownership are generally estimated to be 50-100% of the costs of the original digitisation over a ten-year period, but access to large-scale infrastructure can reduce this to 10-25%. (Poole, 2010). In other words, the cost savings on the lifetime costs of ownership are estimated to range from 40% up to 75% of the costs of the original digitisation, with a midpoint estimate of 57.5%. This translates into an annual saving on the initial digitisation costs of $57.5/10 = 5.75\%$ (midpoint). Again, the impact of Europeana is assumed to be 10% of these costs at the maximum level, which seems a conservative estimate given that these costs are mostly infrastructural.

An open question, however, is whether the costs of ownership are already included in the digitisation costs discussed in Section 3.2.1. This cannot be determined from the sources used. It is very likely not to be the case, as the costs of ownership are often borne by the institutions at a general level. The costs of digitisation are mostly perceived as the costs of projects that involve digitising collections, not owning them. In order not to be overly optimistic, however, the *base case* assumption is that these costs are already included in the reported digitisation costs, and that no additional benefits arise from savings on the cost of ownership. In an optimistic scenario, these savings on the lifetime costs of ownership are assumed to be an additional effect.

3.2.4 Calculation of cost savings and reality check

Table 4 summarises the parameters used for calculating the cost savings for institutions. Table 5 presents the results of the base case calculation, both in terms of the annual effect at the maximum level and in term of net present value (NPV). It also gives a sensitivity analysis along

various axes. As can be seen from the table, the NPV of cost savings in the base case scenario is € 18.5 million. Savings on the costs of ownership (optimistic scenario) may amount to an additional NPV of € 5.1 million for the entire project. In an optimistic scenario in terms of the timing of effects, which also includes savings on the costs of ownership, the NPV increases to € 22.1 + 5.1 = 27.6 million.

Table 4 Parameters for calculating the cost savings for institutions

	Low	Base case	High
DIGITISATION COSTS			
Digitisation investment per year (million.)	€ 80	€ 160	€ 240
% of costs eligible for cost savings	20%	25%	30%
Impact of Europeana (at maximum level)	5%	10%	20%
COST OF OWNERSHIP (CO)			
Annual cost of ownership	5%	7.5%	10%
Annual CO savings due to economies of scale	4%	5.8%	7.5%
Impact of Europeana	10%	10%	10%

Source: SEO Economic Research / Atlas voor gemeenten

Table 5 Costs savings for institutions

Base case	Maximum annual effect (x million €)	NPV
Cost savings	€ 4.0	€ 18.5
Sensitivity analysis		
	Low – NPV	High – NPV
Scenario: additional savings on cost of ownership	€ 0	€ 5.1
Timing of effects	€ 14.2	€ 22.1
Annual digitisation investment (million.)	€ 9.2	€ 27.7
% of digitisation costs eligible for cost savings	€ 14.8	€ 22.2
Impact of Europeana	€ 9.2	€ 36.9
Annual TCO savings due to economies of scale	€ 3.0	€ 5.5

Source: SEO Economic Research / Atlas voor gemeenten

To conclude, a reality check on these outcomes is performed: in the base case without additional savings on the cost of ownership, annual savings at the maximum impact level are € 4.0 million. In Table 6, these savings are 'spread' over groups of institutions of various sizes. First, only the MINT-users are considered. MINT is the mapping tool that enables metadata to be imported into Europeana. These institutions are the most active users of Europeana and if they realised an annual cost saving of € 12,500 each, they would together more than account for the entire saving of € 4.0 million. Similarly, a more modest annual saving of € 1,800 for each organisation whose data has been standardised by Europeana, would also lead to an aggregate saving of € 4.0 million. These numbers seem plausible if not fairly conservative.

Table 6 Reality check on potential cost savings: savings per institution

	Number	Savings per institution (x €1,000)
MINT users	320	€12.5
Organisations whose data have been standardised by Europeana	2,200	€1.8
Institutions involved in digitisation (ENUMERATE)	1,623	€2.5
Institutions whose digitisation of their collections is believed to significantly enhance access to the country's cultural heritage (NUMERIC)	5,752	€0.7

Source: SEO Economic Research / Atlas voor gemeenten

4 General public

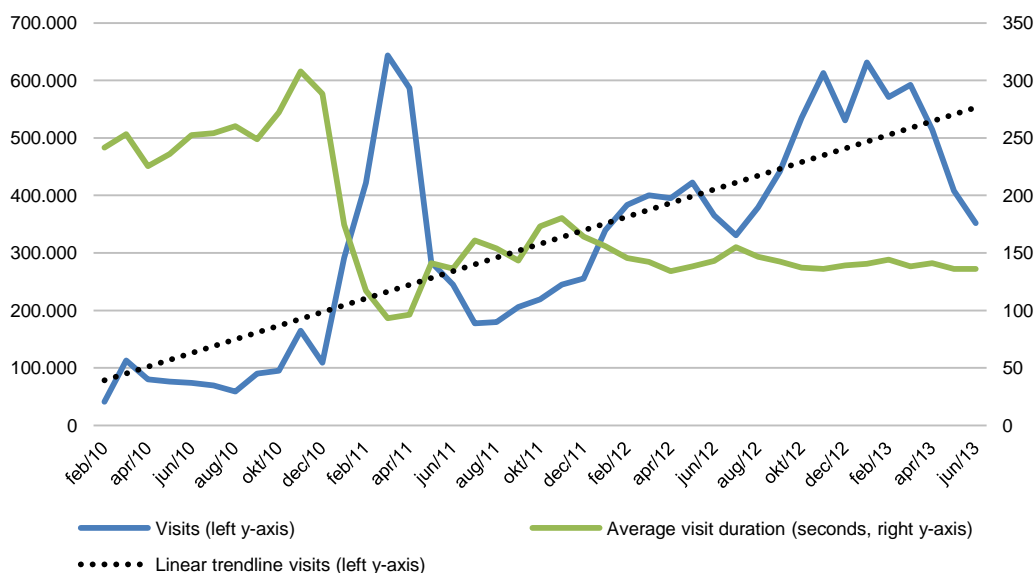
People browsing the Europeana database – whether for leisure or work purposes – clearly derive benefits from this, otherwise they would have spent their time differently. This chapter assesses the economic value of the time spent on Europeana by the general public, and the extra benefits this yields compared with alternative uses of time.

In order to measure the user benefits of visiting the Europeana platform, several ingredients are required. First of all, future web traffic needs to be approximated. This is done by looking at the trend of visits in previous years, as well as the average duration of these visits, and extrapolating these for the years to come (paragraph 4.1). Next, a measure of the value of time is established (paragraph 4.2). When combined, they result in the economic benefits of website visits (paragraph 4.3).

4.1 Website visits

For the period February 2010 to June 2013, there are detailed web traffic statistics for the Europeana website available from *Google Analytics*. These include the number of visits, (unique) visitors and page views, and the average time spent on the website. Figure 5 shows the number of visits per month and the average visit duration for a period of 3.5 years. Although irregular, the number of visits per month (and therefore per year) follows an upward trend, as indicated by the dashed linear trend line. The average time spent on the website – indicated by the green line in Figure 5 – has been stable for the last year and a half, at just under 150 seconds (or 2.5 minutes) per visit.

