

# 5G-*T*ransformer

**H2020 5G-TRANSFORMER project  
Grant No. 761536**

## **D7.1 PROJECT HANDBOOK**

### **Abstract**

This handbook details management bodies, documents, and procedures which are described in the Project, Grant Agreement and Consortium Agreement. It also includes the Quality Plan to be followed by the project to ensure timely delivery of all results to the European Commission.

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## Table of Content

1.	Introduction .....	4
2.	Management Bodies and Organization .....	5
2.1.	Project Coordinator (PC) .....	5
2.2.	Deputy Project Coordinator (DPC) .....	6
2.3.	Technical Manager (TM) .....	6
2.4.	Innovation Manager (IM) .....	6
2.5.	Project Board (PB) and Partner Representative (PR) .....	6
2.6.	Project Management Team (PMT) .....	8
2.7.	Work Package Leaders (WPLs) .....	8
2.8.	Task Leaders (TLs) .....	9
3.	Management Information and Procedures .....	9
3.1.	Representation in Meetings .....	9
3.2.	Preparation and Organisation of Meetings .....	10
3.2.1.	Convening Meetings .....	10
3.2.2.	Notice of a meeting .....	10
3.2.3.	Sending the agenda .....	10
3.2.4.	Adding agenda items .....	10
4.	Decision Process .....	11
4.1.	Voting Rules and Quorum .....	11
4.2.	Veto Rights .....	11
4.3.	Minutes of Meetings .....	12
5.	Communication and Document Management Facilities .....	12
5.1.	Obligation to Disseminate Results .....	13
5.2.	Open Access to Scientific Publications .....	13
5.3.	Information on EU funding — Obligation and right to use the EU emblem .....	14
5.4.	Disclaimer excluding Commission responsibility .....	14
6.	Reports .....	14
6.1.	Periodic Reports .....	15
6.2.	Quarterly Reports .....	16
6.3.	Final Report .....	16
7.	Management of Risks and Contingency Plans .....	16
8.	Quality Plan .....	20
9.	Annex 1. Template for Deliverables .....	21
10.	Annex 2. Template for Quarterly Management Reports .....	29

## 1. Introduction

The aim of this document is to set-up and explicitly describe the different management procedures to be applied during the project lifetime. All these contents largely defined also in their legal terms in the Consortium Agreement signed by all the 5G-TRANSFORMER partners. Summary guidelines are reported in this document for a quicker operative consultation by project participants. Following this idea, this document starts by describing the different Management Bodies and the organization of the Management Team in Section 2. The Project Board includes a representative of each partner on the consortium and takes all the rest of decisions.

Once the key management and organizational bodies are presented, this deliverable tackles the different procedures required for the organization of meetings and audio-conferences in Section 3, defining the mechanisms to be followed while organizing a project meeting.

During the physical meetings and specific audio-conferences, there may be some situations when a voting is required to decide on a certain matter. This document explains in Section 4 the different voting rules and mechanisms for the decision process.

Following with the different rules that apply to the work of partners in 5G-TRANSFORMER, Section 5 specifies the obligations on the communication and dissemination of results, including the different rules for the approval of scientific contributions to public dissemination venues.

Section 6 specifies the different management reports due during the lifetime of the project. This section is complemented by Annex I, Annex II and Annex III, which include the templates to be followed for quarterly management reports, technical deliverables and power point presentations, respectively.

Finally, considering the Management of Risks and Contingency Plan sketched in Section 7, Section 8 presents the Quality Plan for the project. The Quality Plan will be enforced by the mechanisms defined in the whole Project Handbook, effectively making this document the set of rules to be followed in order to ensure the quality across the project activities. To maintain always the highest levels of quality in the execution of this project, we will periodically review internally the Quality Plan (therefore this complete document) and update it if needed.

## 2. Management Bodies and Organization

The management bodies employed in 5G-TRANSFORMER include persons, committees and other entities that are responsible for making management decisions, implementing management actions, and their interrelation.

The management bodies include:

Management Body	Responsible person
Project Coordinator (PC)	Arturo Azcorra (UC3M)
Deputy Project Coordinator (DPC)	Carlos J. Bernardos (UC3M)
Technical Manager (TM)	Xavier Costa (NEC)
Innovation Manager (IM)	Giulio Bottari (TEI)
Project Board (PB)	one representative per partner
Work Package Leaders (WPL)	Thouraya Toukabri (WP1, ORANGE) Paola Iovanna (WP2, TEI) Thomas Deiss (WP3, NOK-N) Xi Li (WP4, NEC) José Enrique González (WP5, ATOS) Josep Mangues (WP6, CTTC) Carlos J. Bernardos (WP7, UC3M)
Project Management Team (PMT)	PC+TM + IM + work package leaders

Their detailed role and duties are described in the next subsection.

### 2.1. Project Coordinator (PC)

The Coordinator is the Legal Entity acting as the intermediary between the Parties and the Funding Authority. The Project Coordinator shall, in addition to its responsibilities as a Party, perform the tasks assigned to it as described in the Grant Agreement and in the Consortium Agreement.

The PC is in charge of the overall administrative management of the project, being the single point of contact with the European Commission (EC). In particular, he is responsible for the execution of the administrative and financial activities of the grant agreement. He is also in charge of ensuring effective communication, collaboration and cooperation within the Consortium by defining document, reporting and control procedures, in collaboration with the Technical Manager (TM). In summary, the PC is the legal, contractual, financial and administrative manager of the project. The PC will take care of preparing the Consortium Agreement between the participants. In summary, the PC is the legal, contractual, financial and administrative manager of the project. The PC will take care of preparing the Consortium Agreement between the participants.

In particular, the Coordinator shall be responsible for:

- monitoring compliance by the Parties with their obligations
- keeping the address list of Members and other contact persons updated and available
- collecting, reviewing to verify consistency and submitting reports, other deliverables (including financial statements and related certifications) and specific requested documents to the Funding Authority
- transmitting documents and information connected with the Action to any other Parties concerned

- administering the financial contribution of the Funding Authority and fulfilling the financial tasks described in Section 7.3
- providing, upon request, the Parties with official copies or originals of documents which are in the sole possession of the Coordinator when such copies or originals are necessary for the Parties to present claims.

If one or more of the Parties is late in submission of any project deliverable, the Coordinator may nevertheless submit the other Parties' Action deliverables and all other documents required by the Grant Agreement to the Funding Authority in time.

If the Coordinator fails in its coordination tasks, the PB – Project Board may propose to the Funding Authority to change the Coordinator.

