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# **Euro-5g – Supporting the European 5G Initiative**

# D2.1: 5G-PPP Collaboration Agreement and its implementation

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# Abstract

The first phase of the 5G-PPP programme was started on the 1<sup>st</sup> July 2015 when 17 projects were launched – two more projects selected in the first phase were also started by November 2015 bring the total number of active projects in phase 1 of the 5G-PPP to 19.

These 19 projects have 164 unique beneficiaries who were invited to sign a collaboration agreement to facilitate the close interworking between the projects while protecting the rights of the individual participants.

As this document is being submitted the total number of signatures is now at 153 and the remaining 11 signatures are being secured.

# **Document revision history**

Version	Date	Description of change	List of contributor(s)
v0.1	14/10/15	First Draft	David Kennedy, Eurescom
V0.2	11/11/15	Revision due to updates and comments received	D. Kennedy

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# Acknowledgment

This report includes the 5G INFRASTRUCTURE COLLABORATION AGREEMENT which was prepared by the 5G Infrastructure Association legal group prior to the start of the 5G-PPP projects. It is attached as an annex as it is the agreement whose implementation is the basis of this report.

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# **Executive Summary**

On 17 December 2013, the European Commission and the 5G Infrastructure Association signed the PPP Contractual Arrangement, setting up the Public-Private Partnership in the area of Advanced 5G Network Infrastructure for the Future Internet ("5G PPP"). A copy of this contract, and the technical Annex, is stored at http://5g-ppp.eu/contract/.

The contract sets out the objectives of the 5G PPP, and sets up a Partnership Board comprising representatives from the European Commission and members of the wider community of stakeholders.

This implementation of the 5G-PPP is primarily through a set of projects selected and funded under call 14 of the Horizon 2020 research program. These projects are expected to closely collaborate and produce common positions and, eventually, harmonized solutions for the introduction of 5G in Europe by 2020.

To this end the 5G Infrastructure Collaboration Agreement is intended to facilitate the close interworking of the selected projects, and additional external projects, by ensuring the commitments to respect each other's intellectual property are recorded and binding.

The purpose of this Collaboration Agreement to enable Parties to comply with the intention of Clause 41.4 of model Grant Agreement, whether or not it is included in the final Grant Agreement for their individual 5G Action under the 5G-PPP programme to implement the 5G Initiative,

The first phase of the 5G-PPP programme was started on the 1<sup>st</sup> July 2015 when 17 projects were launched – two more projects selected in the first phase were also started by November 2015 bring the total number of active projects in phase 1 of the 5G-PPP to 19.

These 19 projects have 164 unique beneficiaries who were invited to sign a collaboration agreement to facilitate the close interworking between the projects while protecting the rights of the individual participants.

As this document is being submitted the total number of signatures is now at 153 and the remaining 11 signatures are being secured.

It is expected that projects in later phases of the 5G-PPP will also be party to the same agreement to facilitate continuity in the program.

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# **Abbreviations**

EC	European Commission
5G-PPP	The 5G Infrastructure Public Private Partnership
5G-I-A	The 5G Infrastructure Association

# 1 5G INFRASTRUCTURE COLLABORATION AGREEMENT

On 17 December 2013, the European Commission and the 5G Infrastructure Association signed the PPP Contractual Arrangement, setting up the Public-Private Partnership in the area of Advanced 5G Network Infrastructure for the Future Internet ("5G PPP"). A copy of this contract, and the technical Annex, is stored at http://5g-ppp.eu/contract/.

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The purpose of this Collaboration Agreement to enable Parties to comply with the intention of Clause 41.4 of model Grant Agreement, whether or not it is included in the final Grant Agreement for their individual 5G Action under the 5G-PPP programme to implement the 5G Initiative,

It is expected that projects in later phases of the 5G-PPP will also be party to the same agreement to facilitate continuity in the programme.

# 1.1 Principles of the agreement

The key principles for the collaborative working of the projects and the shared responsibility for self-governance of the programme under the Collaboration Agreement are:

- to support the goals of openness, transparency and representativeness
- to ensure an efficient management structure with minimal overhead, and
- to adopt a collaborative approach by respecting the legitimate interests of all Parties.

The agreement also acknowledges the roles of the 5G Infrastructure Association and the joint responsibility of the projects and the Association to address the KPIs as defined in the 5G-PPP contract.

# 1.2 Distribution to the projects

The principles of this agreement were introduced to the successful projects in the joint set up meeting hosted by the commission in Brussels on the 27<sup>th</sup> May 2015. Some discussions were held and some action points were taken to assist the production of the final version.

The majority of the projects retained and funded under call 14 started on the 1<sup>st</sup> July 2015.

The final version of this agreement was circulated to the projects on the 2<sup>nd</sup> July 2015 and the project leaders were asked to distribute it to their project participants and to collect the electronic copies of the singed forms.

From July 2015 the signed forms have been collected and returned by the project leaders to the Euro-5G project, where they are being stored electronically.

In total there were 164 organisations involved in 289 participations as of the 1<sup>st</sup> July 2015 that were expected to be party to this agreement.

# 2 Implementation of the Collaboration Agreement

# 2.1 Signature rate

As of the 2<sup>nd</sup> July 2015 no parties had acceded to the agreement but over July and August many accession forms were collected.

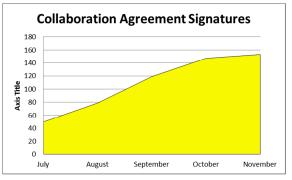
50 signed forms were received in July 2015.

29 signed forms were received in August 2015.

40 signed forms were received in September 2015

29 signed forms were received in October 2015, and

6 have been received so far in November 2015



This gives us 153 signatures so far received and this represents 93% of the organisations who are beneficiaries of the 5G-PPP projects and, in fact, these beneficiaries represent 96% of all the participations in projects.

14 projects are completely signed up and the remaining projects are almost complete. The 5G-Ensure Project only started on the 1<sup>st</sup> November 2015 but already has 75% of its beneficiaries signatures collected.

# 2.2 Problems

Some questions on the terms of the agreement were received and these were addressed on an individual basis. Some of these were only problems of understanding and were resolved after explanations.

All such issues were referred to the legal group if the 5G Infrastructure Association as the "owner" of the agreement.

# 2.3 Adding external projects

The remaining issue, which will require an extension to the collaboration agreement, is to determine a legal agreement whereby non-5G-PPP projects may join the PPP activities and collaborate. Currently we are waiting for the proposal from the 5G Infrastructure Association legal group about how this collaboration can be supported.

