

# IPR, Policy, and Code Collaboration at OAI

Accelerating Two Ecosystems, Symbiotically Connected

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# Standards and Open Source Have Distinct Roles

- In the context of standards, **Open Source** allows the most freedom to build enabling code, implementations, and tools that enable and accelerate standards adoption
- In contrast, **Standards** creates a baseline for interoperability across different competing implementations

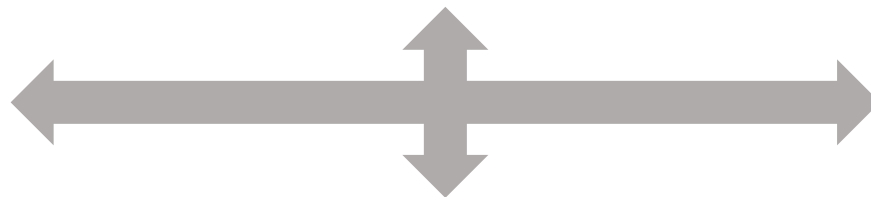
## Open Source

*Meritocracy  
currency is based  
on code  
contributions;  
often based on  
non-  
differentiated  
implementations  
or contributions  
which accrues a  
contributor  
advantage when  
commoditized*



## Standards

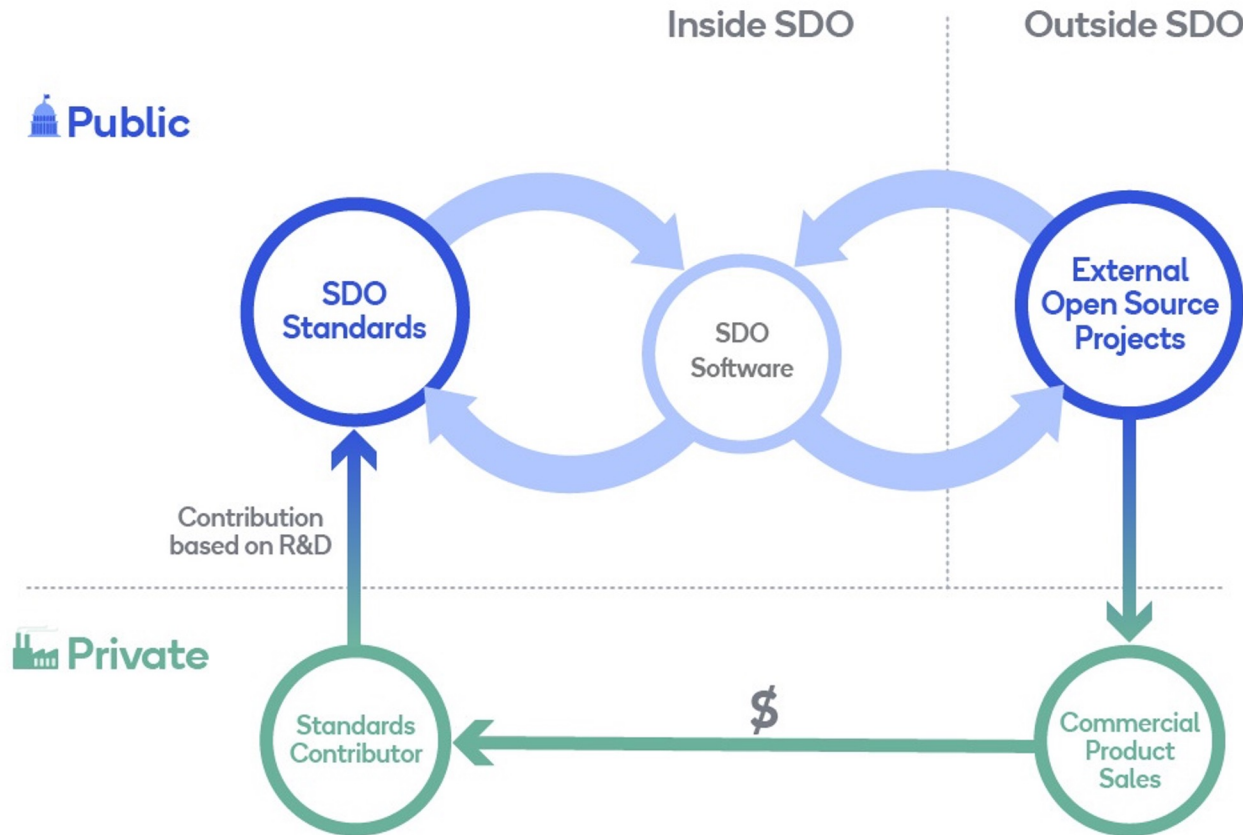
*Focused on enabling horizontals as core to its  
mission*



