Deliverable D3.4

Pilot B Governance

Project Acronym	OASIS
Grant Agreement number	297210
Project Title	Towards a cloud of public services

Project co-funded by the European Commission within the ICT Policy Support Programme

Deliverable reference number and title	OASIS_D3.4 Pilot B Governance
Status	Final version

Dissemination level[1]	PU
Nature[2]	R

Due delivery date (project month)	M24
Actual delivery data	18/02/2014

Lead beneficiary	Pôle Numérique
Contributing beneficiaries	Pôle Numérique
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Revision History

Revision	Date	Author and Organisation	Description[3]
0.1	09/01/2013	Bruno Thuillier, Pôle Numérique	Creation
0.2	07/01/2014	Sophie Houzet, Pôle Numérique	Revision

[1] Dissemination level: **PU** = Public, **CO** = Confidential, only for members of the consortium and Commission services

[2] Nature of the deliverable: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

[3] Creation, modification, revision, final version for evaluation, revised version following evaluation

Statement of originality:

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Deliverable abstract

This deliverable is the result of Task 3.6 of Work Package 3 and aims at describing the governance for OASIS during the pilot phase and after it. This governance includes two levels:

- Global governance at the European level (after the pilot)
- Governance at the national level or Governance at the local level (during the pilot and after the pilot).

. The scope of the governance includes:

- The organisation of the legal governance
- The governance of the technical platform
- The governance of the data

The first part of this deliverable outlines the OASIS foundations in terms of values, specificities and also introduces the main principles of the future business model, which will be dealt with in greater detail in deliverables D3.2 and D3.3. The association of values, specificities and principles of the business model is necessary to present the guidelines agreed upon within the consortium in terms of organisation of the legal governance.

The second part and the third part will address the implementation principles of governance at the European level and the interaction with the current local or national governance modes. It will also provide the framework for the sustainability and/or the development of governance within the partner countries towards national level and additional European membership.

The work carried out in this document will help the consortium members to position themselves steadily during the pilot phase for the implementation of the future European governance. It will also help new territories, public and private bodies wishing to join the OASIS dynamics to position themselves with a clear view of all possibilities.

The D3.4 deliverable is not committed to giving the formal position of each partner of the consortium at the end of the pilot phase. These elements will be found in deliverable D3.5 at the end of the pilot phase.

The fourth and fifth parts will address the technical platform governance in the context of its management, development, and the audit processes necessary to the security of the operation.

Finally, the conclusion will begin to raise the issues related to the governance of data. However, the answers and approaches for the future of OASIS will be made available in deliverable D3.5, since the pilot will not allow the consortium to answer all questions related to data governance.

Project Management Review

	Reviewer 1: Not Applicable			Reviewer 2: B. Thuillier		
	Answer	**Comments**	**Type ***	**Answer**	**Comments**	**Type ***
1. Is the deliverable in accordance with						
(i) the Description of Work and the objectives of the project?	☐ Yes ☐ No		☐ M ☐ m ☐ a	☒ Yes ☐ No		☐ M ☐ m ☐ a
(ii) the international State-of-the-Art?	☐ Yes ☐ No		☐ M ☐ m ☐ a	☒ Yes ☐ No		☐ M ☐ m ☐ a
2. Is it the quality of the deliverable in a status						
(i) that allows to send it to the European Commission?	☐ Yes ☐ No		☐ M ☐ m ☐ a	☒ Yes ☐ No		☐ M ☐ m ☐ a
(ii) that needs improvement of the writing by the originator of the deliverable?	☐ Yes ☐ No		☐ M ☐ m ☐ a	☐ Yes ☒No		☐ M ☐ m ☐ a
(iii) that needs further work by the partners responsible for the deliverable?	☐ Yes ☐ No		☐ M ☐ m ☐ a	☐ Yes ☒ No		☐ M ☐ m ☐ a

* Type of comments: M = Major comment; m = minor comment; a = advice

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Introduction

Governance covers all the issues necessary to guarantee the good functioning of OASIS during the pilot but and beyond the project phase

During the pilot phase the consortium has a contract which enables them to experiment OASIS. In so far as services implemented on OASIS will be used by public, private entities and also by individuals, it is necessary to create the conditions of sustainability of these services.

Its open positioning favouring the creation of common goods and its assignment of “guarantor of these common goods” generates a strong complexity for the implementation of a governance.

We identified three big types of governance:

- The organisational governance
- The technical governance
- The governance of users and data

The first two types will be dealt with in this deliverable.

Context of the creation of OASIS

The rapid evolution of digital technology has seen a reduction in the value of equipment and infrastructures with a corresponding increase in the value of services and data. At every stage of this evolution, some multinational companies have concentrated control over and benefits of these powerful and sensitive services and data.

This concentration of power by a few, strong commercial interests represent a risk vis-à-vis public authorities and citizens. This phenomenon of centralization has never been so critical as today because it extends to world heritage held at present by Google and Facebook. A strong public option for the creation and the conservation of digital public goods, may circumvent the risk that these new information giants operate without alternatives. When we discuss net neutrality, we can also ask the question of how public authorities can act to guarantee the free circulation of contents.

«Immediate access to information and electronic systems for real time participation offer an enormous hope: that of a transition towards a more just and more humane society. However, they also represent one of the most serious threats ever to have loomed over humanity. Never, indeed, have the risks of the concentration of power between few hands will have been higher. Never will the chances of merger and of alienation of the citizens have been greater. "

Joël De Rosnay (1977), Le macroscope

In this context, communities, and on a wider scale private actors, have an interest in guaranteeing a public heritage of services and data and their accessibility for all under equal conditions. Communities and companies also have a common interest in favouring sustainable economic development within their territories. OASIS thus «guarantees the common good through data» and supports economic development based on the values of the “Society of Knowledge”:

- Opening (open-access, open-data, open-source, open-innovation…)
- Sharing (cooperative, collaborative, cross-cutting models…)
- The culture of access to services rather than ownership

- Business models based on the "win-win" mode.

The appropriation of these values for the constitution of new services and new linked data, requires a "neutral" positioning and a permanent mediation of local development projects, based on PPI partnerships (public, private, individuals). This neutral position of operator of operators “guarantor of common goods” at the European level and maybe more broadly, is a concept difficult to translate legally on the one hand, and on the other hand in view of the current developments of the governance modes towards more common networks, more governance in the system of international governance.

Plan of deliverable

The first part will present the foundations, the scope of action of the governance and the principles of the OASIS business model. Then the deliverable covers the governance and creation of a future OASIS legal entity (Sections 2 and 3) as well as the Technical, IT governance (Sections 4 and 5).

Its conclusion will pave the way to users and data governance which will be dealt with in the next Deliverable, D3.5.

1. Foundations of OASIS

When considering these issues of openness, sharing and development of business models and also securing personal data and uses, the objectives of OASIS are the following:

1.1. Objectives

Constitution of a common good:

Data is shared to be used by all (while respecting access rights and licenses of use), and commonly governed (thus neither by a private structure, nor by a state structure.). We would like to adapt the principles of governing commons good, by Elinor Ostrom to the governance of OASIS (1).

According to Alain Ambroisi (Communautique Research associate), we speak of “common good” every time a community of persons is animated by the same desire of taking over a resource it has inherited or created and when it self-organizes in a democratic, friendly and responsible way to ensure the access, use and welfare of future generations.

A catalyst of collective intelligence:

This common good favours cooperation, the creation of collective intelligence around shared data. Oasis allows a group to catalyse and to incubate innovation, to favour local and global networked cooperation, and to create common practices.

The sharing of data gives anyone the opportunity to create new services, regardless of one’s own territory.

Guaranteeing the protection of the users:

The users (in the broad sense: citizens, companies, communities, etc.) must have strong guarantees they can rely on within the framework of one “loyal cloud”:

- Legal security

- Protection of personal data
- Reversibility (a guaranteed ability to « take back » their data)
- Access without any discrimination
- Transparency

To reach these founding objectives, OASIS is:

- A store of services: OASIS allows services (in web mode) to be interoperable and to share data.
- A datacore with its tools which enable services accessible via a store to collect data and put it out in the datacore.

  OASIS offers advanced functions of storage, sharing, management and data protection to simplify interoperability, cooperation, wide use of data to improve the existing services and creation of new, innovative ones
- An advanced social network: the relations between the persons and organizations (family and guardianship relationships, employee / employer, legal person in charge of an entity, etc.) are important data for the operation of most of the services and are personal data that must be protected. It is thus a full function of OASIS
- A user web interface: OASIS offers the users a portal to subscribe to the applications, to access them, and to administer one's account and data.

OASIS allows the users and the organizations to go towards "cloud" services to subscribe to the applications, access them, manage one's account and as such to rely on a principle of "loyal cloud" (to manage the elasticity, high availability, and access from anywhere, while guaranteeing the reversibility to the user).

1.2. Governance principles

- In order to benefit from a governance the most representative of society, it is necessary to include a diversity of economic players, including civil society and institutions pursuing a general interest. The OASIS governance should contain of members of various statutes (associations, public, semi-public institutions, communities) who are open to the very simple membership of new members. These will be customers / users of OASIS, or simply contributors, and they will guarantee the "data common goods", as well as the "software common goods", if necessary. They will also have the mission to develop OASIS.
- The members of the governance cannot directly be service providers to the end user, to guarantee that OASIS remains neutral in its technological evolutions and in its function of "guarantor of data common goods ". The governance of OASIS requires a position of "operator of operators", giving a creative environment to service providers, so that they guarantee the service to the final user. But the private members of consortium will be integrate in the governance in a strategic council or in a company for manage the platform.
- Profits generated by the activity of OASIS (other than the profits made by providers) must be reinvested for the improvement of OASIS functioning and for the mediation necessary for the constitution of "the reusable data common goods" and the co-construction of innovative services.

1.3. Scope of action

1) Neutral mediation of data:

- Interconnection of producers and potential re-users of data
- Awareness about open data and data collection
- Support to open licence use
- Support to data standardisation
- Support to data co-construction
- Guarantor of the effective use of licenses.
- Qualification of data
- Cataloguing
- Aid given to data link and sharing
- Animation for the co-creation of data-model
- Education about data re-use.
- Education about the analysis and interpretation of data

2) Technical validation

- Validating technical developments
- Guaranteeing the protection of personal data
- Contractual settlement and follow-up of the service contract with the company in charge of the maintenance and the evolution of the technical platform.

