Project no: 269317

nSHIELD

new embedded **S**ystems arc**HI**tectur**E** for multi-**L**ayer **D**ependable solutions

final review REPORT

Review Period 1.09.2012 to 31.08.2013

Document History			
Version	**Date**	**Author**	**Changes**
0.1	03.10.2013	Frank J. Furrer	Preassessment before final review meeting
0.3	21.11.2013	Frank J. Furrer	Draft after 2nd review
0.4	27.11.2013	Marinella Petrocchi	Contributions to first version of the draft report
0.9	07.12.2013	Frank J. Furrer	**Consolidated Report delivered to JU**

Contents

Administrative Details		
Project acronym:	**nSHIELD**	
Project full title:	new embedded **S**ystems - arc**HI**tectur**E** for multi-**L**ayer **D**ependable solutions	
Contract No.:	Artemis JU 269317	
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Document dissemination level:	Restricted	Reviewers, CEC and consortium

Logistics:

This was the 2nd yearly review covering the period from 1.09.2012 to 31.08.2013. The review was held at the SELEX ES premises in Campi Bisenzio (near Florence). The review duration was one full day (15.11.2013).

The logistics, including transportation, was perfectly organized by SELEX ES.

For this report an extended ARTEMIS-JU template was used. There was in no point disagreement between the two reviewers. Note that the table of open issues has been updated following the 2nd review and it is expected that all open issues are resolved for the final review meeting.

TECHNICAL REVIEW REPORT

1. OVERALL ASSESSMENT

a. Executive Summary

Comments, in particular highlighting the scientific/technical achievements of the Project, its contribution to the State of the Art and its impact:

The project made good progress in all work packages, especially in the demonstrator area.
The project has achieved a good balance between theoretical and practical work.
Several interesting innovations and breakthroughs have been achieved (However, they are not yet *explicitly* documented).
Some of the findings of the project will have a remarkable impact on the field of embedded security engineering.
The documentation of the results is of mixed quality – the project has been asked to improve the deliverables by installing a technical editor executing quality control and by reshaping their organizations to highlight achieved results and innovations with respect to the state of the art.
The 3 demonstrators are very promising and the expectations for the final review meeting are high (the 4th demonstrator has been reduced)
The project has agreed to publish the nSHIELD technology and methodology in a tutorial text book – which is highly useful and appreciated

✓ Excellent progress (the Project has fully achieved its objectives and technical goals for the period and has even exceeded expectations).

☐ Good progress (the Project has achieved most of its objectives and technical goals for the period with relatively minor deviations).

☐ Unsatisfactory progress (the Project has failed to achieve critical objectives and/or is not at all on schedule).

b. Overall recommendations (e.g. on overall modifications, corrective actions at WP level, or re-tuning the objectives to optimise the impact or keep up with the State of the Art, or for other reasons, like best use of resources, re-focusing…).

Basically, the project has made satisfactory progress in all areas. The following issues have potential for improvement:

- Formal modeling: the project has so far refused (?) to do formal modeling. The review team had already in the 1st review meeting suggested to develop a formal (or at least: semi-formal UML or SysML) component and component composition model for the SPD-components and for the SPD-metrics. Such models are state of the art and are highly useful for reasoning, stakeholder communications and validation/verification support.
- Quality of the deliverables: The quality of the deliverables is mixed. It is recommended to install a qualified technical editor for the final set of deliverables to guarantee consistency and completeness.
- The project has produced an interesting number of innovations and breakthroughs. However, these are not explicitly listed and described ("buried" in the deliverables). The project is asked to make these innovations and breakthroughs explicit and describe their impact on the field of nSHIELD.
- For the last year of the project duration, it has been asked to clearly list all the innovative achieved results both in the project deliverables and in the annual project report. In particular, an executive summary at the beginning of each deliverable could help to synthesize such results. Same documents should also clearly stress advancement on state of the art.
- The nSHIELD methods at the time being seem to be somewhat complicated and difficult to understand for the "average engineer and operator" who could seriously hinder their acceptance (although they are technically sound and valuable). The project is asked to both simplify the methods and to document them in a comprehensive way. Design and implementation of user-friendly graphical user interfaces could help (especially for service composition and assessment of the desired metric values).
- The 3 demonstrators (Note: the 4th demonstrator has been much reduced) are of great importance for the acceptance and understanding of nSHIELD. The project has been urged to put sufficient effort into the demonstrators in the last period to make them visible, valuable and comprehensive examples of the full nSHIELD technology.
- Dissemination activity: nSHIELD aims at providing a 360 degrees framework for guaranteeing SPD properties in embedded systems with built-in SPD features. Given the strong expectations in industrial exploitation, the reviewers agree that the project should make effort in order to participate and present the project results in industrial forums and similar public initiatives at European level. Also, the reviewers have appreciated the publications of some project results at a top-ranked conference like CCS 2013. There are expectations to maintain and even improve the trend in terms of number of publications.
- The project has been asked to publish the public, accepted deliverables on the project web site, in a public area.

2. OBJECTIVES and WORKPLAN

a. Have the objectives for the period been achieved?In particular, has the Project as a whole been making satisfactory progress in relation to the Technical Annex?

