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Final Plan for the Dissemination and Use of Project Results

D6.6-INGC

Version 1.0

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Abstract

This document updates so-far defined exploitation and dissemination strategies. A review of the different outcomes that we could achieve so far is documented and it shown how they are then exploited at consortium level and at individual partners level. One of the main results being the Platform, we bring concrete facts showing how, by whom and how long sustainment is now foreseen thanks to committed agreements, identification of findings and common investments. We highlight expectations put by every partner in the further operation of the Platform beyond project's end, showing that this serves mid-term and long-term objectives of each and pave the way for further collaboration and/or developments around InGeoCloudS. We also document how investigation on other market opportunities such as private clouds deployments has been started and is being pursued.

Keywords List

Exploitation strategy, InGeoCloudS Offers, SWOT, INSPIRE, Target Groups, Leads, IPRs, licences, Sustainability, market analysis, business model, InGeoCloudS Pilot2.

DOCUMENT CHANGE LOG

Document Issue.	Date	Reasons for change
Version 1-Draft 1	26/06/2014	Creation of the document and share of TOC with partners.
Version 1-Draft2	07/08/2014	Revision of TOC and AKKA contributions.
Version 1-FinalDraft1	28/08/2014	Integration of all partners contributions
Version 1-FinalDraft2	04/09/2014	Evolution on common and AKKA's exploitation plans.
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APPLICABLE AND REFERENCE DOCUMENTS (A/R)

A/R and Document Reference	Title
[A1] ICT PSP Grant Agreement N° CIP 297300	InGeoCloudS Grant Agreement and its annex (including the description of work)
[R1] D6.2-INGC	Business Plan & Market Analysis
[R2] D6.3-INGC	Project Dissemination Strategy
[R3] CA-INGC-01	Consortium Agreement V1
[R4] D3.1.1-INGC	Analysis and Monitoring of clouds for geo-data services.
[R5] D3.2-INGC	Cloud Architecture, Configuration and data access implementation V1.
[R6] D4.2-INGC	Fully Operational InGeoCloudS Pilot (Pilot2)
[R7] D5.1-INGC	InGeoCloudS Users Documentation
[R8] D6.5.1-INGC	InGeoCloudS Pilot Exploitation Strategy
[R9] D1.3.3-INGC	Periodic Activity Report Period#2
[R10] D3.3-INGC	Maintenance Plan and Service Profiling
[R11] D6.5.2-INGC	InGeoCloudS Pilot Exploitation Strategy
[R12] D5.3-INGC	InGeoCloudS infrastructure cost/benefits Analysis
[R13] D1.3.5-INGC	Periodic Activity Report Period#3

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1 INTRODUCTION

1.1 PREAMBLE

This document takes into account comments, recommendations and conclusions drawn from previous dissemination and exploitation strategies deliverables and EC reviews.

The Consortium has devoted major part of the remaining effort in the last period in targeting and finding realistic agreements for the maintenance and sustainability of the platform after the project's end.
The strategy mainly focuses in the signature of a consensual Memorandum of Understanding, accompanying contracts for binding those partners that financially sustain the infrastructure.

In parallel a constant effort is still put in further dissemination of results and best practices, promotion, collaboration actions with stakeholders.

As an important support of this strategy, project's recent technical developments mainly aimed at making the platform more attractive and at re-assuring potential customers: improved security and exploitation means, new presentation options on the portal, on mobile devices, more transparent costs supervision model, proof-of-concept with the migration to Openstack platforms thus paving the way for deployment on other clouds, documentation.

1.2 ACRONYMS AND DEFINITIONS

Term	Definition
'mainstreaming'	the planned process of transferring the project's successful results and initiatives to local, regional, national or European governance systems, mainly policy and decision makers
'multiplication'	the planned process of convincing individual end-users to adopt and/or apply the results and services of the InGeoCloudS project
Business Model	As defined by A. Osterwalder, "business model describes the rationale of how an organization creates, delivers, and captures value in economic, social, cultural forms, or any other forms of value"
Contingency plan	A contingency plan takes into account the impact of possible events and risks on the achievement of planned objectives and defines actions to mitigate them
Cost Benefit Analysis	Cost-benefit analysis is a process to identify and quantify costs (or negative consequences) and benefits (or positive consequences) of a project and then compare them in order to establish a cost benefit ratio
DP	Data Provider: any organisation owning and sharing data
GSOM	Geo Scientific Observation Model
INGC-Platform	InGeoCloudS-platform
Marketing Mix	Identification and adjustment of the 4 Ps: Product, Price, Place, Promotion
Sales leads	Potential clients
Stakeholders	Individuals or institutions that may, directly or indirectly, positively or negatively, affect or be affected by the project (decision makers, funding entities, sectoral organisations,…)
SWOT	Strengths, Weaknesses, Opportunities, and Threats
Target groups	An individual or organisation directly positively influenced by the project outcomes. They are potential customers at which the consortium aims its services
Willingness-to-pay	The amount consumers are prepared to pay for a final good or service. If a consumer's willingness-to-pay for a good exceeds its price, the consumer enjoys

Term	Definition
	a rent (consumer's surplus).
Value of information	It determines how much individuals may be willing to pay for information depending on their degree of uncertainty and the opportunities they face.

Table 1 : Acronyms and Definitions of terms used in the document.

1.3 DOCUMENT PURPOSE

The Final Plan for the Dissemination and Use of Project Results aims to describe for a wider audience (this document being public) the strategies adopted by the consortium as a whole and as individual entities to sustain the project results at the end of the project. It includes:

- Reflection on the dissemination and exploitation activities that have been carried out during the project phase: intermediate results and successes, recent improvements, revisions of market analysis and business plans
- Definition of common tools and shared ground rules for the dissemination and exploitation of the project results
- Demonstration of financial sustainability of the platform
- Usage of project results for scientific, public service and business developments

1.4 DOCUMENT OVERVIEW

This document falls into three broad parts:

- Outcomes of the project dissemination and exploitation strategies so far.

- Consideration on Market Trends (chapter 3).

- Dissemination and exploitation strategies and precise plans for results (e.g. Platform, knowledge base) at the end of the project at Consortium level and from each partner viewpoint (chapters 4 and 5).

2 OUTCOMES OF PROJECT'S DISSEMINATION AND EXPLOITATION STRATEGIES

This chapter proposes a reflection on dissemination and exploitation strategies defined and carried out during the 30 months of the project.

The exploitation strategy defined and carried out had the following as objectives:

1. Identification of the target audience
2. Defining potential beneficiaries and end-user groups
3. Interaction with target user groups with dedicated messages,
4. Supply potential users with guidance on the use of the web services,
5. Communication of the outcomes of the project to wide audience through: workshops about the achievements and use of Pilot 1 & 2, interview at TV channels, interview at relevant scientific magazines.
6. Contribution of INGEOCLOUDS, with guidelines, to the interest of other major EC projects EGDI-Scope (European Geological Data Infrastructure), Minerals4EU, OASIS about different ways for moving services and data to the cloud.
7. Illustration of InGeoCLOUDS achievements and capabilities usage through INGC pilot.
8. set up a of activities/actions to exploit results on a large European market place
9. individual actions towards identified industrialists, public users and data provider in parallel networking activities
10. A baseline of Training material sessions and technical documentation
11. Business plan and market analysis
12. Elicitation of commercial offers in line with target groups' identified needs
13. Definition of a business model (e.g. "Freemium" model)
14. Finalization of agreements and contracts (MoU + Support Contract) which state future collaboration between partners for sustaining the result platform and concrete exploitation of the INGC Pilot for next years.

2.1 OVERVIEW

During the whole project's phase, the consortium has endeavoured to ensure InGeoCloudS valorisation through both spreading and use of the project's results. This has been achieved by definition; implementation and incremental improvement of a dissemination and exploitation strategy in successive steps (see D6.3-INGC, D6.5.1-INGC and D6.5.2-INGC).

A dissemination strategy has been carried out so as to increase InGeoCloudS visibility and trigger interest in the project. Several tools have been put in place for supporting this strategy (CRM, web site/portal analytics, internal exploitation workshops, demo mobile apps…). Main outcomes of this dissemination strategy have been:

- The identification of InGeoCloudS key target groups (policy and decision makers, data and application providers, IT service providers, professional users of platform data and services, general public) as well as stakeholders
- The definition of the messages to convey – according to the needs and expectations of our target groups – and the most appropriate means and channels to do so (publication in scientific journals, social networks, participation to and organisation of events…)
- The creation of promotional material (Website, leaflets, posters, blueprints, newsletters…)
- The raising of awareness about InGeoCloudS and its results:
    - among the target communities (e.g. JRC, other Data Providers, other CIP and European projects such as OASIS, ARE3NA, other open source projects such as OCEAN, OW2 community..)
    - internally by each partner's organization

  - o leading to communication and marketing baseline for some partners (AKKA).
- Ordered and systematic planning and monitoring of the dissemination activities with a wide scope of actions including applied research papers, workshops, mailings, newsletters, actions on social networks…

The project's dissemination strategy has been closely entwined with an exploitation strategy aiming at ensuring the project's outcomes' uptake. In order to pave the way for InGeoCloudS sustainability, close attention has indeed been paid to the definition of exploitation plans, both at common and individual levels. The exploitation strategy carried out by the consortium has achieved the following:

- Identification of target audience (D6.5.1)
- Definition of the potential beneficiaries and end-user groups
- Out-reach strategy
- Initial Business plans and market analysis (see e.g. D6.2-INGC).
- Elicitation of commercial offers in line with target groups' identified needs
- Plans for applying a relevant business model ("Freemium" model) (abandoned since then).
- Advanced contacts with potential customers in various fields (public institutions, other EC projects, private sector, …)
- Collection of return on experience from the Pilot users and feedbacks from stakeholders
- Identification of business opportunities
- Improvements of the Pilot according to actual and potential users' expectations

2.2 DISSEMINATION AND EXPLOITATION ACTIVITIES CARRIED OUT DURING THE PROJECT PHASE

Activity	Activity type (dissemination or exploitation activity)	Activity leaders	Activity date	Activity audience (geologists, IT company, public institution…)	Activity results (contacts made, information collected…)
Workshop in Paris	D	consortium	M4	stakeholders	This first workshop received good attention from external entities and has been considered as a success for first contacts with important stakeholders (JRC, French ministry of environment…)
Interview to Greek TV channels	E	EKBAA, EPPO	M3, M25	stakeholders	This has been an important reference for project's dissemination in Greece.
Scientific papers to international magazi-nes & congress	D	Consortium members	M1-M30	stakeholders	Some contacts could be established

presentations					thanks to some communications, other have been inefficient (or we could not trace back contacts made through them; e.g. International Innovation journal)
Mutual contacts with national & interna-tional authorities	E	Consortium members		stakeholders	Each Data partner could perform some significant communication at that level. In France some free trial could be initiated with the Ministry but their work on the platform has been minimal by lack of time/resources.
Workshop in Brussels	E	consortium	M22	stakeholders	Maturity of the Pilot and of the InGeoCloudS approach has been demonstrated to representatives of Eurogeosurveys, JRC, 8 new public European institutions.
workshop in Athens	E	EKBAA, EPPO, FORTH	M23	Companies, academia, stakeholders, free lancers,	
Workshop in Thessaloniki	E	EKBAA, EPPO, FORTH	M27	Companies, stakeholders, scientists	
Dissemination day in Karpenisi, Greece	D	EKBAA	M25	Engineers of the Municipality	
Interview in INTERNATIONAL INNOVATION magazine	E	consortium	M15, M27	stakeholders	
Interview at the EuroGeoSurveys NEWSLETTERS	E	consortium	M24	stakeholders	
Technical documentation during training sessions	E	Consortium members	M22	stakeholders	

Guidance on the use of the web services	E	Consortium members	M29	stakeholders	
Direct personal contacts with interested parties	E	Consortium members	M1-M30	stakeholders	
Press articles (specialized press - GEO/ENV)	E	Consortium members		stakeholders	
Press communication / release	E	consortium	M4, M22, M23,M27	stakeholders	

2.3 MONITORING

2.3.1 DISSEMINATION INDICATORS

We consider in the table below the tools identified for the project duration and if / how these tools and indicators will be used beyond end of the project. Periodic Report D1.3.5-INGC gives some more insights in the different indicators.