The Coordinator shall not be entitled to act or to make legally binding declarations on behalf of any other Party or of the Consortium, unless explicitly stated otherwise in the Grant Agreement or this Consortium Agreement

The Coordinator shall not enlarge its role beyond the tasks specified in this Consortium Agreement and in the Grant Agreement.

## **2.2. Deputy Project Coordinator (DPC)**

The Deputy Project Coordinator provides assistance to the Project Coordinator in the fostering and supervision of the scientific activities of the Project and of its administrative management.

Additionally, the duty of the Deputy Project Coordinator is to replace the Project Coordinator in case of absence or illness.

## **2.3. Technical Manager (TM)**

The TM oversees the overall technical management of the project. He is responsible for the correct execution of the technical activities of the contract. His tasks include in particular the leading of the Technical Management Team, ensuring timely release, technical high quality and accuracy of technical deliverables.

## **2.4. Innovation Manager (IM)**

The Innovation Manager has the technical skills to very closely understand, and contribute to, the most advanced research tasks. Indeed, the Innovation Manager will assist and advise the PMT in best responding to emerging market opportunities. In turns, by thoroughly following the evolution of the sector, the new emerging technologies and products, and the mutating needs, the Innovation Manager will help bringing all this inside the project, and will assist the project in identifying changes in strategies and re-planning of technical activities to best fit the evolving sector.

## **2.5. Project Board (PB) and Partner Representative (PR)**

The Project Board is the ultimate decision-making Consortium Body and shall consist of one Partner Representative appointed by each Party and chaired by the Coordinator.

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Its purpose is to set and review the project direction, ensure that the project fulfils its commitments and meets the stated objectives, continuously evaluate the project performance and results, and to supervise and coordinate the technical work performed by all consortium partners. Among others, the PB has the following duties:

- i) tracks the progress and results of the project, assuring they meet the contractual obligations,
- ii) identifies risks and defining contingency plans,
- iii) financial monitoring to obtain a timely and complete control of the financial situation of the project and
- iv) proposes changes to CA and contracts.

The PB will meet periodically at the project scheduled events in face-to-face meetings.

The PB – Project Board shall be free to act on its own initiative to formulate proposals and take decisions in accordance with the procedures set out herein. In addition, all proposals made by the PMT - Project Management Team shall also be considered and decided upon by the PB – Project Board.

The following decisions can only be taken by the Project Board:

- decide upon any proposal made by the Project Management Team for the allocation of the Action's budget in accordance with the GA, and review and propose budget reallocations to the Parties;
- proposals to the Parties for the review and/or amendment of the terms of the GA;
- decide upon material changes to the Action Plan;
- decide upon proposals from the Project Management Team for the plan for use and the Dissemination of Results;
- proposal to the Parties for modifications or withdrawals to Attachment 1A (Background included, as applicable);
- addition to Attachment 3 (List of third parties for simplified transfer according to Section 8.3.2 of this CA);
- proposals to the Parties for the accession of a new Party to the Consortium and approval of the settlement on the conditions of the accession of such a new Party;
- proposals to the Parties for the withdrawal of a Party from the Consortium and the approval of the settlement on the conditions of the withdrawal;
- identification of a substantial breach by a Party of its obligations under this CA or the GA;
- declaration, remedies and termination of a Defaulting Party;
- proposals to the Funding Authority for a change of the Coordinator if made a Defaulting Party;
- proposals to the Funding Authority for suspension or termination of all or part of the Action; and
- the appointment - if necessary of any vacancy to the Project Management Team.

In the case of abolished tasks as a result of a decision of the PB – Project Board , the PMT – Project Management Team shall advise the PB – Project Board on ways to rearrange tasks and budgets of the Parties concerned. Such rearrangement shall take into consideration the legitimate commitments taken prior to the decisions, which cannot be cancelled.

## 2.6. Project Management Team (PMT)

The Project Management Team is the supervisory Consortium Body for the implementation and for the daily management of the Action, and shall report to and be accountable to the Project Board and shall consist of the PC, TM, IM and WPLs.

The Project Management Team is responsible for the daily management of 5G-TRANSFORMER. In detail the PMT has to monitor the overall project progress (objectives, schedule, milestones, etc.) and to find proper solutions in conformance with the decisions of the PB, in case of deviations from project plan. Activities of the Project Management Team will address the following issues:

- i) Coordination, monitoring and control of the progress of the work in the project,
- ii) Launch or stop of tasks within defined WP structure,
- iii) Technical management of the project,
- iv) Analyses and solutions on technical issues,
- v) Technological roadmaps, and,
- vi) Approval of the deliverables.

The Project Management Team is composed of the PC, the TM, the IM and the Work Package Leaders. Any additional member of the consortium may be appointed, if needed, to form part of the PMT by the Project Coordinator. The PMT shall meet on a per-need basis as determined by the Project Coordinator. The default is weekly phone calls and on request (in accordance with the CA rules). Physical meetings will take place co-located with project periodic meetings.

## 2.7. Work Package Leaders (WPLs)

Each work package is led by the Work Package Leader (WPL), who is responsible for making the day-to-day technical and management decisions that solely affect their work package. The WP leader' responsibilities include:

- i) leading and coordinating the task activities involved in the WP through the Task Leaders,
- ii) initial quality checking of the WP work and deliverables,
- iii) handling resource/skills balance within the WP subject to agreement of the PB to changes, iv) participating in the PMT,
- iv) highlighting to the PMT of potential threats to the technical success of the project and
- v) reporting progress to the PB and raise amendments, issues and red flags to the TM if needed.

The following table presents the different WP leaders and emails:

WP #	WP Leader name (PARTNER)	Email
1	Thouraya Toukabri (ORANGE)	thouraya.toukabri@orange.com
2	Paola Iovanna (TEI)	paola.iovanna@ericsson.com
3	Thomas Deiss (NOKIA)	thomas.deiss@nokia.com
4	Xi Li (NEC)	<a href="mailto:Xi.Li@neclab.eu">Xi.Li@neclab.eu</a>
5	José Enrique González (ATOS)	josee.gonzalez@atos.net
6	Josep Mangues (CTTC)	josep.mangues@cttc.cat
7	Carlos J. Bernardos ( UC3M)	cjbc@it.uc3m.es



## 2.8. Task Leaders (TLs)

Each Task is led by the Task Leader (TL), who is responsible for the activities performed in his/her task coordinating the technical work, and making the day-to-day technical decisions that solely affect his/her Task. It should be stressed that task leadership is partner-based.

TLs should report (internally) to the WPL every month (at least, although a more dynamic communication process will be encouraged) on the progress of their task.

