WORTECS
Management Handbook

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Preface

This Management Handbook (MH) serves as a reference manual for all individual participants working in the WORTECS project. It contains the lists of members of the different bodies and participants in the project, introduces the procedures for daily management of the WORTECS project. The templates provided for usage in WORTECS and the standards for document editing are depicted in this document. The MH also describes the preparation and approval of documents to be prepared in the WORTECS project framework: this includes papers to conferences and journals, contributions to regulatory and standard bodies. The MH also provides all information related to the project reporting system and the deadlines to respect for all procedures.

The rules and procedures are designed to facilitate the work and the dissemination of information, this document and all its modifications have to be approved by the General Assembly (GA). The General Assembly is responsible for proposing improvements to this document. The final goal of this document is to solve daily management issues and to minimise the administrative overhead.

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1 WORTECS Structure and Lists of Members Contacts

1.1 WORTECS Management Structure

WORTECS will use a light and flexible project management structure which will guarantee the objectives are met, but allow experts to generate creative solutions to extremely challenging problems. WORTECs partners are experienced in such projects and consider this to be the optimal approach. Orange, as the project coordinator, has appointed a project leader, with previous experience in the lead of European projects. The project leader will be responsible of both administrative/financial/legal/contractual issues and more technical areas (the project has a reasonable size so it is not required to split the Project/Technical Management tasks).

The project is split in 5 work packages, the work package leaders being a mix between industrial partners (networks operator, SMEs) and research partners (academics, research centres). This will, stimulate technological transfer between research and industry. Work package leaders also support the project coordinator in the day-to-day management of WORTECS.

In order to ensure the technical relevance of the proposed solutions and the end-to-end coherence through the different work packages, three technical leaders have been nominated in relationship with the three main topics addressed by WORTECS (i.e. radio solution-BCM, optical solution-UOXF and radio/optical management-IHP). The overall project structure is shown in Figure 2. More detail on implementation is given in the following sections.

Figure 1 below depicts the overall management structure of the WORTECS project.

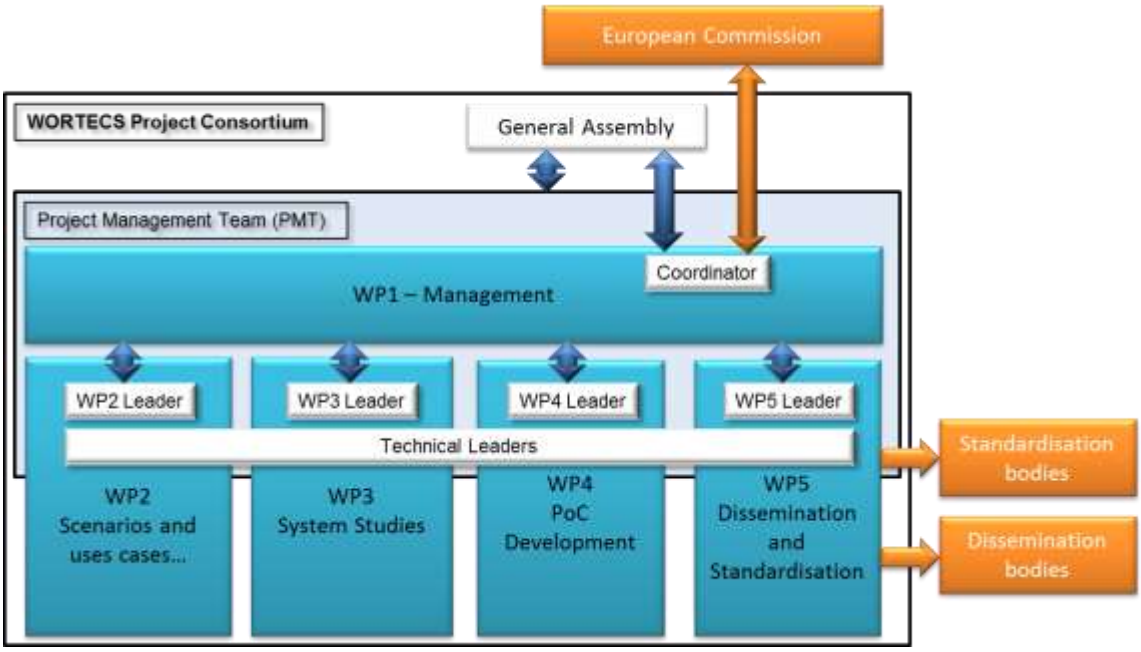

Figure 1: WORTECS management structure

The management organisation comprises the two main following parts:

- General Assembly (GA) – consisting of one representative from each partner of WORTECS consortium.
- Project Management Team (PMT) or Board – consisting of the project coordinator, work package leaders and the technical leaders.

1.1.1 General Assembly (GA)

The General Assembly (GA), chaired by the project leader, is the highest body of the consortium that takes the final decisions. One representative per partner is chosen to constitute the GA (total of 7 members).

The General Assembly considers aspects including consortium agreement, allocation of budget and responsibilities to partners, modifications of the project's contract if needed (e.g. new partner in the consortium, modification of parts of the work initially planned…), resolution of conflicts when not solved at lower levels of the organizational structure.

The General Assembly meets at least once a year (meetings can be co-located in time and location with WORTECS plenary meetings) but can take decisions between meetings if required. Terms of reference of the GA (including voting rules) will be set out in the consortium agreement.

1.1.2 Project Management Team

The Project Management Team (PMT) consists of:

- the project leader, who chairs the PMT (1 – WP1)
- the work package leaders (4 – WP2 to WP5)
- the technical leaders (3).

The PMT leads day to day running of the project, based on the directions agreed within the GA. PMT will ensure:

- the technical and scientific relevance of the work achieved by WORTECS consortium,
- the initially agreed time plan is met,
- the initially agreed budget is met.

PMT is the entity that will:

- formally approve the content of the deliverables,
- formally approve the dissemination actions .

The first PMT meeting will be held at the project kick-off meeting; the following technical meetings will also be co-located with plenary meetings in order to minimise travel costs. Regular audio conferences will be planned in-between the physical meetings in order to ensure the projects evolves in the right direction with the right timing. In each PMT meetings WP leaders will share the status of their WP's activities and progress.

Focus on key roles

- Project leader

The WORTECS project will be coordinated by Orange, which has nominated M. Olivier BOUCHET as the project leader. The Coordinator is the interface between the European Commission and the members of WORTECS consortium: he will inform EC about the project outcomes and share with the GA EC directives as well. He will coordinate the activities of all partners, and will ensure that the overall scope, objectives and direction of the project are in line with the initial project plan. The project leader also controls that each partner respect their own initial commitments. As already mentioned, the project coordinator, represented by the project leader, chairs both GA and PMT (and so is responsible of their related scope of actions, quickly mentioned above).

- Work package leaders

Each work package will be coordinated by a Work Package Leader (WPL). WPLs are responsible of the everyday progress of their related WP (planning and organization of the work, organization of dedicated calls on a regular basis, ensure availability and completion of deliverables to be produced by their due date, ensure global objectives of the WP are reached, report to project leader, interact with technical leaders…).