DISSEMINATION TOOLS	***Analytics tool***	***Indicators***	***Further Use***
Stakeholder panel	Consortium's Wiki record CRM tool	Indicator 1: Mutual contacts and relationships with national and international bodies	Clause 5.3.1 of the MoU states that is part of parties intention to share dissemination activities with others and regularly follow up results / actions during Steering Committee meetings. Moreover AKKA intends to sustain the Wiki site (www.ingeoclouds.eu) which entails a CRM as collaborative tool for partners. As such, this indicator will still be used in MoU execution.
Direct communication	CRM tool	Indicator 1: Mutual contacts and relationships with national and international bodies	Further use of CRM tool is foreseen. Project partners accounts on www.ingeoclouds.eu are maintained.
Website	Piwik	Indicator 4: Number of different Use Cases described Indicator 5: Number of different services available Indicator 6: Number of visits / use of services available on the infrastructure Indicator 7: Number of Portal visitors	Piwik and its analytics facilities will be further used and even further explored for more ifine-grained statistics that could serve evolutions / enhancements of the billing policy defined operated by the MoU and CNR services contract.
Social Networks	- Facebook analytics - Twitonomy	Indicator 10: Number of Likes/Recommendations or followers	Twitter and Facebook accounts are kept and further shared troughtout partners teams (1 person per institution has login).
Electronic Advertising	To be defined (Google	Not used by the Consortium.	Such usage is not considered at time being.

	AdWords…)		
Leaflets and brochures	Consortium's Wiki record	Indicator 11: Number of distributed material	We made beginning of September 2014 an update of the "Towards a Cloud of public Services" leaflet managed by EC. Blueprints are now part of the documentation set and will be equally maintained on the Wiki. Each partner will potentially issue its own updates on consortium brochures. No common plan discussed yet.
Newsletters	Consortium's Wiki record	Indicator 2: External stakeholders and users asking for information	A 4th issue is planned end of September in order to communicate about: • about new LOD facilities and architecture improvements • final delivery of results and end of the EC Project, • about continuity of the InGeoCloudS platform through shared support of former partners • about support, development and consultancy offers of partners on different topics. During MoU execution, SC might decide to give news about the Platform if necessary.
Press relations	Consortium's Wiki record	Indicator 9: Number of references to InGeoCloudS	Clause 5.3.1 of the MoU states that is part of parties' intention to continue dissemination actions and press communication remains a privileged channel. As scuh this indicator will be followed in the future too.
Workshops	Consortium's Wiki record	Indicator 3 : number of attendees at the workshops	No particular workshop yet planned. Some collaboration for INSPIRE21015 conference is envisaged.
Project documentation	Consortium's Wiki record	Indicator 12: Number of documents	This part will be further maintained and enriched. The Wiki is kept and AKKA plans include the creation of further training, presentation material. This is also in-line with plans for better organisation of the open source project community.
Cross- references with relevant projects	Consortium's Wiki record	Indicator 13: Number of new links	The Wiki and its usage for consolidating communication / dissemination actions will be kept.
Presentations of InGeoClouds through papers	Consortium's Wiki record	Indicator 8: Number of papers and conference presentations accepted	See above.

and conferences			
Mobile presentation	Integrated statistic tools - Google Analytics - AppStore	Indicator 14: Daily device installs	AKKA integrated plans for Mobile applications prototypes in its research line. EPPO also started developments that do use InGeoCloudS API and services. But it is too early to find any use of this indicator.

2.3.2 EXPLOITATION MAIN RESULTS SO FAR

So far, the exploitation strategy led to following outcomes:

- Free trials definition and subscription of six external institutions although they globally remained "inactive".
- Based on Infrastructure cost model as result of WP3 work (see D3.1.x series), Monitoring and Accounting Tools built-in the platform. These tools, based on accurate indicators generated from accurate technical usage of resources and service is an important support for the definition and implementation of billing policies for share of costs.
- Awareness and acknowledgment of InGeoCloudS as a relevant and innovative solution in many domains (INSPIRE, cloud-based software stacks, Linked Data technology, Data Model (GSOM)…)
- Public surveys to investigate users perception and expectations
- Cost-benefits analysis that can be used for approaching potential new adopters and answering some of their questions.

3 MARKET TRENDS

3.1 INGEOCLOUDS SUPPORT OF POLICY MAKING AND IMPLEMENTATION

InGeoCloudS platform sustainability does not rely entirely on its commercialisation, it can also be ensured by its role in and impact on EU ICT policies for open source development, public data release, cloud uptake by public institutions, and INSPIRE implementation.
Best practices identified in the frame of the project indeed fit within EU effort to develop ICT policies encouraging "openness" and interoperability all over Europe.

3.1.1 OPEN PUBLIC DATA

EU is trying to leverage open data policy in order to "deliver sustainable economic and social benefits from a digital single market" supported by a European data ecosystem (Digital Agenda for Europe). The development of open data in the field of public sector information (PSI) can indeed foster democratic vitality, better governance and citizen empowerment, support economic, social but also scientific innovation and modernize public sector.

InGeoCloudS fits within the worldwide effort towards opening and sharing of public data by both leveraging reuse of open data and showcasing EU-wide applications and services built on PSI. The work achieved during the project will hopefully pave the way for further investigation on how to publish and share data more easily, efficiently and at a lower cost.
One of the project's objectives was to encourage public institutions to open their data and provide them with the technical means to do so. As such, InGeoCloudS Platform aimed at:

- Providing easier access to geo datasets published by public organizations
- Supplying metadata
- Highlighting the business opportunities for innovative geo-applications bringing added-value to open data

As an example of the good practices proposed by InGeoCloudS, the French National Agency for Water and Aquatic Environments (ONEMA) has been a trial user. Acknowledging the potential of the project for opening public data, the ONEMA has and let the project be known by advertising the innovative aspect (http://www.pole-inside.fr/page/ingeoclouds-0).

The project has also allowed identifying some challenges to overcome regarding the publication and sharing of open data: lack of interoperability, gaps in standards, technical obstacles, financial issues, lack of awareness, etc.

Open Data and Public Sector Information Market

MEPSIR study 2006 concluded that the EU PSI re-use market worth EUR 27 billion and is rapidly growing.

Open data initiatives lead to great socio-economic opportunities that individuals and both public and private organizations should take advantage of.
On the one hand, the opening and sharing of public (geological) data allows addressing some major societal challenges, such as the transparency of institutions, the share of vital information, or the collaboration across sectors. On the other hand, it can contribute to creating some both short and long-term economic benefits, e.g by making possible the development of new products and services, by allowing value creation by citizens as well as businesses, or by improving the efficiency of existing processes. The study carried out by McKinsey assessed that the value of open data was worth from $3 to $5 trillion per year worldwide (around one-quarter of total benefits concern Europe)[1].

1 http://www.mckinsey.com/insights/business_technology/open_data_unlocking_innovation_and_performance_with_liquid_information

3.1.2 LINKED DATA

Linked Data are receiving a lot of attention and are becoming the de facto standard for publishing data on the (semantic) web. Even the INSPIRE community has started to converge towards providing Linked Data solutions and thus a convergence is expected towards Linked Data standards.
The INGEOCLOUDS project offers towards that goal:

- a platform that is already Linked (Open) Data ready and can support Linked Data from different data providers regardless of country of origin or theme and collaborate with other data publishing platforms in order to share datasets
- a mechanism of supplying URIs to existing data where such a mechanism does not exist; the importance of providing persistent identifiers is recognized from all and such mechanisms should become global
- a mechanism for easily publishing datasets of almost any format (including relational, XML, Excel, shapefiles, etc.) to the (semantic) web
- an extensible mechanism to export your data o INSPIRE compliant format
- a unified data/metadata model for the data included in the project, which can be extended to support additional themes
- a rich API to query, update, import, export and link the data with external datasets.

One can expect that these offerings will help the wider adoption of Linked Data technologies and result to the publication of additional datasets in the near future. Project's outcomes regarding linked open data can be re-used and promoted as guidelines to leverage geospatial linked data technologies within the European Union.
Both public and private sector should be encouraged to take advantage of opportunities offered by linked data.

Market
There is a wide range of target groups likely to be interested in linked data technology:

- Government
- Private companies
- Developers

Mostly data providers are becoming keener into adopting these technologies since they offer an additional advantage compared to the competition: the ability to directly link the datasets with external ones without requiring any prior extensive knowledge of the external datasets. There are very few offerings in the area of geospatial linked data and most of the standards (like e.g. GeoSPARQL) are in their infancy. Regardless this, the area has seen a rapid growth the last few years with the technologies evolving rapidly. At the moment the interest is both at the technology level and at the data publication level but an interest in developing new innovative application is also in its beginnings.

3.1.3 EUROPEAN CLOUD

EC is seeking to foster the development and uptake of cloud computing in Europe: European cloud strategy to "unleash the potential of cloud computing in Europe". The European Cloud Partnership Steering Board was set up as an advisory body to the Commission. The board's task is to help bring together the public and private sector to advance the development of the cloud computing market in Europe. In March 2014, the Board published its set of ideas in the form of a report entitled 'Trusted Cloud Europe'[2]. 'Trusted Cloud Europe' can be described as a framework for supporting the definition of common cloud computing best practices, linking them to use cases with a view of applying them in practice. Another valuable big initiative is the "Cloud for Europe" project[3] for supporting public sector cloud use as collaboration between public authorities and industry. A PCP tender (pre-commercial procurement) is about to be published and some partners already showed interest in it.

[2] https://ec.europa.eu/digitalagenda/en/europcan-cloud-partnership
[3] http://www.cloudforeurope.eu/

As such, InGeoCloudS represents a step "Towards a cloud of public services" in Europe. The project's results provide guidelines regarding:

- Technical as well as financial benefits offered by cloud use
- State of the art of cloud computing market
- Realization of public-private partnership
- Interoperability and identification of standards
- Identification of model terms for cloud operation and share of costs
- Definition of a relevant cloud business model
- Investigation of different cloud service providers
- Reluctance of public institutions

A lot of challenges are still to overcome to ensure the widespread adoption of cloud by European public organizations. Objectives and work plans of some current major initiatives like Cloud4Europe (http://www.cloudforeurope.eu/) still highlight the gaps and reluctances that must be yet overcome, also in the industry. Nevertheless, InGeoCloudS has tried and participated in showing the large range of benefits that could be made by using cloud infrastructures:

- Efficiency
- Availability
- Elasticity & scalability
- Security
- Lower total cost of ownership and monitoring of per service/per user
- Reduced time to market
- Best-of-the-class resources usage
- Enhanced collaboration
- Enhanced Data integration

Even though there are still a lot of concerns, we have endeavoured to find some answers to them and we hope that these answers will contribute to fostering cloud uptake throughout Europe.