Figure 5 Growing number of visits, stable average visit duration

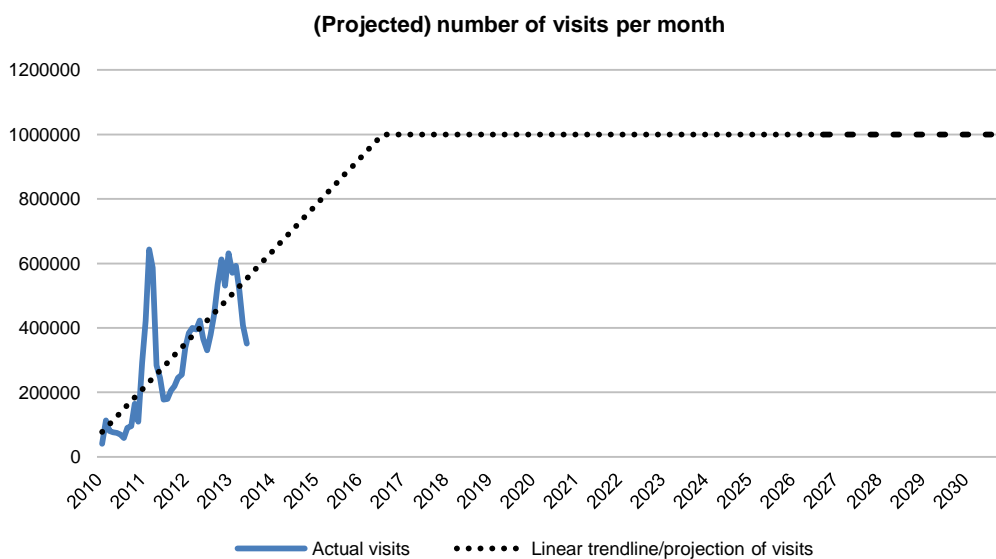


Source: SEO Economic Research / Atlas voor gemeenten based on web statistics Europeana.eu provided by Google Analytics

To estimate the number of visits in the new funding period – 2015 to 2020 – the linear trend line from Figure 5 is extrapolated, as is shown by the dashed line in Figure 6. In order to project the number of visits conservatively, the number of visits per month is capped at 1 million, around 50% higher than the recorded maximum number of visits per month until now and twice the monthly visits average in the last year and a half (January 2012-June 2013). In other words, the linear trend line is levelled off once it projects more than 1 million visits per month.

The average duration of the visit is assumed constant over the new funding period, at 144 seconds (2:24 minutes or 0.04 hours) per visit.

Figure 6 Estimated number visits in the new funding period



Source: SEO Economic Research / Atlas voor gemeenten based on web statistics Europeana.eu provided by Google Analytics

4.2 Putting a value on time

Time spent on Europeana's platform – either via a web browser, an Application Programming Interface⁶ (or API) or mobile access – can be assumed to represent user benefit, otherwise users' time would be spent in a different way. To put a value on these benefits, it is assumed that the website visitor derives a surplus of 25% over his or her alternative time allocation, i.e., over his or her *opportunity costs*. It is further hypothesised that the surplus derived from browsing Europeana's platform is 25% higher than surplus derived from the next best alternative.

A calculation example makes this more clear: if an hour browsing the Europeana website represents opportunity costs of € 10 (e.g., the net hourly wage the person could have collected instead of surfing the internet), the assumed derived surplus is € 2.50 and the surplus *gain* compared to the next best alternative time use is € 0.625. In this example an hour spent on

⁶ An Application Programming Interface (API) allows third parties to put content on their website that is hosted and managed elsewhere. Well-known examples of APIs are the YouTube Player and Google Maps. The Europeana API provides remote access to the Europeana collections.

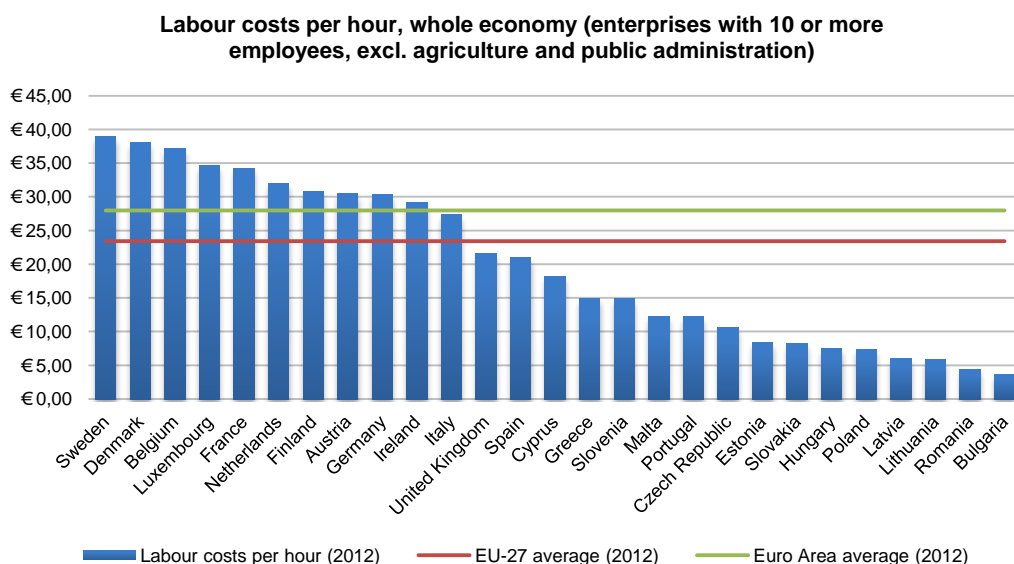
Europeana’s platform is valued at € 0.625, or one sixteenth of the visitor’s opportunity costs. This methodology of time valuation has previously been used in other cultural heritage cost-benefit-analyses (Hof et al., 2006; Marlet, Poort & Laverman, 2007; Poort et al., 2007; Weda et al., 2009; Marlet & Poort, 2011; Marlet, Poort & Van Woerkens, 2011).

In the valuation of time spent on Europeana, a distinction is made between recreational use (i.e., website visits by the general public) and professional use by creative industries. For the general public, the website visit is a private assessment of alternative ways of spending leisure time, while for professionals it reflects productivity, namely to find inputs for their work and to find them efficiently. Hence, professional visits to Europeana indicate opportunity costs for the *employer*, and not for the individual browsing the database.

The opportunity costs of time spent by the general public are presumed equal to their net wage. The underlying assumption is that people, on average, choose the number of hours they work such that giving up an hour of their spare time in order to work an hour more gives them less benefit (or utility) than the net wage they would collect. In other words, they work a number of hours where an hour of spare time is worth (at least) as much as the net wage this hour would otherwise yield when spent working (Becker, 1965; Munasinghe, 1980; Bijvoet et al., 2003).⁷

To estimate the average labour costs and net hourly wage of a European citizen, *Eurostat* data were collected on the average labour costs in the EU-27 (Eurostat, 2013). Labour costs are made up of wages and salaries and of non-wage costs such as employers’ social contributions, and are corrected for subsidies (when applicable). Figure 7 shows that these costs vary considerably between EU Member States, and that the EU-27 average equalled € 23.40 in 2012, as indicated by the red line.

Figure 7 Average hourly labour costs in the EU just under € 24.00



Source: Eurostat (2013, p. 3); Adaptation by SEO Economic Research / Atlas voor gemeenten

⁷ Net wage is likely to be an overestimation for retired, under-aged and unemployed website users. Over the entire website usage, this is expected to lead to a slight overestimation.

In order to convert the labour costs to a net wage per hour, the tax wedge needs to be deducted. The *tax wedge* is the difference between labour costs to the employer and the corresponding net take-home pay of the employee.⁸ In 2012, the average tax wedge for the 21 EU-27 Member States in the OECD⁹ was 41.8% of labour costs.¹⁰ This brings the average net hourly wage in the EU to € 13.61 (€ 23.40 × 58.2 %).

For EU citizens, an annual real growth of net wages (and of total labour costs for professional use, see Chapter 6) of 1% is assumed.¹¹ This growth of opportunity cost means that the value of time (i.e., the surplus gain) also increases by 1% per year.

