Standard-Essential Patents: Progress, Remaining Issues and a Measure of our Ignorance

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Outline

- Standard Essential Patents (SEPs) and Standard-Setting Organisations (SSOs).
- The main issues
- What has gone wrong?
- What has been done so far? Does it make sense?
- Remaining Issues: what we know and what we do not know.
- A couple of Proposals
- Conclusion

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Standard Essential Patents and SSOs

- Standards are technological constructs.
- They may rely on patented technology.
- Patents that “read” on a given standard are “essential” to this standard.
- SSOs are (usually) not for profit organisations. Membership is voluntary.
- Traditionally the role of SSOs is limited to facilitating the technical development of the standard and impose some conditions for participation. They are not usually involved in the commercialisation of he standard.

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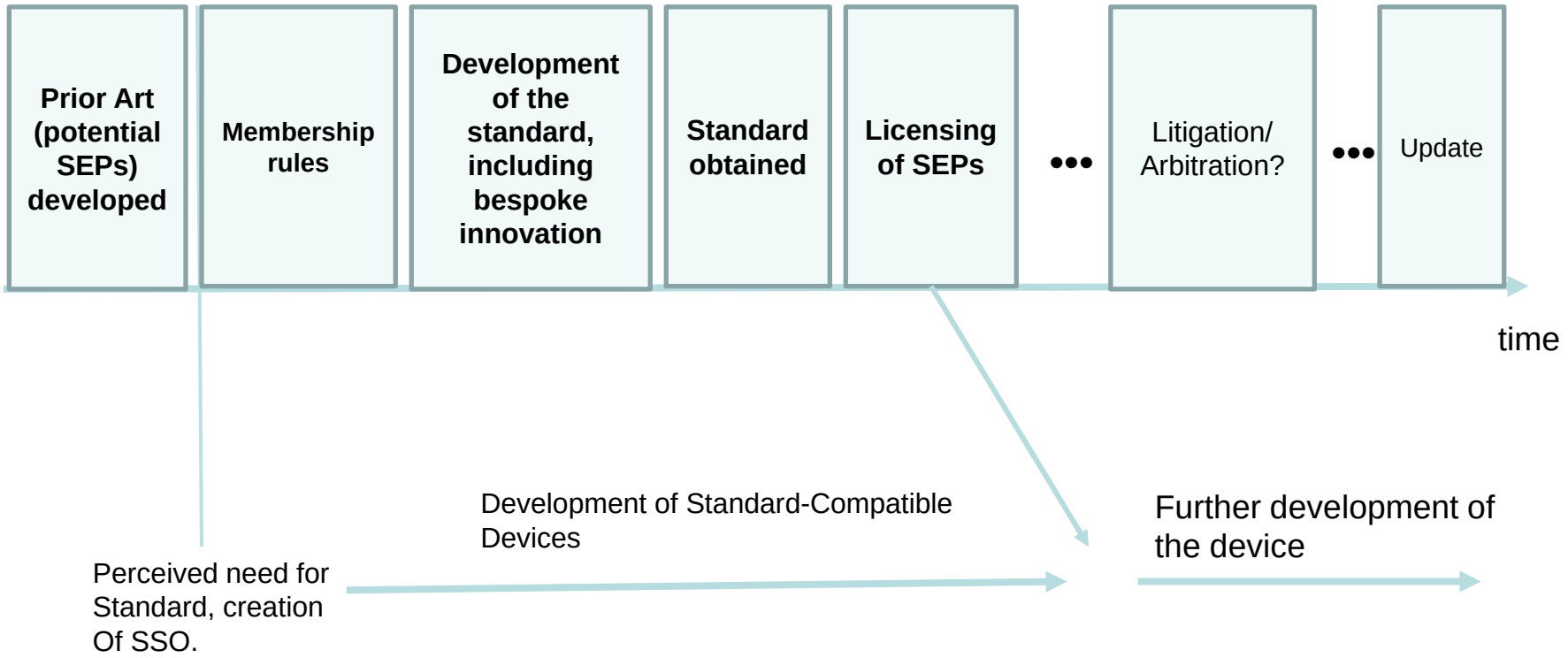