The consortium has already allocated WP responsibilities to specific organizations (as can be seen in Work Package descriptions). The initially nominated WP leaders are:

- WP1: M. Olivier Bouchet (Orange)
- WP2: M. Christian Gallard (Orange)

- WP3: M. Guillaume Vercasson (B-Com)
- WP4: M. Jorge Garcia (Oledcomm)
- WP5: Professor Dominic O'Brien (University of Oxford)

- Technical leaders

The Technical Leaders of the project are:

- M. Guillaume Vercasson (B-COM) on radio.
- Professor Dominic O'Brien (University of Oxford) on optical wireless communications.
- M. Marcin Brzozowski (IHP) for hybrid networks expertise.

Technical Leaders are responsible of the scientific relevance of the solutions proposed and studied within the project, and ensure end-to-end coherence of the technological choices from uses cases and requirements definition to implementation work. They have a role across work packages but work together with work package leaders, and can be seen as the WORTECS technical references or advisers.

1.2 EC Project Officer

In the European Commission WORTECS is governed by:

- BAYOU Remy (CNECT)

The Project Officer responsible for WORTECS is: Mr BAYOU Remy (CNECT). Note that all contacts between the European Commission and WORTECS project shall be made through the CNECT.

1.3 Decision Making Process and Conflict Resolution

Decision-making and conflict resolution mechanisms

The overall philosophy that should be applied is that decisions must be taken on the lowest possible level (e.g. inside the concerned work package), on a consensus basis; decision, between e.g. competing solutions, must be justified by clear technical elements (e.g. performance comparisons with similar simulation assumptions, complexity figures, required amount of human resources to be involved). When an agreement cannot be achieved, the WP leader reports to project coordinator, and a decision is taken within PMT based on a proposal to solve the issue brought by the project coordinator; if no consensus can be found, the decision is taken at GA level (with a vote if required).

The final process for decision-making will be described within the Consortium Agreement. Such a philosophy and such a process will also be followed in order to resolve potential conflicts between partners.

Internal project communication and information flow

Work progress within the work packages (including reports and meeting minutes, dissemination actions, patent applications…) will be reported by WPLs to the PMT, and then from the PMT to the GA, where all partners are represented. The feedback to these reports and every kind of decisions or recommendations will be shared with all the partners by PMT as well. GA is the room where all the partners are represented and then is the perfect place for general discussions.

Exchange of information between partners will be supported by tools such as project mailing lists, workspace in order to share documents, and audio-and-video conferencing facilities (with which applications can be shared or documents displayed by and to all the participants).

1.4 WORTECS project structure

The WORTECS structure comprises in total 5 Work Packages (WP). The WP information are summarised in the following figure and table.

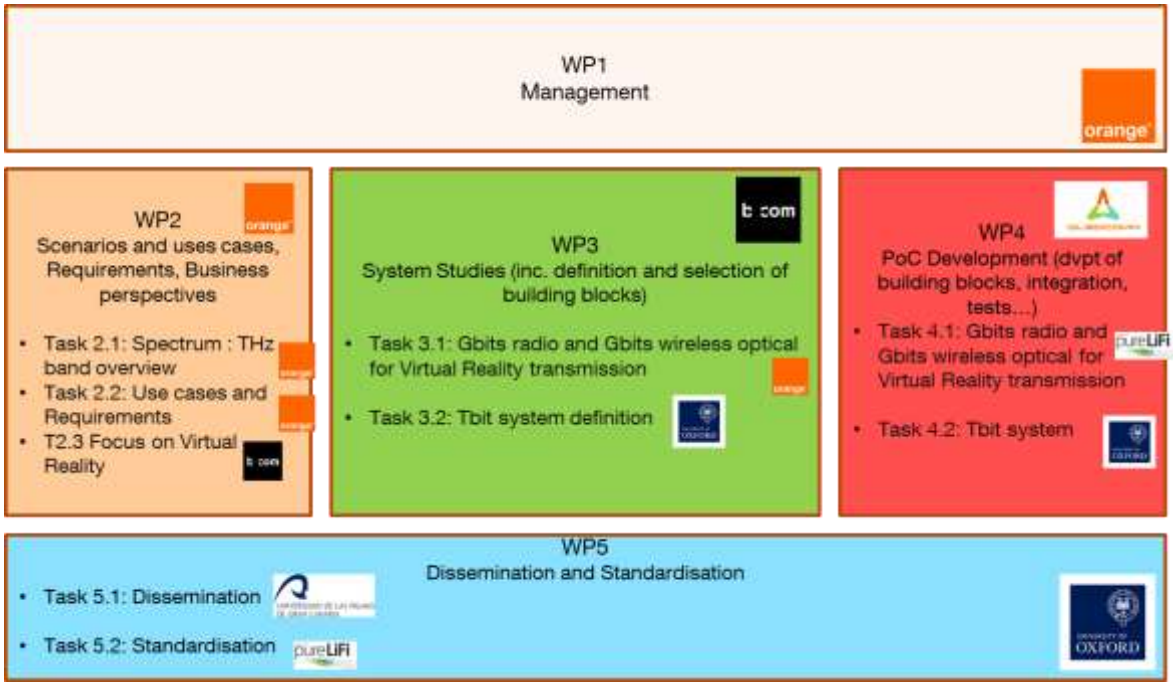

Figure 2 – WORTECS work packages

Work package No	Work Package Title	Lead Participant No	Lead Participant Short Name
1	Management	Orange	ORA
2	Scenarios and uses cases, Requirements, Business perspectives	Orange	ORA
3	System Studies	B-COM	BCM
4	PoC Development	Oledcomm	OLD
5	Dissemination and Standardisation	University of Oxford	UOXF

Table 1 – WORTECS work packages leaders

1.5 WORTECS Board

The WORTECS Board is composed by one official representative per member. In total the WORTECS Board comprises 7 members.

The consortium has already allocated WP responsibilities to specific organizations (as can be seen in Work Package descriptions). The initially General Assembly (GA) contacts are:

Partner	First name	Name	E-mail	Phone	Role
Orange	Olivier	Bouchet	olivier.bouchet@orange.com	33 6 84 83 17 60	project leader
	Christian	Gallard	christian.gallard@orange.com	33 6 30 33 02 34	WP2 leader
Oledcomm	Jorge	Garcia	jorge.garcia@oledcomm.com	33 6 76 95 09 75	WP4 leader
B-COM	Guillaume	Vercasson	guillaume.vercasson@b-com.com	33 2 56 35 88 12	Radio - WP3 leader
PureLifi	Mostafa	Afgani	mostafa.afgani@purelifi.com	+44 131 516 1628	CTO
UXOF	Dominic	O'Brien	dominic.obrien@eng.ox.ac.uk	447976094412	WP5+OWC Leader
ULPGC	Rafael	Perez-Jimenez	rperez@dsc.ulpgc.es	34928459972	OWC
IHP	Marcin	Brzozowski	brzozowski@ihp-microelectronics.com	493 355 625 745	Het Net Leader

The WORTECS Board shall meet at least 3 times a year at the request of its chairperson or at any other time when necessary at the request of one of the Board members. Meetings shall be convened by the chairperson with at least 15 days' prior notice, accompanied by an agenda proposed by the chairperson. The agenda shall be deemed accepted unless one of the Board members notifies the chairperson and the other Board members in writing of additional points to the agenda, at the latest 2 working days before the meeting date.
Minutes of the meetings of the Board shall be transmitted to the Board members within 15 days after the meeting date. The minutes shall be considered as accepted if, within 15 days from receipt, no Board member has objected in writing to the chairperson.
Then the chairperson of the Board shall transmit the agenda and the minutes of the Board meetings to the Parties within 60 days after the date of the meeting.