4.3 User benefits

An online visitor survey by IRN Research (2011, p. 7) shows that approximately 5% of visitors to Europeana work in creative industries. It is therefore estimated that the other 95% of visitors are general public.¹² Next, it needs to be determined how many of the projected visits (see previous section) can be attributed to the new funding. In accordance with the timing of project effects – see Section 2.3 – user benefits fade out gradually after funding stops. This reflects the underlying assumption that in the counterfactual (when new funding is not attracted) it is likely that the website would continue to exist (and not simply go blank on 1 January 2015), albeit with minimal support and therefore with no new functionalities/features or new collections.¹³ Correspondingly, the user benefits of the *new* funding have a lead time: they do not reach full effect immediately since a decreasing portion of the level of visits in 2014 is attributed to previous funding rather than accredited completely to the new funding. On the other hand, the projected *growth* of visits in 2015 and beyond is credited entirely to new funding, as it is unlikely that visits would increase once funding stops and the platform would carry on with minimal support/effort.

⁸ Single individual without children at the income level of the average worker. The tax wedge consists of income tax and social security contributions by both employee and employer.

⁹ Organisation for Economic Co-operation and Development.

¹⁰ Source: <http://bit.ly/18nBbVI> (OECD *Taxing Wages 2013*).

¹¹ This reflects the expected long-term growth of labour productivity in the EU-27. In the decade prior to the recent financial crises (1995-2005) this growth amounted to 1.9% per year and even in the period 2006-2011 (spanning multiple financial crises) there was still a labour productivity growth of 0.9% per year (The Conference Board, 2013, p. 4). Data on labour productivity growth from the 21 EU Member States in the OECD give similar results: an unweighted average growth of 1.1% for 2001-2011 (OECD.Stat, *Labour productivity growth in the total economy*).

For countries outside the EU an annual real growth of net wages of 3% is assumed, given recent annual productivity growth in major emerging economies (Brazil, Russia, India, China, Mexico, Indonesia and Turkey) of 4.3% to 6.5% in 1996-2005 and 2006-2011, respectively, and growth in non-EU 'mature economies' (Australia, Canada, Hong Kong, Israel, New Zealand, Singapore, South Korea and Taiwan) ranging from 2.3% to 3.2% annually in the past decade and a half (The Conference Board, 2013, pp. 5-6).

¹² This percentage is likely an overestimation, because in the same survey 18% of the visitors claim that their main reason for visiting Europeana is for their work and the remaining 82% of respondents visit Europeana for personal or study purposes (IRN Research, 2011, p. 11). However, in order to estimate user benefits conservatively the 5% professional use is retained, since professional visits represent higher opportunity costs (i.e., the total labour costs for the employer instead of the net hourly wage for the employee, see paragraph 4.2) and therefore higher user benefits than visits by the general public.

¹³ It is assumed that only the bare minimum of technical updates would be applied in order to keep the website running. In other words, the platform would continue to be accessible in its current form at minimum costs (e.g., hosting costs and an annual fee for the domain name).

Table 7 sums up these assumptions and discerns the attributable visits from previous funding and the (fully attributable) additional visits relative to 2014. In the base case, all visits from 2018 to 2020 are attributable to the new funding period (2015-2020), while afterwards (2021 and beyond) there is a gradual fadeout of attributable visits. As mentioned previously, 95% of these visits (of the final column in Table 7) are general public.

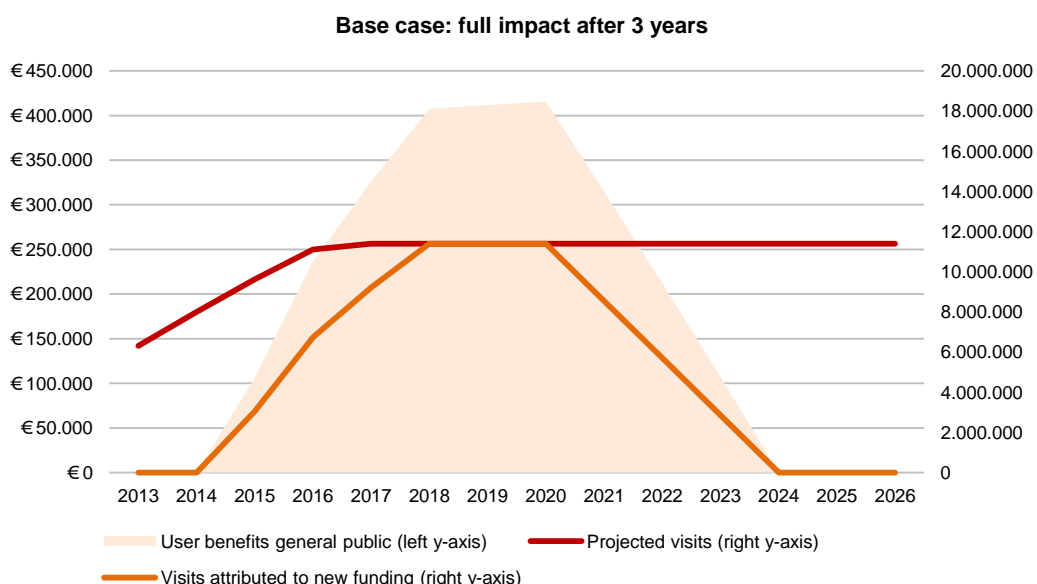
Table 7 Projected visits* attributable to new funding (base case: full impact after three years)

Year	Total projected visits*	Legacy visits	Additional visits* r.t. ultimo 2014	Legacy visits: % attr. to funding 2015-20	Post-funding visits: % attr. to funding 2015-20	Total visits* attributable to funding 2015-20
2013	6,637,335	N/A	N/A	N/A		0
2014	8,420,630	N/A	N/A	N/A		0
2015	10,132,409	9,205,195	927,214	25%		3,228,513
2016	11,701,082	9,205,195	2,495,886	50%		7,098,484
2017	12,000,000	9,205,195	2,794,805	75%		9,698,701
2018	12,000,000	9,205,195	2,794,805	100%		12,000,000
2019	12,000,000	9,205,195	2,794,805	100%		12,000,000
2020	12,000,000	9,205,195	2,794,805	100%		12,000,000
2021	12,000,000				75%	9,000,000
2022	12,000,000				50%	6,000,000
2023	12,000,000				25%	3,000,000
2024	12,000,000				0%	0

Source: SEO Economic Research / Atlas voor gemeenten; * Total visits, so both recreational and professional use

The net present value of user benefits for the general public between 2015 and 2023 – as illustrated in Figure 8 – amounts to € 2 million in the base case (Table 8). In the optimistic scenario – full impact after one year, fadeout in three years – the NPV of these benefits increases to € 2.4 million. In the pessimistic scenario – full impact after four years, fadeout in one year – it drops to € 1.7 million.

Figure 8 User benefits general public



Source: SEO Economic Research / Atlas voor gemeenten

Table 8 Net present value of welfare effects of website use

	Base case	Optimistic scenario	Pessimistic scenario
Use by consumers	1,957,500	2,233,000	1,549,000
Use by professionals	159,500	182,000	126,000
Total use	2,117,000	2,415,000	1,675,000

Source: SEO Economic Research / Atlas voor gemeenten

These benefits exclude the effect of Europeana on referrals to the websites of partner organisations. Although the overall click-through rate¹⁴ of Europeana is known – it is estimated at 7.32 % (CIBER, 2013, p. 43) – no data is available on the time people subsequently spend on the partner’s website, nor is it possible to assess whether they would otherwise have reached the website and, if so, how much search costs decrease thanks to the Europeana portal.¹⁵ In other words, it is not possible to determine whether these visits are in fact additional and therefore amount to additional user benefits.

