

The 3D's - Direction, Distribution and Diversity

Key concepts for Innovation, Sustainability, Development: A New Manifesto by Andy Stirling

Recent STEPS work on knowledge, innovation and development highlights shortcomings in the mainstream models that have become integral to much government and international agency policy. Alternative approaches might fruitfully address and connect '3Ds' - directionality, distribution and diversity - relevant across different sectoral and policy arenas.

Directionality of Innovation: Established political and economic approaches to innovation and development emphasise the scale and pace of advances and how efficiently resources produce required outcomes. However knowledge, innovation and development also have 'vector' qualities that involve direction (as well as scale). Science, technology, research, policies, institutions and infrastructures can all develop along alternative path-dependent trajectories. Rather than restricting policy consideration to questions over the pace, efficiency and distributional consequences of going in any particular direction, focus is needed on the nature of the direction itself – and multiple alternatives.

Innovation	Slight change of direction	Radical change of direction
Transgenic crops	genetic marker-assisted plant breeding, apomixis	Organic farming
Patent-intensive pharmaceuticals	prize-driven pharmaceutical innovation	preventive healthcare
Centralised energy resources	distributed energy sources	radical energy efficiency
Privatised water infrastructures	public water infrastructures	water differentiation and recycling systems

Distribution of Consequences: It is well recognised that social distribution of economic resources, political power and cultural engagement are unjust in most countries. Yet, to the extent these are addressed in conventional innovation and development policies, this tends to assume that the direction of change is that favoured by powerful interests. Poverty reduction and well-being of marginal groups are thus reduced to a secondary, 'tactical' level. But distributional issues also present important criteria against which large-scale directions for change might be judged. Appraising alternative directions can enhance the scope for addressing crucial issues around the distribution of risks, burdens and benefits.

Diversity of Pathways: Established approaches to innovation and development tend to assume there exists some broadly most favourable configuration for technologies, practices or policies. Yet preoccupations with the 'bottom line' in business or 'evidence-based decisions' in policy making neglect the value and importance of diversity. This provides a crucial means to: preserve context-sensitivities in a world of globalisation, harmonisation and standardisation; ensure 'not all eggs are in the same basket' amidst uncertainties; foster more resilient and robust forms of innovation; enable accommodation of otherwise irreconcilable perspectives in plural societies; and counter and ameliorate concentration, momentum and lock-in in the dynamics of development and innovation. In a world of contending directions for innovation and development and a concern for the social distribution of their consequences, deliberate pursuit of a diversity possible pathways has great potential.