1.6 WORTECS's relation to *external entities*

The WORTECS consortium as an entity can have relation with research forums (HGI, …) or conference board (PIMRC, GLOBECOM,…) or standardisation bodies (IEEE, ETSI, …).

1.7 WORTECS Legal Documents

The work of WORTECS is guided by the following classes of legal documents:

- GRANT AGREEMENT NUMBER — 761329 — WORTECS (GA)
- WORTECS Consortium Agreement (CA)

Further details are available on the WORTECS website: https://wortecs.cms.orange-labs.fr/

2 The WORTECS Software tools

2.1 WORTECS Web site

The WORTECS Portal provides the means for an efficient communication, document storage and access, and project reporting. The WORTECS Portal (https://wortecs.cms.orange-labs.fr/) is structured into:

- "Public pages" providing information on WORTECS of interest to the public
- "Member only pages" protected by a password allowing only WORTECS individuals to access. The Project Officer at the Commission has also access to the "Member only pages".

Passwords to the "Member only pages" are provided according to two strategies:

- Each Member is provided a password valid for all individuals within that Member
- Individuals in a managerial role have additional right with a wider scope (e.g. for WP controlling)

2.2 Access rights for WORTECS members

The rules on access rights to WORTECS shared repository are defined as follows:

- Restricted access for non-WORTECS members to "Public pages"
- full access for all WORTECS members

2.3 E-mail exploders and their maintenance

Communication within WORTECS will be facilitated by e-mail exploders. Such exploders can be installed upon request. Initially the following exploders have been installed (for instance):

- wortecs_all@list.orange.com
- wortecs_board-wp1@list.orange.com
- wortecs_wp2@list.orange.com
- wortecs_wp3-4@list.orange.com
- wortecs_wp5@list.orange.com

Requests for subscribing to any of the exploders can be made to the exploder owner at Orange (Olivier Bouchet). Each request needs to be approved by the exploder owner who can approve or reject the request.

***Note*:** All individuals asking to be put on an exploder should provide their e-mail address from the member company within which they are working.

Email addresses hosted at public providers (e.g. yahoo, gmail, etc) are not permitted in the lists.

Considerations on e-mail etiquette

E-mail is an easy and quite informal way of communication between project members. Following a few rules will improve the appreciation of an e-mail at the receiver end:

- Take care to formulate an informative subject-line so that the reader gets a chance to quickly "filter" interesting and not so interesting mail threads.
- Please take a little time to format the mail nicely. This involves breaking lines at below 80 characters. In some mail clients this can be configured. It also involves inserting blank lines to distinguish paragraphs. But avoid messing up the formatting of quoted mails - this is seen far too often!
- When quoting another mail, use the "inline" method. You can then get rid of all text that is not relevant to the discussion. There is no purpose at all to keep a copy of all previous mails in the thread in a reply - it is just a source of confusion. The old mails are available in the archive if you need to go back and check what someone wrote.
- Avoid sending attachments – put them on the Project repository (Web Site) and make a reference.

- Please configure your auto-reply function so it does not reply to mails sent to mailing lists. Such multiplication of e-mails is only annoying.
- Trim the "To:" (and Cc:) headers. There is no need to include a person that is also in a list of the other header.

E-mails with large attachments should be avoided. The Project repository should be used for the exchange of such documents. See also section 4.5 on the document distribution process.

Auto-reply functions ("Out of Office") can often create frustration in e-mail communication because of the "spamming". Basically there are three types of auto-responders:

1. Auto-responders that are replying to the envelop sender (the sender given in the SMTP transaction). This is a good auto-responder! A response from such an auto-responder will end up being counted as a bounce in your list manager. The response is not bounced back to the exploder.
2. Auto-responders that are replying to the header sender (the sender given in the "From" field of the message). This is the most common type of auto-responders. The original sender of the message will receive the response. I think we can live with that.
3. Auto-responders that are replying to the header sender and all header recipients, i.e. list members. This is really awful. The auto-response will in this case be sent to all list members.

Members who are running the third type auto-responders will serve the community and should consider changing to one of the others. Please check with your System Administrator what type of auto-responder you are using.

2.4 Project repository for document storage and access

Document storage and access within WORTECS will be facilitated thanks to a shared repository with a specific address and will be provided by ORA. Tis is proposed on WORTECS Web site.

It is request for all partners to mention the level of confidentiality of documents send to University of Oxford (Communication and Dissemination Leader – WP5). If nothing is mentioned, then the document will be considered as public between all partners and could be also available on the web site public space.

2.5 Web conferencing

A tool supporting audio-conference meetings and document sharing is available in WORTECS. It is provided for free by Orange. Link for the CoopNet tool https://coopnet.multimedia-conference.orange-business.com/

Conferences will be scheduled by Orange and will be accessible for all partners (even in case of no Orange participant to the call).

2.6 Project reporting

Project reporting in WORTECS will be coordinated by Orange. All partners will be requested at the end of each calendar year to report their effort spent in person and budget in each WORTECS work-package.

The documentation of the project will consist mainly of:

- Internal project reports and Deliverables, provided to European Commission according to the agreed time plan;
- Partner reports, WP reports, management reports every 3 months basis
- Management reports will be delivered to European Commission and will give an overview of the project outcomes in terms of achievements, project status, human and financial resources consumed in the past period.

The deliverables of WORTECS project will be made available in the project workspace. There will be made available to PMT 30 days before the official submission to the Project Officer for review, in order to raise any issues or concerns.

3 Standards for document editing – document templates

3.1 Software standards for document editing

This section is written on the assumption that most Members are using standard Microsoft Office tools for document editing. The following recommendation should be seen as guidelines given with the aim of reducing problems in exchanging documents. The recommended software includes:

Text processing:	MS Word 2010 or later versions
Presentations:	MS PowerPoint 2010 or later versions
Spreadsheet:	MS Excel 2010 or later versions
Graphics:	For most drawings and charts it turns out that the built-in drawing and charting tools in Word, PowerPoint and Excel are sufficient for technical presentations. Whenever possible these tools should be used. For more sophisticated drawings Photoshop, Paint Shop Pro, or a wide-spread vector graphic tool is recommended. If graphics tools other than the above mentioned are used, it has to be checked that they can provide files in the formats: PNG, EPS, BMP, GIF, JPG, TIF. It is also recommended to provide the original graphic file together with the document in case that later editing becomes necessary.
Document Viewer:	Adobe Acrobat PDF Reader 11.0 or higher
Web browser:	Most recent versions of MS Internet Explorer, Firefox, or Chrome
File compression:	Recent version of WinZip

Note: All graphics and pictures should be imported and not only linked to external files.

3.2 Document templates

3.2.1 Template

The following templates are defined for use in WORTECS, all available in the Templates directory on the project repository and are available on USB key during the Kick-Off meeting.

- Meeting Invitation (Word): WORTECS Invitation letter example.docx and WORTECS_Agenda_example.docx
- Meeting Minutes (Word): WORTECS_Minutes_template.docx
- Deliverable (Word): WORTECS_Deliverable_template.docx
- Project 18 months Report (Word): WORTECS_Report_template.docx
- Slide Presentation (Powerpoint): WORTECS_PPT_template.pptx and WORTECS_Poster_template.pttx

Important note: The main reason for using templates is to allow simple transfer of material between documents (typically from an internal document to a deliverable). Therefore, it is strongly recommended not to use/introduce other styles than the ones given in the templates. New styles cause lots of problems for the editor of the receiving document as all additional styles are imported.