√		
Yes	Partially	No

Comments

All the individual work packages have made good progress

The coordination between the work packages is greatly improved (since 1st review)

The objectives - with minor deviations (accepted by the review team) have been reached and are sufficiently documented

The correspondence to the Technical Annex is good

b. Has each work package (WP) been making satisfactory progress in relation to the Technical Annex?

√		
Yes	Partially	No

Comments

True for all WP's.

Good balance between theoretical and practical work (demonstrators) is visible

c. Have planned milestones and deliverables been achieved for the reporting period?

√		
Yes	Partially	No

Comments

With the exception of agreed delays: YES

The important deliverables D8.4 and D8.6 have accepted delay in order to improve their scope and quality.

The deliverable D7.4 (4th demonstrator) is delayed due to the non-delivery of one partner (whose contribution has been downscaled significantly for the last period)

d. Are the objectives for the coming period(s) i) still relevant and ii) still achievable within the time and resources available to the Project?

Comments

Definitely YES.

The project has sufficient resources (and motivation!) for the last period.

Very high expectations are directed towards the 3 demonstrators and towards the completion of the theoretical work

3. RESOURCES

a. To the best of your estimate, have resources used, i.e. personnel resources and other major cost items, been (i) utilised for achieving the progress, (ii) in a manner consistent with the principle of economy, efficiency and effectiveness. Note that both aspects (i) and (ii) have to be covered in the answer.

i

√		
Yes	Partially	No

ii

√		
Yes	Partially	No

Comments

The deliverables – especially the presentations and the demonstrations during the 2nd review – clearly shown the satisfactory process in relation to the effort claimed.

One exception is the partner THYIA which again did not perform and not deliver the promised results (This problem has in the meantime been rectified by the project officer).

b. If applicable, please comment on large deviations with respect to the planned resources.

Comments

Only minor deviations – all justified

4. IMPLEMENTATION OF THE PROJECT

a. Has the Project management been performed as required?

√		
Yes	Partially	No

Comments

The change of the project manager has been executed smoothly. The project management is efficient and delivers the visible results in time. The review meeting was very efficient and productive.

b. Has the collaboration between the beneficiaries been effective?

Yes	Partially	No
√		

Comments

Basically, the collaboration between the partners is excellent (With the one exception of the formerly non-performing partner THYIA, whose contribution in the project has been significantly reduced in scope and effort). The partners supported each other very well during the 2nd period. Some lack of coordination can be seen in the deliverables (visible divergences and repetitions in the documents). This should be rectified by installing a competent technical editor for quality control assuring harmonic structure and content.

c. Do you identify evidence of underperforming beneficiaries, lack of commitment or change of interest of any beneficiaries?

Yes	Partially	No
	√	

Comments

All partners perform very well and exhibit a cooperative attitude. The review team has suggested making the breakthroughs and innovations and the respective contributing partner more transparent. The review team suggests exploiting project deliverables and annual progress report to enable visibility of breakthroughs and innovations. The project web site could also be a good place to give visibility to the involvement and results achieved by each partner.

5. USE AND DISSEMINATION OF FOREGROUND

a. Is there evidence that the Project has/will produce significant scientific, technical, commercial, social, or environmental impacts (where applicable)?

√		
Yes	Partially	No

Comments

Definitely YES

At the time being, the developed technology is somewhat complex and not yet usable for the "average engineer or operator". The project has been asked to simplify and document adequately.

b. Is the plan for the use of foreground, including any update, appropriate? Namely, please comment on the plan for the exploitation and use of foreground for the consortium as a whole, or for individual beneficiary or groups of beneficiaries and its progress to date.

	√	
Yes	Partially	No

Comments

Foreground knowledge usage seems adequate.

Dissemination plans are academically ok (still, there is improvement margin), but industrially somewhat weak (e.g. trade fairs, industry associations etc.).

The exploitation plan at this time is very conventional and should be made more detailed and explicit.

c. Have the beneficiaries disseminated Project results and information adequately (publications, conferences…)?

√		
Yes	Partially	No

Comments

Academic publications are sufficiently well done;
Industrial publications (Dissemination to future users) not yet satisfactory;
Standardization activities on-going – to be reported in the final review;
Impressive number of MS's and PhD's;
Planned "nSHIELD" tutorial book will be a great help in dissemination and training of future applications;
Website is very good, well organized and navigable. All public deliverables should be uploaded (after suitable technical editing).

d. Are potential users and other stakeholders (outside the consortium) suitably involved (if applicable)?

☐	☑	☐
Yes	Partially	No

Comments

Not yet satisfactory. More effort is expected in the final period. However, the partners of the consortium have clear intentions to directly use the technology, especially shown in the demonstrator development.

e. Is the consortium interacting in a satisfactory manner with other related ARTEMIS Projects or other R&D national/international programmes, standardisation bodies (if relevant)?

☑	☐	☐
Yes	Partially	No

Comments

Discussion and information exchanges with running projects have taken place. However, not much cooperation resulted – yet acceptable reasons were given by the project.

6. OTHER ISSUES

a. Have policy-related and/or regulatory issues been properly handled (if applicable)?

☑	☐	☐
Yes	Partially	No

Comments

YES

b. Have ethical issues been appropriately handled (if applicable)?

√		
Yes	Partially	No

Comments

No ethical issues involved in nSHIELD

c. Have safety issues been properly handled (if applicable)?