Cloud Computing Market

Cloud is beginning to have a major impact on GIS. Thanks to the cloud, opening up data, storing them, making them available to a wide public, sharing them and adopting standards is made easier and easier.
We can identify today different models and trends in the use of cloud computing technology on the market:

- Public cloud
- Private cloud
- Hybrid cloud

The recent assessment of responses to "Trusted Cloud Europe" survey[4] confirms at the same time the large expectations but also concerns for public institutions in using public clouds, especially as far as privacy and security are concerned.
InGeoCloudS investigated different cloud service providers beyond Amazon AWS. In the last period of the project, a lot of work was thus achieved to investigate the possibility to deploy InGeoCloudS on Open Stack.

Cloud computing transforms the way public services are provisioned. InGeoCloudS exploits these transformations and tries to provide some solutions to make the most of them. InGeoCloudS has demonstrated that cloud allows following market trends and users' new requirements, such as speed, availability, usability, on-demand solutions, etc.

[4] Published July 30th, 2014: https://ec.europa.eu/digital-agenda/en/news/trusted-cloud-europe-survey-assessment-survey-responses

3.1.4 INSPIRE

INSPIRE market

We observed, e.g. thanks to the surveys we conducted, that there was a lack of awareness regarding INSPIRE compliance. INSPIRE impact assessment carried out by JRC tend to confirm that perception and progress are very heterogeneous within member states.

INSPIRE Public Consultation held by EC

The European Commission conducted a wide public consultation in December 2013-February 2014 (700 responses from public and private sector, academia, and private citizens).

The key messages from the public consultation are (extracted from the Executive Summary):

• INSPIRE is starting to work and address the key barriers identified at the outset of this initiative that prevented the sharing and use of the spatial information needed to support environmental policies and policies affecting the environment.

Our comment: A key issue for local authorities producing environmental data is to valorize it. This can be performed only with a standard approved by the state. InGeoClouds can give an up-to-date solution.

• Most progress has been done in documenting data, and making such data discoverable and viewable through web services. There are however delays, particularly for Annex I and II data that should all have become available by the time of the survey. Delays are also present for Annex III, both for completing the metadata and for making data available via download services.

Our comment: The delays/performance indicators are very difficult to assess and to address on the Cloud have not been accurately measured.

• The area of greater concern is the delay by the Member States in putting in place measures necessary to remove obstacles to the sharing of data at the point of use among public administrations. Only about half of the data producers indicated that such policy measure had been put in place in their organisation, and this was felt by users still finding data policy as a major barrier. Taking into consideration that such measures should have been in place since 2009, this delay is clearly significant.

Our comment: InGeoCloudS is the appropriate tool to let local authorities needing to expose simply their geodata INSPIRE-compatible.

• Improving communication, and sharing of best practice, reducing as far as possible complexity of technical specifications, and improving coordination are key suggested changes.

Our comment: Using Geopublication, one can generate the metadata in a simplest way. People not aware of INSPIRE can now access a fair level of compatibility without knowing much about specifications.

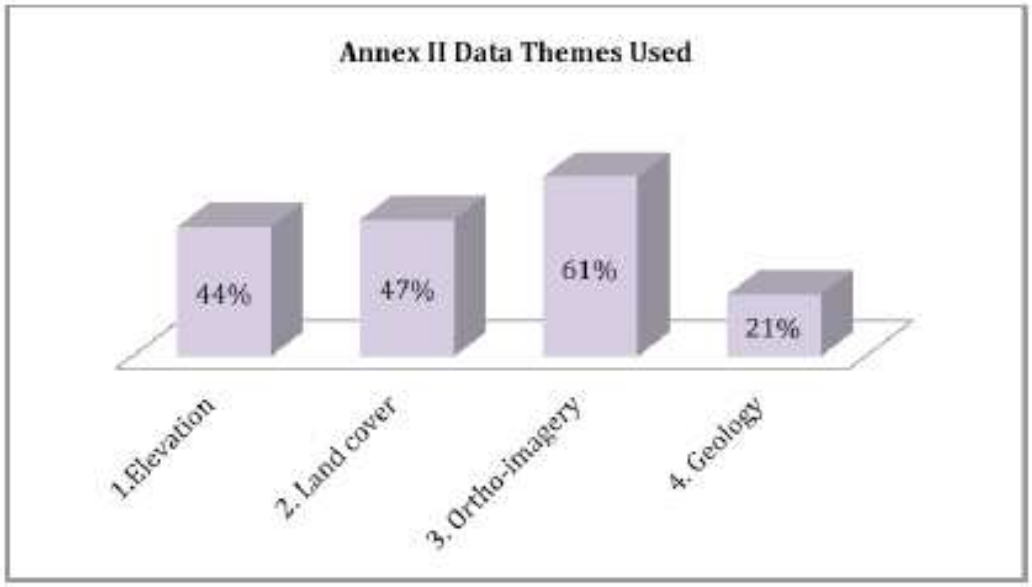
• There was almost unanimous view across all participants in the public consultation that the objectives of INSPIRE of making spatial data and services more easily shared and used are still as pertinent as ever.

Our comment: Since InGeoCloudS call, INSPIRE is acknowledged as a key standard for geodata interoperability: several recent calls of the World Bank Organization concerning African public GIS require INSPIRE to expose and exchange data.

• INSPIRE is delivering benefits to public administrations through improved data management processes and increased skills/competency.

Our comment: The issues for the data operators are often a problem or interoperability. By defining a standard, more and more acknowledge, the service brought by InGeoClouds and INSPIRE will save time and money, and overall makes INSPIRE easy.

Other Findings of interest for InGeoCloudS concern the usage of Annex II themes: the most used are ortho-images, and the least are geological data.



We might want and encourage other use cases based on other themes to be implemented in InGeoCloudS in order to put the light on versatility and openness of the platform. Privileged contacts of AKKA with Earth Observation actors –as an example- are being used for dissemination of project results and potential trials of the platform.

3.2 BENCHMARKING

3.2.1 OVERVIEW OF INGEOCLOUDS COMPETITORS

We already surveyed competition from different viewpoints in D6.2-INGC and D6.5.2-INGC. We contemplate in the current section key elements of the update offers from some of them, i.e. those that allows us to refine and develop a potential freemium model. Application of such a model by partners or individual is currently postponed, waiting for more volume of users of the platform or for specific customer demand.

ESRI ArcGIS Online - http://www.esri.com/software/arcgis/arcgisonline:
Web mapping platform to create and share maps, applications and data and access them on any device. It has been conceived by ESRI (which is the reference software for GIS professionals) as a way to demonstrate how effectively maps and data can be shared in a cloud environment.

- *Offers a 30-day free trial to get started with up to 5 registered users. If you purchase a subscription after the trial, all your work achieved during the 30 days is saved*
- *Two different types of subscription: free for non-commercial use and charged for commercial use. Annual subscription plans are based on the number of named users and service credits you need (minimum of $2,500 per year, including 5 users and 2,500 service credits)*

CartoDB - http://cartodb.com/: Online cloud platform for the publishing of any type of geospatial data and maps (map editor to create, upload, author, publish and share spatial data; visualisation and analyse of geospatial data; development of web and mobile API).

- *Available for free on the Platform: "Getting started" documentation, tutorials, and API documentation*

- *Different pricing plans: free plan (limited features and only community support available) and four charged plans according to the number of tables you can create and functionalities available (e,g storage, support, map views, etc.)*

GIS Cloud - http://www.giscloud.com/ : Cloud-based platform for the creation and deployment of applications using geospatial information. The basic tool provided by that platform is the Map Editor, which allows creating, uploading, authoring, publishing & sharing of spatial data in the cloud

- *Each API (Map Editor, Map Viewer, Mobile Data Collection, Map Portal, Deployment of your own GIS application on the Cloud) is charged differently (some free functionalities, price per user and per month)*

MangoMap - https://mangomap.com/ : Platform to transform GIS data into map applications, and publish and share web maps easily and without any coding required

- *One free plan with limited features*
- *4 charged plans according to a month-to-month subscription (without any further commitment) or an annual subscription (with two months free)*

MapMint - http://mapmint.com/: Web GIS services to build and manage a Spatial Data Infrastructure, create and customize maps without any coding required and publish webmapping applications

- *A community open source version is available for free*
- *3 annual plans are proposed depending on the functionalities included and the server infrastructure chosen (customer's server versus MapMint Cloud)*

Socrata Mondara - http://www.socrata.com/mondara/ : Both cloud-based services aimed at non GIS experts for easy maps creation and publication, and an open source API (Socrata Open Data API –SODA) aimed at developer to make use of open data

- *Proposes a free trial and a regular subscription of $499 per month (that allows creation of 100 interactive maps online)*

1Spatial Cloud - http://www.1spatial.com/products-services/1spatial-cloud/ : Cloud-based platform providing business applications tailored to users' need for the management of spatial big data

- *Uploading data on their platform is free of charge, pricing then applies according to the demand*
- *They also offer a suite of software (1Spatial Management Suite) to publish data and automate workflows*
- *Support, training and consultancy is proposed on top of these offers*

	CartoDB	ESRI ArcGIS Online	GIS Cloud	MangoMap	MapMint	Socrata Mondara	Socrata Open Data API-SODA	1Spatial Cloud
Deployment of applications	Create custom applications	API for building custom applications	- Deploy your own GIS solutions on the cloud - Create mobile data collection portal	No API for custom applications	Publish web and mobile applications		Made to build applications based on open data	
Data sharing	From up to 10 public tables to unlimited tables	- Create project groups, customize work tools, and build your own web apps to connect people through GIS. - Unlimited data transfer for organizational subscription	- Share maps with other GISCloud users, - Publish web maps or access maps from other platform supporting WMS		Public interface which gathers the map published by the users . They can be public or private and easily shared on the Internet and social networks.	- With regular subscription, creation of 100 interactive online maps Social sharing and embedding into personal web pages or social sites		
Data formats	Shapefiles, excel, csv, SQL, KML, GPX, GeoJson		Excel files, csv, image files, shapefile, kml, gpx, etc.	Only shapefiles	+50 GIS formats supported	Automatically convert shapefiles into KML/KMZ	JSON, CSV, RDF-XML	TAB or SHP format
Maps	- In two cheapest plans, no private maps and cartoDB brand on the maps not removable - Lots of customization features (add social buttons, create infowindows, set of filtors, etc.) - Maps views limitations: From 50k map views to 800k map views	- Combine your data with data from Esri and other contributors to create maps - Maps can be exported into a web application template	Publish interactive maps and allow viewers to search, visualize and explore data	- Limited to 1 map unpublished (free plan) to 30 maps (platinium plan) - Easy creation, customization and publishing of web maps	Numerous features available to create, customize and publish maps	Maps can be created by using shapefiles or KML		
Storage	From up to 50MB to up to 40GB	Limited to 2GB for personal subscription, depending on the service credits purchased for organizational subscription	For Map editor, 100MB for free plan and 1GB for permium subscription	From 200MB (free plan) to 6GB (platinium plan)				

