

Chapter 8.14

Knowledge Producing Megamachines: The Biggest Web 2.0 Communities of the Future

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ABSTRACT

In the present study, the authors point of departure is the control crisis of science whose resolution requires radical social innovation. The author then shows that the only possible way for achieving this is the partial fusion of certain portions of scientific activity with the system of public education, by means of organizing scientists, teachers, as well as middle and high-school students into hybrid, knowledge producing mega-machines. The author shall subsequently argue that doing so will at the same time bring about a pragmatic shift in public education, for which professionals in the field of pedagogy have long been ready in principle and in theory. As a final result we shall see the emergence of science and public instruction tailored to the global system level, within the framework of the information society.

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INTRODUCTION

The best way to predict the future is to invent it.
(Alan Kay)

The two perhaps most important sub-systems of the Information Society, Science and Public Education, are confronting a social innovation process of staggering force. Even though the research workshops of particular countries produce sensational results day by day, and the national systems of public education undergo continuing renewal, nonetheless in terms of their interest structures, their institutional mechanisms, and their financing, both science and public education have up to the present day continued to carry the imprint of the industrial era. For that reason, their functional disturbances can be managed ever less effectively by short lived pseudo-reforms of purely transitional impact.

The information technology background systems of modern sciences produce an incredible quantity of output signals. For many of the sciences (primarily genetics, oceanography, meteorology/climatology, environmental sciences, nuclear physics, pharmacology, archeology, and, first of all, astronomy) it is more and more problematic to manage the content of their permanently swelling background stores. Beside financial resources the “human agent”, human infrastructure, is becoming one of the bottlenecks. If we need brains in a “pre-digestive” process, it can easily find them where the task is exactly to make these brains able to do (even) scientific work: in the school benches. With the pupils socialized in the adequate community scope, involving resources and learning basic knowledge to satisfy their stateless desire to know and with their teachers an alliance may be created, and the biggest human GRID (the biggest Web 2.0. community) will be composed from these hybrid online clusters – the new type of knowledge producing and learning communities.

This process will, however, not run its course automatically. It requires efforts aligned with the same orientation, over several decades, by scientists from the various specialized fields, coordinators of instruction, political decision makers, teachers, social researchers, and information technological system developers. The final result guided by a vision, and the broad sweep of the project that builds the path leading to that goal, make for social innovation of a scope and importance whose like has never before been formulated either by the sociology of science, by the philosophy of education, or by research in futurology.

At this point our assertions concerning the future are hypotheses. Our aim is to elaborate scenarios ripened in a series of debates and work toward consensus-based conceptual structures, all of which will make it possible to initiate effective and soundly based social action and coordination, if and when the vision gains acceptance.

THE CONTROL CRISIS OF SCIENCE AND THE INEVITABLE CONTROL REVOLUTION

In the relevant literature there is a general acceptance of statements such as that the globalization of science has accelerated, that modes of knowledge production are emerging which follow new patterns, or that the rapid build-out of the new cyber-infrastructure of science introduces radical changes in methodologies of numerous scientific fields. There is, however, a considerable divergence of opinions concerning the depth of the challenge facing science and what the most comprehensive framework might be for interpreting the respective changes.

Beniger

On my part, I consider the model introduced by James Beniger in his epochal work, *The Control Revolution* (Beniger, 1986), to be the most fertile theoretical approximation. I hold so because the current situation of science can be elegantly interpreted using Beniger’s category of a control crisis while also convincingly revealing the defining features of the incubating control revolution.

Shortly after the publication of his book, Beniger himself attempted to summarize in an independent study how his model might be extended to global science (Beniger, 1988).

The control revolution was the successful answer given to the lightning-fast process of industrialization which evolved during the century following the 1830’s. Beside reining in speed and energy, adequate answers were successfully found to governance and enterprise management through technological innovations supporting the flow and elaboration of information, together with the social innovation of modern bureaucracy. Beniger’s attention is drawn early to the double role in this process played by telematics, the increasingly interwoven world of information and communication systems. With its innovations,

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