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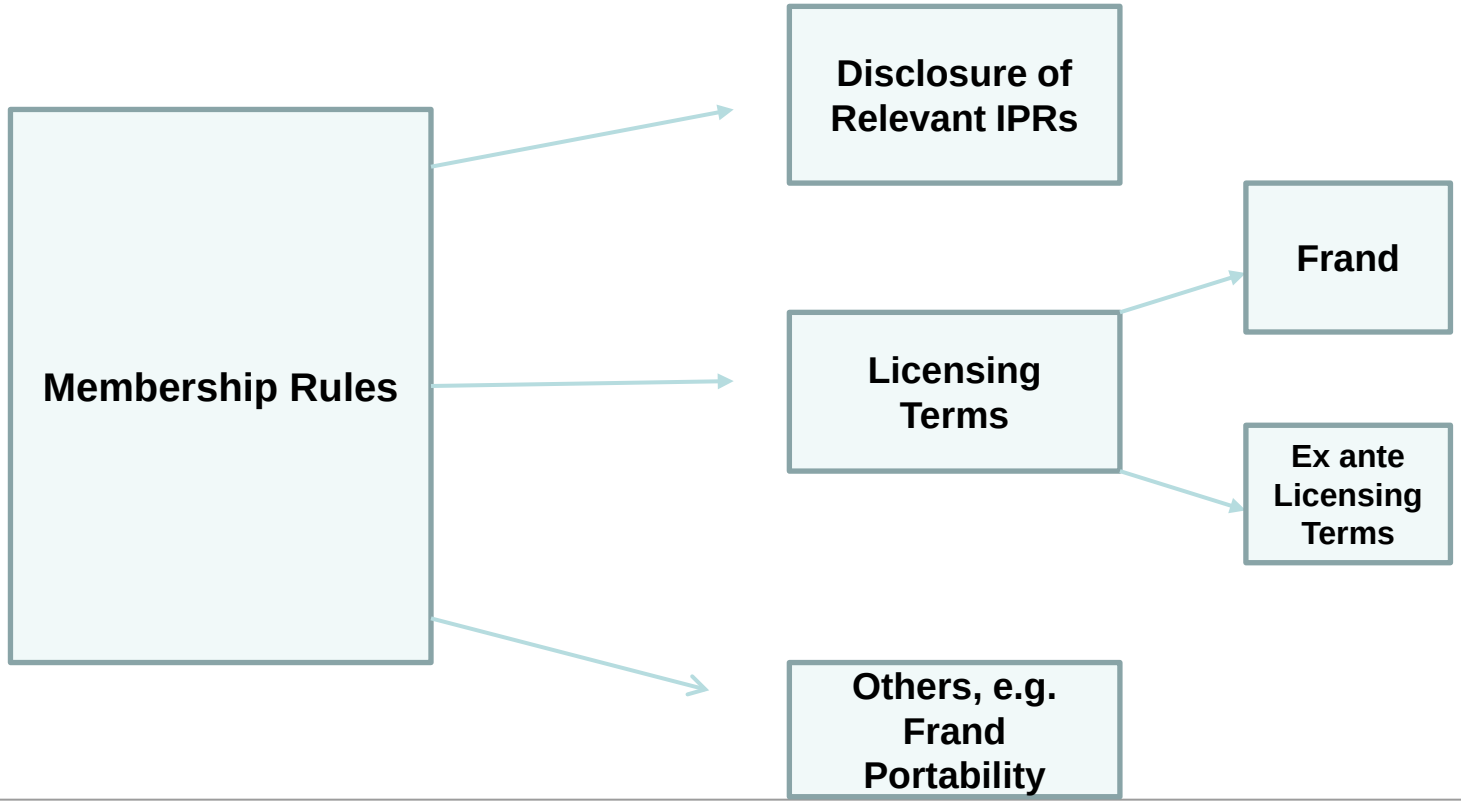
Membership Rules



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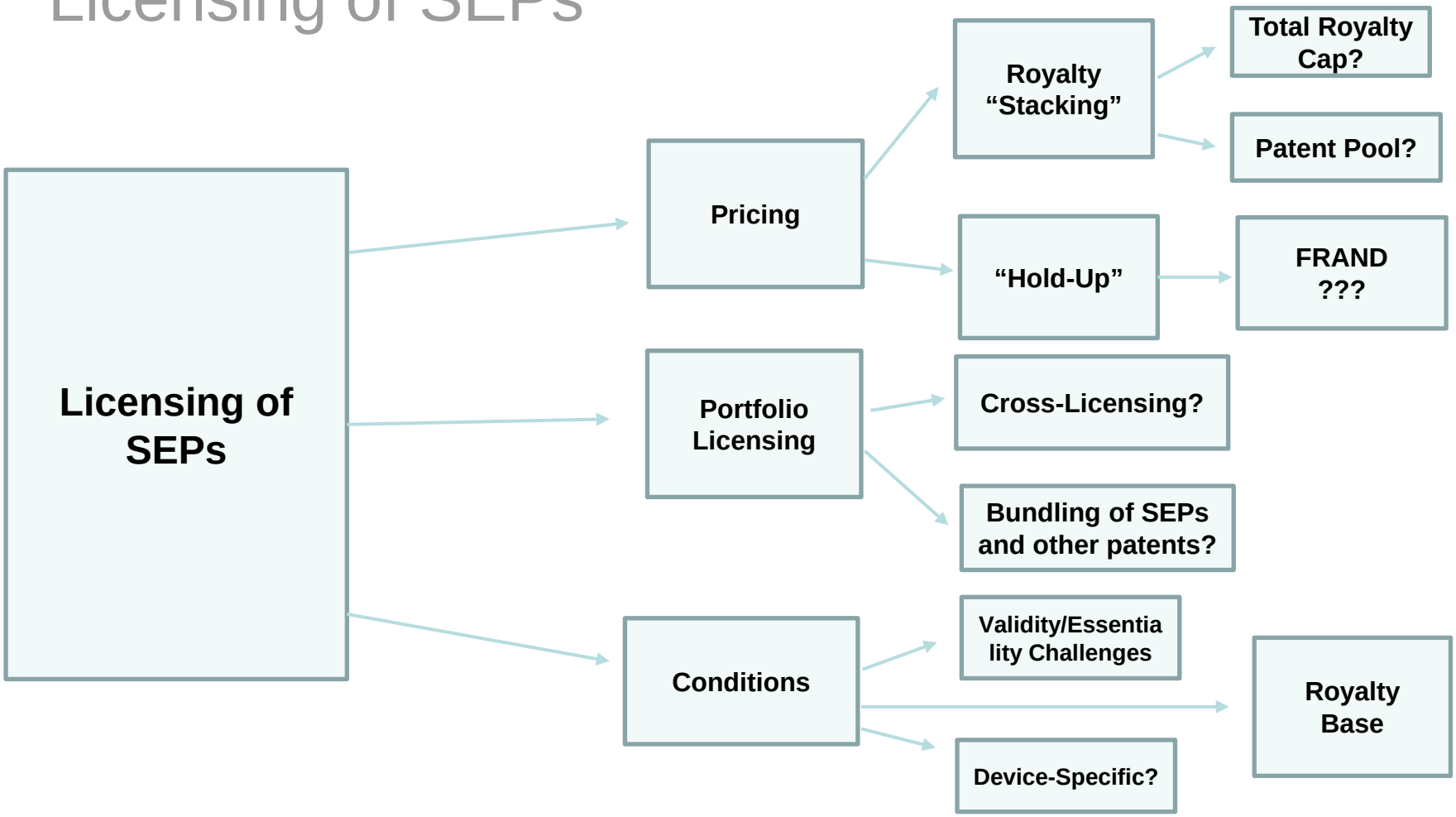
Licensing of SEPs