3) Animation:

- Animation of a developers' community
- Animation of a users' community
- Preparation of calls for projects favouring the development of new services.
- Redefining the governance scope regularly
- Publishing the feedback
- Publishing the activity reports
- Communicating

4) Contractualization:

- Definition of the "operator of operators" relation between OASIS and the providers
- Contractualization of pricing of data/API.
- Drafting of a labelling charter and follow-up of the service suppliers' labelling who will come onto the Store.
- Contractual settlement of « cooperation conventions » which can have various names according to the countries.
- To use the principle of public order grouping for members.
- Favouring innovation with co-investment
- Editor of the terms of use for all kind of users.
- Integrating new service providers and ensuring the eviction of service providers who would not meet the conditions of the quality charter.

These actions will be detailed at European and local level in the second part. In addition to the scope of action, the business model impacts the governance choice.

1.4. Business model principles

Expected OASIS incomes will come from four revenue sources:

- Memberships: minor part of the incomes.
- Fee on the turnover generated by service suppliers: major part of the income.
- Reimbursement of the costs for the availability of data (linking, qualification…): very small part of the income.
- Income produced by supported projects in co-investment (2): income generating revenues over a very short period.

These revenues should cover the expenses which will be of two types:

- Governance of the common good (administration of the supporting structure, mediation, contractualization, animation)
- Maintenance, hosting and scalability of the platform, and data.

1.4.1. The memberships

The members are public or private entities which work for the general interest. They cannot be paid service providers on the portal. The amount of their membership is based on a principle of equalization enabling small entities to benefit from the OASIS environment at a modest cost, in proportion to their size. The amount of memberships will be significant for the global functioning of OASIS but minority regarding the fees generated by the turnover of the services on the portal.

1.4.2. Fee on the turnover of the services

The services are hosted on the portal without any entry cost (except for their adaptation cost supported by the service provider). According to the use of data already present in the datacore and retrieving data in datacores, the percentage of the fee on the turnover generated will be different. The objective is to stimulate the sharing of data: the more data is shared in the datacore, the less the fee is important for the service provider.

1.4.3. Reimbursement of the costs for the availability of data

Relatively to the conditions of public data availability, the Directive 2013/37/CE of June 26, 2013 has provided a framework for the legal modalities of this provision.

This directive modifies the “directive 2003/98/CE concerning the reuse of public information” previously in force.

The new Directive aims at harmonising the rules within the State members regarding the availability and reuse of public data.

Besides, if it agrees that the reuse of public data must be enhanced, the Directive however remains on the principle according to which the fee cost must not exceed the costs for data collection and processing.

In any case, the Directive provides that all the State members will have to adopt the Directive within 2 years of the date of June 26, 2013.

This practice will represent a very small part of the OASIS business model.

1.4.4. Income produced by supported projects in co-investment

To favour the creation of new services directly in Web mode and respect the criteria of interoperability of the data, the OASIS platform should be able to freely welcome new service providers with a test space. It is also recommended that the providers can access a “contributors, testers” pool to create and improve their services as closely as possible to the users’ needs.

Finally, to favour the development of innovative services which require an R&D phase, the possibility of public / private co-investment will be tested, to allow the sharing of risks and profits between the public entities in demand of services and the private entities implementing services.

The possibility of co-investment is based on the principle of « pre-commercial procurement ». At the European level, a communication for the use of this principle was made on December 14th, 2007 in Brussels, (COM (2007) 799 final) “Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Pre-commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe” {SEC (2007) 1668}.

This principle has the virtue of favouring innovation. It allows teams to shorten the duration of technological transfer and to associate one or more innovative small companies to the creation of a new service because they share the risks with the public entity, and thus are more inclined to take risks, than when they are alone.

The process of implementation of pre-commercial procurement is as follows:

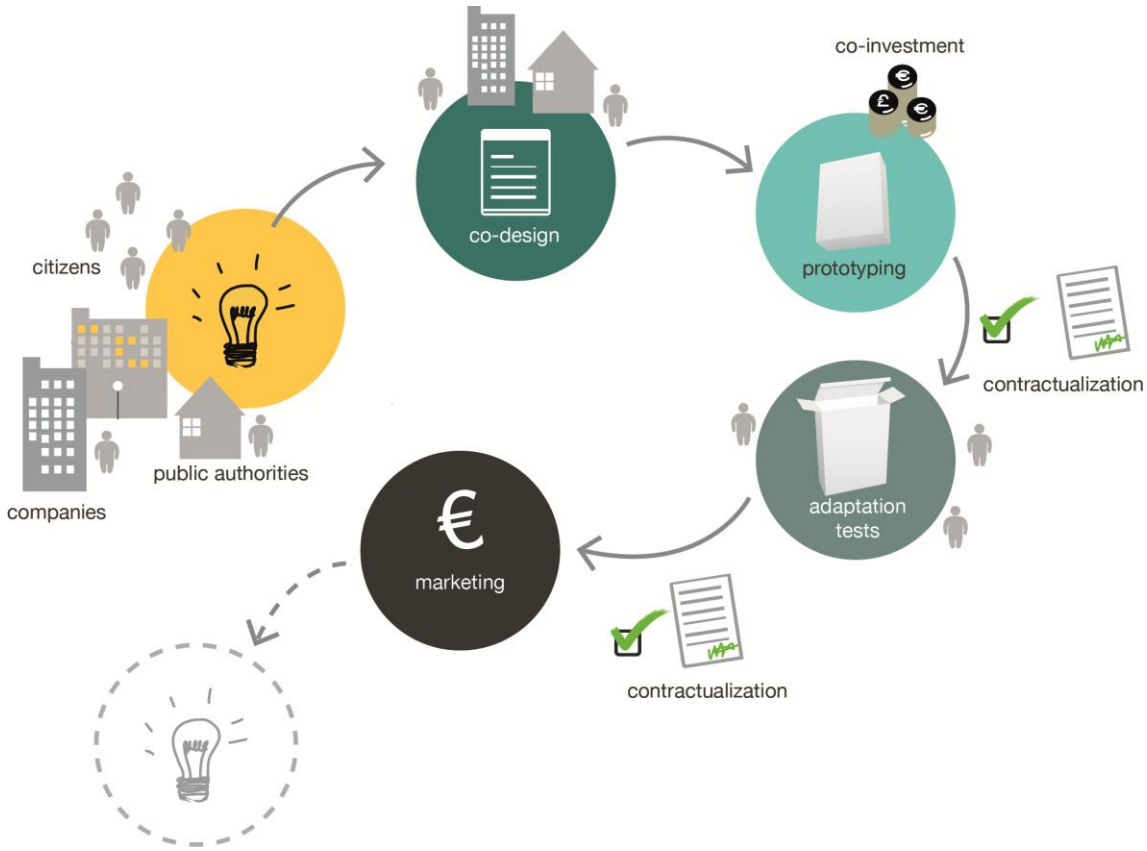

Figure 1. Pre-commercial procurement

The global economic model will be further D3.2 deliverable, with a “mass calculation” which will enable to stimulate the investment required for the industrialization of OASIS and the return on investment time.

The provisional business model enables to engage a “virtuous circle” in which benefits are re-invested for the “common good”.

Figure 2. Principles of « win-win » economic model

To meet the governance foundations and the principles of its business model, we must study the governance modalities at a local and European level.

2. Governance at local level and European level

Each pilot site, in every European country partner of the OASIS project, is free to rely on the supporting structure of its choice to contribute to the OASIS development and establish partnerships which will allow the OASIS development and sustainability. According to the type of structure, the links with European governance are different.

For exemple, a companie or IT association who provide services, cannot be directly members of European governance, but they can sign un partnership with European governance.

It will always better to have a local governance to support the users. Whether private or public, it will have links with the European governance and will take on the assignments presented below. If it cannot have a neutral positioning, by default it is the European governance which will take over the assignments requiring neutrality.

The creation of local governance is not linked to the creation of local datacores. Even if there's no datacore in a country, it is better to have a local governance.

Governance actions, according to their types, must be supported at a European level and/or at a local level. Therefore, national or local branches to OASIS could be created. Responsibilities would be shared as shown below.

2.1. The actions at national and European level

Scope of action	Fonction	Local governance	European governance
Neutral mediation of data	Interconnexion of producers and potential re-users	Between the services of a same language or used on the same territory and to make the opening of local data easier when the local governance is neutral.	Between all types of services
Neutral mediation of data	Qualification of data quality	Qualification of business data	Qualification of completeness, diversity of data, contribution.
Neutral mediation of data	Governance of datacores (A main datacore will be under European governance, secondary datacores under local governance)	If data can join general datacore, local datacores will be created and their governance will then be made by a local governance to ensure compliance with legal requirements of the different countries.	Strong responsibility of the European level.
Neutral mediation of data	Data models governance	Travail collaboratif autour des modèles de données métiers.	Link with the existing semantic data models and European working groups. Data models being progressively implemented according to the hosting of new services and since they have to be reuseable by new services, it is necessary to animate the concertation between several users' services of a same model so as to define it optimally. As far as possible, existing data models will be taken back and if necessary beefed-up so as not to recreate new models for already modelled data. .
Neutral mediation of data	Cataloguing		With the information of local governance, services providers.
Neutral mediation of data	Education about reusing and interpreting data	If local governance is a general interest entity.	With the support of local governances

Scope of action	Fonction	Local governance	European governance
Technical évolution of the platform	Validation of the technical developments of the platform		Governance will consist in favouring a permanent evolution of the platform with the integration of the evolutions proposed both by the users'community and the developers'community.
Technical evolution of the platform	The protection of personal data		This level is « garant » of personnal data
Technical evolution of the platform	Contractualization with a SA		Only level of validate this contractualization

Scope of action	Fonction	Local governance	European governance
Animation	Animation of developers'communities : roadmap of developments, open-source services / forge	Animation of development communities around services and contribution to the animation of specific development of the platform if there is a local specific skill.	Global animation of the developments made for the evolution of the platform until their implementation, according to the strategy of the IT-governance
Animation	Animation of a users' community	At this level to test the new services, the platform developments.	To adapt the platform and the hosting conditions of new services.
Animation	Definition of the OASIS scope		The assignments defined today for the pilot and planned for the future are necessarily evolutive with the evolutions of society, practices and the OASIS extension.
Animation	Communication	At this level, it's a local communication	At this level, it's a gloabal communication. The governance structure will publish the results of the platform's evolutions using the cross-media approach so as to favor co-communication around these evolutions.
Animation	Establishment of the platform evolution strategy : technical choice, calls for projects answers	Answer to Call for Projects for the creation of new services	Answer to Call projets for the evolution of platform
Animation	Delivery of assessments and sharing of activity reports.	For all of the local users, partnership.	For all of the local gouvernance, financial partnership, communities
Animation	Publication of results, developments of the platform, animation of developers'communities	Local governances will be able to publish on the specific evolutions in their countries (integration of new services, integration of new functionalities they needed,…).	