√		
Yes	Partially	No

Comments

Definitely YES – this one of the main goals of the project

The safety *context* has not been handled satisfactorily – will be done for the final review

7. APPENDIX

7.1 Closing Remarks

The following closing remarks from the review team concluded the 2nd review meeting:

Review organization:

- The review was held at the SELEX ES premises near Florence: It was well organized and efficiently carried out
- The logistics (including transport hotel ⇔ SELEX) was offered by SELEX. Thanks
- All the necessary partners were present (see list of participants below)

Work Progress:

- The results shown at the review were a positive surprise: The quality of the results was much better communicated via the presentations then via the documents delivered.
- The project shows good progress in all work packages.
- Especially the demonstrators are now better defined (WP8).
- Deliverables: All deliverables (with exception of the delayed D7.4, D8.4 and D8.6) are accepted.
- D2.8 is an important deliverable with good content. However, it does not (yet) reflect the extended know-how of the consortium. Please expand it for the final delivery.
- The quality of the deliverables is mixed: Some are excellent, some are rather average. The deliverables could be greatly improved if the consortium would establish a document quality control with a responsible technical editor.
- Some of the documents contain quite a lot of "copy and paste". This should be avoided. Also many documents would benefit from a concise, informative "Executive summary" at the beginning.
- It is not clear, which partner contributed which parts, especially not which partner advanced the state of the art.
- WP2: The two methodologies for metrics assessment clearly show a great degree of investment. However, they are probably too complicated for the "average engineer or operator". Try to simplify the processes considerably.
- The delay of D7.4, D8.4 and D8.6 are accepted (with a view to a high quality of the deliverables).
- The difficulties with the 4th demonstrator are understood. A reduction of the size of this demonstrator is acceptable to the review team and it will be taken up in the on-going JUGA n amendment
- The academic dissemination is sufficiently good. The project should place more emphasis on dissemination in the industrial area.
- The intent to publish a "nSHIELD" book is appreciated.
- The area of formal modeling (seen as important and as state of the art by the review team) is still handled in an unsatisfactory way. The review team is convinced that explicit formal (or at least: semi-formal, e.g. UML/SysML) of the nSHIELD concepts would be a great achievement and significantly improve acceptance of nSHIELD

- The important deliverables D8.4 and D8.6 should be written with a mind-set focussed on "modern" industry. The view on the very conservative oil & gas industry may not give justice to the state of the art results of nSHIELD.
- The management report is basically complete and fair and is appreciated. However, discrepancies with respect to the TA should be flagged and explained.
- The Public Deliverables (PU) should be published – e.g. on the Website.
- The Website is well constructed and well maintained – very informative.

Collaboration:

- Basically, the cooperation between the partners is excellent. However, there is still some fragmentation visible, especially in the deliverables (some of them seem to be written in isolation with little connections to the others).
- The work results show a nice balance between theoretical and practical work.
- The attempt to influence standardization bodies (e.g. AUTOSAR) is commendable and should be continued.

Effort:

- There are no striking inconsistencies in the financial reporting and all reports reflect the work done in an acceptable way.
- The unsatisfactory situation of partner THYIA has been rectified by the project officer before the 2nd review meeting and will not affect the final phase of the work.
- Some details of financial reporting will be adjusted bilateral between the project and the project officer.

Conclusions:

- For the final review please respond to the open issues in writing (e.g. in a special section in the management report)
- All project results must be listed in the public deliverables – please take it up in the revised progress report
- The project is kindly asked to keep up the good momentum and to show a strong end run!

Thanks:

- The review team thanks SELEX ES and Cecilia Coveri for the good organization, the hospitality and the lunch.

7.2Open Issues

This appendix lists all open points and issues and tracks their completion status.

Document History			
Version	***Date***	***Author(s)***	***Changes/Remarks***
V0.1	10.10.2012	Frank J. Furrer	Recommendations from pSHIELD final review
V0.2	29.10.2012	Frank J. Furrer	New open points from 1st review listed
V0.3	31.10.2012	Ingrid Verbauwhede	Update & add a few points
V0.4	21.11.2013	Frank J. Furrer	Updated after 2ndreview
V0.5	27.11.2013	Marinella Petrocchi	Revise and update

Status:

- completed
- open (= response not delivered)

Note: The numbering in column 1 maintains the original numbering, i.e. the creation number

	Open Issue	**Created**	**Status**	**RemarksReviewers**	**RemarksConsortium**
1.	Provide all deliverables both electronically and in **printed form** to the reviewers latest 2 weeks (14 days) before the date of the review.	1st review	**open**	Valid for all following reviews	The Issue has been fully addressed. In addition, for this second review a printed copy of all deliverables has been delivered directly to the reviewers
2.	The project is kindly asked to provide **printouts** of the presentations at the start of the review meeting.	1st review	**open**	Valid for all following reviews. Please provide paper copies for each of the review team members	Printouts of the presentations provided at the beginning of the meeting