***Standards and Open Source Have a  
Complimentary Relationship***

# SDO Software and Open Source Software:

## Ongoing Interactions



# Upstream/Downstream vs. Adjoining Spaces

Standards Development and Implementations



Inside the SDO; specification drafting; early stage R&D; conformance criteria

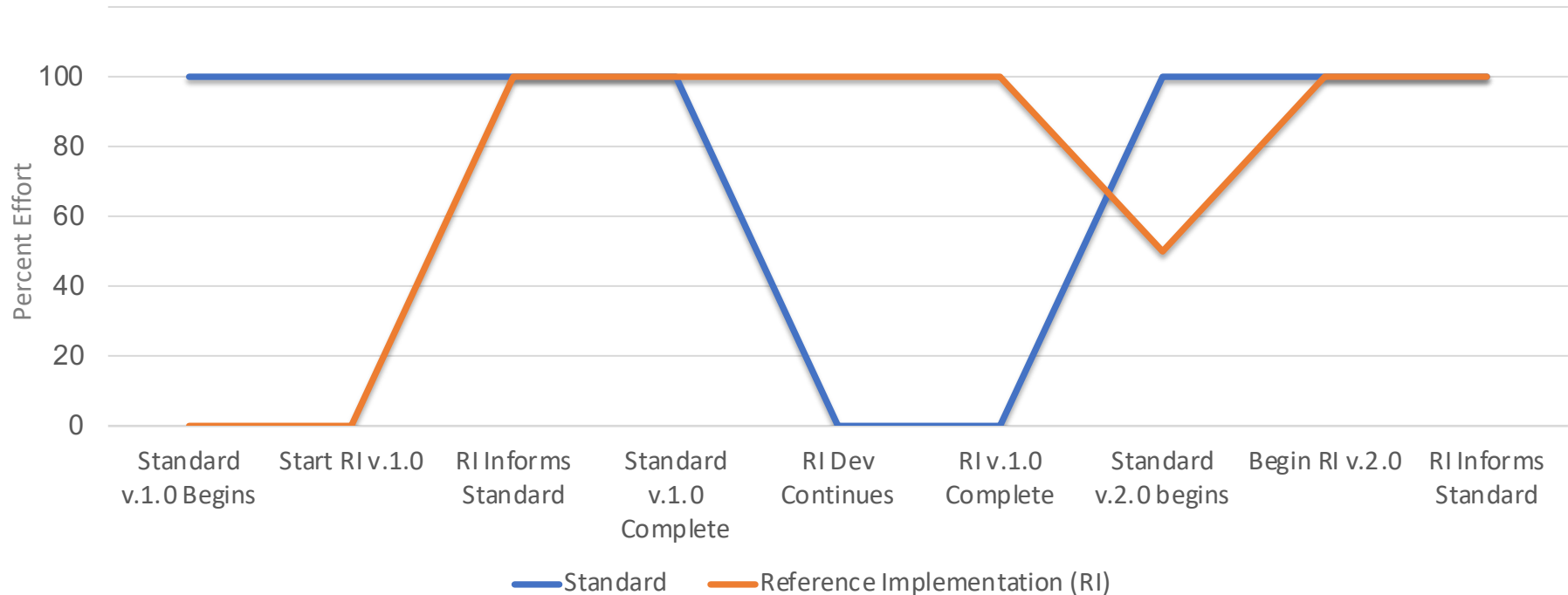


Real-world code creation; tooling and emulation; field improvisation; implementations

Ideal Collaboration Design: the Same Contributors Can Operate in **Both Places** and in the **Same Mode**