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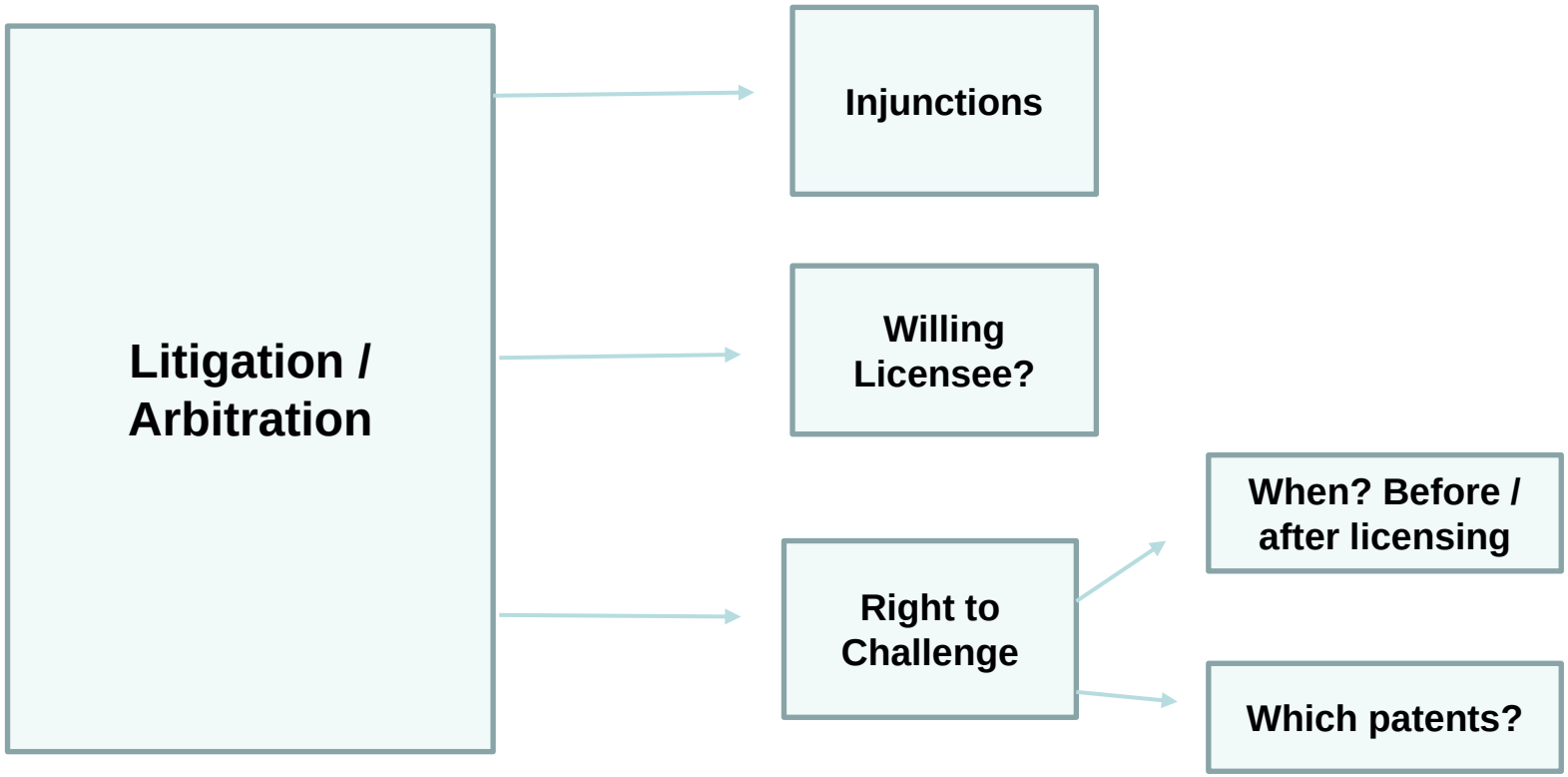
Litigation/Arbitration