Scope of action	Fonction	Local governance	European governance
Contractualization	Co-investments in projects/services with the laboratory.	According to the local services in terms of general interest, public persons will have a major interest in relying on OASIS to develop their new services.	At the beginning but not in long terms. Because at the beginning this way of doing is not usual with members and because one must inject a creative dynamics of new services. Then, it is better that another entity favours this creativity in funding new ideas of services. If this co-investment principle was commonly used over the long term, there would be a risk of losing the guarantee of neutrality, which is very important to develop the OASIS ecosystem.
Contractualization	Definition of the relation « operator of operators ». OASIS/service providers.		Governance will consist in favoring a permanent evolution of the platform with the integration of the evolutions proposed both by the users'community and the developers'community. With the guarantee that all types of service providers and data supplier scan be hosted on OASIS with the same conditions.
Contractualization	Pricing: availability of data/API, sovereign services, hosting, suppliers' payment method.	For their data, hosting	Harmonization of principles for the hosting of new providers in order to ensure the quality of service of the different datacores.
Contractualization	Integration of a new OASIS partner, networking with the various datacores.		This function is only possible at the European level for the public entities which are members or not members with a contractualization.
Contractualization	Integration of a new services provider	The local governance can create a new service on OASIS, and puts it on OASIS, can recommend a new service for the OASIS members. But cannot decide for the final implementation and the attribution of a quality label.	The integration of a new service can be made at a member's request for he has a need and in that case governance can make procurement to host a new supplier who meets the labelling conditions. Another desirable case is a provider's request to join OASIS. In that case, he is freely hosted, he must make the effort of adapting his service to the unique minimum authentication and then he will pay a fee according to the quantity of data he will share in the datacore. More the service shares data, lower his fee is. The European governance will rely on the local governances to grant a quality label to a service. The hosting of new providers will be possible in an unlimited manner, competition being expected in OASIS.

Scope of action	Fonction	Local governance	European governance
Contactualization	Public order grouping for members	Intermunicipal associations which award contracts to provide services to their members can operate in purchasing organisations and in this case the platform providers themselves answer directly to the public order grouping.	This function is possible at the European level for the public entities which are not members of a syndicate are obliged to award contracts to use OASIS.
	The central purchasing organization acts as an authorised representative for the public procurement procedure and leaves the execution of the contract up to the members	Associations, state-owned companies then become OASIS users as well as their members.	This is worth mutualizing this call for tenders and getting the best prices for the services offered by providers to public authorities.
Contractualization	Partnerships with structures such as IT associations, data board)	For a local extension of the user	For the extension of commons goods.
Contractualization	Publishing the general terms and conditions		This level is alone competent in taking local diversity into account.

Beyond the creation of a European governance structure « guaranteeing the common good », it is interesting to think of the widest partnerships with public structures of mutualisation of existing data (IT syndicate, in-house GIS…) in various countries of the European Union, and to facilitate the access of public bodies to public and « business » services accessible via OASIS.

Indeed, the cooperation conventions between public entities come from German law and gave rise to community case-law which was then applied in the member countries or is at least enforceable. The various public entities can then use this type of cooperation convention.

With regards to Turkey, as it is not a member of the EU, we can create a convention mechanism which is submitted to the same principles (conventions established for the satisfaction of the general interest, without competition and giving rise to a fee established at cost price).

In any case, Turkey not being part of the EU, there should not be any barrier regarding the principles of the public order (mainly when the remuneration comes from a Turkish community).

The legal arrangement with public Turkish entities will be studied during the pilot phase.

This dimension of cooperation in governance is important to favour the use of services by public authorities, in the respect of procurement rules.

2.2. OASIS functioning principles for public authorities

Public authorities will be able to purchase services without having to join OASIS when the services bought are lower than the threshold of procurement contracts applied in Europe (15 000 €). This threshold can be varied for other countries, according to their own procurement legislation.

2.2.1. Communities not members of OASIS:

Figure 2. Case of public authorities purchasing services below the legal threshold

Not part of the OASIS governance, they have simply access to OASIS on the Internet, which allows them to have:

- a unique identifier to reach all the services,
- access to free services,
- interoperability of the services,
- choice of « à la carte » services. Communities choose the services directly on the store (without any competition within the limits of a 15 000€ amount),
- change of publisher without any recovery cost of data (since they leave a service of OASIS) to go towards another service on OASIS or out of OASIS,
- access to open data and shared
- guarantee of a continuous activity
- publication of their open data

When public authorities exceed the authorized purchase threshold without competition, according to the Code of Public procurement contracts they must become members, or if members of a public body, the latter must have established a convention with the European governance structure.

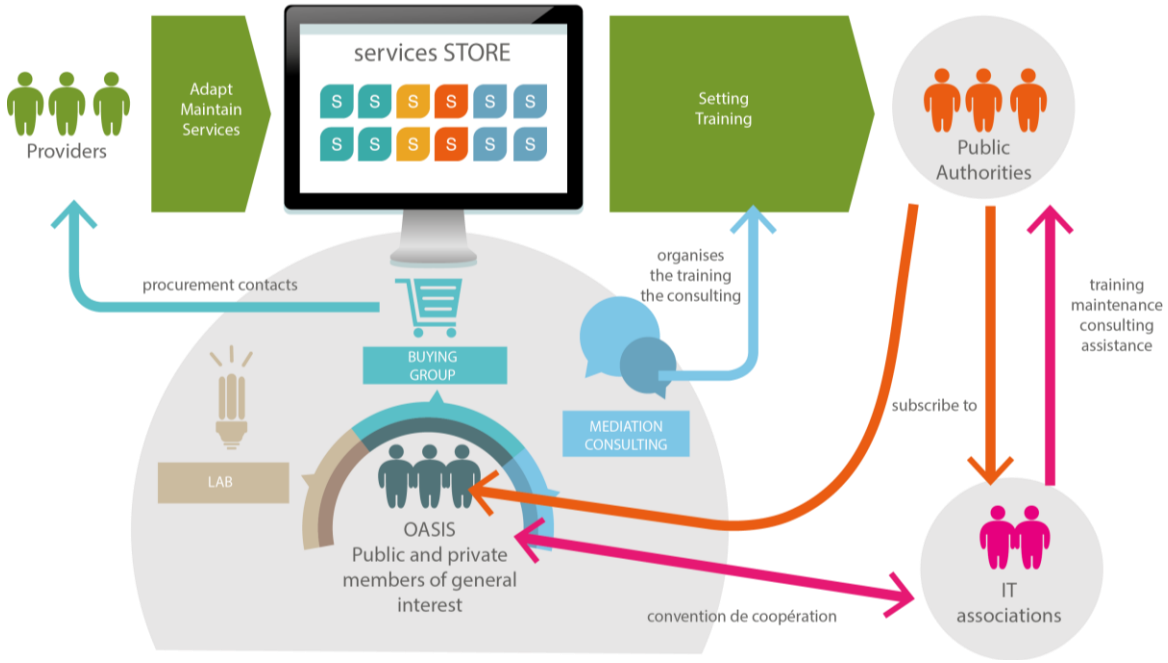

Figure 3. Case of public authorities joining OASIS or joining IT associations

2.2.2. Direct members of OASIS

These partners benefit from:

- a unique identifier to access all the services
- mediation,
- the grouping of invoices,
- the organization of business training,
- the guarantee of continuous activity,
- the access to free services, and the easy publication of their data,
- the interoperability of the services,
- a buying group,
- a change of publisher without any exit cost (when they leave a service of OASIS) to go towards another service on OASIS or outside OASIS,
- the access to open and to shared data,

Members may:

- **Choose "à la carte" services directly on the Store** (without any competition within the limits of a 15 000€ amount). Choice of "à la carte" services.
- **Benefit from preferential rates by means of the buying group**
  - the buying group places order with various service providers,
  - the configuration, the training, etc., are assured by the IT association (agreement of cooperation between public persons planning the exchange and the mutualization of services with OASIS).
- **Benefit from the animation of users' communities for the evolution of the business softwares and contribute to their evolution.**

2.2.3. Communities are already members of an IT association (and thus do not adhere to OASIS), their IT association has a cooperation agreement with OASIS which allows them to benefit from:

- a unique identifier to access all the services
- the grouping of invoices,
- the guarantee of a continuous activity
- the access to free services,
- the interoperability of the services
- the access to open and to shared data
- a buying group
- a change of publisher without any exit cost (when they leave a service of OASIS) to go towards another service on OASIS outside OASIS.

OASIS, as a contracting authority can be a buying group for other contracting authorities. This intervention has to be made in the respect of the principle of specification that is the respect for the material and territorial skill of the GPI (scope of its members). We nevertheless observe in practice that associations are already buying groups for their members but also for third parties. The legal risk of a misunderstanding of the principle of specification will significantly be reduced if the statutes of the GPI expressly plan the possibility of being a buying group including for non-member entities when the objective of purchases is in connection with its own objective.

Members of an IT member association may:

- **Choose the services directly on the Store** (without any competition within the limits of a 15 000€ amount). Choice of "à la carte" services.
- **Benefit from preferential rates by means of the buying group**
  - the buying group places order with various service providers,
  - the configuration, the training, etc., are assured by the IT association (agreement of cooperation between public persons planning the exchange and the mutualization of services with OASIS).
- **Benefit from the animation of users' communities for the evolution of the business softwares and contribute to their evolution.**

Scenarios B and C (Communities are either members of OASIS or member of an IT association)
The service is directly provided by the supplier when communities are members of the GPI, and when they are members of an IT association, it is the IT association itself which ensures the service by having a cooperation agreement with OASIS.