# Standards and Collaborative Code Development

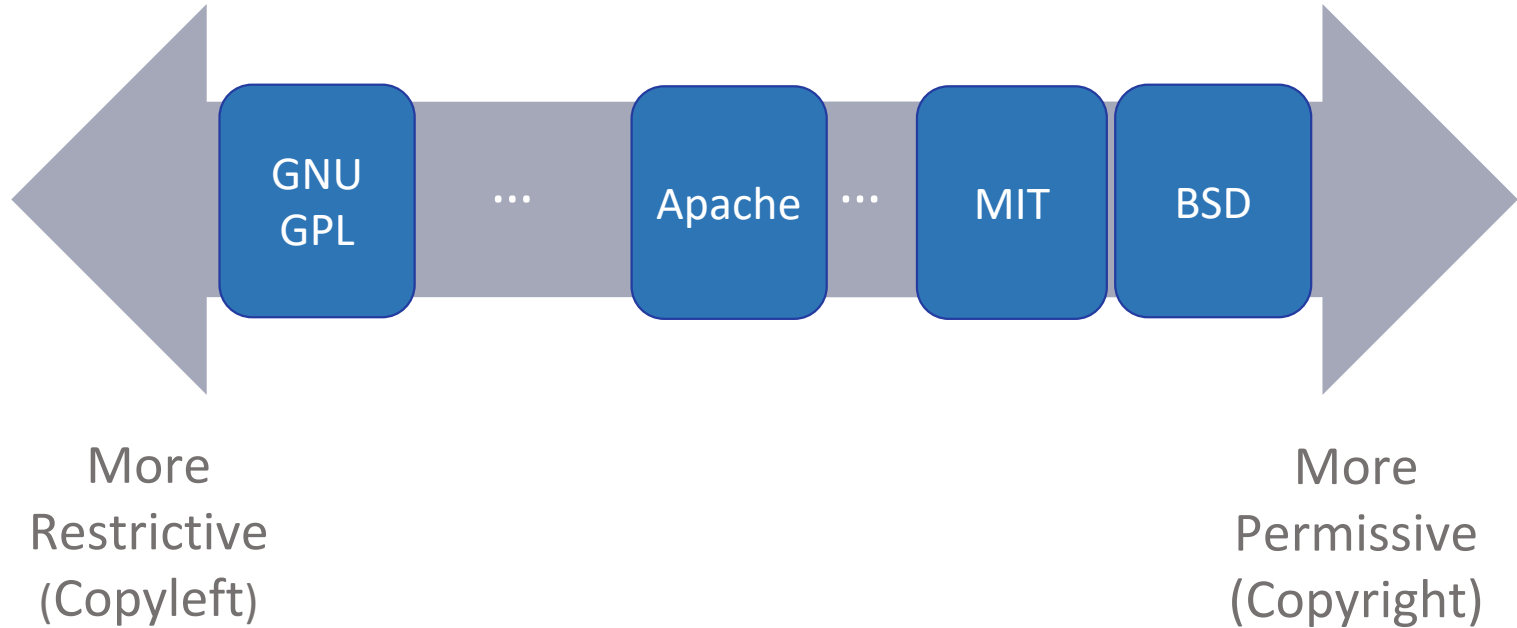
Under the Optimal Conditions - Each Making the Other Better



# How to Create Dis-Synergy

- Create a new downstream IP regime that:
  - Prevents upstream standards creators from sharing their expertise
  - Prevents downstream creators from making new investments to solve additional challenges that require further research
    - Entry into verticals
    - Academic research incentives
    - Expensive field trials – sharing the results
    - Creation of tooling and test harnesses
- By:
  - Adopting a narrow definition of open source
  - Using a license that is incompatible with upstream IPR frameworks