¹⁴ In this study the click-through is calculated as a ratio of page views: click-through (redirect) divided by object (record) pages (CIBER, 2013, p. 42).

¹⁵ There are, of course, alternative routes to the websites of partner institutions, for instance the use of a search engine or going to the website directly (e.g., using a bookmark). It is therefore not certain that referred website visits would not have occurred in absence of the Europeana portal. However, regardless of the route to the website, benefits through Europeana may still occur, should the partner institution’s website lack user-friendliness and using Europeana as a portal saves search costs.

5 Tourism

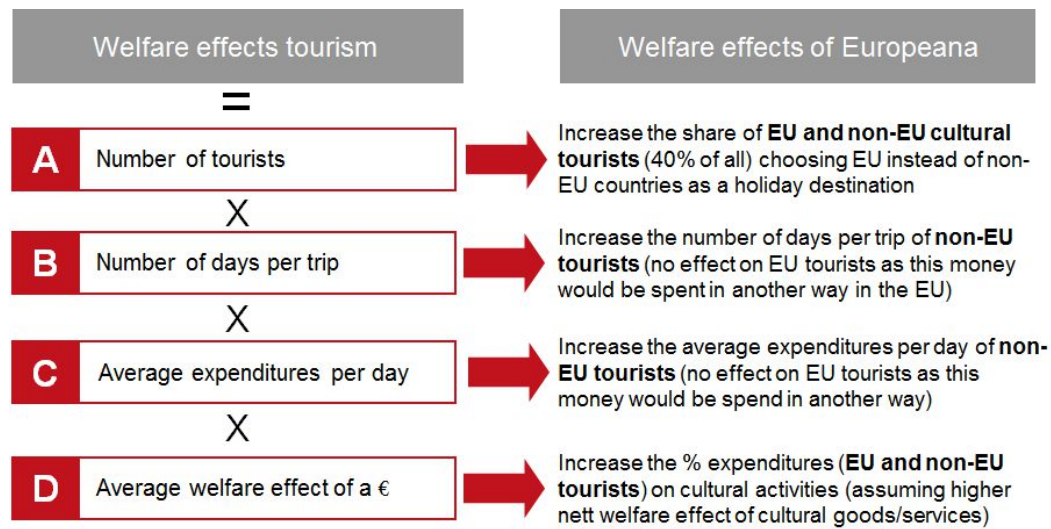
Europe is the largest tourist destination in the world, accounting for over half of all international tourist arrivals worldwide (UNWTO, 2012). According to the numbers of the WTTC (2013), there were around 8 million jobs related to travel and tourism (including both jobs in e.g. hotels and travel services as well as in restaurants and leisure activities supported by tourists) in the EU. The WTTC expects this number to grow towards 9.3 million by 2023. A large portion of tourists that come to visit European countries can be considered 'cultural tourists': cultural heritage and cultural activities are one of the main reasons for their visit (see for example Culture24, 2012). An ongoing trend within the tourism industry is the increasing importance of ICT in the orientation, planning and booking of holidays and also in their actual activities during holidays (Ecorys, 2009).

It is in the combination of cultural tourism and the increasing importance of ICT that the activities of Europeana can create additional welfare effects through economic growth and jobs. Europeana provides different actors in the tourism industry (e.g., travel agencies, guidebook publishers, travel websites and app developers) access to unique digital material in the field of European cultural heritage. Provided that the use of this digital material by these actors increases the tourism expenditures in the European Union (and that this would not have been the case if they used another source or did nothing at all), these *additional* expenditures and resulting welfare effects can be considered the economic value of Europeana's activities.

5.1 Possible effects of Europeana

Figure 9 summarises the four different ways Europeana's activities can increase the welfare effects of tourism in the EU. The left-hand side of the figure shows that total tourism expenditures in the EU are calculated by the product of the total number of tourists, the average number of days per trip per tourist, and the average expenditures per tourist per day. Expenditures are not net welfare effects as the tourist industry (as well as other industries involved) bears costs as well, for example the costs of materials, labour and capital. Only a small part of these expenditures can be considered welfare effects from the perspective of a cost-benefit analysis. In order to estimate the welfare effects of tourism in general, the total tourism expenditures have to be multiplied by the average welfare effect of each Euro spent.

Figure 9 The welfare effects of tourism in general and Europeana



Source: SEO Economic Research / Atlas voor gemeenten

The application of Europeana activities by actors focusing on tourists and/or the general public can affect each of the four elements of this equation. First, it can lead to additional tourists to the EU who would have gone to non-EU destinations otherwise (this applies both to non-EU tourists and to EU tourists considering non-EU destinations)¹⁶. In this case, tourists that are interested in culture are ‘persuaded’ to come or stay in an EU destination if they experience new or better information on European culture as a result of the use of a website, brochure, app, guidebook, travel magazine and so on based on digital content made available by Europeana.¹⁷

Secondly, it can lead to additional or different expenditure of tourists that would have come to the EU anyway. Tourists may extend their stay if they are ‘persuaded’ to visit a specific city or museum during their holiday. If this is the case, the average duration per trip will (slightly) increase. Third, tourists may increase their expenditure during their activities if they encounter new/alternative (and more expensive) activities during their stay.¹⁸ In that case, the average expenditure per day will (slightly) increase.

Fourth, tourists may shift their planned activities (and consequently their budget) during their holiday (thereby shifting their activities) from for example a day at the beach to a day in a museum. If – and only if – there are higher net welfare effects of a Euro spent on cultural activities than on non-cultural activities, this will lead to additional welfare effects. This will be

¹⁶ See Minghetti et al. (2002) for a more conceptual overview of the role of ICT in promoting and linking museums in the general tourism industry.

¹⁷ For example, a Chinese tourist who has visited the traditional cultural highlights of Europe like Rome and Paris and visits the EU for a second time as a result of pictures on a website or travel magazine of less travelled parts of Europe that are made accessible by Europeana.

¹⁸ For example, tourists who have planned a walk around an historic city centre might be ‘persuaded’ to buy an app or rent a tool that provides them with an interactive experience of specific cultural aspects in that city. See for example Romao et al. (2013).

the case if the marginal costs of providing an additional cultural good or service are lower than the average marginal costs of providing an additional non-cultural good or service.¹⁹

5.2 Four scenarios

When estimating the possible effect of Europeana's activities, it is not possible to rely on recent data or experiences in this area. There are no known examples of touristic products and services based on Europeana's activities, nor are there known examples of touristic applications based on comparable projects in other parts of the world that could give an indication of the effect of Europeana. As a result, it is not possible to use data on the number of tourists that use applications based on Europeana's content for their orientation and decision-making and to use this to estimate the possible future growth.

Alternatively, the estimation of the potential welfare effects is based upon scenarios. For each of the four 'elements of the equation', an assumption is made for the potential effect of Europeana. Subsequently, the impact of this assumption on the growth of total tourist expenditure and the ensuing welfare growth is calculated. In order to do this, information on current tourist numbers, their average number of days per trip and their expenditures is used.

