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EuroGeoNames

Cost/Benefit Analysis

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Author(s)	<i>Berthold Passlack, Bernhard Schneider, Markus Ulrich</i>



eContentplus

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¹ OJ L 79, 24.3.2005, p. 1.

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1 Purpose of the document

This document provides a cost-benefit analysis as part of the WP10 of the EGN-project. It records information that is essential for designing the EGN business model. Additionally, it may serve as checklist in order to fit the results into the overall project documentation and plan.

This document is part of the WP10 lead document **EuroGeoNames, Plan for WP10, Business Models and Marketing lead** (henceforth referred to as lead document). The document also refers to the section **Description of Work** of the project proposal **eContentplus, EGN EuroGeoNames – developing a European geographical names infrastructure and services** (henceforth referred to as DoW).

2 Executive Summary

This work effort should provide information on the addressable market for the EGN service and explain how we will address this market in terms of deliveries and prices for those deliveries.

Interdependencies exist with WP 2, results of WP10 “Business Model and Marketing”, on the other side, influence WP3 “Data selection” and WP4 “Data model definition” indirectly (as a regulatory circuit) and, more directly, the WPs 6 “EGN Web Services infrastructure”, 7 “EGN Web GIS reference application” and 8 “EGN Web GIS commercial application” comprising the section “Services and Applications”.

Target groups have been matched to groups according standard industry classification codes. As standard classification systems ISIC Rev. 3 / NACE have been used. Target groups as identified in WP were emergency services; health and safety; cross border market analysis & asset management; border crossing routing; transport and delivery service networks; hotel reservation services; Tourism; private sector map and atlas producers; educational establishments, libraries; mass media (broadcast, TV) and Location based services (LBS).

For building a dedicated model several factors have been defined that influence the economical outcome. We specified different usage types, which are usually online or offline usage of data received. There are different service types, namely offline or online data distribution. Different expectations towards service levels exist – we’ve defined three levels (bronze, silver, gold) with different pricing and different restriction on available information; i.e. coverage (pan-european or country-specific data).

The number of users that we expect has been quantified by a deeper analysis of the target group data as accessible from official EUROSTAT figures. Subsequently we’ve assigned expected service type and service level usage to those user figures and matched it to a preliminary pricing model that distinguishes between service levels, coverage needs and usage types. The results have been matched into three summarizing result tables:

- Table 1 (“EGN Service”): This lists the input parameters for the cost of setting up and running the EGN web service in regard of technical infrastructure elements and supposed cost for a single WS provider (e.g. NMCA) as well as staffing requirements for setting up and running a gazetteer service

- Table 2 (“Revenue Model (Addressable market volume)”): This explains revenue generation. Specific revenue of each target group is modeled according to
 - a specific usage type (online or offline)
 - a specific level of service as indicated in chapter 4.2.1.8 Pricing model, which affects the revenue in combination with the usage type
 - an area selection that affects the price of the service; pls. see also table in chapter 4.2.1.8 Pricing model for details
 - a user count (which has been derived from either EUROSTAT figures, EUROSTAT figures modified as explained in chapter 4.2.1.5 or own estimates where figures were not available) as multiplier
 - No revenue is generated when there is a specific (non-yearly) update cycle in the target groups business process, thus no data will be acquired (e.g. year 2 Emergency services) or if there is no fee for usage of the service (e.g. private users accessing EGN service online)
- Table 3 (“Results (Addressable market volume)“): This combines the forementioned results from cost and revenue view and represents a summary of both tables 1 and 2.

3 Objectives

Task 10.1 of the Description of Work of the project proposal defines the following objectives: “Estimation of the market potential: Carry out further case studies in order to analyze the potential market development from the exploitation of enhanced geographical names data. Analyze the impact of the new process chain of geographical names data provision by identifying costs changes from the existing models (implementation, operation and maintenance) and the expected new revenues for the different categories of actors, e.g. for the data providers, etc (Cost-benefit Analysis)”

These objectives will be elaborated according to the methodology formulated in the lead document. As described there, Task 10.1.1 “cost-benefit analysis” is part of the development of the business model (cf. section 6.2). It is the goal to address the objectives within the logical path of designing the business model in the most effective way possible.

Since the results of WP2 were not available at the start of WP10, the cost-benefit analysis is carried out in more than one stage. The first stage limits itself to monetary aspects. Further stages depend on the availability and form of information delivered by other, interdependent work packages.

The first-stage cost-benefit analysis is working with assumptions (educated guess, fostered by probing telephone interviews and internet research) for potentials according to the definition of target groups in section 2.2 of the DoW. The analysis is limited to the 10 members of the reference group.

