Deliverable-1.1

Project Management Handbook

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Synopsis:	This deliverable contains all the necessary information to support the management of the project, with highlights on the procedures covering, the online collaboration for effective co-operation, project deliverables: production process, ensuring quality, where to store, how to review, monthly reporting of effort, and progress and the mechanisms for working effectively on the project.

Disclaimer

Executive Summary

The document summarizes the project from a project management perspective, with all the contact points of the project, the information that all the project participants must know, at a minimum, and have it at hand for a quick response to any specific question regarding the project work plan, deliverables and milestones, work with documents, naming/numbering conventions, administrative and management questions of the project. A policy for the editing of the project documents is stated, in order to have a general coherence across the project. This document will be updated, from time to time, during the project progress, in order to reflect any situation not yet actually defined by the handbook.

Table of Contents

1. Introduction

This project management handbook consists of a set of notes on management topics, each note containing all the necessary information to support the management of the project. The notes highlight the main contacts in the project management boards of the Project Coordination Committee (PCC) and Project Technical Committee (PTC), the list of work package leaders, and the break down of all work package objectives, milestones and deliverables.

This handbook also provides management procedures covering, the online collaboration tools for effective co-operation, the method of work with in the project, document production processes, and the ways of ensuring quality with in the project. The handbook outlines the method for carrying out the reporting of effort, and progress and the mechanisms for handling the projects' online presents via its website, social media and logo.

The handbook currently consists of approximately 14 items and the remainder of this document shall detail each project management topic.

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2. Project summary

PRISTINE intends to design and implement the innovative internals of the RINA clean-slate architecture. This includes the programmable functions for: supporting congestion control, providing protection / resilience, facilitating more efficient topological routing, and multi-layer management for handling configuration, performance and security.

2.1. Main Objectives

The Internet as the global communications infrastructure has been successful in shaping the modern world by the way we access and exchange information. The Internet architecture designed in the 1960's has been supporting a variety of applications and offering a number of services till now but emerging applications demand better quality, programmability, resilience and protection. Any alterations to the Internet architecture have become restricted to simple incremental updates and plug-ins instead of radical changes by introducing new solutions.

RINA is an emerging clean-slate programmable networking approach, centring on Inter-Process Communication (IPC) paradigm, which will support high scalability, multi-homing, built-in security, seamless access to real-time information and operation in dynamic environments. The heart of this networking structure is naturally formed and organised by blocks of containers called "Distributed IPC Facilities (DIFs)" where each block has programmable functions to be attributed to as they required. A DIF is seen as an organizing structure, grouping together application processes that provide IPC services and are configured under the same policies.

PRISTINE will use RINA to develop practical, demonstrable, and commercially exploitable solutions to address existing networking limitations.

2.2. Technical Approach

Virtualization is a fundamental inherent attribute of the RINA architecture and based on this aspect, the PRISTINE project is:

- Designing and implementing programmable functions for:
  - \# supporting QoS and congestion control in aggregated levels (WP3).
  - \# facilitating more efficient topological routing (WP3).
  - \# security of content and application processes (WP4).
  - \# providing protection and resilience (WP4) and
  - \# unified multi-layer RINA stack management framework for handling network layer configuration, performance and security (WP5).

- Demonstrating the applicability and benefits of this approach and its built-in functions in three use-cases in the environments of Distributed cloud, Datacenter networking and Network service provider (WP6).

In order to prepare the baseline designs, implemented functions and demonstrators the consortium shall use WP2 to define PRISTINE's reference framework, identifying in advance the interactions between the different components programmed in each use case. This will assist in the development of a Software Development Kit (SDK) to make the baseline RINA implementation, initially developed by the IRATI project, programmable. The SDK will be used by work packages 3, 4 and 5 to program their solutions into the prototypes. Also through WP2 the consortium shall implement a set of simulators for work packages 3, 4 and 5, which will be used to understand the behaviour of their proposed solutions at scale.

2.3. Key Issues

In the last few years "Software Defined Networking" (SDN) has come to the fore, with its proposed total decoupling between the decisions about where the traffic is sent (the Control plane) and the underlying system that forwards the traffic to its selected destination (the Data plane).

By targeting different realistic deployments interoperating with some of the current computer networking technologies, PRISTINE implements real SDN concepts by focusing on the programmability aspects of the RINA model. Network service providers have also been exploring different ways to bring the advantages of virtualized infrastructures (abstraction, resiliency, cost efficiency, re-usability) into network operations. This is to address the high cost of networks in terms of CAPEX and OPEX (including energy consumption) to achieve a certain level of performance.

As a result of this, the industry has gathered around NFV (Network Function Virtualization) to define a common model for achieving this virtualization. PRISTINE will be able to provide a RINA approach to NFV, facilitating a mapping between virtual network functions and DIFs, and supporting a richer and more flexible means to model NFV-aware infrastructures.

2.4. Expected Impact

PRISTINE is returning to the foundational essence of networking, that is a revolutionary approach, as we believe that the current re-engineering approach is maintaining the inherent limitations of the current Internet. In taking the revolutionary approach PRISTINE takes up the challenge of a forward looking network architecture as it integrates communication, computing and storage resources in order to support cloud computing, networked data processing and limited resources of smart client devices.

The PRISTINE project will apply its approach to the SDN market segments of "types of solutions" and "end-user" markets, thus giving the project the potential for commercial and exploitation success via a number of different avenues. The solutions' segment comprises of network infrastructure (switching, controllers), cloud virtualisation & control layer, and network virtualisation services; whilst the end-user markets include network service providers, cloud service providers, and enterprise data centers.

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3. Participant Contact

3.1. Project Partner Details

Table 1. Project Partners

Project Partners	Address	Short Name	Web Site
Waterford Institute of Technology	Cork Road, Waterford, Ireland	WIT-TSSG	http://www.tssg.org
Fundacio Privada I2CAT, Internet I Innovacio Digital a Catalunya	Calle Gran Capita 2-4, Edifici Nexus I, 08034 Barcelona, Spain	i2CAT	http://www.i2cat.net/en
Telefonica Investigacion Y Desarrollo SA	Ronda De La Comunicacion S/N Distrito C Edificio Oeste I, 28050 Madrid, Spain	TID	http://www.tid.es
L.M. Ericsson Limited	Beech Hill Clonskeagh, Dublin 4, Ireland	L.M. ERICSSON LIMITED	http://www.ericsson.com/ie
NEXTWORKS	Via LIVORNESE 1027, 56122 Pisa, Italy	NXW	http://www.nextworks.it
Thales Research & Technology (UK) Limited	Dashwood Lang Road, The Bourne Business Park 2, Addlestone KT15 2NX, United Kingdom	TRT	https://www.thalesgroup.com
Nexedi SA	Boulevard Georges Clemenceau 270, 59700 Marcq En Baroeul, France	NEXEDI	http://www.nexedi.com
BERLIN INSTITUTE FOR SOFTWARE	Christburger Strasse 45, 10405 Berlin, Germany	BISDN	http://www.bisdn.de

Project Partners	Address	Short Name	Web Site
DEFINED NETWORKS GMBH			
Atos Spain SA	Calle De Albarracin 25, 28037 Madrid, Spain	ATOS	http://www.atos.net
Juniper Networks Ireland Limited	Airside Business Park, Swords, Dublin, Ireland	JUNIPER	http://juniper.net
Universitetet i Oslo	Problemveien 5-7, 0316 Oslo, Norway	UiO	http://www.uio.no
Vysoke uceni technicke v Brne	Antoninska 548/1, 60190 Brno, Czech Republic	FIT BUT	http://www.vutbr.cz
Institut Mines-Telecom	Rue Barrault 46, 75634 Paris, France	IMT	http://www.institut-telecom.fr
Center For Research And Telecommunication Experimentation For Networked Communities	Via Alla Cascata 56/D, 38123 Trento, Italy	CREATE-NET	http://www.create-net.org
iMINDS VZW	Gaston Crommenlaan 8/102, 9050 Gent, Belgium	iMINDS	http://www.iminds.be/en

3.2. Project Coordinator

The Project Coordinator will act as the focal point for all activities in the project, and as the primary interface between the project and the Commission.

The PRISTINE project co-ordinator is Miguel Ponce de Leon. email: miguelpdl@tssg.org[1] tel: +35351302952

The Project Coordinator will:

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[1] mailto:miguelpdl@tssg.org

- lead the project ensuring that the project maintains its technical objectives, as well as its relevance within the ICT programme,

- keep regular contact with the Partners to ensure that the project direction is maintained,

- interface with the Commission for all matters associated with the Project,

- hold regular meetings with all Workpackage Leaders,

- hold management meetings, monitoring deviations from the project plan,

- coordinate with Workpackage Leaders in the preparation and distribution of all major deliverables,

- maintain accurate records of costs, resources and time scales for the project,

- coordinate the preparation of reports and ensure their delivery to the Commission,

- promote project visibility and dissemination of project results in relevant international fora and amongst interested stakeholders.