# Down the Rabbit Hole

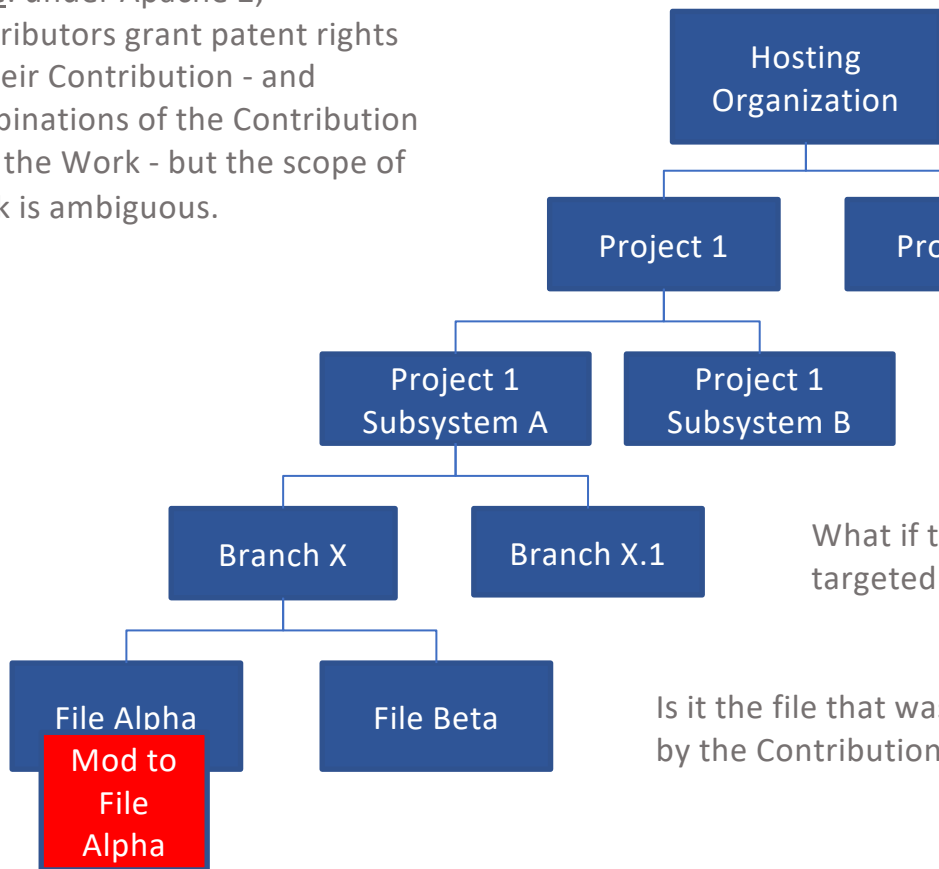


# The Apache License

- Apache license creates added complexity when you already have an IPR policy – precisely where you need high clarity
  - IP rights holders have already made commitments on their IP through the 3GPP standards development process
- Apache’s patent retaliation provision – is that consistent with SDO policy?
  - Can the code be upstreamed to 3GPP?
- What is a “Work”?
  - Anything copyrightable?
  - Combination claims
- The problem with routine enabling code
  - Broad functionality
  - Often no specification
- Runs counter to objective to quickly create code when you already have an IPR framework



