

**OPENAIRINTERFACE  
SOFTWARE  
ALLIANCE**

# The First OAI North America Workshop

**Nokia Bell Labs  
Murray Hill NJ**

**25-27 June 2019**



# Panel Discussion

---

How do the OAI Public License V1.1 and other licenses influence use of open source in industry's use cases

1st OpenAirInterface North America Workshop, NJ, June 26, 2019

Jimmy Ahlberg (*Ericsson*)

Barry Freedman (*Nokia*)

Doug Knisely (*Qualcomm*)

Raymond Knopp (*EURECOM*)

Matthew Osborne (*InterDigital*)

moderated by: Irfan Ghauri (*OSA*)



# Panel Brief

“Open source” software communities have now been implementing Radio Access Technologies software for a number of years. Initially introduced by academics for academic and collaborative research and demo use cases, these open source projects have of late also attracted interest from industry. Recent experience shows that when patented technology, 3GPP standardised technology in the case of telecoms, is put out in open source, it creates a number of challenges for all parties: the organization managing the community, contributors to the open source projects, as well as for potential users of the code. The license under which the code is distributed then becomes a key consideration.

At this panel, we would like to address the main issues that are faced when components of these software packages are used in research as well as industrial uses for either prototyping, demoing/marketing or commercial goals. We would like to understand how licenses under which code is distributed by these community projects compare with mainstream open source licenses, among which permissive ones like BSD and ApacheV2.0 or non-permissive ones like GPL and its variants. We would also like to ask panel speakers about their views on copyright and patent clauses in these licenses as well as what is meant precisely when use in research and non-commercial settings is stipulated in these texts. The discussion will also address specifics of the OAI Public License V1.1.

# Disclaimer

- *We would like to emphasize that this panel discussion is being held in at this open, public event with the goal of increasing awareness and helping the community understand some of the issues and considerations around the license under which open source code is generally distributed. There is no confidentiality or other organizational policies from any organization that apply to this discussion.*
- *While the panel may at times discuss license terms and other similar matters, none of the panel speakers is in no way providing “legal advice”, and the views expressed here today at this panel are that of panellists own, and do not necessarily represent the official viewpoints of their employers.*

**Material from Doug Knisely**

OAI North American Workshop  
26 June 2019

---

# Benefits of Open Source and Standards Cooperation

---

QUALCOMM®

Doug Knisely  
[dknisely@qti.qualcomm.com](mailto:dknisely@qti.qualcomm.com)



# Objectives for Integrating Open Source and Standards

- Best of both worlds:

## OS Project Strengths

- Agility
- Processes
- Tools
- Precision/interop/testing
- Quick path to commercialization



## SDO Strengths

- Legal & patent policies
- Discipline
- Due process
- Safe harbor
- Consensus building

- The IPR Policy should *always* be designed to encourage the best contributions
  - Commercializable, scalable, portable, and flexible code, not toy code
  - Solid framework based on quality architecture and design
  - Rich functionality (detail and full functionality coverage)
  - Integrated and tested
  - Reflective of consensus functional requirements based on comprehensive use cases

---

# Open Source Definition

## Copyright Rights

- The Open Source Definition is at [www.opensource.org](http://www.opensource.org)
- License must grant broad copyright rights
  - Copy
  - Modify
  - Distribute
- License terms must not favor or disfavor:
  - Persons/Groups
  - Fields of endeavor
  - Specific products
- Patent license terms can always be incrementally added (and many approved licenses have them) but are **not part of the definition**

# Key OSS IPR Policy Objectives

- In the telecom world, patents licensing rights are handled by standards (specifications) created by SDOs
  - E.g., SHALL, SHOULD, MAY
- OS licenses should ensure straightforward Copyright protections (contributors and users)
- Conflating patent licensing issues with OS code is problematic
  - Where are the applicable patent-related claims in code?
- Acceptance of contributions from members:
  - Copyright handling
    - Protection of contributors
    - Fewer code encumbrances downstream
  - Protection of FRAND licensing protection for IPR
  - Access to due process during OSS work
- Ability to release OSS work products externally:
  - Acceptable *downstream* license (usually a common established OSS license)
  - Ability for code to be integrated into other OSS projects and with other code
  - Limitation of liability or IPR compromise *back* to SDO and SDO members (*upstream*)

