

# INFLUENCE OF NANOTECHNOLOGY ON THE SOCIAL SPHERE

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**ABSTRACT:** OVER THE LAST DECADE THE TERM "NANOTECHNOLOGY" OCCURS MORE OFTEN WHEN IT COMES TO INNOVATION IN APPLIED SCIENCE. IT IS NOW KNOWN THAT IT WAS LOOKING INTO THE FUTURE, HIGH TECHNOLOGY THAT DETECTS UNSUSPECTED PROSPECTS FOR OUR CIVILIZATION AND FUNDAMENTALLY CHANGED OUR TRADITIONAL NOTIONS AND HUMAN EXPERIENCE. THE SOCIAL WORK WILL BE VERY STRONGLY INFLUENCED BY THE DEVELOPMENT OF NANOTECHNOLOGY AND MAINLY IN MEDICINE, SINCE ITS RESULTS FIRST WILL IMPROVE THE CONDITION OF BENEFICIARIES OF SOCIAL SERVICES, AND SECONDLY, REDUCE THE NUMBER OF THESE PERSONS. KNOWN IS THE FACT THAT THE MAJORITY OF THOSE USERS OF SOCIAL SERVICES ARE THOSE THAT CAN GENERALLY BE DESIGNATED BY THE TERM PEOPLE WITH DISABILITIES. ADEQUATE POLICY OF EACH COUNTRY, INCLUDING BULGARIA, TO COMPLETE THE FINANCING FOR THESE NEW MEDICAL PRODUCTS WILL HELP; REDUCING THE FUNDS THAT THE COUNTRY DEVOTED TO SOCIAL SERVICES, MEDICAL TREATMENT AND SUPPORT; WILL REDUCE THE COST REQUIRED TO BUILD AN ACCESSIBLE ARCHITECTURAL ENVIRONMENT; IT WILL BE POSSIBLE EARLY DIAGNOSIS OF DISEASES AND WILL INCREASE THE OPPORTUNITIES FOR TIMELY RESPONSE, ETC.

**KEY WORDS:** NANOTECHNOLOGIES, SOCIAL WORK, PEOPLE WITH DISABILITIES

**OVER** the past decade the concept of nanotechnology is becoming more common when it comes to innovation in applied science. It is now known that it was looking into the future, high technology that detects unsuspected prospects for our civilization and fundamentally changed our traditional notions and human experience.

**NANOTECHNOLOGY** is any proceedings in which processed the smallest particles of materials. The word means dwarf. A nanometer is one billionth of a meter and is equal to 1 / 80,000 of the thickness of a human hair [10]. It suggests that the market for nanotechnology products will be bigger than the market of information and communication technologies and will exceed ten times the future biotech market.

**BULGARIAN** scientist Georgi Mladenov, analyzing the problem with the advent of nanotechnology in life wrote [10, p.13]: "Now we talk about nanotechnology revolution for the next industrial revolution that will transform industrial production." According to various estimates weekly market appear 3-5 new nano product.

**IN** the US, even during President Clinton, nanotechnology and science of nano-sized materials have become a national program, which was allocated about 2.5 billion dollars. The reason is that these materials would help to resolve and energy, and health problems of mankind. The European Union invests in nanotechnology from 2004, this is mainly active

lobbying of Germany, which was hosting the Seventh Evronanoforum - 2015 [3], which brought together more than 1200 delegates - scientists and businessmen from all over Europe.

**IN** Bulgaria, a National Center for Nanotechnology at the Bulgarian Academy of Sciences [11]. Its activities are coordinated by the National Coordination Council on Nanotechnology. It presents 20 BAS institutes, 13 universities with 17 faculties, two ministries - economy and defense, and a firm.

**THE** development of nanoscience and nanotechnology in the country began with the participation of our specialists in different international projects and working groups. By the noble desire to share with other professional experience, creating the above structures. Today the country has a real working groups that produce nanomaterials. This happens in the institutes of BAS, Sofia University, the Technical University of Sofia, Varna, Ruse and Chemical Technological Institute in Sofia.

**THIS** detailed information is given no chance. Later in the article will be explicated important conclusions that correspond to this text. Nanomaterials are entering headlong into life and greatly affect daily life, industrial and technological development. This article highlights what will be the consequences of entering the social and social work. In their book „The Social Life of Nanotechnology” **Barbara Harthorn** end **John Mohr** [5] develop their thesis that nanotechnology are often invisible social life.

**THE** *social work will be very strongly influenced by the development of nanehnologiite and mainly in medicine, since its results first will improve the condition of beneficiaries of social uklugi and secondly, reduce the number of these persons.* Known is the fact that the majority of those users of social services are those that can generally be designated by the term people with disabilities.