The cost benefit analysis takes into account a number of administrative models, technical solutions, and the heterogeneity of the IT-Landscape in Europe. A simple scheme is created that can also be applied on a national level by adjusting the given figures. This reflects the DoW section 1 “Barriers and Opportunities” and 2 “Proposed Solution and Objectives”.

4 Interdependencies with work packages:

There are obvious interdependencies with WP2 “User/Business requirements”. The results will affect the usage models presumed in this document. Also, the results of WP2, together with the results of the WP10 Task 10.1 “Market Estimate”, will lead to a more concise business model and the respective business-case outlines.

The results of WP10 “Business Model and Marketing”, on the other side, influence WP3 “Data selection” and WP4 “Data model definition” indirectly (as a regulatory circuit) and, more directly, the WPs 6 “EGN Web Services infrastructure”, 7 “EGN Web GIS reference application” and 8 “EGN Web GIS commercial application” comprising the section “Services and Applications”.

5 Tasks

The following stages given with their corresponding WP10 tasks are envisioned:

- Preliminary cost-benefit analysis (strategic outline) to confirm strategic preliminary ideas and to identify the stakeholders. (Task 10.1.1.1).
- Outline cost-benefit analysis (indicative assumptions) to support the preferred way forward. (Task 10.1.1.2)
- Full cost-benefit analysis (validated assumptions) to support the investment decision. (Task 10.1.1.3)

The current version of the document discusses the outline cost-benefit analysis. The timeline in section 0 indicates the schedule of the remaining stages.

5.1 Task 10.1.1.1. – preliminary cost-benefit analysis

The preliminary cost-benefit analysis has been finalized; this document replaces the earlier version. Changes have been applied to

- Target group definitions and the resulting number of users
- the revenue model (in accordance with the changed target group numbers)
- usage type characteristics according to the preliminary results of WP2: User requirements

5.2 Task 10.1.1.2. – outline cost-benefit analysis

This document reflects stage 2 of the cost-benefit analysis after refinement by information provided by the results of WP2 available at this date by the document “Executive Summary, Report User/Business Requirements (EGN WP2)”.

The structure and contents of this document have been kept in-line with the precursor (Subdocument “10.1.1 Cost-Benefit Analysis”, Task 10.1.1.1 preliminary cost benefit analysis, dated dec. 2006), in order to maintain consistency and to document the changes and additions during the process.

The third stage of the cost-benefit analysis will be carried out after definition of the business-cases and the availability of results from WPs in the “Services and Applications”- Section of the EGN Web Services project.

5.2.1 Findings and Assumptions

For creating the basis for a sound business model and an according business plan, a number of assumptions need to be made. This includes the following:

- Define target-groups
- Define usage behavior/type
- Define the service types
- Define service levels
- Define the Number of potential users
- Define the user per service-level
- Define a pricing model
- Define a cost model
- Compile the cost/benefit analysis

5.2.1.1 Target groups

For the preliminary cost benefit analysis, the target group classification of the DoW (section 2.2) forms a suitable basis:

- emergency services; health and safety
- cross border market analysis & asset management
- border crossing routing; transport and delivery service networks
- hotel reservation services, tourism
- private sector map and atlas producers
- educational establishments, libraries
- mass media (broadcast, TV)
- location based services (LBS)
- other

For a better description of the intended target groups as well as a support for data analysis the target groups have been matched to groups according standard industry classification codes. As standard classification systems ISIC Rev. 3 / NACE have been used.

Following this matching process, figures like the number of companies in specific industry sectors, number of employees etc can be analyzed or estimated based on data from official sources (EUROSTAT company statistics). Details will be described in chapter 4.1.1.1.5
Number of users.

TG: Emergency services

Corresponding ISIC / NACE code: L 7523

Class description:

This class includes police and fire protection, administration and operation of law courts and prison administration and operation. Administration and operation of regular and auxiliary police forces supported by public authorities and of port, border, coast guards and other special police forces. Police duties include traffic regulation, alien registration, operation of police laboratories and maintenance of arrest records. Provision of equipment and supplies for police work including vehicles, aircraft and vessels. Fire fighting and fire-prevention. Administration and operation of regular and auxiliary fire brigades supported by public authorities. Administration and operation of administrative civil and criminal law courts, military tribunals and the judicial system including legal representation and advice on behalf of government or on behalf of others when provided by government in cash or in services. Rendering of judgments and interpretations of the law including arbitration of civil actions. Prison administration and provision of correctional services (incarceration and rehabilitation services, e.g. in jails). Also included is provision of supplies for domestic emergency use in case of peacetime disasters.