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The Old “Gentlemen’s Club” Model

- SSO participants are both innovators and manufacturers of devices.
- The emphasis is on making money from the sales of devices.
- Repeated interaction between the same members over time.
- Willingness to cross-license “without counting beans”

Little Litigation

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The Death of the “Gentlemen Club” Model

- Arrival of a new “class” of parties (from computer side)
- Not every SEP holder produces devices implementing the standard
- Digital revolution → increased complexity → more dispersed SEP ownership
- Fast pace of technological change → pressure to develop standard compatible devices early

Many Conflicts

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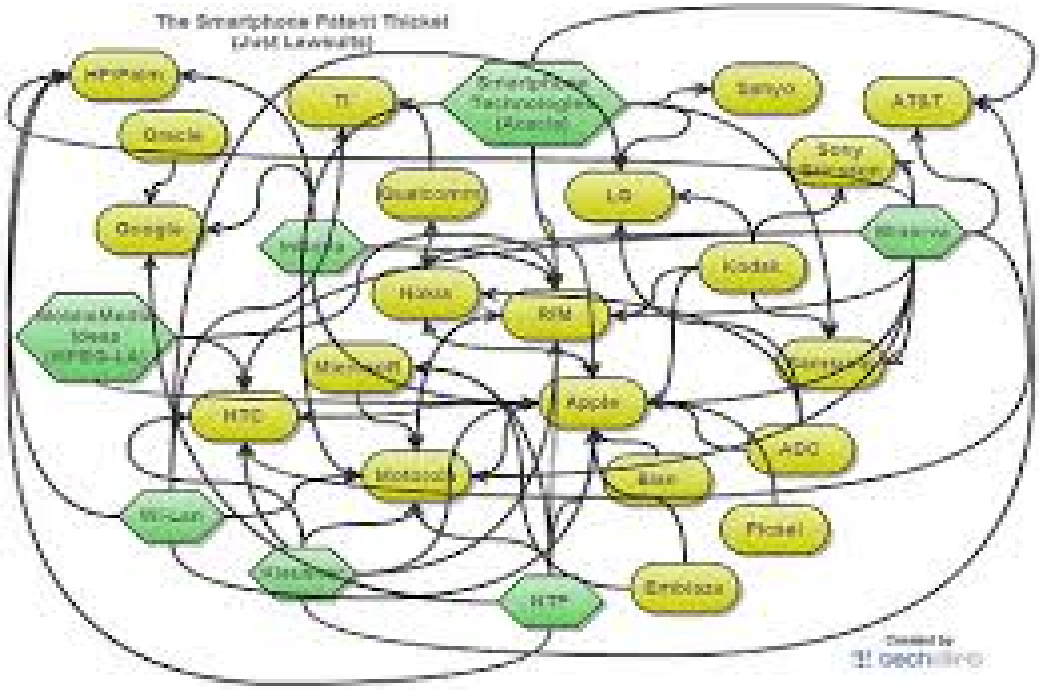
The Fights



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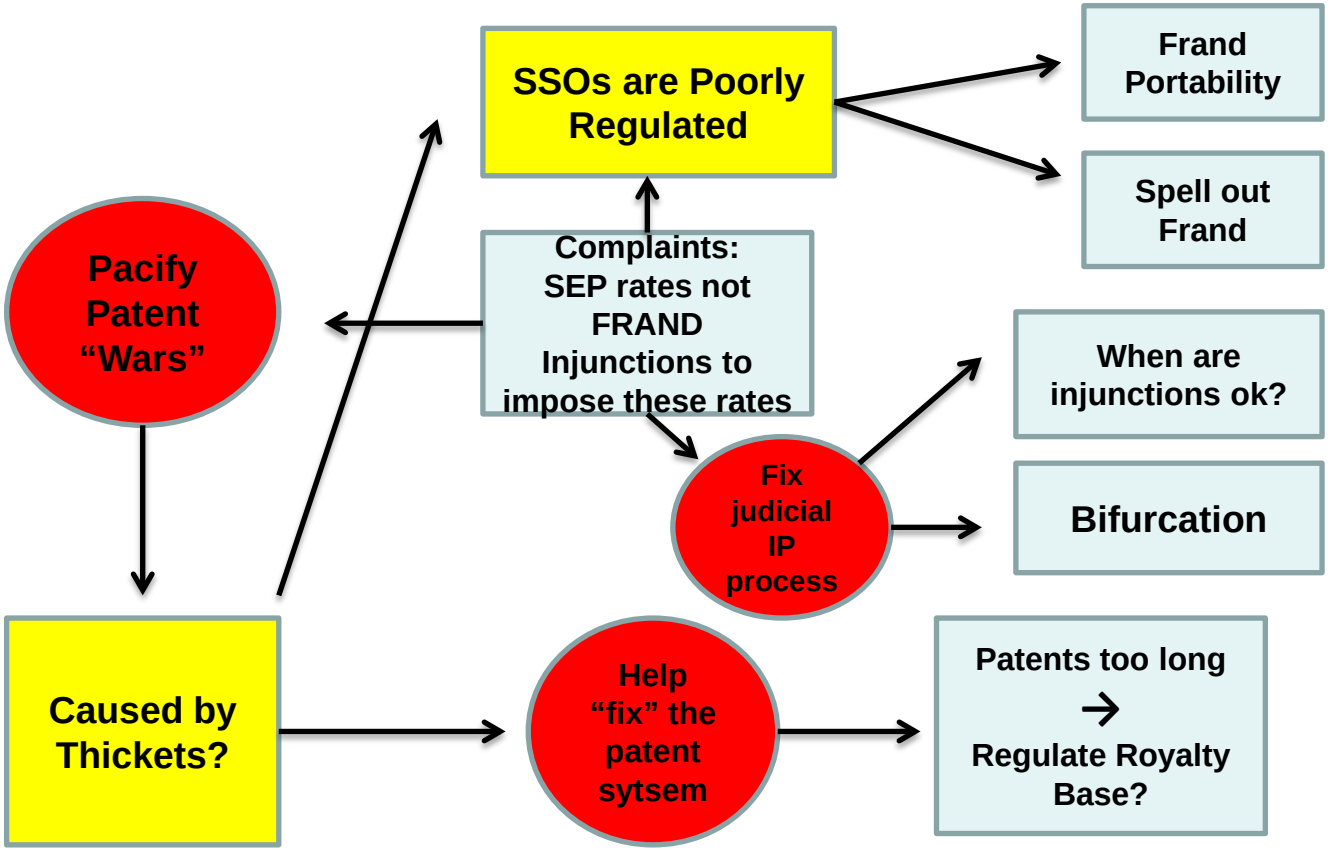
What has been done so far

