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i. Executive Summary

This document presents the findings of the OSEPA project's five site visits aiming to promote bilateral policy assessment and to feed relevant policy debate on free/open source software (FOSS) usage among European Public Administrations through a comparative analysis of current practices.

Experts visited and reviewed public IT infrastructures in hosting organisations in light of 1) level and fields of FOSS usage within current IT infrastructures 2) current policy and organisational framework in relation to software use and procurement 3) overall assessment of needs, risks and potential in relation to FOSS uptake and migration.

Five site visits took place in Latvia, Cyprus, Romania, Italy and Greece from November 2010 to November 2012. Based on site visit findings and evidence collection, it is clear that FOSS is used, to a great extent, in several operational fields in all reviewed cases. There are mixed conclusions regarding the legal and organisational framework for software use and procurement, considering that organisations have different levels of flexibility in procuring software applications that best fit their needs, including FOSS. However, there is a common positive perception regarding the potential of FOSS migration and the benefits that can be generated through the implementation of FOSS applications in the hosting organisations.

ii. Abbreviations

CTI	Computer Technology Institute & Press CTI -DIOPHANTUS
EPA(s)	European Public Administrations
FOSS	Free and/or open source software
FUNDECYT	Foundation for the Development of Science and Technology in Extremadura
MFG	MFG Baden-Wurttemberg
OSEPA	Open source software usage by European Public Administrations
SAMBRUK	Swedish Association of Municipalities for Joint Development of eServices
SCHOTEN	City of Schoten
USFD	University of Sheffield

1. Introduction: about the site visits

1.1. Scope of this document

This document provides a final assessment report on the main findings and conclusions of the OSEPA site visits that have taken place throughout the project's lifetime. The site visits aimed to promote a bilateral assessment of policies and to feed a comparative analysis of existing practices to be available to all European Public Administrations. The purpose of this report is to provide a comparative analysis and overall review of the results of the project's site visits based on the evidence collected and the assessment of each site visit.

As foreseen by the project, the site visit reports included anonymised, non-sensitive evidence presented at and generated by the reviewing process. OSEPA partner CTI developed the final synthesis assessment report based on the following evidence, where available, provided by the hosting and visiting partners:

- *the site visit reports (prepared by the visiting partner experts),*
- *the completed site visits' questionnaires (filled in by the visiting partner experts),*
- *presentations given by the hosting partners at the event,*
- *the minutes of the event (prepared by the hosting partner).*

As foreseen by the OSEPA project, the site visits' synthesis assessment report will be published and disseminated to European Public Administrations. CTI is responsible for preserving the anonymity of the data presented in the synthesis assessment report.

1.2. The purpose of the site visits

The general purpose of the OSEPA site visits was to:

- to promote a bilateral assessment of policies (that will remain confidential) and
- to feed a comparative analysis of existing practices that, as a synthesis, will became available to all European Public Administrations and contribute to relevant policy debate.

A site visit is defined as an interactive event, bringing together practitioners in a specific field to conduct a field review of a specific interest area in the organisation hosting the event. In the context of the OSEPA project, site visits are events in which selected experts representing OSEPA partners meet with representatives of a hosting organisation for mutual benefit. This mutual benefit is defined as follows:

-Experts from visiting partners are briefed on the efforts of the host organisations to use FOSS, gathering data and evidence that can feed the project as a whole.

-The host organisation benefits from the feedback, knowledge and experience of the OSEPA experts.

The site visits were planned and organised with the purpose of reviewing the status of FOSS usage and identifying the needs and policies of OSEPA partners with the participation of IT experts and practitioners from organisations with more exposure in adopting FOSS solutions.

More specifically, site visits aimed to:

- Exploit and build-up on the knowledge of organisations who are most experienced with FOSS usage. Within the OSEPA consortium there is diversity in terms of FOSS "exposure" and usage experience. A certain number of partners, with significant technical

knowledge and experience on open source, are expected to share their expertise with administrations that are considering further integration of FOSS in their practice, in order to help prevent duplication of efforts and the waste of resources within the consortium.

- Assist the hosting organisations to explore the potential of FOSS adoption. Hosting organisations are interested in and should be further encouraged in exploring the potential of FOSS. In the context of the site visits, their concerns and questions, regarding the selection of the optimal type of software or the tackling of the problems of migration to FOSS shall be addressed.
- Promote the exchange of experiences among the OSEPA partners.

The exchange of experiences comprises one of the central pillars of the project. It rests on the assumption that learning is enabled when peers exchange ideas, views and experiences on issues of common interest.