	CartoDB	ESRI ArcGIS Online	GIS Cloud	MangoMap	MapMint	Socrata Mondara	Socrata Open Data API-SODA	1Spatial Cloud
Bug tracking				Send tickets using online hepldesk (Groove tool)	Unlimited bug fixing for charged version		Report documentation bugs	
Support, training & consultancy	- Online support for standard plans & 24/7 dedicated support for entreprise plans - Community support for free plan - Free online documentation and tutorial - Free online courses	4 different levels of support with organizational subscription	Support included for charged plans	- User guide frequently enriched available on MangoMap blog - Email support only for paying account holders	- Community support for community version - Email and phone support for charged version - User guides included in all versions	- For all Socrata users, "Socrata Customer and Partner Support Portal": knowledge base and community forum, submit request for assistance, share suggestions, look for last updates, find webinars and training videos	- « Socrata Customer and Partner Support Portal » - Comprehensive technical documentation online - How to get started guide online	- Short FAQ online - Email and phone support for customers - Training courses for their products (charged) - 2 consultancy offers: INSPIRE and data improvement process
Security & authorizations	- Backups on daily basis - SLA agreement for entreprise plans	Management of user roles, access, and security for organizational subscription		Emphasis put on system and data security on Amazon AWS	Management of users roles and authorizations	User responsible for creating backup copies of content stored on socrata mondara		Emphasis put on security of 1Spatial Cloud environment
Open source	YES	NO	NO	YES	YES	YES	YES	NO
Remark	Made for developers	- Complex pricing structure - Possibility to monitor usage information for organizational subscription			- Running on MapMint private cloud	- Addressed to non-experts - Offers a suite of products to promote open data initiatives - Complies with OGC standards	- Addressed to application developers and data publishers (with IT skills) - Provides data catalog of all kinds of open data	Meant for organizations that need to manage big data

	CartoDB	ESRI ArcGIS Online	GIS Cloud	MangoMap	MapMint	Socrata Mondara	Socrata Open Data API-SODA	1Spatial Cloud
Contract length		Subscription to be renewed every year		Monthly or yearly (2 free months) plans	Yearly subscription			
Cost	- Free trial (14 days) - Free plan based on users community - Standard plans (price per user): • Magellan plan: $29/month • John Snow plan: $49/month • Coronelli plan: $149/month - Entreprise plan: • XS instance: $499/month • S instance: $899/month • M instance: $1,599/month • L instance: $2,499/month	Annual subscription plans based on the number of named users and service credits needed (to benefit from some of platfrom services) - Free trial (30 days): 5 named users; 200 service credits, Esri Maps for Office and Sahrepoint; Operations Dashboard for ArcGIS, Collector for ArcGIS - Personnal subscription: Free of charge (for non commercial use only) Organizational subscription: Charges apply • From $2,500/year for 5 users and 2,500 service credits to $17,500/year for 100 users and 17,500 service credits	- Free trial (30 days) Pricing according to the applications chosen by customer: - Map editor: free for non-commercial and academic use, premium plan for $55 per user per month - Map viewer: free for non-commercial and academic use, premium plan for $15 per user per month - Mobile data collection: free (limited to 1 device and public map) or premium plan for $20 per device per month - Publisher for ArcMap: free - Deployment of own GIS app in the cloud: need to get in touch with them for information	- Free plan to make maps (unpublished) and explore Mango Map - 4 charged plans: • Bronze for $29/month • Silver for $49/month • Gold for $99/month • Platinium for $149	- Community version for free and open source - Cloud plan: • Standard: 3,000 euros/year with shared web hosting and email support • Professional: 6,000 euros/year with dedicated web hosting and email support • Expert: 9,000 euros/year with dedicated web hosting and email and phone support	Free trial - Regular subscription: $499/month		- Validation App is free (to load data into 1Spatial platform - Charged services to use the platform

It is important for the Consortium to maintain an overview on this competition. Even if some products in SaaS mode target very specific needs and are superior in functionalities and performance to INGC, we estimate that – beside perhaps ArcGIS Suite, none can offer the palette of geo-data services present in the INGC Pilot.

3.2.2 INGEOCLOUDS VALUE PROPOSITION

Help data providers to create end-users applications – PaaS

Help data providers to create INSPIRE/IOGC compliant services – SaaS

Help data providers to link their data with peers, create search and download services -SaaS

Offer the project's partners a platform for test and demonstration

InGeoCloudS highlights its innovative positioning, bringing together some new and trendy capabilities.

Overall value proposition:

- Fully integrated and tested platform (composed of scattered open source software)
- Platform tailored to users' needs (users' needs come first!)..
- Support, training and evolutions
- Consultancy
- Further functionalities to add value to the platform
- Lower vendor lock-in
- A testbed and best practices for ICT-driven public sector innovation
- Use cases to demonstrate opportunities offered by the Platform

Platform: Data (different formats, INSPIRE-compliance, publish, share, map, view & download) + Applications & Web services using these data as well as allowing to exploit them.

InGeoCloudS Platform aims at supporting the development of new solutions and applications for end users (relying on open geodata and cloud capabilities), as did the partners with their Use Cases. The Platform's features data providers to:

- Benefit from a cost-efficient solution to deploy data and services on the Internet keeping full control of both data and costs

.

- Publish, manage and share geo-data: thanks to an elastic and highly-available infrastructure supporting a platform to host any data provider's use case/application in the geoscience area.

- Comply with INSPIRE/OGC standards: The InGeoCLOUDS platform provides an always up-to-date SaaS (Software-as-a-Service) to explore, publish and share INSPIRE and OGC compliant data and services in the Cloud while relieving the burden of infrastructure management.

- Go further with mutualized solutions and advantages: geo-publication, linked open-data, cloud computing and storage, etc…made available and easy-to-use through the platform.

Throughout Europe, increased amounts of geological and, more broadly environmental data are collected. InGeoCloudS cloud-based Platform allows harmonizing them, making them compliant with standards and European recommendations, making them more easily accessible and turning them into added-value services and applications.

4 DISSEMINATION PLAN FOR INGEOCLOUDS RESULTS

Dissemination plan about the platform and project results after the end of the project remains basically unchanged in terms of contents and tools. The pace of publications/participation in events likely gets reduced. Focus is put on tries and synergy actions with other projects are promoted following plans exposed in section 4.4 of D6.5.2-INGC. We have in particular close contacts with key actions of the JRC/ ARE3NA developments, Alignment of INSPIRE metadata with other catalogs, response to calls for facilitators for some thematic clusters.

Objectives of the dissemination plan have been repeated in the MoU. The MoU stipulates consensual agreement and understanding of the interest of further promoting the platform (and more generally project's results). A specific section of the MoU (5.3.PROMOTION OF THE PLATFORM) displays intentions of partners and agreement on the share of information and results. Mailing list and other communication channels are kept open. Efforts of the partners are pursued in Knowledge transfer and promotion of the platform.

4.1 DISSEMINATION TOOLS

We listed above in section 2.3 (Monitoring) those tools and indicators that have been used and that we will continue to use in the frame of the MoU operation.

4.1.1 NEW PROMOTIONAL MATERIAL

Following new material have been produced in Period#3 at our disposal and will be further maintained:

4.1.1.1 Blueprints

Cf. http://www.ingeoclouds.eu/?q=wiki/blueprints

The objective of the InGeoCloudS Blueprints is to present the approach adopted in the project, provide the framework of the available functionalities and services, giving an overview of the advantages and opportunities offered by the platform, in a simple and accessible way.

4.1.1.2 Presentations

Key presentations (we received several questions by email following this workshop) have been made in the workshop "*INSPIRE Compliant Data and Services on the Cloud*" we organized for the INSPIRE 2014 conference in Aalborg (see Agenda[5])
This encourages us to organize again a follow-up workshop next year for the joint Geospatial world Forum – INSPIRE conference (INSPIRE-GWF 2015) for reflecting about some co-work with JRC.

The OCEAN project is preparing a brochure "Open Cloud Interoperability Framework 2014". The brochure will present cloud R&D projects with open source results. An important part of the brochure is the positioning of project results in the OCEAN's Open Cloud Interoperability Framework. AKKA intends to communicate about some assets that result from INGC like ElasticDB.

4.1.2 COMMUNITY WEBSITE

We are keeping www.ingeoclouds.eu up and running (maintained by AKKA). The site will be shortly cleaned from pure "project's operation" information in order to improve access to the requested information about the project, its outcomes, public documentation and so on.

[5] http://inspire.ec.europa.eu/events/conferences/inspire_2014/pdfs/workshops/16_06_14.00/263/Agenda.pdf

We are also introducing in the web site access to Open Source forge and more technical information for potential users that would like to use some of the InGeoCloudS components.

4.1.3 BUSINESS-ORIENTED WEBSITE

AKKA developed a specific web site (www.ingeoclouds.com) that advertises its competence offers, support its business objectives while still ensuring a global dissemination of project's outcomes as identified by our exploitation strategy, also in-sync with the www.ingeoclouds.eu. The project's web site (wiki) is kept up and running for the InGeoCloudS community (see previous section).

The motto advertised is" Adding Value to your environmental data".
Depending on the needs, this new site can also welcome other partners' business-oriented services descriptions.

Figure 1: A view on the business-oriented web site (work on-going).

4.1.4 SOCIAL NETWORKS

Tweets and re-tweets are now common practice for communication and dissemination. The consortium created a common account which we will maintain for shared use. Idem for Facebook. One person of each partner's organisation has the credentials and is entitled to use the tool. This has been a satisfactory mode of operation so far.

4.1.5 PROFESSIONAL DISCUSSION FORUMS

Individuals will be further acting in forums for speaking about InGeoCloudS results and advances.

- AKKA: LinkedIn forums, JoinUP from EC for INSPIRE and AREN3A project
- GeoZS, BRGM, GEUS and EKBA are members of
  - EGS Spatial Information Expert Group (SIEG)
  - Geoscience information consortium (GIC)
  - Minerals4EU project
  - EGDI project.
- GeoZS is a member of
  - Slovenian national INSPIRE group
  - GeoZs is a Board of Representatives member for the The International Consortium on Landslides
  - IUGS - International Union of Geological Sciences,
  - Slovenian Geotechnical Society
  - Project Group for landslides at Administration of the republic of Slovenia for civil protection and disaster relief
  - Government Task Force for natural disasters
- GEUS is a member of EU Rare project

4.1.6 MAILING CAMPAIGNS

The consortium will launch together with publication of 4th Newsletter end of September a mailing to announce end of the EC project and continuation of partners commitment to maintain the platform up and running for the next years.

The use case “Susceptibility Map of Triggering Landslides Due to Rainfall Forecast” is running and we are in validation phase till the end of the year. Prediction of the areas where the probability of triggering landslides will be increased due to higher precipitation need to be treated with care and within their reliability. When validation phase will be finish we will launch a mailing to all the municipalities and other potential users.

4.1.7 NETWORKING EVENTS

To reduce promotion costs and increase efficiency, we will mainly consider to organize events embedded in other international events (i.e. a workshop and/or exhibition at next joint INSPIRE-GeoSpatial World Forum conference in May 2015, Geoscience information consortium (GIC) conference in May 2015 in Hanover, Slovenian Geological Conference in October 2014 in Ankaran…).

4.2 DISSEMINATION PLAN FOLLOW-UP

Tool	Target audience	Related activities to carry out	Objective
Geoscience information consortium (GIC) conference	geologist, data providers, national geological surveys	Presentation, face-to-face discussion	• To inform them about the offerings of InGeoCloudS platform in terms of data / services publication and about the potential benefits of using InGeoCloudS to provide data and/or

			services • To provide insightful descriptions of the technical characteristics of the InGeoCloudS platform. • To convince them to adopt InGeoCloudS for data and services publication and to engage them in a long term cooperation. • To provide technical support and usage guidelines • To encourage them to publish Inspire compliant dataset and make their maps available to the public
Slovenian Geological Conference in October 2014 in Ankaran	Geologists	Presentation, face-to-face discussion	
INSPIRE-GeoSpatial World Forum conference in May 2015	INSPIRE community	Presentation, face-to-face discussion	Highlighting InGeoCloudS " Inspire Compliant Data publication" services Presentation of cloud infrastructure for INSPIRE

5 EXPLOITATION STRATEGY FOR INGEOCLOUDS RESULTS

5.1 OBJECTIVES

5.1.1 PILOT SUSTAINABILITY

In the course of the project, the consortium has considered different exploitation scenarios:

- Pilot as a Demonstrator/Sandbox for supporting individual exploitation plans - was **scenario 1** in [R11] D6.5.2-INGC
- Pilot as a common/mutualized production infrastructure for Consortium Data Providers only - was **scenario 2**)
- Pilot as a common/mutualized production infrastructure for a wider users community - was **scenario 3**)

The initial strategy was to turn the pilot into a commercial product at the end of the project. To achieve that goal, we tried and found would-be customers, defined selling messages, conducted market analysis, and identified a freemium business model.