TG: Health and safety

Corresponding ISIC / NACE code: N 8511

Class description:

This class includes the activities of general and specialized hospitals, sanatoria, praetorian, asylums, rehabilitation centers, leprosaria, dental centers and other health institutions, which have accommodation facilities, including military base and prison hospitals. The activities are chiefly directed to in-patients and carried out under the direct supervision of medical doctors. They comprise the services of medical and paramedical staff, laboratory and technical facilities, including radiological and anaesthesiological services, food and other hospital facilities and resources such as emergency room services.

TG: Cross border / TG: Border crossing routing

Corresponding ISIC / NACE code: I 6309

This class includes the forwarding of freight, organization or arrangement of transport on behalf of the shipper or consignee, receiving and acceptance of freight (including local pick-up and delivery), transportation document preparation, consolidation and break-bulk of freight, freight brokerage, custom house brokerage, bill auditing and freight rate information, brokerage for ship and aircraft space, packing and crating and unpacking and de-crating, inspection, weighing and sampling of freight, etc.

TG: Transport and delivery

Corresponding ISIC / NACE code: I 6023

This class includes all freight transport operation by road, whether scheduled or not. It comprises trucking of a great variety of goods such as logging haulage, stock haulage, refrigerated haulage, heavy haulage, bulk haulage, furniture removal, etc. Freight transport by man- or animal-drawn vehicles. Renting of trucks with driver or operator is included.

TG: Hotel reservation

Corresponding ISIC / NACE code: I 6304

This class includes furnishing travel information, advice and planning, arranging tours, accommodation and transportation for travelers and tourists, furnishing tickets, etc. Also

included are tourist assistance activities not elsewhere classified, such as carried on by tourist guides.

TG: Private sector map and atlas producers

Corresponding ISIC / NACE code: D 2211

This class includes publishing of books, textbooks, atlases and maps, brochures, pamphlets, musical works and other publications

TG: Educational (Institutions)

Corresponding ISIC / NACE code: M 8030

This class includes post-secondary sub-degree level education and education that leads to university degree or equivalent. A great variety of subject-matter programs is offered at this level, some more emphasizing theoretical instruction and some more practical instruction.

TG: Libraries

Corresponding ISIC / NACE code: O 9231

This class includes a wide variety of documentation and information activities provided by libraries and archives. Activities of libraries of all kinds, reading, listening and viewing rooms, public archives, etc. This usually involves the organization of a collection whether specialized or not, making catalogues, lending and storage of, e.g. books, maps, periodicals, films, records, tapes, retrieval activities in order to comply with information requests, etc. The services may be provided to the general public or to a special clientele, such as students, scientists, staff, members, etc.

TG: Broadcasting / TV

Corresponding ISIC / NACE code: O 9213

This class includes production of radio and television programs, whether live or on tape or other recording medium and whether or not combined with broadcasting.

The programs produced and broadcast may be for entertainment, for promotion, education or training or news dissemination. The production of programs generally results in a permanent tape, which may be sold, rented or stored for, broadcast or re-broadcast. Also included are productions such as sports covering, weather forecasting, interviews, etc.

TG: Location based services

Corresponding ISIC / NACE code: I 6420

This class includes the transmission of sound, images, data or other information via cables, broadcasting, relay or satellite. Included are telephone, telegraph and telex communications. Also included is the maintenance of the network.

5.2.1.2 Usage type

Usage type refers to the way data provided by the EGN service will be used by the customer

- in choosing a technical way to access the EGN data

- in further processing the EGN data

Input has been derived from the (draft) results of WP2: User requirements. A generic process chain for the usage of geonames within a use case can be described as follows.

Customer aims at:

- the normalization of a geoname, i.e. the formal correction of an entered string into a standard geoname that has been agreed upon nationally or internationally
- the translation of a geoname into another language
- generating or validating an index of geonames in relation to existing real world objects
- geocoding / geoparsing, i.e. searching an existing file (e.g. metadata records, documents, web pages) for geographical references which can then be checked against a gazetteer for obtaining geographical coordinates for those names
- geindexing, i.e. looking up places located in a defined vicinity (e.g. radius) near a specific place
- reverse lookup of geonames, i.e. finding the nearest place of a given type to a given spatial location name

The customer usually decides between two usage scenarios:

- He manually checks sources known to him, retrieves relevant content and enters data manually into subsystems. This process usually involves low volumes of requests for geoname-related content verification.
- He accesses an intermediary for provisioning of data either manually or automatically via services. This approach generally applies with high volumes or high repetition rates of requests.