The first reaction of the 5G-I-A legal group is that it will not be possible to extend the collaboration as it is as it refers to the H2020 Grant Agreement and external projects coming from Eureka clusters or national programs will be coming from totally different IPR regimes. This cannot be easily integrated so case by case solutions may have to be developed.

# **3** Conclusions

The main point for further work on this agreement is to develop the flexibility to work with external projects. There are many good H2020 projects under the ICT objectives who can constructively contribute to the European positions on Standards, Spectrum and the 5G architecture who should be allowed to contribute.

In addition there are external private projects, Eureka Celtic-plus projects and others who can also add value and richness to the European perspective and ways to integrate their view must be developed.

After this the agreement must be offered to the phase 2 projects as the solution to their requirement in the call text to implement an arrangement under article 41.4 to allow close co-operation and sharing of foreground discussions.

The success of the expansion of this agreement to phase 2 will be reported in the final report of this project to the extent possible given the short overlap with the new phase 2 projects. It is expected that the follow-on phase 2 CSA project will continue to support the implementation of this agreement.

# Appendix A List of signatories to the Collaboration agreement

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	NOROUTE GMBH	DE	983002463					1							1						2	
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106	REDZINC SERVICES LIMITED	IE	961330335			1																1		1	yes
107	ROHDE & SCHWARZ GMBH&CO KOMMANDITGESELLSCHAFT	DE	999949430											1				1				2		1	yes
108	RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY	US	999882403										1									1		1	yes
109	SAMSUNG ELECTRONICS (UK) LIMITED	UK	999765712									1	1	1								3		1	yes
110	SEQUANS COMMUNICATIONS SA	FR	999687821									1 :	L									2		1	yes
111	SICS Swedish ICT AB	SE	999588202		1					1												2		1	yes
112	SIEMENS AKTIENGESELLSCHAFT	DE	999987260																	1		1		1	yes
113	SISTELBANDA SA	ES	941413907															1				1		1	yes
114	STMICROELECTRONICS GRENOBLE 2 SAS	FR	997962094													1						- 1		1	yes
115	SYNELIXIS LYSEIS PLIROFORIKIS AUTOMATISMOU & TILEPIKOINONION MONOPROSOP	EL	999668227														1					- 1		1	ves
116	TECHNISCHE UNIVERSITAET BERLIN	DE	999986678						1													1		1	yes
117	TECHNISCHE UNIVERSITAET DRESDEN	DE	999897729				1							1					1			3		4	yes
118	TECHNISCHE UNIVERSITÄET KAISERSLAUTERN	DE	999885895	1			-						1	_								2		1	yes
119	TECHNISCHE UNIVERSITÄET KAISENSLAUTERN TECHNISCHE UNIVERSITÄET MUENCHEN	DE	999977463	_									-							1		1			yes
120	TECNOLOGIAS SERVICIOS TELEMATICOS Y SISTEMAS S.A.	ES	996331136									-								_		- 1			yes
121	Teknologian tutkimuskeskus VTT Oy	E3 FI	932760440		1					1	_								_						
	TELCARIA IDEAS SL	ES	938460839		-					-		-				-			1					1	yes
122					1					-	_	_				-			-			- 1		1	yes
123	TELECOM ITALIA INFORMATION TECHNOLOGY SRL	п	950383206		1	1				_	-				-	-			_			- 1		1	yes
124	TELECOM ITALIA SPA	п	999908496			_	_	_			_	1 :				-		_	-	1		5		1	yes
125	TELEFONICA INVESTIGACION Y DESARROLLO SA	ES	999910824	1		1	1	_	1		_	_	_ 1	1		-	1	_	1	1		9		1	yes
126	TELEKOM SLOVENIJE DD	SI	957062432					1		_	_					_						1		1	yes
127	TELENOR ASA	NO	999910630			1					1											2		1	yes
128	TELNET REDES INTELIGENTES SA	ES	989795567																	1		1		1	yes
129	TES ELECTRONIC SOLUTIONS GMBH	DE	999943610				1															1		1	yes
130	THALES ALENIA SPACE ESPANA, SA	ES	999701595		1																	1		1	yes
131	THALES COMMUNICATIONS & SECURITY SAS	FR	999971934		1					1							1					3		1	yes
132	THALES SERVICES SAS	FR	999744469		1																	1		1	yes
133	THE 5G INFRASTRUCTURE ASSOCIATION	BE	935632513								1											1		1	yes
134	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD	UK	999984350		1																	1			
135	TRUST-IT SERVICES LTD	UK	999687724		1																	1			
136	UBIWHERE Lda	PT	991811906												1		1					2		1	yes
137	UNIFIED STREAMING BV	NL	934810826																1			1		1	yes
138	UNIVERSIDAD CARLOS III DE MADRID	ES	999899572	1		1						- 1								1		4		1	ves
139	UNIVERSIDAD COMPLUTENSE DE MADRID	ES	999874546												1							1		1	yes
140	UNIVERSIDAD DE MURCIA	ES	999844282												1							4		4	yes
141	UNIVERSIDAD DEL PAIS VASCO/ EUSKAL HERRIKO UNIBERTSITATEA	ES	999865234												1	1						- 1		4	yes
142	UNIVERSIDAD POLITECNICA DE MADRID	ES	999974844						1							-						- 1			ves
143	UNIVERSITA DEGLI STUDI DI TRENTO	IT	999841954						1	_	_	_	_						_			- 1			
144	UNIVERSITA DEGLI STODI DI TRENTO	п	999862712						-	_	_					_		_		_		- 1		1	yes
145	UNIVERSITA DI PISA UNIVERSITAET BREMEN		999862712							_	_	1				_			_			- 1		1	yes
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146	UNIVERSITAET DUISBURG-ESSEN	DE	999843312							1	_	_				-	1		_			- 1		1	yes
147	UNIVERSITAET PADERBORN	DE	999837492			_	_	_		_	_	_	_	_			1	_	_	_		- 1		1	yes
148	UNIVERSITAT POLITECNICA DE CATALUNYA	ES	999976202				х	_		_	_					1			_			1		1	yes
149	UNIVERSITAT POLITECNICA DE VALENCIA	ES	999864846										1									1		1	yes
150	UNIVERSITATEA POLITEHNICA DIN BUCURESTI	RO	999842342																1			1		1	yes
151	UNIVERSITE DE LIEGE	BE	999976105																1			1			
152	UNIVERSITY COLLEGE LONDON	UK	999975620			1											1					2		1	yes
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154	UNIVERSITY OF BRISTOL	UK	999974262				1							1								2		1	yes
155	UNIVERSITY OF ESSEX	UK	999856989					1														1		1	yes
156	UNIVERSITY OF SOUTHAMPTON	UK	999975329		1																	1		1	yes
157	UNIVERSITY OF SURREY	UK	999985223								1					1		1				3		1	yes
158	UNIVERSITY OF THE WEST OF SCOTLAND	UK	999589657												1							1		1	yes
159	VIRTUAL OPEN SYSTEMS SARL	FR	968966466													1						1		1	yes
160	VISIONA INGENIERIA DE PROYECTOS SL	ES	949743588																	1	L i	1		1	yes
161	WATERFORD INSTITUTE OF TECHNOLOGY	IE	999618660						1													1		1	yes
162	WEFLITD	#	934850305																						,
163	WINGS ICT SOLUTIONS INFORMATION & COMMUNICATION TECHNOLOGIES EPE	EL	952269953									1 :						1				3		1	yes
164	WORLDSENSING S.L.N.E.	ES	993322002																	1		1		1	yes
165	ZURCHER HOCHSCHULE FUR ANGEWANDTE WISSENSCHAFTEN	CH	998291506													1						4		1	yes
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,													-								1	,
				15 15								18 18							18 15	9 2		287 76 287	11 153		still to sign Signed so far