According to the UNWTO (2012), there were a total number of 983 million international tourists in 2011. Included in these numbers are business travellers and visitors of family or friends living in another country. Subtracting these types of tourists leaves 501 million leisure tourists (51% of all tourists according to the UNWTO, 2012), of which there are approximately 201 million EU tourists and 300 million non-EU tourists. On average, almost 80% of all international trips occur within the same (macro-)region²⁰ and 20% in another region. This implies that there are on average 160 million EU tourists visiting (other) European countries (80% of 201 million) and 40 million EU tourists visiting non-EU destinations. In a similar way, this leads to 61 million non-EU leisure tourists visiting countries outside their 'origin region' (20% of 300 million non-EU tourists). The EU accounts for 39% of all international arrivals. If this percentage is applied to these 61 million non-EU tourists going to a destination outside their own region, this leads to an estimated yearly number of 24 million non-EU tourists to EU. Based on these calculations the total number of tourists in the EU is almost 185 million.²¹

Scenario 1: increase in the number of tourists

The first scenario is an increase in the number of non-EU tourists going to the EU and a decrease in the number of EU tourists going to non-EU destinations (increasing the number of

¹⁹ This is not unlikely since most cultural goods like museums have large fixed costs (e.g. the costs of the building) relative to the variable costs (the additional costs of extra visitors). Many 'non-cultural' touristic goods or services like serving a beer or a meal have a larger share of variable costs (as each beer and each meal extra also requires additional purchasing costs of the materials). As a consequence, the marginal costs (the costs of providing one additional unit) of providing an extra good or service might be lower for cultural goods than for non-cultural goods.

²⁰ Macro-regions that are distinguished are for example Europe, the Americas and so on.

²¹ An alternative source – the World Travel and Tourism Council (2013) – mentions a total number of almost 412 million international visitors in the EU (also including intra-EU visitors). Assuming a similar 51% of visitors whose main travel purpose is leisure, this will lead to a total number of 210 million tourists to the EU.

EU tourists to EU destinations). However, not all tourists are likely to use applications based on Europeana's activities. Only those tourists who can be considered cultural tourists (40% of all tourists according to Culture24) and those who use applications based on Europeana data for orientation and decision-making during their holiday, are possibly influenced.

In the annually updated survey '*Attitudes of Europeans towards Tourism*' (Eurobarometer 2012, 2013), inhabitants are asked – among other things – about the most important sources for planning of their holiday travels. It seems fair to assume that online resources (websites and social media), printed sources (guidebooks, leaflets and so on) and (eventually) travel agencies can be influenced by Europeana's activities. This would imply that at least 93%²² of EU tourists use sources that can be influenced by Europeana's activities. It is assumed that this percentage also holds for other non-EU tourists. Over time, it is likely that the share of tourists using sources (especially online sources) that can be influenced by Europeana is growing. In the calculations presented below, it is assumed this share of cultural tourists grows from 93% to 100% by 2025.

Altogether, this leads to a current possible 'target audience' of almost 15.3 million EU tourists and 8.9 million non-EU tourists – see Table 9. If the assumption is made that 1% of the EU target audience is 'persuaded' to stay and the non-EU target audience increases by 1%, Europeana's activities would generate 150,000 additional EU tourists and 90,000 additional non-EU tourists per year – *ceteris paribus*.²³ Taking into account the phasing in and out of the effects of Europeana and assuming an average autonomous annual growth of tourism in general of 2% in line with UNWTO (2012), which is *not* considered an effect of Europeana, this leads to a total number of 1.13 million additional EU tourists and 0.66 million non-EU tourists over the entire financing period plus the 'fadeout' years afterwards.

²² This percentage is based on the sum of the percentages of these categories (figures averaged over 2012-2013). Several answers were possible in these questionnaires. Two often-mentioned sources that are considered not to be influenced by Europeana were 'friends/family' and 'personal experiences'. Indirectly, friends and family can of course be influenced by Europeana.

²³ All other things being equal.

Table 9 Estimating the number of EU and non-EU tourists that might be influenced by Europeana's activities

	EU tourists (leisure)	Non-EU tourists (leisure)
Total	201 million	300 million
Destination EU	160 million	24 million
Destination non-EU	41 million	276 million
Audience of interest	41 million	24 million
Of which cultural tourists (40%)	16.4 million	9.6 million
And using sources that can be influenced by Europeana (93%)	15.3 million	8.9 million
Possible effect Europeana per year (ceteris paribus) – assuming +1%	+0.15 million	+0.09 million
Total effect over all years	+1.13 million	+0.66 million

Source: SEO Economic Research / Atlas voor gemeenten

Scenario 2: increase in the number of activities per tourists

The second identified effect that Europeana could have is an increase in the number of activities of a (cultural) tourist who is visiting the EU already. Applications (like websites or apps) using Europeana's content might provide a broader perspective on cultural things to do in the EU. This might be a reason to make a longer trip to an EU destination because the person wants to see an additional city or museum. Currently, the average leisure/holiday trip of an EU citizen within the EU is 5.5 days (Eurostat, 2012). According to a survey of the European Tour Operators Association (2010), the average duration of a trip in the EU from a tourist from Asia, Africa and South and Middle America is nine days. This is similar to the average number of nights in hotels/motels of US visitors in the EU (US department of commerce, 2011), so it seems fair to argue that the average trip of a non-EU tourist in EU lasts nine days.

If the applications of Europeana's content lead to an increase of 1% in the length of an average trip (of those cultural tourists that are using sources than can be influenced by Europeana), there will be an increase in the total number of tourist days in the EU. From the point of view of a cost-benefit analysis, the additional tourist days from the *non-EU tourists* bring along additional welfare effects. The additional tourist days of EU tourists in the EU, however, come at the expense of days spent on other activities (like shopping in one's home town). The welfare effects of the Euros spent in an additional holiday day come at the expense of the welfare effects of the Euros spent on alternative activities. As a consequence, the net effect for the EU as a whole is smaller than in the case of non-EU tourists, since the primary effect will be distributional. The net GDP effect of this shift will most likely be zero.²⁴

²⁴ Note that this possible shift in expenditure does create a rise in economic value in one area (the location of choice of a tourist in, for example, southern France) and a decline in another area (e.g. the home town of this tourist in, for example, northern Germany). Though this will give rise to a distribution effect, the net effect at the level of the EU is zero. On the other hand, consumers can be expected to experience a higher consumer surplus on these alternative activities, otherwise they would not change their behaviour. This effect is different from the other effects estimated in this chapter, which are all effects that translate into GDP terms. Hence, this potential increase in consumer surplus of EU tourists is ignored henceforth.

The estimated number of tourist days of non-EU cultural tourists (than can be influenced by Europeana) is currently more than 80 million (8.9 million – see Table 9 – times 9 days). An increase of 1 % will lead – *ceteris paribus* – to slightly more than 800,000 additional tourist days per year. Taking into account the phasing in and out of the effects of Europeana and assuming the similar annual growth of tourism of 2% (UNWTO, 2012), Europeana's activities would generate 5.7 million additional tourist days by non-EU tourists over the whole period.

Scenario 3: increase of average expenditures per day

The third scenario for applications of Europeana's activities is an increase of the average expenditures per day of tourists. This can be the result of additional activities in a day (adding another activity or visit in a day) and/or a shift towards activities with a higher price. The average expenditures per day of international (non-EU) tourists coming to the EU were around € 90 in 2012.²⁵ Cultural tourists, however, tend to have higher expenditures than average tourists: +35% according to a study on foreign tourists in the Netherlands (NBTC, 2010). This implies average daily expenditures of € 121. For the EU tourists the average expenditures per day is around € 84 (German Tourism board, 2011)²⁶, which suggests that the average expenditure of an EU cultural tourist in Europe is € 113.

The assumption is that applications based on Europeana's activities increase the average expenditures per day with 1%. Again, as in the case of additional tourist days, an increase of average EU tourist expenditures in the EU will lead to a decrease of expenditures on alternatives with zero net effect on GDP. This is not the case for the additional expenditures of non-EU tourists (which will lead to lower welfare effects outside the EU). In the case of non-EU tourists, an increase of 1 % in the daily average expenditures will, *ceteris paribus*, lead to a yearly increase of total expenditures of non-EU tourists with almost € 97 million per year ($1\% \times € 121 \times 9 \text{ days} \times 8.9 \text{ million tourists}$).