These usage types are represented by two different technical access types: online and offline usage.

Online usage refers to single or repeated inquiries by a person (by means of a graphical user interface) or a service or an application directed towards the current data set(s) provided by the EGN data provider (NMCAs or others).

Offline usage refers to usage of content retrieved via the service that has been stored locally within the user's domain.

The online usage will be a standard approach to usage of EGN data. Offline usage can be considered the alternative approach for use of EGN data. It is, however, included in the cost/benefit analysis and the reflected business model. Common practice shows that commercial users prefer to keep local copies of datasets even when those are available via online services. The analysis has to reflect this in order to keep significant. The preliminary cost benefit analysis relates the usage types to target groups in the following way:

Target Group	Online use	Offline use
emergency services; health and safety	●	●
cross border market analysis & asset management	●	
border crossing routing; transport and delivery service networks	●	●
hotel reservation services	●	
Tourism	●	
private sector map and atlas producers		●
educational establishments, libraries	●	

mass media (broadcast, TV)	●	●
Location based services (LBS)	●	●

5.2.1.3 Service types

According to the results of the survey within the target group, there are two classes of services to be defined:

- Offline Service: This type of service provides the content of EGN by means of physical data or download.
- Online Service This type of service delivers the data via a web service to the end-user as well as to other target groups to be utilized in other value-adding services or applications.

According to the (preliminary) results of WP2, names data should be updated annually. This fits our preliminary pricing scheme of a per annum basis for the online usage of the service. The usage type specified in 4.2.1.2 defines the needs for service delivery. According to the usage type a similar service has to be provided.

5.2.1.4 Service Levels

The results of WP2 suggest different expectations of different TGs. Requirements for the EGN names service have thus been described in the areas of

- Contents
- Functionality
- User Interface
- Integration
- Data Quality

The different expectations toward the EGN service should be reflected in the pricing scheme. Therefore different levels for different usage types as defined in chapter 4.2.1.2 should exist. In accordance with the results of the survey within the target group, up to three levels of service are envisioned. Following a common modeling approach of defining three level groups ("high", "medium" and "low") we suggest defining different access levels (e.g. Gold / Silver / Bronze) restricting availability of geoname information.

Restrictions can be applied to the following attributes of EGN data:

- coverage (such as data of one country, pan-european, region defined by coordinates)
- level of detail (e.g. resolution equivalent 1:50000)
- level of offline usage

Further access levels and details should be discussed as part of the business model.

In order to cover all target groups, and to keep the resulting pricing models simple, the same pricing model is assumed for both online and offline services. The pricing mechanism must take into consideration that buying the dataset once will satisfy most commercial customers that are attracted to offline use of the datasets.

Online uses need to be addressed differently. Availability of the service and guaranteed actuality of complex geoname structures, if offered at an attractive price, will motivate companies to integrate the service into their own offerings. Providing reasonably simple integration will reduce development and maintenance cost.

Expected usage can further be differentiated by frequency of access. Target groups will also be differentiated according to this aspect.

Suggested pricing elements are:

- Level 1 – Bronze: basic service, highest restriction of information, that is, lowest access level;
- Level 2 – Silver: extended service, reduced restriction of information;
- Level 3 – Gold: highest service level, minimal or no restriction, that is, highest access level.

The following conditions for information retrieval are suggested:

- Level 1 – Bronze: 10 geonames will be priced 1 Cent.
- Level 2 – Silver: 10 geonames will be priced 1 Cent.
- Level 3 – Gold: No limitation.

For pricing, a fixed price model is presumed where updates (with regards to a "static" update cycle) are not included.

Pricing based on the measured amount of data delivered and role-specific limitations in regard of features, regions and the like require a technical solution implemented on user role level.

The three service levels are considered sufficient at this stage and can be refined if the requirements of the business model, the business case, or the user requirements demand it.