3.3. Project Coordination Committee

The project is managed and administered at its topmost, non-technical level by the Project Coordination Committee (PCC). The PCC is the formal decision-making body for the project. The PCC consists of one delegate ("Partner Representative") from each organisation participating in the project as a full partner (associates do not contribute to the PCC). Normally, Project Coordination Committee meetings will be called in conjunction with Technical Meetings. Participation in PCC meetings by full partners or their delegates is mandatory. The chairperson of the PCC will be the Project Coordinator. The PCC shall meet as required, but not less than three times per year. Each Partner Representative will represent his/her organisation in the course of PCC activities. A requirement on each organisation is that their Partner Representative be authorised to make binding decisions on behalf of the organisation during the normal course of PCC business.

Table 2. Project Coordination Committee (PCC)

Project Partner	Partner Participant	Contact email
WIT-TSSG	Miguel Ponce de Leon	miguelpdl@tssg.org [2]
I2CAT	Eduard Grasa	eduard.grasa@i2cat.net [3]

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[2] mailto:miguelpdl@tssg.org
[3] mailto:eduard.grasa@i2cat.net

Project Partner	Partner Participant	Contact email
TID	Diego Lopez	diego@tid.es[4]
L.M. ERICSSON	Sven van der Meer	sven.van.der.meer@ericsson.com[5]
NEXTWORKS	Francesco Salvestrini	f.salvestrini@nextworks.it[6]
TRT	Hamid Asgari	Hamid.Asgari@uk.thalesgroup.com[7]
NEXEDI	Jean-Paul Smets	jp@nexedi.com[8]
BISDN	Marc Sune	marc.sune@bisdn.de[9]
ATOS	Felicia Lobillo	felicia.lobillo@atos.net[10]
JUNIPER	Renaud Larsen	renaudlarsen@juniper.net[11]
UiO	Stein Gjessing	steing@ifi.uio.no[12]
FIT BUT	Ondrej Ryšavý	rysavy@fit.vutbr.cz[13]
IMT	Anis Laouiti	anis.laouiti@telecom-sudparis.eu[14]
CREATE-NET	Tinku Rasheed	tinku.rasheed@create-net.org[15]
iMINDS	Dimitri Staessens	dimitri.staessens@intec.ugent.be[16]

3.4. Project Technical Manager

The Project Technical Manager is the person responsible for overseeing the project technical work and for leading the Project Technical Committee (described below). The mandate of the Technical Manager is to ensure the accomplishment of the technical objectives of the project, to progress supervision of the project's technical part and to promote, in association with the Project Coordinator, the projects visibility in the international fora.

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[4] mailto:diego@tid.es

[5] mailto:sven.van.der.meer@ericsson.com

[6] mailto:f.salvestrini@nextworks.it

[7] mailto:Hamid.Asgari@uk.thalesgroup.com

[8] mailto:jp@nexedi.com

[9] mailto:marc.sune@bisdn.de

[10] mailto:felicia.lobillo@atos.net

[11] mailto:renaudlarsen@juniper.net

[12] mailto:steing@ifi.uio.no

[13] mailto:rysavy@fit.vutbr.cz

[14] mailto:anis.laouiti@telecom-sudparis.eu

[15] mailto:tinku.rasheed@create-net.org

[16] mailto:dimitri.staessens@intec.ugent.be

The PRISTINE Technical Manager is Eduard Grasa email: eduard.grasa@i2cat.net[17] Tel: +34 93 5679928

Specific tasks for the technical manager include:

- To represent together with the Project Coordinator, the project in relations with the EC.
- To coordinate technical activities of the project and to convene and lead technical meetings, including meetings of the Project Technical Committee.
- To report to the Project Coordination Committee on the technical progress of the project and to coordinate the production of technical deliverables.
- To manage the External Advisory Board (EAB).

The Technical Manager may propose to dismiss Work Package Leaders in case of major deviations from the agreed workplan, provided an alternative person can be suggested and approved by a two-third majority of Partners. The Technical Manager can be dismissed by the Project Coordination Committee, provided an alternate person is suggested by a two-third majority of Partners.

3.5. Project Technical Committee

The Project Technical Committee (PTC) is the body responsible for making and overseeing all technical decisions made within the project. It directly controls all WP Tasks, through the consensus of the partners. The PTC is responsible for putting into place mechanisms to be used by the WPs to ensure the quality of work, produced deliverables, and any technical papers produced at the WP level. The PTC consists of one delegate from each organisation participating in the project. The chairperson of the PTC is the Project Technical Manager. WP Leaders are responsible for summarising the progress of WPs during PTC meetings. The PTC will meet as required, but not less than three times per year. The PTC members may be the same as the PCC members.

Table 3. Project Technical Committee (PTC)

Project Partner	Partner Participant
WIT-TSSG	Micheal Crotty
I2CAT	Eduard Grasa, Miquel Tarzan
TID	Diego Lopez
L.M. ERICSSON LIMITED	Sven van der Meer

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[17] mailto:eduard.grasa@i2cat.net

Project Partner	Partner Participant
NEXTWORKS	Francesco Salvestrini
TRT	Hamid Asgari, Adrian Waller
NEXEDI	Jean Paul Smets
BISDN	Marc Sune / Victor Alvarez Roig
ATOS	Miguel Angel Puente
JUNIPER	Renaud Larsen
UiO	Michael Welzl
FIT BUT	Vladimír Veselý
IMT	Anis Laouiti
CREATE-NET	Domenico Siracusa, Roberto Riggio
iMINDS	Dimitri Staessens

4. EC CNECT contact

PRISTINE Project Officer: Ruediger Martin

EC Unit: DG Communications Networks, Content and Technology (CNECT)

email: Ruediger.MARTIN@ec.europa.eu[18]

Telephone: +32 (02) 29 88250

Address: European Commission, DG CNECT - E 01, Office: BU25 - 03/013, B - 1049 Brussels, Belgium.

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[18] mailto:Ruediger.MARTIN@ec.europa.eu

5. Work plan summary

The PRISTINE project has got 10 distinct objectives[19] and the description of work has been broken up into a set of seven Work Packages (WPs), each one with a well-defined scope and set of sub-objectives to achieve.

The relations between the WPs are outlined in the figure below.
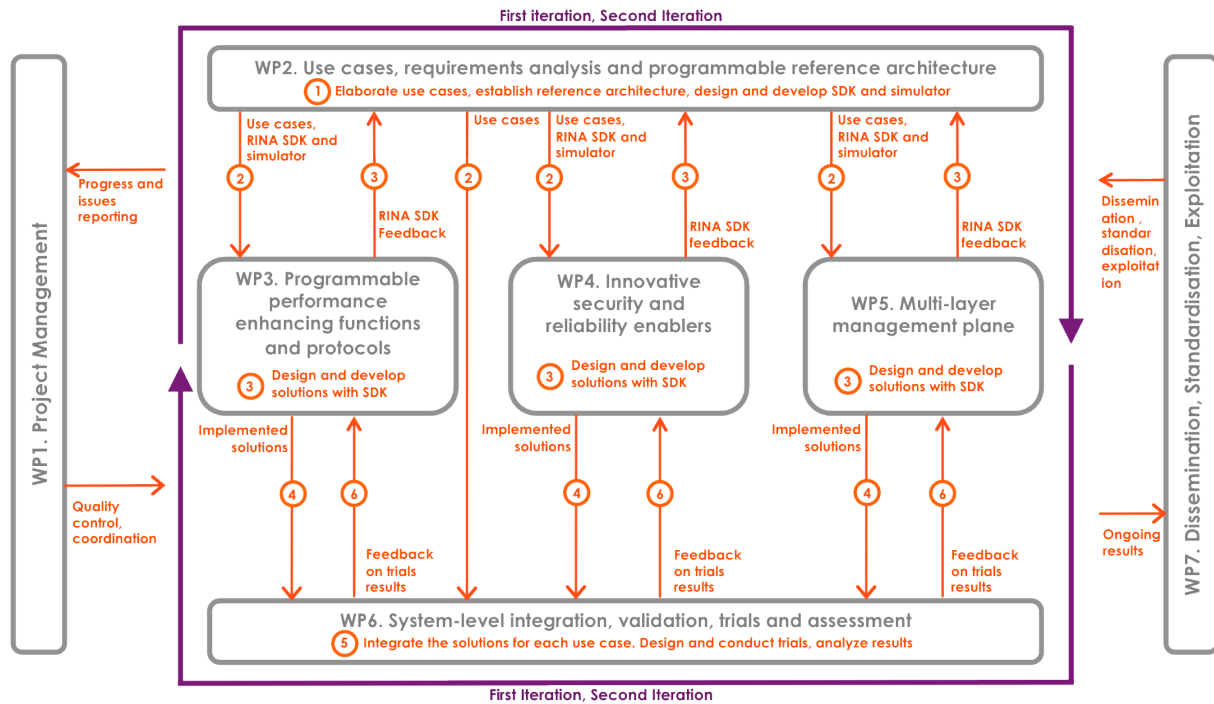
Figure 1. Work Package Structure