Taking into account the phasing and out of the effects of Europeana, an annual growth of tourism of 2% (UNWTO, 2012) and a net income (and expenditure) growth of 3% per year, Europeana's activities might generate an additional € 835 million in expenditures by non-EU tourists over the whole period.

Scenario 4: a shift in current budget per day towards more cultural expenditures

The fourth possible effect refers to a shift in the budget towards more cultural activities while both the number of days and the average expenditures per day remain constant. As argued before, it seem plausible that the welfare effect of a Euro spent on cultural activities is higher than a Euro spent on non-cultural goods, provided that the marginal costs of providing cultural goods are lower. The welfare effect of a Euro spent in the touristic industry is the profit²⁷ made after the deduction of all costs (costs of materials, labour and capital).

²⁵ Based on the total incoming visitor exports divided by the incoming tourists as reported by WTTC (2013) and a Dollar-Euro exchange rate of 0.809 (average over 2012).

²⁶ As alternative source, Eurostat (2012) shows a very similar amount of € 82 per day.

²⁷ More formally: the producer surplus is the difference between the amount of money that a producer is (minimally) willing to accept for a good and the amount a producer actually receives.

It is assumed that the welfare effects of each Euro spent on a general good is 5%. For cultural goods – given the lower marginal costs – the welfare effect is assumed to be 10%. Based on an analysis of all tourist expenditures in the Netherlands, the share of cultural goods in the overall tourist expenditures is assumed to be 5%. This implies that for each Euro spent by a tourist, 95% is on goods with an average welfare effect of 5% and 5% is on cultural goods with an average welfare effect of 10%.

The use of applications based on Europeana's content by (cultural) tourists during their stay may shift a (small) part of their expenditure towards cultural activities (e.g., rather than going to a bar in the afternoon a tourist may decide to spend the same amount of money on a visit to a museum). If Europeana's activities lead to a 1% shift of the budget on general goods towards cultural goods, the share of the budget spent on cultural goods will rise from 5% to 5.95% (1% of 95%=0.95%). Although the overall expenditures of cultural tourists remain constant, the welfare effect of these expenditures will increase for both EU and non-EU tourists.²⁸

Taking into account the phasing in and out of the effects of Europeana, an annual growth of tourism of 2% (UNWTO, 2012) and a net income (and expenditure) growth of 3% for non-EU tourists and 1% for EU tourists per year,²⁹ Europeana's activities would generate an additional € 173 million in welfare effects due to a shift in budget.

In the figure below, all four possible effects and their underlying assumptions are summarised.

Figure 10 Four different possible effects of Europeana

	Effects	Remarks
1 Increase number of non-EU and EU cultural tourists by 1%	Tourists: +1.8 million Expenditures: + € 1.550 million	EU tourists: -1% of EU tourists going to non-EU destinations
2 Increase average length of stay non-EU tourist by 1%	Expenditures: + € 835 million	No effect on EU tourists (shift from alternatives)
3 Increase average expenditures of stay non-EU tourist by 1%	Expenditures: + € 835 million	No effect on EU tourists (shift from alternatives)
4 Shift towards cultural expenditures in total budget: 1% more to culture (+18%)	Expenditures: + € 0	Assuming a higher welfare effect for EU from cultural goods to from general goods

Source: SEO Economic Research / Atlas voor gemeenten

²⁸ The shift in budget of EU tourists implies – as in the case of an increase in average expenditures and average length of stay – that there is a shift in expenditures from one industry to another. However, as we assume a higher welfare effect in the industry that receives the extra budget, the net welfare result is positive.

²⁹ See footnote 11.

5.3 From effects to societal benefits

Figure 10 shows the net present value³⁰ of the societal benefits (the welfare effect) that the four possible effects of Europeana have on tourism. Since applications for tourists are yet to be developed, the likelihood of each effect is unknown. It could, for example, be the case that the main focus of these applications will be on tourists that are already in the EU, leading to an increase in the expenditures and/or average days per trip but hardly any increase in additional tourists (or *vice versa*). Given this uncertainty about the likelihood of each effect, the average of all four effects is calculated and considered as the best possible estimation of the potential effect on tourism. The net present value of the welfare effect of the average of the four different possible effects is € 58 million.

As a ‘reality check’, Table 10 shows what the size of each of the four effects (in the weighted average of all four) is as a deviation from the counterfactual situation in 2018. This year is selected because it is the first year in the base case where there is full impact on tourism. Table 10 shows that the size in absolute numbers of each of the four effects is relatively small. For example, in the base case, the growth of tourists in 2018 compared to the counterfactual situation is 73,000 additional tourists which equals merely 1.6% of the total autonomous growth³¹ between 2017 and 2018. As such, these reality checks give (further) confidence that the underlying assumptions of the impact of Europeana are not overly optimistic.

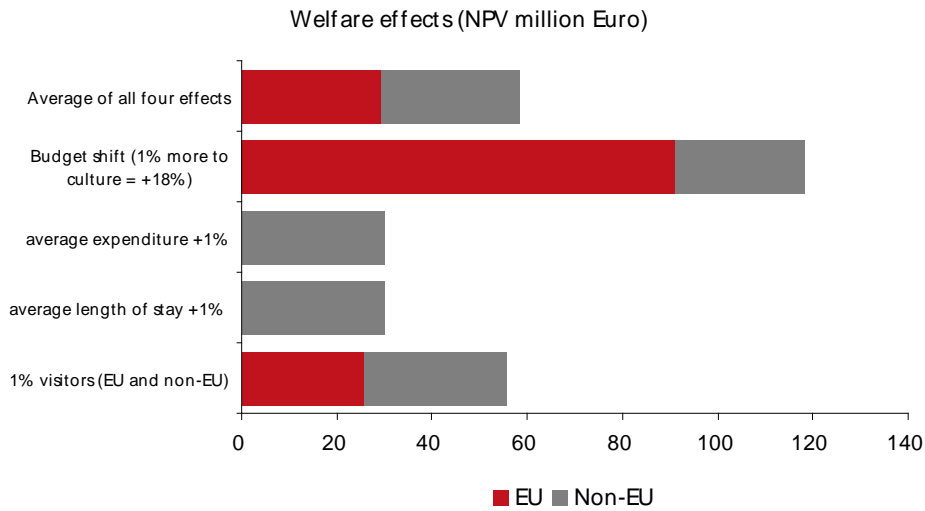
Moreover, the possible effects on business travellers were not taken into account. If the EU strengthens its position in the worldwide market for tourism, it might also lead to a growth in the number of conferences (at the cost of non-EU conferences). In addition, business travellers (for other reasons than for conferences) might be ‘tempted’ to extend their stay in the EU with one or two leisure days. Finally, it could be the case that (some of) the partners of the business travellers are more likely to join, thereby enhancing the total number of tourists. However, as Europeana can only influence a secondary (at best) driver for the selection of the destination of business travellers (as the business purpose is driver number one), this has not been included in the analysis.

As a sensitivity analysis, this average welfare effect is also calculated with the optimistic and pessimistic scenario of the timing of the effect (see Figure 12). In the pessimistic scenario, the net present value is € 44 million and in the optimistic scenario, the net present value is € 98 million.

³⁰ Based on a real discount factor of 5.5%.

³¹ Based on the expected annual growth rate of 2.3% by the UNWTO (2012).