Level of Service	Description
Level 1 – Bronze	free of charge for online non commercial use, single access, one dataset per call
Level 2 –Silver	Charged per country or pan-european
Level 3 –Gold	Charged per country or pan-european

5.2.1.5 Number of users

As indicated in chapter 4.2.1.1 the TGs have been matched to standard industry classification codes. From these, the following number of companies per class could be researched:

Year	Country	Number of local units (~ companies)				
		NACE: I	NACE: I60	NACE: I63	NACE: I64	NACE: D2211
		Transport, Storage and communication	Land transport, transport via pipelines	Supporting and auxiliary transport activities; activities of travel agencies	Post and telecommunications	Publishing of books
2004	BE	n/a	n/a	n/a	N/a	363
2004	BG	n/a	n/a	n/a	N/a	n/a
2004	CZ	n/a	n/a	n/a	N/a	2007
2004	DK	16535	11473	2474	2085	488
2004	DE	91539	58328	22259	8135	1784
2004	EE	3122	1918	1044	133	113
2004	IE	7209	4005	n/a	1605	32
2004	GR	n/a	n/a	n/a	N/a	n/a
2004	ES	253336	205276	31650	15880	3208
2004	FR	153966	90993	24685	35317	3539
2004	IT	218266	180806	31379	4090	3253
2004	LV	6855	2576	2701	1528	113
2004	LT	7387	4524	1200	1622	199
2004	LU	n/a	n/a	n/a	N/a	n/a
2004	HU	42456	31064	5674	5449	1411
2004	NL	32985	15130	8110	5205	1180
2004	AT	22220	14273	4205	3495	402
2004	PL	144382	125323	14779	3632	3073
2004	PT	29332	23008	4119	2036	295
2004	RO	25859	19346	3683	2602	1067
2004	SI	10181	7628	1261	1217	151
2004	SK	1530	728	695	92	70
2004	FI	25597	20336	3051	1757	351
2004	SE	n/a	n/a	n/a	N/a	1632
2004	UK	103036	50201	27326	22712	2719
2004	NO	24112	17064	3680	1573	415
Sum		1.219.905	884.000	193.975	120.165	27.865

Source: EUROSTAT ¹

Taking into account that

- the company numbers refer to 2004 (last year available),
- the ISIC codes refer to a wide range of company activities and thus contain lots of companies out of scope for the EGN TGs,

¹ For a country code list pls. see http://en.wikipedia.org/wiki/List_of_countries_of_the_European_Union_in_the_official_languages

we reduced the number of users (i.e. number of organizations that will use the EGN service) to one percent of the company count of the EUROSTAT figures. Common practice in market research uses higher percentages as addressable market limiters; choosing a base figure of one percent assures that limiting factors for market access, even those that cannot be taken into account now, are incorporated properly. Due to the inclusion of transport and delivery companies the user count in TG border crossing routing; transport and delivery service networks is inflated; this certain TG has been reduced to 1/3 of the EUROSTAT figure.

This leads to a revised user count within the TGs:

Year	Country	Number of local units (~ companies)			
2004	NACE: I	NACE: I60 (sub-class of I!)	NACE: I63 (Sub-class of I!)	NACE: I64 (Sub-class of I!)	NACE: D2211
	Transport, Storage and communication	Land transport, transport via pipelines	Supporting and auxiliary transport activities; activities of travel agencies	Post and telecommunications	Publishing of books
Sum	1.219.905	884.000	193.975	120.165	27.865
1%	12.199	8.840	1.940	1.202	279

Because public services are not counted in the dataset the organizational count will be higher. If more users at a company or organization access the service there is also an increase in total user count; for simplification reasons no user multiplication is applied. To this number public institution and private users (estimated in the range of 100.000) have to be added.

5.2.1.6 User and service-level

Service levels need to be assigned to users, i.e., target groups. The assigning is based on analyzing the buying behavior and the price-sensitivity of the respective target groups as well as the prospective access rights to the data.

Target Group	Online use	Offline use	Service Level 1 ("Bronze")	Service Level 2 ("Silver")	Service Level 3 ("Gold")
emergency services; health and safety	●				●
emergency services; health and safety		●			●
cross border market analysis & asset management	●				●
border crossing routing; transport and delivery service networks	●				●
border crossing routing; transport and delivery service networks		●			●
hotel reservation services	●		●	●	●
Tourism	●		●	●	●
private sector map and atlas producers		●			●
educational establishments, libraries	●			●	●
mass media (broadcast, TV)	●				●
mass media (broadcast, TV)		●			●
Location based services (LBS)	●				●
Location based services (LBS)		●			●
Private	●		●		

5.2.1.7 Coverage and level of service

The individual target groups need different kinds of coverages, that is, are interested in information of different areas (countries, regions, etc.). The following preliminary assumptions are made:

Target Group	Online use	Offline use	Service Level Area		
			One country	Multiple countries	Pan-European
emergency services; health and safety	●		●		
emergency services; health and safety		●	●		●
cross border market analysis & asset management	●				●
border crossing routing; transport and delivery service networks	●				●
border crossing routing; transport and delivery service networks		●			●
hotel reservation services	●				●
Tourism	●				●
private sector map and atlas producers		●			●
educational establishments, libraries	●				●
mass media (broadcast, TV)	●				●
mass media (broadcast, TV)		●			●
Location based services (LBS)	●			●	
Location based services (LBS)		●		●	
Private	●		●		

5.2.1.8 Pricing model

As critical input for the analysis, a basic pricing scheme is defined. The figures are used for calculating the benefit side of the analysis.