## 3. Management Information and Procedures

The large size of 5G-TRANSFORMER requires specific mechanisms to assure the coordination among the partners and the consecution of the objectives. The management will be based on the following recurring events;

- **Plenary meetings**, face to face meetings regularly held with a 4-month period, for a total of 8 meetings throughout the whole 30-month project duration. Plenary meetings are dedicated to discuss the advances in all the project work-packages and to transfer knowledge and achievements across work-packages. Whenever more extensive per-WP discussion is needed, separate per-WP sessions will be deployed. The current methodology for the meetings followed in 5G-Crosshaul will be used since it has proven to be very efficient.
- **5G PPP integration meetings**: Following the past experience gained in 5G-Crosshaul, we have allocated resources to attend the Steering Board, Technology Board and Technical Working Groups (6 at this time, the ones we think are most relevant for the project). We have planned resources and travel budget for this activity based on current experience from 5G-Crosshaul.
- **Weekly Project Management Team phone call**: The TM will schedule a regular phone call, to be held in a fixed date. The PMT conference call will be organised and chaired by the PC to review the status of each work-package one-by-one, the global project status and to discuss possible issues. Ad-hoc calls to address any relevant issue will be allocated whenever is needed upon request from any member of the PMT.

Efficient communication flows between participants will be guaranteed by the mechanisms described above and also by the communication facilities defined below. A further source of internal project monitoring and synchronization are the quarterly management reports (QMR) to be delivered by each project partner to the coordinator 15 days after the end of each three-month period.

### 3.1. Representation in Meetings

Any Party which is a member of a Consortium Body (hereinafter referred to as "Member"):

- should be represented at any meeting of such Consortium Body;
- may appoint a substitute or a proxy to attend and vote at any meeting;
- and shall participate in a cooperative manner in the meetings.

### 3.2. Preparation and Organisation of Meetings

Technical meetings will be held every 3 to 6 months and convene by the PC of the project. Technical meeting venues and dates will be decided on each physical meeting (always having the next two physical meetings agreed), hence no special deadlines or actions are required to convene them. For the PB meetings, due to the need of the presence of a representative of each partner we have set up some rules on timing requirements to convene them. These rules are described in the following sections.

#### 3.2.1. Convening Meetings

	Ordinary meeting	Extraordinary meeting
PB – Project Board	At least once a year	At any time upon written request of the 1/3 of the Members of the PB – Project Board

#### 3.2.2. Notice of a meeting

The chairperson of a Consortium Body shall give notice in writing of a meeting to each Member of that Consortium Body as soon as possible and no later than the minimum number of days preceding the meeting as indicated below.

	Ordinary meeting	Extraordinary meeting
PB – Project Board	45 calendar days	15 calendar days

#### 3.2.3. Sending the agenda

The chairperson of a Consortium Body shall prepare and send each Member of that Consortium Body a written (original) agenda no later than the minimum number of days preceding the meeting as indicated below.

	Ordinary meeting	Extraordinary meeting
PB – Project Board	21 calendar days	10 calendar days

#### 3.2.4. Adding agenda items

Any agenda item requiring a decision by the Members of a Consortium Body must be identified as such on the agenda.

Any Member of a Consortium Body may add an item to the original agenda by written notification to all of the other Members of that Consortium Body up to the minimum number of days preceding the meeting as indicated below.

	Ordinary meeting	Extraordinary meeting
PB – Project Board	14 calendar days	7 calendar days

During a meeting the Members of a Consortium Body present or represented can unanimously agree to add a new item to the original agenda, only if all Members of Consortium Body are present or represented at the meeting.

Any decision may also be taken without a meeting if the Coordinator circulates to all Members of the Consortium Body a written document which is then agreed by the defined majority of all Members of the Consortium Body. Such document shall include the deadline for responses.

Meetings of each Consortium Body may also be held by teleconference or other telecommunication means.

## **4. Decision Process**

Decisions will only be binding once the relevant part of the Minutes has been accepted according to Section 6.2.5 of the Consortium Agreement (CA).

### **4.1. Voting Rules and Quorum**

A Consortium Body shall not deliberate and decide validly unless two-thirds (2/3) of its Members are present or represented (quorum).

If the quorum is not reached, the chairperson of the Consortium Body shall convene another ordinary meeting within 15 calendar days. If in this meeting the quorum is not reached once more, the chairperson shall convene an extraordinary meeting which shall be entitled to decide even if less than the quorum of Members are present or represented.

Each Member of a Consortium Body present or represented in the meeting shall have one vote.

Defaulting Parties may not vote. Defaulting Partner is defined in the CA.

Decisions shall be taken by a majority of two-thirds (2/3) of the votes cast in the first ballot. In a second ballot and any subsequent ballots which may be necessary, a simple majority of the votes cast shall be required.

### **4.2. Veto Rights**

A Member which can show that its own work, time for performance, costs, liabilities, Intellectual Property Rights or other legitimate interests would be severely affected by a decision of a Consortium Body may exercise a veto with respect to the corresponding decision or relevant part of the decision.

When the decision is foreseen on the original agenda, a Member may veto such a decision during the meeting only.

When a decision has been taken on a new item added to the agenda before or during the meeting, a Member may veto such decision during the meeting and within 15 calendar days after the draft minutes of the meeting are sent.

In case of exercise of veto, the Members of the related Consortium Body shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all its Members.

A Party may not veto decisions relating to its identification to be in breach of its obligations nor to its identification as a Defaulting Party. The Defaulting Party may not veto decisions relating to its participation and termination in the consortium or the consequences of them.

A Party requesting to leave the consortium may not veto decisions relating thereto.

#### **4.3. Minutes of Meetings**

The chairperson of a Consortium Body shall produce written minutes of each meeting which shall be the formal record of all decisions taken. He shall send the draft minutes to all Members within 10 calendar days of the meeting.

The minutes shall be considered as accepted if, within 15 calendar days from sending, no Member has sent an objection in writing to the chairperson with respect to the accuracy of the draft of the minutes.

The chairperson shall send the accepted minutes to all the Members of the Consortium Body and to the Coordinator, who shall safeguard them.  
If requested the Coordinator shall provide authenticated duplicates to Parties.

