LOCAL ECOSYSTEMS OF INNOVATION

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BLOCKCHAIN AND SUSTAINABLE COMMUNITIES: POTENTIAL AND PITFALLS

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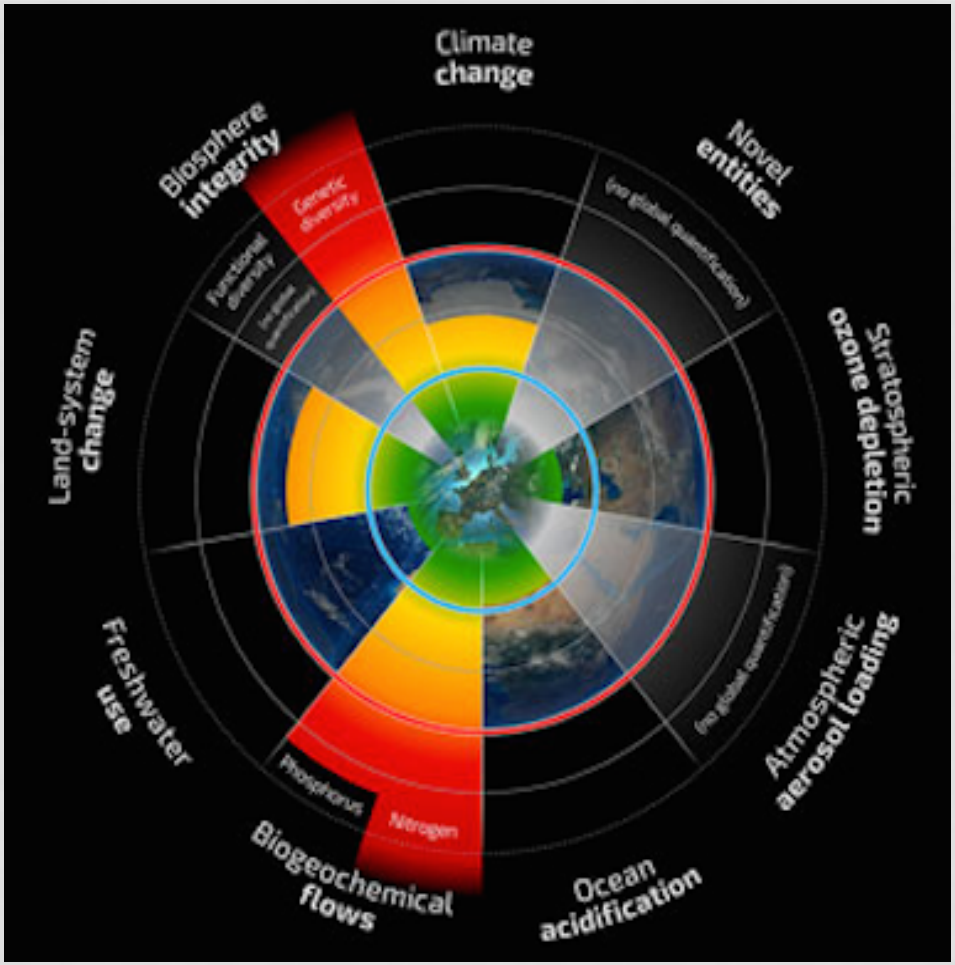
WIDER CONTEXT

- Blockchain and sustainability:
  - Need to place in a wider context of debates on technology and sustainability
- This talk:
  - Identifies the central dilemma of sustainability
  - Examines critiques of technology
  - Presents local ecosystem of innovation as an alternative
- 'Behind the fading fabric of competitive capitalism there looms the portent of an industrial civilisation, with its paralysing division of labour, standardisation of life, supremacy of mechanism over organism, and organisation over spontaneity. Science itself is haunted by insanity. This is the abiding concern'
  - Karl Polanyi, 1947

CHALLENGES OF SUSTAINABILITY

- Sustainability: major concern in 1980s:
  - UN established Brundtland Commission, reported 1987
  - Global warming: concerns at greenhouse gases from early 1990s
    - Global warming unequivocal
    - Changes since 1950s 'unprecedented over decades or millennia'
      - In Northern hemisphere, 1983-2012 likely the warmest of last 1,400 years, and getting ever warmer
      - Ice cover shrinking, oceans rising at faster rate than in last 2,000 years
      - Concentrations of GHGs 'unprecedented in at least the last 800,000 years'
      - Less likely to be able to limit warming to 2C°
    - Limiting climate change 'will require substantial and sustained reductions of greenhouse gas emissions'
  - Peak oil: evidence that peak passed in early 2000s
    - Resort to fracking to keep supplies flowing despite major environmental damage

PLANETARY BOUNDARIES



HOW MANY PLANETS?