Nevertheless, we came to the conclusion that a commercial exploitation was not sustainable as early as August 1st 2014:

- Difficulty to attract customers in spite of free trials implementation: only 6 institutions outside of the Consortium asked for free trials accounts but none of them did undertake any particular activities with these accounts during the last 6 months (shared reasons seemed to be lack of time and resources for deeper evaluations).
- Reluctance of many institutions about “moving to the cloud” and in particular to a US company’s public cloud
- Financial issues: for several consortium data providers, the expected benefits do not offset the estimated costs (see [R12] D5.3-INGC for details).
- Contractual issues: difficulties in building up a common legal body that would have enabled a common commercial exploitation of the very platform that results from the project.

In order to maximize the impact of InGeoCloudS, the consortium nevertheless agreed on a common exploitation strategy for the pilot built in the frame of the project. The main principle relies on the maintenance in operational conditions for a long period as a demonstrator: all pilot applications and services will remain available online as-they-are on July 31st 2014, modulo bug corrections and improvements as decided by a Steering Committee using personal resources proposed for free by technical partners.

This common exploitation strategy identifies the means devoted to ensure the pilot is kept “alive” and maintained for at least 5 years with a cost share among all partners of the project: by direct yearly financial contributions from Data Providers and by allocation of workforce for free by technical partners.

The Partners have decided to maintain the current Platform:

- To be a demonstrator of the capabilities and opportunities of cloud services for public organisation (BRGM, GEUS, GeoZS) ;
- To be a technical demonstrator of the knowledge and skills developed in the domain of the cloud infrastructure (AKKA, CNR, FORTH)
- To make available a production environment or a backup environment for some Data Providers (EKBAA, EPPO)

As such, we have a kind of mix between scenario 1 and scenario 2. The partners thus commit to leave and update their data on the Platform, to keep running their use cases and to ensure that the Platform is maintained in operational conditions. A Memorandum of Understanding is being signed in order to

materialize this agreed commitment and support contracts are being signed between CNR and each Data Provider's institution.

Additionally collaborative tools such as social network accounts (twitter, Facebook), project's web site (Wiki), CRM tool for mailings and contacts management, bug tracking system are also maintained by AKKA with regular access for former consortium members, configuration management system by CNR, for further use during MoU operation.

5.1.2 REUSE OF RESULTS

The second main objective of InGeoCloudS exploitation strategy is to ensure that the project's results will be exploited through their reuse both by the project's partners and by external stakeholders.

There are different ways to reuse the project's results:

- Reuse of results and knowledge in follow-up projects
- Development of new products/applications/tools made possible by the platform's features/technology/innovations
- Creation of a « community » to encourage reuse of project's results (to encourage emerging technologies)
- Use of the project's results to influence policy and standards (e.g JRC pool of experts, JRC projects that might use InGeoCloudS services as testbed)
- Use of the project's results for academic publications
- Use of the project's results for teaching material (e.g new courses, seminars)
- Knowledge transfer (e.g to PhD student, to other institutions through participation to events)

5.2 COMMON EXPLOITATION PLAN

5.2.1 BUSINESS MODEL

During the course of the project, different business models have been considered by the partners, both on a consortium and individual level. In the previous exploitation plans (D6.5.1-INGC and D6.5.2-INGC), the main business model that emerged was the freemium model.

However, we had to face evidence that the targeted market was not mature enough to ensure sufficient volume for the financial sustainability of the pilot as a commercial platform (based on freemium model) on one hand and that the pay-as-you go approach was not the most suitable to public institutions yet on the other hand.
On top of that, the fact that we did not manage to attract customers for that particular platform during the pilot phase prevents us from promising to exploit it as a commercial product as it is for now – inasmuch as it would not be financially sustainable.

Therefore, the consortium has had to change business model for now.

Means and focus have been put on:

- Making sure that the platform is maintained in operational condition at least with the same quality of service, the same use cases and services palette and without financial loss.
- Making sure that dissemination and communication about the project results is considered as crucial by all partners (interest in attracting new adopters) and pursued by all partners
- Making sure that at least technical partners find means /funds for the preservation on the long-term of a skilled team capable of ensuring necessary technical maintenance of the platform
- Defining organizational structures and procedures for possible evolution of the platform and the extension of the developers and users community.

As such, our current approach for the business model is summarized in the following table:

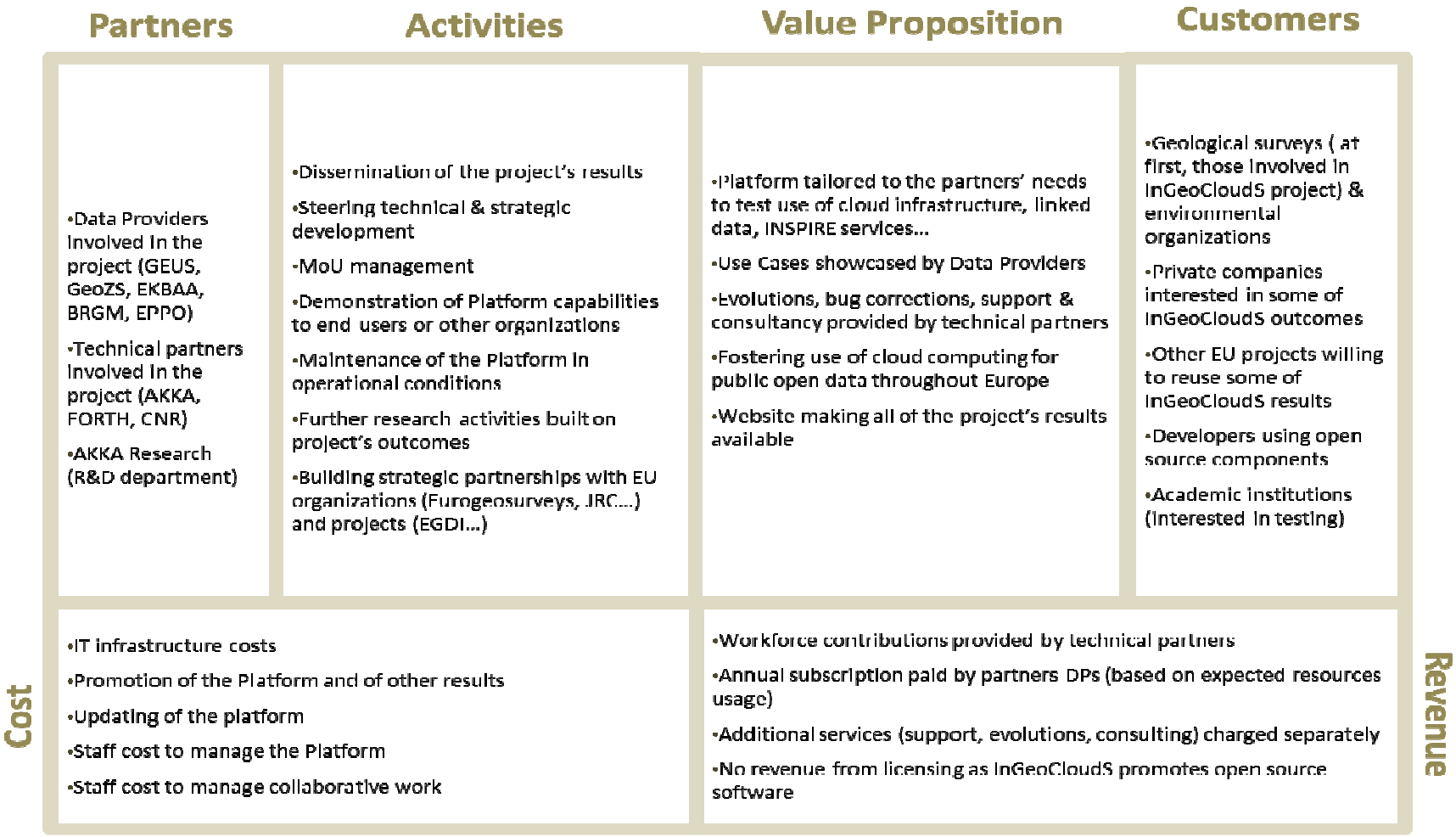


Figure 2: Consortium business model for exploitation at a glance.

This table highlights a smooth transition between objectives stated in the project and those beyond project's life. Sources of revenues are identified and each partner engages through signature of a MoU and of specific support contracts for subvention to CNR-ITSI in order to notably cover CSP costs. Own funds are mobilized by each partner mainly thanks to the business results and perspectives offered.

For example, AKKA, through its Research Department, incorporates various topics of the InGeoCloudS project in its strategy on the long-term: cloud technologies and valorization of data became strategic lines of activities at same level than study of autonomous car driving systems at core of traditional AKKA's business (see e.g. http://research.akka.eu). Expertise and skills developed thanks to InGeoCloudS are regularly generating business with strong references when bidding.

Sections 5.3 through 5.10 illustrate the compatibility between individual plans and a common plan that has been concretized by the MoU and support contract signatures on-going.

5.2.2 COST BENEFIT ANALYSIS

This section focuses on the assessment and comparison of costs versus benefits for the partners using the Platform in order to showcase InGeoCloudS sustainability. To do so, a cost benefit analysis has been carried out by the project's Data Providers (**see D5.3-INGC**).

The different categories to be considered for the CBA are:

- Economic costs and benefits but also qualitative benefits difficult to be assessed in monetary terms
- Both short-term and long-term costs and benefits.
- Direct cost (operational cost, staff, etc.), indirect cost (loss of time, etc), direct benefits (improvement of a service, etc.), indirect benefits (triggering innovation, improvement of customer satisfaction, etc.)

5.2.2.1 Costs and Tangible Benefits

In order to consider as precisely as possible InGeoCloudS sustainability, we have identified and tried and monetized, when possible, costs and benefits that derive from the implementation and use of InGeoCloudS platform after the end of the project. A matrix has been established with the set of factors that have to be considered for the cost-benefit computation.

The main benefits derived from the use of InGeoCloudS Platform that can be monetized are related to the cloud infrastructure: lower investment cost, lower IT operating cost, optimized IT infrastructure, lower maintenance cost…

An obstacle to the use of InGeoCloudS today is the delay that many country have in conforming with INSPIRE obligations. Indeed, the quantitative benefit certainly does not take sufficiently into account the impending requirement of the use of standards in public entities.

First Annex of document [R12] D5.3-INGC gives more details about methodology used in estimations and results.

5.2.2.2 Intangible Benefits

Thanks to its wide scope of action, InGeoCloudS fosters some qualitative benefits which are delicate to monetize but have to be taken into account beyond quantitative cost assessment.

Improving access to public sector information:

- Development of new products built on public data
- Reduction of transaction costs in accessing and using information
- Efficiency gains in the public sector

- Crossing of public and private information
- Increase of transparency and open government initiatives

Improving reuse of Geographic information:
- Uptake by citizens
- Development of new products and services
- Participation in environmental policies

Raising awareness about INSPIRE:
- Increase of interoperability
- INSPIRE-compliance for local public authorities obliged to expose their data without having the means to do it simply and in an affordable way today.