Such cooperation can't generate profits betwen public entities

3. Scenario for creation of a future OASIS legal entity

The European structures which were studied are the GPI (Grouping of Public interest) of French law, the ECC (European co-operative company), the EGEI (European Grouping of Economic

interest), the foundation, the cross-border mechanisms of cooperation, the association and SPL (Local public company).

The first structure to be created must be studied by taking into account the same pros and cons:

- Adequation of the objectives of the future OASIS entity with the applicable legal framework
- Display of one general interest
- Ease of operation
- Partnership
- Robustness and durability of the structure

3.1. Comparaison of the different types of legal structures

In the first table, a summary of the study by type of legal entity. In the second table, a summary of the principles essential to the respect of the OASIS foundings with a conclusion on the possible structures.

Type of structure	Legal framework	Object	Composition/ functioning	Pros	Cons
Grouping of Public interest	*Law N 2011-525 of May 17th, 2011 of simplification and improvement of the quality of the right*	*"The grouping of public interest is a legal entity of public law endowed with the administrative and financial autonomy. It is established by agreement approved by the State either between several moral persons of public law, or between one or several of them and one or several moral persons of private law* ".	- The constitutional convention settles the organization and the conditions of functioning of the grouping (article 99 Warsmann law) - The general assembly of the members of the grouping takes any decision relative to the administration of the grouping - Associations and public authorities can participate in a GPI - The foreign moral persons can participate in a GPI - The GPI is established with or without a capital - The grouping of public interest does not give rise to the sharing of profits. - The moral persons of public law and the moral persons of private law in charge of a mission of public service, based in EU, have to detain together more than half of the capital or votes in the decision-making bodies (article 103 of the Warsmann law)	- Flexibility of functioning: the constituent convention determines the operating procedures of the GPI; - Does not require a share capital; - Can gather French and foreign public and private persons - Adequation of the entity with the applicable text: The GPI according to the Warsmann law is created for cooperation and mutualisation between members to facilitate their activities of general interest. To the case in question, we will not be in the heart of cooperation between the members in so far as the services will also address non-members. However, its creation corresponds to the satisfaction of general interest: digital development, development of the territory, etc. Consideration will have to be given as to how members cooperate to make and operate a services platform of general interest. This will not formerly be the GPI which will offer services to non-member third parties but the suppliers hosted in the platform. - Display of a general interest: the GPI would be serve the general interest: digital development, development of the territory, etc. -Easy to use : flexibility/private accountancy/personal private - Robustness and durability of the structure: precisely supported by texts to make the partnership possible.	The creation of this entity requires the commitment of the French State and its vote by decree.

Type of structure	***Legal framework***	***Object***	***Composition/ functioning***	***Pros***	***Cons***
Economic grouping of European Interest	The EEC 2137/85 Regulation of the Council of July 25th, 1985	"The purpose of the grouping is to facilitate or to develop the economic activity of its members, to improve or to increase the results of this activity; it is not necessary to make a profit for itself. Its activity has to be connected with the economic activity of its members and can only have an auxiliary character with regard to the latter".	Companies, other legal entities of public or private law, as well as physical persons having an industrial, commercial, craft, agricultural activity, of liberal profession or other services in the Community - A EGEI must not necessarily be formed with a capital *-A EGEIE must have at least two members from different Member states.*	*Allows the grouping of companies as well as other legal entities of public or private law*	*- Structure not necessarily adapted to the decentralized cooperation.* *- Collective and joint responsibility of the members for the contracted obligations,* *- Economic vocation of the EGEI*

Type of structure	***Legal framework***	***Object***	***Composition/ functioning***	***Pros***	***Cons***
European Company of Cooperation	1435 / 2003 Regulation of the Council of July 22nd, 2003 concerning the status of the European co-operative	*"The satisfaction of needs and/or the development of economic and/or social activities of its members in particular by the conclusion of agreements with them so as to supply goods or services or to implement works within the framework of the activity which the ECC practices or makes practice. The ECC can also meet the needs of its members by favouring, in the same way, their participation in economic activities in one or several ECC and/or national cooperatives ".*	- At least five physical and/or moral persons living in at least two States of the European economic area - The capital of the ECC has to be of a minimal 30 000-euro amount - The structure of the ECC consists on the one hand, in a general assembly and, on the other hand: - either in a management body and a supervisory board (dualistic system); - or in a decision-making body (monistic system) according to the option retained by the ECC statutes.	- *Tool adapted to the cross-border cooperation* - The members of the co-operative are "customers, workers or suppliers".	- The ECC requires a minimum 30.000-euro capital; - The objective pursued by the co-operative consists in " the satisfaction of the needs of its members and/or the development of their economic and social activities ", what does not seem to be in keeping with the common objective;

Type of structure	***Legal framework***	***Object***	***Composition/ functioning***	***Pros***	***Cons***
State-approved Foundation	Law n°87-571 of July 23rd, 1987	*"The foundation is the act by which one or several physical or moral persons decide on the irrevocable affectation of goods, rights or resources for the realization of work of general and non-profit interest ".*	- Management by a Board of directors and an Executive board or by a Management Board and a Supervisory board. - The annual resources of the foundation consist of the allocation, the subsidies, the product of the liberalities of which the use is authorized. - The recognition of its character of general utility is conferred by Decree	- The foundation can be created by associations - The foundation can include public and private, French and foreign entities - Adequation of the entity with the text: The foundation is the act by which one or several physical or moral persons decide the irreversible assignment of goods, rights or resources to the implementation of some work of general interest. In this case, its creation corresponds to the satisfaction of general interest: digital development, development of the territory, etc… - General interest: The foundation would be created in pursuit of the general interest: digital development, development of the territory, etc… - Partnership: the foundation can gather public and private, French or foreign entities.	- The Council of State admits the participation of public authorities in the foundation but prevents them from i) being a founding member of the Foundation and ii) holding a majority part of the capital or the votes of the foundation. - The foundation requires the presence of private capital - Requires the adoption of a decree - Adequation of the entity with the text: Lesser compatibility with an initiative of communities, but a great advantage to associate companies to the creation of a common good and favour the innovation. - Durability of the structure : it is based on a simple convention and not on a statutory text as a GPI

Type of structure	***Legal framework***	***Object***	***Composition/ functioning***	***Pros***	***Cons***
Association	Law of July first 1901	The Association is the agreement by which two or several people share, in a permanent way, their knowledge or their activity in a purpose other than to share profits. An association is governed by the general principles of the law applicable to contracts and obligations.	Management of the association is determined by the convention and is ensured according to the distribution of the roles planned by the statutes. A general assembly and a board of directors are common. The financing of the association can be assured by various levers: contributions of her members, donations and legacy, subsidies subject to the acceptance of the request of subsidy. Associations can be state-approved by decree in Council at the end of a probationary period of functioning of duration at least three-year-old equal.	Associations can include public and private, French and foreign entities Flexibility of functioning: the operating procedures of the association are determined upon its founding	The association is a less robust structure, for it is only based on one contract. Besides, it cannot establish a best cooperation contract: because the association is organized by contractual means and does not allow a cooperation as efficient as other types of structures such as the GPI where the various cooperation bodies are planned and allow its efficience. - Display of a general interest: translates less the general interest assigned to the action of public individuals, if this is not declared of public utility: the association translates less the presence of general interest insofar as the creation of an association shall not be motivated by general interest contrary to a GPI which requires the satisfaction of general interest. - functioning : we can question the robustness of this entity in so far as in fine it only stems from a contract. . partnership: The association does not allow the implementation of a cooperation convention. - durability and robustness of the structure : this one is lesser than within the context of a GIP. Besides

Type of structure	***Legal framework***	***Object***	***Composition/ functioning***	***Pros***	***Cons***
Local public company (SPL)	Law n° 2010-559 of May 28rd, 2010	Local communities and their groupings can create, within the framework of the rights and responsibilities which are attributed to them by law, local public companies of which they hold all of the capital.	An SPL's object can be the operation of any activities of general interest. SPLs are limited companies.	- Flexibility of functioning: the operating procedures of the SPL are determined upon its founding.	- The shareholders cannot be private entities.

To sum up:

Type of structure	Grouping of public interest	Economic grouping of European	European Company of Cooperation	State-approved Foundation	Cross-border mechanisms of cooperation	Association	SEM	SPL
Type of members	Public and private members	Public and private members	Public and private members	Public and private members	Public members only	Public and private members	Public and private members	Public members only
Position of "operator of operators"	Possible	Not adapted for this position	Not adapted for this position	Possible	Possible	Possible	Possible	Not possible
Reinvestment of profits into OASIS	YES	No, the objective is to develop the members' activities	No, the objective is to develop the members' activities	YES	YES	YES	YES	YES
Conclusion	Possible	Not possible	Not possible	Possible	Not possible	Possible	Not possible	Not possible

At the European level, we do have a problem : the only types of legal entities adapted to the future OASIS group while respecting its founding principles do not exist in European law, but in French law or another law.

The foundation:

Although the European Parliament has approved the proposal of European foundation statutes on the second of July, 2013, the statutes are not approved yet and cannot yet be implemented. It must be unanimously adopted by the Council of the European Union, which is not yet the case.

The association:

It should be made clear that, strictly speaking, there do not exist any statutes of « European » association which can unite several bodies. Thus, according to the Doctrine:

« International » associations are only associations of French or foreign origin ».
(Mémento pratique Francis Lefebvre, « *Association* »).

An European association has been considered for a long time. However, there is an important barrier for its adoption. The legal systems of national associations are extremely various and as thus a consensus is difficult to find, for instance regarding the necessity to declare these groupings or not.

A project of European association statutes was presented by the Commission in 1991, however the European associations statutes are still not adopted at the community level.