	Open Issue	Created	Status	RemarksReviewers	RemarksConsortium
3.	As already mentioned in the recommendations from pSHIELD the project lacks a sufficient and consistent formal base (in the form of formal models!). This is a major divergence risk for the project. The project needs to agree on a few, basic, coordinated formal models which are binding for all workpackages.	1st review Answer expected: final review meeting	**open**	Some suggestions were made by the review team during the 1st review meeting:  FURRER_FormalModeling_20121018.pdf The review team views the modeling activities of the project as insufficient and below the state of the art.	An abstraction ontology has been defined, mainly based on the attack surface metrics approach: it is expected to model in the most generic and abstract way a SHIELD component. In the prosecution of the demonstration activities formal models (e.g. SysML or UML) will be adopted to describe the demonstrators' architecture.
4.	A more formal and systematic framework is also needed for the SPD metrics. At this point there are 60 types of SPD metrics. How to make sure there are no security holes nor overlaps between metrics? How to add/remove metrics?	1st review Answer expected: final review meeting	**open**	Both approaches have merit and are appreciated. The review team feels, that both are too complicated for the "average engineer or operator" and should be simplified	Two systematic approaches have been conceived and detailed: the multimetrics approach and the attack surface approach. Both have been presented in detail.
5.	pSHIELD D3.2 (p. 89ff) gives an excellent treatment of the CIAA properties (Confidentiality, Integrity, Authenticity and Availability). However, two additional properties should also be handled (at least thought about in this context): *Non-repudiation* and *traceability*. These properties become very important, e.g. in the case of a railway accident with dangerous materials (= pilot applications) when actions and decisions of different parties need to be presented to an enquiry or to a court of law. nSHIELD should present a decision on this topic.	1st review Answer expected: final review meeting	**closed**		For those applications who require non repudiation and traceability we have methodologies and mechanisms (e.g. digital signatures and tamper-proof audit logs) ensuring the provisioning of these qualities. However in certain systems (e.g. Oil industry) other security parameters (like latency) may prioritize other security mechanisms - Documented in D3.3
6.	Recommendation: The consortium is invited to author and publish a "nSHIELD Textbook" and publish it with a reputed publisher (e.g. Springer). This textbook should be a complete, comprehensive and consistent tutorial, providing an easy and interesting entry into the nSHIELD world for engineers and potential users	1st review Answer expected: Final review meeting	**open**	Experience has shown, that a well-written, tutorial textbook greatly enhances the credibility of a technology and at the same time is a powerful instrument for its successful dissemination **Greatly appreciated!**	A preliminary ToC started circulating

	Open Issue	Created	Status	RemarksReviewers	RemarksConsortium
7.	nSHIELD proposes a number of fragmented (?) demonstrators, each showing part of the nSHIELD achievements. nSHIELD should aim for one (or more) significantly larger and more integrated demonstrator(s). This would prove the integration efforts of the consortium and contribute to the ARTEMIS objective of reducing the ES fragmentation in today's industry. As a first step, a table or graph should be made which clearly shows which new technologies are used for which demonstrator.	1st review Answer expected: final review meeting	**open**	Appreciated. Please document in a formal deliverable	A matrix that maps technologies over demonstrators is being prepared The matrix has been shown during the presentation of WP6 activities (sheet 6-7)
8.	Certification support during development is an important objective for nSHIELD. The project should create a liaison with the ARTEMIS-JU certification group (Contact follows from Antonio) and include the findings into the project work. Certification should be an explicit outcome of nSHIELD.	1st review Answer expected: final review meeting	**closed**		The PROSE project is closed (ended two years ago). Standardization mainly addressed and less certification. No security/privacy topics addressed in the certification field. ARTEMIS practice: - Doing certification for environment (e.g. automation, sustainable environment, …) - Doing technology/tool platforms certification (e.g. network security protocol certification 802.15.4 for security module prototype Euromils FP7 project Protection Profile (national certification authority) Ongoing certification procedure for UAV IQ Engine Kernel
9.	Incremental certification will be one of the key cost reduction factors in future embedded systems. Some projects and groups are already working on this topic. Accepting incremental certification needs some "education" of the National authorities. nSHIELD should make contact to their respective National authorities and start discussing this topic	1st review Answer expected: final review meeting	**open**	Please report on final activities	National contacts in Norway established. Focus is on global infrastructure for Oil and Gas industry (ISO 15926)and transport (ISO 26262)

	Open Issue	Created	Status	RemarksReviewers	RemarksConsortium
10.	The proposed demonstrators are of high interest. However, it is at the time being not clear, what will really be shown in each demonstrator, i.e. which pieces of nSHIELD results will form part of the respective demonstrators. The review team would like to see either one "ultimate" demonstrator which shows in real hardware and software the most significant results and tools produced by nSHIELD. If more than one demonstrator is chosen (e.g. the UAV and the train), then please clearly indicate which technology is used in which demonstrator. Ideally, the same technology should be used in more than one demonstrator.	1st review Answer expected: final review meeting	**open**	Good – Document in one of the final deliverables	A matrix that maps technologies over demonstrators is being prepared The matrix has been shown during the presentation of WP6 activities (sheet 6-7). The technologies (prototypes) involved on on the Railway Security Scenario and on the Dependable Avionics Scenario are clearly highlighted during the demonstrators session.
11.	One risk for industry acceptance of nSHIELD methods are existing process standards, such as Autosar, IMA, ... which are very hard to change. nSHIELD should carefully study the most important development standards and compare gaps/differences and address them accordingly.	1st review Answer expected: final review meeting	**open**	Please report in final review meeting and include in a suitable deliverable	Discussions with key players driving the development (e.g. ABB). Upgradeable infrastructure and modularity are the challenges for the next years Goups in Autosar and IMA working on security and safety, expecially in transport systems: Liaisons could be established by the end of nSHIELD project by TECNALIA (groups involved in Autostar and IMA) OPENCOSS Project. *InakiEguia :we have talked to Safetrans- they were interested in security impact...(robustness of most critical embedded systems) They are getting aware of the importance of security.*
12.	nSHIELD should start early to build industry acceptance. "Measurable security" and the composition approach – this must be developed by targeted measures at an early stage (as part of the dissemination activities). For the composition approach pay explicit attention to the definition of interfaces. Please include a section on this objective & results in the dissemination plan	1st review Answer expected: final review meeting	**open**		These topics are planned to be included in the dissemination plan