5.1. Project Objectives

Objective 1

Software Development Kit for the PRISTINE implementation of RINA

S	The SDK will define a set of APIs to modify the behaviour of DIFs
M	Means of verification: Deliverables D2.3, D2.5[20]. Download tracking

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[19] https://wiki.ict-pristine.eu/Home#Objectives

[20] https://wiki.ict-pristine.eu/WP2-Use-Cases-Requirements-Analysis-and-Programmable-Reference-Architecture#deliverables

A	PRISTINE will modify the IRATI project implementation to allow extension modules to be plugged in and out of the prototype.
R	Enables programmers to exploit in practical customization capabilities provided by RINA
T	Milestones MS6, MS16

Objective 2

Programmable congestion control for effective data transfer

S	Detect congestion generated within the DIF, and take the appropriate measures to quickly react against it.
M	Deliverables D3.1, D3.2[21]. Papers comparing algorithm results.
A	The different congestion control solutions will be incorporated into the prototype through the use of the SDK. – Key partners: UiO.
R	Control loops with different characteristics will be designed, tailored to the requirements of PRISTINE's use cases.
T	Milestones MS7, MS12, MS18, MS21.

Objective 3

Distributed resource allocation strategies to support multiple levels of service

S	Investigate and program a set of distributed resource allocation

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[21] https://wiki.ict-pristine.eu/WP3-Programmable-Performance-Enhancing-Functions-and-Protocols#deliverables

	techniques that enable a DIF to provide different levels of service to honour the requirements of different applications.
M	Deliverables D3.1, D3.2[22].
A	The interaction between distributed resource allocation and congestion control techniques within a DIF will be investigated. The SDK will be used to plug the extensions into the prototype. – Key partners: JUN, Atos.
R	These techniques will leverage the capabilities that RINA provides in terms of allowing applications to express their desired level of service and the theory unifying connection-oriented and connectionless resource allocation.
T	Milestones MS7, MS12, MS18, MS21.

Objective 4

Topological addressing as an enabler of efficient routing

S	Research and develop topological addressing schemes and its associated routing mechanisms, in order to minimize the size of the forwarding tables within DIFs.
M	Deliverables D3.1, D3.2[23].
A	PRISTINE will investigate what topologies for address spaces make sense, are easily maintained, and

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[22] https://wiki.ict-pristine.eu/WP3-Programmable-Performance-Enhancing-Functions-and-Protocols#deliverables
[23] https://wiki.ict-pristine.eu/WP3-Programmable-Performance-Enhancing-Functions-and-Protocols#deliverables

	scale for the three use cases of the PRISTINE project. Development activities will be carried out through the SDK. – Key partners: IMT- TSP.
R	Topological address spaces reflect an abstraction of a connectivity graph within a layer, therefore the forwarding decision can be taken by examining the destination address and the addresses of the directly attached routers.
T	Milestones MS7, MS12, MS18, MS21.

Objective 5

Authentication, access control and encryption for secure DIFs

S	Investigate, design and implement different strategies to perform authentication, access control and encryption as required by the three PRISTINE scenarios.
M	Deliverables D4.1, D4.2[24].
A	Application access control, symmetric/asymmetric key- based authentication protocols and encryption mechanisms will be investigated and adapted to RINA through the use of the SDK. – Key partners: TRT, BISDN.
R	Security is an integral part of an IPC Process and does not need to

[24] https://wiki.ict-pristine.eu/WP4-Innovative-Security-and-Reliability-Enablers#deliverables

	be handled in separate subsystems such as firewalls.
T	Milestones MS8, MS13, MS19, MS22.

Objective 6

Security coordination within a DIF: self-management, attack identification and mitigation

S	Research and program techniques that enable a DIF to coordinate its internal security mechanisms in a distributed an autonomous way.
M	Deliverables D4.1, D4.2[25] .
A	The analyzed information will be used to decide if a DIF is being attacked, and to take measures to protect from the attack. The developed extensions will be incorporated into the prototype through the SDK. – Key partners: Nexedi, TRT.
R	Management and distribution of credentials, as well as logging and analyzing the key events related to security are the most important issues that will be addressed by this objective.
T	Milestones MS8, MS13, MS19, MS22.

Objective 7

Multi-homing and self-healing as the basis of resilient networks

S	Investigate and develop routing algorithms and routing information

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[25] https://wiki.ict-pristine.eu/WP4-Innovative-Security-and-Reliability-Enablers#deliverables

	dissemination strategies that optimally exploit RINA's support of multi-homing for load-balancing and rapid recovery of failures.
M	Deliverables D4.1, D4.2[26].
A	Distributed resource allocation techniques will also be used in order to recreate the connectivity graph of the DIF, effectively recovering from malfunctioning links or IPC Processes. – Key partners: iMinds.
R	Deploying robust services in a timely and scalable manner is a key issue addressed by technologies such as SDN and NFV. This work will implement and test robust services in RINA and prove it can meet carrier requirements.
T	Milestones MS8, MS13, MS19, MS22.

Objective 8

Multi-layer management system (DMS) for integrated network management

S	Design and develop a DMS capable of managing multiple DIFs (layers) at once.
M	Deliverables D5.1, D5.2, D5.3[27].
A	The DMS developed within PRISTINE will take care of configuration, performance and security management.

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[26] https://wiki.ict-pristine.eu/WP4-Innovative-Security-and-Reliability-Enablers#deliverables
[27] https://wiki.ict-pristine.eu/WP5-Multi-layer-Management-Plane#deliverables

	– Key partners: LMI, WIT-TSSG, BISDN.
R	The commonality provided by RINA allows multi-layer management to be vastly simplified; thus opening the door to more robust, dynamic, responsive and cheaper network management operations.
T	Milestones MS9, MS14, MS20, MS23.

Objective 9

Trials of the project use cases: deploying PRISTINE solutions in the real world

S	Demonstrate the benefits of the RINA architecture and PRISTINE's solutions by trialing the project use cases in realistic conditions.
M	Deliverables D6.1, D6.2[28].
A	Showcase the technical and business impact of the project results through different trials over a rich nfrastructure composed by partner's resources and relevant FIRE facilities. - Key partners: Atos, Nexedi, CREATE-NET, WIT-TSSG, TID, LMI, JUN.
R	PRISTINE will bundle the different solutions into three packages, one for each use cases.
T	Milestones MS15, MS24.

[28] https://wiki.ict-pristine.eu/WP6-System-level-Integration-Validation-Trials-and-Assessment#deliverables

Objective 10

RINA Simulator to understand the behaviour of the extensions at scale

S	Design and develop an OMNeT++ based RINA simulator, utilizing part of the IRATI implementation source code as an input.
M	Deliverables D2.4, D2.6[29].
A	A simulator will enable PRISTINE researchers to understand how the solutions for the different problem areas behave at scale. - Key partners: FIT-BUT, CREATE-NET.
R	The simulator is a a useful tool for RINA research allowing researchers outside of the consortium to understand how the PRISTINE solutions behave at scale.
T	Milestones MS16.

5.2. Project Work Packages

Objectives of WP1

- To provide global focus for the direction of the project and the achievement of its objectives in accordance with the project plan.
- To guarantee the technical, non-technical and administrative coordination among all activities involved in the project (e.g., IPR, consortium agreement, contractual issues, project costs, reporting).
- To preserve the quality of the technological work and deliverables content.
- To ensure a proper level of cooperation, communication, knowledge diffusion and consensus among project members.

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[29] https://wiki.ict-pristine.eu/WP2-Use-Cases-Requirements-Analysis-and-Programmable-Reference-Architecture#deliverables

- To manage the overall communication with the EC.

- To coordinate dissemination actions through creation of the required liaison with third parties.

- To establish links and communicate the results to other on-going relevant activities and projects.

- To assess the conformance of the final results to initial scope and goals of the project.

- To manage the overall exploitation plan.

Tasks of WP1

- Task 1.1: Project administration and coordination [30]
- Task 1.2: Reporting and quality assurance [31]

Objectives of WP2

The objectives of WP2 are to

- To describe in detail the use cases of the project, and analyze them providing a clear set of requirements to work packages 3, 4 and 5; as well as descriptions of the trial scenarios to WP6.