- European Cases
- US Cases
- Some recent decisions in China
- Increasing number of cases in other jurisdictions
- These cases have focussed on the meaning of “Frand” commitments and on how to ensure that they are respected.
- In Europe, the “horizontal” and “technology transfer” guidelines also address the issue of Frand and discuss patent pools.

European Cases



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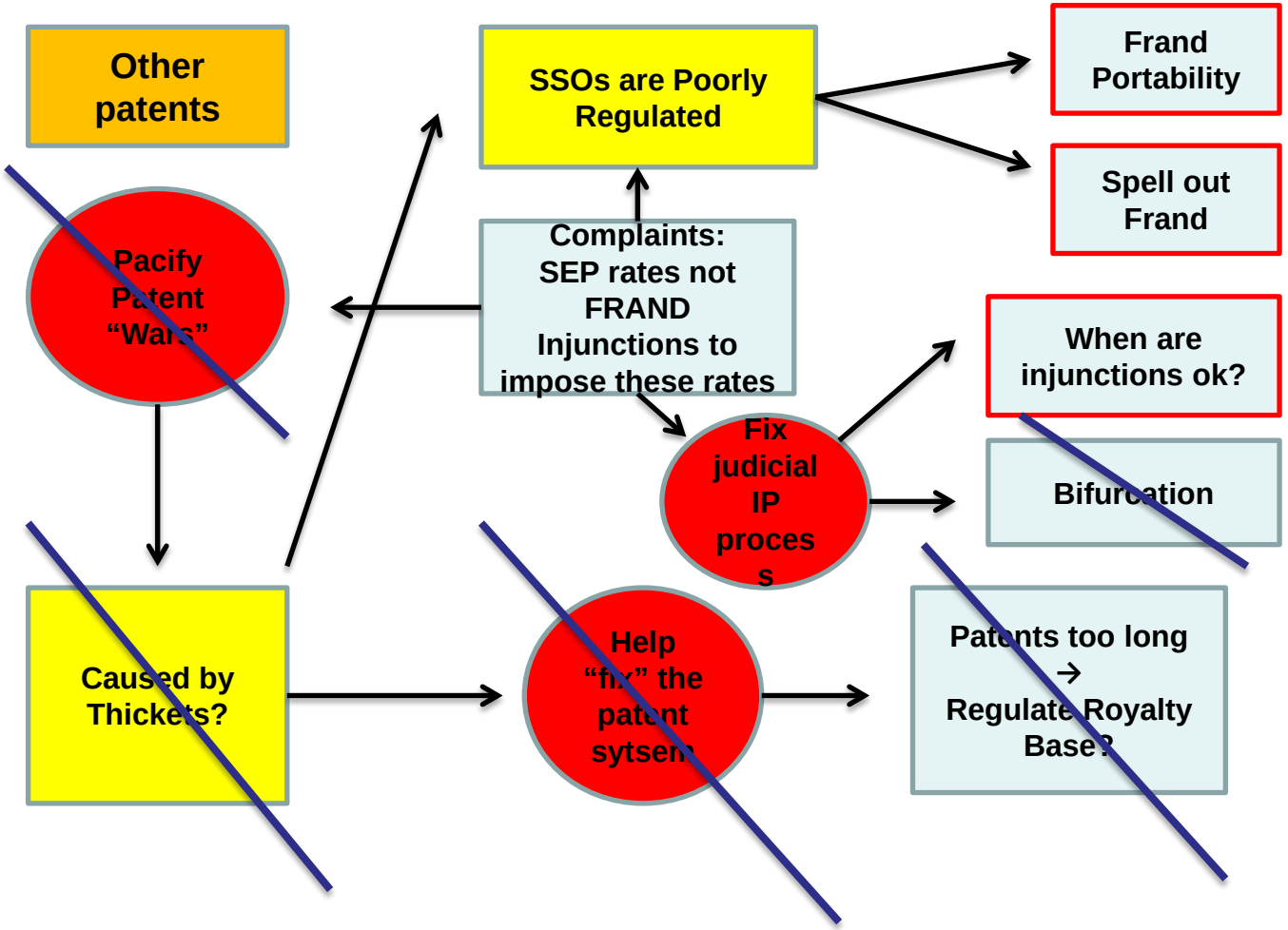
European Cases