**Issue:** under Apache 2,  
Contributors grant patent rights  
to their Contribution - and  
combinations of the Contribution  
with the Work - but the scope of  
Work is ambiguous.



**Relevant Question:**  
If one modifies File Alpha (see red box below)  
what is the “Work”?

Is it code in all hosted projects that  
are licensed under Apache 2?  
Probably not.

Is it all code in Project 1? Is it designed to work  
with another project? What if Project 1 is  
designed to be compiled with Project 2?

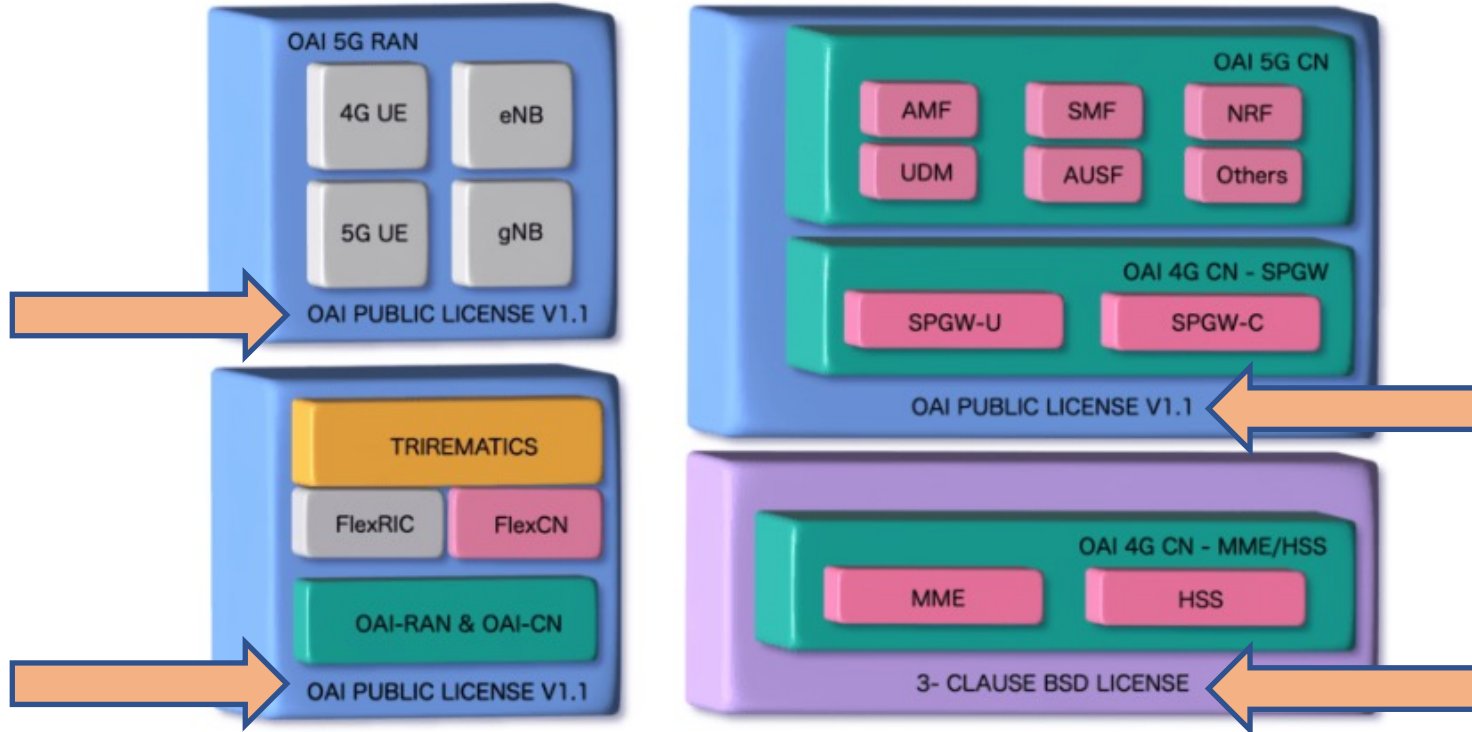
What if there are different branches are  
targeted at different platforms?