- To define PRISTINE's reference framework, identifying in advance the interactions between the different components programmed in each use case.

- To prepare the baseline RINA implementation to be used in the project.

- To fulfil Objective1 by designing and developing a Software Development Kit to make the baseline RINA implementation programmable. The SDK will be used by work packages 3, 4 and 5 to program their solutions into the prototype.

- To fulfil Objective 10 by implementing a RINA simulator that work packages 3, 4 and 5 will use to undestand the behaviour of their proposed solutions at scale.

Tasks of WP2

There are 4 tasks to WP2

- Task 2.1: Use cases description and requirements analysis [32]

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[30] https://wiki.ict-pristine.eu/Task11-Project-Administration

[31] https://wiki.ict-pristine.eu/Task-12-Reporting

[32] https://wiki.ict-pristine.eu/Task21-Use-cases-description-and-requirements-analysis

- Task 2.2: PRISTINE Reference framework[33]

- Task 2.3: Software development kit design and implementation[34]

- Task 2.4: Simulator design and implementation[35]

Objectives of WP3

The objectives of WP3

The resultant SDK from WP2 will be used in WP3 in order to program the devised solutions into the PRISTINE prototype. The RINA simulator is an enabler of this WP work: it will be used to understand the behaviour of WP3 solutions at scale, and, based on the results, modify the developed software accordingly. WP3 will interact with WP6 by providing timely releases of code ready for integration.

- To fulfil Objective 2 by researching, designing and implementing the mechanisms and algorithms that allow each DIF to explicitly detect congestion generated within the DIF, and take the appropriate measures to quickly react against it.

- To fulfil Objective 3 by investigating and programming a set of distributed resource allocation techniques that enable a DIF to provide different levels of service to honour the requirements of different applications.

- To fulfil Objective 4 by researching and developing topological addressing schemes and its associated routing mechanisms, in order to minimize the size of the forwarding tables within DIFs.

Tasks of WP3

There are 3 tasks to WP3

- Task 3.1: Programmable congestion control[36]

- Task 3.2: Unification of connection-oriented and connectionless resource allocation in support of multiple levels of service[37]

- Task 3.3: Topological addressing to bound routing table sizes[38]

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[33] https://wiki.ict-pristine.eu/Task22-PRISTINE-Reference-Framework

[34] https://wiki.ict-pristine.eu/Task23-Software-Development-Kit-Design-and-Implementation

[35] https://wiki.ict-pristine.eu/Task24-Simulator-Design-and-Implementation

[36] https://wiki.ict-pristine.eu/Task31-Programmable-Congestion-Control

[37] https://wiki.ict-pristine.eu/Task32-Unification-of-Connection-oriented-and-Connectionless-Resource-Allocation-in-Support-of-Multiple-Levels-of-Service

[38] https://wiki.ict-pristine.eu/Task33-Topological-Addressing-to-Bound-Routing-Table-Sizes

Draft. Under EU review

Objectives of WP4

The objectives of WP4

The resultant SDK from WP2 will be used in WP4 in order to program the devised solutions into the PRISTINE prototype. The RINA simulator is an enabler of this WP work: it will be used to understand the behaviour of WP4 solutions at scale, and, based on the results, modify the developed software accordingly. WP4 will interact with WP6 by providing timely releases of code ready for integration.

- To fulfil Objective 5 by investigating, designing and implementing different strategies to perform authentication, access control and encryption as required by the three PRISTINE scenarios.

- To fulfil Objective 6 by researching and programming techniques that enable a DIF to coordinate its internal security mechanisms in a distributed an autonomous way.

- To fulfil Objective 7 by investigating and developing routing algorithms and routing information dissemination strategies that optimally exploit RINA support of multi-homing for load balancing and rapid recovery of failures.

Tasks of WP4

There are 3 tasks to WP4

- Task 4.1: Security mechanisms: authentication, access control, encryption[39]
- Task 4.2: Security coordination within a virtual network[40]
- Task 4.3: Resiliency and high-availability[41]

Objectives of WP5

The objectives of WP5

WP5 aims to develop, a unified managment framework and provide configuration, performance and security management functions for the PRISTINE project scenarios Objective 8. This will form a functional DIF Management System (DMS) and its scope will include multi-domain and multi-layer DIF management, within a single administrative domain. It will take the scenarios requirements identified by PRISTINE as input, and provide a declarative contract

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[39] https://wiki.ict-pristine.eu/Task41-Security-Mechanisms-Authenticatin-Access-Control-Encryption
[40] https://wiki.ict-pristine.eu/Task42-Security-coordination-within-a-virtual-network
[41] https://wiki.ict-pristine.eu/Task43-Resiliency-and-High-availability

based configuration and monitoring mechanisms. The declarative specification should contain enough information to allow some degree of cross-checking both with application expectations and all existing DIF configuration, performance and security requirements. This WP will first look into the design and implementation of a common management framework for DIFs, later applying it to the different management areas:

- Configuration management : Investigate appropriate data models for configuring DIFs, use of scope/filter to minimize the management traffic, etc.

- Performance management: what information needs to be collected, how to organize it, what actions can be taken to manage miss-performing networks.

- Security management: what security attributes are useful in configuring inter-layer DIFs, what are the inter-layer monitoring requirements.

The common prototype outputs from the work-package form the DIF Management System (DMS). The DMS can be formed by one or more application processes, depending on the operational requirements of the DMS (degree of distribution of its RIB, redundancy of the DMS application process, response time, etc). The DMS RIB contains the information about all the IPC processes managed by the system: configuration, statistics, relevant event logs, and so on). The RIB and DMS management agent initially developed in T5.1, will allow each of WP tasks to add task specific informational representations and corresponding task implementation detail. In PRISTINE, only a single-domain DMS is targeted.

Tasks of WP5

There are 4 tasks to WP5

- Task 5.1: Common elements of a multi-layer management system[42]
- Task 5.2: Multi-layer configuration management[43]
- Task 5.3: Multi-layer performance management[44]
- Task 5.4: Multi-layer security management[45]

Objectives of WP6

The objectives of WP6 are to

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[42] https://wiki.ict-pristine.eu/Task51-Common-Elements-of-a-Multi-layer-Management-System
[43] https://wiki.ict-pristine.eu/Task52-Multi-layer-Configuration-Management
[44] https://wiki.ict-pristine.eu/Task53-Multi-layer-Performance-Management
[45] https://wiki.ict-pristine.eu/Task54-Multi-layer-Security-Management

- To integrate the modules developed by WorkPackages 3-5 into the prototype in use case by use case basis, obtaining three comprehensive software packages (distributed cloud, datacentre networking and network service provider). Integration tests will be carried out over a dedicated facility, called the "reference facility".

- To design and setup three realistic environments for the use case trials, using the experimental infrastruc- ture provided by the project partners and external FIRE facilities.

- To fulfil Objective 9 by trialing the project use cases. The trials will showcase the advantadges of PRISTINE's solutions over the state of the art, by going through all the steps in each use case lifecycle.

- To analyze the technical and business impact of the trials. The technical analysis will provide feedback to Work Packages 3-5 about the performance, robustness and operational correctness of their designs and implementations; which will give WPs 3-5 directions on how to improve their work during the second iteration of the project.

The business impact analysis will qualify and quantify the new possibilities that the PRISTINE solutions open.

Tasks of WP6

There are 3 tasks to WP6

- Task 6.1: Integration, verification and validation of software components for trials[46]
- Task 6.2: Design, setup and conducting of experimental trials[47]
- Task 6.3: Analysis of trials results: technical and business impact[48]

Objectives of WP7

The objectives of WP7

The purpose of this Work Package is to increase the outreach of the project through the wide dissemination of project objectives and results, and an intense communication towards various target groups. Part of its goal it is also to contribute to standardisation activities, in particular to increase the exploitation potential of PRISTINE outputs (at each partner level and at the project level), a potential that will be precisely evaluated and transformed into a PRISTINE Exploitation Plan prepared on a yearly basis. The activities to be accomplished in this work package are the following ones:

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[46] https://wiki.ict-pristine.eu/Task61-Integration-Verification-and-Validation-of-Software-Components-for-Trials
[47] https://wiki.ict-pristine.eu/Task62-Design-Setup-and-Conducting-of-Experimental-Trials
[48] https://wiki.ict-pristine.eu/Task63-Analysis-of-Trials-Results-Technical-and-Business-Impact

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- Development of the project image and of the project documentation.

- Development and maintenance of a web-based platform.

- Contribution to external events and publications.

- Organisation of annual project open events.

- Periodic updates of the PRISTINE Dissemination, Standardisation and Exploitation Plan.

- Contribution to Standards Development Organizations.