OUR DEMAND FOR RENEWABLE ECOLOGICAL RESOURCES AND THE GOODS AND SERVICES THEY PROVIDE IS NOW EQUIVALENT TO MORE THAN 1.5 EARTHS

SINCE THE 1990s WE HAVE REACHED OVERSHOOT BY THE NINTH MONTH EVERY YEAR. WE DEMAND MORE RENEWABLE RESOURCES AND CO_2 SEQUESTRATION THAN THE PLANET CAN PROVIDE IN AN ENTIRE YEAR

POLITICAL RESPONSE

- Responses:
  - 'The world is locking itself into high-carbon systems more strongly every year' (OECD, 2011)
  - Since mid 1970s we are in 'ecological overshoot' and would need the resources of one and a half planets to continue (LPR, 2012)
  - 'Our development model is bumping up against concrete limits' (UNDP, 2011)
  - 'The sum total of current policies – in place and pledged – will very likely lead to warming far in excess of these limits' [scientists warn of] (WB, 2012)

DISJUNCTURE

- Actions taken have to conform to and fall within the limits of our dominant socio-economic paradigm:
  - Urban, mobile, consumer society based on industrial scale production of goods and services within a growth economy
  - Dominant free market political economy model underpinning this socio-economic system: neoliberal capitalism
- We prefer to treat the challenges as discrete techno-scientific ones rather than our socio-economic system:
  - Focus on electric cars, carbon capture, renewable energy, building regulations
  - Takes focus off our patterns of consumption, whether growth can continue indefinitely, limits to globalisation (carbon miles), carbon-intensity of our development model

WHAT THE DISJUNCTURE TELLS US

- Tendency to resort to 'techno-fixes':
  - Stratospheric aerosol injection, marine cloud brightening, orbital mirrors, urban whitewashing, biochar, ocean fertilisation, carbon capture and storage and enhanced weathering (Hulme, 2014: 7-10).
  - Often presented as alternatives to political efforts to reduce consumption and change values
  - Two critiques:
    - Supreme confidence in human ingenuity
    - 'Preference for technical calculus over relational, creative and spiritual dimensions of *anthropos*' (ibid.: 111)

ON WHAT DO WE BASE POLICY?

- Like to think policy is based on evidence
  - UK policy on promoting renewable technologies:
    - Based on a particular paradigm or set of assumptions
    - Assumes the market is best and state's role to set parameters
    - 'Unlikely to be sufficient to radically redirect the economy' (Mitchell, 2010:1)
    - Warns of danger of 'ideological lock-in': 'a band of iron holding together a certain framework'

WHAT IS THE DOMINANT PARADIGM?

- Leo Marx identifies it as a 'sociotechnological system':
  - Key distinction: hazards conceptual, not physical
    - Not the artifacts of technology
    - Rather it is the ways of thinking related to the role of technology in shaping society and social change
- The machine became synonymous with progress resulting in 'the blurring of the distinction between mechanical means and political ends' (Marx, 2010: 566)
- 'Technology, as such, makes nothing happen. By now, however, the concept has been endowed with a thing-like autonomy and a seemingly magical power of historical agency. We have made it an all-purpose agent of change. … It relieves the citizenry of onerous decision-making obligations and intensifies their gathering sense of political impotence' (ibid.: 577).

CONSEQUENCES

- Technical objects part of a technical system based on technical calculus (Gras, 2016)
  - Locking ourselves into an electronic world functional to the needs of neoliberalism
  - So-called 'green transition' is 'totally illusionary'
  - Pope Francis: failure of global summits on environment make it plain 'our politics are subject to technology and finance' (Pope Francis, 2015: 54)
    - 'The new power structures based on the techno-economic paradigm may overwhelm not only our politics but also freedom and justice' (53)
    - 'Tends to absorb everything into its ironclad logic' (109)
    - We need a 'bold cultural revolution' to challenge the dominant technological paradigm (109)

POWER OF HUMAN COMMUNITY

- ‘We fail to see the deepest roots of our present failures which have to do with the direction, goals, meaning and social implications of technological and economic growth’ (109).
  - Power of local agency to create change:
    - Local communities and groups
    - Co-operatives
    - Consumer movements
    - The ecological movement
- ‘Unless citizens control political power – national, regional and municipal – it will not be possible to control damage to the environment’ (179).

CLOUGHJORDAN AS LOCAL ECOSYSTEM OF INNOVATION

- Sustainability at the heart of vision
- Building a vibrant community life:
  - Low-energy homes
  - District heating fuelled by renewables
  - Community farm
  - Car club
  - Green enterprise centre
  - Amphitheatre