**THE** advent of nanotechnology in medicine offers many interesting possibilities - some of them are still in the sphere of the impossible, but others are now part of the practices applied in the treatment. The use of nanotechnology in medicine may lead to revolutionary new ways of diagnosing and treating diseases and injuries to the human body. Much of the technology in this field, which 10 years ago were science fiction today are a reality and successfully implemented as part of modern medicine.

**NANOTECHNOLOGY** so successfully applied to the human body, as he can be seen as a set of nanomiti. Tova means that every cell and all bacteria living in the human body, as well as DNA and RNA and protein produced by the human body are peculiar kind organic nanomiti created by evolution.

**NANOTECHNOLOGIES** are already widely used in medical applications, for example:

1. According to scientists very soon thanks to their treatment of cancers in the human body can become possible. diagnosis and treatment of diseases and injuries of the human body. It is possible application of nanoparticles as drug or nano-robots aimed at developing technologies recovering and healing at the cellular level. According to Gert Storm of the pharmaceutical faculty of the University of Utrecht, very soon thanks to nanotechnology treatment of cancers in the human body can become possible.
2. In the future, will use nanobots that will allow not only to make blood count, but also to work on internal human organs without surgery. Nanorobots will be able to do everything in the human body, and with extreme accuracy, efficiency and speed. Medical nanorobots will be able to "repair" the damaged cells and tissues to diagnose

and treat cancers, to map the condition of blood vessels, making the analysis of DNA and subsequent adjustments to destroy bacteria and viruses. Nanorobots be used for targeted delivery of drugs into the human body to deliver drug to the right place without affecting healthy cells -the -has in insulin and chemotherapy.

3. *Nanotechnologies will facilitate the possibility of improving and enhancing people of their physical, cognitive and emotional abilities.*
4. Expectations are that after a while it will be possible to create nanosintetichen marrow, which will enable to replace damaged parts of the brain. There are disputes in this thesis because some scientists say may be lost border man - machine. But the expense of Denmark benefits are very good in the treatment of epilepsy seizures in hypoglycaemic episodes, which can be felt and therefore controlled. The Dutch scientist Alfred van Roosmalen even announced that by 2015 thanks to nanotechnology will be able to create a computer thinking the speed of the human brain or even faster.
5. Breakthrough was made by scientists with the creation of an artificial hand that successfully respond to nerve impulses and carried almost all the complex movements inherent in the human hand, allowing sensations and by the man who has been placed.
6. To improve the quality of life of older people, whose number will gradually narastva on a planetary scale, will help actions to be implemented in two main areas: improving health; increase opportunities for inclusion in employment, and thereby to prevent the danger of falling into social isolation.
7. In the field of health care already received fundamentally new drugs that help treat not the disease, ie the investigation and patient - the reason, which means restoration of damaged functions and rejuvenate the body.

**THESE** are some brief examples of the achievements of nanotechnology, which can create a completely new picture of the realized social work and types of social services. They can revolutionize them by drastically reducing the number of persons served by the social system of a country, the number of social workers who serve them and thus - reducing budget expenditure. *But the most important consequence of all this will increase the viability and efficiency of human capital and prosperity of every nation.*

**AS** an example of the need for the development of nanotechnology in medicine and their application in the social area, people with disabilities can examine the current situation in Bulgaria.

**ACCORDING** to the National Statistical Institute of Bulgaria [12], as of 1.02.2011 recognized permanently reduced ability or degree of disability have 474,267 persons. 9039 of them are children and 465,228 are persons 16 years and over. They are distributed as follows:

#### *Aged 16 and over*

- women are 258,708 with a relative share 55.6%;
- men - 206,520, or 44.4%;
- live in cities 332,595, or 71.5%;
- in villages - 132,633, or 28.5% of persons with disabilities

#### *Children*

- the girls are 3836, or 42.4%;
- the boys are - 5203, or 57.6%;

- live in cities 6607, or 73.1%;
- in villages - 2432, or 26.9%.

**FOR** persons 16 years and over living in the villages, every 1 110 000 people with disabilities. In the cities permanently reduced ability or degree of disability have 102 to 1000 people. Insignificant difference in the performance of residence for children. 1 000 children in 16 cities with disabilities, and in villages - 15. With increasing age increases the number of persons with disabilities. In children up to 16 years for every 1 000 people 16 are disabled while the adult population 80 years and over 237 of the index is 1000.

*1.02.2011* economically active were 67 549 persons with disabilities aged 16-64 years. Economically active are 27.5% of men and 26.7 percent of women with disabilities.