Tasks of WP7

There are 3 tasks to WP7

- Task 7.1: Dissemination strategy and plan, events and project image[49]

- Task 7.2: Standardisation and liaison with other projects[50]

- Task 7.3: IPR strategy, exploitation of project results and adoption path[51]

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[49] https://wiki.ict-pristine.eu/Task71-Dissemination-Strategy-and-Plan-Events-and-Project-Image

[50] https://wiki.ict-pristine.eu/Task72-Standardisation-and-Liaison-with-other-Projects

[51] https://wiki.ict-pristine.eu/Task73-IPR-Strategy-Exploitation-of-Project-Results-and-Adoption-Path

6. Project responsibilities

In order to enable the project management structures to function efficiently, clear and pragmatic decision and voting processes, clear pathways of communication and quick reporting mechanisms are necessary. This section gives an overview of the organisations and people responsible for work packages, project milestones and project deliverables.

6.1. General Assembly

The full composition and responsibilities of the general assembly are contained within Section 3.2 of the projects consortium agreement. To summarise the General Assembly shall be responsible for the overall direction of the Project such as:

a. deciding upon any proposal made by the PCC for the allocation of the project's budget in accordance with the GA, and reviewing and proposing budget reallocations to the Parties;

b. making proposals to the Parties for the review and/or amendment of the terms of the GA in accordance with the provisions of Article II.36 thereof and the CA;

c. deciding to serve notice on a Defaulting Party;

d. deciding upon any change and exchange of work packages between the Parties and proposing corresponding amendments to the GA;

e. deciding upon procedures and tools for the marking and handling of information exchanged between Parties in the performance of the Project;

f. deciding upon proposals from the Board to propose to the Parties that they enter into a Project Co-operation Agreement with the parties of another project;and

g. deciding upon proposals from the Board for the plan for using and disseminating Foreground.

6.2. Work Package Leaders

For each workpackage, there will be a work package leader nominated to coordinate all activities of the work package. Due to the very nature of PRISTINE as a forward looking research project with a commercial exploitation horizon, each WP will have a deputy WP Leader, this will allow the project to drive on both the scientific and integration/commercial direction of each work package.

The WP Leaders will meet quarterly with the Project Technical Manager and arrange regular technical meetings, ensure programme times, costs and resources are maintained and flag any

discrepancy immediately to the Project Coordinator and Technical Manager, initiate corrective action for programme deviations, prepare reports, ensure the objectives and results of activities within the Workpackage are achieved, ensure deliverables are available according to plan, attend all relevant meetings, and in exceptional circumstances send a substitute, coordinate activities for the nominated Workpackage, arrange regular technical meetings as required for their Workpackage. The Workpackage Leader is appointed by each workpackage and is responsible for:

- The performance and progress of the workpackage with regard to the project plan,

- The horizontal information flow to other workpackage leaders,

- Progress reporting on a monthly basis to the Project Coordination Committee,

- Identification and reporting of problems.

The following table summarizes the WP leaders and deputy leaders for PRISTINE.

Table 4. Project Technical Committee (PTC)

Work Package	Leader
WP1	Miguel Ponce de Leon (WIT-TSSG)
WP2	Eduard Grasa (I2CAT), Diego Lopez (TID)
WP3	Michael Welzl (UiO), Renaud Larsen (JUN)
WP4	Hamid Asgari (TRT), Dimitri Staessens (iMinds)
WP5	Micheal Crotty (WIT-TSSG), Sven van der Meer (LMI)
WP6	Roberto Riggio (CREATE-NET), Felicia Lobillo (ATOS)
WP7	Francesco Salvestrini (NXW), Miquel Tarzan (i2CAT)

Task Leader

Each task activity in a work package is led by a partner, with the task leader reporting to the work package leaders, coordinating the technical work for his/her activity according to the project and

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Workpackage objectives, assists in the preparation of reports. Since the consortium has been established for some time in terms of proposal specification, responsibilities are well defined and participants to each task are identified, with their own responsibilities. Each of the partners has at least one task responsibility, and is coordinating the work done in this task. For example, when one task corresponds to a common software development, the task leader is coordinating the development of the complete software.

6.3. Project-Milestones

WP1 Milestones

Table 5. WP1 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS1	Project kick-off[52]	TSSG	1	Verified by: Project meeting organised and attended by all partners	30 Jan. 2014
MS2	Provision of project management handbook	TSSG	2	Verified by: D1.1 delivered	
MS11	Provision of interim management reports	TSSG	9	Verified by: All interim period deliverables delivered for review	
MS17	Provision of periodic management reports	TSSG	18	Verified by: All periodic deliverables delivered for review	

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[52] https://wiki.ict-pristine.eu/wp1/MS1/Project-kick-off-report

WP2 Milestones

Table 6. WP2 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS6	Initial versions of proof of concept RINA SDK available for WPs 3-5	i2CAT	8	Verified by: Software released to WPs 3-5	
MS16	Initial versions of consolidated RINA SDK and simulator available for WPs 3-5	i2CAT	21	Verified by: Software released to WPs 3-5	

WP3 Milestones

Table 7. WP3 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS7	Draft specification of techniques to enhance performance and resource utilization in networks ready	UiO	9	Verified by: Draft Report D3.1	
MS12	Initial version of proof of concept	UiO	14	Verified by: Software	

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Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
	software available for trials			released to WP6	
MS18	Final specification of scalable techniques to enhance performance and resource utilization in network	JUNIPER	24	Verified by: Draft report of D3.2	
MS21	Initial version of consolidated software for available for trials	JUNIPER	26	Verified by: Software released to WP6	

WP4 Milestones

Table 8. WP4 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS8	Draft specification of innovative security and reliability enablers ready	TRT	9	Verified by D4.1 delivered	
MS13	Initial version of proof of concept implementation	TRT	14	Verified by: Component level tests	

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
				proving the functionality	
MS19	Final specification of innovative security and reliability enablers ready	IMINDS	24	Verified by: Draft report of D4.3	
MS22	Initial version of consolidated implementation ready for integration and conducting trials	IMINDS	26	Verified by: Software released to WP6	

WP5 Milestones

Table 9. WP5 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS9	Draft specification of the framework for multi-layer configuration, performance and security mangmt	L.M. ERICSSON LIMITED	9	Verified by: Draft report D5.1	

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS14	First version of proof of concept DIF Management System available for trials	WIT-TSSG	14	Verified by:Software released to WP6	
MS20	Final specification of the framework for multi-layer configuration, performance and security mangmt	WIT-TSSG	24	Verified by: Draft report D5.3	
MS23	First version of consolidated DIF Management System available for trials	BISDN	26	Verified by: Software released to WP6	

WP6 Milestones

Table 10. WP6 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS15	First iteration trials ready to start	CREATE-NET	15	Verified by: Trial infrastructure ready,	

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Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
				software de- ployed and testplan available	
MS24	Second iteration trials ready to start	ATOS	28	Verified by: Trial infrastructure ready, software de- ployed and testplan available	

WP7 Milestones

Table 11. WP7 Milestones

Milestone number	Milestone name	Lead	Delivery date	Comments	Achieved
MS3	First version of project website ready	I2CAT	2	Verified by: Project website is online	
MS4	Initial dissemination plan ready	I2CAT	5	Verified by: Draft report D7.2	
MS5	Initial standardisation plan ready	UiO	7	Verified by: Draft report D7.2	
MS10	Initial exploitation plan ready	NXW	10	Verified by: Draft report D7.3	

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[53] https://wiki.ict-pristine.eu/wp1/d11/D11-Table-of-Contents

6.4. Deliverables

WP1 Deliverables

Table 12. WP1 Deliverables

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D1.1	Project management handbook[53]	TSSG	R	PU	2
D1.2	Project Interim Report	TSSG	R	CO	9
D1.3	Project Periodic Report 1	TSSG	R	CO	18
D1.4	Project Periodic Report 2	TSSG	R	CO	30
D1.5	Project Final Report	TSSG	R	PU	30

WP2 Deliverables

There are 6 deliverables

Table 13. WP2 Deliverables

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D2.1	Use cases description and requirements analysis report	TID	R	PU	5

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Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D2.2	PRISTINE reference framework	I2CAT	R	PU	6
D2.3	Proof of concept of the Software Development Kit	NXW	R	PU	13
D2.4	RINA Simulator; basic functionality	FIT BUT	R	PU	13
D2.5	Consolidated Software Development Kit in support of Programmable Virtual Networks and Network Functions Virtualization	NXW	R	PU	23
D2.6	RINA simulator: advanced fucntionality incorporating use-case specific models	FIT BUT	R	PU	23

WP3 Deliverables

There are 3 deliverables in this workpackage.