The GPI:

- Foreign legal persons whether governed by public or private law and in charge of a public assignment can join the GPI ;
- In any case, legal persons governed by public law and those governed by private law, in charge of a public assignment, must hold together more than half of the capital or the votes in the decision-making body ;
- When they are not established in a State member of the European Union, foreign legal persons governed by public or private law cannot hold more than half of the capital or votes in the decision-making body.

The creation of a GPI with foreign legal persons can then be considered.

However, (i) members established in a country of the European Union will not hold more than half of the capital or votes and (ii) in any case, legal persons governed by public or private law and in charge of a public assignment, whether French or from other countries, will have to be in the majority.

3.2. Creating one or more structures in the right of one of the consortium countries?

The creation of a foundation under French law which includes members of various countries can be acknowledged in the neighbouring countries. For that purpose, a « European convention on the acknowledgement of the legal personality of international non-governmental organizations » seems to exist at a community level. This convention applies to associations, foundations and other private bodies which fulfil the following conditions:

- having a non profit-making aim of international utility;
- having been created by an act governed by the national law of one Party;
- actually performing duties in at least two states; and
- having their registered office on the territory of one Party and their real head office on the territory of that Party or another party.

However, it appears that a large number of states have not ratified this convention, which would not allow the acknowledgement of the association or the foundation at the European level, which limits their interest, as a main governance structure.

At last, in the event of the creation of two entities, one more focused on public bodies of GPI type, and the other more focused on private bodies (foundation), it should be remembered that in French law, Article 18 on sponsorship defines the public foundation as follows:

« The foundation is the act by which one or several physical or moral persons agree to the irreversible assignment of property, rights or resources for the completion of an undertaking with a general interest and non-profit-making goal ».

The foundation will then receive funds with a view to achieving a general interest objective.

In addition, in accordance with Article 18 of the same Act,

« When the act of foundation aims at the creation of a legal person, the foundation should enjoy legal capacity only after the date of entry into force of the Decree in the Council of State bestowing the status of social utility. It then acquires the status of a social utility foundation ».

According to this article, the foundation will then have the legal capacity and will be able to enter into contracts with another entity for the achievement of the work of general interest for which it was established.

The foundation could then enter into contracts with other entities with the objective of developing and promoting actions of innovation of online services.

The foundation could enter into contracts with an entity in charge of the European governance of the project or directly with national entities.

Foundation in Belgian law, easier to create.

In Belgian law, the statutes of the foundation are defined by the law of May 2, 2002 and its article 27 which precises that : « *The creation of a foundation is the result of a legal act from one or more physical or moral persons consisting in attributing an heritage to the implementation of a determined and selfless objective.»*

According to this article, one or more physical or moral individuals, having a heritage will put it at disposal to achieve a selfless objective (a person alone can create a foundation).

This heritage can be made of tangible or intangible movable assets (such as a sum of money) or immovable assets. No basic amount is planned in the law to create a foundation. However, the amount of the heritage must be sufficient to allow the achievement of the goal of the foundation (the administrative practice fixed the necessary basic amount at 25 000€).

The selfless goal of the Foundation is not overly precised, except for the public foundations which have a precise scope of action : the implementation of a philanthropic, philosophical, religious, scientific, artistic, educational or cultural work.

The foundation cannot provide a material gain neither to founders nor to administrators, nor any other person except if this person is concerned by the achievement of the objective in question.

The foundation's bodies are reduced to their most basic expression: there are no members (then no general assembly).

By contrast there's a Board meeting in charge of the management of the heritage according to the will of the funder(s).

In conclusion, it seems that the GPI is the most appropriate to represent the grouping of public and private members. The foundation has a strong asset in the complementarity of the governance, the association having the major drawback of not allowing partnerships between public entities.

They are complementary entities: the GPI allowing the cooperation of members and the foundation allowing to raise funds and finance the R&D.

The GPI can only be created in French law but can integrate foreign members of European Union and outside European Union.

The foundation can be created in Belgian law or in the law of another country, but the Belgian law seems to be the most appropriate for this European project for it represents many fewer constraints in the creation of a foundation.

3.3. Possible scenario of European governance organization

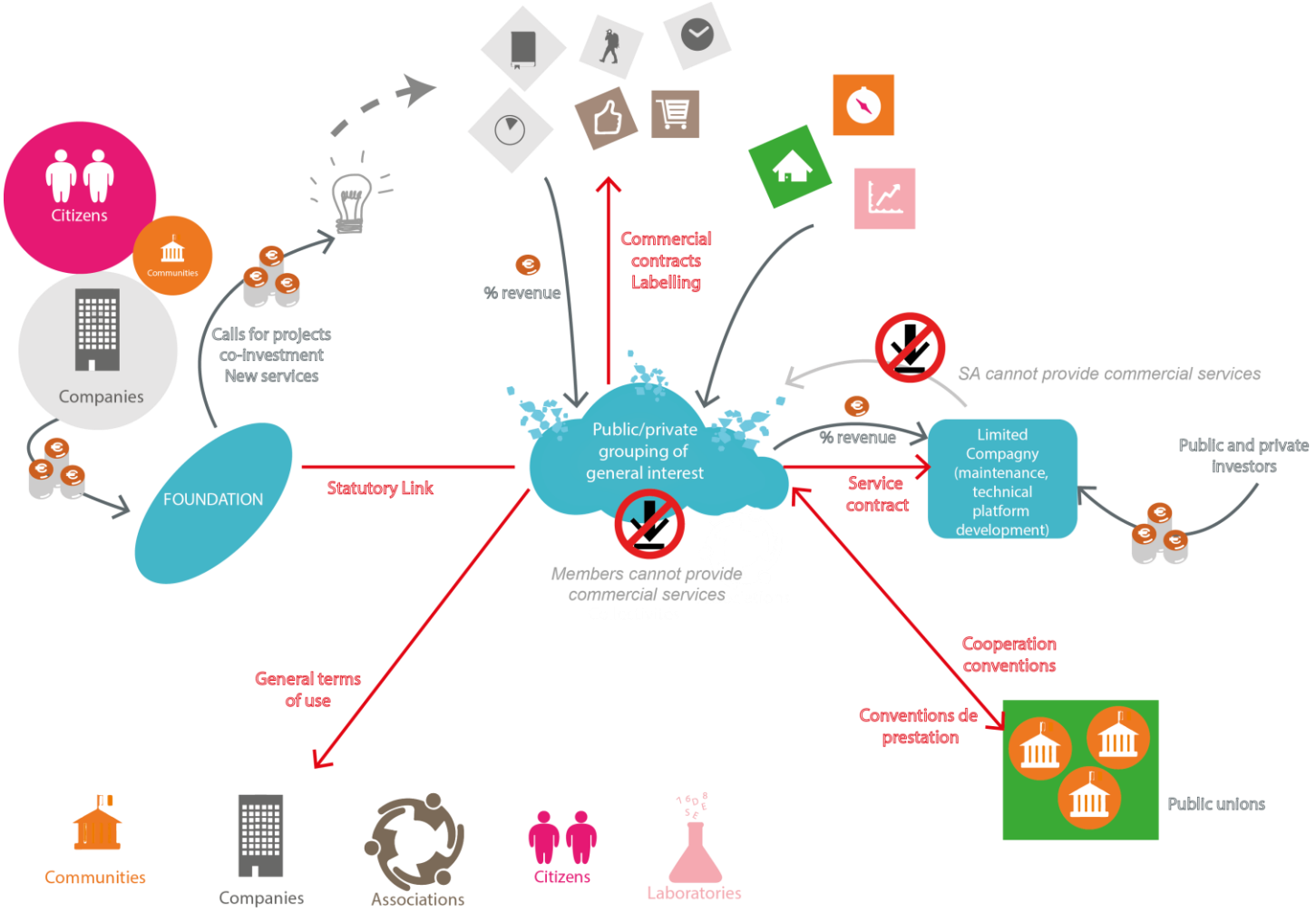

Figure 4. Planned OASIS organizational framework and revenue flows

The links in red show the contractual relations which could exist between the various actors of the OASIS ecosystem.

The three entities in turquoise represent a possible scenario of additional assignments while respecting the foundations and business model explained above. This scenario cannot be validated at this stage of the project for obvious reasons:

- The commitment of partners after the pilot phase depends on the success of the pilot (in terms of appropriation, validity of the business model …).
- The creation of one or two entities at European level requires strong political support and a contractual validation in each country.
- The strong support of private companies for the creation of a foundation.

In this scenario, three main types of legal entities have been identified for the future OASIS legal entity:

- The foundation ;
- The public/private grouping of general interest ;
- The platform limited company

These three entities are complementary within the context of the project:

 On the complementarity between the foundation and the public/private grouping of general interest:

The coexistence of these two entities is particularly complementary in so far as their roles are distinct and meet different objectives. The purpose of the foundation is to raise funds so as to develop a service of general interest, which is constituted by the development of a digital common good, development of territories, etc. The objective of the foundation will then be to raise funds in order to ensure research and development around new digital services for the creation of knowledge.

However, and contrary to a public/private grouping of general interest, the purpose of a foundation does not really correspond to a cooperation objective by the sharing of means. The public/private grouping of general interest is not intended to raise funds, although at term it will allow this, because of its structure and objectives, but to allow the cooperation of different entities so as to develop and create a platform of data and services.

 On the complementarity between the private/public grouping of general interest and the « Limited Company » to maintain the OASIS platform:

Like the public/private grouping of general interest and the foundation, the public/private grouping of general interest and the service supplier company are complementary. The objective of the GIP will be to allow a wide cooperation between public entities to favour the sharing of data and allow an optimization of service orders for its members so as to make a recurrent investment of general interest in the platform which will benefit to « service suppliers » and their customers in the broad sense (public, private, associations, individuals). The public/private grouping of general interest does not become directly involved to ensure proper execution of markets with various entities. The « service suppliers » will do that directly. The « Limited company » which will ensure its maintenance will have a contractual link with the public/private grouping of general interest to carry out its mission of maintenance and evolutivity, technical hosting of new services and will then have to animate the developers' community around the OASIS platform. The two roles of these entities are distinct and perfectly complementary.

As shown above, the definition of the OASIS governance is one possible scenario but remains a working scenario whose implementation can be refined. The results of the consortium work and political negotiations essential to the implementation of OASIS will be presented in the next deliverable on governance.