Is it the file that was actually modified  
by the Contribution?

Additional issue: what about future versions?  
As the Work gets modified, to what extent  
do patent rights (if any) carry forward?

Build 1.0 → Build 1.1 → Build 1.2 → Build 2.0

# OpenAirInterface Software Licenses



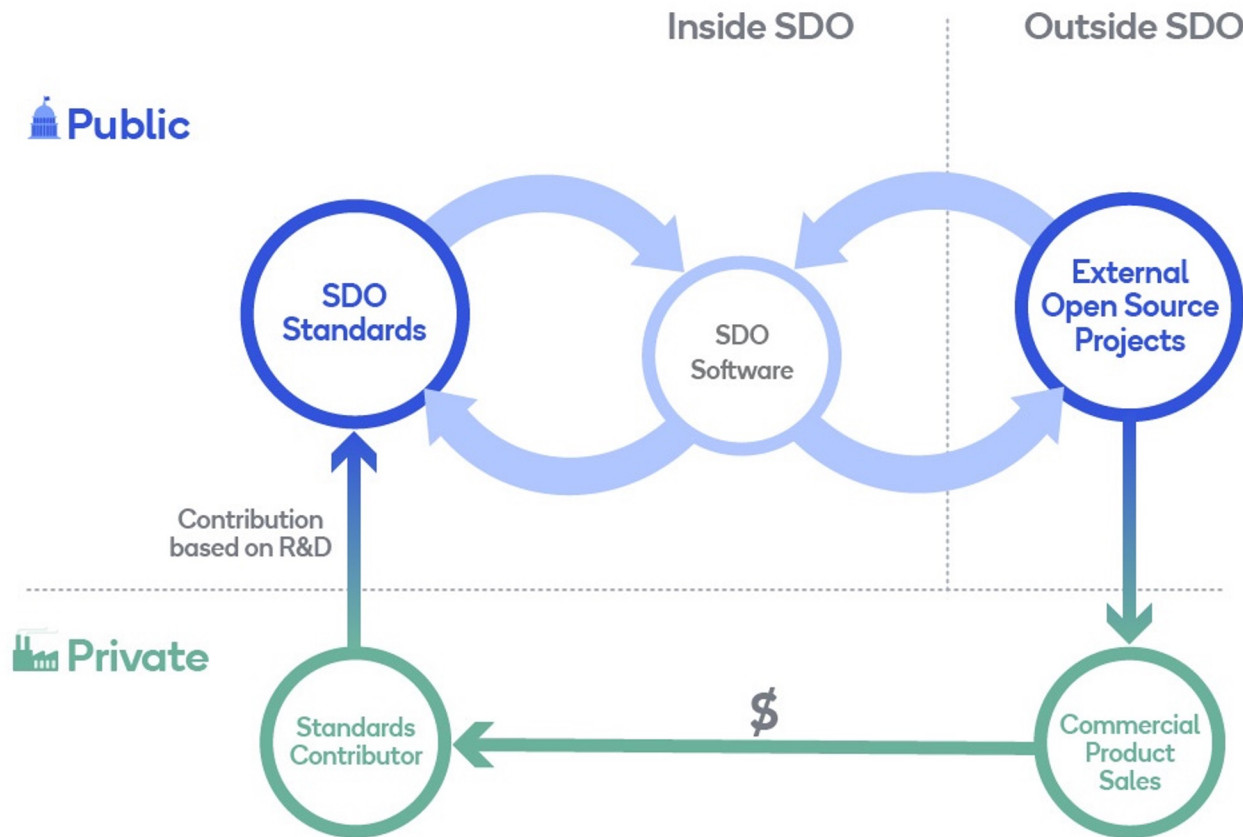
# The OAI Public License 1.1

## *A Pragmatic Approach*

- Contributors agree to license their Essential Patents on a royalty-free basis to study, testing and research purposes
- Otherwise Contributors maintain promise to license Essential Patents under FRAND
  - But new FRAND obligations will be required when they make code contributions and those contributions necessarily infringe additional patents of theirs
  - This is on top of the obligations made at the 3GPP level
- All OAI contributor agreements are consistent with the OAI Public License 1.1