Table 14. WP3 Deliverables

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D3.1	Draft specification and proof of concept implementation of techniques to enhance performance and resource utilization in networks	UiO	R	PU	9
D3.2	Initial specification and proof of concept implementation of techniques to enhance performance and resource utilization in networks	UiO	R	PU	16
D3.3	Final specification and consolidated implementation of scalable techniques to enhance performance and resource utilization in networks	JUNIPER	R	PU	28

WP4 Deliverables

There are 3 deliverables in WP4.

Table 15. WP4 Deliverables

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D4.1	Draft conceptual and high-level engineering design of innovative security and reliability enablers	TRT	R	PU	9
D4.2	Initial specification and proof of concept implementation of innovative security and reliability enablers	TRT	R	PU	16
D4.3	Final specification and consolidated implementation of security and reliability enablers	IMINDS	R	PU	28

WP5 Deliverables

There are 4 deliverables

Table 16. WP5 Deliverables

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D5.1	Draft specification of common elements of the management framework	L.M ERRICSSON LIMITED	R	PU	6
D5.2	Specification and implementation of common elements of the management framework	L.M ERRICSSON LIMITED	R	PU	12
D5.3	Proof of concept of DIF Management System	WIT-TSSG	R	PU	16
D5.4	Consolidated DIF Management System	BISDN	R	PU	28

WP6 Deliverables

There are 3 deliverables in WP6.

Table 17. WP6 Deliverables

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D6.1	First iteration trials plan for	CREATE-NET	R	PU	15

Deliverable No.	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
	System-level integration and validation				
D6.2	Proof of concept software for the use cases and draft report on the use cases trials and business impact	CREATE-NET	R	PU	19
D6.3	Consolidated software for the use cases and final report on the use cases trials and business impact	ATOS	R	PU	30

WP7 Deliverables

There are 4 deliverables in WP7.

Table 18. WP7 Deliverables

Deliverable Number	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D7.1	Project website[54]	I2CAT	R	PU	4

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[54] http://ict-pristine.eu/

Deliverable Number	Deliverable Title	Lead	Nature	Dissem. level	Delivery date
D7.2	First stage dissemination and standardisation activities report and plans[55]	NXW	R	PU	9
D7.3	Second stage dissemination, standardisation and exploitation activities report and updated plans	I2CAT	R	PU	18
D7.4	Final dissemination, standardisation and exploitation activities report	NXW	R	PU	30

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[55] https://wiki.ict-pristine.eu/wp7/d72/D72-Table-of-Contents

7. Project communication platform

7.1. Mailing lists

The e-mail exchange is the main instrument used by project partners to share information, proposals and ideas, as well as to prepare deliverables and any other project output (papers, talks, reports for the EC, etc.). The following project mailing lists have been created:

Plenary and Project Coordination Committee mailing list:

- wp1@ict-pristine.eu[56]

One mailing list for discussing administrative and legal issues (e.g. cost claims, contract amendments)

- admin@ict-pristine.eu[57]

There is one mailing list for each of the other workpackages:

- wp2@ict-pristine.eu[58]
- wp3@ict-pristine.eu[59]
- wp4@ict-pristine.eu[60]
- wp5@ict-pristine.eu[61]
- wp6@ict-pristine.eu[62]
- wp7@ict-pristine.eu[63]

All mailing lists are managed by the co-ordinating partner WIT-TSSG, which ensures their efficiency and makes available mail archives. Any request to add or remove a member from any of the project mailing lists should be sent directly to the project co-ordinator Miguel Ponce de Leon (miguelpdl@tssg.org[64]).

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[56] mailto:wp1@ict-pristine.eu
[57] mailto:admin@ict-pristine.eu
[58] mailto:wp2@ict-pristine.eu
[59] mailto:wp3@ict-pristine.eu
[60] mailto:wp4@ict-pristine.eu
[61] mailto:wp5@ict-pristine.eu
[62] mailto:wp6@ict-pristine.eu
[63] mailto:wp7@ict-pristine.eu
[64] mailto:miguelpdl@tssg.org

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In order to guarantee easier e-mail download for users that are traveling and get connected through narrowband links, e-mails sent on the project mailing-lists must not include large attachments. Any partner willing to share a document with the others are requested to upload it on to the project document repository[65] and then send out an e-mail explaining where the document can be downloaded from.

Other forms of etiquette, expected of partners in regards to emails, include indicating in the subject line a request for action if any (e.g Request for contributions, etc.) or relevant information concerning the content. Do not leave the subject blank, nor "reply all" and change the discussion matter without changing the email subject, initiate a new thread with a convenient subject.

7.2. Instant messaging and VoIP

Skype has been selected as the common platform to be used by project partners to exchange instant messages and set-up VoIP calls. The Skype client works on both PC, MAC and Linux and can be downloaded for free (http://www.skype.com).

The Skype nicknames of the project resources are listed in the project contacts table[66].

7.3. Conference Call Facilities

GotoMeeting has been selected as the conference call facility to be used by project partners when a large number of participants need to be joined together in a conference bridge.

The conference bridge at https://www3.gotomeeting.com/join/767259094 with Access Code: 767-259-094 is always open for the PRISTINE partners to use, however an email has to be sent directly to the project co-ordinator Miguel Ponce de Leon (miguelpdl@tssg.org[67]) when it comes to booking / enabling the conference bridge.

7.4. Wiki

The main mechanism for exchanging written content on the project will be via a wiki hosted at https://wiki.ict-pristine.eu. Details on how to use the wiki are given in the section Document interchange format[68]

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[65] https://opensourceprojects.eu/p/pristine/documents/

[66] https://wiki.ict-pristine.eu/wp1/ProjectContacts

[67] mailto:miguelpdl@tssg.org

[68] https://wiki.ict-pristine.eu/wp1/d11/Document-interchange-format

7.5. Project Repository

The project will be using the communication and management tools of Open Source Projects Europe[69]. This platform is a full software forge that supports the development cycle of the PRISTINE project providing both public and private project areas that include tools such as :

- Unlimited sub-projects for adequate management.

- Multiple GIT and SVN repositories per project and sub-project.

- Unlimited Ticket Tracking systems for each project and sub-project.

- Forums for documentation and community interaction.

This platform provides the right type of tools and environment for PRISTINE to create and share its developments.

7.6. Project Meetings

There will be a need for physical meetings between project partners over the life time of the project and in order to support the timely preparation for those meetings location and dates should be agreed 2 months in advance. Within 2 weeks of a meeting a summary agenda out lining the key outcomes for the meeting should be set forth:

- The technical progress and achievements for the meeting,

- The project status,

- Work started,

- Work completed,

- Work delayed,

- Status of deliverables,

- Remedial actions required, if applicable.

Meeting minutes shall be recorded for all meetings and distributed within 2 weeks of the end of the meeting.

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[69] https://opensourceprojects.eu/p/pristine

8. Method of work

For each work package, there is a work package leader and deputy leader nominated to coordinate all activities of the work package. Due to the very nature of PRISTINE as a forward looking research project with a commercial exploitation horizon, each WP will have a deputy WP Leader, this will allow the project to drive on both the scientific and integration/commercial direction of each work package.

The WP Leaders will meet quarterly with the Project Technical Manager and arrange regular technical meetings, ensure programme times, costs and resources are maintained and flag any discrepancy immediately to the Project Coordinator and Technical Manager, initiate corrective action for programme deviations, prepare reports, ensure the objectives and results of activities within the Workpackage are achieved, ensure deliverables are available according to plan, attend all relevant meetings, and in exceptional circumstances send a substitute, coordinate activities for the nominated Workpackage, arrange regular technical meetings as required for their Workpackage. The Workpackage Leader is appointed by each workpackage and is responsible for:

- The performance and progress of the workpackage with regard to the project plan,

- The horizontal information flow to other workpackage leaders,

- Progress reporting on a monthly basis to the Project Coordination Committee,

- Identification and reporting of problems.

Each task activity in a work package is led by a partner, with the task leader reporting to the work package leaders, coordinating the technical work for his/her activity according to the project and Workpackage objectives, assists in the preparation of reports. Since the consortium has been established for some time in terms of proposal specification, responsibilities are well defined and participants to each task are identified, with their own responsibilities. Each of the partners has at least one task responsibility, and is coordinating the work done in this task. For example, when one task corresponds to a common software development, the task leader is coordinating the development of the complete software.

Each WP leader with in PRISTINE has the flexibility to organise their work as they see fit, however a suggested way to undertake technical work in each task is that the WP leader, based on the project plan provided by the Project Coordinator, has to drop an e-mail on the WP mailing-list with some initial hints for the activity. This serves as the official starting point of the activity.

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The task in association with the WP leader prepares and distributes a wiki page with some initial thoughts and inputs for discussion. This serves to trigger the contributions of all the partners involved in the activity.