# Appendix B 5G INFRASTRUCTURE COLLABORATION AGREEMENT

#### THIS AGREEMENT BETWEEN:

Each beneficiary to a Grant Agreement with the EC in respect of a particular 5G Action that has acceded to this Agreement by signing an Accession Form

each individually referred to as "Party" and jointly referred to as "Parties".

#### **Preamble**

- On 15 December 2013, the 5G Infrastructure Association was registered by a Decree of the Belgian King. The founding members were Alcatel-Lucent Bell NV, Ericsson AB, Nokia Solutions and Networks Oy, Orange and SES. On the same day these founding members signed the Industry Association Members Agreement, setting out the manner in which the Association will operate. Since that date, numerous other organisations have become members of the 5G Infrastructure Association.
- 2. On 17 December 2013, the European Commission and the 5G Infrastructure Association signed the PPP Contractual Arrangement, setting up the Public-Private Partnership in the area of Advanced 5G Network Infrastructure for the Future Internet ("5G PPP"). A copy of this contract, and the technical Annnex, is at <a href="http://5g-ppp.eu/contract/">http://5g-ppp.eu/contract/</a>. The contract sets out the objectives of the 5G PPP, and sets up a Partnership Board comprising representatives from the European Commission and members of the wider community of stakeholders.
- 3. Section 3.4 of the technical Annex to the PPP Contractual Arrangement referred to at No. 2 above sets out how the 5G PPP is to work:

"The term Public-Private-Partnership – PPP in the context of this annex is defined as follows. The PPP corresponds to the overall structure including:

- <u>the **Association**</u> with the Industry Advisory Board and
- <u>the **5G Initiative**</u>, which comprises the selected projects under the PPP umbrella in all programme phases, the Steering Board and the Technology Board. This 5G Initiative is organised under the 5G Infrastructure Collaboration Agreement,
- <u>the Net!Works European Technology Platform</u> as representation of the wider sector via its direct link (Members Agreement) to the Association.

The PPP will have a number of parallel mainstream RTD and Innovation projects to investigate the different technical concepts and systems as well as optimising their performance and validate their feasibility as indicated in the SRIA priorities.

In addition, it is foreseen to coordinate the cooperation between RTD and Innovation projects for interface definition and alignment through an efficient Coordination Action. Each project will have dedicated tasks and allocated resources for these common activities in order to ensure commitment to the holistic approach. This coordination action will also support the bodies in the PPP governance for monitoring the programme progress, for the identification of programme issues and for initiating mitigation actions.

This model (WWI-model as applied in FP6) was successfully used to develop the basic concepts of IMT -Advanced and LTE — today globally deployed mobile and wireless communication systems. It provides means for cooperation between different collaborative research projects. The collaboration should be facilitated by a dedicated support action, which is organising the necessary bodies in the PPP and is managing the necessary

infrastructure and joint activities like dissemination events. The proposed model ensures the cooperation between stakeholders based on a cooperative approach. Participating projects are linked by cross-issues for particular topic areas. Cooperation depends on topic areas and interfaces, where cooperation is needed."

- 4. As part of the PPP Contractual Arrangement, The 5G Infrastructure Association proposed to arrange for a Collaboration Agreement to be signed between Actions (defined below) in order to implement the 5G Initiative but always in the context of the following general objectives and specific objectives set out in the PPP Contractual Arrangement:
  - "To develop a significant portfolio of essential IPRs to secure the position of industry in Europe
  - Support innovation through openness whilst securing IPRs and know-how with respect to global competition
  - Build extensive know-how and IPR in Europe for future systems in the research community and industry
  - Provide a governance model which on one hand supports the goals of openness, transparency and representativeness and on the other hand ensures an efficient management with minimized overhead
  - Support an efficient information flow between projects by respecting the interests of each partner with respect to confidentiality and access rights."
- 5. The European Commission's model H2020 Grant Agreement includes an optional Clause 41.4 which states:

"The beneficiaries must conclude a written "collaboration agreement" with the complementary benficiaries to coordinate the work under the Agreement and the complementary grant agreement(s) (see Article 2), covering for instance:

- Efficient decision-making processes, and
- Settlement of disputes.

The collaboration agreement must not contain any provision contrary to the [Grant] Agreement.

The beneficiaries and complementary beneficiaries must create and participate in common boards and advisory structures to decide on collaboration and synchronisation of activities, including on management of outcomes, common approaches towards standardisation, SME involvement, links with regulatory and policy activities, and commonly shared dissemination and awareness raising activities.

The beneficairies must give access to their results to the complementary beneficiaries, for the purposes of the complementary grant agreement(s) (see Article 31.6).

The beneficairies must share the technical reports (see Article 20.3 and 20.4). The confidentiality obligations in Article 36 apply."