The consortium members who could not be part of the public/private grouping will be able to remain integrated to the governance, via conventions of partnership and/or their participation in a strategic orientation committee within the public/private grouping.

3.4. Modalities of creation of the governance structure at European level

During the pilot phase, the OASIS governance is supported by the consortium. At the OASIS meeting held last September, the governance foundations were presented and the most important thing was that the suppliers could not enter the European governance structure because of the respect of the « operator of operators » principle.

At this meeting, the consortium questioned the intellectual property rights held by the members of the Consortium who will not be members in the future governance, in the light of the principle of « operator of operator » which does not allow companies of the consortium to belong to the governance:

It is then appropriate to notice that Article 7.2 of the consortium agreement stipulates:

> *« 7.2.1. Intellectual property, including results and information, whether or not they can be protected (via copyright; design rights, or similar forms of protection), which is generated under the Project will be considered as Foreground.*
>
> *7.2.2.* ***This agreement establishes the distinction between Foreground that will be solely ownership of the producing Party, without prejudice of any third Parties' rights, called Private Foreground; and Foreground that cannot be owned by any of the Parties, called Public Foreground under General Public License (GPL****).*
>
> *7.2.3. As stated in the DoW, Sections B1.1 "Project objectives" and B1.2 "EU and national dimension", the project fits in the openness philosophy and aims to provide an open source, cloud based core and open specifications.* ***Accordingly, the entire Foreground will be automatically considered as Public Foreground under General Public License (GPL) without prejudice of any third Parties' rights****.*
>
> *7.2.4.* ***In case a Party wants to keep its Foreground IPR, the Party must make a justified request to the General Assembly for approval****.*
>
> *7.2.5. Annex F list Private Foreground already identified.*
>
> *7.2.6. Access Rights to Private Foreground IPR if needed to carry out the Partner's activities under the* ***Project will be granted on a Royalty- Free basis****. Access Rights to Private Foreground if needed for Use of a Party's own Private Foreground IPR shall be granted on Fair and Non Discriminatory Terms to be agreed by the Partners, and taking into account, when necessary, any third Party rights****. In the case of use and commercial***

exploitation of the OASIS platform after the end of the project, the commercial fees, justified by the transfer of rights owned by the Parties to the Consortium, and access rights will be subjected to an explicit agreement between all Parties in the Consortium at the end of the project, proposed by the General Assembly. Negotiation will start at least 6 months before the end of the project*".*

Pursuant to these stipulations, it appears that:

 Distinction should be made between the « Private Foreground » which will be the initial property of a consortium member and the « Public Foreground » which will be placed under GPL without possible appropriation by one of its members and will then be freely used as part of the OASIS project.

 All the « Foreground » created within the consortium is automatically considered as belonging to the « Public Foreground » category and is then placed under GPL licence and then freely used as part of the OASIS project.

 However, one member can ask to keep its intellectual property rights on some results or information developed within the project. In this case, the member will have to process a request at the General assembly to obtain approved as « Private Foreground ». At this stage, the consortium could object to such a request.

 In any case, the use of the « Private foreground » necessary for the implementation of the OASIS project should result in a convention made between the member owning the « Private Foreground » and the members of all the consortium. This use agreement may result in the payment of a fee by the member owning the « Foreground », unless the latter agrees with a free use.

Given these stipulations, the owner of data necessary for the OASIS project development, will be able to ask, if the data are not considered as common to the consortium members, usage fees for these rights within the context of amicable negotiations.

With regard to these elements, the creation of a European governance cannot be made as long as the consortium is linked by a contract between the members and as long as the coordinator is on a contract with the European Commission.

4. Technical governance of the platform

In addition to the type of legal entity that will govern the future of OASIS and the governance mode at European level and at local level, technical governance of the platform is addressed in this deliverable. This chapter aims to define the Context and Scope of the IT governance.

The Management of the existing infrastructure and its evolution will be addressed, considering that we have a single platform (kernel) but potentially several datacore/container hosted and managed by local governance. The IT governance shall establish principles on how to drive the platform technically. The technical management of the platform can be delegated to a private company.

The IT Governance shall take into account that the evolution of the platform should mainly be driven by user needs (community of users) and that the source code of the platform should be open to a community of developers.

Management issues of the existing IS include: Monitoring, Service support, Quality evaluation, Technology survey and tests, etc.

Management of the IS evolution requires management of the technical relationships with providers, animation of a community of developers, roadmap and organization of the evolutions.

The first evolution will be OASIS version 2 that should be the industrialized version of the platform at the end of pilot. This evolution will be designed according to the critical mass of users evaluated in the business model. A recommendation for this first evolution should be an audit of the platform for its development, with specifications.

4.1. Definition and scope of the IT governance

The technical governance of the platform, usually named IT governance, is a complex process aimed to ensure that the organization's IT is able to sustain and extend strategies and objectives of the organization itself [3]. Several definitions have been provided in the literature for IT governance (e.g., [4-5]), but basically all of them refer to a key issue: corporate governance and IT governance must cooperate in order to obtain the best results for the organization.

Some key roles identified for an enterprise: the Chief Information Officer (CIO), Chief Executive Officer (CEO) and Chief Financial Officer (CFO). The CIO is the actor responsible for the IT governance and the CIO is directly accountable to the CEO. Thus, the IT governance, in general, might share mechanisms and procedures with the corporate governance. Moreover, IT governance extends the "simple" concept of IT management as the IT management focuses on supplying IT services/products, thus implementing strategies and mechanisms provided by the IT governance. It clearly highlights the tight relationship between IT and corporate governance in [6].

It is not possible to identify a unique relationship between different forms of governance; the IT governance has to be "tuned" according to different parameters [7]. Ad-hoc frameworks are designed in order to correlate: structures, processes, tactics, mechanisms and relationships. For instance, the Peterson's framework [7] organizes structures, processes and relational mechanisms of a generic organization. First of all, clear and unambiguous definitions of the roles and responsibilities of the involved parties are crucial and prerequisites for an effective IT governance. The nature of OASIS is for certain issues similar to the one of a multinational corporation. OASIS

deploys a single kernel, but several data cores/containers could be deployed in different countries in order to efficiently cope with different national regulations. This distribution can be efficiently managed by local IT governances able to efficiently and quickly face with problems related to the local parts of the system. On the other hand, a central IT governance is needed to coordinate and harmonize local entities. With respect to the structure of the IT governance, three models can be identified: centralized, distributed and hybrid (federated). The third solution is the one that best fits the goals of OASIS.

As mentioned before, the IT governance cannot be seen as a separate entity to the corporate governance, therefore, the definition of both the IT Strategy Committee and the IT Steering Committee has to be done in order to establish a strong and tight relationship with the equivalent boards of the corporate governance. The IT Strategy Committee should, of course, work in close partnership with the other board committees and management committees to guide, review and amend the aligned organization and IT strategies [8]. On the other hand, the Steering Committee has to support the team in charge to implement selected strategies; the steering committee usually reviews and approves priorities, costs and allocations. With respect to the Strategy Committee, the Steering Committee works at a more executive level; in other words, the Steering Committee is also in charge to control people selected to perform tasks such as maintenances and upgrades. On the other hand, the Strategy Committee is in charge to analyse requests and needs of users, stakeholders and providers in order to identify the best strategies for the OASIS system.

OASIS needs to identify different committees in order to support a federal organization; at a first stage, committees can be mainly composed by people from pilot sites. Each pilot should be involved both in the Steering Committee and the Strategy Committee; moreover, a limited subset of people should be selected for the highest level coordination of the federation. These committees have to also drive the OASIS's evolution; the first evolution will be OASIS version 2 that should be the industrialized version of the platform. This evolution will be designed according to the critical mass of users evaluated in the business model. A recommendation for this first evolution should be an audit of the platform for its development, with specifications. (cf. P2.1).

It is planned that governance is organized as follows:

Governance	Fonction	Name	Members
IT governance	Maintenance and evolution of OASIS	IT strategic committee	IT manager of the SA, IT manager of the GPI, technical representative of developers' community, IT manager representative of services providers
IT governance	Maintenance and evolution of OASIS	IT organizational committee	IT manager of the SA, IT manager of the GPI, technical representative of developers' community, IT manager representative of services providers
Corporate governance	Organize partnership, business	Strategic committee	GPI, pilot sites, a representative of end users, and a representative of services providers
Corporate governance	Organize partnership, business	organizational committee	GPI, pilot sites, a representative of services providers, the association of IT partners, and financial partners.

OASIS's evolutions have to be aligned with the "business strategy": establishing a common good, catalysing the collective intelligence and guaranteeing the protection of the users. Well

consolidated techniques are known in the literature. For instance, the Strategic Alignment Model (SAM) has been proposed in [8] The SAM is described in [9] as follows:

> *"Strategic fit recognizes that the IT strategy should be articulated in terms of an external domain (how the firm is positioned in the IT marketplace) and an internal domain (how the IT infrastructure should be configured and managed). Strategic fit is equally relevant in the business domain, with similar attributes but focused to the business. Two types of functional integration exist: strategic and operational. Strategic integration is the link between business strategy and IT strategy, reflecting the external components, which is important because, for many companies, IT has emerged as a source of strategic advantage. Operational integration covers the internal domain and deals with the link between organizational infrastructure and processes and IT infrastructure and processes."*

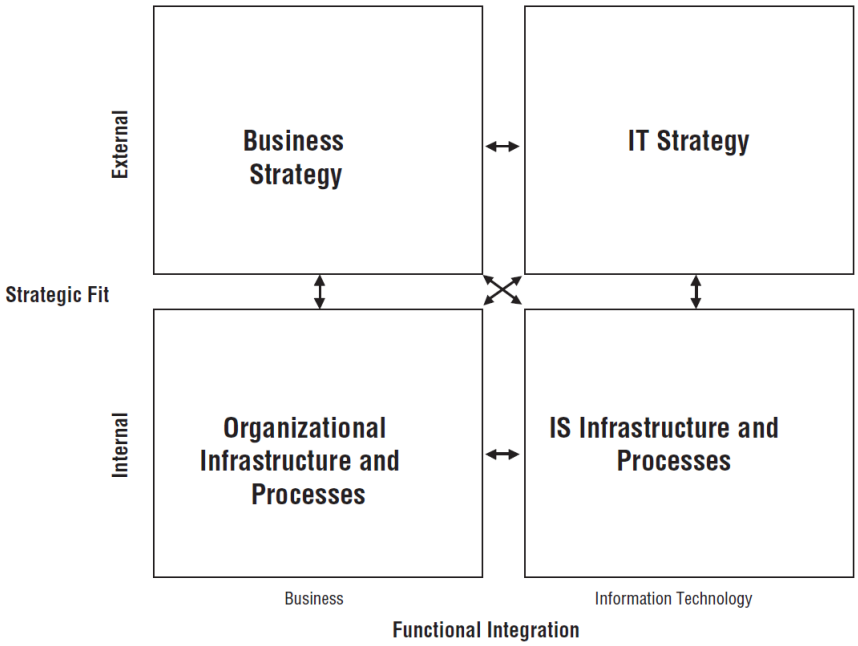

Figure 5 Strategic alignment model.