All the other partners involved in the activity provide comments and further inputs based on their role and expertise. This can be done directly on the mailing-list, modifying the wiki page and providing other detailed contributions.

The task leader, under the supervision of the WP leader, manages the discussion on the mailing-list, identifies open-issues and assigns specific work items to the involved partners (deeper analysis of specific topics/issues and preparation of documents, articles, Internet-Drafts, etc.).

The task leader prepares and distributes further official versions of the wiki and accompanying slide set reflecting as much as possible the inputs of the others and the activity progress.

Consolidation of results is carried out during project meetings or through periodic phone calls. As a task comes close to a work package milestone or to the end of its working period, each consolidated result should go through a process of approving the publication of the final version of the wiki page and slide set, including references to any other relevant contribution. The purpose here is to ensure that the content of the wiki page (and associated pages) are ready to be added to an official deliverable of the work package. This final version of a wiki page should be approved by the WP leader, which can be done at a project meeting, through a conference call, or via an email discussion.

Deliverable preparation takes place after the consolidation of the correspondent wiki pages and slide set(s). No major technical discussion is expected to be carried out while writing deliverables. The final version of a deliverable has to be approved by WP leader and partner participants.

Final approval of deliverables before submission to EC will be carried out by Project Coordintation Committee (PCC).

See follow on section Approval of deliverables and documents[70] for details on the approval procedure.

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[70] https://wiki.ict-pristine.eu/wp1/d11/Approval-of-deliverables-and-documents
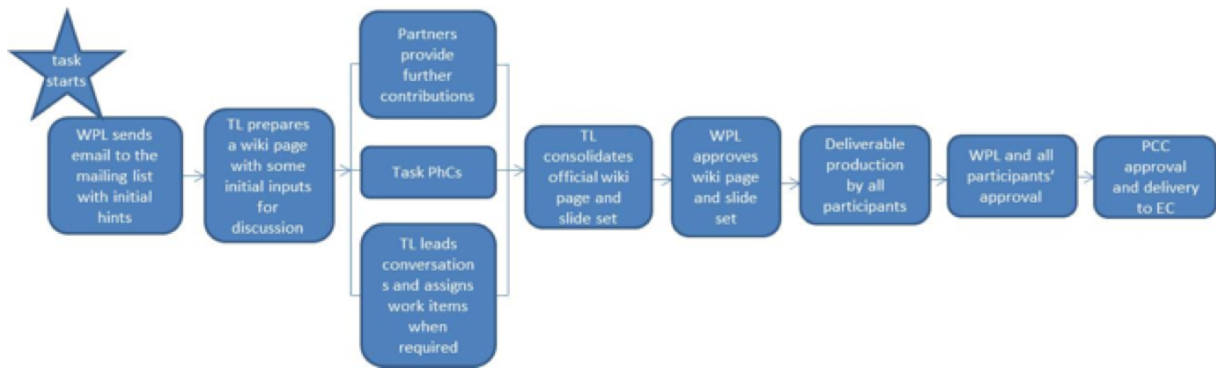
Figure 2. Work package Method of Work

Whenever necessary, task leaders, WP leaders (and the Project Coordinator) will also have the chance to organise periodic phone calls in addition to the official face-to-face meetings. Nonetheless, the wiki page periodically updated by the task leader will be the main instrument for keeping trace of the current status of the activity.

A milestone is not necessarily associated to a deliverable, but it is always associated at least to a wiki page. Task leaders officially declare if milestones are fulfilled or not. They can do this by preparing the associated wiki page and one page document describing the milestone achievements and outputs, sending this to the work page leader and work package partners, via mailing list, for approval.

9. Document interchange format

9.1. Creating Content Using the Wiki

The main mechanism for exchanging written content on the project will be via a wiki, hosted at https://wiki.ict-pristine.eu. The wiki is an instance of Gollum[71], a wiki system built on top of Git. The repository of project pages are also backup via a special git repository hosted in the PRISTINE project document storage area[72].

The wiki uses a single sign on process, in which the openID providers Twitter and Google are enabled. However before a new user can sign into the wiki, they must place their Access ID in the Project Contacts[73] page and notify the wiki administrator Micheal Crotty via email mcrotty@tssg.org[74].

Once signed into the wiki each page must be edited in Asciidoc[75] format. The reason for choosing Asciidoc is to allow the creation of project deliverables directly from the content created on the wiki.

Producing a PDF from the wiki content

In order to produce a pdf document from the content stored on the wiki the following tool chain is needed

1. Install Asciidoctor[76].

2. Download asciidoctor-fopub[77]

3. Install a java JRE.

4. Run the fopub gradle script (i.e. gradlew). This will pull down some dependencies, docbook etc. into the build folder. This has to be done once

5. Note the location of fopub command. e.g. FOPUB=/work/pristine/asciidoctor-fopub/fopub

6. Pull down the latest source of the wiki from the project repository: https://opensourceprojects.eu//p/pristine/documents/ci/4d4a00580dbbf9660547c69d66fe246ce9480838/

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[71] https://github.com/gollum/gollum

[72] https://opensourceprojects.eu/p/pristine/documents/

[73] https://wiki.ict-pristine.eu/wp1/ProjectContacts

[74] mailto:mcrotty@tssg.org

[75] http://asciidoctor.org/docs/user-manual

[76] http://asciidoctor.org/

[77] https://github.com/asciidoctor/asciidoctor-fopub.git

7. Note the location of wp1/tools/deliverable_template e.g PRISTINE_TEMPL=/work/pristine/wp1/tools/deliverable_template

8. Use the following commands in a script called adoc.sh and invoke using: ./adoc.sh name_of_file.asciidoc

```
AD=asciidoctor
FOPUB=/work/pristine/asciidoctor-fopub/fopub
PRISTINE_TEMPL=/work/pristine/wp1/tools/deliverable_template

export BASE=${1%.asciidoc}

echo "Generating docbook from ${BASE} with ${PRISTINE_TEMPL} ..."
${AD} -T ${PRISTINE_TEMPL} -b docbook45 --out-file ${BASE}.xml --trace $1

echo "Generating pdf from docbook ${BASE}.xml with ${PRISTINE_TEMPL} ..."
${FOPUB} -t ${PRISTINE_TEMPL}/xsl ${BASE}.xml
```

9.2. Creating Content Using Textual Documents

All text capturing the project details should be loaded on the wiki, however if there is a case were a text document is to be exchanged within the project, the following guidelines must be observed:

- Format *.doc (Word or equivalent/compliant).

- Track of changes activated.

Attachments should not be sent to mailing lists, but rather placed on the project's document repository[78]. Then an email should be send to the appropriate mailing list, announcing from where the document can be retrieved.

A logical structure of the document repository is already organized in order to facilitate the retrieval of all the documents. All the partners will continue using this structure and create new directories in the same logical way whenever is needed.

9.3. Creating Content for Presentation

Presentations will use the *.ppt format (or equivalent).

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[78] https://opensourceprojects.eu/p/pristine/documents/

9.4. Format and Styles

All the deliverables, interim milestone brief reports and documents must follow the format and styles available on the project repository (templates)[79] which can be found under the wp1/tools folder.

All figures and diagrams will be created using the common set of icons available on the project repository also found under the wp1/tools folder. In this way, project documents, both papers and presentations, will all have the same look and feel.

All the documents to be forwarded outside the Consortium, including the presentations and final deliverables, will use only PDF format, properly secured and authorizing only printing, no editing capabilities, no copying, and no annotation.

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[79] https://opensourceprojects.eu/p/pristine/documents/

Draft. Under EU review

10. Document numbering/naming convention

10.1. Deliverable types and security levels

The deliverables are classified according to the following types:

- P: Prototype.

- R: Report.

- D: Demonstrator.

- O: Other.

Insofar the confidentiality of deliverables and other documents, including presentations, is concerned, the following 4 levels of security are considered:

- PU: Public Usage. No restrictions on access (in secured PDF format).

- PP: Programme Participants. Restricted to the ICT participants and the EC.

- RE: Restricted to an Expressly defined group, defined by the Consortium, and the EC.

- CO: Confidential Only. Only for Consortium members (including the EC).

The following types of Documents will be used during the project:

- Agendas.

- Meeting Minutes.

- Interim Milestone Brief Reports.

- Deliverables (including Project/Monthly Progress Reports).

- Contributions.

- Papers and Presentations.

- Technical Reports.

In order to facilitate the common browsing and storage in different platforms and OS's, no spaces, dots or other special characters will be used in the document names, and instead the underscore character "_" will be used.

For the same reason, only lower case characters will be used.

All these documents will be named/numbered according the following rules, in order to facilitate the quick identification and indexing.

