



How regulation of innovation can lead to sustainable development

The contribution of technical innovation to sustainable development requires integrated, long-term policy to unlock industry from previous business models and practices, according to a new analysis. The researchers suggest adopting a multi-purpose policy practice that integrates industrial policy, environmental policy and trade initiatives.

Sustainable development (SD) in a global economy requires major technological, organisational, institutional and social changes. However, there is often a reluctance to abandon well-established practices, especially from stakeholders that benefit from the current system. In order to encourage this shift, there needs to be more creative government interventions with greater integration between the three policy areas essential to SD: environmental, social and economic.

From previous research, the study identified two main types of innovation: 'sustaining innovations' and 'disrupting innovations'. Sustaining innovations do not involve huge change and are more incremental, such as cost-cutting production methods that increase production and displace labour. Disrupting innovations tend to challenge dominant technologies abruptly, such as the replacement of the vacuum tube by transistors.

The 'Porter hypothesis' proposes that regulation can promote innovation when industry sees a long-term gain from regulation, for example, in the case of the environment, by protecting resources and encouraging new products. The researchers suggest there should be a further distinction between innovation stimulated by weak and strong forms of regulation. In its weak form, firms respond to regulation with sustaining innovation, whilst in its strong form, the innovation is more disrupting with entirely new products and processes.

A weaker response that tends to focus on cost-reduction or increased production is more likely to provide short-term benefits with little investment in human capital. A stronger, more disrupting, response, if successful, is likely to be longer lasting and to reward and encourage the acquisition of new skills by labour to work with the new technology.

In order to encourage this strong form of innovation the researchers suggest a multi-purpose design policy that integrates environmental, economic and labour market regulation. Examples of this can already be seen at a national level, such as in the Netherlands where there is one combined agency for environment and spatial planning. Policy integration also needs to occur at an international level and the study suggests a World Sustainability Organisation could achieve this. Several practical considerations to support the integration of policy are also made:

- The level of government at which integration occurs, i.e. local, national or international should depend on the socio-technical goals. For example, integration of land-use planning, transport and housing might be best placed at the urban or local level, whilst integration of environmental pollution and product safety might be achieved more effectively at a regional or national level.
- Leadership for integration should be encouraged in government. The mobility of top- and mid-level managers within government agencies should be promoted, so they understand different areas and share expertise.
- Multi-disciplinary working groups should be created to address specific socio-technical problems, such as environment, public health, trade, energy, commerce and transport.
- Government should use a variety of policy measures to encourage innovation and find ways to combine and shape them for a particular purpose. These include financial support of R&D, removing regulatory barriers to innovation, procurement and investment, advancing knowledge-transfer and long-term tax policy.

Source: Ashford, N.A. & Hall, R.P. (2011) The importance of Regulation-Induced Innovation for Sustainable Development. *Sustainability*. 3: 270-292. This study is free to view at: www.mdpi.com/2071-1050/3/1/270/pdf

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