- 6. The purpose of this Collaboration Agreement:
  - (a) to enable Parties to comply with optional Clause 41.4 of model Grant Agreement, whether or not it is included in the final Grant Agreement for their 5G Action, and if it is not included, as if it is included and
  - (b) (to the extent relevant) to implement the 5G Initiative,

#### IT IS NOW AGREED AS FOLLOWS:

#### 1. **DEFINITIONS**

1.1 Words beginning with a capital letter shall have the meaning defined herein, and where not defined here they shall, for each 5G Action, have the meaning defined either in the Rules or in the Grant Agreement for that 5G Action.

#### 1.2 Additional Definitions

**Accession Date** means, for each Party, the date of the signature of the Declaration of Accession by that Party joining this Collaboration Agreement.

### An **Affiliated Entity or Affiliate** of a Party means:

- (a) any Legal Entity directly or indirectly Controlling, Controlled by, or under common Control with that Party, for so long as such Control lasts; and
- (b) any other Legal Entity that is listed in Annex 1 Part 2 to this Collaboration Agreement as being an Affiliated Entity of that Party, where such Legal Entity is one in which that Party (or a legal entity qualifying as an Affiliated Entity of that Party under (a) directly above) has a 50% equity share or is the single largest equity shareholder.

For the above purposes, "Control" of any Legal Entity shall exist through the direct or indirect:

- ownership of more than 50% of the nominal value of the issued share capital of the Legal Entity
  or of more than 50% of the issued share capital entitling the holders to vote for the election of
  directors or persons performing similar functions, or
- right by any other means to elect or appoint directors of the Legal Entity (or persons performing similar functions) who have a majority vote.

Common Control through government does not, in itself, create Affiliated Entity status.

SAVE THAT, notwithstanding the above, any entity which is deemed an Affiliate under any 5G Consortium Agreement shall be considered an Affiliate under this Collaboration Agreement, even if such entity does not meet the above criteria.

**Collaboration Agreement** means this 5G Public Infrastructure Collaboration Agreement.

**Confidential Information** means any information and data of whatever nature disclosed by any of the Parties of one 5G Action ("Disclosing Party") to any other Party of another 5G Action in connection with this Collaboration Agreement after acceding to this Collaboration Agreement, irrespective of the medium in which such information or data is embedded, subject to the various exclusion and other provisions set forth in Section 4.7 below, and,

- when disclosed in tangible form, is marked "confidential" or similarly by the Disclosing Party, and
- when disclosed orally or visually, is identified at the time of disclosure as confidential and confirmed in writing (including e.g in meeting minutes) as being confidential within 30 days after such disclosure.

**Declaration of Accession** means a declaration in the form as provided in Annex 1 to become a Party to this Collaboration Agreement.

**5G Consortium Agreement** means the consortium agreement for a 5G Action.

**5G Action Background** means any data, know-how or information – whatever its form or nature (tangible or intangible) including any rights such as IPRs – that:

- (a) Is held by a Party before it acceded to its 5G Grant Agreement, and
- (b) Is Needed to implement a 5G Action or Exploit a 5G Action Result.

**5G Action Results** shall have the meaning given to *Results* in the Grant Agreement of the specific 5G Action to which the Licensor is a *beneficiary*.

**Indirect Utilization** means that Access Rights for Exploitation granted pursuant to this Collaboration Agreement shall include the right for a Party and its Affiliates to whom such Access Rights are granted to have a third party make, only for the account of and for the use, sale or other disposal by the Party and such Affiliates, products or services, provided that the substantial portion of the specifications of such products or services has been designed by or for such Party and such Affiliates.

**Intellectual Property Rights or IPR** means: patent, patent applications and other statutory rights in inventions; copyrights (including without limitation copyrights in software); registered design rights, applications for registered design rights, unregistered design rights and other statutory rights in designs; and other similar or equivalent forms of statutory protection, wherever in the world arising or available; but excluding rights in Confidential Information or trade secrets.

**Needed** means in respect of 5G Action Results of a Licensor Party that the use by a Party of another 5G Action ("Licensee Party") of such 5G Action Results, either:

- (a) to implement its own tasks under its own 5G Action, or
- (b) to Exploit its own 5G Action Results generated under its own Action,
- is technically essential in the sense that the execution and/or Exploitation would otherwise be impossible and:
  - a) where IPRs are concerned, mean that those IPRs would be infringed absent the Access Rights granted under this Collaboration Agreement;
  - b) where Confidential Information is concerned, only Confidential Information which has been disclosed in the course activities under of this Collaboration Agreement may be considered as technically essential, except as otherwise agreed between the Licensor Party and the Licensee Party.

"Access Rights" means, for each 5G Action, the right to use 5G Action Results under the terms and conditions laid down in the Grant Agreement for the 5G Action within which the 5G Action Results were created, but excluding the right to use any of a Party's 5G Action Background, or any IPR created by a Party or one of its Affiliates in parallel to and independent of its 5G Action.

**"5G Action"** means an Action funded under the Horizon 2020 5G Program and to which the following applies:

- (a) the optional clause Article 41.4 of the model Grant Agreement is included in the final Grant Agreement for that Action, and/or
- (b) at least one of the beneficiaries to the Actions listed at Annex 2 hereto agrees, to sign this 5G Collaboration Agreement.

**"5G Action Coordinator"** means the Coordinator of a particular 5G Action.

**"5G Action Technical Manager"** means the person, as the case may be, designated as the Technical Manager in a particular 5G Action.

**"5G Grant Agreement"** means, for each 5G Action, the Grant Agreement that applies to that 5G Action.

"Licensor" means the Party which is granting the Access Rights under this Collaboration Agreement.

"Licensee" means the Party which is receiving the Access Rights under this Collaboration Agreement.

"SRIA" means the Strategic Research and Innovation Agenda of the Net!Works European Technology Platform (http://www.networks-etp.eu/).

#### 2. PURPOSE OF THIS AGREEMENT

- 2.1 The Parties have agreed to put in place this Collaboration Agreement for the following purposes:
  - (a) to enable Parties inter se to comply with optional Clause 41.4 of model Grant Agreement, whether or not it is included in the final Grant Agreement for their 5G Action, , and
  - (b) (to the extent relevant) to implement the 5G Initiative,
- 2.2 For the avoidance of doubt, nothing in this Collaboration Agreement shall be construed to prevent all Parties to a particular 5G Action from agreeing (in the 5G Consortium Agreement of their 5G Action) to additional, supplementing Access Rights (including conditions therefore) or confidentiality obligations, provided that such obligations shall apply only to the Parties of that 5G Action and their participation in that 5G Action.
- 2.3 For the avoidance of doubt the terms of each 5G Consortium Agreement (and not the terms of this Collaboration Agreement) will govern all terms that apply between Parties to the same 5G Action. This Collaboration Agreement only deals with terms that apply between Parties to different 5G Actions.

