The 12th INTERNATIONAL CONFERENCE **INFORMATION TECHNOLOGIES AND MANAGEMENT 2014**
April 16-17, 2014, Information Systems Management Institute, Riga, Latvia

NANO-SYNERGETIC TECHNOLOGIES AND CONSUMER SOCIETY


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ABSTRACT

Consciously or unconsciously, the term 'nanotechnologies' is firmly entering the life of every consumer-citizen of the global community designating both relatively simple nanomaterials and goods that have already entered the market, and very complex technologies that are supposed to change radically the future of mankind. Applications based on today's basic research are expected to form the next industrial revolution. The unique properties of nanotechnology applications suggest potential to solve some of the most pressing social and business challenges, but they come with uncertainties and risks as all new technologies.

The general lack of public knowledge about nanoproducts that are already on the market in a full swing is likely to bring irrational and erroneous, potentially harmful, results. Therefore, modern technology requires educated work-force and responsible consumers and hence imperative for educated population. ***Nanosynergy*** means a systemic co-interaction of modern technologies (information, energetic, electronic etc) which leads to changes of human thinking. Our mission had a focus on introducing changes into the curriculum to eliminate gaps in scientific knowledge of students (as potential consumers, managers and scientists) and to foster an active approach to developing responsible scientific consumption practices and to offer an opportunity for students from a wide range of disciplines to learn about nanoscience and nanotechnology, to explore these questions, and to reflect on the place of new technologies in the spheres of their major and in the global society.

Keywords: Nanotechnologies, responsible scientific consumption, consumer identities, nanoeducation, nanothinking

1 INTRODUCTION

Modern technology requires educated work force and hence imperative for educated population. The needs of new emerging technologies and a beneficial state of society are compatible in this case. There is no monolithic thing called technology. Rather there are various technologies, which converge or compete to fit into what can be called an ecosystem of technological and societal arrangements. Societal and technological arrangements co-evolve. This co-evolution happens most favourably in an educated, intellectual, and affluent society that is tolerant of change and divergent views. By fostering an educated, intellectual society, it creates conditions that foster responsible moral and social behaviour of the individual and contributes to shaping intellectual humankind [1].

2 KNOWLEDGE MANAGEMENT AS A MEANS OF SOCIAL CHANGE: *WHO NEEDS NANOTECHNOLOGY EDUCATION?*

There are three organizational resources of knowledge management (KM) – people, processes and technologies – to use and share information more effectively. Knowledge has become the most valuable resource. Prominent technology leaders, nanotechnology boosters, scientists, policy officials, and environmental organizations have raised important questions about nanotechnology's potential economic, social, and environmental implications. However, there is very little knowledge in wider European society about what nanotechnologies are and what impact they might have on how we live. Many experts acknowledge that uncertainties prevail about this (Figure 1).

FIGURE 1 NEW TECHNOLOGY AS MEANS, OBJECT, AND CONTEXT OF CONTEMPORARY HIGHER EDUCATION

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The central question on nanotechnology education is 'Do we need nanoeducation?' To answer this question, we should first find out who needs nanoeducation? What is the interest in nanoeducation from those who have expressed the need? What kind of education is needed - expertise, skills, level? For what kind of jobs are skills and knowledge of nanotechnology needed?

Nanotechnology has shaken the world and the advanced countries are investing billions of dollars for its R&D and industrial applications.

For example, USA cumulative investments in nanotechnology-related research since 2001 now total over 16.5 billion dollars (environmental, health, and safety research since 2005 now total nearly $575 million; education and research on ethical, legal, and other societal dimensions of nanotechnology since 2005 total more than $390 million) (NNI,[2]). Similar amounts are being spent on nanotechnology by Japan, Russia, China and European Union. Nanotechnology has therefore been taken up in these countries as an important national requirement [2].

Nanoeducation challenges all students to broaden their horizons and gives them ways of acquiring knowledge of things that shape intellectual society. It fuels their interest as citizens so that they would be curious about the state of current knowledge, regardless of their major. It prepares them to follow the evolution of knowledge and technologies, to be active responsible citizens today and speak knowingly on questions dealing with quality of life within their local communities and the global society. Not only would the practice of open discussion, problem-solving, decision-making, and statements of personal growth encourage healthy introspection, it would also anchor the scientific and technical disciplines with humanities and social sciences. This is especially important because the exceptional synergy of nanotechnology with other disciplines creates significant social, legal, ethical and political issues that can be effectively resolved and outspoken only by the intellectual citizenry of an intellectual community [3-6]. Finally, a gap analysis can be implemented to provide the best way of strategic assessment and planning (see, It allows comparing two series: 1) where we are now and 2) where we want to be in some time in the future, making it easy to identify the gaps in knowledge that need to be closed. For each area giving us a complete picture of the situation, we ask two questions: 1) Where are we now? 2) Where do we need to be in 13 weeks' time? Actually, we have to answer three questions: 1) How are we doing? 2) How should we be doing? 3) How much do we need to improve? (Figure 2) We can then quickly identify where the gaps are and whether things need to improve.

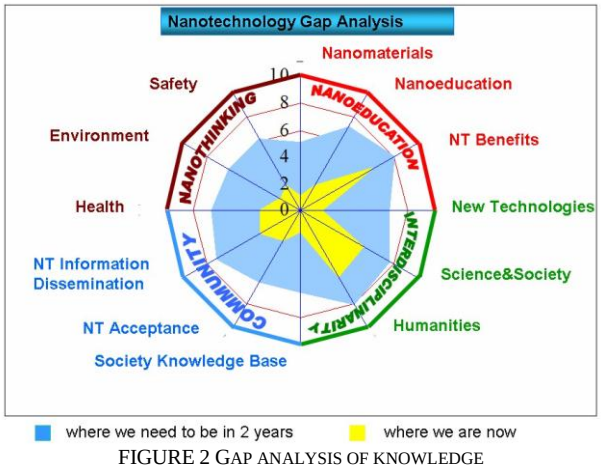

FIGURE 2 GAP ANALYSIS OF KNOWLEDGE

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