	Open Issue	Created	Status	RemarksReviewers	RemarksConsortium
13.	During the 1st review it was mentioned, that Finmeccanica is developing its own ES operating system (which was later weakened to "virtualization software". The review team reminds the project that the introduction of a new OS/system software into the ES market is a major undertaking with a very high acceptance risk. If nSHIELD wants to go this route, the review team needs a good justification as part of the exploitation plan	1st review Answer expected: final review meeting	**closed**		Misconception. An internal check withinFinmeccanicacompanieshasbeenperformed: this OS System is a Linux distributionalreadydevelopedandtailoredforFinmeccanica (internal) purposesandis out ofscopeforthenSHIELDproject. No plan to push it on themarket.
14.	The work packages should be technically better coordinated: They sometimes work on individual assumptions and different models. A unified, accepted global picture is missing. Suggestion: In another project with similar challenges, the project management instituted a "Technical Task Force (TEF)" which worked as a horizontal coordination body for all workpackages – with tremendous success for the consistency of the project results!	1st review Answer expected: final review meeting	**open**	*Is the task force allowed to take decisions?* *Was it useful, not only causing more confusion?*	Task force established It was more like providing a direction for work, that were taken into account when making decisions. Prototype and other implementations were more quicker and effective this way.
15.	Thyia is not performing according to their tasks defined in the TA. Thyia's effort in the reporting period is 0 MM. Their contribution to WP2 in the reporting period was nil (the contribution had to be authored by Luigi Trono). The project needs to remedy this partner situation.	1st review Answer expected: final review meeting	**open**		An agreement has been reached between THYIA, The consortium and the Commission about its involvement in the prosecution of the project. *THYIA's minor effort was revision and supervision of documents, they are not involved in the social demonstrator anymore. No innovation, but just a few month effort is expected.* *Josef Noll had some emails on clarification on this - Spase will followup and comment the social mobility sceanrio.*
16.	Rework D1.2 (Quality control guidelines) to really make it a binding process and metrics document and resubmit it for the final review.	1st review Answer expected: final review meeting	**closed**	Accepted, but this document is really no highlight	D1.2 re-worked according to the reviewers' indication and already resubmitted before the second review meeting. A printed copy has been delivered before the second review meeting.

	Open Issue	Created	Status	RemarksReviewers	RemarksConsortium
17.	The project has been asked to improve the financial reporting, shortening the report and summarizing the figures in comprehensive tables and figures	1st review Answer expected: All review meetings	**closed**	Bi-lateral discussion between the Project Officer and the Consortium. An additional, condensed table is recommended	The comment is understood and in principle agreed. The partners should improve their efficiency in reporting activities; however some partners (e.g. UNIROMA1) are obliged to provide reports plenty of details because these reports are the mean adopted by National Evaluators to match technical activities vs involved resources: lack of details could lead to insufficient justification of costs. In any case the consortium would appreciate if ARTEMIS could provide an example or a template of Financial reporting that is more in line with the reviewer needs *The consortium will arrange a new reporting format for this*
18.	Metrics Composition Model: The composition of SPD-metrics is a key achievement of the project. However, no formal (or at least: semi-formal) composition model is defined.	**2nd review** Answer expected: Final review meeting	**open**		
19.	Provable Security: The project lays (rigthly) a lot of emphasis on “demonstrable” SPD-properties. However, the evidence on “provable security” is not convincing. The project is required to put some more effort into “proofs of SPD-properties” for a composed system. A useful reference is: Jonathan Katz, Yehuda Lindell: Introduction to Modern Cryptography. Chapman & Hall/CRC Publishers, USA, 2008. ISBN 978-1-58488-551-1	**2nd review** Answer expected: Final review meeting	**open**		
20.	The matrix nSHIELD technologies ⇔ demonstrators has been appreciated. Please include this matrix in a formal deliverable	**2nd review** Answer expected: Final review meeting	**open**		
21.	The project has not given sufficient emphasis on the “security context” of nSHIELD technologies, such as crypto key management, crypto key secure storage, crypto key secure distribution etc.. The project is asked to clarify the context in a final deliverable	**2nd review** Answer expected: Final review meeting	**open**		

