

CONSIDERATIONS ON THE ARGUMENTATION OF THE ETHICAL ASPECT IN THE CREATIVE PROCESS OF CONCEIVING AN APPLICATION FOR AN INVENTION PATENT

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ABSTRACT

The authors of this scientific endeavor want to highlight a possible exploration and use of the concepts of creativity, innovation and ethical responsibility in the process of designing and analyzing an invention patent application in the field of military technologies. In this sense, in the present paper we address in a theoretical as well as in an applicative manner topics from the field of Ethics applicable in the creative process of developing an invention patent, the issue of intellectual property of a technological product that is conceived, designed and susceptible of industrial realization, an innovative comparison analysis proposal regarding the ethical aspects in the process of conceiving and evaluating a possible invention, an example of good practices regarding Ethics from the perspective of International Humanitarian Law in the comparative analysis of two patents in the military field, some conclusions and recommendations that emerge from the study and analysis that we carried out.

KEYWORDS:

Creativity, Ethics, patenting, technological innovation, moral responsibility

1. Introduction

Introducing Ethics in the creative process of designing an invention patent application opens a vital dialogue between the world of technological innovation and the ethical principles that guide our society. This paper aims to explore the complex intersection between creativity, innovation and ethical responsibility, providing a detailed insight into how ethical considerations shape and are shaped by the patenting process. In the context of an increasingly technologized world, where new inventions have the potential to radically transform society, bringing both benefits and ethical challenges, this study seeks to answer fundamental questions about how the

technological progress can be balanced with fundamental ethical values of humanity.

The concepts of good and evil have always existed, we could even say, looking through the window of biblical faith, that it has existed since Adam and Eve. It is central to all human activities because conscience leads people to evaluate their actions from a moral perspective. Throughout time, communities have been organized around moral principles that define what is good and what is bad, and these norms are not static but evolve with social change and the advancement of knowledge. Society's laws and regulations reflect these moral principles, being intended to guide human behavior for the collective good. However, dilemmas,

moral problems and conflicts between individual and collective interests require reflection and adaptation. The study of issues related to good and evil in everyday life and implicitly issues related to morality is named Ethics. This is a “*science dealing with the theoretical study of values and the human condition, from the perspective of moral principles, and their role in social life*” (Micul dicționar academic, 2010).

Ethics, as a discipline in itself, studies issues related to morality and provides guidance for human behavior. In small communities, ethical norms are transmitted orally or even through signs, and in organizations and institutions, they are codified and non-compliance with these is sanctioned. In the academic environment, the codes of Ethics are essential for protecting integrity and promoting correct

behavior, having an educational and preventive role. The academic institutions must constantly monitor and adapt these codes to respond to the new social and technological realities, thereby protecting both the individual and his intellectual creation.

There are two main reasons due to which people violate these codes of Ethics represented in Figure no. 1. These reasons are:

- *ignorance* – when the person does not know the moral code applicable in the situation in which he is, the violation of the code being *unintentional*;
- *the advantages of violating the code of Ethics* – when the person knows the code of Ethics and *intentionally* violates it to obtain certain advantages or to perform certain tasks more easily.

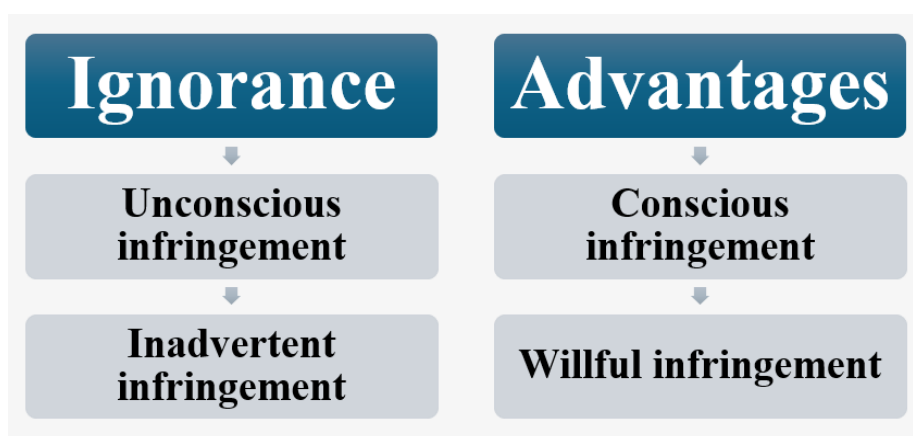


Figure no. 1: *Reasons for violating the code of Ethics*
(Source: Personal contribution)

Before presenting and detailing the concept of intellectual property, we will start by defining *property* in the general sense according to the “Explanatory Dictionary of the Romanian Language”. Thus, *property* means “*full control over an asset*” (DEX, 2009).

Intellectual property refers to the right to own and control intellectual creations, whether artistic or scientific, with the aim of protecting these works from “*intellectual theft*”. This concept is based on the general idea of property, which can be public or

private, and in this case, intellectual property is part of the private property. Although the modern term “*intellectual property*” was formalized by the Statute of Anne in 1710 issued by the Parliament of Great Britain (Norman, 2024), early forms of this right existed as far back as Ancient Greece, where the inventors could obtain patents for the culinary recipes they created, with the validity for a year (Witty, 2017).