#### 3. GOVERNANCE OF THE COOPERATION

#### Key Principles:

- 3.1 The key principles for the governance under the Collaboration Agreement are:
  - (a) on the one hand support the goals of openness, transparency and representativeness and on the other hand ensure an efficient management with minimized overhead, and
  - (b) a collaborative approach by respecting the legitimate interests of all Parties, which excludes top-down decision making by a small number of organisations on behalf of the others.

# Steering Board:

- 3.2 The Steering Board will comprise of each 5G Action Coordinator (if it is a Party), a representative of the 5G Infrastructure Association, and a representative of the European Commission as observer. Its role is to provide guidance on the overall partnership initiative, including:
  - (a) the cooperation between Actions and joint events to promote results of the Actions, concepts and systems,
  - (b) recommend on collaboration and synchronisation of activities, including but not limited to on management of outcomes, common approaches towards standardisation SME involvement, links with regulatory and policy activities, and commonly shared dissemination and awareness raising activities.
- 3.3 The Steering Board will be created (to insert specific timing) The Steering Board will, as soon as reasonably practical from the date of its establishment, agree upon an internal regulation, dealing with its internal organization, and procedures, all to be carried out taking into account the key principles of article 3.1 and all decisions to be carried out in accordance with the terms of this Collaboration Agreement.

# **Technology Board:**

- 3.4 The Technology Board will comprise of each 5G Action Technical Manager, a representative of the 5G Infrastructure Association, and a representative of the European Commission as observer. The Technology Board will:
  - (a) organise technical meetings and workshops, and establish calls within the organisation for research proposals to address research gaps.

The Technology Board will be created (insert specific date). The Technology Board will, as soon as reasonably practical, agree upon an internal regulation, dealing with its internal organization, and procedures, the internal regulation will take into account the key principles of article 3.1. and all decision to be carried out in accordance with the terms of this Collaboration Agreement.

# **Working Groups:**

3.5 The Steering Board may decide to set up Working Groups on a need basis for activities under the 5G Initiative which require the involvement of more than one Action. The Steering Board will decide the composition and activities of any such Working Groups. If established, any such Working Groups will work under the direction of, and will report to, the Steering Board, it being understood that the so called "KPI related working groups" referred to in the PPP Contractual Arrangement referred to in the Preamble should fall under the responsibility of the 5G Infrastructure Association.

#### 4. IPR and ACCESS RIGHTS

- 4.1 This Collaboration Agreement deals with the grant of Access Rights by a Party of its 5G Action Results, to Parties of other 5G Actions, and general cooperation between 5G Actions. In the event Parties from different 5G Actions agree in writing, at their sole discretion, to participate in joint common technical research collaboration, or to otherwise carry out activities which could result in new IPR (whether such IPR could be created solely by a Party, or created jointly with a Party from another 5G Action), such Parties may enter into a specific collaboration agreement, dealing amongst others with ownership and licenses for results created under such cross common technical research collaboration.
- 4.2 General Principles relating to Access Rights to 5G Action Results
  - all Access Rights to 5G Action Results herein are granted by one Party of a 5G Action to another Party of another (but not the same) 5G Action and are granted on a nonexclusive worldwide basis and without the right to grant sub-licenses, unless otherwise agreed upon or expressly mentioned herein;
  - (ii) other than in exceptional circumstances, no transfer costs shall be charged for the granting of Access Rights.
  - (iii) Any Party choosing to rely on any deemed grant of Access Rights pursuant to this Collaboration Agreement does so at its own risk as nothing in this Collaboration Agreement prohibits a Party or any other party seeking by whatever means it chooses to enforce its IPRs or contract or other rights if such Party or other party considers such right is not subject to such deemed grant, for example because the exercise of Access Rights is not Needed as the case may be.
  - (iv) The obligation to grant and the right to receive Access Rights under this Collaboration Agreement, unless terminated earlier or agreed otherwise by the Parties, expires three (3) years after the end of this Collaboration Agreement.
  - (v) The granting of Access Rights may be made conditional on the acceptance of specific

conditions aimed at ensuring that these rights will be used only for the intended purpose and that appropriate confidentiality obligations are in place.

# 4.3 Grants of Access Rights to 5G Action Results

- 4.3.1 Each Party ("Licensor") agrees to grant Access Rights to its 5G Action Results to each of the other Parties in other 5G Actions ("Licensee"):
  - (a) on a royalty free basis, to the extent that the Licensee Needs such Access Rights for implementing its own tasks under its own 5G Action, and
  - (b) on Fair and Reasonable Conditions, to the extent that the Licensee Needs such Access Rights for Exploiting its own 5G Action Results.

In any case the Licensee must demonstrate and substantiate the Need for the Access Rights to the specific 5G Action Results.

The Licensee shall make a written request to the Licensor from which it requires the Access Rights for Exploiting its own 5G Action Results. The written request shall identify the 5G Action Results of the Licensor and the own 5G Action Results concerned. Any such Access Rights shall only be granted upon the signature of a written agreement between the Licensee and Licensor and shall not be otherwise deemed granted.

Specific additional provisions for Access Rights to Software:

Parties' Access Rights to Software (i) do not include any right to receive source code or object code ported to a certain hardware platform or any right to receive respective Software documentation in any particular form or detail, and (ii) apply only to object code as generated in the 5G Action concerned by the Party granting the Access Rights.

- 4.3.2 For the avoidance of doubt, no Access Rights are granted between Parties under 5G Action Background.
- 4.3.3 Each Party will, through its 5G Action Coordinator, and subject to the confidentiality obligations existing under the individual 5G Actions, share with the other 5G Actions, the technical reports created by it within its 5G Action, as required by Article 20.3 and Article 20.4 of Grant Agreement, but subject always to the confidentiality obligations in Article 36 of Grant Agreement. Each Party will, through its 5G Action Coordinator, share with THE 5 G INFRA-STRUCTURE Association the relevant information to allow THE 5 G INFRASTRUCTURE Association to comply with its obligations under the PPP Contractual Arrangement regarding Key Performance Indicators or KPI's, subject to the confidentiality provions of this Collaboration Agreement. The KPI's are further described in Annex 3 to this Collaboration Agreement.