1.3. Assessing site visits: areas covered and issues addressed

The collection and analysis of feedback relating to the site visits aim to provide insight into the effectiveness of the site visits, whether the goals have been achieved and how to improve future site visits. Final assessment particularly aims to:

- *identify whether the objectives of the site visit have been met,*
- *identify any problems or weaknesses,*
- *allow site visit participants to voice their opinions on different aspects and issues,*
- *evaluate existing public administration offices regarding their current usage and familiarity with FOSS,*
- *provide recommendations for future implementation of FOSS usage.*

To help fulfil these goals, four prerequisites were defined with regard to planning and organising the site visits[1]:

1) Review of FOSS usage aspects within each hosting organisation should focus on core priority issues faced by the organisation. In this way hosting organisations are given the opportunity to have their priorities and concerns addressed.

2) The interests of the hosting organisations should be bridged with the expertise of visiting partners. This is expected to allow all participants benefit from the interaction with their peers.

3) Hosts and visiting partners should participate in an open and engaging exchange process. This might require that the hosting partners share critical information about the

[1] As also described in the 'Report on the methodology for planning the OSEPA site visits', and the "Report on the methodology to be used for the review of the partners' status of FOSS usage, their needs on policy issues and demands", prepared by OSEPA partner University of Sheffield, 21.01.2011.

operations of their organisation with the visiting experts and that the experts treat this information confidentially.

4) Each event should be structured in such a way as to maintain an adaptiveness of the indicative agenda and of the reviewing process to the features, requirements and priorities of the hosting organisations.

The site visits were planned, prepared and organised based on the following implementation steps:

1) *Analysis of priority areas to be investigated,*
2) *planning, implementation & assessment methodology,*
3) *development of common instruments, materials, resources (e.g. questionnaires) for comparable results,*
4) *evidence collection & processing of reports,*
5) *production of the interim and final, public "synthesis" report with anonymous evidence and aggregated data from all site visits.*

Three priority review areas have been defined for the site visits:

1. *Information technology (IT) infrastructure and level and fields of FOSS usage.*
2. *Current legal and organisational framework for software use and procurement.*
3. *Assessing FOSS migration potential.*

Reviewing these areas aims to reveal whether the hosting organisation uses FOSS and for which tasks and also to demonstrate which features of the hosting organisation's operational framework constitute strengths or weaknesses, opportunities or threats (SWOT) for a potential FOSS migration. Therefore, site visit review aimed to conclude whether the current IT working environment of the organisation and other relevant operations and practices (e.g. procurement, IT

staff recruitment and training, etc) favour FOSS, in what ways could the hosting organisation benefit from FOSS, and what policy changes should be initiated to achieve that.

In addition to the priority review areas, the type, role and general features of the hosting organisation are also mapped in order to familiarise visiting experts with the working IT environment and to facilitate the review process based on:

- *The type and size of the organisation.*
- *The mandate of the organisation and the operations it carries out daily.*
- *Available human resources.*

Structured around these three priority areas, evidence collection and review during the site visits focuses on the following aspects and issues:

- *The level and features of FOSS usage within the existing IT infrastructures of hosting organisations.*
- *The mapping of the actual needs of the hosting organisations with regard to software usage and the assessment of alternative options (both FOSS and proprietary).*
- *The elaboration of suggestions about how to tackle certain issues of priority in the procurement and use of software.*
- *The analysis of strengths, weaknesses, opportunities and threats (SWOT) of the current operational framework for a potential FOSS migration.*
- *Recommendations for improvement or re-structuring.*

2. Site visit findings

2.1. Background information

The 1st site visit took place in Latvia on November 15, 2010. Two experts (an IT specialist and a research assistant) from Sweden and the UK visited three sites: 1) a university college, 2) a municipality, and 3) a city. A number of presentations were given by representatives and employees of the hosting organisations.

The 2nd site visit took place from 10th to 11th of March 2011 in Cyprus. Three experts from Belgium and Germany visited a paediatrics clinic and a university IT department in which they reviewed IT infrastructures and general purpose or specialised software applications.

The 3rd site visit took place on 18th of May 2012 in Romania. Three experts from Greece and Belgium visited a) a technical college and b) a city hall. The experts assessed and reviewed the level and the fields of FOSS usage in these two sites as well as FOSS migration potential and the legal and organisational framework for software procurement.

The 4th site visit took place on 12th June 2012 in Italy. An expert from Greece and Spain visited a museum and reviewed the FOSS usage level and migration potential as well as the legal and organisational framework of the institution.

The 5th site visit took place on 8th of November 2012 in Greece. Three experts from United Kingdom, Spain and Sweden visited particular departments of a national research infrastructure agency in order to investigate the level and fields of FOSS usage, the current legal and organisational framework for software procurement and the FOSS migration potential within the organisation.

Table 1. OSEPA site visits.

	Date	Country	Sites	Experts / Partners
1	November 15, 2010	Latvia	• City • Municipality • University college	SAMBRUK (SE), USFD (UK)
2	March 10-11, 2011	Cyprus	• Paediatrics clinic • University IT department	SCHOTEN (BE), MFG (DE)
3	May 18, 2012.	Romania	• Technical college • City hall	SCHOTEN (BE), CTI (GR)
4	June 12, 2012	Italy	• Museum	CTI (GR) FUNDECYT (ES)
5	November 8, 2012	Greece	• National research infrastructure agency	SAMBRUK (SE), USFD (UK), FUNDECYT (ES)

2.2. Level and fields of FOSS usage

Based on site visit findings, it is quite evident that open source is highly used and has been integrated to a significant extent in reviewed IT infrastructures of visited organisations in all hosting countries (Latvia, Cyprus, Romania, Italy and Greece).

Evidence from the 1st site visit (Latvia) shows an active staff involvement and a remarkably high level of usage in all areas of IT. Staff in the hosting organisation demonstrates a sensible attitude to software selection, opting for FOSS, not as a general rule, but in comparison to existing options and in evaluation along with proprietary software. FOSS is to be selected and integrated in IT infrastructures when providing all required features and functionalities.

In the Cyprus case (2nd site visit), there is a wide range of open source software in use by the University's IT department, from directory service (openLDAP), network/server monitoring (cacti, Nagios), and virtualisation (Virtual Box) to office applications (Open Office), e-learning (Moodle), collaboration (Twiki) and open digital repositories (DSpace). There is still, however, a great number of operational fields that are largely based on proprietary software such as central e-mail and directory systems, library systems, web content management, office applications and desktop environments. Evidence collected on the second site (pediatric clinic) is rather limited, referring only to a specialised open source electronic medical record software (Freemed).

Regarding the Romanian case (3rd site visit), FOSS has been used extensively in both sites visited by OSEPA experts. In the technical college, there is a broad use of FOSS in e-learning applications (Moodle), whereas, in the city hall, a FOSS infokiosk solution has been applied, providing tourist information about the city. Staff in both sites demonstrated some level of experimentation with FOSS. The IT staff in both sites revealed a significant level of experience in using, developing or customising FOSS applications.

During the assessment of the 4th site visit in Italy, significant conclusions were deduced regarding the level and fields of FOSS usage. The majority of IT staff in the museum reviewed in the 4th site visit (Italy) has used FOSS for the basic operations of the institution. Additionally, they hold a positive previous experience in experimenting with FOSS. In cases needed, the museum's staff has also developed or customised FOSS applications.

The Greek organisation reviewed in the last, 5th site visit, demonstrates a noteworthy use of FOSS since several of its operations rely on and have been accomplished through FOSS applications. There is also a significant level of experimentation with FOSS and the IT staff has demonstrated high skills and competencies in using FOSS applications interchangeably with proprietary software. The IT staff also demonstrates a high level of experience in the development and/or customisation of FOSS applications.

2.3. Policy and organisational framework

In the case of the 1st site visit (Latvia), there is a clear, coherent policy and organisational framework actively supporting and encouraging a wider and deeper penetration of FOSS applications in public IT infrastructures. Hosting organisations have adopted a shared vision and proactive attitude towards FOSS that is strengthened through training and close working environment ties among staff and that is implemented at various stages throughout the lives of community members, from the early years of school, to college and citizen services. Moreover, they actively apply a policy of using money saved on licenses to invest in hardware resources.

Regarding the 2nd site visit case (Cyprus), there is no sufficient evidence from which to draw conclusions on the overall policy and organisational framework for software use in hosting organisations. It is clear, however, that there is a need to develop a wider strategy through which to further promote FOSS uptake and integration in various operational fields and towards building an open source software stack.

The organisations reviewed by the OSEPA external experts in the Romanian case (3rd site visit) are not obliged to procure particular software applications for their operations and have not signed contracts with specific vendors that bind the use of software programs. Hosting institutions also implement a strict policy towards use of non-licensed software. Both organisations reviewed do not name specific products or brands when procuring software but the requirements set equate with brand naming thus precluding FOSS applications. They also try to keep their budget low on upgrades and new licenses focusing more on needs in hardware resources.

The organisation reviewed in the Italian case (4th site visit) employs an open policy as far as software procurement is concerned. Hence, the institution is free to obtain whichever software application is evaluated as more appropriate for its operations. This is further facilitated by its strategy not to sign binding contracts with specific software vendors. In the same way, the

institution describes technical requirements and specifications on a non-biased basis, sometimes integrating the requirements for open standards / interoperability.

The organisation reviewed by OSEPA experts in the Greek case (5th site visit) is required by the state / authority to use specific software applications and has signed contracts which bind it to purchase software and upgrades from specific vendors for a specified period of time. The organisation, however, functions on a non-biased basis, in terms of procurement, integrating open standards and interoperability requirements based on its needs.

2.4. Gaps and risks

From the assessment of all sites in the five different countries, gaps and risks can be identified from the use and implementation of FOSS software applications.

In the case of Latvia, budgetary constraints in IT and illegal software seem to be critical issues which the hosting organisations try to address through FOSS installations and licence cost savings. In cases where a software license expires, a FOSS solution is implemented instead, if applicable. However, a fast migration to an open standard framework of FOSS practices could provoke difficulties in existing operational structures and the execution of particular tasks by staff members who are not familiar with new practices and software applications.

In the case of Cyprus, it seems that there is still progress to be made in two main areas:

- Building an open source software stack covering additional operational fields, tasks and IT environments thus minimising dependency on proprietary software vendors.
- Work towards a better integration of open source solutions to existing standards and required functionalities (e.g. user interface features) in public IT infrastructures. A risk factor to be considered is that not all open source solutions are in compliance with EU standards.[2]

In the case of Romania, there is a rather strict policy with regard to non proprietary software applications. Although there is no brand naming, only specific software products or brands meeting particular requirements are used in order to be compatible with existing software applications precluding, in practice, any FOSS applications. Hence, substantial open source software applications that may be suitable for specific tasks and operations are not equally considered.

[2] As in the case of the US developed "Freemed" software that was reviewed by visiting experts during the site visit.

Additionally, in the case of Romania, the existing usage of FOSS practices in the sectors of e-learning and tourist information should be expanded to other domains and fields. A big effort should be taken towards enhanced integration of open source solutions not only to existing applications and required functionalities (e.g. user interface features) but also to new standards and operations in public IT infrastructures.

Both cases in Italy and Greece follow a more open or non-biased strategy concerning software selections and procurement. In the Greek case, however, the organisation has signed binding contracts to purchase software and upgrades from specific vendors for a specified period of time. There are still steps to be followed in both cases towards more consistent policy frameworks that can facilitate more flexible software procurement practices that equally consider FOSS and integrate open standard requirements at all times.

A basic risk that can be identified in both countries (Italy and Greece) from a wider adoption of FOSS in public IT infrastructures is the confusion that could be provoked among the staff members who are not familiar with such practices or new software applications. FOSS practices should be smoothly introduced in existing public IT infrastructures without causing difficulties or hindrances regarding the proper function of public institutions and organisations. Therefore, one general point that should be mentioned for all the cases that were examined in the framework of the OSEPA project is that the desired transition from a strict policy framework favouring specific proprietary software products or brands towards a more open and flexible framework of equally considering FOSS solutions should be implemented in a carefully planned and consistent manner that meets the actual needs and profiles of public organisations.

Another risk to be considered in relation to a growing familiarisation with FOSS applications is the challenge that ‘FOSS-exposed’ employees may face in an employment market where in all likelihood, proprietary applications will be still heavily utilised and skills in proprietary software will be still sought by employers. An emphasis on proper training that is targeted to market needs and FOSS applications that are widely used in the market could address this risk.

2.5. Overall assessment and FOSS potential

FOSS is used, to a great extent, in several operational fields and IT environments in the majority of the reviewed cases. Additionally, in all reviewed cases, the IT staff members seem to be quite familiar with open source practices also demonstrating the will or capacity to experiment with FOSS development and customisation.

The case of Latvia can be assessed as a successful one in integrating FOSS solutions in all aspects of IT setting a potential role model for European public administrations to benefit from in terms of applied methods and documentation. In the case of Cyprus FOSS usage, although significant it is still rather limited since a great number of important operational fields (such as central e-mail and directory systems, library systems, web content management, office applications etc.) rely on proprietary software.

Regarding the case of Romania, the assessment of the two reviewed sites showed a rather restricting policy in terms of software procurement and FOSS consideration as an option. However, the level of experience of IT staff of assessed organisations is significant in using FOSS and there is a clear FOSS migration potential in the Romanian public IT infrastructures.