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The Current State of Affair in the EU (*Huawei*)

- The SEP holder must alert the standard user of the potential infringement and must make a clear Frand offer.
- The user can accept the offer, or make a counter-offer.
- The bargaining process should be given sufficient time.
- The SEP holder can use injunctions against an “unwilling” licensee
- Insisting on keeping the right to challenge the SEPs in Court does not make the licensee “unwilling”
- A licensee who accepts to have the Frand terms set by a Court or through arbitration is not “unwilling”

Division of Tasks

- EU Policy Decisions : This afternoon
- Now: Emphasis on Innovation-related aspects:
    - Royalty Base
    - Infringement, Validity and Counting Patents
    - Evil NPEs?
    - Patent Pools

What is the Surplus to be Shared?

- The (private) surplus to be shared between the manufacturer and the standard is the difference between the profits made on the device with the standard and the profits that would have been made without the standard.
- Economics has little to say has to how much each of the two sides should get.
- In practice one must also determine how to split the “standard”’s share between SEP holders. This will depend on the number of SEPs, as well as to how ex ante “essential” various patents were.
- In what follows, we assume that the coreect split of the surplus is known.

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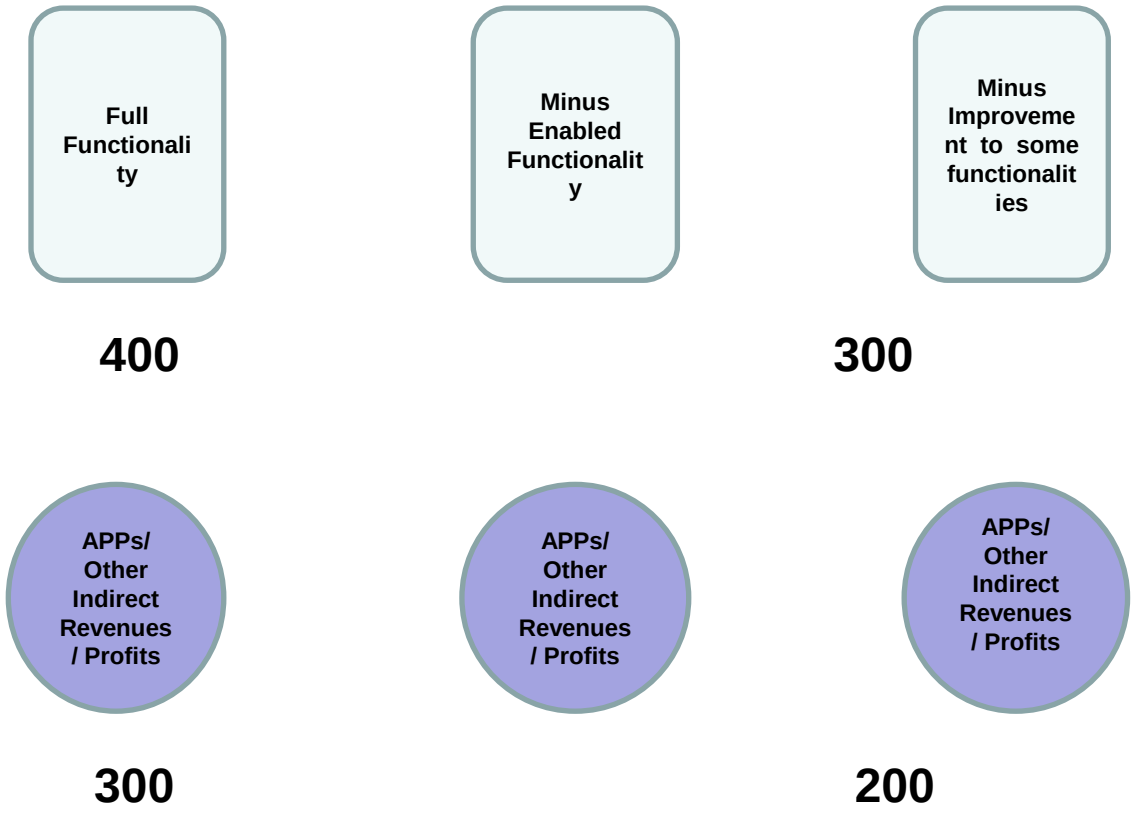
What is the surplus to be shared



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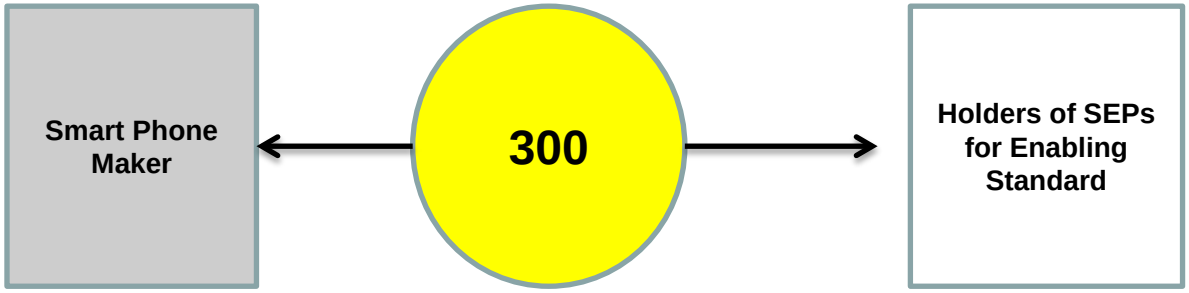
How much each party gets and what the "correct" royalty base is are separate questions.