The pricing model distinguishes three service levels, different coverage types (e.g. per country or pan-European), and the usage-types online and offline. The pricing is an estimate from comparable services from the LBS-sector.

Usage Type	Service level area: per one country	Service level area: Pan-European	Service Level 1 (“Bronze”)	Service Level 2 (“Silver”)	Service Level 3 (“Gold”)
Online	●		Free	€ 500 p.a.	€ 1000 p.a.
		●	Free	€ 5000 p.a.	€ 10.000 p.a.
Offline	●		€ 500 (commercial use only)	€ 1.000	€ 2.000
		●	€ 5000 (commercial use only)	€ 10.000	€ 20.000

5.2.2 Underlying business model

Comparison of a number of classical and newly developed business models lead to choosing the “Freemium”-business model as the starting point for this analysis. This model best reflects the objectives and the service-oriented approach of the EGN-project.

Definition of “Freemium” (re Wikipedia.com):

The **freemium** business model offers basic services for free and charges a premium fee for advanced or special features. The word freemium is a neologism created by combining the two aspects of the business model: **free** + **premium**. The business model has gained popularity with Web 2.0 companies.

5.2.3 Cost-model

The cost-model is provided as Annex A, table “EGN Service”.

6 Results

As stated earlier, the preliminary cost-benefit analysis is limited to the monetary aspects only. At this stage, the analysis is looking only at the EGN Service, and it is assumed that the services of all members of the Reference Group are up and running.

A significant number of effects in the area of cost savings in the authorities and companies using the EGN-services are expected. These were partly considered at this stage, but will be taken into account after availability of the results of WP2 and incorporated in Task 10.1.1.3 Full cost Benefit Analysis. This will affect the use-cases and therefore produce more precise findings about the market potential.

Costs are generated by technical infrastructure for hosting a WS, security measures and staffing expenditure.

Revenue is expressed as number of users multiplied by fee for relevant usage type and level of service as modeled in 4.2.1.7 - Pricing model. For details please see the attached document in Annex A, table “Revenue model (Addressable market volume)”.

6.1 Feedback of market players

The preliminary results of WP2 support the assumptions and findings in WP10, especially those made to compile the cost benefit analysis. Therefore only marginal changes had to be made to the models used for analysis. The most significant changes result from more precise inputs to the underlying classifications of users and the mapping to the chosen model as well as to the numbers of users in the segments.

The survey has been carried out with potential end-users (companies and governmental institutions) and VARs (data- and service providers as well as system integrators and solution providers).

The results indicate a high level of interest and needs, as well as a simple structure and cost model of services wanted. Basically all prospects agree to the communicated service-types and service levels. The pricing model seems to be on a level to be agreed upon, depending on the use-cases and the reflection of internal developments.

Although the number of use cases is high, the required functionality of the services is basically relatively simple and the same over all usage-types.

Common statements are:

- Offer of **standardized** services in two types
 - Online, especially to be integrated in prospects own applications, portals and/ or processes
 - Offline, in a format that can easily be read.
- Define and offer payment and billing mechanisms.
- Field and market the services asap.

6.2 Further proceeding

A significant aspect to be considered in the third stage (full cost-benefit-analysis) has to be a competitive analysis. This will be reflected in corresponding scenarios. This is important for the results of WP10 in general, too.

The contacts, interviews and meetings with prospective users, VARs and other stakeholders will be carried on in the future to support and refine the results of WP10.

6.3 Cost, revenue and gross profit

The outline analysis shows that a break-even can be reached in a very short time, and that the EGN Services are generating a reasonable input to expand the range of services and strengthen the implementation of a Spatial Data and Services Infrastructure in Europe.

It is important to stress that we refer to the overall addressable market with a market penetration of 100% - which is of course not possible. As a common measure usually 10-20% of the overall market is seen as accessible for a single player (market share); the figures below must be seen with that regard. Competition has to be taken into consideration here. E.g. it is not likely that the EGN service will generate 69 Million € in revenue in year 1; an amount of 6.9 million € is a more reasonable number.