Taking part in European cloud strategy to increase cloud uptake in European public sector:
- Reduced time-to-market
- Increased experimentation capabilities and hence innovation
- On-demand scalability at lower cost
- Higher flexibility
- Further possibilities for collaborative projects
- Worldwide availability
- New business opportunities

Improving development of open data:
- Development of new products/services
- Creation of new companies
- Lower prices on existing products/services
- Increase of public sector efficiency and improvement of decision-making
- Socio-economic effects such as increase in welfare, time saved, less pollution, better health…

5.2.3 FINANCIAL ISSUES

Resources gathered for the sustainability of the platform are made of:
- Financial contribution brought by Data Providers for paying the CSP bill and covering expenses of necessary administration and support services at CNR.
- Own funding of partners for technical maintenance and supervision of operations, first-level support, and maintenance of skilled team of core people.

A MoU and a parallel service contract have been agreed and are being signed by all partners.

5.2.4 GOVERNANCE AND ORGANIZATION

Processes of requirements elicitation executed in WP2 will be pursued by steering committee in the frame of the MoU execution. According to needs of the parties, new developments might be contracted to technical partners case by case, integrated in the common platform or deployed in parallel ad hoc configuration.

Governance section of the MoU tackles the issues that had to be settled to guarantee the successful functioning and management of InGeoCloudS Platform after the end of the project.

In order to ensure InGeoCloudS sustainability, it is necessary to define some common governance principles that will rule the organization of the consortium after the end of the project.
The governance will enable efficient collaboration regarding the sustainability of the Platform as it is on July 31st 2014. It will outline:
- key principles of collaboration between the Parties;
- responsibilities of the partners both individually and collectively;

- operating rules of a Steering Committee ;
- each partner's contribution devoted to sustain InGeoCloudS Platform and assess the share of cost

In particular, the governance shall ensure that separate interventions and actions on the Platform by the various technical partners in charge of the maintenance and exploitation do not have conflicts, contradictions, discrepancies nor overlapping with each other and do not have a negative effect on the design, configuration or functioning of the Platform.

5.2.4.1 Scope of Action

The governance addresses management, operational, financial, technical, and legal issues:

- Common management of the platform by a steering committee
- Platform (i.e. use cases, data…) running and remaining up-to-date
- Financial and workforce contributions from each partners
- Bug corrections, evolutions…
- Contractual arrangements

5.2.4.2 Form of Partnership and Commitment

Members of the consortium remain bound after the end of the project by the signature of a common Memorandum of Understanding on one hand and of a support contract with CNR-ISTI on the other hand.

The Memorandum of Understanding is non-legally binding but outlines the common objectives and efforts of the different partners for the maintenance of the platform in operational conditions for at least 5 years.
At the same time, contracts are signed between CNR and InGeoCloudS Data Providers to assess the financial contributions of the latter for the management of the Platform.

5.2.4.3 Roles and Responsibilities

In the frame of the definition of the governance, the roles and responsibilities of each partner were clearly assessed.
Each partner is entitled to:

- Participate in the good functioning of the Steering Committee (attending meetings, acting as the Steering Committee coordinator in turn)
- inform other members about any significant information related to the Platform
- Promote the Platform
- Contribute to sustain the Platform whether financially or by providing workforce
- Maintain the Platform running and up-to-date

Concerning the coordination and supervision of actions on the Platform, AKKA will endorse the role of technical coordination with the best of its ability and within the maximum amount of work as mentioned in the MoU.

5.3 AKKA INDIVIDUAL EXPLOITATION PLAN

AKKA established a roadmap to make its own exploitation plan and business model. This roadmap is articulated on following main axis:

- Integrate, stabilize and then further develop skilled InGeoCloudS team on key business-oriented Services Center in Toulouse.
- Pursue and develop synergies with AKKA Research actions having the objective of serving our customers, being prepared by a constant survey of new technologies.
- Contribute in maintaining the pilot for demonstration purposes for the next years in the frame of general agreement with former Consortium partners

- Advertise and sell consulting and software development services around InGeoCloudS tangible results for existing and new customers.

The Business model already presented in D6.5.2-INGC (section 6.2.2.4) globally still applies except that we abandon for the moment the Freemium model and the scenario of direct commercial exploitation of the platform as it is now.

For marketing InGeoCloudS platform, we make sure to be capable of being responsive and ready when the market is more mature and when potential customers are more inclined to actually use some InGeoCloudS solutions. In that case, we prepare scenarios for deploying ad-hoc InGeoCloudS production Platform(s) that could be used for commercial use, possibly following the freemium model that had been identified in the course of the project.

Decisions will be taken by contemplating the pool of requests we will be able to collect from one or several customers. As a matter of fact, some customers are not interested in sharing and putting in common an infrastructure with other organizations.
On the contrary, some others might be especially interested on that aspect of InGeoCloudS outcomes. In that case, they would potentially join project's Data Providers in adoption of current platform, signing accession to the MoU, paying an annual membership but could in exchange be involved in functioning of the platform (e.g. decisions about platform evolutions in a Steering Committee), benefit from extended free plans, gain some exposure at European level, be first for helpdesk and support requests.

5.3.1 SUSTAINING SKILLED TEAMS AND EXPERTISE

The team that worked on InGeoCloudS remains active and mobilized on the maintenance of the platform and on subsequent related projects: the framework is AKKA's R&D department called "*AKKA Research*" (http://research.akka.eu) that already started share of resources with the Services Centre for ICT in Toulouse, who executed InGeoCloudS duties. The latter is staffed with more than 150 persons and is part of "*AKKA Informatique et Systèmes*" , working on business contracts.

AKKA Research works on strategic projects for technology survey and expertise development.
The exchanges of workforces according to the needs are now institutionalized.

Financing of these workforces is performed through own AKKA subsidies on one side and through indirect funding (e.g. governmental tax credit for research actions) on the other side.

Around core teams made of 1 to 5 persons fix-assigned to an internal R&D project, staffing in AKKA Research is organised according to availability of consultants and their "free time" between 2 business missions.

In the case of InGeoCloudS follow up projects, core team is made of 2 fixed persons (AKKA's coordinator and chief architect of the INGC project). At time of writing, 7 additional staff members (including key developer of Sitools2 project) are assigned too. They started working on:

- performance evaluation and testing of cloud computing services,
- Openstack components and services, deployment and exploitation (with the perspective of migration of InGeoCloudS platform)
- big data platforms, Hadoop-as-a-service

In that context, we estimate a Full-Time Equivalent workforce of 4 to 5 persons over next year working on follow-up subjects. It means that the promised amount of workforce days can be fairly dedicated to the maintenance of the InGeoCloudS platform (we stated 0,2 FTE in the MoU, in line with D6.2 and D3.1.x documents estimations); the platform remains for our teams a very rich environment for exploring, and studying the technical "eco-system" around the topics addressed in the project.

Participation on Open Source projects is encouraged, as a simple and efficient way of structuring the work and addressing real-needs issues. This allows gaining experience on technology notably by contemplating those aspects of Open Source projects where AKKA could contribute.
In particular, contributions have been made so far on Sitools2, on Postgres/postGIS, Geonetwork.

5.3.2 BIDDING

Capitalizing on more than 20 years of experience, AKKA has developed a comprehensive offer on long-term preservation and value adding to scientific and environmental data.

This offer is mainly supported by the Services Centre for ICT in Toulouse. It includes:

- Expertise In the selection, customization, integration of INSPIRE-compliant technologies, on traditional infrastructure as well as on cloud-based infrastructures for high-availability and scalability/elasticity requirements
- Data Modeling, Repositories of Data, Harvesting mechanisms, Storage, Archives management
- Index and Search engines,

Existing customers on these subjects include Toulouse Métropole, BRGM, CNES and MeteoFrance at national level.

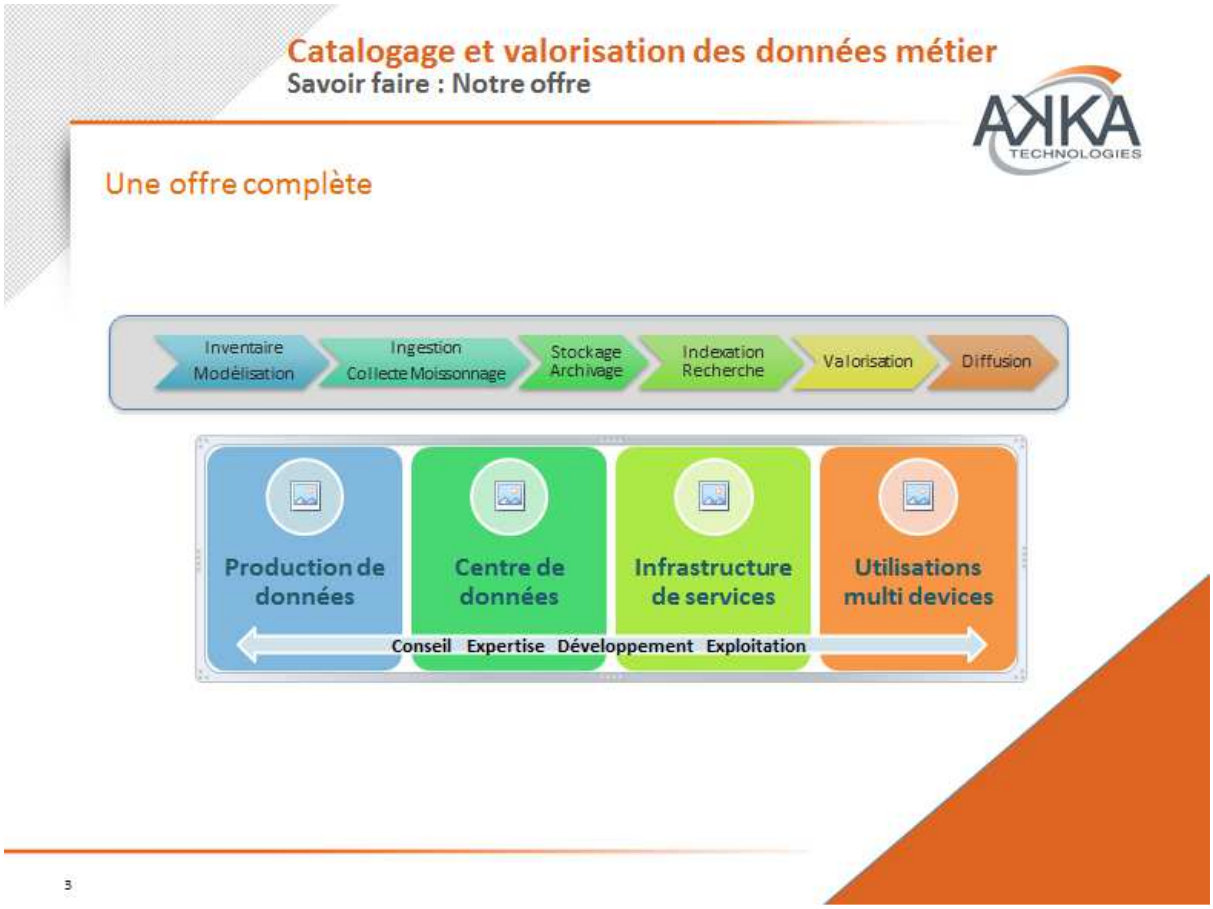


Figure 3: Excerpt of AKKA commercial offer presentations around valorization of data and added-value services.

Commercial workforce of AKKA *Informatique et Systèmes* advertises and will sell consulting, maintenance, software development services around InGeoCloudS tangible results for existing and new customers.

Figure 4: Advertised Technical domains of expertise at a glance.