Say 20 for a given SEP-holder. Paid how?

5% Final Price
13.33% Value added on smart phone
6.17% Total value added

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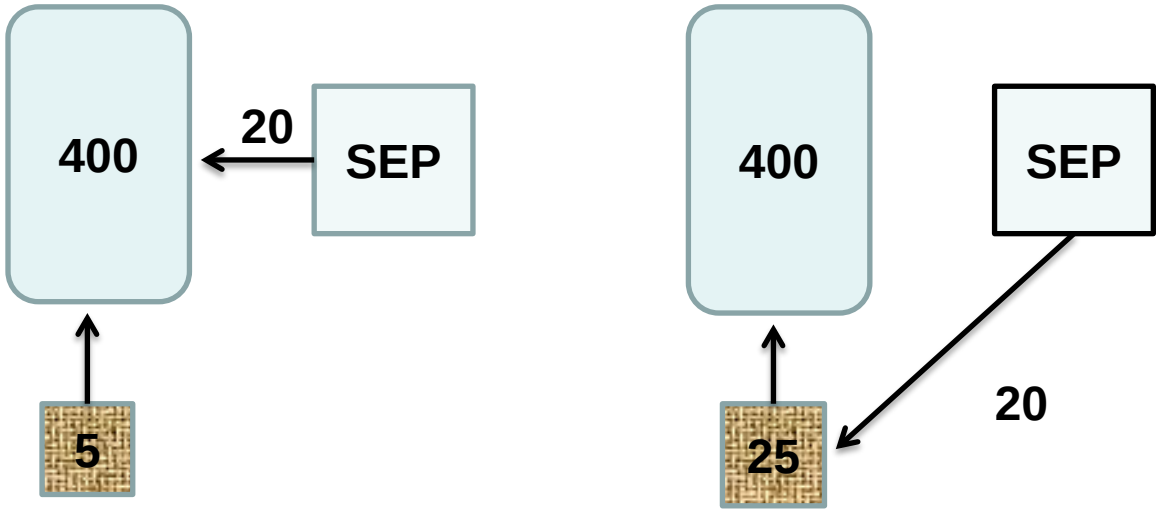
Component-Based Royalty?



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So Does the Royalty Base Matter?

- It can help alleviate asymmetric information problems
- It affects the allocation of risk between parties
- It affects innovation incentives …. Although maybe not I the expected manner

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Efficiency reasons for linking reward and effort

- If the licensor pays a lump sum royalty then he fully bears the uncertainty attached to the joint success of his device and the standard in the market. If the royalty is linked to the number of units sold or to the value of sales, then less success also means lower payments, providing some “insurance”.
- Accepting a payment that is low if the standard does not perform well but high if it does credibly communicates that the SEP holder believes that the standard is good.
- If the reward to SEP holders increases with the joint success of devices and standard, the incentive to find a “good” standard are increased.
- If continued help from the licensor is required, then giving the licensor a continuing interest in the performance of the device increases his incentives to collaborate.

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Per Unit Royalty Versus Ad Valorem Royalty: Future Innovation

- The value of *future* improvements in the device which are still enabled or facilitated by the standard is a legitimate part of the total surplus to be shared. This point is robustly supported by the economic literature on sequential innovation.
- Traditional argument: ad valorem royalties capture part of the value of future innovations and, therefore, reduce the manufacturer's incentives to continue to innovate.
- But per unit royalty also impose a "tax" on the profits linked to future innovation: a better device gets more sales and the per unit royalty is due on these additional sales.

Per Unit Royalty Versus Ad Valorem Royalty: Future Innovation

Actually, a per unit royalty may “tax” further innovation more than an “ad valorem” royalty.

Take the reward to give to the SEP-holder constant at R. Consider two periods, with follow on innovation by the manufacturer occurring after the first period. Compute how much the manufacturer’s profits increase with this follow on innovation.

The increase in the manufacturer’s profits tends to be LARGER with an ad valorem royalty

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Per Unit Royalty Versus Ad Valorem Royalty: Future Innovation

- Suppose now that the device includes features which are enabled by the standard and features which are not. Does using the whole value of the device (including both types of features) in the royalty base necessarily lowers the manufacturer's incentives to innovate?
- As shown in Caffarra-Régibeau (2014), the answer is negative. Indeed, where the disincentive effect on innovation increases more than proportionally with the royalty "tax", using the whole value of the device as a royalty base improves the manufacturer's innovation incentives.

