V. MODERN INFORMATION TECHNOLOGIES AND THEIR APPLICATION
V. СОВРЕМЕННЫЕ ИНФОРМАЦИОННЫЕ ТЕХНОЛОГИИ И ИХ ПРИМЕНЕНИЕ

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TECHNOLOGICAL SINGULARITY

Abstract. In the modern digital age, the issues of using artificial intelligence and the field of development of intelligent technologies are extremely important and relevant. Artificial intelligence began to penetrate into all spheres of human life. Technology is evolving at a tremendous rate, so we can face a technological singularity. A technological singularity can be dangerous for humanity. This problem is raised in the article.

Keywords: artificial intelligence, intellectual technologies, machine learning, technological singularity, superintelligence.

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ТЕХНОЛОГИЧЕСКАЯ СИНГУЛЯРНОСТЬ

Аннотация. *В современную цифровую эпоху вопросы использования искусственного интеллекта и области развития интеллектуальных технологий чрезвычайно важны и актуальны. Искусственный интеллект начал проникать во все сферы жизни человека. Технологии развиваются с огромной скоростью, так мы можем столкнуться с технологической сингулярностью. Технологическая сингулярность может быть опасной для человечества. Данная проблема поднимается в статье.*

Ключевые слова: *искусственный интеллект, интеллектуальные технологии, машинное обучение, технологическая сингулярность, сверхразум.*

The technological singularity, often simply called the singularity, is the hypothesis that at some point in the future we will invent machines that can recursively self-improve and that this will be a tipping point resulting in runaway technological growth. This will be a moment that fundamentally changes our economy and our society. There is no certainty that the changes will be safe. The purpose of this article is to decide if it is dangerous for humanity.
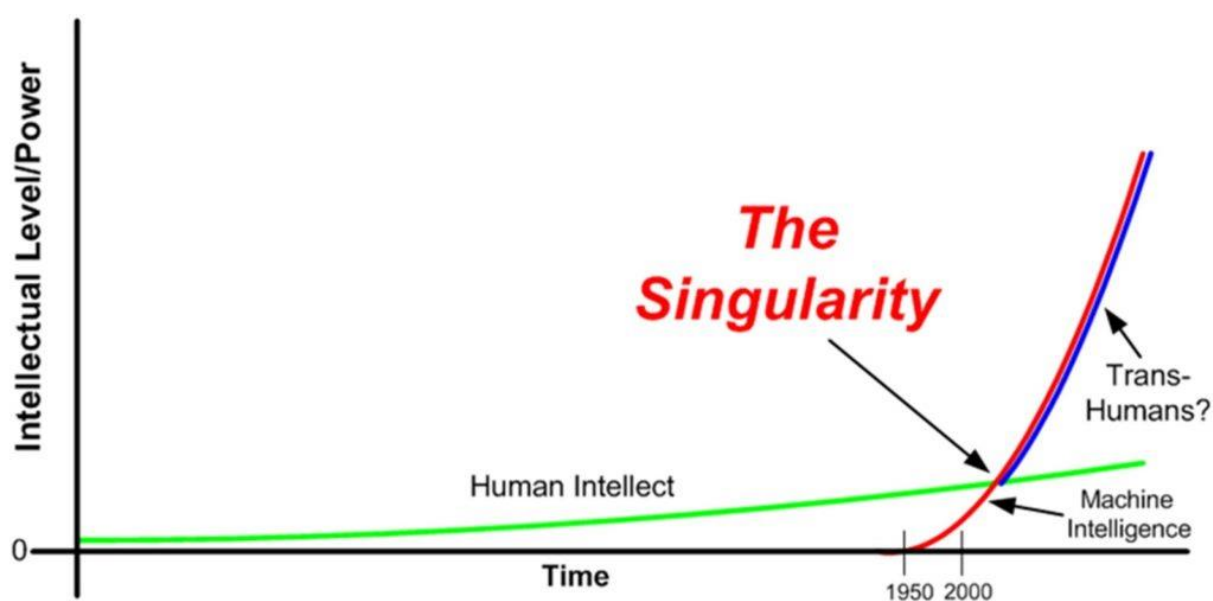

Fig. 1 – Technological singularity

There are two points of view on the technological singularity possibility. For example, there are two opposite articles by Wolsh and Yampolsky. They have many arguments for and against the possibility of a technological singularity. We hold the view that technological singularity is possible. It is therefore very worthwhile spending some time deciding if it is dangerous.

Several well-known figures including Bill Gates, Elon Musk, and Steve Wozniak have issued similar warnings. They predict that AI will end many things: jobs, warfare, and even the human race. If they are right this will be a moment that fundamentally changes our economy and our society. And we can see it now: cars with autopilot are driving on the roads, and artificial intelligence is doing work that previously required a lot of people. That's why we need to talk about Methods to Legal Regulation of Artificial Intelligence in the World.

There is no regulation regarding AI today. But the issues of using artificial intelligence and the field of development of intelligent technologies are extremely important and relevant. Authors of the article «Methods to Legal Regulation of Artificial Intelligence in the World» think that the most optimal is the creation of a separate legal regulation mechanism that creates a clear distinction between areas of responsibility of developers and users of systems with artificial intelligence and the technology itself.