# 4.4 Access Rights to 5G Action Results for Affiliates

(i) Each Party agrees to grant Access Rights to its 5G Action Results to any Affiliate of a Party in another 5G Action as if such Affiliate was a Party, and subject to the condition that such Affiliate shall fulfill all confidentiality obligations towards the other Parties as if such Affiliate was a Party to the Collaboration Agreement. Access Rights granted to any such Affiliate are subject to the continuation of the Access Rights of the Party of which it is an Affiliate, and shall automatically terminate upon termination of the Access Rights granted to such Party. Further, if an Affiliate fails in any material respect to comply with the undertaking given by it as above, and fails to rectify the non-compliance after being given a reasonable opportunity to do so, all Access Rights granted to it based upon that undertaking shall terminate.

# 4.5 Inability to grant Access Rights due to third parties' rights

When a Party is unable to grant Access Rights which it reasonably believes that another Party will require under Section 4.3.1, or when the granting of such Access Rights is subject to any limitations or any restrictions which might substantially affect the terms and conditions of the granting of such Access Rights, it will promptly notify in writing such other Party.

#### 4.6 Have made rights

Access Rights for Exploitation include the right of Indirect Utilization as such term is defined in this Collaboration Agreement

#### 4.7 Confidentiality

# 4.7.1 Period of confidentiality

For any Confidential Information the period of confidentiality shall be five (5) years from the date of disclosure ("Confidentiality Period").

# 4.7.2 Confidentiality obligations

Each Party undertakes that:

- it will not during the Confidentiality Period of any Confidential Information use such Confidential Information for any purpose other than in accordance with the terms of the Collaboration Agreement; and
- it will during the Confidentiality Period use the same standard of care to protect the Confidential Information as it does with confidential information of its own (and not less than reasonable care) and not disclose the same to any third party without the prior written consent of such owner in each case. Third party as stated in the foregoing sentence does not include, and does not prevent (i) disclosure to Affiliates in accordance with Section 4.4 above and (ii) disclosure to any external expert outside any 5G Action invited to the Technology Board above or a Working Group, provided that such expert or member has entered into confidentiality obligations substantially similar to those included in this Agreement prior to such disclosure; and
- it will during the Confidentiality Period only communicate Confidential Information on a need to know basis to another Party, an Affiliate or an expert to the Technology Board or Advisory Board member (on terms as stated above); and
- it will during the term of the Collaboration Agreement, when communicating with any Party, an Affiliate, expert to the Technology Board or a Working Group member as stated above, strictly comply with any procedures for marking and handling of documents as decided by the Steering Board.

provided always that such agreement and undertaking shall not extend to any Confidential Information which the receiving Party can show:

- a) was at the time of disclosure to or retrieval by the receiving Party published or otherwise generally available to the public, or
- has after disclosure to or retrieval by the receiving Party been published or become generally available to the public other than through any act or omission on the part of the receiving Party or its Affiliates, or

- was already in the possession of the receiving Party, without any restrictions on disclosure, at the time of disclosure to or retrieval by the receiving Party or its Affiliates, or
- d) was rightfully received by a receiving Party or its Affiliates) from others, including Affiliates, without any undertaking of confidentiality, or
- e) was developed by the receiving Party or its Affiliates independently of the performance of this Collaboration Agreement.

Notwithstanding anything to the contrary, nothing in this Section 4.7 shall be understood to grant or constitute any direct or implied license to any copyright or patent, and each Party (and its Affiliates) shall retain the right to enforce its and their copyright and patents against any other Party in relation to the use, distribution or marketing of any hardware, software products or service.

Nothing in this Agreement shall prohibit or restrict any Party's right to develop, make, use, market, license or distribute technology or services similar to or competitive with those disclosed in any Confidential Information of another Party as long as it does thereby not breach this Agreement. Each Party acknowledges that the other Parties may already possess or have developed technology or services similar to or competitive with those disclosed in the Confidential Information of a Party.

#### 4.7.3 Communication of information

For the avoidance of doubt, it is stated that the confidentiality obligations under this Collaboration Agreement shall not be interpreted as to prevent the communication of Confidential Information

- as is needed to be communicated to comply with mandatory applicable laws or regulations or a court or administrative order provided that insofar as reasonably possible the complying Party shall, to the extent permitted by law, prior to such communication, inform the owner of the Confidential Information of such possible need and shall, as far as is reasonably possible and to the extent legally possible, comply with such owner's reasonable instructions designed to protect the confidentiality of such Confidential Information;
- subject to Section 4.7. 4 to any Affiliate or to any other third party (including the Commission) insofar as strictly needed for the proper carrying out of the Collaboration Agreement;
- to any third party as strictly needed for technical reasons and insofar as needed for the of Access Rights granted hereunder.

# 4.7.4 Communication to third parties

With respect to any permitted communication of any Confidential Information referred to in the previous Section 4.7.3 by the receiving Party to a third party (including but not limited to its Affiliates and subcontractors) the receiving Party will: (i) ensure that appropriate arrangements are in place prior to any such disclosure, to protect the Confidential Information to a similar degree as provided in Section 4.7.2; and (ii) use reasonable endeavors to ensure compliance with such arrangements.

# 5. LIABILITY:

#### 5.1 No warranties

In respect of any information or materials (including 5G Action Results) supplied by any Party to a Party in another 5G Action under this Collaboration Agreement, no warranty or representation of any kind is made, given or implied as to the sufficiency or fitness for purpose nor as to the absence of any infringement of any proprietary rights of third parties.

#### Therefore,

- the recipient Party shall in all cases be entirely and solely liable for the use to which it puts such information and materials, and
- no Party granting Access Rights shall be liable vis-à-vis any of the other Parties in case of infringement of proprietary rights of a third party resulting from any other Party (or its Affiliated Entities) exercising its Access Rights.

### 5.2 Limitations of liability

# 5.2.1 Liability: general

Subject to the following provisions of this Section 5.2, the general provisions of Belgian law governing liability (including both contractual and non-contractual liability) shall apply to any claim between the Parties for loss or damage caused by a Party, its employees, agents and Subcontractors and arising in connection with this Collaboration Agreement.

