

HARMONIZING LAW AND INNOVATIONS IN NANOMEDICINE, ARTIFICIAL INTELLIGENCE (AI) AND BIOMEDICAL ROBOTICS: A CENTRAL ASIAN PERSPECTIVE

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Abstract: The recent progression in AI, nanomedicine and robotics have increased concerns about ethics, policy and law. The increasing complexity and hybrid nature of AI and nanotechnologies impact the functionality of “law in action” which can lead to legal uncertainty and ultimately to a public distrust. There is an immediate need of collaboration between Central Asian biomedical scientists, AI engineers and academic lawyers for the harmonization of AI, nanomedicines and robotics in Central Asian legal system.

Keywords: Nanomedicine, Nanotechnology, Tech Law, Medical Law, Legal Regulations

Background: Emerging medical technologies and innovative clinical practices such as production and transplant of Artificial Organs, use of Bio-Robotics, Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR), Augmented Reality, 3D Printing, Wireless Brain Sensors and Nanomedicine are posing a

significant challenge for the Central Asian legal system as a whole and Drug Regulatory Frameworks in Post-Soviet countries in particular.

AI, nanomedicine and robotics are at its advanced stages of understanding in the world, not well integrated or accommodated by countries' medico-legal scholarship. It is because of the related uncertainties in development trajectories of AI, nanotechnology, product properties of nanomedicines, potential risks of nanocomponents in their administration and commercial regulations of AI, nanomedicine and Bio-Robotics at a larger scale.

There is no debate in Central Asian legal and medical circles about the efficiency and potential benefits of these innovative nanomedical products with completely new characteristics and their functions with enormous potential in a wide range of applications with significant positive impact on healthcare. Legal scholars see almost all the medical innovations through the prism of superstition because of the novelty of these technologies in Central Asia and emerging cases of negligence. The major concern for now is that the AI and nanomedicine "as subject matter" spread its tentacles on the drug act, intellectual property law, commercial and trade law, tech law and environmental law as well. Whereas the biological cum metallic nature of Bio-Robotics possess significant questions for legal scientists to correctly determine the legal status of these machines/organisms.

The increasing complexity and hybrid nature of AI and nanotechnologies impact the functionality of "law in action" which can lead to legal uncertainty and ultimately to a public distrust. The nature of AI and nanomedicine is challenging current classifications of medical knowledge, and existing legal regulations in Central Asia. A minor misunderstanding of nanomedicine or status of AI by policy and law makers can decrease the inertia of AI and nanomedical research. (1)

Discussion: Scientists built humanoid robots which resemble with humans. They have head, hands, legs and body as of humans. The purpose of building such robots was to take some basic tasks related to locomotion and to copy the physical functions of human body. Now some of the modern humanoid robots can replicate the human facial expressions. Artificial intelligence has been introduced in such robots to make them function independently.

The other field of robotics is bio-robotics. This field of robotics include bionics, genetic engineering and cybernetics applications in order to form a robot with biological components. Bio-robotics is a field which strive to make robots which can emulate or simulate living biological organisms mechanically or even chemically. The other angle of bio-robotics is to use biological organism emulate as robots.

Recently, a group of American scientists developed soft biological robots which they named as bio-bots. These robots have capability to walk and to swim without any help and they can be triggered by electrical and light signals. These robots which has muscles components were 3-D printed first. These biological components divide by their own and can make bio-bots move. (2)

With the advancement of artificial intelligence and humanoid robotics and an ongoing debate between human rights and rule of law, moral philosophers, legal and political scientists are facing difficulties to answer the questions like, “Do humanoid robots have same rights as of humans and if these rights are superior to human rights or not and why?” It is vivid that the sustainability of human rights will be under question because, in near future the scientists (considerably the most rational people) will be the biggest critics of the human rights(4). Whereas to make artificial intelligence sustainable, it is very important to reconcile it with human

rights. Above all, there is a need to find a consensus between human rights and robotics rights in the framework of our established legal systems.