## **5. Communication and Document Management Facilities**

The project has set up the following mailing lists:

- 5g-transformer-all
- 5g-transformer-legal
- 5g-transformer-pmt
- 5g-transformer-pb
- 5g-transformer-wp1
- 5g-transformer-wp2
- 5g-transformer-wp3
- 5g-transformer-wp4
- 5g-transformer-wp5
- 5g-transformer-wp6
- 5g-transformer-wp7
- 5g-transformer-contact
- 5g-transformer-comms

The global mailing list will be used for issues affecting several WPs and for other issues requiring global communication. This mailing list was composed by all the members of the consortium. Concerning the technical mailing list per WP, for such a big project as 5G-TRANSFORMER, where each WP can be understood as a subproject, we advocate the use of separate mailing lists per WP. Although the use of a single list for all WPs improves the interaction between the different

researchers working on each WP, we think that due to its dimension, the project needs an approach limiting the amount of emails received by each researcher. Additionally, there are lists devoted to legal, PMT, PB, contact from external parties and communications.

All technical mailing lists involve the TM, and will be open to any other additional employee the project partners will wish to include.

All the information related to the project, including all draft deliverables, the final deliverables, the shared documentation, the source code, the meeting reports, the updated project time-table, and so on, will be normalised in a common format according to defined templates to maintain homogeneity in the project, and will be stored in a common central facility. To keep control and confidentiality of the storage, the project **will not adopt common cloud-based public services** (e.g., Dropbox, GoogleDrive, etc) but will deploy its own storage facility, in the form of an SVN server, inside the coordinator's premises. Access will be restricted to the project members (eventually with further access control restrictions for documentation strictly restricted to the PB). Centralized maintenance and housekeeping of all the project documentation will be guaranteed by the Project Coordinator, and by the WP leader for the internal WP documentation. Documents will be organized in sub-folders related to project activities or information, as well as dedicated folders for work-packages and task.

The choice of SVN will also provide a convenient platform for collaborative software development over the same storage facility. The deliverables will be managed and released under the responsibility of the editor, after a well-defined review procedure.

### 5.1. Obligation to Disseminate Results

Unless it goes against their legitimate interests, each beneficiary must — as soon as possible — ‘disseminate’ its results by disclosing them to the public by appropriate means (other than those resulting from protecting or exploiting the results), including in scientific publications (in any medium).

This does not change the obligation to protect results, the confidentiality obligations, the security obligations or the obligations to protect personal data, all of which still apply.

A beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of — unless agreed otherwise — at least 45 days before the planned publication date, together with sufficient information on the results it will disseminate.

Any other beneficiary may object within — unless agreed otherwise — 30 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the dissemination may not take place unless appropriate steps are taken to safeguard these legitimate interests.

If a beneficiary intends not to protect its results, it may — under certain conditions— need to formally notify the Commission before dissemination takes place.

### 5.2. Open Access to Scientific Publications

Each beneficiary must ensure open access (free of charge online access for any user) to all peer-reviewed scientific publications relating to its results.

In particular, it must:

- i. as soon as possible and at the latest on publication, deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications;  
Moreover, the beneficiary must aim to deposit at the same time the research data needed to validate the results presented in the deposited scientific publications.
- ii. ensure open access to the deposited publication — via the repository — at the latest:
  - (a) on publication, if an electronic version is available for free via the publisher, or
  - (b) within six months of publication (twelve months for publications in the social sciences and humanities) in any other case.
- iii. ensure open access — via the repository — to the bibliographic metadata that identify the deposited publication.  
The bibliographic metadata must be in a standard format and must include all of the following:
  - the terms “European Union (EU)” and “Horizon 2020”;
  - the name of the action, acronym and grant number;
  - the publication date, and length of embargo period if applicable, and
  - a persistent identifier.

### 5.3. Information on EU funding — Obligation and right to use the EU emblem

Unless the Commission requests or agrees otherwise or unless it is impossible, any dissemination of results (in any form, including electronic) must:

- i. display the EU emblem and
- ii. include the following text:  
*“This work has been partially funded by the EU H2020 5G-Transformer Project (grant no. 761536).”*

When displayed together with another logo, the EU emblem must have appropriate prominence.

For the purposes of their obligations under this Article, the beneficiaries may use the EU emblem without first obtaining approval from the Commission.

This does not however give them the right to exclusive use.

Moreover, they may not appropriate the EU emblem or any similar trademark or logo, either by registration or by any other means.

### 5.4. Disclaimer excluding Commission responsibility

Any dissemination of results must indicate that it reflects only the author's view and that the Commission is not responsible for any use that may be made of the information it contains.

## 6. Reports

The action is divided into the following ‘reporting periods’ (RP):

- RP1: from month 1 to month 13.

- RP2: from month 14 to month 30.

### 6.1. Periodic Reports

The coordinator must submit a periodic report within 60 days following the end of each reporting period.

The periodic report must include the following:

(a) 'Periodic technical report' containing:

- an explanation of the work carried out by the beneficiaries;
- an overview of the progress towards the objectives of the action, including milestones and deliverables. This report must include explanations justifying the differences between work expected to be carried out and that actually carried out. The report must also detail the exploitation and dissemination of the results and an updated 'plan for the exploitation and dissemination of the results';
- a summary for publication by the Commission;
- the answers to the 'questionnaire', covering issues related to the action implementation and the economic and societal impact, notably in the context of the Horizon 2020 key performance indicators and the Horizon 2020 monitoring requirements;

(b) 'Periodic financial report' containing:

- an 'individual financial statement' from each beneficiary and from each linked third party, for the reporting period concerned. The individual financial statement must detail the eligible costs (actual costs, unit costs and flat-rate costs) for each budget category. The beneficiaries and linked third parties must declare all eligible costs, even if — for actual costs, unit costs and flat-rate costs — they exceed the amounts indicated in the estimated budget. Amounts which are not declared in the individual financial statement will not be taken into account by the Commission.

If an individual financial statement is not submitted for a reporting period, it may be included in the periodic financial report for the next reporting period.

The individual financial statements of the last reporting period must also detail the receipts of the action.

Each beneficiary and each linked third party must certify that:

- the information provided is full, reliable and true;
- the costs declared are eligible;
- the costs can be substantiated by adequate records and supporting documentation that will be produced upon request or in the context of checks, reviews, audits and investigations, and
- for the last reporting period: that all the receipts have been declared;

- an explanation of the use of resources and the information on subcontracting and in-kind contributions provided by third parties from each beneficiary and from each linked third party, for the reporting period concerned;
- a 'periodic summary financial statement', created automatically by the electronic exchange system, consolidating the individual financial statements for the reporting period concerned and including — except for the last reporting period — the request for interim payment.