Other approaches are known as, for instance, the Balanced Score Card (BSC) [10] or the Information Economics method [11]. The Information Economics method departs both from the return on investment (ROI) of a project and from some other parameters such as the strategic match of a project in order to evaluate (and is necessary modify) the IT infrastructure.

A key role of the IT management is to measure the satisfaction of users. Several KPIs have to be defined to gather objective and subjective feedbacks. This feedback also allows the team to modify the IT infrastructure. Service Level Agreement (SLA) algorithms [12], and their Service Level Management (SLM) processes, aim to define:

1. a set of KPIs for measuring the Quality of Service (QoS);
2. the QoS acceptable for users;
3. the Qos achievable by providers.

Control Objectives for Information and related Technology (CoBIT) provides IT managers a set of processes, guidelines and high-level control objectives [13]. The CoBIT framework also includes the processes' maturity models and their scorecards, thus, a set of KPIs is already available to measure the IT efficiency. It's used by auditors and companies as a way to integrate technology to implement controls and to meet specific business objectives. The latest version is CoBIT 5 [14]. CoBIT is well-suited to organizations focused on risk management and mitigation. Moreover, CoBIT is one of the three standards recognized in terms of management of information security; the other two standards are: the Code of Practice for Information Security Management (BS ISO/IEC 17799) and the Bundesamt für Sicherheit in der Informationstechnik (BSI).

The CoBIT framework is a meaningful, and generic, starting point to define the IT governance of a complex system such as OASIS. Other frameworks can also provide useful hints.

Information Technology Infrastructure Library (ITIL) [15] is a set of best-practices for IT service management (ITSM), which focuses on aligning IT services with the needs of business. ITIL and CoBIT partially overlap, but CoBIT mainly covers management processes and guidelines; on the other hand, ITIL provides IT manager's tools and best-practices to get goals defined by CoBIT.

CoBIT can offer IT OASIS' managers procedures for:

1. service delivery;
2. service support;
3. service management;
4. ICT infrastructure management;
5. software asset management;
6. business perspective;
7. security management;
8. application management.

ITIL provides a good fit for organizations concerned about operations.

COSO [16] mainly focuses on: human resource management, inbound and outbound logistics, external resources, information technology, risk, legal affairs, the enterprise, marketing and sales, operations, all financial functions, procurement and reporting. This is a more business-general framework that is less IT-specific than the others.

The Capability Maturity Model Integration (CMMI) method [17], contains 22 process areas. It was created by a group from government, industry and Carnegie-Mellon's Software Engineering Institute. CMMI is divided into appraisal, evaluation and structure; it is mainly used by organizations that need help with application development, lifecycle issues and improving the delivery of products throughout the lifecycle.

For the implementation of the IT governance in OASIS two approaches are possible: reinventing a new framework from scratch or using/ adapting an existing one. Moreover, combining frameworks is fairly common; for instance, it is possible to use CoBIT as an overall framework, ITIL for management operations, CMMI for development and ISO 17799 for security. The final choice will be mainly based on the experience of selected IT managers.

Even if the choice of the framework can be delayed to an operative phase, some main issues can be immediately identified. The following topics have to be considered in the OASIS IT governance:

- **Strategic alignment**: the IT governance must be aligned with the strategic goals of OASIS; the communication between corporate and IT managers plays a key role, therefore, it is important to establish an effective and clear communication channel about costs, reporting and impacts. Communication strategy was globally defined in D6.31, it will be refined in D 6.33.

- **Value delivery**: IT governance managers have to identify processes able to support all functions that increase the delivered value and able to eliminate all functions that decrease the delivered value. Results will be present in the second iteration of the D3.5 governance deliverable
- **Resource management**: all processes will take advantage of an efficient resource management. The best resources management will be presented with the business cases in the deliverables D3.1 and D3.3.
- **Performance measures**: each complex system needs a set of measurable KPIs; in this way, it is possible to assess system performance. One popular method involves instituting an IT Balanced Scorecard, which examines where IT makes a contribution in terms of achieving business goals, being a responsible user of resources and developing people. It uses both qualitative and quantitative measures to get those answers. Initial KPIs were presented in the deliverable D5.1 and refinements will be provided in D5.2 and D5.3, which will present the retained KPIs for an optimal measure of performance.
- **Risk management**: the selected framework has to provide IT manager tools for measuring, managing and (eventually) accepting the risk. Moreover, the concept of risk has to be clearly defined and accepted. The main project risks are summarised in the table below.

In order to limit these risks and to solve them before the end of the pilot, the technical governance of the platform will be audited during the pilot phase. The specifications of this audit are provided below:

Description of possible risk from DoW	Impact	Probability	Remedial Actions
Implemented architecture may not be fully compliant with the design specification	Medium	Low	Design and implementation issues can be fixed in this WP as well as in WP4.
Federated services may not be able to fulfil user requirements	Low	Low	If the requirements analysis has been carried out involving a meaningful set of end-users, the probability of this event is low. Moreover, issues related to provided services can be fixed both in WP2 and WP4.
Identification and authentication mechanisms may not be well integrated	High	Low	Partners involved in the design activity have a proved experience about this issue. Moreover, some standard approaches to user identification and authorization should be easily integrated in the proposed architecture
Developed GUI may not fulfil usability requirements	Medium	Low	The usability of the proposed service federation is strongly dependent on the GUI. On the other hand, Partners involved in the design activity have a proved experience about GUI design and issues can be fixed both in WP2 and WP4
Licenses may not be compatible between different data sources	Low	Low	Create different sets of data that may not be stored into the same database ; find technical solutions in order to get consolidated information.
The indicators defined in M4 may be affected by the change in technology and user requirements in the later stage	Low	Low	A pre-pilot planned in M15-17 will alleviate such risks.
Process changes may be too slowly implemented	Medium	High	Additional guidance documents and interactive training modules for staff
The best technical solution is not economically viable	High	Low	The first economically viable alternative will be selected if it satisfies at least 80% of technical requirements. Otherwise, new sources of income will be found to implement the best technical solution.
The change of model of development,the separation of the data and the business rules require an investment of the provider in the development to join OASIS	Medium	High	Call for projects launching to favor the coming of new services and data at the disposal of providers to cut down their investment in terms of database construction.
Different legal set up in every country. In Franc	Medium	High	Probable creation of a providers' cooperative to federate the companies which shall contribute to the OASIS range of services.
Opening of the developments under LPG license, before the risk of having industrials such as Bull or Logica who takes back the architecture, the ideas and quickly develops a rival platform before OASIS reached its viability	Medium	Medium	Study of the registration under a community license which would oblige every contributor around OASIS to put back his developments in the community even before marketing the service.

4.2. Scope of the platform audit

Platform audit is part of platform governance as it plays the control and evaluation role that will allow all the stakeholders to identify if the planned governance is correctly applied. When talking about audit there are different elements that must be taken into account. Audit must be:

- Based on evidence
- Directly related to process execution
- Neutral and external (done by somebody not related to individual process execution)
- According to standards in order to allow internal and external benchmarking

Because of the previous requirements it must establish an audit mechanism that allows homogenizing activities definition, follow-up and audit. It means that audit elements must be aligned with operations and it must cover the requirements shown above.

As a result one option for covering the scope of the platform audit is to take as a model the elements included inside ISO20000 series section 4.3 for aspects related to monitoring, measuring and reviewing, strongly related with the activities of CHECK DEMING's processes cycle in order to apply the continuous improvement management.

The elements to be covered are:

- Procedures definition
- KPI identification
- SLA and KPI target values definition
- ETL processes
- Analysis and reporting activities

Service providers must apply suitable methods for monitoring and measuring services management processes. These methods must then demonstrate the suitability of the processes to achieve planned results.

In order to ensure the achievement of audit results:

- The audit criteria, scope, frequency and methods must be defined in a procedure.
- The selection of auditors and conduct of audits must ensure objectivity and impartiality of the audit process.
- Auditors must not audit their own work.

Platform governance must plan and implement the supervision, the evaluation and the analysis of the service, the management service process and associated systems.

It's also necessary to plan an audit program that takes into account the processes status and processes importance, the areas to be audited and the results of previous audits.

In order to verify if the platform has reached the planned objectives it's necessary to have registers of their performance. The minimum KPIs involved in this audit must be:

- Achievement vs service target defined
- Satisfaction of customers
- Use of resources
- Tendencies

- High level non-compliance

The results of the platform audit must be the information input to the improvement service plan.

In order to decide the frequency of the internal audit we have to consider the next factors:

- Risk level of the processes
- Frequency of processes realization
- History of problems.

5. Technical governance of the platform : activities related to the operation of the platform

5.1. Governance models

OASIS governance model includes different levels. As a result of its Open Source characteristics, governance for the evolution of the platform implies the identification of a successful model that must be connected to the Open Source project governance trends.

The importance of this situation arises from the fact that connection between governance body and community is the key for future incorporation of new features and the evolution of the current ones.

But the model based on openness and freedom also has several risks that will directly impact on the evolution of the platform. Discontinuations of the project, forks or excessive commercial models are the most typical situations a governance model must consider and, depending on the internal philosophy, must promote or elude.

The current chapter describes the ground rules for participation in the project and the processes for communicating and sharing within the project team and community as a way for preventing OASIS (considered as an open source project) from descending into chaos (18). As the final part of the first iteration of the governance definition, the following pages describe some of the challenges associated to open source projects, and consider the key areas such a model needs to cover.