The most optimal in this aspect is the approach implemented within the framework of the Asilomar principles (Figure 2). The introduction of asilomar principles of artificial intelligence in January 2017 at the conference in Asilomar, USA (2017 Asilomar conference) was the first and very significant step of the responsible approach of mankind to the development of artificial intelligence and robotics. Among the key positions of this document there should be noted:

1)   The principle of «useful» financing, which implies an infusion of investments in research to ensure the beneficial use of artificial intelligence in search of an answer to the most acute problems.

2)   The principle of «the connection between science and politics», which provides for constructive and useful interaction between researchers in the field of

artificial intelligence and those who make decisions on the regulation of artificial intelligence.

3) The principle of «security» and «transparency of failures», as well as the programming of artificial intelligence based on universal principles of morality.

Asilomar AI principles

RESEARCH
1. Research goal
2. Research funding
3. Science-policy link
4. Research culture
5. Race avoidance

ETHICS AND VALUES
6. Safety
7. Failure transparency
8. Judicial transparency
9. Responsibility
10. Value alignmnet
11. Human values
12. Personal privacy
13. Liberty and privacy
14. Shared benefit
15. Shared prosperity
16. Human control
17. Non-subversion
18. AI arms race

LONGER-TERM ISSUES
19. Capability caution
20. Importance
21. Risks
22. Recursive self-improvement
23. Common good

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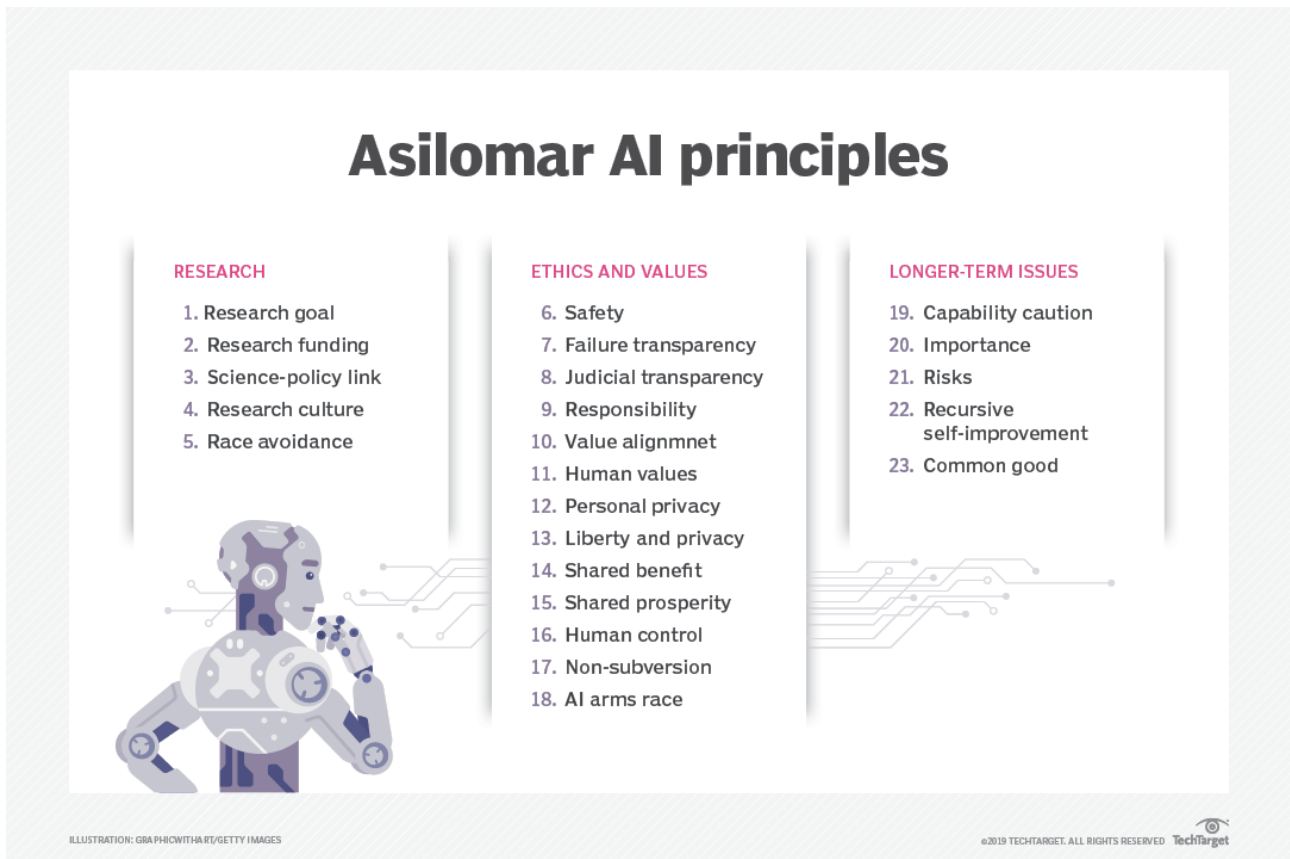
Fig. 2 - Asilomar principles of artificial intelligence

The governments can use these principles to create some regulation around AI but now this area doesn't have such attention.

To conclude we would like to quote Toby Walsh's words: «Even without a technological singularity, we might still end up with machines that exhibit superhuman levels of intelligence. … Even without a technological singularity, AI is likely to have a large impact on the nature of work. As a second example, even quite limited AI is likely to have a large impact on the nature of war. We need to start planning today for this future.»

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4. Figure 2 - What is Asilomar AI Principles? - Definition from WhatIs.com (techtarget.com)