---

# Objectives when Selecting an SDO IPR Policy and Open Source License

- The selected open source license should work cooperatively with the IPR policies applicable to the underlying standards
- Most telecom industry standards are based on FRAND principles
- There are many ways for **FRAND to work with open source** if thoughtfully approached
  - Permissive, copyright license
  - Copyright assignments
  - Unilateral SDO statements on intention and interpretation

---

# Qualcomm Preferences

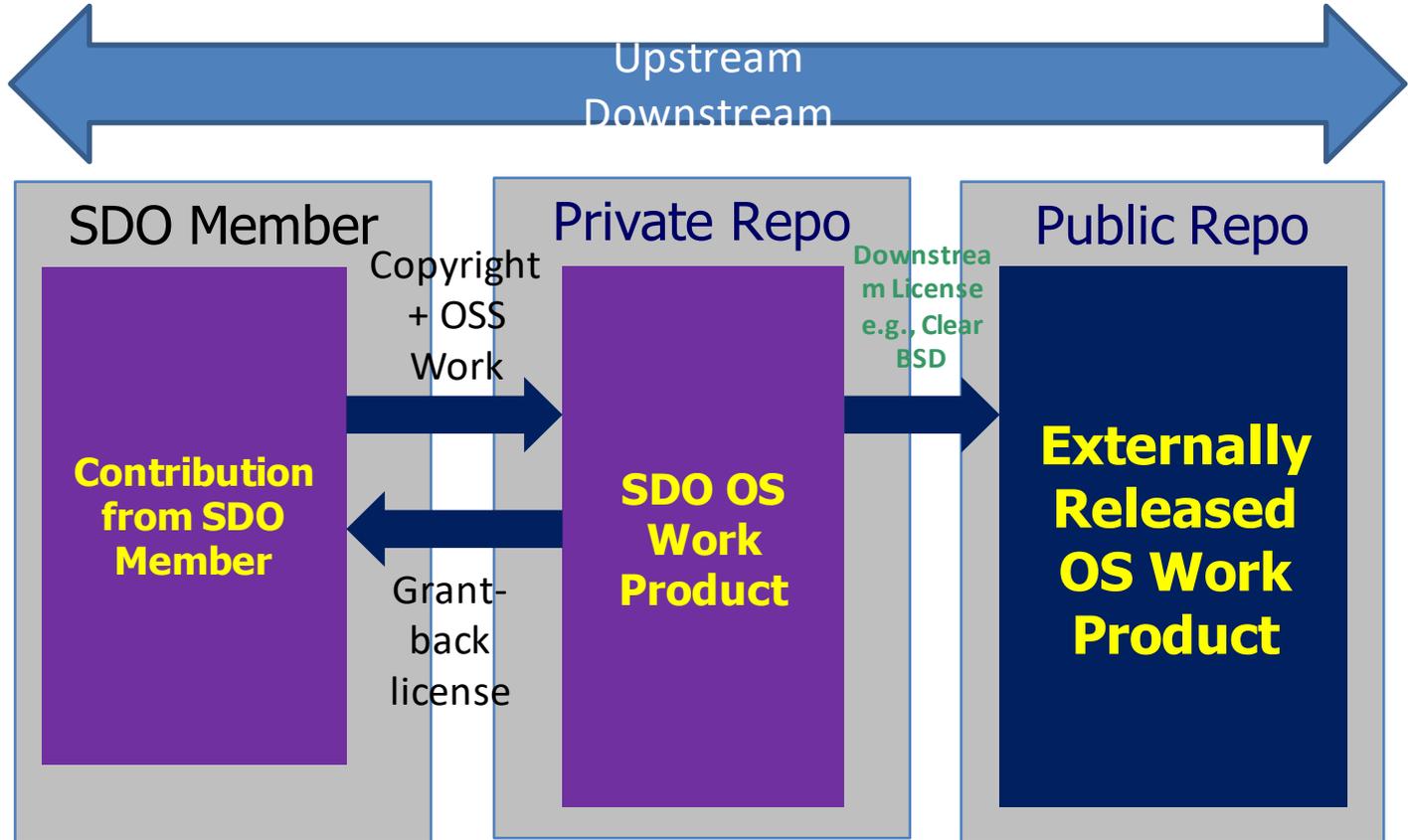
- Qualcomm recommends proven solutions:
  - Clear BSD license\* for copyright (<https://choosealicense.com/licenses/bsd-3-clause-clear/>) + reference to SDO IPR Policy (similar to successful BBF/OMA/ATIS licenses)
    - Understandable, accepted OS license base; compatible with upstreaming
    - Industry proven
  - OAI license
    - Vetted and adopted by many operators and vendors
    - Based on understandable Apache 2 language with FRAND compatible licensing

\* Clear BSD, in addition to several other licenses including BSD 3 Clause and MIT, are reasonable base licenses, subject for further discussion.

