
Means and Ends and Innovations

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The 'Eclipse of Reason', a remarkable actual book originally published in 1947 and written by Max Horkheimer, a leading figure of the so-called Frankfurt School, includes a critical and discerning examination of the transformation of modern thought. An important argument of the book is that the development of modernity transformed the world from one of ends into one of means. Furthermore, Horkheimer argued, modern thought is unfortunately hardly concerned with ends themselves but with the coordination of means with ends as given. The emphasis is on the instrumental, with concern for the adequacy of procedures for ends more or less taken for granted, little importance attached to the question whether the ends as such are reasonable. Horkheimer argues that classical thought, on the other hand, 'was intended to achieve more than the mere regulation of the relations between means and ends: it was regarded as the instrument for understanding the ends, *for determining them*' (Horkheimer 2004: 7).

This issue of Tailoring Biotechnologies is concerned with the means and ends debate, and the issue of innovation as critical reflection on ends and not only as the coordination of means with ends as given. The first two articles explicate the means and ends debate, acknowledging that ends need to be established explicitly, and means not treated merely as simple procedures. The articles on innovation which follow are concerned primarily with explaining means while pertaining to the issue of ends.

In *Modernity between abstraction, logos and globalization* **Pietro Barcellona** discusses the process of globalization as the completion of a process of abstraction inaugurated with (or by) modernity. He argues that modernity is a process of alienation of the subject from the social spaces s/he is part of, and that the modern subject therefore becomes an abstract subject. Barcellona relates this process to the feature of technical actions of the modern subject, which is instrumental, and thus characterized by the supremacy of means over ends. He considers the contemporary form of globalization as a perfection of this development of the supremacy of means. However,

Barcellona's analysis is in no way to be understood as a longing for a return to an idealized past, but rather a plea against instrumentalization (the supremacy of means over ends) and for a substantive approach, i.e. a technological and scientific development which is based on ends. He concludes, therefore, that it is necessary 'to pass from the "defensive" phase, in which the *dangers* of technological innovation are denounced, to the phase of reasoning concretely on the specification of the social ends that must lead the selection of processes of techno-scientific innovation.'

In *The wiki way, prefiguring change, practicing democracy*, **Kate Milberry** discusses the disconnect between modern technology and social values. The focus, however, is on the attempts of tech-activists to appropriate technologies and inflect them with the social values of the global justice movement. The technology is re-designed, in accordance to the desired social ends - answering, indeed, Barcellona's plea for a technological development embedded in social values and ends. She takes the case of internet-technology, in particular the wiki, arguing that tech-activists have created a space and tool for communication in cyberspace, and that this in turn has 'enabled the realization of new communicative practices offline, establishing a dialectical relation between the technological and the social, and restoring technology's transformative aspect.' Milberry concludes that while it remains to be seen if this truly indicates or contributes to, a radical reform of the technical sphere, it does, nevertheless, offer hope that another world and another technology may be possible.

Yolanda Cristina Massieu Trigo discusses the configuration of labor in technological systems in horticulture production in Mexico. She describes the existing technological system used in horticulture production as more or less 'total' systems, total in the sense that they are commanding and leave little room for agricultural laborers to appropriate and change these systems. On the contrary, the workers, generally seasonal, are re-configured in these technological systems as subjects who have less to say. She concludes that the technology network demands and produces cheap and unqualified temporary labor, and so contributes to the continuity of unfair social relations and poverty conditions, disempowering the rural poor who are employed in horticulture production.

In *Biotechnology Innovations in Ghana: re-conceptualizing the role of stakeholders* **George Essegbey** and **Korbla Puplampu** rethink the role in technology innovation that stakeholders play, with particular reference to national innovation systems and biotechnology. The article focuses on means

(improvement and advancement) and examines the institutional framework needed for technology innovation. It emphasizes the importance of explicating the role of stakeholders, especially in how different actors can influence each other to generate new forms of knowledge. Reassessing the institutional dimension, the authors go on to identify and discuss four key issues: i) the new perception of the potential of biotechnology as a generic technology; ii) a demystification of the science and technology; iii) an understanding of the dynamics of the new markets; iv) the centrality of policy and strategy.

"Who needs GM bananas? And will they have the chance to choose?", by **Anne Vézina** and **Richard Markham**, is an opinion article primarily making an argument for a shift of the focus of the genetic modification (manipulation) debate, from out of the arena where politics and ideologies of fear and salvation compete with each other, and towards a socio-economic embedded analysis. The authors use the case of genetically engineered bananas, making a plea for the design of policies that exclude unnecessary and inappropriate applications of GM technology and develop ecologically responsible and cost-effective ones.

The final article of this issue is a review article written by **Damodaran** of Andrew Feenberg's *Heidegger and Marcuse*, a book following his trilogy on technology (*Questioning Technology*, 1999, *Critical Theory of Technology*, 1995, and *Alternative Modernity*, 1991). In *Heidegger and Marcuse*, Feenberg explores the intellectual origins, differences and similarities between the two philosophers, arguing that Heidegger developed a remarkable theory of *techné*, which was continued by Marcuse, but 'suppressed in the end by both.' His book is, partially, a discussion with Douglas Kellner, who, in his intellectual biography of Marcuse, argues that Marcuse's writing, both his earlier and later work, is Marxist rather than Heideggerian. Damodaran's review article discusses some of the key-issues in Feenberg's book, but also appraises its relevancy for rethinking technology and rethinking society.

The issue of means and ends, and, constituted by this question, that of innovation, is only touched upon in this issue of Tailoring Biotechnologies. It needs comprehensive and systematic appraisal, and critical reflection. As Horkheimer argues, '[T]he more ideas have become automatic, instrumentalized, the less does anybody see in them thoughts with a meaning of their own. They are considered things, machines' (Horkheimer 2004: 15). Yet, ends need to be determined in the light of reason, and sciences concerned not only with means, but also with ends.

References

Horkheimer, Max. (2004), *Eclipse of Reason*. London & New York:
Continuum