**AS** of 1.02.2011 465,875 persons with disabilities live in ordinary households (98.2%) and 8392 people with disabilities in collective households<sup>3</sup>. People with disabilities have in 371,232 ordinary households in the country (12.4%). Of these, the highest proportion of households with a person living with a disability - 87.8%. In 11.7% of households live in two persons with disabilities, and three more persons with disabilities living in 0.6 percent of the households of people with disabilities [12].

**OVER** the past 15 years the number of disability pensions has tripled, according to an analysis of the National Insurance Institute (NII) for disability pensions from the beginning of the pension reform in 2000 to 2014. In 2000 the number of disability pensions, the number was 323,517 and at the end of last year reached 907,380. The cost of disability pensions funded by the National Insurance Institute and the state budget in 2000 were 244.2 million. Lev, or 10.3% of total expenditure on pensions, while in 2014 reached 1.6 billion. Lev (!), Which represents 20% of total pension expenditure. Disability pensions trebled to 15 years [2].

**MINISTER** of Labour and Social Policy reported recently that over 50% of pensions in the country last year were invalid. He made the balance, in recent years a strong increase in this type of pensions [4]. At the same time, the number of personal assistants for people with disabilities who already exceed the figure of 17 000, which also absorbs also huge financial resources. By the end of 2017 provided more than 200 000 Levs. [7].

**HERE'S** the place to link to the first page of the report: if these funds - 1.6 billion. Lev and 200,000 lev (total nearly 2 billion. Lev!) Be granted the National Center for nanotech Bulgaria's developments in the field nanotechnology, they had a great restoring force on the welfare of Bulgarian society, in particular - on the social sphere, which is the subject of this material. Because thanks to the application of nanotechnology, the above forward figures for disabled people in the country would seem to be greatly diminished.

**TO** protect the health of the people will help the application of nanotechnology not only in medicine, but also the ecology, production of garments and information technology of new generation. For example, the creation of a clean and unpolluted environment is one of the prerequisites for the increase in average life expectancy. More on the third Evronanoforum in 2007 exported scientific reports that one or two markets in Europe shy but determined to enter the no-mess clothing, medical appliances smell, electronic paper. This will be of great importance for easy transportation and blind users of social services. As a consequence of these "nanopodobreniya" will be drastically reduced the number of social and personal assitenti as these discoveries will make served persons legally capable and self in a much greater extent.

**ADEQUATE** policy of each country, including Bulgaria, to complete the financing for these new medical products will help:

1. Reduction of the funds that the country devoted to social services, medical treatment and assistance. As a consequence of all this, will improve the economic situation in the country because of the possibility for adults to engage in work and realize their own revenues; will increase the sense of need and value of the individual; will be possible person actively involved in social and cultural life and social exclusion.
2. It will reduce the cost required to build an accessible architectural environment;
3. It will be possible early diagnosis of diseases and will increase the opportunities for timely response.

**THE** application of nanotechnology in architecture will help build a much healthier buildings and safe buildings. Rationalization of nano-coatings protecting any material from UV rays, water, fat and other contaminants can find much wider use in the construction of buildings, cars and other technologies in the coming decades. Will reduce the cost of people depreciated buildings and products. In this direction also need greater distribution and decline of the latest generation of solar collectors and produced on the basis of nanocrystals. This and other applications of nanotechnology will help increase the purchasing power of the population and to conduct better socio-economic policy.

**BY** improving technology and electronics (including computers) in the near future it will be possible production of microcomputers and even implant them into the human body, which is essential for easy transportation users of social services. In one such development and application of nanotechnology, they will be actively involved in public life and increase the period of their employment activity.

**AS** a consequence of the application of the achievements of nanotechnology in medicine, in the social sector can provide that will not be necessary social, aimed at children and adults with physical disabilities and the budget of the social activities in each country there will be a need for funding aids.

**IN** Bulgaria at the time the funds that have to devote a person during their stay in orthopedics, for example, are difficult to cover by a pensioner with a minimum pension, a person with a survivor's pension or lonely (unemployed) adult. The funds to be spent on food, stay and placing a medical device are prohibitive for low-income people. Not accidentally, Australian researchers put the issue has focused on the social impact and public perceptions of nanotechnology (in the local context) [14].

**BUT** *there is a risk that the application of nanotechnology in the social sphere to be expensive and difficult to access business, which is why the future can be created even greater social inequalities between people with uncertain economic status.*

**ACCORDING** to various sources today in nanotechnology employs approximately 20,000 researchers worldwide. They should focus their research not only on scientific and practical result of their work, but to keep strict account of the social implications of nanotechnology.

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