As example of future candidature, AKKA is looking after and will bid potentially with one or more public partner in the coming PCP call issued by Cloud4Europe initiative. As such, AKKA team leader participated in EUCloud4Europe's first market consultation workshop - 31 March 2014 in Amsterdam where AKKA also published a position paper[6] (Call for tendering is announced for September2014).

Another example would be calls from JRC for constituting Test Work Groups on some INSPIRE reference infrastructure parts.

We also follow with our traditional customer CNES the new spatial infrastructure for Earth Observation based on "Sentinel" satellites where BigData and Cloud issues play a crucial role for addressing avalanche of data, their storage, sharing, distribution. A preliminary presentation of InGeoCloudS outcomes has been welcome.

As already registered success stories where the InGeoCloudS reference played a big role for win, specific project's outcomes (ElasticDB) is used a "COSTS" for an Airbus project. Another win is the R&T action from CNES (*System for Collaborative Management of Earth-Observation data in the Cloud for crisis management after major natural hazard)* with references to SITools2 and InGeoCloudS projects.

The table below summarizes the different items of AKKA's business model evoked above, which is very much compatible with the one promoted at Consortium's level.

6 http://www.cloudforeurope.eu/documents/10179/39413/Position+Paper+-+AKKA+Informatique+et+Syst%C3%A8mes.pdf

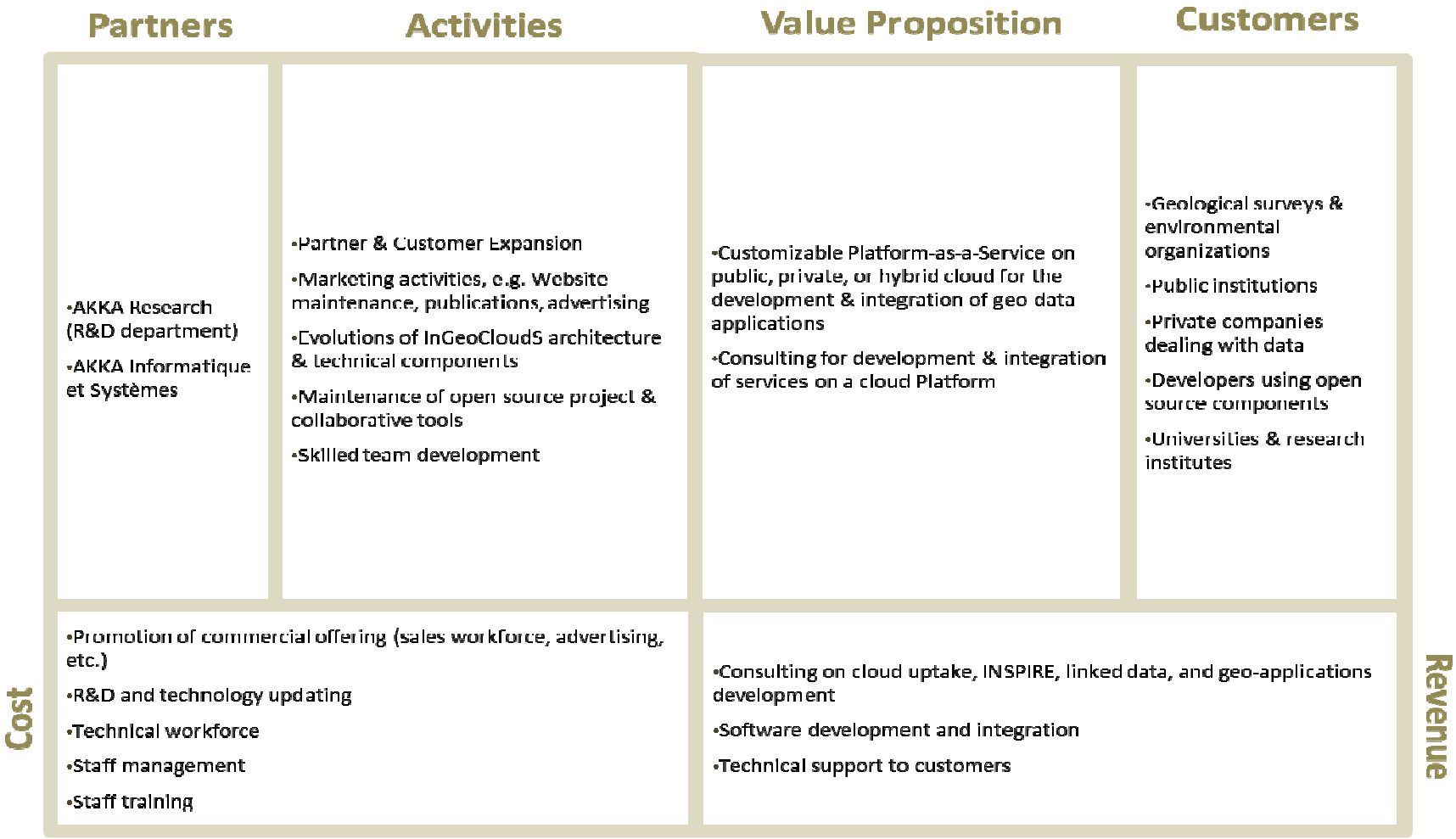


Figure 5: AKKA Individual business model at a glance.

5.4 BRGM INDIVIDUAL EXPLOITATION PLAN

While at the end of 2009, 12% of private enterprises and public organizations used at least one type of cloud service (SaaS, IaaS or PaaS), they were more than 33% in 2014 (MARKESS International).
A progression that illustrates the fact that more and more companies are using some form or another of cloud computing.

InGeoClouds, as a Cloud implementation of a GIS gives:

- A response to the financial challenges faced by businesses (pay according to use)
- A response to the challenges of changing business (better service)
- A major change for IT providers (IT are not users of a system but become architect through the use of PaaS capacities)

Nevertheless some remaining issues for cloud computing tends to disappear:

- Most often mentioned obstacles for cloud computing adoption includes issues related to integrating these solutions with existing information systems, privacy and data security,
- Similarly, reversibility, availability and accessibility of networks are, for some companies, a critical issue hindering their transition to cloud computing.

However, these obstacles are now behind us.

A remaining issue for InGeoCloudS is to reassure companies and local authorities that a Cloud solution is conform to industry standards for data protection, plans for business continuity, or compliance of ISO (and INSPIRE) standards.

For BRGM, InGeoClouds remains very relevant. As the other members of the consortium, we are keeping InGeoCloudS as a demonstrator for the next 5 years, and we have capitalized a strong experience. If the psychological barriers tend to disappear, we are ready to promote InGeoClouds or to implement a private Cloud system if required. (Indeed the development of Private cloud can also fit some particular business).

5.5 FORTH INDIVIDUAL EXPLOITATION PLAN

FORTH is interested in expanding and exploiting the GeoScientific Observation Model (GSOM) both as a conceptual tool, i.e. as a tool to describe scientific knowledge, and as an integration mechanism that allows the development of integrated applications and posting of cross-datasets queries. This has already started by the adoption and the extension of the GSOM model by other projects (SciNet NatHaz), where FORTH is providing support. FORTH is also interested in exploiting the provided datasets ─at least those that will be provided as Open Data, ─ as a testbed where one can validate queries and benchmark RDF stores based on real-world datasets. Finally FORTH is interested in the Linked Data API as a significant tool of data transformation that allows the exploitation of data linkages and produces various kinds of outputs including the ability to export data to the more complex (but highly desirable since it is now an EU standard) INSPIRE compliant format. This infrastructure can be reused by any interesting party that needs INSPIRE data compliance, regardless of whether a cloud infrastructure or not will be used.

FORTH as a research centre cannot directly use the platform to provide data or applications, but is committed in advancing the knowledge in the Linked Open Data (LOD) field, where linking with other data is essential to provide significant added value. In that sense, Linked Open Data publication will allow the data published in the frame of the project to be reused by other services, projects, users or all of them; thus providing a significant exploitation channel for the project. Working with policy makers also in Europe (e.g. other research bodies like JRC with advising capacity towards the EU) is also of interest to FORTH; thus providing both an exploitation channel for the project results and the ability to influence decisions beyond the scope of the project. Moreover by providing the corresponding source code using an Open Source model, we expect that many users will be interested in adopting and also extending it; to the best of our knowledge there is no other available platform provided as open source that carries similar capabilities. This can be combined with the

exploitation of the proposed GeoScientific Observation Model that can be used as a reference point for more datasets. Finally the accumulated knowledge can be reused by FORTH in subsequent collaborations in the same scientific field.

5.6 GEO-ZS INDIVIDUAL EXPLOITATION PLAN

The Susceptibility map of triggering landslides due to rainfall forecast use case provides prediction of the areas where the probability of triggering landslides will be increased due to higher precipitation levels. The end user is able to access the results through a Web GIS interface and WMS/WFS services.

GeoZS don't have funding yet, but we carried out following activities for possible founding:

- Administration of the republic of Slovenia for civil protection and disaster relief
  - They are user of the use case Susceptibility Map Of Triggering Landslides Due to Rainfall Forecast
  - We are negotiating about agreement on the terms of the maintenance contract.
  - Development and maintenance of the forecast system of triggering landslides due to rainfall is in the "Implementation plan of the National Programme for the natural disasters protection for 2014 at Ministry for Defense.
  - Susceptibility map use case WMS services are already implemented in first responders "Disaster relief system" and they are testing the system.
- We are also planning to attract new users who might be willing to pay for new services. We are already in contact with:
  - Geopedia,si portal.
  - Slovenian Environment Agency
  - Municipalities,
  - Realis d.o.o.: PISO - Spatial information system of municipalities
  - Slovene Roads Agency
  - Insurers and risk managers

The following exploitation activities will be carried out:

- **Administration of the republic of Slovenia for civil protection and disaster relief** is a user of the use case Susceptibility Map Of Triggering Landslides Due to Rainfall Forecast and we are negotiate about agreement on the terms of the maintenance contract.
- Development and maintenance of the forecast system of triggering landslides due to rainfall is in the "Implementation plan of the National Programme for the natural disasters protection for 2014 at **Ministry for Defense**.
- We cooperate with **first responders** and they are testing our system. Susceptibility map use case WMS services are already implemented in their "Disaster relief system" and they are getting prediction (for the next 24 hours) of the areas where the probability of triggering landslides will be increased due to higher precipitation levels every day. Due to the testing phase of hazard model prediction the results need to be treated with care and within their reliability.
- We already presented the usability of the Susceptibility Map Of Triggering Landslides Due to Rainfall Forecast use case to **Insurers and risk managers** in order that can use this system to assess the risk in a portfolio of exposures.
- Contact **infrastructure owners and operators** and present them the usability of the system. This system will inform them of an increased landslide hazard as a consequence of heavy precipitation that would exceed the landslide triggering values and enable them to mitigate risks.
- Present the usability of the use case to **planners**. They will have a susceptibility map developed in order to assist them when planning new infrastructure. GeoZS is planning to present a results to **DRI Investment Management**, Company for Development of Infrastructure Ltd
- We already had a meeting with director of **Geopedia,si** portal. They would like to use Landslide Susceptibility map services.
- We already had a meeting at **Ministry of Infrastructure and Spatial Planning of the Republic of Slovenia** were we talked about the possibilities on joint projects on geohazard in Danube Region using InGeoCloudS as a platform