#### 5.2.2 Excluded liabilities

To the extent permissible under applicable law and except as otherwise provided specifically below in this Section 5.2.2, in no event shall any Party be liable to another Party for loss or damage caused by a Party, its employees, agents and subcontractors in connection with this Collaboration Agreement for any of the following, however caused or arising, on any theory of liability, and even if such Party was informed or aware of the possibility thereof:

- loss of profits, revenue, income, interest, savings, production and business opportunities;
- lost contracts, goodwill, and anticipated savings;
- loss of or damage to reputation or to data;
- costs of recall of products; or
- any type of indirect, incidental, punitive, special or consequential loss or damage.

# 5.2.3 Financial limit on liability

The total aggregate liability of each Party to all of the other Parties collectively in respect of any and all claims (including for loss or damage caused by a Party, its employees, agents and Subcontractors) rising in connection with this Collaboration Agreement shall not exceed 200.000 Euro.

5.2.4 The exclusions and limitations stated above shall not apply in respect of any act or omission caused by the gross negligence or willful act of a Party, its directors, employees, agents and Subcontractors.

# 5.2.5 Damage caused to third parties

Each Party shall be solely liable for any loss, damage or injury to third parties resulting from the performance of the said Party's obligations by it or on its behalf under this Collaboration Agreement or from its use of Results or Background.

#### 6. GOVERNING LAW AND DISPUTES

- 6.1 This Agreement shall be construed according to and governed by the laws of Belgium, excluding its conflict of law provisions.
- 6.2 All disputes or differences directly arising in connection with this Collaboration Agreement, including any dispute in which a Party alleges that another Party has abused its power, which cannot be settled amicably, shall be subject to the jurisdiction of the competent court in Brussels. Such court shall have jurisdiction in the event of a counterclaim made by the defendant in the legal action.
- 6.3 The Parties concerned may instead elect unanimously to seek to resolve by mediation any dispute or difference arising in connection with this Collaboration Agreement and which cannot be settled amicably by them.
- 6.4 Notwithstanding the foregoing, any Party shall be free to seek interim injunctive relief or any other temporary measures before any applicable competent court or tribunal, wherever located, in order to seek to prevent or restrain any (i) infringement of its or their IPRs and/or (ii) unauthorized disclosure of Confidential Information.

#### 7 MISCELLANEOUS

# 7.1 Miscellaneous

### 7.1.1 No partnership or agency

Nothing in this Collaboration Agreement shall create a partnership or agency between any or all of the Parties.

# 7.1.2 No implied license

Except as explicitly granted in this Collaboration Agreement, no license, immunity, or other right is granted or assigned under this Collaboration Agreement, either directly or indirectly, by implication, estoppel or otherwise, to any Party or any of its Affiliates with respect to any IPR of the other Parties or their Affiliates.

# 7.1.3 Enforcement of Intellectual Property Rights

No Party shall have any obligation under this Collaboration Agreement to institute any action or suit against any third party for infringement of any IPR to which it has granted a license hereunder, or to defend any action or suit brought by any third party which challenges or concerns the validity of any such IPR. In addition, no Party to which any other Party has granted an IPR license under this Collaboration Agreement shall have any right to institute any action or suit against third parties for infringement of any such IPR.

# 7.1.4 Assignment and amendments

Except as otherwise provided under this Collaboration Agreement, no Party shall, without the prior written consent of the other Parties, assign or otherwise transfer partially or totally any of its rights and obligations under this Collaboration Agreement. Such consent shall not be unreasonably conditioned, withheld or delayed when such assignment or transfer is in favor of another Party or an Affiliate of the assigning Party or one of the other Parties. Such consent shall be deemed granted where a Party has obtained the agreement of the Parties to its own 5G Action to such an assignment, and (if required) consent of the Commission.

Amendments and modifications to the text of this Collaboration Agreement require a separate written agreement to be signed between all Parties.

# 7.2 Term and Termination

# 7.2.1 Term

This Collaboration Agreement shall come into force for each Party as from that Party's Accession Date.

This Collaboration Agreement shall continue in full force and effect until the termination, completion or expiry of the last 5G Action, or unless terminated in accordance with this Section 7.2.

# 7.2.2 Withdrawal/Early Termination

After signature of this Collaboration Agreement, no Party shall be entitled to voluntarily withdraw from this Collaboration Agreement, except as set forth below.

In the event that (i) a Party withdraws from the Grant Agreements of all 5G Actions in which such Party has participated, as well as all of the corresponding 5G Consortium Agreements or (ii) such Party's participation to the Grant Agreement of all 5G Actions as well as all of the corresponding 5G Consortium Agreements is terminated early, each in accordance with the applicable terms of the relevant 5G Consortium Agreements and Grant Agreements, then the Party concerned will be deemed to no longer be a party to this Collaboration Agreement, with effect from the effective date of withdrawal or termination from the last aforementioned Grant Agreement and Consortium Agreement.

### 7.2.3 General provisions relating to termination or withdrawal

- (i) Subject to article 4.2 (iv)The provisions of this Collaboration Agreement shall survive any expiration or termination or withdrawal to the extent needed to enable the Parties to pursue the remedies and benefits provided for in this Collaboration Agreement.
- (ii) Save in a case due to force majeure, in the event of a material breach by a Party (the "Defaulting Party") of its obligations under this Collaboration Agreement (i) which is irremediable or (ii) which is not remedied within one (1) month of the date of receipt of written notice from the chairman of the Steering Board, such notice requiring that the default be remedied, then the Steering Board represented by its chairman may terminate this Collaboration Agreement with respect to the Defaulting Party concerned by written notice.

Without prejudice to the provisions of Article 5, such termination shall become effective with respect to such Defaulting Party as of the date of receipt of such notice.

(iii) For the avoidance of doubt, termination (howsoever arising) or withdrawal from this Collaboration Agreement shall not affect any rights or obligations incurred under this Collaboration Agreement in respect of that part of the withdrawing/terminated Party's activities under this Collaboration Agreement which has been carried out (or which should have been carried out) prior to the date of the termination or withdrawal unless otherwise agreed in this Collaboration Agreement. A withdrawing or terminated Party (however arising) shall continue to grant Access Rights pursuant to this Collaboration Agreement in respect of its Results existing at the effective date of its withdrawal or termination (as the case may be). A withdrawing or terminated Party (however arising) is entitled to request Access Rights to Results under the terms of this Collaboration Agreement up to one year following the effective date of such withdrawal or termination (as the case may be), but only in respect of Results in existence at the effective date of such withdrawal or termination.