	Open Issue	Created	Status	RemarksReviewers	RemarksConsortium
22.	The project has achieved a number of very nice, major breakthroughs. However, they are not explicitly identified, but buried in various deliverables. The project is asked to proved an explicit list of these breakthroughs, their authors and their impact on the field of applications	**2nd review** Answer expected: Final review meeting	**open**		
23.	D8.4 & D8.6 are very important documents for the future users of nSHIELD technology. The review team understood during the 2nd review that these documents would be written with a focus on “oil and gas industry”. The review team feels, that this could be a rather backward looking standpoint – as the oil and gas industry is quite conservative – and invites the project to look forward and focus on more innovative industries	**2nd review** Answer expected: Final review meeting	**open**		
24.	D2.8 is an important and good document. Please expand it to include the very interesting material presented during the 2nd review	**2nd review** Answer expected: Final review meeting	**open**		
25.	The project generates an impressive list of MS and PhD thesis. Please provide a complete list (Author, Title, Institution and dates) of all the theses initiated by pSHIELD and nSHIELD	**2nd review** Answer expected: Final review meeting	**open**		
26.	The project generated a number of innovations (such as cognitive radio improvement, reputation-based routing, gatway etc.). Please provide a complete list of these innovations and the partner responsible for it. Please also indicate the impact on the field of application of nSHIELD	**2nd review** Answer expected: Final review meeting	**open**		
27.	Public accepted deliverables should be published in a public area on the project website	**2nd review** Answer expected: Operation to be performed during the third year of the project	**open**		

	Open Issue	**Created**	**Status**	**RemarksReviewers**	**RemarksConsortium**
28.	Dissemination activity: please manage to present innovative results of the project at industrial forums, trade fairs, popular symposia like, for example, the Future Internet Assembly (March, 2014)	**2nd review** Answer expected: Final review meeting	**open**		
29.	Deliverables and the annual project report should be the target of an editorial check to assess quality level and executive summaries should clearly list what results have been achieved, from which contributing partners, and the innovation wrt SoA.	**2nd review** Answer expected: Final review meeting	**open**		
30.	The table of open issues has been updated following the 2nd review and it is expected that all open issues are resolved for the final review meeting.	**2nd review** Answer expected: Final review meeting	**open**	Please answer the open issues **before** the final review meeting either in the progress report or in a separate document	

7.3Review Status of the nSHIELD Deliverables (Based on the TA)

Nature: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other
Dissemination Level: **PU** = Public
PP = Restricted to other programme participants (including the JU).
RE = Restricted to a group specified by the consortium (including the JU).
CO = Confidential, only for members of the consortium (including the JU).
Review Status: **accepted** or **rejected** (assigned by the review team)

Del. #	Deliverable Title	WP No.	Natu-re	Dissemi-nation Level	Delivery date (proj. month)	Received (by Reviewer)	Review Status	Remarks
TA	Technical Annex	-	O	PP	0	10.10.12	(accepted by Artemis-JU)	
GLO	nSHIELD glossary	-						One project glossary instead of individual glossaries provided
ACR	nSHIELD acronyms	-	O	PP	0	10.10.12	**accepted**	One project acronym list instead of individual lists provided
D1.1	Collaborative tools and document repository	1	O	PP	2	10.10.12	**accepted**	Excellent project-Wiki!
D8.1	Web Site	8	O	PU	2	10.10.12	**accepted**	Website + Doc
D1.2	Quality Control Guidelines	1	R	PP	3	10.10.12	**rejected**	Lack of quantification ("who", does "what" and "when"). Do not refer to pSHIELD documentation (e.g. p.11)
D1.3	Liaisons Plan	1	R	PP	3	10.10.12	**accepted**	
D2.1	Preliminary System Requirements	2	R	CO	3	10.10.12	**accepted**	
D3.1	SPD node technologies assessment	3	R	CO	4	10.10.12	**accepted**	
D4.1	SPD network technologies assessment	4	R	CO	5	10.10.12	**accepted**	
D5.1	SPD middleware and overlay technologies assessment	5	R	CO	6	10.10.12	**accepted**	
D1.4	Periodic Management Report 1	1	R	PP	6	10.10.12	**accepted**	
D2.2	Preliminary System Requirements and Specifications	2	R	PU	6	10.10.12	**accepted**	

Del. #	Deliverable Title	WP No.	Natu-re	Dissemi-nation Level	Delivery date (proj. month)	Received (by Reviewer)	Review Status	Remarks
D8.2	Dissemination Plan	8	R	PP	6	10.10.12	**accepted**	
D8.3	Standardization Plan	8	R	PP	6	10.10.12	**accepted**	More explicit commitment from the consortium would be helpful
D2.3	Preliminary system architecture design	2	R	CO	9	10.10.12	**accepted**	
D1.5	Periodic Annual Report 1	1	R	PP	12	10.10.12	**accepted**	1.9.2011-31.8.2012
D2.4	Reference system architecture design	2	R	PU	12	10.10.12	**accepted**	
D2.5	Preliminary SPD Metrics specifications	2	R	CO	12	10.10.12	**accepted**	
	1st Review, Rome 18.10.12				**13**			
D0.0	Acronym List					20.10.13	**accepted**	Updated version received
D1.2	Quality Control Guidelines	1	R	PP	3	01.10.13	**accepted**	Rejected at 1st review meeting, new submission
D1.6	Quality Control Report 1	1	R	PU	15	01.10.13	**accepted**	
D8.4	Build Secure Embedded Systems with nSHIELD v1	8	R	PU	16	10.11.13	**open**	Delay of 6 months accepted at 1st review meeting Additional delay accepted at 2nd review meeting
D1.7	Periodic Management Report 2	1	R	PP	18	01.10.13	**accepted**	
D3.2	Preliminary SPD node technologies prototype	3	P,O	RE	18	01.10.13	**accepted**	
D3.3	Preliminary SPD node technologies prototype report	3	R	PU	18	01.10.13	**accepted**	
D4.2	Preliminary SPD network technologies prototype	4	P,O	RE	18	20.10.13	**accepted**	
D4.3	Preliminary SPD network technologies prototype report	4	R	PU	18	20.10.13	**accepted**	
D5.2	Preliminary SPD middleware and overlay technologies prototype	5	P,O	RE	18	1.11.13	**accepted**	Including a CD-ROM with Prototype Source Code
D5.3	Preliminary SPD middleware and overlay technologies prototype report	5	R	PU	18	1.11.13	**accepted**	
D6.1	Lifecycle and SPD Support Plan	6	R	CO	18	01.10.13	**accepted**	