## 6.2. Quarterly Reports

In addition to the reports defined in the contract with the EC, the Coordinator will collect from partners, and integrate supplementary quarterly management reports (QMR), to be submitted by each project partner to the coordinator 15 days after the end of each three-month period. These reports will be delivered to the EU Project Officer, and will at least include:

- management data for the considered quarter (persons-month spent per each active WP, major travels and other resources deployed),
- predicted management data for the next quarter,
- report on the technical work and related accomplishments carried out in the quarter,
- dissemination accomplishments,
- major issues or problems encountered and/or foreseen in the next quarter.

## 6.3. Final Report

In addition to the periodic report for the last reporting period, the coordinator must submit the final report within 60 days following the end of the last reporting period.

The final report must include the following:

- (a) a ‘final technical report’ with a summary for publication containing:
- an overview of the results and their exploitation and dissemination;
  - the conclusions on the action, and
  - the socio-economic impact of the action;
- (b) a ‘final financial report’ containing:
- a ‘final summary financial statement’, created automatically by the electronic exchange system, consolidating the individual financial statements for all reporting periods and including the request for payment of the balance and
  - a ‘certificate on the financial statements’ for each beneficiary and for each linked third party, if it requests a total contribution of EUR 325,000 or more, as reimbursement of actual costs and unit costs calculated on the basis of its usual cost accounting practices.

## 7. Management of Risks and Contingency Plans

There are a number of contingencies that can negatively impact on the ambitious 5G-TRANSFORMER roadmap. Table 7a presents the critical risks for the implementation of the project. The likelihood and the severity of each risk is assessed as low (L), medium (M), or high (H) and tailored counter-measures are proposed. 5G-TRANSFORMER has conceived a number of structural mechanisms to reduce the probability of these events and to contain their effects in case they cannot be avoided.



Table 7a: Critical risks for implementation

Description of risk	Like./ Sev.	WP(s)	Proposed risk-mitigation measures
Conceptual failure of the overall architecture	L/H	WP1	The process of architectural design will be conducted in a close cooperation with WP2-4. The initial draft will be released early and will be constantly refined. We are keeping track of this risk by assessing the conceptual validity in MS2 (M12), MS4 (M24) and MS6 (M30)
The developed architecture does not offer sustainable business model for mobile operators, or verticals	L/H	WP1	Business strategies, particularly economic impact on verticals will be thoroughly evaluated in task 1.3. It is unlikely that the project will not provide valuable business model as slicing is allowing network operators to share their physical infrastructure, while providing tailored virtual networks to verticals.
Delayed feedback from other WPs to the architecture	L/H	WP1	Close coordination (extra cross WP activities/synchronization)
The proposed solutions are not aligned with emerging standards	M/L	WP1	The potential appearance of competitive new technologies (alternative to 5G) is possible, however this is unlikely considering the effort and the hype on 5G deployments and standardization. The consortium partners present in the main standardization bodies (e.g., ETSI, 3GPP) will continually monitor the development to address changes in the 5GTransformer components. We have milestones devoted to checking the alignment of the architecture with standards, MS2 (M12), MS4 (M24) and MS6 (M30)
Project objectives loose relevance	M/H	WP1	A thorough analysis of the requirements will be carried out at the beginning of the project, taking into account the use cases that will be undertaken to validate the aims. We do periodical checking for every period to make sure the objectives do not loose relevance (MS2, MS4 and MS6).
MTP orchestrator may be exposed to security threats considering the highly distributed environment	L/M	WP2	It will exploit the centralization of MTP that may provide significant benefits in detection and mitigation of attacks, such as Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS), as well as Firewall and VPNs, can be implemented directly on top of the control plane as an SDN application Moreover, design principles will be adopted to provide security.
Heterogeneity of vertical sector does not allow a general	L/H	WP3	Necessarily, the project will focus on some, very significant, use cases. The slicing model in itself will facilitate the introduction of future, even if today not

solution			existing, vertical services over the planned architecture.
Virtualization of some hardware resources could be not possible or not easy	H/L	WP4	Some network functions, e.g., with stringent latency requirements, could be hardly deployable on general purpose hardware/servers. The overall architecture and the method to select and configure the virtual functions, will be well designed to work with heterogeneous functions (i.e., virtualized and with dedicated hardware) concurrently. That will impact the method to expose both functions that can be virtualized and not, their selection and the service chaining phase.
Service Orchestrator cannot operate with all the involved admin. domains	L/H	WP4	The establishment of specific agreements and the use of standardised interoperability protocols should mitigate this risk.
Arbitration of resources across several domains on a large scale might be very complex.	M/H	WP4	A suitable architecture based on efficient abstract views will enable us to address with scalability and complexity issues.
Architecture specification is delayed	M/M	WP1, WP2, WP3, WP4	All the technical WPs (i.e., 2, 3 and 4) will start analysing the different systems requirements, in parallel with the architectural specification. The PMT will ensure WPs provide with the needed input to complete the architecture in time.
Development time for use cases is underestimated	M/M	WP5	Agile methodology will be applied in the development process.
Some use cases could not have been identified before project starts	H/L	WP1	The project will address generic overall architecture and method that is open to include different use cases features.
Multi-operator agreements based on heterogeneous technologies could not be defined	H/L	WP1, WP2, WP3, WP4	The participants to the project are key relevant vendors, operators, and SME that aims to define agreements and interworking model to propose to standard.
Blueprints and templates defined in the project could not be expressive enough to cover all use cases	L/H	WP3	The project will define an architecture and a method that are easily extended to different features and use cases.

Global OTT players may develop alternative models for collaboration with verticals at a higher or global level, limiting EU Operator's role to just provide access	M/L	WP1, WP2, WP3, WP4	A layered architecture with the related interworking procedure will be defined in order to guarantee clear separation of role and responsibility for each layer independently of the case where the ownership of connectivity providers and OTT providers coincides or belong to different entity. Actually the role of connectivity service and of OTT are well defined in scope and responsibility.
Operators which "comfort zone" lies in different technology areas may hinder a common architecture that requires tight interworking	H/L	WP1, WP2, WP3, WP4	The project will define a common model for the different technology areas that enables the inclusion of specific requirements and limitation for each technology area in order to facilitate the interworking while keeping specific peculiarity.
Delay in the development of MTP interfaces with the Orchestrator	M/M	WP2, WP5	WP2 work will be closely coordinated with WP6. Any delays will be anticipated by the WPs leaders and appropriate actions will be taken. For instance, prioritise the requirements and understand if some not mandatory function may be omitted for implementation.
Implementation of the orchestrator is achieved late	L/H	WP4, WP5	The overall architecture, flow-diagram and interface among the building blocks will be defined as starting point, to makes quite independent the implementation of the single building blocks. Moreover, a priority list of functions will be defined to assure an implementation of the overall solution with a partial implementation of the functions in each building blocks.
Failure to successfully design and deploy the testbed environment	L/H	WP5	The consortium includes partners with technical expertise, industry connections and track records to implement the technology components required for the testbed
MEC infrastructure does not perform as expected	H/H	WP5	MEC infrastructure and architecture are still not mature commercially. Nevertheless, some partners have already valuable platform with appropriately selected stacks can address use cases needs for a required context.
Network Slice component, algorithms and mechanism fail or	M/H	WP2, WP3, WP4, WP6	The partners of the consortium have extensive experience integrating software. The WP leaders will reassign task roles in case there is any issue. Moreover, weekly audioconferences will be organised to discuss

