

Andrew Stirling

Challenges in the Governance of Engineered Life:

research policy, innovation dynamics and the politics of progress

Alongside other emerging technologies – and whatever the term is held to mean and imply – the engineering of life presents many formidable challenges in the governance of technology. Multiple research and innovation systems and industrial sectors are implicated. As potential platform technologies, repercussions spread widely through the economy. Whether framed as positive or negative, potential impacts are global, possibly momentous and likely highly irreversible – equally pervading human societies and natural environments.

Many familiar dilemmas around new technologies operate especially acutely in this field, including: ambiguities concerning aims and applications; questions about distributions of benefits and harms; radical uncertainties concerning future effects; path dependencies and dynamics of ‘lock-in’ involving power gradients across alternative innovation trajectories; and a serious lack of democratic engagement and oversight concerning the steering of which particular innovations pathways to prioritise or not.

Among the impediments to effective or rational governance of these dilemmas, are pervasive high-level international rhetorics, framing the issues in expediently circumscribed ways merely as regulatory questions over “how fast?” to proceed; or “at what risk?”. These counterpoint with anxieties that the key questions in innovation policy are merely about “who leads?” in some presumptively inevitable single-track ‘race to the future’.

Ironically given the rhetorical emphasis on ‘evidence-based policy’ in this field, these conventional high level framings are fundamentally mistaken. The resulting dilemmas can only be rigorously addressed, when it is acknowledged that innovation in this sector (like others) is not simply about winning a race. Instead, it involves a branching evolutionary process exploring complex landscapes of potentiality – necessarily leaving many viable possibilities unrealised. The real questions are therefore about “*which way?*”. When this reality is acknowledged, governance challenges are amplified and necessities for greater democratic agency and accountability underscored.