# 7.3 Formal notices

Any formal notice to be given under this Collaboration Agreement shall be in writing to the addresses and recipients listed in Annex 1 Part 3 of this Collaboration Agreement, or to such other address and recipient as a Party may designate in respect of itself by written notice to the others. Notices shall be deemed to have been served when personally delivered or (if transmitted by facsimile, email or otherwise) when transmitted, provided that such transmission is confirmed by receipt of a successful transmission report and confirmed by mail, email.

### 7.4 Severability

Should any provision of this CA become invalid, illegal or unenforceable, it shall not affect the validity of the remaining provisions of this CA. In such a case, the Parties concerned shall be entitled to request that a valid and practicable provision be negotiated which fulfils the purpose of the original provision.

# 7.5. Accession

All Parties shall accede this Collaboration Agreement by signing the Declaration of Accession and submitting it to the attention of THE 5G INFRASTRUCTURE Association, c/o Anne De Moor, legal counsel, e-mail: anne.demoor@5g-ppp.eu.

The signature of a representative of a Party received by electronic image transmission (such as portable document format) will constitute an original signature.

The respective coordinator for each 5G Action shall send a copy of all the signed Declaration of Accession to each Party in that 5G Action within sixty (60) days of receipt.

Delivery of the signed Declaration of Accession by electronic image transmission shall have the same force and effect as delivery of the original Declaration of Accession.

#### Annex 1 - Declaration of Accession

Part 1:

[Name of Party (legal entity)], represented for the purpose hereof by [name and title of person written out in full (person legally authorised to act on behalf of the legal entity)] acting as its legal authorised representative, is a beneficiary to a 5G Action (as defined in the Collaboration Agreement) and hereby consents to become a Party to the Collaboration Agreement and accepts all the rights and obligations of a Party as set out therein, with effect from the date this Declaration is acknowledged as received duly completed by ...

[Name of Party (legal entity)] [PIC NUMBER] hereby submits the following information to be included in Annex 3:

Party's Registered Name: [...]

Party's Postal Address: [...]

Name and position title of identified recipient: [...]

Telephone Number: +[xx yyy zzzzzzzz]
Fax Number: +[xx yyy zzzzzzzzz]

Part 2 List of Legal Entities, referred to in definition of "Affiliate".

[insert]

Part 3: Address for the Purpose of Notices under Section 7.3.4

[insert]

Signed

Dated

# Annex 2 – List of 5G Actions

# The 5G Actions as of 1/7/2015 are:

	Name	Timeplan: M1= July 2015	
		$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	M36
CSA	EURO 5G	Euro-5G	
R&I	5G-NORMA	5G NOvel Radio Multiservice adaptive network Architecture	
R&I	5G-Xhaul	Dynamically Reconfigurable Optical-Wireless Backhaul/Fronthaul with Cognitive Control Plane for Small Cells and Cloud-RANs	
R&I	5G-ENSURE	5G security requirements	
R&I	CHARISMA	Converged Heterogeneous Advanced 5G Cloud-RAN Architecture for Intelligent and Secure Media Access	
R&I	COGNET	Building an Intelligent System of Insights and Action for 5G Network Management	
R&I	COHERENT	Coordinated control and spectrum management for 5G heterogeneous radio access networks	
R&I	FANTASTIC 5G	Flexible Air iNTerfAce for Scalable service delivery wiThin wireless Communication networks of the 5th Generation	
R&I	Flex5Gware	Flexible and efficient hardware/software platforms for 5G network elements and devices	
R&I	METIS II	Mobile and wireless communications Enablers for Twenty-twenty (2020) Information Society-II	
R&I	mmMAGIC	Millimetre-Wave Based Mobile Radio Access Network for Fifth Generation Integrated Communications	
R&I	SELFNET	SELFNET - FRAMEWORK FOR SELF-ORGANIZED NETWORK MANAGEMENT IN VIRTUALIZED AND SOFTWARE DEFINED NETWORKS	
R&I	SESAME	Small cElls coordinAtion for Multi-tenancy and Edge services	
R&I	SPEED-5G	quality of Service Provision and capacity Expansion through Extended-DSA for 5G	
R&I	SUPERFLUIDITY	Superfluidity: a super-fluid, cloud-native, converged edge system	
R&I	XHAUL	Xhaul: The 5G Integrated fronthaul/backhaul	
ı	5GEx	5G Exchange	
I	SONATA	Service Programing and Orchestration for Virtualized Software Networks	
I	VirtuWind	Virtual and programmable industrial network prototype deployed in operational Wind park	

And the definitive list will be updated from time to time and may be found at https://5g-ppp.eu/5g-ppp-phase-1-projects/

Annex 3 - KPIs

# 1. 5G-PPP KPIs:

# (a) Performance KPIs

P1	Providing 1000 times higher wireless area capacity and more varied service capabilities compared to 2010.
P2	Saving up to 90% of energy per service provided.
Р3	Reducing the average service creation time cycle from 90 hours to 90 minutes.
P4	Creating a secure, reliable and dependable Internet with a "zero perceived" downtime for services provision.
P5	Facilitating very dense deployments of wireless communication links to connect over 7 trillion wireless devices serving over 7 billion people.
Р6	Enabling advanced user controlled privacy.

# (b) Societal KPIs

S1	Enabling advanced User controlled privacy;
S2	Reduction of energy consumption per service up to 90% (as compared to 2010);
S3	European availability of a competitive industrial offer for 5G systems and technologies;
S4	Stimulation of new economically-viable services of high societal value like U-HDTV and M2M applications;
\$5	Establishment and availability of 5G skills development curricula (in partnership with the EIT).

# (c) Business Related KPIs

B1	Leverage effect of EU research and innovation funding in terms of private investment in R&D for 5G systems in the order of 5 to 10 times;
B2	Target SME participation under this initiative commensurate with an allocation of 20% of the total public funding;
В3	Reach a global market share for 5G equipment & services delivered by European headquartered ICT companies at, or above, the reported 2011 level of 43% global market share in communication infrastructure.

# 2. 5G-PPP Work Groups And 5G-PPP Joint Activities

WG1	5G Vision & Societal perspective
WG2	Enabling 5G via pre-standards
WG3	SME support
WG4	Spectrum for 5G
JA1	Community building and PR (Public Relations)
JA2	5G International cooperation
JA3	KPI monitoring and management

[end of document]