have limited functionality, or cannot be integrated in WP6			issues and discuss consensus within the consortium.
The UK leaves the European Union and UK partners no longer eligible for grant	M/L	ALL	Two partners, namely NEC and IDCC, are in the UK. The UK treasury has already committed officially to underwrite the fund for any grant agreement signed before the date the UK leaves the EU, such a date unlikely to be in 2017. Moreover, NEC and IDCC as international players, are fully committed to the execution of 5G-TRANSFORMER even if they have to do it unfunded or through a subsidiary in mainland EU.

## 8. Quality Plan

The quality management of the project will be led by the PC, TM and IM, who will be responsible for the review and assessment of the project progress according to:

- correspondence of the solutions to the objectives;
- accuracy and quality of the deliverables, and
- adherence to time and cost constraints planned for the project.

The Quality Plan will be updated every six months, if necessary. All the Project Handbook is a Quality Plan itself.

The principal objective of the plan is to ensure the quality across the different activities of the project, including the responsibilities within the team to achieve and maintain the quality, the monitoring and control procedures, the reporting procedures and the document procedures standards and control.

The PC, in close cooperation with the TM, will provide overall monitoring and coordination of each activity and milestone from a time perspective, paying special attention to the impact if any of changes in the schedule on other related items. In parallel, the IM will check that all possible mechanisms to increase the impact of the project are taken, and will advertise partners of potential impacts identified during the project lifetime.

Finally, two deliverable reviewers will be identified for each deliverable, which will be subject to an internal approval procedure prior to release (and public dissemination, in case of public deliverables). Quality control metrics will be defined to measure the progress of the work being achieved. Each Work-Package Leader will be responsible for assuring the quality of their deliverables and for adopting the most appropriate quality-assurance measures to contribute to the fulfilment of the WP targets.

**9. Annex 1. Template for Deliverables**

# 5G-*T*ransformer

**H2020 5G-Transformer project  
Grant No. 761536**

**DOCUMENT TITLE**

**Abstract**

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.....  
.....

**Document Properties**

Document Number: ....

Document Title: .....

Document Responsible: ....

Document Editor: ....

Editorial Team:

Target Dissemination Level: ....

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Version: 0

**Production Properties:**

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Revision	Date	Issued by	Description
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**Disclaimer:**

*This document has been produced in the context of the 5G-Transformer Project. The research leading to these results has received funding from the European Community's H2020 Programme under grant agreement N° H2020-761536.*

*All information in this document is provided "as is" and no guarantee or warranty is given that the information is fit for any particular purpose. The user thereof uses the information at its sole risk and liability.*

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**Table of Content**

List of Tables.....	24
List of Figures .....	24
List of Acronyms.....	25
Executive Summary .....	26
1. Introduction .....	27
2. Section Title .....	28
2.1. Subsection Title.....	28

**List of Tables**

.....

**List of Figures**

.....



## List of Acronyms

.....

## **Executive Summary**

.....

## 1. Introduction

.....

## 2. Section Title

.....

### 2.1. Subsection Title

*Table 2.1a: Title*

**10. Annex 2. Template for Quarterly Management Reports**

# 5G-*T*ransformer

**H2020 5G-Transformer project  
Grant No. 761536**

## **QMR TEMPLATE**

**Abstract**

.....

**Document Properties**

Document Number:	....
Document Title:	<b>QMR TEMPLATE</b>
Document Responsible:	.....
Document Editor:	.....
Authors:	.....
Target Dissemination Level:	....
Status of the Document:	Preparation
Version:	0

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Reviewers:	.....
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**Document History:**

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**Disclaimer:**

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*For the avoidance of all doubts, the European Commission has no liability in respect of this document, which is merely representing the authors view.*

**How to fill out the individual sections:****For All:**

- **Fill out for each Task where you are involved:**
  - Any particular achievements (finished algorithm description, simulation development, particular problems which were solved, etc.),
  - Achieved Milestones (with reference to the “Description of Work”), or
  - Work items you were involved with (developing a specific algorithm/simulation code/..., preparing presentations/meetings/..., and also definition of requirements/architecture/...)
  - In all the cases, include always a reference to a document (Audio conference minutes, deliverable, internal report, submitted paper...)
  - Highlight important outputs, especially in the summary (publications, patents, standardisation proposal, workshops...)
- **List the individual persons which were involved in this task,**
- **List the amount of man months that you are claiming.**
- **Regarding the travel reporting; only travels that are charged to the project must be included.**

**For Task Leaders:**

- **Trigger input from all partners that are involved in your task,**
- **Fill in the table under “Summary” which gives a short impression whether you are on-track or not, whether there deviations or not, ... Note: Deviations are not a problem as long as we keep track of them and adjust the project plan accordingly in time! The more details you provide us with your report, the better we can adjust the project plan, report to the EC, and get feedback from the PO with respect to proposed deviations.**
- **Harmonize the input from you partners based on the discussion etc. that you had during the reporting period.**

**For Work Package Leaders:**

- **Trigger input from all tasks and monitor the progress,**
- **Review deviations and find solutions for the next steps (together with the TLs),**
- **Provide one paragraph with a summary for the reporting period,**
- **Harmonize the input from all tasks.**