All the documents names start with "pristine_" (project acronym, all lower case), in order to facilitate the identification with other projects documents, and to raise the awareness of the project within number of people that will download the documents from the public web site.

For example: pristine_d11_project_management_handbook_v1_1.pdf

In order to facilitate the work and localization of the documents, an index to all the documents will be posted in the web site as soon as possible.

10.2. Versioning of documents and reviewing rules

Given a document "version a.b", the major version number (a) is incremented only by the main document editor. As a general rule, the major version number is incremented when the document has faced big changes with respect to the previous consolidated version.

Other partners working in the document will increase the minor version number (b) only. Also, especially for PowerPoint slides, that do not support revision marks, it is advisable to summarize the main changes carried out in the document in the accompanying e-mail used to announce the availability of the new version.

Only the main editor will be responsible for the final decision on all the contributions provided by the other partners, in order to maintain a good coherence across all the documents and avoid any kind of conflicts.

The main editor of each document will increase the major version number and accept/reject the changes proposed by the rest of the partners.

Draft. Under EU review

11. Reporting procedure

The EC expects the project to produce project periodic reports, that must include:

- resources used by each contractor (per WP);

- both the planned and actual (or estimated) man-months;

- tabular or graphical format, to enable deviations from plans to be easily seen;

- list of meeting attended by each partner over the period for detecting problems of over-spending of travel budgets;

- updated list of main milestones and deliverables, including actual dates of delivery to the Commission; for any overdue deliverable, the expected date of delivery and an explanation of the reason of the delay; short report of important achievements and results, or major problems, plus any published papers or other dissemination actions;

- major items of capital equipment purchased.

In order for each project periodic report to be delivered on time to EC it is planned to ask all partners to complete a quarterly report. (e.g. the first quarterly report has to be delivered by April 30th, 2014).

The procedure, and related deadlines, that has to be followed to produce quarterly reports is summarized below:

- within 10 days after the end of the quarter, each partner has to deliver to its individual data, that includes 3-4 sentences per WP stating your work done over the quarter, information about events attended and papers presented, summary of man power usage per WP and per each month. This has to be done using the templates available on the project wiki;

- within 20 days after the end of the quarter, the project co-ordinator will collate the information from all the partners and prepares a draft version of the quarterly report;

- by the end of the month, the draft quarterly report is reviewed by the partners and Project Coordinator;

The deadlines reported above are purely indicative. At the end of each quarter, the project co-ordinator will circulate an e-mail with the real scheduling (with precise dates), that will have to be strictly followed by all the project partners.

The tool for capturing this reporting data is hosted at https://wiki.ict-pristine.eu/ReportMaker/

12. Approval of deliverables and documents

Any deliverable or document, including presentations, must follow the rules herein specified.

The procedure that has to be followed for producing deliverables is summarized below:

- deliverables fall within the remit of Work Packages (WPs) and, as such, a Work Package Leader or Task Leader will be assigned the editorship of a particular deliverable (see the table of responsibilities in Project Responsibilities for Deliverables[80]);

- the ultimate responsibility for the quality of deliverables resides with the PCC that must review all the deliverables before submission to the EC. For this reason, the final version of any deliverable must be sent to the PCC (using the correspondent mailing-list) not later than 15 working days before the end of the month where the deliverable is due to EC;

- the final deliverables approved by the PCC must be sent to the Project Coordinator not later than 5 working days before the end of the month where the deliverable is due to EC. The Project Coordinator will carry out the final revision and will then submit the deliverable to the Project Officer.

Once the Project Coordinator has submitted the deliverable to the Project Officer, the PDF version will be uploaded in the internal document repository. Only after approved in an official review shall a deliverable, marked for public delivery, be made available on the public web site of the project.

At least the Project Coordinator will keep an additional copy, for backup and security reasons.

The Deliverables will be submitted electronically to the Project Officer.

12.1. Publications, press releases and reports to the Commission

In regards to the publications, press releases and reports to the Commission Section 4.4 of the Consortium Agreeement cover the detailed specifics but in summary:

No Party shall have the right to publish or allow the publishing of any data, the right to contribute to a standard or allow the contribution to a standard of any data which constitutes Foreground, Sideground, Background or Confidential Information of another Party, even where such data is amalgamated with such first Party's Foreground, Sideground, Background or other information, document or material.

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[80] D11-Project-responsibilities#Deliverables

A copy of any proposed publication in connection with or relating to the Project shall be sent to the Co-ordinator and by the Co-ordinator to the Parties at the earliest time possible. Any of the Parties may object to the publication within 30 days after receipt of a copy of the proposed publication on any of the following grounds: (i) that they consider that the protection of the objecting Party's Foreground would be adversely affected by the proposed publication, (ii) that the proposed publication includes the Confidential Information of the objecting Party, or (iii) the publication of such information would be contrary to the commercial interests of the objecting Party. The proposed publication shall not take place until the expiry of the above period of 30 days. In the absence of any objection within the above mentioned period, it is deemed that the Parties agree to the proposed publication. Following the end of the above mentioned period, the Co-ordinator shall inform the Parties whether or not any objection has been received.

In the event that an objection is raised on any of the above defined grounds within the above period of 30 days, the Party proposing the publication and the Party objecting shall seek in good faith to agree a solution on a timely basis whereby such objection is resolved.

13. Project web site and Social Media

The project web site (http://ict-pristine.eu) has a public area, and a private one and is a hosted Wordpress instance.

All the web site transactions are being logged, in order to track any kind of attack, wrong usage or similar situations.

In order to access the private area, the project participants share a common user name and password[81], providing unrestricted access to all the folders, files.

The statistics for the web site are hosted on a Google Analytics account[82]. Project partners must share a Google account reference in order to view these statistics.

13.1. Social Media

The project has an active Twitter handle @ictpristine[83].

All partners can access this account via its shared password[84].

The project has created but not activated a Google+ handle[85].

Finally the project has a SlideShare account[86].

All partners can access this account via its shared password[87].

This user/name and password must be securely safeguarded by all the partners and not provided in any mean, to any third party or organization not contractually bound to the project.

In the case, by error, accident or any other situation, the user name and password are lost or know by any person or entity not related to the project, the partner who knows it must inform immediately to the rest of the Consortium, by means of an email to the plenary exploder, so the parameters are changed urgently, in order to warranty the confidentiality and any possible IPRs from the partners or project itself.

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[81] https://wiki.ict-pristine.eu/PRISTINE-Accounts#Website

[82] https://www.google.com/analytics/web/?hl=en#report/visitors-overview/a46594416w77640923p80263219/

[83] https://twitter.com/ictpristine

[84] https://wiki.ict-pristine.eu/PRISTINE-Accounts#Twitter

[85] https://plus.google.com/u/0/101885485800272811596/posts

[86] http://www.slideshare.net/ictpristine

[87] https://wiki.ict-pristine.eu/PRISTINE-Accounts#Slideshare

Deliverable-1.1

14. PRISTINE logo and acronym usage

14.1. Logo usage

The preferred logo only can be used over a white background. The logo should be surrounded by at least 25pt of white space around the image. This is not included in the default png images to allow for usage on web pages, where padding is also added by CSS.

Figure 3. Official logo

Alternate logo

An alternate "dark" background version is available. The logo should be surrounded by at least 25pt of dark coloured space around the image. However its use needs to be approved on a case-by-case basis at the PCC.

Figure 4. Alternate "dark" logo

14.2. Acronym usage

The project acronym or short name is PRISTINE, but it can be written as "PRISTINE", with all upper case or "Pristine".

15. Travelling not related to project meetings

All travels outside Europe not related to project meetings will have to be explicitly approved by the PCC.

The procedure will be the following:

- at least 4 weeks in advance of travel start, the partner has to send an e-mail on the PSC mailing-list describing destination of the travel, the number of people involved, the scheduling (departure date, duration), the expected cost and the motivation/objectives (in particular it has to be explained why the trip fits within the PRISTINE description of work);

- if nobody raises issues on the PCC mailing-list within 48 hours, the travel is considered approved and the requesting partner can start planning it.

- The partner requesting the travel approval must provide accurate information regarding the specific event or conference, including if possible a PDF program and/or URL. Preference will be given to those presenting papers to the conference. Any contributions presented at the conference by the attendees should acknowledge both the Program and the Project in which they are participating.

- The cost and frequency of the conference attendance should always be minimized and kept in proportion to the resources of the Project.

No explicit approval by the PCC is requested for travels inside Europe.

The results of each travel, regardless of whether it was inside and outside Europe, have to be verifiable. For this reason the partner is expected to produce and distribute within the project a brief report describing the results obtained during the travel and their impact on the project.

16. Summary and conclusions

The purpose of this document is to facilitate the work between partners in a coherent way, therefore all the project partners have been notified of the location of this project handbook, its instructions and rules.