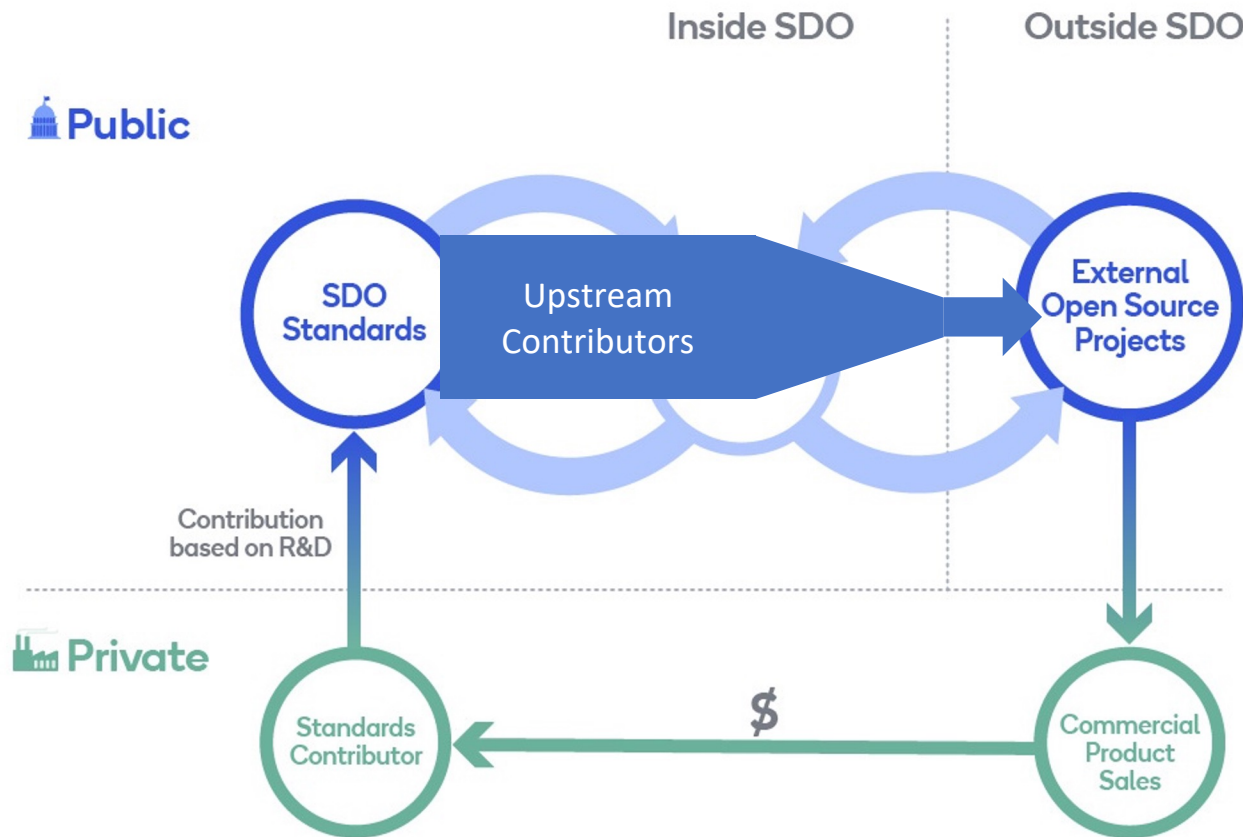
# An OAI Advantage

We Avoid the Bottleneck



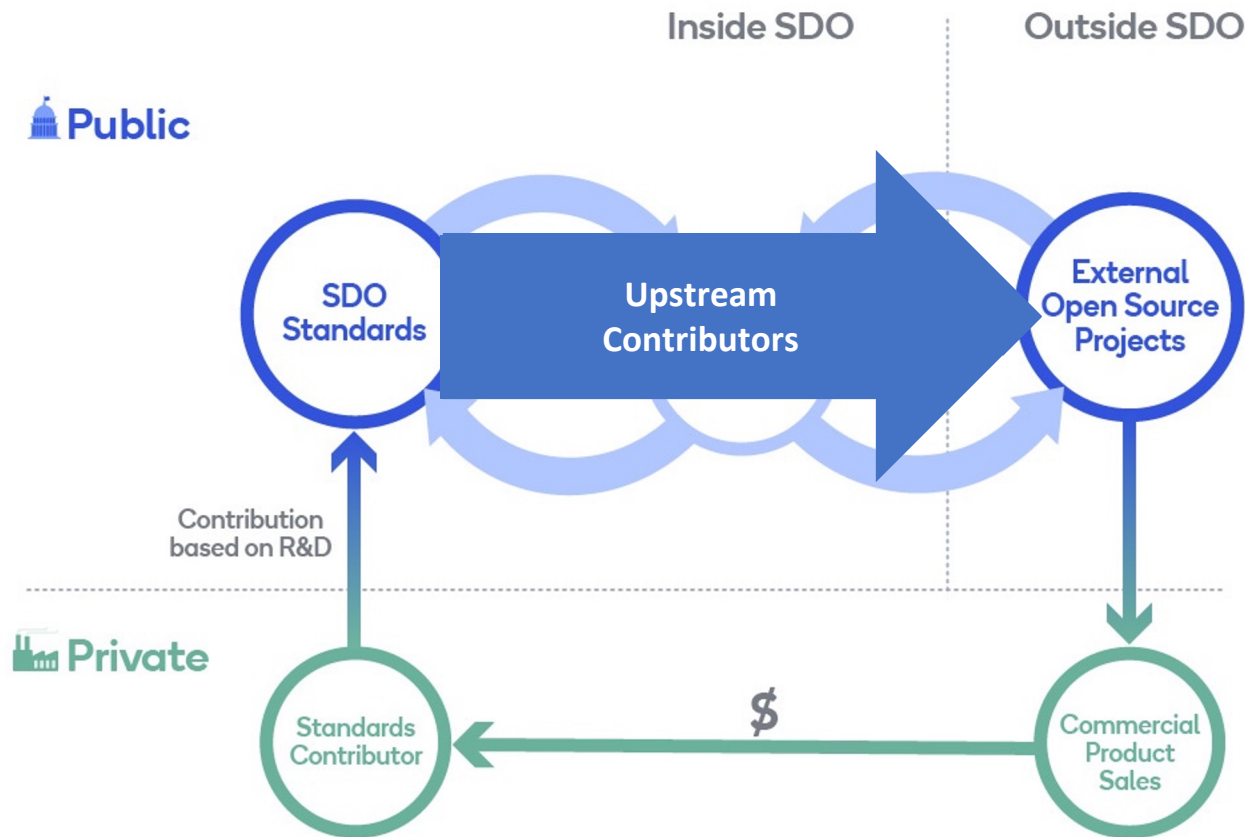
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# An OAI Advantage

We Avoid the Bottleneck



# Takeaways

- When creating a code collaboration project, seek compatibility both upstream and downstream
- Seek to eliminate points of friction
- In a standards-centric coding project, where possible, don't try to rearticulate the fundamental framework
- Allow the ecosystem to operate as intended
  - Standards – horizontal enablement
  - Open Source – vertical enablement
- Need both to be at their best without diminishing the other
- Avoid religious debates
- Focus on the code

# Thank You

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