# Precedents for Successful Implementations of this Policy

- OSS IPR policies based on a similar BSD license version (BSD 3 Clause) and similar OSS development processes have already been adopted in other major SDOs; other base licenses such as MIT are also suitable, if preferred
  - Broadband Forum
  - Open Mobile Alliance (OMA)
  - ATIS
- Similar goals and target work products
- Under consideration in other groups

# Preferred SDO OSS Process



Submission form  
 Copyright assignment  
     Transfer to SDO *at time of publication*  
 Copyright Grant-back License  
     Substantial rights to use the work product  
     ensured to contributor  
 Copyright transfer only, not an IPR transfer

At publication of OSS Work Product:  
 Release to public repo (e.g., Github)  
 Standard Clear BSD license  
 © SDO (not the contributing company)  
 License for copyright only. Reference to SDO IPR  
 Policy for patent licensing terms.  
 Upstream exposure license claims limited to SDO  
     e.g. A claim that IPR rights were conveyed by the OSS  
 license

# Clear BSD License

<https://choosealicense.com/licenses/bsd-3-clause-clear/>

Copyright (c) [year] [fullname]

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted (subject to the limitations in the disclaimer below) provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

# Released OSS Code Markings

- Marked as required by the Clear BSD License
- Include the following statements:

*The above license is used as a license under copyright only. Please reference the SDO IPR Policy for patent licensing terms.*

*Any moral rights which are necessary to exercise under the above license grant are also deemed granted under this license.*

# Final Template Text

Copyright (c) [year] [fullname]

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted (subject to the limitations in the disclaimer below) provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of the copyright holder nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---

The above license is used as a license under copyright only. Please reference the SDO IPR Policy for patent licensing terms.

Any moral rights which are necessary to exercise under the above license grant are also deemed granted under this license.

---

# Thank you

Follow us  :

For more information on Qualcomm, visit us at:  
[www.qualcomm.com](http://www.qualcomm.com) & [www.qualcomm.com/blog](http://www.qualcomm.com/blog)

Qualcomm is a trademark of Qualcomm Incorporated, registered in the United States and other countries.  
Other products and brand names may be trademarks or registered trademarks of their respective owners



**Material from Barry Freedman**

# Popular Licenses (according to OSI\*)

The following OSI-approved licenses are popular, widely used, or have strong communities:

License	** <b>Express Patent License?</b>
<a href="#">Apache License 2.0</a>	contribution alone and in combination with “Work”
<a href="#">BSD 3-Clause "New" or "Revised" license</a>	No
<a href="#">BSD 2-Clause "Simplified" or "FreeBSD" license</a>	No
<a href="#">GNU General Public License (GPL)</a>	V2: no* V3: yes: contributor version
<a href="#">GNU Library or "Lesser" General Public License (LGPL)</a>	Same as above
<a href="#">MIT license</a>	No
<a href="#">Mozilla Public License 2.0</a>	contribution and contributor version
<a href="#">Common Development and Distribution License</a>	For contributors: modifications alone and in Contributor Version
<a href="#">Eclipse Public License</a>	contribution alone and in combination with “Program”
BSD Clear (*not on OSI approved/popular list)	<b>NO!</b> (Patent license Disclaimer)
BSD+patent (*not on OSI approved/popular list)	<b>YES!</b> contribution alone and in combination with “Work”
OAI v1.1 (*not on OSI approved/popular list)	<b>Yes. RF</b> for study, testing and research purposes, <b>FRAND</b> for other purposes

\*\* = CONTROVERSIAL

**Material from Jimmy Ahlberg**



# Ericsson at a glance

## Business areas:

- Networks
- Digital services
- Managed services
- Technologies and new businesses