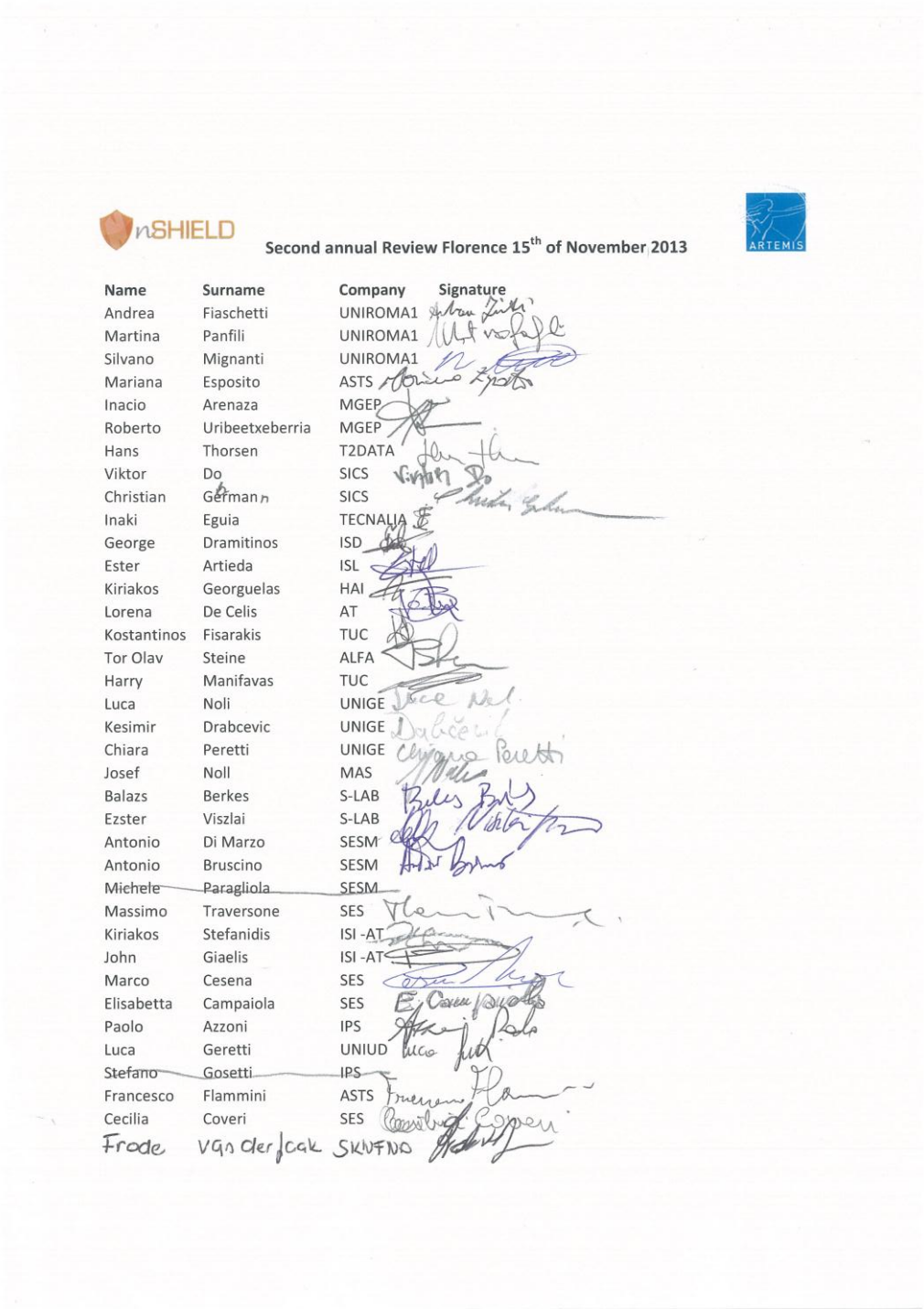
Del. #	Deliverable Title	WP No.	Natu-re	Dissemi-nation Level	Delivery date (proj. month)	Received (by Reviewer)	Review Status	Remarks
D6.2	Prototype validation and verification	6	R	RE	20	20.10.13	**accepted**	
D6.3	Prototype integration report	6	R	RE	22	10.11.13	**accepted**	
D7.1	Railways security demonstrator - integration and validation plan	7	R	CO	22	10.11.13	**accepted**	
D7.2	Voice/Facial Recognition demonstrator - integration and validation plan	7	R	CO	22	10.11.13	**accepted**	
D7.3	Dependable Avionic Systems demonstrator - integration and validation plan	7	R	CO	22	10.11.13	**accepted**	
D7.4	Social Mobility and Networking demonstrator - integration and validation plan	7	R	CO	22		**open**	Delay accepted at 2nd review meeting
D1.8	Periodic Annual Report 2	1	R	PP	24		**accepted**	Update directly to Project Officer required
D2.6	Final System Requirements and Specifications	2	R	PU	24	20.10.13	**accepted**	
D8.5	Preliminary Exploitation Plan	8	R	PP	24	20.10.13	**accepted**	
D8.6	Build Secure Embedded Systems with nSHIELD v2	8	R	PU	24		**open**	Delay accepted at 2nd review meeting
D2.8	SPD Metrics specifications Rev. A	2	R	PU	26	10.11.13	n.a.	Already delivered before the final review meeting. Suggestions for update listed
Paper	Paper: Eguia/Del Ser: A Meta-Heuristically Fuzzy Approach towards Multi-Metric Security Risk Assessment in Heterogenous Systems-of-Systems					10.11.13	Much appreciated	Not formally part of the TA deliverables
	final review Florence 15.11.2013				26			
D2.7	Final system architecture design	2	R	PU	26			
D2.8	SPD Metrics specifications	2	R	PU	26			Already delivered before the final review meeting
D1.9	Quality Control Report 2	1	R	PU	27			