Figure 11 Net present value of welfare effects of tourism



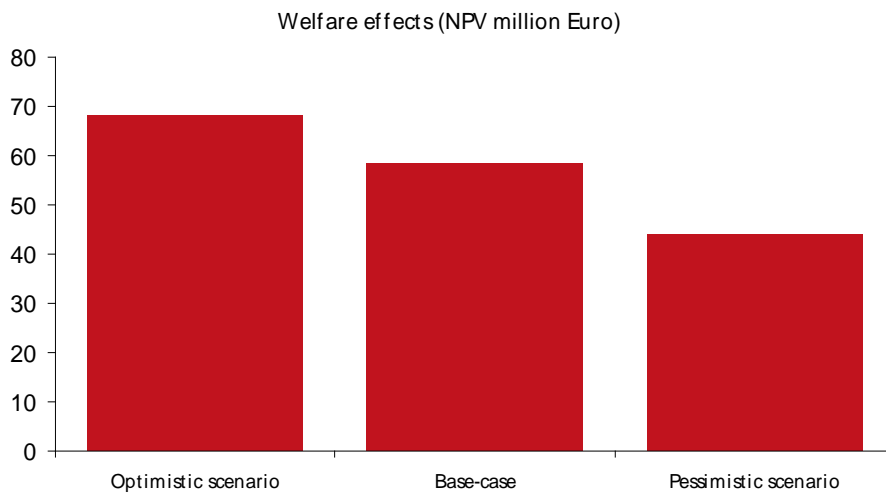
Source: SEO Economic Research / Atlas voor gemeenten

Table 10 Reality check of individual effects (using an average of all four effects)

Effect	Size of the effect if 100 % in 2018	Equals
Growth of tourists	~+73,000 tourists	1.6% of (assumed) autonomous growth
Increase average length of stay	~+230,000 touristic days (per year)	+32 minutes per average stay; 0.86% of all non-EU tourists stay one day longer
Average expenditures grow	+€33 million	+€ 3.17 per trip per cultural tourist
Shift towards cultural activities	No increase in expenditures	+€ 0.28 (EU)/ €0.23 (non-EU) per day shift towards cultural goods

Source: SEO Economic Research / Atlas voor gemeenten

Figure 12 Net present value of welfare effects of tourism in base-case, optimistic and pessimistic scenario



Source: SEO Economic Research / Atlas voor gemeenten

6 Creative industries

Creative professionals, using digital cultural heritage content as an input for their work, benefit from Europeana by eliminating part of the search, transaction and licensing costs made to obtain this content. A tip of the iceberg is apparent from visits to the Europeana website, others are more problematic to assess.

Europeana's initiative and efforts towards aggregating and distributing cultural heritage content provide value to Europe's creative industries who use this content as an input. The creative industry is comprised of authors, publishers, journalists, artists, designers and architects as well as application (app) and game developers. The value-creation process runs via two possible channels. Firstly, Europeana makes it easier for creative producers to access material from cultural heritage institutions. This translates to a productivity gain. A second way in which Europeana can provide value to the creative sector is through a reduction of licensing and transaction costs that creative industries incur to obtain digital cultural heritage content (i.e., input cost savings). Both benefits will be described further in the sections below.

6.1 User benefits / productivity gains

A lower bound for the value created by Europeana for creative professionals can be calculated by means of the Europeana website statistics. By visiting the Europeana website, creative professionals show the tip of the iceberg of their appreciation for the available content. Time spent on the Europeana website by creative professionals can be valued in a similar fashion to the way benefits for the general public were estimated in Chapter 4, with the notable exception of their opportunity costs. As was mentioned in Section 4.2, time spent online by (creative) professionals represents opportunity costs for the employer, not for the employee. Therefore opportunity costs are approximated by hourly labour costs – both wage and non-wage costs – rather than net hourly wage in the case of recreational visits.

In order to estimate the average total labour costs for creative industries, a comparison is made between the average labour costs for the whole economy – as mentioned in Section 4.2 these were € 23.40 per hour in 2012 for the 27 EU countries (Eurostat, 2013) – and those for sectors employing the most creative professionals. According to a study by the Dutch bureau of statistics (Statistics Netherlands or CBS), these are Professional Services (NACE sections M-N) and Culture, Recreation and Other Services (NACE sections R-U). In both sectors (agglomerates), the share of creative professionals in total employment is roughly one-third (Uurlings & Braams, 2011, p. 14).³² The hourly labour costs in these sectors are 10% below the average of the whole economy (Table 11). Therefore, opportunity costs for creative use of Europeana are estimated at € 21.06 (90% × € 23.40) in 2013.³³

³² A share of one-third may appear low but percentage-wise these sectors employ the most creative professions by far. Therefore, NACE sections M-N and R-U provide the best possible approximation of labour costs in creative industries.

³³ There is an implicit assumption that this ratio (90%) is valid in all EU Member States.

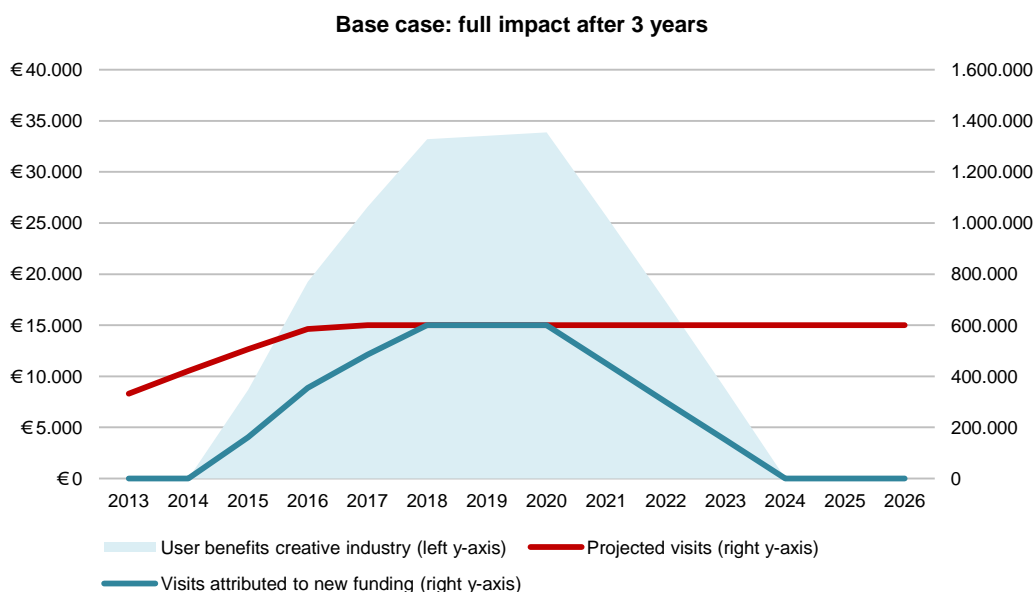
Table 11 Labour costs in Dutch creative industries are 10 % below average (labour costs per hour worked)

NACE sections	2008	2009*	2010*	2011*	Avg. 08-11
M-N Professional Services	€27,72	€28,60	€28,88	€29,76	€28,74
R-U Culture, Recreation and Other Services	€26,42	€27,29	€27,97	€28,44	€27,53
A-U Whole economy	€30,08	€30,84	€31,55	€32,16	€31,16
Labour cost level creative industries (as % of whole economy)	90,0%	90,6%	90,1%	90,5%	90,3%

Source: Statistics Netherlands; Adaptation by SEO Economic Research / Atlas voor gemeenten; * Provisional data

The 5% of website visits from people in creative industries (IRN Research, 2011, p. 7) amounted to approximately 250,000 visits in 2012, totalling over 10,000 hours spent on the Europeana website. Following the same routine for attributing website visits to the new funding as for the general public – attributing a growing portion of visits ‘inherited’ from the previous funding period and accrediting visit growth entirely to the new funding, see Section 4.3 – the net present value of productivity gains for creative industries totals € 159,500. Figure 13 displays professional visits and benefits graphically.