## By the numbers:

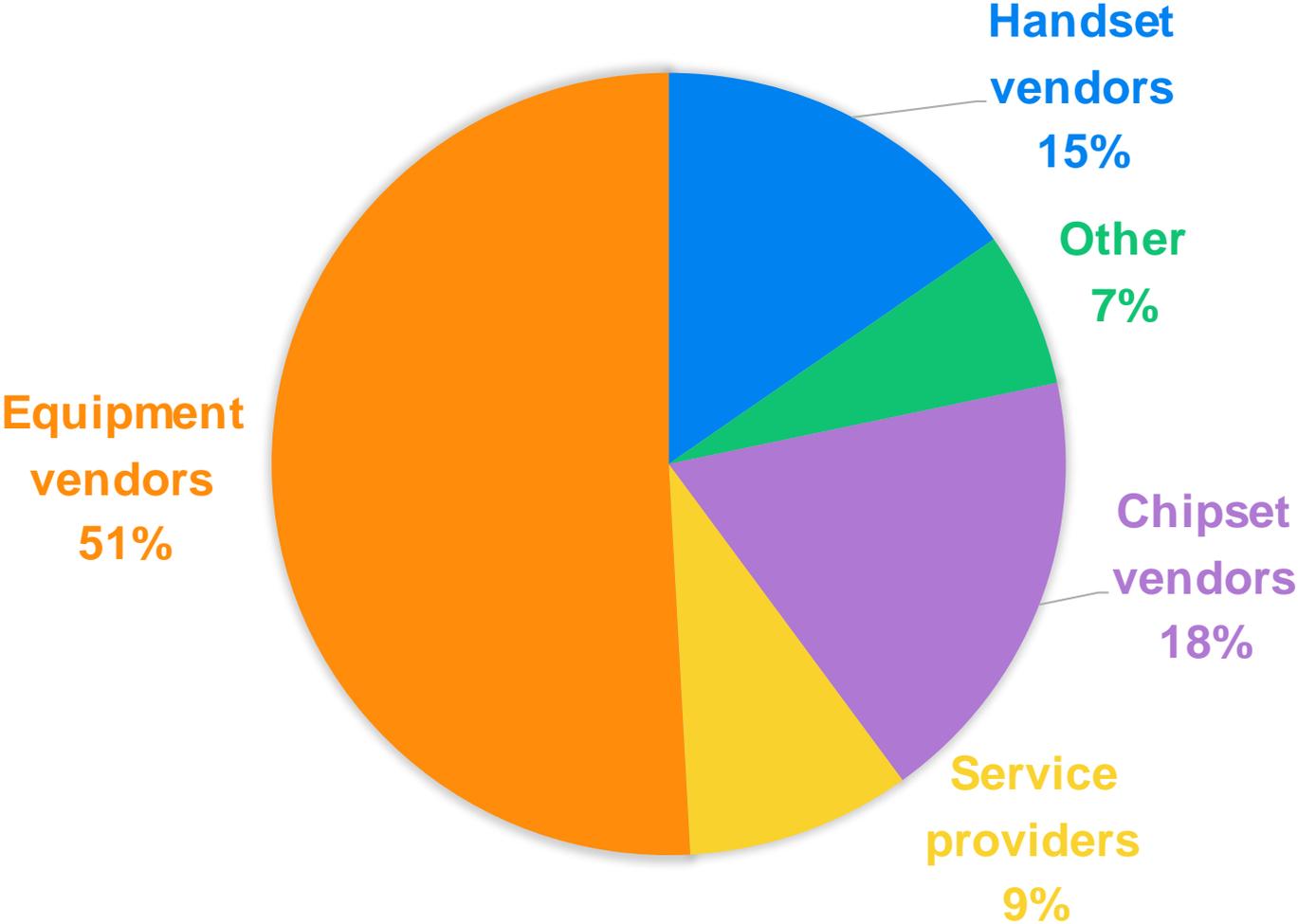
- 180+ countries
- 210.8 b. SEK in sales
- 49,000 granted patents
- 100+ Patent license agreements
- 95,400 employees (12,500 in Sweden) (24,800 in R&D)

Image: Ericsson headquarters, Kista, Sweden

Annual report 2018 figures

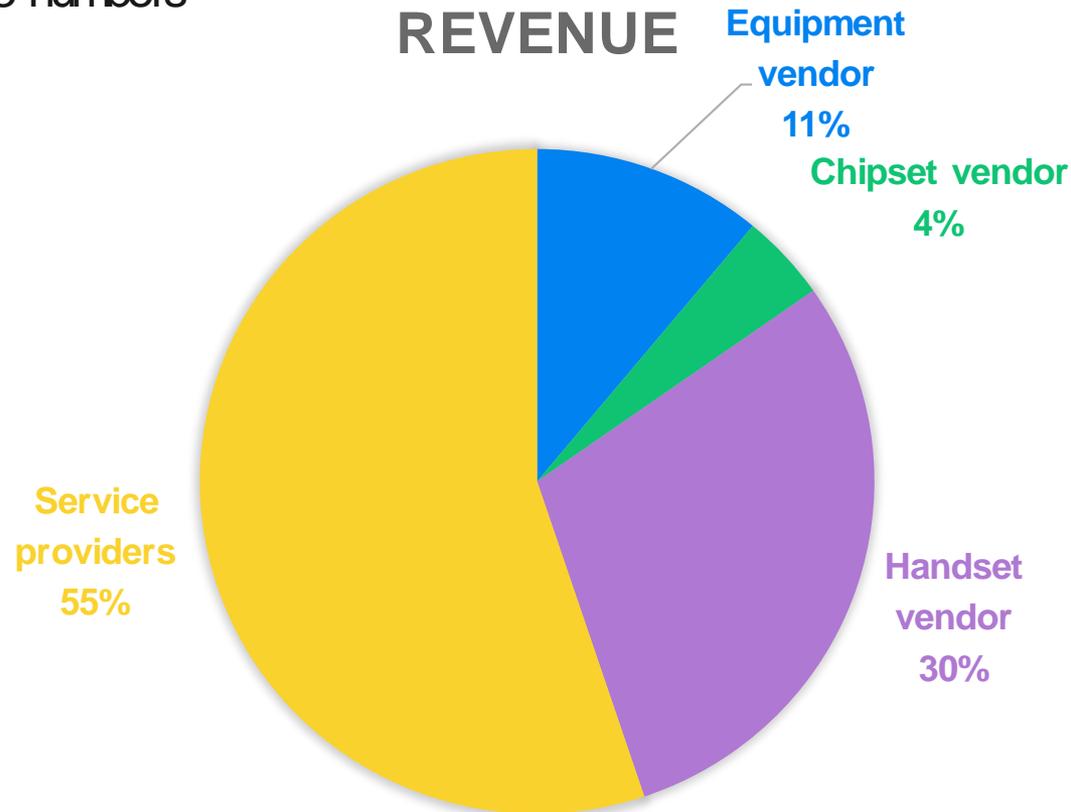
# 3GPP Contributions 2015-2018 by sector

3GPP CONTRIBUTIONS 2015-2018



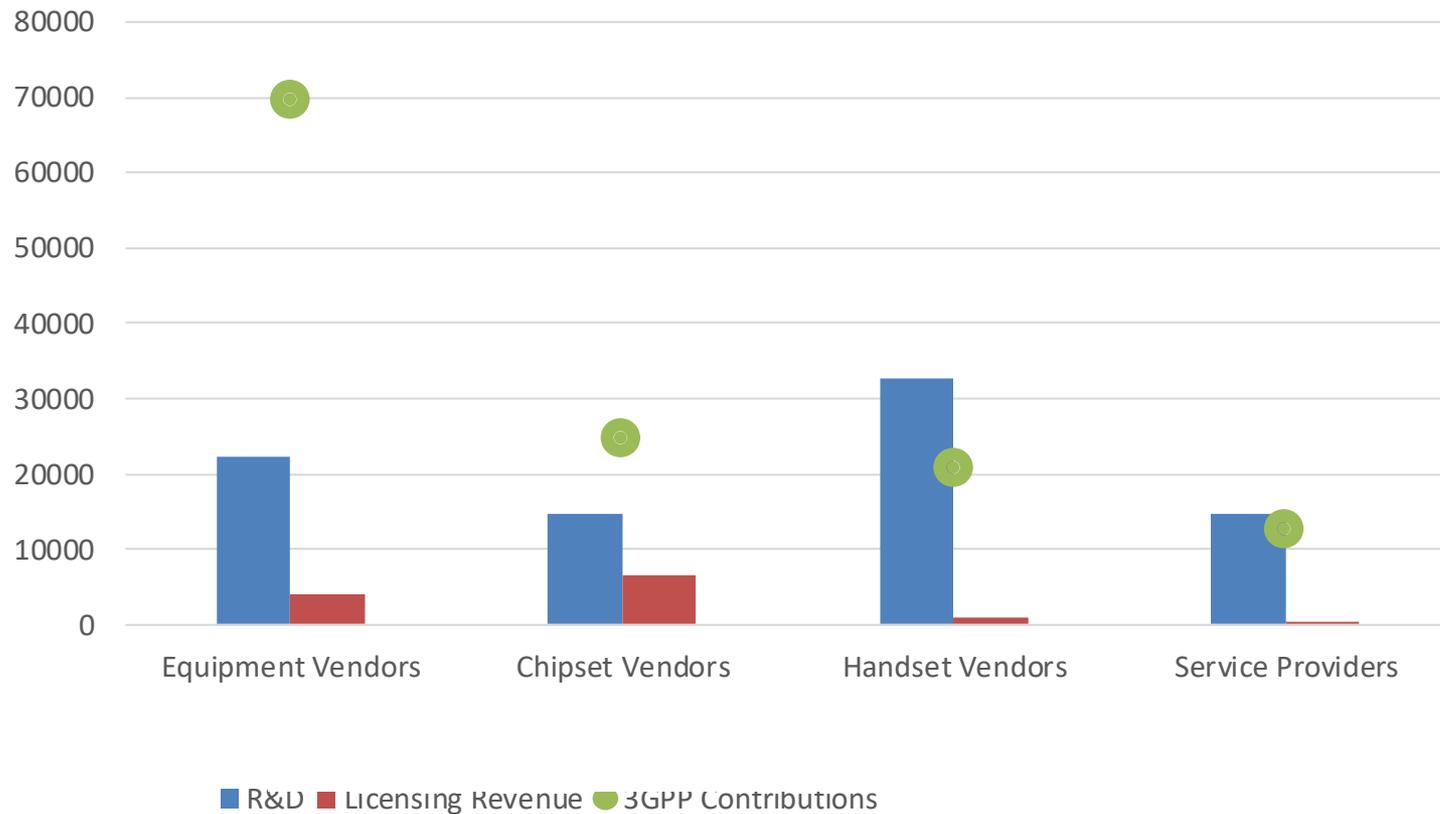
# Revenues in the Telecommunications Ecosystem

2018 numbers



- Note 1: Handset Vendors: the revenue distribution here only includes vendors actively contributing among top 100 in 3GPP. The handset revenue pie therefore do not include 15% of smartphone sales
- Note 2 Service providers: the revenue distribution here only includes Service providers actively contributing among top 100 in 3GPP.
- Note 3: Chipset vendors is dominated by Qualcomm, but also the assumed chipset sales portion at Samsung and Huawei
- Note 4. Equipment vendors are defined as having as it's business primarily supplying infrastructure equipment and services to Service providers,. This means that we do not include top line revenues from large industry players such as Siemens , Fujitsu and Panasonic despite them having some 3GPP contributions, as only a small portion of their revenues comes from telecoms

# R&D spend compared with 3GPP contributions



# Patent grant in Apache 2.0, OAI 1.1 and Clear BSD.

- **3. Grant of Patent License.** Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted.
- *If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.*

# Patent grant in Apache 2.0, OAI 1.1 and Clear BSD.

- **3.1 Grant of Patent License for study, testing and research purposes:** Subject to the terms and conditions of this License, Licensor and each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, and otherwise transfer (excluding selling) the Work, solely for study, testing and research purposes, where such license applies only to those patent claims licensable by Licensor or such Contributor that are necessarily infringed respectively by the Work and/or the said Contributor Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted (“Essential Patents”).
- **3.2 Grant of Patent License for purposes other than study and research:** For purposes other than study, testing and research, and subject to the terms and conditions of this License, You commit to be prepared to negotiate a non-exclusive, non-transferable, non-assignable license of Essential Patents with each Contributor and/or the Licensor on Fair, Reasonable and Non-Discriminatory (“FRAND”) terms and conditions for the use of the Work or Contribution(s) incorporated within the Work.
- Licensor and/or each Contributor, by submitting a Contribution, will identify any of its known Essential Patent it owns related to the Work and/or its Contribution.
- **3.3 Patent Litigation:** *If You institute patent litigation against any entity making use of the Work solely for study, testing and research purposes (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then the patent licenses granted to You under section 3.1 of this License for that Work shall terminate as of the date such litigation is filed.*

# Patent grant in Apache 2.0, OAI 1.1 and Clear BSD.

- The Clear BSD License
- Copyright (c) [xxxx]-[xxxx] [Owner Organization]  
All rights reserved.
- Redistribution and use in source and binary forms, with or without modification, are permitted (subject to the limitations in the disclaimer below) provided that the following conditions are met:
  - \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
  - \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
  - \* Neither the name of [Owner Organization] nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
- NO EXPRESS OR IMPLIED LICENSES TO ANY PARTY'S PATENT RIGHTS ARE GRANTED BY THIS LICENSE. THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.