Del. #	Deliverable Title	WP No.	Natu-re	Dissemi-nation Level	Delivery date (proj. month)	Received (by Reviewer)	Review Status	Remarks
D1.10	Periodic Management Report 3	1	R	PP	30			
D3.4	SPD node technologies prototype	3	P,O	RE	30			
D3.5	SPD node technologies prototype report	3	R	PU	30			
D4.4	SPD network technologies prototype	4	P,O	RE	30			
D4.5	SPD network technologies prototype report	4	R	PU	30			
D5.4	SPD middleware and overlay technologies prototype	5	P,O	RE	30			
D5.5	SPD middleware and overlay technologies prototype report	5	R	PU	30			
D6.4	Lifecycle and SPD Support Report	6	R	PU	30			
D1.11	Liaisons Report	1	R	PU	34			
D6.5	Platform integration report	6	R	PU	34			
D7.5	Railways Security - integration report	7	R	PU	34			
D7.6	Voice/Facial Recognition - integration report	7	R	PU	34			
D7.7	Dependable Avionic Systems demonstrator - integration report	7	R	PU	34			
D7.8	Social Mobility and Networking demonstrator - integration report	7	R	PU	34			
D1.12	Periodic Annual Report 3	1	R	PU	36			
D6.6	Platform validation and verification	6	R	PU	36			
D7.9	Railways security demonstrator- validation and verification report	7	R	PU	36			
D7.10	Voice/Facial Recognition demonstrator - validation and verification report	7	R	PU	36			
D7.11	Dependable Avionic Systems demonstrator - validation and verification report	7	R	PU	36			

Del. #	Deliverable Title	WP No.	Natu-re	Dissemi-nation Level	Delivery date (proj. month)	Received (by Reviewer)	Review Status	Remarks
D7.12	Social Mobility and Networking demonstrator - validation and verification report	7	R	PU	36			
D8.7	Build Secure Embedded Systems with nSHIELD v3	8	R	PU	36			
D8.8	Standardization Report	8	R	PU	36			
D8.9	Dissemination Report	8	R	PU	36			
D8.10	Final Exploitation Plan	8	R	CO	36			

7.4List of Review Participants

The following table lists the review participants of the 2nd review.



nSHIELD

ARTEMIS

Second annual Review Florence 15th of November 2013

Name	Surname	Company	Signature
Andrea	Fiaschetti	UNIROMA1	
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Silvano	Mignanti	UNIROMA1	
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Inacio	Arenaza	MGEP	
Roberto	Uribeetxeberria	MGEP	
Hans	Thorsen	T2DATA	
Viktor	Do	SICS	
Christian	Germann	SICS	
Inaki	Eguia	TECNALIA	
George	Dramitinos	ISD	
Ester	Artieda	ISL	
Kiriakos	Georguelas	HAI	
Lorena	De Celis	AT	
Kostantinos	Fisarakis	TUC	
Tor Olav	Steine	ALFA	
Harry	Manifavas	TUC	
Luca	Noli	UNIGE	
Kesimir	Drabcevic	UNIGE	
Chiara	Peretti	UNIGE	
Josef	Noll	MAS	
Balazs	Berkes	S-LAB	
Ezster	Viszlai	S-LAB	
Antonio	Di Marzo	SESM	
Antonio	Bruscino	SESM	
Michele	Paragliola	SESM	
Massimo	Traversone	SES	
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John	Giaelis	ISI -AT	
Marco	Cesena	SES	
Elisabetta	Campaiola	SES	
Paolo	Azzoni	IPS	
Luca	Geretti	UNIUD	
Stefano	Gosetti	IPS	
Francesco	Flammini	ASTS	
Cecilia	Coveri	SES	
Frode	Van der Laak	SKNFND	

8. SIGNATURES

Name of the expert: Dr. Frank J. Furrer

Date: December 7, 2013

Signature:

Name of the expert: Dr. Marinella Petrocchi

Date: December 9, 2013

Signature: