Taking technological infrastructure seriously

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Propositions relating to the dissertation

Taking Technological Infrastructure Seriously

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1. Much of the success of high technology markets has been driven by standardisation: the codification of the technological frontier into 'standards' that permit cross-device information and data flows. These standards perform the economic role of technological 'infrastructure', by being essential inputs for downstream innovation.
2. Sitting uneasily with their infrastructural role is the fact that standards are often subject to intellectual property rights, which provide right holders with powers of exclusion and control, whether the standards are cooperatively-set, market-driven, or emerge from Government sponsored R&D.
3. The unique economic function of technological infrastructure means that excess private control may lead to poor social outcomes, such as choking off follow-on innovation and individual (rather than market) determination of R&D trajectories.
4. By taking the infrastructural nature of technological infrastructure seriously, we can recruit a number of powerful arguments from the economics of infrastructure and public goods to show that these resources are best managed under an open access rule: 'if infrastructure, then open access' can function as a rebuttable presumption (the 'infrastructural approach').
5. The infrastructural approach to managing technological infrastructure is both descriptive and normative: it is both what courts and market participants *are* in fact converging on, as well as what strong economic arguments suggest they *should* be converging on.
6. The role of the law in the above process has been to evolve, adapt and apply legal rules, which channel private incentives towards open access outcomes, and this process can be captured by using models from game theory.
7. The contention at the heart of the infrastructural approach is empirical: that managing technological infrastructure on open access terms leads to less social cost and greater gains. Theoretical arguments may be used to shift the burden of proof in such cases, but due to the complexity of the subject, a robust empirical study may be difficult to achieve.
8. Future approaches to this problem may be able to attack the issue using dynamic simulations of sufficient complexity, such as agent-based models.
9. Although much of the modern world would be unrecognisable to our hunter-gatherer ancestors, the fact that most of its productive assets are now concentrated in intangibles (knowledge, data, IP) is a shift *towards,* rather than away from the status quo of early human history.
10. What our ancestors won't recognise is the extent to which we have outsourced our cognitive processes to external devices and have, in some sense, externalised the human mind.
11. A drive towards openness and the dilution of private control over technological infrastructure, is also a drive to claim back some configurability rights over these externalisations, and to determine to a greater extent, the mental worlds we live in.