## Table of Content

1.	Executive Summary .....	34
2.	Technical Progress and Achievements.....	35
2.1.	WP1: System Requirements, Vertical Scenarios and Economic Analysis.....	35
2.1.1.	Summary .....	35
2.1.2.	Task 1.1: Vertical analysis and requirements.....	35
2.1.3.	Task 1.2: High-level architecture design of 5G-Mobile Transport and Computing Platform for Verticals.....	35
2.1.4.	Task 1.3: Techno-Economic Analysis.....	36
2.2.	WP2: Mobile Transport and Computing Platform for Verticals .....	36
2.2.1.	Summary .....	36
2.2.2.	Task 2.1: MTP orchestrator: architecture, procedures, API.....	36
2.2.3.	Task 2.2: Mobile-Transport abstraction method in support of MEC services and Slicing	37
2.2.4.	Task 2.3: Methods and optimization algorithms for optimal placement of virtual functions, selection of best radio splitting and transport resource to support MEC-oriented service	37
2.3.	WP3: Vertical Slicer.....	37
2.3.1.	Summary .....	37
2.3.2.	Task 3.1: Vertical service descriptors .....	38
2.3.3.	Task 3.2: Algorithms for Verticals.....	38
2.3.4.	Task 3.3: Vertical service implementation.....	38
2.4.	WP4: Service-Aware Orchestration and Federation for Verticals .....	38
2.4.1.	Summary .....	38
2.4.2.	Task 4.1: Service Orchestration .....	39
2.4.3.	Task 4.2: Service-aware Monitoring.....	39
2.4.4.	Task 4.3: APIs and Service Federation .....	39
2.5.	WP5: Validation and Proof of Concept.....	40
2.5.1.	Summary .....	40
2.5.2.	Task 5.1: Definition and set up of vertical testbeds .....	40
2.5.3.	Task 5.2: Integration and proof of concept .....	40
2.5.4.	Task 5.3: Experimentation and evaluation .....	41
2.6.	WP6: Communication, Dissemination, and Exploitation .....	41
2.6.1.	Summary .....	41
2.6.2.	Task 6.1: Communication activities.....	41



---

2.6.3.	Task 6.2: Dissemination and Exploitation .....	42
2.7.	WP7: Project Management.....	42
2.7.1.	Summary .....	42
2.7.2.	Task 7.1: Project administrative, financial, and legal management .....	42
2.7.3.	Task 7.2: Technical coordination, Innovation and Quality management.....	43
2.7.4.	Task 7.3: Interaction with other projects of the H2020 5G Infrastructure PPP...	43
3.	Status of Deliverables and Milestones .....	43
3.1.	Deliverables.....	43
3.1.1.	Corrective Actions in Case of Delay .....	44
3.2.	Milestones .....	44
3.2.1.	Corrective Actions in Case of Delay .....	45
5.	Resources and Expenses.....	46
5.1.	Figures for this Quarter (Personnel in PMs) .....	46
5.2.	Accumulated (Personnel in PMs).....	47
5.3.	Use of resources. Summary (PMs).....	48
5.4.	Travel and other expenses .....	49
6.	Annex. Description of any Problem, Delay or Deviation from the Planned Work Schedule, and the Corrective Actions Taken.....	49

## **1. Executive Summary**

*(Responsible: UC3M)*

.....

## 2. Technical Progress and Achievements

### 2.1. WP1: System Requirements, Vertical Scenarios and Economic Analysis

#### 2.1.1. Summary

(Resp: WPLLeader)

.....

Task	Status <sup>1</sup>	Variance <sup>2</sup>	Cause/Wayforward <sup>3</sup>	Expected deadlines <sup>4</sup>	Affected partners <sup>5</sup>
Task 1.1	Green				
Task 1.2	Green				
Task 1.3	Not started yet				

#### 2.1.2. Task 1.1: Vertical analysis and requirements

(Resp: each partner fills in its information in a row)

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

#### 2.1.3. Task 1.2: High-level architecture design of 5G-Mobile Transport and Computing Platform for Verticals

(Resp: each partner fills in its information in a row)

<sup>1</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>2</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>3</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>4</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension has less impact than a "surprise delay." Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>5</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.1.4. Task 1.3: Techno-Economic Analysis**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.2. WP2: Mobile Transport and Computing Platform for Verticals**

**2.2.1. Summary**

*(Resp: WPLLeader)*

.....

Task	Status <sup>6</sup>	Variance <sup>7</sup>	Cause/Wayforward <sup>8</sup>	Expected deadlines <sup>9</sup>	Affected partners <sup>10</sup>
Task 2.1	Green				
Task 2.2	Green				
Task 2.3	Green				

**2.2.2. Task 2.1: MTP orchestrator: architecture, procedures, API**

*(Resp: each partner fills in its information in a row)*

<sup>6</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>7</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>8</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>9</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension has less impact than a "surprise delay." Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>10</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.2.3. Task 2.2: Mobile-Transport abstraction method in support of MEC services and Slicing**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.2.4. Task 2.3: Methods and optimization algorithms for optimal placement of virtual functions, selection of best radio splitting and transport resource to support MEC-oriented service**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.3. WP3: Vertical Slicer**

**2.3.1. Summary**

*(Resp: WPLeader)*

.....

Task	Status <sup>11</sup>	Variance <sup>12</sup>	Cause/Wayforward <sup>13</sup>	Expected deadlines <sup>14</sup>	Affected partners <sup>15</sup>
------	----------------------	------------------------	--------------------------------	----------------------------------	---------------------------------

<sup>11</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>12</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>13</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>14</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension

Task 3.1	Green				
Task 3.2	Green				
Task 3.3	Green				

**2.3.2. Task 3.1: Vertical service descriptors**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.3.3. Task 3.2: Algorithms for Verticals**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.3.4. Task 3.3: Vertical service implementation**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.4. WP4: Service-Aware Orchestration and Federation for Verticals**

**2.4.1. Summary**

*(Resp: WPLLeader)*

.....

---

has less impact than a “surprise delay.” Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>15</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.

Task	Status <sup>16</sup>	Variance <sup>17</sup>	Cause/Wayforward <sup>18</sup>	Expected deadlines <sup>19</sup>	Affected partners <sup>20</sup>
Task 4.1	Green				
Task 4.2	Green				
Task 4.3	Green				

**2.4.2. Task 4.1: Service Orchestration**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.4.3. Task 4.2: Service-aware Monitoring**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.4.4. Task 4.3: APIs and Service Federation**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

<sup>16</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>17</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>18</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>19</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension has less impact than a "surprise delay." Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>20</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.

**2.5. WP5: Validation and Proof of Concept**

**2.5.1. Summary**

*(Resp: WPLLeader)*

.....

Task	Status <sup>21</sup>	Variance <sup>22</sup>	Cause/Wayforward <sup>23</sup>	Expected deadlines <sup>24</sup>	Affected partners <sup>25</sup>
Task 5.1	Green				
Task 5.2	Not started yet				
Task 5.3	Not started yet				

**2.5.2. Task 5.1: Definition and set up of vertical testbeds**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.5.3. Task 5.2: Integration and proof of concept**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons

<sup>21</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>22</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>23</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>24</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension has less impact than a "surprise delay." Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>25</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.