Many scientists are extending case of human rights to the artificial intelligent robots. “Suzanne Gildert, a co-founder and chief scientific officer of Kindred AI, a Vancouver startup whose backers include Google’s venture capital arm said, “A subset of the artificial intelligence developed in the next few decades will be very human-like. I believe these entities should have the same rights as humans,” AI-based robots and software programs are increasingly performing tasks – from beating chess champs to driving cars – that, previously, could only be done by humans. From Hollywood to the halls of the European Parliament, questions are being raised about whether robots with human abilities should be treated like humans too. AI/human hybrids will become a reality in the future.” (3)

Legal scholars often discuss to accommodate different legal systems under the heading of legal pluralism, but robotics rights will be a challenging area to adjust with established Central Asian legal systems as well as Central Asian approach towards international law.

It is argued that the applied scientists, international legal institutions and human rights have divergent philosophical backgrounds and goals. Human are referred as persons but not as a body. The concept of body is not well defined in legal scholarship. The normative relationship between law and human rights is complex but a triangle of law, human rights and robotic rights will be more complex. At least some, if not all, human rights norms are likely to be hierarchically superior within international law to organizational law.

When there is already a conflict between human rights and legal regimes, the nanomedical research, humanoid robotics and artificial intelligent bodies will add

fuel to the fire. The balloon of human rights is expanding, and legal systems are not able to accommodate them. With the introduction of AI bodies, the scientists will become more skeptic about “rights” because legal system will create hurdles in the way of their progressive research related to the artificial intelligent bodies in contrast to human bodies.

Interpretation of different ethical issues related with people give rise to the different legal decisions. It is very vivid in common law. The Artificial intelligence is a new introduction to the ethical questions leading to the legal decisions.

Scientists are trying their best to make Artificial Intelligence bodies independent, autonomous and competent with human so that they can take decisions independently. Scientists want such robots whose actions and decisions could not be predicted by humans so that these robots can be considered as an independent person. The main goal of artificial intelligence research is to make artificial bodies which are as competent as of humans. On the other hand, nanomedical scientists expect to increase the use of AI in nanomedicine(5).

Many countries are already trying to regulate the research done in the area of artificial intelligence, nanomedicine and medical robotics. They are afraid of social stigmas and ethical questions attached to the research related with artificial intelligence research. The main premise of these legal systems is that they don't let any non-human body as competent as a human and just because of this, they don't let artificial intelligence become that advance that they have to face serious consequences in future. The human rights activists and the questions related to new rights (employment rights, equal opportunity rights etc) are supporting these legal premises. Legal side and human rights activists stand side by side as an opposition to the artificial intelligence, biomedical and applied science research. This is more than enough to make scientists of artificial intelligence more skeptic about law and

human rights. They know that there are doing good for the mankind and they are doing it seriously with faster speed than legal and human rights activists.

Now it is ambiguous at this point that AI technology is useful for the mankind or not in the long run but nanomedicine definitely have benefits. If it is proven to be useful for the mankind, then many more people will become skeptic about legal regime and will consider law as a threat for the progressive and innovative scientific world. At this point, Artificial intelligence scientists will have upper hand and people will listen to them as they will have many things in their physical bodies (robots) to demonstrate their advantages to the ordinary people.

Conclusion:

AI and Nanomedicine as technology are developing fast in the Central Asian Region. In Post COVID World, it is expected to change the people's lives by improving healthcare (e.g. making diagnosis more precise, enabling better prevention of diseases), increasing the efficiency of state institutions (e-governments), contributing to climate change mitigation and adaptation, improving the efficiency of production systems through predictive maintenance, increasing the security of Central Asian, and in many other ways that we can only begin to imagine. At the same time, Artificial Intelligence (AI) entails a number of potential risks, such as opaque decision-making, gender-based or other kinds of discrimination, intrusion in our private lives or being used for criminal purposes.(6) There is an immediate need of collaboration between biomedical scientists, AI engineers and academic lawyers for the harmonization of AI, nanomedicines and robotics in countries' legal system and to discuss conceptual bases to better fulfill the legal language acceptable for AI scientist and nanomedical technologists. Since finding the sustainable bases for a responsible development of nanomedicine is a legal concern of legal scholars as well.

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