3.2.2 Language

The language used in WORTECS shall be English (United Kingdom).

English (United Kingdom) is default in all WORTECS templates.

3.3 Handling of graphics and figures in documents

Documents tend to explode in size through the inclusion of graphics and large figures. To improve the handling and distribution of deliverables the following procedure should be considered:

- all pictures that belong to a deliverable shall be collected by the editor of the deliverable in a dedicated folder on the project repository,
- during the editing, the pictures shall be taken from the PowerPoint file and included as either png, gif or jpeg to reduce the size of the Word file. The preferred format for pictures should be WMF. WMF ensures that pictures can be interchanged between MS Office applications (Word, Excel, PowerPoint,

Access). In addition WMF is a loss-free file-format. If pictures are copied from one application to another, then use the “Edit -> Paste Special” function to select the appropriate file-format.

Once the editing is finished, the editor of the deliverable shall upload it to the Project repository:

- the Word file of the deliverable (<file_name>.doc), and
- a PDF version of the deliverable that can be distributed (<file-name>.pdf).

Note: It is also recommended to store all the figures used in the deliverable in a dedicated folder and not to erase the figures once the deliverable has been finished.

3.4 Definitions

A list of Definitions is proposed on Annex 1 on this document and provides a clear set of definitions for technical terms being used in all WORTECS documents. The full list of WORTECS documents is captured below in section 4.

Please use these terms according to their definition.

New terms can be added via version control.

4 Documents to be produced in WORTECS

4.1 Document classes and their characteristics

Each document produced in the framework of the WORTECS project shall be compliant to the following description. Templates which contain specific information on the front page and in the footer are available. Each document shall be identified and this identifier should also be used in the name of the document. Templates for the Deliverables are available on the Project repository at the sever location, on WP1 Web page. The following classes of documents are identified for use within WORTECS:

1. **Deliverables** (D) defined in the WORTECS proposal. These documents shall be identified by their given D number / Approval status e.g. D2.1/a1. Guidelines on Deliverables are given in section 4.2.
2. **Project 18 months Report** to the EC Officer. These documents shall be identified by their reporting period e.g. PR/2019. EC guidelines on PRs are given in section 4.3.
3. **Meeting minutes**. These documents shall be identified by: <date># Wortecs_Board <number-of-meeting>minutes-<draft||final><version>.<ext>. e.g. 2018_01_12_Wortecs_Board_4thMeeting_minutes.docx. Guidelines on identifier components are given in section 4.2.
4. **Other internal documents**
5. These documents shall be identified by: <internal document, date>-<draft || final><version>.<ext> e.g. strategy paper_27Sep18_draft2.doc. Guidelines on identifier components are given in section 4.2.
6. **Publications**
   These documents shall be identified by: Member codes or Authors / Title / Publisher or Conference / Status (Submitted or Accepted)

All publications shall be listed on the public WORTECS Publications Web page and available in PDF. A copy of all publications shall also be stored on the dedicated directory on the Project repository as reference.

4.2 Guidelines on Deliverables

4.2.1 Dissemination levels and security classification of Deliverables

A list of deliverables to be produced and submitted to EC is captured in WORTECS proposal. The classification is already defined in the proposal but these classifications may be changed by Board decision. The Project manager then requests for the approval of this modification to the Board. The two levels of classification are:

- **PU** *Public document.*
- **CO** *Confidential, only for members of the consortium*

4.2.2 Nature of Deliverables

As also described in WORTECS proposal, the content of the deliverables can be of one of the following types:

R *Report:* the deliverable is a document reporting results of interest.

P *Prototype:* the deliverable is actually a physical prototype, whose location and functionalities are described in the submitted document (the actual prototype must be available for inspection and/or audit in the indicated place)

D *Demonstrator:* the deliverable is a software program, a device or a physical set-up aimed to demonstrate a concept and described in the submitted document (the actual demonstrator must be available for inspection and/or audit in the indicated place)

O *Other:* the deliverable described in the submitted document cannot be classified as one of the above (e.g. specification, tools, tests, web-site …)

4.2.3 Structure of Deliverables

Each page of a document submitted as a deliverable should be numbered and contain as header information:

- Project acronym (as specified in the proposal :WORTECS in this case)
- Deliverable number (as specified in the proposal)

Each deliverable comprises 3 parts. These are:

- **Front Sheet** (administrative information)
  - This form will be the front sheet to each deliverable. It comprises the following elements:
    - ***Project Acronym*** (as specified in the H2020 Proposal: WORTECS in this case)
    - ***Deliverable number and title*** (as specified in the H2020 WORTECS proposal)
    - ***Contractual date of delivery***
    - ***Actual date of delivery***
    - ***Author(s):*** i.e. name of the person(s) responsible for the preparation of the document
    - ***Participant(s):*** participant short name(s) of the member(s) responsible for the preparation of the document
    - ***Work-package contributing to the deliverable*** (number and title as specified in the H2020 WORTECS proposal)
    - ***Estimation of person months spent on the deliverable*** (this should be the best approximation available at delivery time on the resources spent on the deliverable)
    - ***Security level*** (confidentiality) of the deliverable (see Section 4.2.1)
    - ***Nature*** (content type) of the deliverable (see Section 4.2.2)
    - ***Version*****:** 2 digits separated by a dot:
      - the first digit is 0 for draft, 1 for project approved document, 2 or more for further revisions requiring explicit approval by the project itself;
      - the second digit is a number indicating minor changes to the document not requiring an explicit approval by the project.
    - ***Total number of pages*** of the deliverable
    - ***Abstract:*** 10-18 lines summarising the content and the results presented in the deliverable.
    - ***Keyword list:*** keywords that would serve as search label for information retrieval
  - The Board is requested to ensure that all of the above information is correct and consistent with the information appearing in the document.
- **Executive Summary** (or statement of result)
  - This is a one or two page executive summary of the deliverable. It contains an adequate description of the conclusions or results of the work but does not divulge confidential details (therefore it may be made public whatever the confidentiality level of the deliverable). Diagrams and pictures should normally be avoided.
- **Main body and content of the deliverable**
  - This part contains a full description of the results of the anticipated work and can be distributed to a reduced audience if so classified. Usually it should contain the following elements:
  - Disclaimer
  - Table of content
  - List of figures
  - List of tables

- Acronyms
- Definitions
- Introduction
- Conclusions
- References

Deliverables are important means to document and disseminate results of the project and should aim at a widest possible audience. This again means that deliverables should be structured and written to attract people with a variety of technical interests and competences in an environment flooded by publications. To achieve this, it is strongly recommended to **limit a Deliverable to 25 to 30 pages** concentrating on stating the scope and focus of the topic addressed, the approach taken and the results obtained with necessary references. Detailed technical information for experts and implementers should be referred to annexes (annexes can be contained in separate volumes).