<b>Name</b>		
-------------	--	--

**2.5.4. Task 5.3: Experimentation and evaluation**

*(Resp: each partner fills in its information in a row)*

<b>Partner</b>	<b>Achievements Milestones Work items in progress</b>	<b>Involved persons</b>
<b>Name</b>		

**2.6. WP6: Communication, Dissemination, and Exploitation**

**2.6.1. Summary**

*(Resp: WPLLeader)*

.....

<b>Task</b>	<b>Status<sup>26</sup></b>	<b>Variance<sup>27</sup></b>	<b>Cause/Wayforward<sup>28</sup></b>	<b>Expected deadlines<sup>29</sup></b>	<b>Affected partners<sup>30</sup></b>
<b>Task 6.1</b>	<b>Green</b>				
<b>Task 6.2</b>	<b>Green</b>				

**2.6.2. Task 6.1: Communication activities**

*(Resp: each partner fills in its information in a row)*

<b>Partner</b>	<b>Achievements Milestones Work items in progress</b>	<b>Involved persons</b>
<b>Name</b>		

<sup>26</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>27</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>28</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>29</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension has less impact than a "surprise delay." Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>30</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.

**2.6.3. Task 6.2: Dissemination and Exploitation**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

**2.7. WP7: Project Management**

**2.7.1. Summary**

*(Resp: WPLLeader)*

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Task	Status <sup>31</sup>	Variance <sup>32</sup>	Cause/Wayforward <sup>33</sup>	Expected deadlines <sup>34</sup>	Affected partners <sup>35</sup>
Task 7.1	Green				
Task 7.2	Green				
Task 7.3	Green				

**2.7.2. Task 7.1: Project administrative, financial, and legal management**

*(Resp: each partner fills in its information in a row)*

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

<sup>31</sup> Red = Major deviations and objectives may not be achieved; Yellow = Small deviations but objectives will be met; Green = On-track, no major deviations; Fill in "Completed" if the task is completed

<sup>32</sup> Variances could be expected delays for milestones or could be topic-deviations, i.e. topics changed such that additional topics are covered while others are not. If you describe variances, please always also refer to the original description in order to know what the baseline for this variance is. Please also mention expected variances, which did not take effect yet but are already anticipated.

<sup>33</sup> Please explain the cause for the variance and the way forward, i.e. which implications will the variance have. Note that you can also propose actions that should be taken to handle the variance or problems you are facing.

<sup>34</sup> Each task is supposed to contribute to project milestones, internal reports, and deliverables. If your input to any of these reports may be delayed, please fill it in here. Note: an expected deadline extension has less impact than a "surprise delay." Hence, please fill in the next deadline that is approached by your task and when it is going to be achieved.

<sup>35</sup> Please list the partners, work packages, or even standards where we planned contributions, which are affected by this variance, e.g. delayed input to other WPs, partner X/Y who is now involved with other topics, or standards consortia where we now contribute differently than planned.

### 2.7.3. Task 7.2: Technical coordination, Innovation and Quality management

(Resp: each partner fills in its information in a row)

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

### 2.7.4. Task 7.3: Interaction with other projects of the H2020 5G Infrastructure PPP

(Resp: each partner fills in its information in a row)

Partner	Achievements Milestones Work items in progress	Involved persons
Name		

## 3. Status of Deliverables and Milestones

### 3.1. Deliverables

(Resp: Editor)

- started, delayed, finished?

Deliverable Progress			
	On Schedule	Delayed	Completed
D1.1			
D1.2			
D1.3			
D1.4			
D2.1			
D2.2			
D2.3			
D2.4			
D3.1			
D3.2			
D3.3			
D3.4			
D4.1			
D4.2			
D4.3			
D4.4			
D5.1			
D5.2			
D5.3			

D5.4			
D5.5			
D6.1			
D6.2			
D6.3			
D6.4			
D6.5			
D6.6			
D6.7			
D7.1			
D7.2			
D7.3			
D7.4			
D7.5			

**3.1.1. Corrective Actions in Case of Delay**

*(Resp: Editor)*

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**3.2. Milestones**

*(Resp: Editor)*

- started, delayed, finished?

<b>Milestones Progress</b>			
	On Schedule	Delayed	Completed
M1			
M2			
M3			
M4			
M5			
M6			
M7			
M8			
M9			
M10			
M11			
M12			
M13			
M14			
M15			
M16			

M17			
M18			

**3.2.1. Corrective Actions in Case of Delay**

*(Resp: Editor)*

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**4. Dissemination and Exploitation**

*(Resp: Editor)*

.....

## 5. Resources and Expenses

### 5.1. Figures for this Quarter (Personnel in PMs)

Partner	WP1		WP2		WP3		WP4		WP5		WP6		WP7		TOTAL	
	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned
UC3M																
NEC																
TEI																
ATOS																
NOKIA																
IDCC																
TID																
ORANGE																
CRF																
SAMUR																
BCOM																
NXW																
MIRANTIS																
CTTC																
POLITO																
EURECOM																
SSSA																
ITRI																
<b>TOTAL</b>																

**5.2. Accumulated (Personnel in PMs)**

Partner	WP1		WP2		WP3		WP4		WP5		WP6		WP7		TOTAL	
	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned
UC3M																
NEC																
TEI																
ATOS																
NOKIA																
IDCC																
TID																
ORANGE																
CRF																
SAMUR																
BCOM																
NXW																
MIRANTIS																
CTTC																
POLITO																
EURECOM																
SSSA																
ITRI																
<b>TOTAL</b>																

**5.3. Use of resources. Summary (PMs)**

WP	Q..		Accumulated	
	Actual	Planned	Actual	Planned
WP1				
WP2				
WP3				
WP4				
WP5				
WP6				
WP7				
<b>TOTAL</b>				

Partner	Accumulated		Total Project
	Actual	Planned	
UC3M			
NEC			
TEI			
ATOS			
NOKIA			
IDCC			
TID			
ORANGE			
CRF			
SAMUR			
BCOM			
NXW			
MIRANTIS			
CTTC			
POLITO			
EURECOM			
SSSA			
ITRI			
<b>TOTAL</b>			



#### 5.4. Travel and other expenses

**Table 5.1: Travel expenses**

Partner	Meeting/Conference	Attendee(s)	Date and Place	Expenditure
<b>TOTAL</b>				€

**Table 5.2: Other direct costs**

Partner	Description of cost	Expenditure
<b>TOTAL</b>		€

## 6. Annex. Description of any Problem, Delay or Deviation from the Planned Work Schedule, and the Corrective Actions Taken

*(Resp: Editor)*

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