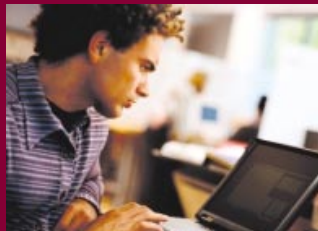


A SUSTAINABLE RESEARCH AND PRODUCT DEVELOPMENT AGENDA?

BY GREGOR WOLBRING



Throughout history, science and technology products have had profound impacts – both positive and negative – on humankind. The goals for which science and technology are advanced and for which we developed products are not value-free. They reflect the cultural, economical, ethical, spiritual, moral, and political framework of society embodying the perspectives, purposes, prejudices, and particular objectives of society and powerful social groups within it. The perspective of people, including their insight into the workings of society, varies systematically with their position within that society.¹

“What do we want from science and technology? How do science and technology change and influence the quality of our lives and mediate our ability to pursue ‘the good life’?” Answering these questions requires an examination of the complex interdependent fabric of perceptions, values, and choices, and consideration of the development and application of technology within different cultural, economic, ethical, spiritual, moral, and political frameworks.

The research and product development agenda of companies

Companies are in the business of making money. It seems logical that they focus their research efforts on generating potential products or services they can create a demand for, market and sell profitably. It seems to be good business practice to focus research and development efforts on products for the affluent. If a given cultural, economic, ethical, spiritual, moral and political framework is advantageous for sales and overall profit, it seems logical that companies will sustain this framework.

This strategy, however, led to today’s reality that a) companies do not invest in research and development for products that don't generate profit; b) 90% of health research today benefits only 10% of the global population;² c) of 1,393 new chemical entities marketed between 1975 and 1999, only 16 were for tropical diseases and tuberculosis, which make up 99% of the global burden of disease in low income countries;³ d) there is a 13-fold greater chance of a drug being brought to market for central-nervous-system disorders or cancer than for a neglected disease;⁴ and e) the increasing number of different divides – the digital divide, the able-to-afford medication divide, the medication-for-certain-diseases-availability divide, the knowledge divide, etc.

A new player on the horizon

Nanotechnology – the manipulation of materials on an atomic or molecular scale – enables a new paradigm of science and technology in which different technologies converge at the nanoscale. These include: a) nanoscience and nanotechnology; b) biotechnology and biomedicine; c) information technology; and d) cognitive science – known as NBIC (nano-bio-info-cogno) technologies. This paradigm derives from the governance of living systems by molecular behaviour at the nanometer scale, where chemistry, physics, biology, and computer science all now converge.⁵

The National Nanotech Initiative (USA) envisions applications for the converging of NBIC, in areas like the environment, energy, water, weapons and other military applications, globalization, agriculture, health (more efficient diagnostics and genetic testing, cognitive enhancement; life extension, enhancing

human performances in general).⁶ Each comes with its own sales pitches, social consequences, problems and implications.

According to the 2004 European NanoBusiness Survey, 90% of companies believe that nanotechnology will influence their business; 55% think this will happen within three years; and 84% believe that nanotechnology will have a significant effect on their competitiveness.⁷

So what should companies do? Proceed as per usual to generate demand for products for the affluent few? Ignore the increasingly obvious fact that increasing disparity and inequity are a breeding ground for violence? Ignore that violence will not be contained to where the disenfranchised live, but will be exported to the affluent world?

Towards a sustainable research and product development agenda

Is it not better to work with governments globally to ensure that the so-far marginalized majority are brought up to a decent level of living?

Uri Sagman one of the founders of C-Sixty⁸ – a leading nanomedicine company pioneering biopharmaceutical applications of a unique class of small molecules known as fullerenes – is focusing his efforts on the application of nanotechnology to problems of global scope, such as the nanowater initiative.⁹ He is also currently engaged in developing strategies for the National Nanotechnology Initiative programs in several countries, specializing in the development of paradigms for public and private sector alliances.

Dr. Sagman's example suggests that there are options for managers of companies. Choosing his route might help to defuse global problems, and lead to the achievement of health equity, improved health status for the world's majority marginalised population, the MDGs¹⁰ and a reduction in the 10/90 gap.

In the end, this is the only sustainable avenue for science and technology companies to pursue, as growing global instability will threaten their markets in the still affluent world, jeopardizing their profits and ability to stay in business. Indeed, companies that do their homework will realize that it is just good business practice to follow suit.

Footnotes

¹ Eichler, Margrit and Burke, Mary Anne, Towards BIAS FREE Health Research. (Global Forum for Health Research), forthcoming 2004.

² 10/90 Report on Health Research 2003-2004 Global Forum for Health Research 2004
ISBN 2-940286-16-7
<http://www.globalforumhealth.org/pages/index.asp>;

³ Trouiller et.al (2002) Drug development for neglected diseases: a deficient market and a public-health policy failure. *Lancet*, June 22, 359(9324):2188-94.

⁴ See footnote 3.

⁵ M. Roco, W. Bainbridge eds., *Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology and Cognitive Science*, (Kluwer Academic Publishers, Dordrecht Hardbound, 2003, ISBN 1-4020-1254-3) also online at http://www.wtec.org/ConvergingTechnologies/Report/NBIC_report.pdf

⁶ See footnote 5 and ; Roco, M., 2000 NATIONAL NANOTECHNOLOGY INITIATIVE FROM VISION TO IMPLEMENTATION <http://www.nsf.gov/home/crssprgm/nano/nni11600/sld008.htm>; International Centre for bioethics, culture and disability <http://www.bioethicsanddisability.org/nanotechnology.html>

⁷ The European Nanobusiness Association 2004 <http://www.nanoeurope.org/files/The%202004%20European%20NanoBusiness%20Survey.pdf>

⁸ <http://www.csixty.com/index.html>

⁹ Nanowater conference 2004 <http://www.nanowater.org/conf.htm>

¹⁰ United Nations Millennium Development Goals <http://www.undp.org/mdg/>

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