The results of the cost-revenue model are compiled here in short. Please see the annexed documents for detailed explanation of costs and revenue streams:

Year 0	Year 1	Year 2	Year3	Year4	Year 5
<i>Cost in thousand EUR</i>					
Initial Cost	ongoing cost	ongoing cost	ongoing cost	ongoing cost	ongoing cost
695	230	230	230	230	230
<i>Revenue in thousand EUR</i>					
0	69.043	25.761	69.043	25.761	69.043
<i>Gross profit in thousand EUR</i>					
-659	68.813	25.531	68.813	25.531	68.813




7 Timescale and project-plan

- Task 10.1.1.1 preliminary cost-benefit analysis: Jan. 5th 2007 (done)
- Task 10.1.1.2 outline cost-benefit analysis: Feb. 28th 2007 (this document)
- Task 10.1.1.3 full cost-benefit analysis: Jun. 30th 2007

8 Annex

Annex A: **Cost-Revenue Model (Results, EGN Service, Revenue Model), revised version**

Please find the respective tables in .pdf format embedded into this document. In the digital version of this document, double-clicking the icons will open the annexes in Acrobat Reader. The tables are also enclosed on pp. 18-20.

<p>Table “EGN Service”: This lists the input parameters for the cost of setting up and running the EGN web service in regard of:</p> <ul style="list-style-type: none"> • technical infrastructure elements and supposed cost for a single WS provider (e.g. NMCA) • staffing requirements for setting up and running a gazetteer service 	 <p>EGN_WP10_Cost_Revenue_Model_EGNSe</p>
<p>Table “Revenue Model (Adressable market volume)”: This explains revenue generation: specific revenue of each target group is modeled according to:</p> <ul style="list-style-type: none"> • a specific usage type (online or offline) – pls. see chapter 4.2.1.8, Pricing model for pricing details of different usage types • a specific level of service as indicated in chapter 4.2.1.8 Pricing model, which affects the revenue in combination with the usage type • an area selection that affects the price of the service; pls. see also table in chapter 4.2.1.8 Pricing model for details • a user count (which has been derived from either EUROSTAT figures, EUROSTAT figures modified as explained in chapter 4.2.1.5 or own estimates where figures where not available) as multiplier • No revenue is generated when there is a specific (non-yearly) update cycle in the TGs business process, thus no data will be acquired (e.g. year 2 Emergency services) or if there is no fee for usage of the service (e.g. private users accessing EGN service online) 	 <p>EGN_WP10_Cost_Revenue_Model_V1_Re</p>
<p>Table “Results (Adressable market volume)“: This combines the results from cost and revenue view</p>	 <p>EGN_WP10_Cost_Revenue_Model_Results</p>



Annex A: Cost/Revenue Model
EGN Service

Segment	Part	Cost element	Initial cost (EUR)	maintenance cost per year (EUR)	operation cost per year (EUR)
WS Infrastructure	Server	Web/Application Server	10.000	2.000	2.000
		EAI Server (MOM, OLTP..)	20.000	4.000	4.000
		Other App/DB servers	10.000	2.000	2.000
		Orchestration Server	5.000	1.000	1.000
		Routers and Firewalls	20.000	4.000	4.000
		Directory and Security Servers	20.000	4.000	4.000
	SW	WS Management	2.000	400	400
		MO Middleware	2.000	400	400
		XML Firewall	1.000	200	200
		WS Developer tools	10.000	2.000	2.000
		WS Monitoring and measurement	2.000	400	400
		WS Diagnostics and failure	2.000	400	400
		EAI Tools	10.000	2.000	2.000
Exonym DB	HW	DB Server	20.000	4.000	4.000
	SW	RDBMS licence	20.000	4.000	4.000
Security infrastructure (?)			30.000	6.000	6.000
Other	Facilities		2.000	400	400
		Energy / data transmission	10.000	2.000	2.000
		Communication cost (Voice/data)	3.000	600	600
Subtotal			199.000	39.800	39.800

Segment	Part	Cost element	Initial cost per year per FTE (EUR)	ongoing cost per year per FTE (EUR)		
Support (FullTimeEquivalents) and Development	EGN-WS	EGN-WS Deployment	Number of FTEs (internal)	10.000	2.000	2.000
		EGN-WS-Management	Number of FTEs (internal)	20.000	4.000	4.000
		EGN-WS-Security	Number of FTEs (internal)	15.000	3.000	3.000
		EGN-WS Orchestration	Number of FTEs (internal)	10.000	2.000	2.000
		EGN-WS Development	Number of FTEs (internal)	150.000	30.000	30.000
	Exonym-DB	External Services	Number of FTEs (internal)	150.000	30.000	30.000
			Service Fee	20.000	4.000	4.000
Subtotal			375.000	75.000	75.000	

Segment	Part	Cost element	Initial cost per year per FTE (EUR)	ongoing cost per year per FTE (EUR)	
Sales/Marketing	Sales support	Number of FTEs (internal)	50000		
		Sales expenses (travel..)	15000		
		Sales materials	20000		
Subtotal			85.000		

Total			659.000	114.800	114.800
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Refined Cost Model should be implemented at a later stage regarding performance levels, transaction rate, database size, number of users etc. and relationship between these. Input on several key drivers should then allow generation of various scenarios (scorecard equivalent).