4.3 Guidelines on 18 months Reports

Reports shall follow the format specified by the EC Office, clearly stating the reporting period. The data requested on resources spent should be provided also in electronic format. The information submitted is the basis for the technical verification and should therefore be as accurate and complete as possible. The organisation of the project reporting is described in chapter 6. The Report will contain, for the reporting period:

- The technical progress and achievements of the project
- The project status
- Work started
- Work completed
- Work delayed
- Status of deliverables
- Remedial actions required, if applicable
- Resources expenditure by subproject, work-package and activity.
- Absolute values for the reported period
- Aggregated values (actual vs. planned)

5 Document approval

The documents produced in WORTECS project can be classified into four categories:

- Contracted documents
  - Deliverables,
  - Milestones
- Dissemination documents
  - Standardisation/regulation contributions
  - Publications to conferences or journals

All documents issued by the project, including contributions to international conferences and workshops as well as standardisation/regulation bodies are subject to an approval procedure just as the deliverables and the milestones. They shall be approved by the Board according to a process described below in detail.

Before a publication of any document, an WORTECS internal review process has to ensure the following issues:

- No violation of confidentiality or access rights of other members
- Clarifications of support or co-sourcing statement of other WORTECS members in case of contributions to standardisation/regulation bodies
- Clarifications of technical background or shared views or co-sourcing statement with other WORTECS members in case of publications to conferences
- Consistency of the document with the WORTECS overall technical programme

Additionally, the general purpose of a review process is to improve the proposed text by eliminating errors or adding clarifications.

Each project member should be able to check any publication concerning access rights of its own. Therefore the project members shall be given 30 days prior written notice of any planned publication

It is recommended to involve individuals representing Consortium members in the body to which the contribution will be submitted in the approval process.

All publications (including standards/regulations contributions) shall be listed and available on the WORTECS public Publications Web page (in PDF). A copy of all publications shall also be stored on the dedicated directory on the Project repository as reference for audits and Commission requests.

5.1 Approval process

All documents are prepared in the WORTECS Work Packages in line with the proposal under the guidance of the Board. Then slightly various procedures apply for the different types of documents listed above. A general synoptic of the approval process is shown on figure 5.1. For all checking or approvals electronic mail is preferred instead of physical meetings.

Contributions to standards and regulation bodies

The project Members, who are responsible for standardisation, are entitled to propose modifications to parts of the contribution to ensure a better acceptance in standardisation. The modifications need agreement of the Work Package that originated the contribution.

Contributions can only be prevented, where the protection of another member's Knowledge would be adversely affected by the proposed publication and/or, that the proposed publication includes the Confidential Information of another member and the publication of such information would be contrary to the Legitimate Interests of that member.

As far as possible and for standardisation timeframe, it is stated in Project manager that notification of contribution to standards and regulation bodies should be given to the WORTECS consortium at least **60**

days before the submission with a draft proposal. Then authors have **30 days** to propose the final version. Finally, Board members may object within **23 days** of the notification.

At least **60 days** prior notice of any dissemination activity shall be given to the other members concerned (Table of Content, Draft, Conference and/or Workshop information), including sufficient information concerning the planned dissemination activity and the data envisaged to be disseminated. Following notification, authors have **30 days** to propose the final version. Finally, Board members may object within **23 days** of the notification to the envisaged dissemination activity it considers that its legitimate interests in relation to its foreground or background could suffer disproportionately great harm. In such cases, the dissemination activity may not take place unless appropriate steps are taken to safeguard these legitimate interests.

Additionally to this common rule, specific procedures for various documents to be produced during the framework of the WORTECS project are described below.

Deliverables (either public or confidential)

Initial agreement on the contents of a deliverable is required from the Board. Once any Table of Contents of the deliverable is available in the WP it shall be submitted to the Board for approval (**60 Days**). The Board checks the consistency of the document structure with respect to the WORTECS overall technical programme. Then authors have **30 days** to propose the final version. A positive answer from the Board (from Project manager or its proxy) is needed within 23 days after the submission to the Board, issues can be raised during that period.

Thirty days before the submission of the deliverable to the EC the editor has to send the document for approval to all WORTECS partners. The notification of the availability of the deliverables has to be sent via email to the Board (for instance wortecs_board-wp1@list.orange.com) but the document itself is uploaded on the Project repository by its editor.

The goal of this second step of the approval process is to raise any concern regarding access rights and confidentiality. No answer means approval. Comments for quality improvement can also be done during that period.

Publications to conferences, workshops and journals

Contributions to conferences, workshops and journals are almost always preceded by the submission of an initial version, which may be an abstract, to the organising body or programme committee. This initial submission to conferences or journals is not considered as a publication on itself as it can still be withdrawn even if the document is accepted by the review process. Consequently it does not require approval from the WORTECS members. Nevertheless, short information about the submission should be circulated for information only to avoid any further IPR issues.

Once the document has been accepted for publication, if so, the submitted member has to start the regular approval process in time (30 days before submission deadline) so that it is completed before the submission deadline for final papers. If the paper does not get the approval from the WORTECS consortium then the paper must be withdrawn, even if the paper has been accepted for publication.

As stated also in the Project manager, in the special case of publications to qualify for a degree, for instance PhD thesis, the approval from the members shall be given 3 months before the final publication in order to make sure that appropriate changes can be brought to the document.

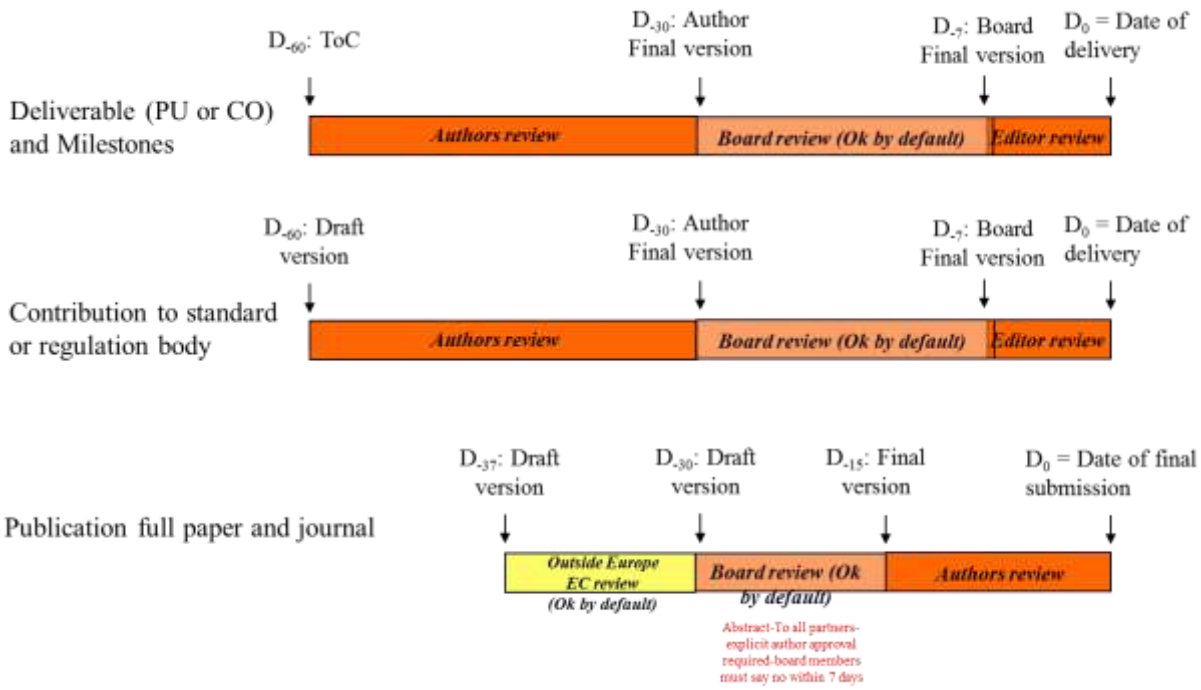

Figure 5-1: Approval process for documents to be produced in the framework of the WORTECS project

5.2 Acknowledgements in contributions and publications

As stated in by EC document, all publications or any other dissemination related to foreground should include the following statement to indicate that said foreground was generated with the assistance of financial support. The default acknowledgement should be the following:

> ***This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 761329 also referred as WORTECS.***

5.3 Details of the editorial review

1 For each Deliverable and if it is not already mentioned in the proposal, the responsible WP shall assign an editor prior to the writing of the document. The role of the editor is to assign the writing of the document to authors and to make sure that the document will be completed in time for submission to the Board. The editor in agreement with its WP shall provide a table of contents to the Board at least two months before the due date. This table of contents will be checked by the Board and objections may be raised within 15 days if mismatches with the WORTECS overall technical programme occur. This procedure gives a chance to affect the document in an early stage.