A more open, non-biased policy is employed in the cases of Italy and Greece combined with the extensive staff experience in FOSS customisation and development. However, binding contracts with software vendors (in the Greek case) limit organisational independence in opting for software solutions (including FOSS) that best fit internal needs.

Regarding FOSS migration potential, one can observe based on the evidence from all hosting organisations that there is an aligned positive view regarding potential FOSS adoption and the benefits that can be generated through it. Organisation employees and IT staff are sufficiently experienced and capable of planning and implementing FOSS migration projects and budget

resources do not prohibit but rather encourage such a migration in all hosting organisations examined.

2.6. Recommendations and suggested actions

The Latvian case demonstrates a successful model that should be further expanded and capitalised in more regions within the country or in other European regions and public administrations as well. This would entail not only implementing the technical solutions but also employing the enthusiasm and pro-activity of the staff driving FOSS use in this region. However, it is important to be aware that in other regions there may be more social or organisational problems relating to FOSS uptake, resistance to change, lack of support, training and interoperability that should be addressed. Great care must be taken to maintain staff championing FOSS and its principles in this region. At the very least the risk of losing the current staff must be acknowledged and planned for.

In the case of Cyprus, there is still room for improvement in further integrating open source solutions in additional operational fields and IT environments. Visiting experts recommend to both sites reviewed (University IT department and the pediatric clinic) to employ and use a complete software stack based on open source software. A tested and transferable model for such an open source stack is that applied by Lisog, Germany's largest open source business development network that has developed a building block solution with an open source base.

In the case of Romania a less strict policy integrating open standards requirement and facilitating the consideration of FOSS solutions should be implemented. Moreover, existing FOSS solutions and efforts should be extended to more sectors and fields.

In the Italian case, the non-biased, equal footing policy applied in software procurement should be extended to IT staff recruitment practices in order to make sure that employees that are highly skilled in FOSS applications are not excluded through brand naming practices.

In the Greek case, the non-biased (no brand naming) procurement practice currently employed should be combined with similar practices in avoiding binding contracts with specific software vendors and enhancing organisational independence through a full use of in-house capacities and resources.

3. Conclusions of the OSEPA site visits

This report synthesised the evidence collected by the OSEPA experts who reviewed the current status, adoption and implementation of FOSS practices in existing IT infrastructures in public administrations in Latvia, Cyprus, Romania, Italy and Greece.

The comparative analysis that was conducted focused on the following aspects for FOSS practices adoption and implementation in European Public Administrations:

a) Information Technology (IT) infrastructure and level and fields of FOSS usage.
b) Current legal and organisational framework for software procurement.
c) FOSS migration potential assessment.

Regarding the first issue, it is safe to conclude that all reviewed organisations currently use and have integrated, to a great extend, FOSS applications and solutions. In addition, a great number of IT staff demonstrates a significant level of knowledge and experience on FOSS usage, customisation and development.

The conclusions on current legal and organisational frameworks are rather mixed. While some organisations implement restricting policies prescribing specific proprietary products other stakeholders enjoy the flexibility of being able to freely choose and evaluate software applications as the most appropriate for their operations, whether FOSS or proprietary.

There is, however, a common positive view and prospect on potential FOSS migration and on the benefits that it can bring for public organisations. FOSS migration initiatives are encouraged and are expected to increase in the coming years, based on the organisational needs, cost cutting requirements, and the capacities of IT support staff among all reviewed organisations.

4. References

[1] 'Report on the methodology to be used for the review of the partners' status of FOSS usage, their needs on policy issues and demands', prepared by OSEPA partner University of Sheffield, 21.01.2011.

[2] 'Report on the methodology for planning the OSEPA site visits', prepared by OSEPA partner University of Sheffield 21.01.2011.

[3] 'Interim synthesis assessment report on the findings of the OSEPA site vitis", prepared by OSEPA partner Computer Technology Institute & Press CTI – DIOPHANTUS, 27-04-2012.

[4] 1st site visit synthesis report (anonymised version) prepared by OSEPA partner University of Sheffield, 13-01-2011.

[5] 2nd site visit report (anonymised version) prepared by OSEPA partner MFG, 30-03-2011.

[6] 3rd site visit report (anonymised version) reviewed by OSEPA partners: SCHOTEN and CTI, 18-05-2012.

[7] 4th site visit report (anonymised version) prepared by OSEPA partner CTI, 12-06-2012.

[8] 5th site visit report (anonymised version) prepared by OSEPA partners: SAMBRUK, USFD and FUNDECYT, 08-11-2012.