The Royalty base is *chosen* by the two parties

- The terms of SEP licensing are often set through bilateral negotiations between the SEP owner and the manufacturer, albeit “in the shadow” of litigation.
- In the absence of much asymmetric information, bargaining parties tend to agree on a solution which maximises the size of the joint surplus which they then share according to their bargaining power.
- Why then would the parties agree to choose a royalty base that would decrease future innovation and hence decrease their joint surplus?

Opportunistic Arguments?

- Arguing that a broad royalty base amounts to “getting revenues from the value of things that the SEP-owner did not invent” and therefore leads to higher payments to the SEP-holder is incorrect. The ultimate gaol of such arguments are clearly to decrease the overall level of compensation accruing to SEP holders.
- To have any antitrust-based objection to the choice of royalty base, one need some argument showing either that third parties (e.g. consumers) are hurt by a particular choice of royalty or that there is a credible mechanism through which the royalty base would directly affect the division of rents between licensor and licensee.

Infringement, Validity and “Counting Patents”

- Large standard *users* often make two arguments
- Argument 1: “I do not want to pay for what I do not use”, so SEP licensing should occur one patent at a time with the patent being tested in court for validity and infringement.
- Argument 2: There are loads of SEPs so if I need and infringe your patent, I should still pay very little for this single patent.
- The implication: 10,000 SEPs, 100 validated in court, so payment is due only on 100/10000 = 1% of the value of the standard → very low payments → little incentive to invest in SEPs and SSO activities.

Infringement, Validity and “Counting Patents”

- The two arguments are inconsistent
- Suppose that Courts find that only 1% of SEPs are valid or infringed. Then a SEP which has passed this test should count for 10 times a SEP which has not. So now, the 100 SEPs which have been validated are worth 100 x 100 = 10000 non validated SEPs and should therefore get about 50% of the payment due to the standard → greater incentives to invest in SEPs AND to get them tested in Court.
- Unfortunately not all authorities charged with setting Frand royalties appear to understand this.

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Evil Non-Practicing Entities?

- Other things equal, NPEs have incentives to set lower rates than vertically integrated firms
- But vertically integrated firm might agree to a royalty free (or royalty reducing) cross-license, which is better for consumers
- Managerial Incentives might make NPEs more aggressive
- The strategic sale of (part of) a SEP portfolio by an integrated firm to a NEP might lead to higher royalties charged to the vertically integrated firm's downstream rivals
- There is only room for any of these effects to the extend that Frand royalties remain an ill-defined concept.

Patent Pools

- Contain SEPs from different owners.
- These SEPs are available for licensing as a block for a single royalty rate.
- SEP owners retain the freedom to license their own SEPs separately outside of the pool.
- Helps solve the royalty-stacking issue….not the Frand issue
- But do pools hinder further innovation in the standard?

INNOVATION BENEFITS OF PATENT POOLS?

- FACILITATE ACCESS TO IPR → FAVOURS *FURTHER* INNOVATION
- INCREASE PROFITS OF IPR-HOLDERS → GREATER INCENTIVES TO INNOVATE … BUT DOES IT HOLD WITH FRAND?
- BUT “EQUALITARIAN” SHARING RULES DECREASE INNOVATION INCENTIVES….. JUST LIKE RJVs….BUT WITHOUT THE SYNERGIES

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INNOVATION BENEFITS OF PATENT POOLS?

- SEVERAL EMPIRICAL STUDIES HAVE FOUND A NEGATIVE EFFECT OF POOLS ON INNOVATION

- MECHANISM 1: PATENT NUMBER BASED SHARING RULES → INCREASE IN *PATENTING* BUT NOT IN INNOVATION (Baron and Pohlman, 2009, Lampe and Moser, 2010)

- MECHANISM 2: POOLS FACILITATE SOME FORMS OF ANTICOMPETITIVE BEHAVIOUR THAT LIMIT INNOVATION (Lampe and Moser, 2012)

- However Pool management techniques have improved a lot since the events analysed in these papers.

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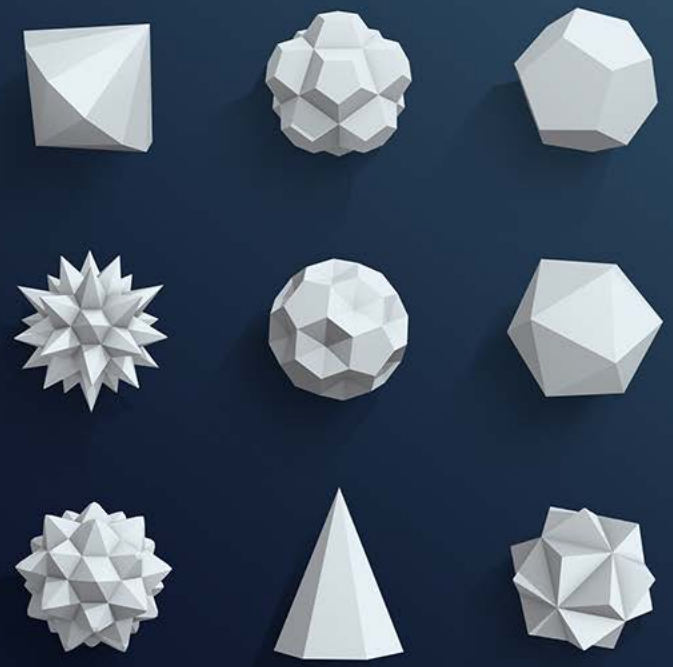

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