2 The whole consortium is responsible for the final approval of the deliverables. The approval procedure in details is as follows:

- A draft version checked by the responsible WP is sent by the editor to the Board for comments latest 30 calendar days before the due date of submission for Deliverables. Comments are due to the editor within 7 calendar days. No reply at this stage means acceptance.
- The editor updates the document within 5 calendar days, considering the comments. The editor will distribute all received comments to the consortium and make use of their help if necessary. All disagreements have to be justified from either member. The editor shall incorporate the comments and notify the people cited above that he has done so and that the revised version of the document is the final version for approval.
- The revised document is sent for final approval to the Board, together with a list of received comments, showing how the comments have been reflected in the document. A written approval is sent by the WPL in charge of the deliverable to the Project manager within 7 calendar days, who

will notify the editor to release the document. No reply means approval. The Project manager should acknowledge any disapproval message immediately – if possible within 1 (one) calendar day.

- If the document is approved the editor of the deliverable will produce a final version of the document which should also indicate the release date with version number on each page and be checked for consistency. The editor of the document will send to the Project manager an additional one page "Executive Summary" and the cover page of the released document. The "Executive Summary" must have the distribution nature P (public).

If an approval can't be achieved, the two last steps are repeated and the document is then deemed approved. For this optional second iteration the editor is granted only up to 3 calendar days the further update of the deliverable, and the consortium has 3 calendar days to send their approval to the Project manager.

- The Project manager is responsible for sending the document to the EC for each review if necessary. The Project manager distributes the executive summary and the public part of the document to other related projects. The responsible of the website uploads the public part of the deliverable on the WORTECS website. The editor is responsible to distribute the approved document to interested Work Packages.

6 Project reporting

6.1 Basic approach, roles and their interplay

An efficient project reporting is essential to keep a large collaborative project as WORTECS on track. A key requirement on a project reporting system is to strike the right balance between recording detailed information deemed necessary for a successful delivery of promised results and the administrative overhead perceived by individuals in the Project.

The project reporting system must also fulfil the requirements set by the EC concerning scheduling and the provision of data requested. The project reporting system implemented for WORTECS is designed to fulfil the EC requirement in an efficient and effective way while at the same time provide the Project Management Team the necessary means to steer the project according to milestones and results defined in the Board.

The following roles are defined in the WORTECS project reporting system process:

- Project manager (being the interface to the EC, even in case of reporting problems, performing overall management and compiling management reports to the EC, performing overall technical management and compiling technical reports to the Project manager)
- WPLs (performing technical leadership of individual WPs)
- Individuals at Members performing work and reporting by means of the Member internal reporting system

The following bullets describe the role-play of the project reporting system:

- The Project Reporting System itself is triggering all actions according to a calendar defined by the Project
- The WPLs can check if the work reported corresponds to what has been delivered by that Member in its task
- The WPLs submit at given intervals reports on the technical progress and achievements in his/her WP to the Project manager.
- The Project manager compiles and submits at given intervals management reports to the EC.

6.2 Reporting periods

Three reporting periods will apply in WORTECS:

- Monthly:
    - Monthly Work Summary Reports shall be submitted by each beneficiary contact on a per work package basis to the Project Leader. Minutes are edited as report.
- Quarterly:
    - Work-Package Quarterly Reports shall be submitted by each WP Leader to the Project Leader.
    - Quarterly Resource Reports shall be submitted by partners to the Project Leader.
- Annual:
    - Once a year an audit together with a cost claim on a per Beneficiary basis is undertaken towards the European Commission.

6.3 Work-Package Quarterly Reports (WPQR)

Once a quarter each WPL is requested to produce a report to the project leader on the technical work performed in his/her WP. A template for this report is defined based on the information requested by the Commission in the Quarterly Management Reports (see following section). The work-package quarterly

report is concentrating on technical progress and achievements, deviations from the work-plan, dissemination activities, etc.

6.4 Quarterly Management Reports (QMR)

Once a quarter the project leader is requested to produce a management report to the European Commission based on input from the monthly work summary reports from Beneficiaries, from work package quarterly reports and own observations. The project leader will review all issues raised by Beneficiaries and WPLs for inclusion in the quarterly management report to the European Commission.

6.5 18 months Reports

Member level reports

At mid and end of the project, Project Manager (PM) and partners will produce activities progress report to the EC.

Project level Report

At mid and end of the project manager (PM) will produce a project management report to the EC based on input from the 18 months reports from Members, and from own observations. The PM will review all issues raised by Members and WPLs for inclusion in the project management report for the EC.

6.6 Generic deadlines for the project reporting

An efficient and effective project management of a project of the size of WORTECS is heavily dependent on everybody keeping deadlines! The generic deadlines for the project reporting in WORTECS are:

- WPQR to be submitted within 14 calendar days after the end of a Quarter by each WP Leader to the PM.
- Draft QMR to be issued within 21 calendar days after the end of a Quarter by the Beneficiaries to the PM.
- Comments on draft QMR returned to the PM within 3 calendar days after the draft has been issued.

7 Project meetings

7.1 Meeting invitations

Project meetings should be convened when deemed necessary. It is recommended to plan meetings well in advance for allowing both a reduction of the travel costs and a synchronisation with other events. A meeting calendar will be established for the project.

Each meeting shall be invited by a draft agenda according to the template foreseen. The draft agenda shall be issued to the participants not later than two weeks before the meeting. The draft agenda shall be stored on the Project repository.

In order to limit the budget related to the meetings it is also recommended to:

- Agree for meeting hosts and dates at least 60 days before the meetings to reduce the travel costs, draft invitation shall also be sent to the partners prior to these 60 days,
- Define appropriate size, i.e. number of work-packages collocated, to get the possibility to organise the meetings in partners' premises, in general it is better avoiding meetings in hotels or other places that generate additional meeting fee.

7.2 Meeting minutes

For all meetings, minutes should be captured using the appropriate template. Draft minutes should be distributed not later than two weeks after the meeting to the mailing list of the respective body for review. Comments to the draft minutes should be given within one weeks after distribution to the minute-taker. The draft minutes are considered approved if no objections are received by then.

The approved minutes shall be stored on the Project repository and information will be distributed to the respective body as well as to the daily-contacts-list together with the respective link to the minutes document.