Annex A: Cost/Revenue Model
Revenue Model (Addressable Market Volume)

Target Group	Usage type	Number of users	Level of Service	Service-level-area	Price / Level / year	year 1	year 2	year 3	year 4	year 5
emergency services; health and safety	online	30	3	1 country	1,000	30,000	30,000	30,000	30,000	30,000
emergency services; health and safety	offline	20	3	1 country	2,000	40,000	0	40,000	40,000	40,000
cross border market analysis & asset management	online	640	3	Pan European	10,000	6,400,000	6,400,000	6,400,000	6,400,000	6,400,000
border crossing routing; transport and delivery service networks	online	1793	3	Pan European	10,000	17,930,000	17,930,000	17,930,000	17,930,000	17,930,000
border crossing routing; transport and delivery service networks	offline	1793	3	Pan European	20,000	35,860,000	0	35,860,000	0	35,860,000
hotel reservation services	online	20	1-3	Pan European	0	0	0	0	0	0
tourism	online	640	1-3	Pan European	0	0	0	0	0	0
private sector map and atlas producers	offline	279	3	Pan European	20,000	5,580,000	0	5,580,000	0	5,580,000
educational establishments, libraries	online	50	2-3	Pan European	5,000	250,000	250,000	250,000	250,000	250,000
mass media (broadcast, TV)	online	30	3	Pan European	10,000	300,000	300,000	300,000	300,000	300,000
mass media (broadcast, TV)	offline	30	3	Pan European	20,000	600,000	0	600,000	0	600,000
location based services (LBS)	online	601	3	1 country	1,000	601,000	601,000	601,000	601,000	601,000
location based services (LBS)	offline	601	3	1 country	2,000	1,202,000	0	1,202,000	0	1,202,000
others	online	500	2	1 country	500	250,000	250,000	250,000	250,000	250,000
private	online	100000	1	1 country	0	0	0	0	0	0
Total						€5,043,000	25,761,000	€5,043,000	25,761,000	€5,043,000



Annex A: Cost/Revenue Model
Results(Adressable Market Volume)

Cost	Year 0	year 1	year 2	year 3	year 4	year 5
	Initial cost (EUR)					
	659.000					
		maintenance and ongoing cost per year (EUR)				
		114.800	114.800	114.800	114.800	114.800
		operation cost per year (EUR)				
		114.800	114.800	114.800	114.800	114.800
Total Cost	659.000	229.600	229.600	229.600	229.600	229.600

Revenues per Target Group	Usage type	Year 0	year 1	year 2	year 3	year 4	year 5
emergency services; health and safety	online	0	30.000	30.000	30.000	30.000	30.000
emergency services; health and safety	offline	0	40.000	0	40.000	0	40.000
cross border market analysis & asset management	online	0	6.400.000	6.400.000	6.400.000	6.400.000	6.400.000
border crossing routing; transport and delivery service networks	online	0	17.930.000	17.930.000	17.930.000	17.930.000	17.930.000
border crossing routing; transport and delivery service networks	offline	0	35.860.000	0	35.860.000	0	35.860.000
hotel reservation services	online	0	0	0	0	0	0
tourism	online	0	0	0	0	0	0
private sector map and atlas producers	offline	0	5.580.000	0	5.580.000	0	5.580.000
educational establishments, libraries	online	0	250.000	250.000	250.000	250.000	250.000
mass media (broadcast, TV)	online	0	300.000	300.000	300.000	300.000	300.000
mass media (broadcast, TV)	offline	0	600.000	0	600.000	0	600.000
location based services (LBS)	online	0	601.000	601.000	601.000	601.000	601.000
location based services (LBS)	offline	0	1.202.000	0	1.202.000	0	1.202.000
others	online	0	250.000	250.000	250.000	250.000	250.000
private	online	0	0	0	0	0	0
Total Revenues			69.043.000	25.761.000	69.043.000	25.761.000	69.043.000

Gross Profit	-659.000	68.813.400	25.531.400	68.813.400	25.531.400	68.813.400
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