- **Slovenian Environment Agency** performs expert, analytical, regulatory and administrative tasks related to the environment at the national level. Its primary mission is to monitor, analyse and forecast natural phenomena and processes in the environment, and to reduce natural threats to people and property.
- Nowadays, an increasingly important area of work in landslides prediction is the development of tools to generate warnings to potentially affected communities. Whilst investigated technologically led examples have been available for a couple of decades now, the growing emphasis is on predictive alert systems that can be operated on national, regional or European level. This service could be seen as an interested solution for real-time alert system and could also be used for other countries too. We will disseminate results of this INGC use case to other National geological surveys through **EGS** Spatial Information Expert Group (SIEG) and **Geoscience information consortium** (GIC) to get new EU projects.
- GeoZS is interested in investigating further use of cloud infrastructures for complex applications on spatial modeling using open source. The experience gained and the results of the project will be exploited in other activities, collaborations and **European projects** where GeoZS is and going to be involved (Minerals4EU, EGDI). We already transfer gain knowledge to national project MASPREM.
- GeoZS is very interest in cooperating with **Municipalities**
    - GeoZS had a presentation of “Landslide hazard forecast in Slovenia” at Consultations of Mayors,
    - we organized a workshop for municipalities in Slovenia- »Problems of slope movements” were Susceptibility map of triggering landslides use case” was presented
    - After we will validate the results of modeling (end of this year) we will send a letter to inform all the municipalities about the results of Susceptibility map use case.
    - GeoZS was contacted from **PISO** - Spatial information system of municipalities (134 municipalities involved). They would like to have Landslide Susceptibility map services in the system.
- GeoZS submitted a proposal on FP7 Call for Proposals: FP7-SEC-2013-1 “Warning system to protect critical infrastructures from landslides due to extreme weather conditions”. The project consortium consists of 12 partners from 6 EU countries. The proposal was not accepted but we intend to improve it and resubmit again.
- GeoZS plans to have a meeting with the **Slovene Roads Agency**, where we will talk about future cooperation
- GeoZS will **expand the Susceptibility map service** with a mail notification services and explore the possibilities of mobile application.

5.7 GEUS INDIVIDUAL EXPLOITATION PLAN

GEUS might choose to exploit the results of INGC internally by using the experiences gained in the project in particular regarding:

- Replication of large data sets from internal systems to a cloud based system.
- Exploiting the large computer resources available on a cloud system for processing geological data.
- Increasing external accessibility and usability of GEUS’ data by defining URI’s for those where this is relevant.
- Extending the current use case for pesticides in groundwater to include data about water works and other geological data.
- Exploiting the Linked Open Data technology to disseminate data from GEUS’ current databases for boreholes and related data together with data from neighboring countries.

In addition to this we want to exploit the results and experiences of the specific INGC use case about pesticides in groundwater towards external customers.

5.8 EKBAA INDIVIDUAL EXPLOITATION PLAN

Planned exploitation activities as of today for the next months are the following:

- Presentation of INGC at the 10th International Hydrogeological Congress, Thessaloniki, Greece, October 8-10, 2014. The title of accepted paper is "TRANSFORMING GEOLOGICAL AND HYDROGEOLOGICAL DATA TO LINKED OPEN DATA FOR THE GROUNDWATER MANAGEMENT by: ATZEMOGLOU A., ROUSSAKIS Y., KRITIKOS K., LAPPAS Y., GRINIAS EL. and KOTZINOS D.".
- Presentation of INGC at the 10th International Congress of the Hellenic Geographical Society, Thessaloniki , 22-24 October, 2014

5.9 CNR INDIVIDUAL EXPLOITATION PLAN

CNR will exploit the results of the project in research and technology transfer activities in the area of cloud computing and large-scale data management. Indeed, the InGeoCloudS project faces several challenges in these areas both from a technological and scientific point of view.
CNR has contributed significantly to the design and development of the InGeoCloudS infrastructure, with the goal of making it scalable and cost-efficient. This expertise will allow InGeoCloudS to support a large number of users of the platform with data volumes increasing over time, and to support cooperation activities between data providers and technical partners.
CNR is interested in investigating further the use of cloud infrastructures for large-scale data processing, such as tile generation, and the use of federation of cloud infrastructures for complex applications. Indeed, CNR is involved in other EU projects aiming at developing federations of cloud infrastructures as well as integration of public/private clouds.
Finally, the solutions developed to solve the data management issues arising within the scope of this project, are easily applicable to other scientific fields where the data being analyzed is of different nature, e.g. text, images, multimedia content, social media, etc. Therefore the experience gained and the results of the project will be exploited in other activities, collaborations and European projects where CNR is going to be involved.
The InGeoCloudS demonstrator is of great value for CNR because (a) it provides continuous experience and feedback on the cloud providers' services evolution, in particular Amazon AWS, and (b) it is a showcase showing the outcomes of some of CNR activities in a complex cloud/based data management application.

5.10 EPPO INDIVIDUAL EXPLOITATION PLAN

EPPO will contribute financially in maintaining the INGC pilot 2 for demonstration purposes for the next years in the frame of a general MoU agreement with current Consortium partners.

During this period, EPPO is interested in exploiting the INGC platform in the following ways:

- Further exploit the smart queries GUI to provide end-users with ready-to-run filters for shake-map searching
- Combine and integrate geohazard information from different sources to provide richer views of environmental hazards in a specific area.
- Exploit the export-to-INSPIRE option to provide INSPIRE compliant datasets in the area of environmental hazards. Contribute in the INSPIRE community by providing feedback on deficiencies and weaknesses of INSPIRE modelling of the specific datasets.
- Exploit the Geo-publication INGC service to provide geo-referenced shake-maps and to publish data using WMS/WFS OGC services.
- Exploit LOD API to integrate shake-maps search facilities in related in-house applications.

As regards the specific EPPO use case (Shake-maps), the following exploitation plans are being considered:

- Provide a mobile application for visualisation of shake-maps data
- Expand the service by adding functionality for the calculation of seismic scenarios
- Provide an alert and notification service as well as automatic publishing of major events in social media and/or EPPO website.

- Provide the option for calculation of shake-maps to other data providers mostly located inside Greek region
- Use richer and more complex shake-map calculation models that demand high computational resources.

Finally, EPPO gained valuable experience concerning developing for or migrating applications to the cloud, elastic computing and Infrastructure-As-A-Service (IaaS) aspects and was involved in data modelling and transformations in the field of earthquakes. EPPO plans to build on this experience by developing new or advanced services in the cloud and/or attracting new research projects.

6 RISK ANALYSIS

6.1 PLATFORM SWOT ANALYSIS

6.1.1 SWOT MATRIX

Strengths	Weaknesses
• Already tested and operational on Amazon cloud infrastructure • Answering data providers' needs: performance, interoperability, lower cost of operation, accessibility, monitoring and supervision of cloud services, INSPIRE-compliance, linked data capabilities • Skilled staff available • Documentation already been made available in the frame of the project • Several use cases online	• Platform will only be maintained as it is on July 31st 2014 (no further developments planned a priori) • Complexity of the platform
Opportunities	**Threats**
• Attracting new partners to try the platform • Ensuring uptake of results by decision and policy makers • Encouraging follow-up projects • Possibility to deploy the Platform on public, private or hybrid cloud thanks to Open Stack • Staff from AKKA Research still working on issues related to InGeoCloudS after the end of the project	• Lot of organizations not ready to pay to publish and share data • Reluctance in moving to a cloud infrastructure because of privacy and security issues • Public institutions reluctance regarding cloud business model (pay-as-you-go approach) • Customers' willingness-to-pay has not been assessed • Lot of competitors on the market, including some well-established such as ArcGIS online developed by ESRI • Lack of awareness regarding INSPIRE directive

6.1.2 RELATED ACTIONS

About Weaknesses
The signed MoU does not totally exclude further developments of the platform. Maintenance actions will of course be targeted on debugging and quality of service but steering committee might decide for integration of other enhancements if deemed acceptable by all partners and lead to more added-value of the demonstrator.
Complexity of the platform is addressed by confirmed collaboration of technical partners for the maintenance of the platform. Moreover, individual teams could gain skills and competences on other parts of the platform during last periods of the project (pilot phases where maintenance/debugging were necessary).

About Threats.

Publication and sharing of data by public institutions is not only a trend but also more and more a legal obligation (e.g. INSPIRE). We estimate that situation is progressing favorably though slowly in some countries.

Privacy and security issues have been considered constantly and seriously in the requirements, design, implementation, evolutions of the platform throughout project's life. We are still communicating on the progresses on the matter.
The MoU we agreed on is accompanied by services contracts where advance payments are proposed with regulation every year according to actual expenses. Such a schema can be repeated for new adopters thus facilitating acceptance by accounting departments. Willingness-to-pay depends on the quality of service and dimensioning that are required from a service provider. In our case, costs remain quite low and capacities are quite high for the price. Return-on experience of DPs shall show that good value can be obtained for a reasonable price.
We continue to follow competition (see Overview of InGeoCloudS competitors section) and will further adapt our messages on the .com web site.
Awareness about INSPIRE is raising and we modestly participate in spreading it. As a matter of fact, being a directive, it will be an unavoidable issue for all public institutions.

6.2 CONTINGENCY PLAN

Risk	Probability	Impact	Contingency strategy
Partner leaves consortium	Medium	Low	Ensuring partners retention. Good collaboration shall remain around the terms of agreement in the MoU. Finding and negotiating with new partners remains an objective.
Platform is too expensive to let run	Low	High	We could implement quite accurate costs monitoring and split services in order to be able to assess, with a fine-grained resolution where the costs are going per service, per data provider. While this can be yet ameliorated, the basis for fair split is here and monitoring is ensured for early decision-making whenever costs are rising too high.
Key staff leaving	Medium	Medium	This risk is addressed more or less comprehensively from one partner to the other. Through share of resources with AKKA Research, AKKA consider the issue as sensible and is creating means for skills developments among teams.
Technology & market changes	Low	Medium	As explained above concerning cloud adoption and commitment in INSPIRE duties, the evolution shall be quite favorable for InGeoCloudS. The strong R&D orientation of key actors in the project shall also help in mitigating the risks of technology changes.
Disagreement among partners regarding the exploitation of the platform	Medium	Medium	Negotiation for MoU has not been always easy and this risk cannot be totally neglected. Nevertheless, consensus could be found and we remain optimistic in pursuing agreement over the next years. One important encouraging point is the further collaboration between some

			of INGC Data Providers in other projects. This is also the case for technical providers who are joining common consortia in H2020 calls for projects.

7 CONCLUSION

This document tried and updated with more precise insights our exploitation strategy:

- We brought concrete facts showing how, by whom and how long sustainment of the Platform is now foreseen thanks to committed agreements, identification of findings and common investments. These elements are concretized in a MoU and associated service contract for financial subventions.

- We highlighted expectations put by every partner in the further operation of the Platform beyond project's end, showing that this serves mid-term and long-term objectives of each and pave the way for further collaboration and/or developments around InGeoCloudS.

- Investigation of other credible market opportunities such as private clouds deployments is pursued and technical partners are now ready for possible ad-hoc deployments on Openstack but also, thanks to the experience gained, on other Cloud Service Providers infrastructures with reasonable costs and time.

8 ANNEXES

8.1 BLUEPRINTS

Blueprints can be downloaded directly from the public wiki at:

http://www.ingeoclouds.eu/?q=wiki/blueprints

8.2 NEWSLETTER-ISSUE 3-JULY 2014

This newsletter is delivered as annex to this document.

Issue 4 is also in preparation (planned for end September 2014) in order to communicate about:

- about new LOD facilities and architecture improvements
- final delivery of results and end of the EC Project,
- about continuity of the InGeoCloudS platform through shared support of former partners
- about support, development and consultancy offers of partners on different topics.

8.3 MEMORANDUM OF UNDERSTANDING

The MoU which entered the signature process is the version 1.2 and is provided as annex of this document.