7.3 Audio + Web conferences

Audio + Web conferences are an efficient substitute for physical meetings by a clear agenda and a limited number of participants. Audio conferences are installed for WORTECS on the Orange conference bridge. There is one conference bridge per work package, and a general one for WORTECS. The following constraints/procedures should be followed:

- To get access to the conference, please dial the number provided in the CoopNet invitation
- No PIN nor conference ID is necessary.
- < take part in the conference >
- < hang up, and you will quit >

The service is operational anytime everyday subject to scheduling. The use of the conference bridge is free of charge. The participants pay the call to France if needed.

The Audio + Web conferencing service is based on the product Multimedia Conferences from Orange Business Services.

A full description of the conference bridge service and its usage is given on Orange Business Services website:

https://coopnet.multimedia-conference.orange-business.com/Help/UserGuideAccess/en-US/index.htm

8 Answering of requests from the press and writing articles for the press

The fast-paced nature of the press requires a specific approval process for responding to press requests, which has to be much faster than the approval of contributions to publications. The specific procedure is described below.

8.1 Answering of requests from press

Requests from the press shall be seen as an interest in the public for what WORTECS is undertaking and should be treated with highest attention. A good and timely response will be good and increase public awareness.

If a consortium member receives a request from the press concerning WORTECS, he/she immediately has to inform the project manager about this and coordinate the answer with them. As a rule, press requests should be answered within **one day**, even if the answer can only be preliminary which the case is where further investigations are needed to provide the facts requested.

A copy of the answer to the press shall be sent to the project manager.

Interviews on the phone should be given only in exceptional cases, either based on good own experience or by support of an experienced colleague. The interviewed person should get a release opportunity of the interview, at least for his own quoted statements

The media coverage ensuing from answering the request will be sent to the project manager as soon as it is available to the member who provided the answer. The project manager will put this media coverage on the Project repository as soon as possible in order to inform the other consortium members.

If the project manager or a consortium member answers a press request on behalf of the WORTECS consortium, he or she should represent the whole project in the reply and not only the interests of the own organisation. However, depending on the nature of the request, the reply might require focusing on the member(s) in the respective country where the requesting journalist is located.

In any case, the reply to the journalist should be checked by a public relations professional within the member company or at the project manager's company in order to ensure high quality in terms of the journalistic criteria and their audiences.

8.2 Writing articles for the press

If a member is invited to contribute an article about WORTECS or major aspects of WORTECS to the press, or actively seeks a contribution in a trade magazine, general interest magazine, or a newspaper, he or she has to inform the Project Manager about this and coordinate the article with them. The approval of the final version of the article shall follow the rules given in Chapters 4 and 5 of the Management Handbook.

A copy of the published article, preferably in electronic format, should be sent to the project manager as soon as it is available to the member who provided the article. The project manager will put this media coverage on the Project repository as soon as possible in order to inform the other members.

The copyright of images and other illustrations for the article has to be thoroughly checked. By default, a copyright notice for each image/illustration should be included in the article.

In any case, the article should be checked by a public relations professional within the member company or at the project manager's company in order to assure high quality in terms of the journalistic criteria and their audiences.

9 Annex 1: List of Acronyms and Abbreviations

Acronym	Meaning
5GPPP	5G Infrastructure Public Private Partnership
AaSE	AIV (Air Interface Variant) agnostic Slice Enabler
ACK	Acknowledged mode
ADC	Analogue Digital Conversion
AF	Adaptation Function
AI	Air Interface
AI	Artificial Intelligence
AIV	Air Interface Variant
AL	Abstraction Layer
AMF	Access and Mobility Management Function
AN	Access Network
AP	Access Point
API	Application Programming Interface
ARP	Allocation and Retention Priority
ARQ	Automatic Repeat reQuest
B2B	Business to Business
B2C	Business to Consumer
BB	Base Band
BBU	Base Band Unit
BH	Backhaul
BS	Base Station
BSS	Business Support System
B-TAG	Backbone VLAN Tag
BTS	Base Transceiver Station
C3	Central Controller and Coordinator
CA	Certification Authority
CAPEX	Capital Expenditure
CC	Convolutional Codes
CD	Committee Draft
CDF	Cumulative-Distribution-Function
CDN	Content Distribution Network
CENELEC	European Committee for Electrotechnical Standardization
CEPT	European Conference of the Posts and Telecommunication
CH	Cluster Head
CM	Connection Manager
CMDB	Configuration Management Database
CMS	Catalogue Management System
CN	Core Network
COTS	Common Off The Shelve
CP	Control Plane
CPRI	Common Public Radio Interface
CPU	Central Processing Unit
CQI	Channel quality Indicator
C-RAN	Cloud Radio Access Network
cRRM	Centralised Radio Resource Management
CSAT	Carrier Sense Adaptive Transmission
CSE	Circuit Switching Element
CSE	Cognitive Smart Engine
CSI-RS	Channel State Information-Reference Signal
CSMA	Carrier Sense Multiple Access

CU	Centralised Unit
DAC	Digital Analogue Conversion
DC	Data Centre
DC	Dual Connectivity
DEI	Drop Eligible Indicator
DIF	Diffusion
DL	Download
DPDK	Data Plane Development Kit - a Linux Foundation Project
DPI	Deep Packet Inspection
dRRM	Distributed Radio Resource Management
DRX	Discontinuous Reception
DTX	Discontinuous Transmission
DU	Distributed Unit
E2E	End to end
EC	European Commission
ECC	Electrical Communication Committee
eDSA	Extended Dynamic Spectrum Access
EM	Element Manager
eMBB	Enhanced Mobile Broadband / Extreme Mobile Broadband
EMC	Electro Magnetic Compatibility
EMS	Element Management System
EN	External Network
EPC	Evolved Packet Core
ERO	Explicit Routing Object
ETSI	European Telecommunications Standards Institute
E-UTRA	Evolved Universal Terrestrial Radio Access
E-UTRAN	Evolved Universal Terrestrial Radio Access Network
FBMC	Filter-Bank Multicarrier
FCAPS	Fault Configuration Accounting Performance Security
FCC	Federal Communications Commission
FDMA	Frequency-Division Multiple Access
FEC	Forward Error Correction
FFT	Fast Fourier Transform
FG	Focus Group (ITU-T)
FG	Forwarding Graph
FH	Fronthaul
FMC	Fixed Mobile Convergence
FP8	Framework Programme 8
FS	Fast Switching
GENI	Global Environment for Networking Innovations
GPON	Gigabit Passive Optical Network
GUI	Graphical User Interface
H-ARQ	Hybrid Automatic Repeat reQuest
HF	High Frequency
HM	Home Network
HMAC	Higher Media Access Control
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secured
HW	Hardware
IA	Infrastructure Association
ICIC	Inter-site/air Interface Resource Coordination
ICT	Information and Communication Technologies
ID	Identifier
ID	Internal Deliverable
IEC	International Electrotechnical Commission

IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IFFT	Inverse Fast Fourier Transform
IM	Identity Management
IMoS	Intelligent Monitoring Subsystem
IMT2020	International Mobile Telecommunications 2020 (ITU)
InP	Infrastructure Provider
IP	Internet Protocol
IP	Infrastructure Provider
IPS	Internet Protocol Service
IR	Infra Red
IRC	Infra Red Communication
ISG	Industry Standards Group (ETSI)
ISO	International Standards Organisation
IST	Information Society Technologies
IT	Information Technology
ITE	Information Technology Equipment
I-TAG	Backbone Service Instance Tag
ITU-R	International Telecommunication Union Radiocommunication Sector
ITU-T	International Telecommunication Union Telecommunication Standardization Sector
JSON	JavaScript Object Notation
JWT	JSON (JavaScript Object Notation) Web Token
K-DR	Key Design Recommendation
KPI	Key Performance Indicator
LBT	Listen Before Talk
LCM	Lifecycle Management
LCSE	Lightweight Cognitive Smart Engine
LDPC	Low Density Parity Check codes
LLA	Licensed Assisted Access
LMAC	Lower Media Access Control
LOS	Line Of Sight
LTE	Long Term Evolution
LWA	LTE/Wi-Fi Aggregation
MAC	Media Access Control
MADM	Multiple Attribute Decision Making
MANA	Management and service-Aware Networking Architecture
MANO	Management and Network Orchestration
MAPE	Monitor, Analyse, Plan, Execute
MBB	Mobile Broadband
Mbps	Megabits per second
MC	Multi-Connectivity
MCS	Modulation Coding Scheme
MdO	Multi domain Orchestration
ME	Mobile Equipment
MEC	Mobile Edge Computing
MEHW	Mobile Equipment Hardware
MeNB	Master eNB
MIMO	Multiple-Input and Multiple-Output
MM	Mobility Management
MME	Mobility Management Entity
mMTC	Massive Machine Type Communications
MNO	Mobile Network Operator
MPDU	MAC Protocol Data Unit
MPLS	Multiprotocol Label Switching

MPLS-TP	Multiprotocol Label Switching – Transport Profile
MSDU	MAC Service Data Unit
MSP	Mobile Service Provider
MTA	Multi-tenancy Application
MVNO	Mobile Virtual Network Operator
MWC	Mobile World Congress
NaaS	Network as a Service
NAT	Network Address Translation
NC	Not Communicated
NE	Network Element
NF	Network Function
NFV	Network Function Virtualisation
NFVI	Network Function Virtualisation Infrastructure
NFVIaaS	Network Function Virtualisation Infrastructure as a Service
NFVO	Network Function Virtualisation Orchestration
NGFI	Next Generation Fronthaul Interface
NGMN	Next Generation Mobile Networks
NGS-3GPP	Next Generation System – 3rd Generation Partnership Project
NM	Network Management
NOMA	Non-Orthogonal Multiple Access
NR	New Radio
NRE	Near Realtime Engine
NS	Network Slice
NSI	Network Service Information
NSO	Network Service Orchestration
OAM	Operation, Administration and Management
OASIS	Organization for the Advancement of Structured Information Standards
OF	OpenFlow
OFDM	Orthogonal Frequency Division Multiplexing
OFDMA	Orthogonal Frequency-Division Multiple Access
OGF	Open Grid forum
ON	Operator Network
ONF	Open Network Foundation
OPEX	Operating Expenditure
OS	Operating System
OSI	Open Systems Interconnection
OSS	Operations Support System
OSS	Open Source Software
OTT	Over The Top (service provider)
OVS	Open vSwitch
OWASP	Open Web Application Security Project
PaaS	Platform as a Service
PAM	Pulse Amplitude Modulation
PBB-TE	Provider Backbone Bridge Traffic Engineering
PBM	Policy Based Management
PCP	Priority Code Point
PDCP	Packet Data Convergence Protocol
PDN	Packet Data Network
PFE	Packet Forwarding Element
PGW	Packet Gateway/PDN-Gateway
PHY	Physical layer
PNF	Physical Network Function
PON	Passive Optical Network
PPP	Public Private Partnership
PRB	Physical Resource Block

QAM	Quadrature amplitude modulation
QoS	Quality of Service
RACH	Random Access Channel
RAN	Radio Access Network
RAT	Radio Access Technology
RB	Resource Block
RCM	RAN Configuration Mode
RCM	Radio Connection Manager
REE	RFB (Reusable Functional Block) Execution Environment
RFB	Reusable Functional Block
RLC	Radio Link Control
RM	Resource Management
RR	Radio Regulations
RRC	Radio Resource Control
RRM	Radio Resource Management
RRU	Radio Resource Unit
RS-CC	Reed Solomon
RT	Radio Transceiver
RTC	Real-Time Controller
RU	Radio Unit
SAP	Service Access Point
SBI	Southbound Interface
SC	Sub Committee
SCC	Security Control Class
SC-FDMA	Single Carrier FDMA (Frequency-Division Multiple Access)
SCTP	Stream Control Transmission Protocol
SDK	Software Development Kit
SDM	Software Defined Mobile Network
SDMA	Space Division Multiple Access
SDM-C	Software-Defined Mobile network Control
SDM-O	Software Defined Mobile Network Orchestration
SDM-X	Software Defined Mobile Network Coordinator
SDN	Software Defined Networks
SDO	Standards Developing Organisation
SeNB	Secondary eNB
SFC	Service Function Chaining
SGW	Serving Gateway
SINR	Signal to Interference plus Noise Ratio
SLA	Service Level Agreement
SLO	Service Level Objective
SME	Small and Medium Enterprises
SMF	Service Management Function
SMS	Short Message Service
SN	Serving Network
SNR	Signal to Noise Ratio
SON	Self-Organised Networks
SON	Self-Organising Network
SoTA	State of The Art
SR	Security Realm
SRIOV	Single Root Input/Output Virtualization
STP	Service Termination Point
SW	Software
TA	Trust Anchor
TADS	Topology Abstraction and Discovery Subsystem
TAL	Tactical Autonomic Language

TAU	Tracking Area Update
TC	Technical Committee
TCM	Trellis Coded Modulation
TCP	Transmission Control Protocol
TDMA	Time Division Multiple Access
TEE	Trusted Execution Environment
THz	TeraHertz
TLS	Transport Layer Security
TN	Transit Network
ToC	Table of Contents
ToR	Terms of Reference
TOSCA	Text and Office Systems Content Architecture
TR	Technical Report (ETSI)
TS	Technical Specification (ETSI)
TSON	Time Shared Optical Network
TTI	Transmission Time Interval
UC	Use Case
UCA	Use Customer Address
UDP	User Datagram Protocol
UE	User Equipment
UICC	Universal Integrated Circuit Card
UL	Upload
UP	User Plane
UPF	User Plane Function
URLLC	Ultra-Reliable and Low Latency Communications
USIM	Universal Subscriber Identity Module
V2X	Vehicle to Anything
vBBU	Virtual Base Band Unit
VI	Virtual Infrastructure
VIM	Virtual Infrastructure Manager
VLAN	Virtual Local Area Network
VLC	Visible Light Communication
VM	Virtual Machine
VNE	Virtual Network Element
VNF	Virtual Network Function
VNFaaS	Virtual Network Function as a Service
VNFM	Virtual Network Function Manager
VoIP	Voice over IP
WAF	Web Application Firewall
WDM	Wavelength Division Multiplexing
WG	Work Group
WLAN	Wireless Local Area Network
WLOS	Wide Line Of Sight
WORTECS	Wireless Optical/Radio TErabit CommunicationS
WP	Work Package
WP	White Paper
WRC	World Radio Conference
WWRF	Wireless World Research Forum
XCF	Xhaul Common Frame
XCI	Xhaul Control Infrastructure
xDSL	Digital Subscriber Line
XPU	Xhaul Processing Unit