Figure 13 Productivity gains for creative industries peak at €30,000 a year



Source: Atlas voor gemeenten and SEO Economic Research

As there is no indication that professional use of Europeana (as a percentage of total visits) should increase or decrease, the 5% visit share by creative industries is held constant in the projections.

6.2 Input cost savings

As said, the time value of website visits by the creative industry is expected to be a tip of the iceberg of the benefits the creative industries do or can achieve by other means. Most importantly, Europeana can create value for the creative industry through input cost savings.

Creative professionals use a set of inputs, which include content that they wish to re-use but also search costs to find the content and transaction costs associated with negotiating terms for the use of copyrighted/licensed material. Europeana has created a database with metadata which can be used to access material from many different cultural heritage institutions. In doing so, Europeana provides a centralised platform for browsing content and is able to limit search costs for creative professionals. Furthermore, the efforts to make the Europeana collection available under *Creative Commons* licensing are likely to result in cost savings with regard to transaction costs.

Table 12 Estimating the level of input cost savings due to Europeana

Step	Research activity
1	Estimate EU revenue in number of creative industries
2	Estimate the share of content created using Europeana as content provider
3	Estimate the level of input costs made by creative professionals
4	Assume these costs decrease by a (small) amount Δ due to Europeana
Result	Search and transaction cost savings due to Europeana

Source: Atlas voor gemeenten and SEO Economic Research

Table 12 outlines a research method to estimate input cost savings. In principle, this method could be applied to both the book publishing and the gaming industries. European book publishing is a € 22.8 billion industry, of which 38.2% is accounted for by educational (school) books and academic/professional books (Federation of European Publishers, 2012). Not all of these books could use Europeana as a source for creative input, while books in other market segments (e.g., travel guides) could benefit from cost savings through Europeana. In other words, this categorisation is insufficiently specific and therefore both too broad and too narrow to pinpoint relevant market segments. This means that step 2 in Table 12 cannot be completed successfully. Moreover, no data was found on the share of search, transaction and licensing costs in the total costs of producing a book (step 3).³⁴ For the gaming industry a similar conclusion must be drawn. Total yearly revenue is known – roughly € 16 billion³⁵ – but available information on separate market segments is insufficiently specific to complete step 2.

There is, in short, a lack of accurate data (step 1-3) and of proven effects of centralised digital content on cost savings (step 4) to support an approximation of input cost savings through Europeana. Nonetheless, the social benefits of input cost savings are potentially very significant. Creative industries account for 3.3% of the EU Gross Domestic Product (roughly € 425 billion³⁶ in 2012), 3.0% of employment (6.7 million employees) and 4.3% of export to countries outside the EU (European Commission, 2010). This means that even relatively limited cost savings (that is, in percentage terms) could amount to large pecuniary cost savings and productivity improvements.

³⁴ Furthermore it is likely that input costs relating to digital cultural heritage content vary significantly between the different eligible book genres, making it nearly impossible to obtain a specific percentage with which can be calculated in step 4. The same goes for game titles.

³⁵ Source: Interactive Software Federation of Europe (ISFE), <http://www.isfe.eu/about-isfe>.

³⁶ Assuming that the GDP contribution by creative industries has remained stable at 3.3% since 2006, the year the EC-study refers to. The GDP at market prices for the EU-27 was € 12,928 billion in 2012 (source: Eurostat).

7 Synthesis of effects

What is the social economic value of continued investment in Europeana so it can maintain and extend its current ambition level in terms of services and infrastructure in the years 2015-2020? The preceding chapters have shown that the most significant *quantifiable* economic benefits of Europeana are achievable in cost savings for institutions and tourism. These benefits translate directly into cost savings for governments or institutions and into economic growth and jobs. Other non-monetary, but quantifiable welfare effects result from recreational website use by the general public. Additional benefits are achievable in creative industries, education and research. Although these benefits are likely to materialise, there is insufficient data to support detailed calculations.

Note that due to the innovative character of Europeana, the time needed to build the database and infrastructure, and the time needed to agree on the Creative Commons waiver that allows commercial re-use of the metadata (CC0), the calculations on the benefits from tourism are inevitably in terms of potential, as little hard evidence exists on these effects. Cost savings for institutions have already been achieved, but hard quantitative evidence is also lacking. However, reality checks have been performed to ensure the potential is not overly optimistic.

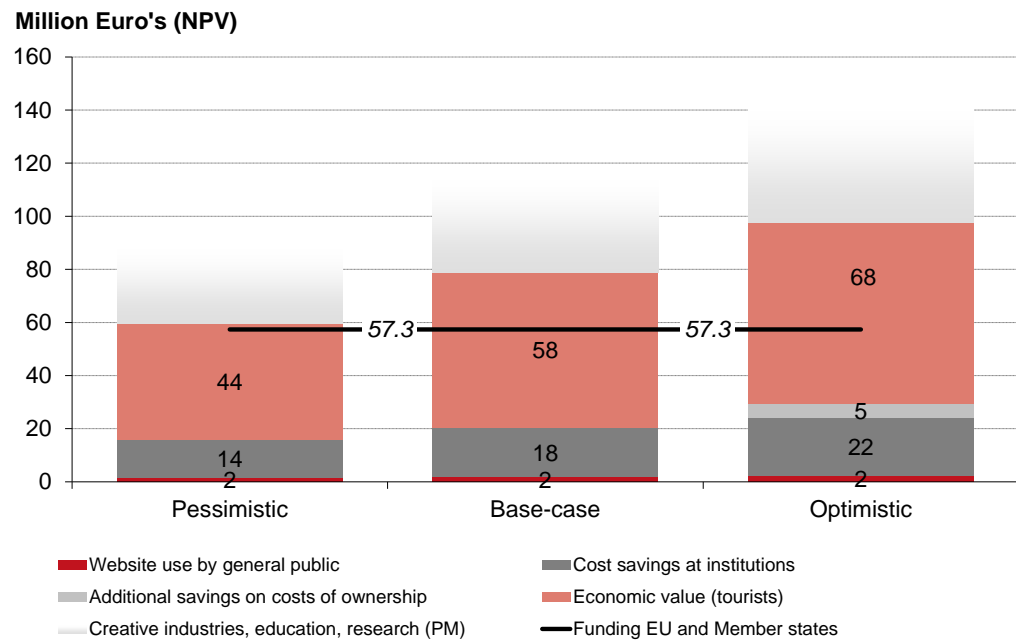
Table 13 gives an overview of these effects. The project costs are included with a negative sign, the benefits for which calculations have been made have a positive sign. Benefits for the creative industries, education and research could not be quantified and are included for the record (*pro memoria*, PM). The table shows that in the base case scenario, the benefits outweigh the costs by € 21.5 million (or 37%) in terms of net present value, exclusive of the benefits for the creative industries, education and research. Even in a pessimistic scenario, there is a slight surplus of benefits over costs. In an optimistic scenario, the net present value of the benefits outweigh the costs by 70%. These main conclusions are graphically represented in Figure 14.

Table 13 Summary of effects (net present value per 1-1-2015 in million €)

	Base case	Pessimistic	Optimistic
Funding EU and Member states	€57.3-	€57.3-	€57.3-
Usage value			
Cost savings at institutions	€18.5	€14.2	€22.1
Additional savings on costs of ownership	-	-	€5.1
Website use by general public	€2.0	€1.5	€2.2
Economic value (tourists)	€58.4	€43.9	€68.3
Creative industries, education, research	+ PM	+ PM	+ PM
Total welfare effects	€78.8 + PM	€59.6 + PM	€97.7 + PM
Net welfare effects	€21.5 + PM	€2.3 + PM	€40.3 + PM

Source: SEO Economic Research / Atlas voor gemeenten

Figure 14 Benefits of Europeana versus costs



Source: SEO Economic Research / Atlas voor gemeenten

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