The objective of the first iteration is not to set the definitive governance model, it covers the available options and the main issues related to each one of them.

There are almost as many variations of open source management strategies as there are open source projects. It is therefore critical that a project clearly communicates its policies and strategies to potential users and developers of the project's outputs.

One of the key elements that a clear governance model brings is that it allows potential contributors to understand how they should get involved in the project, what is expected of them and what protections are provided to ensure that their contributions will always be available to them.

This part of the governance model is one of the most important steps OASIS can take towards sustainability through open development.

Governance models range from centralized control by a single individual or organization (benevolent dictatorship) to distributed control awarded in recognition of contributions (meritocracy). You can find governance models at any point along this spectrum; it is also possible for a project's chosen governance model to move along this spectrum as the project matures.

5.2. Governance and Contribution Models

The different governance models for an Open Source project are defined according to the combination of two characteristics:

- The level of openness to external contribution. In this case, the project governance is evaluated according to two possible situations:
  - Bazaar-style: the project encourages contributions from broad sources meaning a higher openness to external contribution.
  - Cathedral style: the project level of external contribution is reduced and the governance model limits it to a small core of dedicated contributions.
- The level of openness to external participation. In this case the scale used for evaluating the projects is made according to:
  - Benevolent dictatorships: In this case, the openness to include external participation in decision-making is very limited
  - Formal meritocracy: The governance style includes an inclusion in decision-making of those that have demonstrated the ability of doing it.

We can identify 5 interesting governance models that are described using some well-known open source projects (19):

- Dictatorial bazaar: Linux is Raymond's classic "Bazaar", encouraging contributions from anyone, making releases early and often. It is governed by Linus Torvalds, who has the final say on which contributions are included in a release
- Dictatorial cathedral: GNU Emacs is Raymond's classic "Cathedral", with a small team of committed contributors and less frequent releases, and governed by Richard Stallman. It is worth noting, however, that Stallman no longer has the same role that he had when Raymond wrote his essay, and the current lead maintainers run the project with a more open contribution model
- Meritocratic bazaar: Apache HTTPD, as an Apache project, follows a formal meritocratic structure. It invites anyone to contribute with their code
- Meritocratic cathedral: Apache OODT, again, follows Apache's meritocratic model. However, it is developed Cathedral-style by a core team who doesn't actively invite others to contribute, and who make releases when they feel they can guarantee a certain level of quality
- No-man's land projects: Ubuntu has a benevolent dictator, in the form of the project's founder and funder Mark Shuttleworth. However, many decisions are delegated to the Community Council and Technical Board, whose members are appointed by the community through a meritocratic process. Some core parts of the system are developed Cathedral-style within Canonical, Shuttleworth's company. However, community developers are often invited to develop key parts of the system, such as the Core Apps initiative for the Ubuntu phone platform.

5.3. Barriers to adopt a governance model

In spite of the importance of defining a governance model at the outset, many projects fail to do so. There are a number of possible reasons for this. Among the most common are:

- the process is perceived as 'red tape'
- there is a concern that the project will lose its sense of direction
- it is felt that control of the project's strategy will be lost
- the project is thought to be too young or too small to attract active users or developers

Although each of the first three concerns is potentially valid, these fears are easily dispelled by using an appropriate governance model. However, the final concern, regarding the age of the project, is never valid. This is because any potential contributor to the project needs to know how to contribute efficiently and effectively, and how their contribution will be handled. Without clear

guidance on these matters, most people will walk away rather than join an immature project. But if those early adopters are shown that they can help to guide the project as it matures, they may decide to stay. A single external contributor may well have a major effect on the sustainability of a project, so project initiators can simply not afford to risk losing that contributor as a result of trying to save a small amount of effort in the early stages.

5.4. Decision-making strategies for new developments implementation.

Decision making in an open development project appears, at first sight, to be a complex issue. Many people know, for example, how difficult it can be for a committee to reach a decision. Documenting the process by which decisions are made is therefore a key part of a governance model, and it is worth taking a little time to explore the various approaches commonly taken to prevent deadlock situations from occurring in open development communities.

Decision-making in open development projects can range from fully centralized to fully decentralized. Through necessity and familiarity, nearly all projects will start life with a centralized model, with a small number of initial contributors, perhaps as few as one. As a result, all decisions are made by this small team. For a small team, centralizing the decision-making is easy, and is akin to what is found in closed projects. However, as a successful project grows, more and more people will be willing to contribute to the objectives of the project. The decision-making process may need to evolve accordingly.

5.4.1. Benevolent dictatorships

Project founders who maintain control throughout the entire life of the project are sometimes called benevolent dictators. A benevolent dictator is responsible for determining the general direction of the project and making the final decisions when the community is in disagreement. As more and more members join the community, the benevolent dictator strives to ensure that these decisions are in the best interests of the project, rather than the interests of any particular individual or organization.

While the project team is small, and the community of users is small, it is possible for the benevolent dictator to make all decisions in a traditional top-down manner. However, as the community grows, this becomes more and more difficult. Very few people will be able to fully understand all the details of the problem being addressed. Consequently, may feel uncertain about making decisions in areas in which they are less expert. As the project grows in size and scope, these areas of uncertainty will grow, and so the dictator may feel unable to make a decision as frequently as required.

In a medium to large project, it is usually better for leaders to allow discussion to proceed and only indicate a preference in the unlikely event that there is no visible consensus emerging. Thus, the benevolent dictator tries to prevent fruitless debate, but encourages informative debate. In this way, they can be seen as a chairperson rather than a dictator.

When writing the decision-making section of a governance document for a centrally controlled project, it is important to indicate that while the decision-making power is centralized, the distributed community is expected to inform that decision through debate. Failure to do this may alienate some individuals, who fear that there is little opportunity for them to bring their expertise to the project.

5.4.2. Meritocracies

While some projects maintain tight control over the decision-making process, others feel it is more effective to allow the community as a whole to make decisions. In this case, there is an increased

need for a formal decision-making process, since there is no single person able to break a deadlock.

The membership structure of such communities typically looks flatter than in those led by a benevolent dictator. However, contributors who have earned the respect of the community through frequent and useful contributions tend to have a 'louder voice'. This means that leadership figures will still emerge and those figures must, like the benevolent dictators, wield their perceived authority with care. This model of earning authority through contribution is often called the meritocratic model.

The meritocratic model tries to ensure that new entrants to the community feel engaged and involved from the very first day. It gives everyone a voice and rewards those who make valuable contributions by providing mechanisms for recognition, such as increased visibility within the project. As with the benevolent dictator model, decisions are made by listening to the community and eventually taking action based on the consensus that emerges. However, in many cases there is no need for discussion, since the correct path is obvious. In this case, it is sufficient to simply state one's intentions and allow time for someone to object. In the absence of an objection, it is assumed that the community agrees with the proposed action. This is sometimes called 'lazy consensus'.

The effect of lazy consensus means that, in practice, most decisions within a meritocracy are made in a way that is very similar to that of projects operating under a benevolent dictator model. That is, once someone has earned the merit to allow them to define a course of action, the use of lazy consensus allows them to just go ahead and take whatever action they want. Just as a benevolent dictator could do. In the case of a disagreement that cannot be resolved by discussion the two models differ. In most meritocracies, a vote is called in order to break these deadlocks; in such votes, all members of the community have a vote, but only those community members who have earned enough merit will have a veto.

The governance mode of the community around OASIS is not defined yet. By the end of the pilot, we wish to open OASIS to the community contribution. At the end of the pilot, we should have a clearer idea of the governance type which suits OASIS best.

6. Conclusion

After the study of a potential legal organization at European level and the contractualization modes at local level, it will be necessary during the pilot to collect the favourable opinions of the potential founding members so as to found the first legal structure supporting OASIS and contractualize with public and private partners where appropriate. Founding members can come from the consortium but also from partnerships established by the end of the pilot. The governance of a common good can be done only when largely open to all. According to the legal statutes of the consortium members, the modalities of participation to governance can differ but decisions will have to remain collaborative.

The next D3.5 deliverable will reflect the results of this consultation. It will also reflect the first feedback of the source code opening in order to favour the community participation around the platform.

At last it will deal with governance of data. However the scope is presented in this section along with the necessary subcontract required for the pilot.

Personal data management

Various legal aspects presented in the D1.31 and D1.3.2 deliverables must be taken into account to manage personal data. The decision to share personal data will be made by the end user who will manage the access rights to his data, at one time or permanently. The technical process used

to manage personal data and privacy is presented in D2.3. The pilot will provide the framework protecting users' right to privacy.

To meet D1.32 recommendations on the management of personal data, the platform manager will contract with the Personal Data Administrator in Bulgaria. David Holding which will be in charge of this, then a contract will be made between Pôle Numérique and David Holding, during the pilot phase and then by the OASIS manager.

In Spain, the platform manager will have to contract with public bodies as third parties respecting personal data. The manager will have to specify to the citizens in the platform general terms of use, the modalities of treatment made in his capacity as a third party contracting with public bodies.

User governance (organizations and individuals)

The platform governance shall explain user management. This will result in general terms and conditions, both on the users and suppliers'side.

- Who can delete accounts?
- Which moderation will concern users' comments on the applications?
- Comprehensive overview of governance of the data

These aspects require processes of appeal and/or identity control (this can start by an automated then manual mediation phase):

- Retrieving or deleting a node for which one is the legal representative (individual described or organisation for which one is the representative).
- Recovering a lost password
- Controlling the non-spoofing of an organisation

Services Security / Integrity

- Controlling that a service meets its commitments requires:
    - Security level announced (to prevent this service from becoming a shortcoming)
    - Respect of private life
    - Non storage of certain personal data when requested

Data governance

Several aspects are taken into account in governance, on the users' and service providers' sides.

- Management of data models
- Management of repositories (e.g. : administration tree structure)
- Management of disputes on the respect of data licenses, locking in writing (or even in reading) of data which should be shared, etc…
- How to organize the co-construction of data
- Qualification of data produced by the services

The pilot will allow to refine the data governance scope, and to adapt the rules of data governance at the uses.

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