Today, intellectual property encompasses a wide range of creations and rights (shown in Figure no. 2 and 3, respectively), being

divided into two main categories: industrial property (inventions and discoveries) and copyright (artistic creations). These two categories are regulated differently, but both require specific protection based on their nature. The concrete forms of

protection provided by the intellectual property law include copyrights, patents, trademarks and designs, each providing specific benefits and protecting various types of intellectual creations.

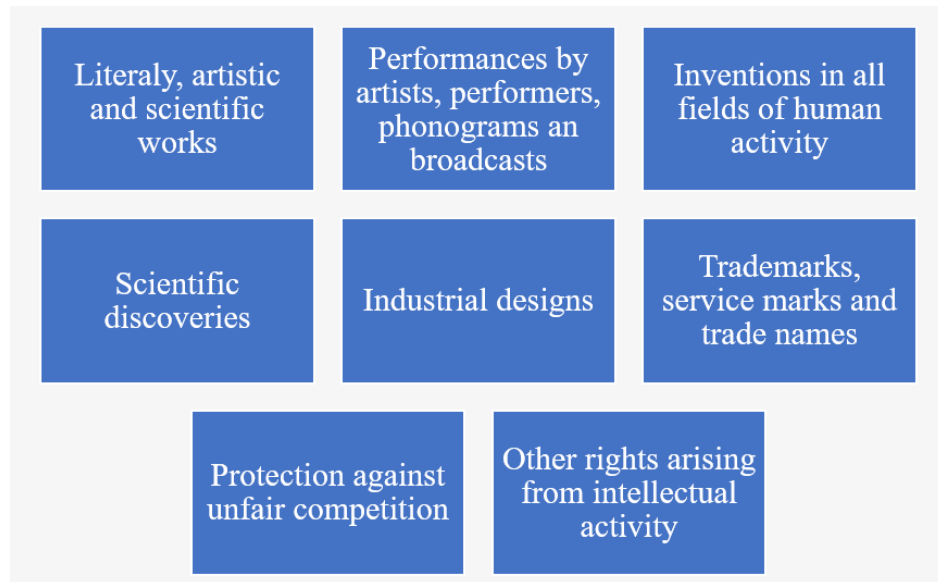


Figure no. 2: *Intellectual Property Interests*
(Source: Personal contribution)

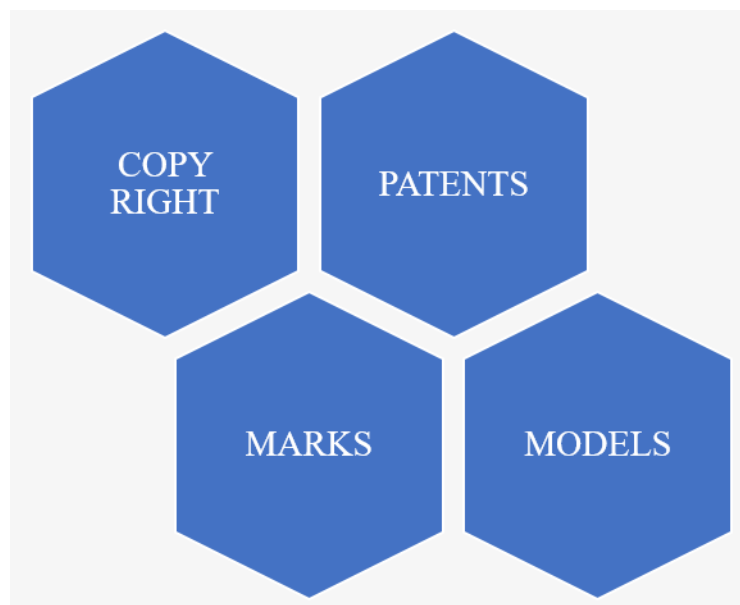


Figure no. 3: *Forms of intellectual property*
(Source: Personal contribution)

The patent application process is rigorous and structured in order to protect and acknowledge an innovation. It all starts with the identification of an original

invention that must meet three criteria: novelty, inventive step and industrial applicability. The invention must not be part of the public domain or previously

described (Gordon, 2012). After eligibility is established, the inventor drafts a detailed application describing the invention, including how to make and use it, and concluding with clear claims defining the required protection. The accompanying drawings and plans play an important role in understanding the invention. The importance of details and the clarity of this document cannot be underestimated as it will determine the scope of protection granted by the patent (United States Patent and Trademark Office, 2023). The claims are the most important part of the application as they determine the scope of the legal protection, therefore they must be drafted carefully.

After the application is submitted, it is subjected to a preliminary examination, followed by a database search to check whether the invention is new and innovative. If the application passes these stages, the substantive examination follows, where the invention is analyzed in detail to verify compliance with the patentability criteria. Examiners and inventors can work together to adjust claims, thereby

maximizing protection. If all the conditions are met, the patent is granted for a period of 20 years, giving exclusive rights of use to the inventor. Patent protection is territorial, and for a wider coverage, inventors can resort to international procedures such as the PCT (Patent Cooperation Treaty) or the European patent system. This simplifies the process of obtaining protection in multiple jurisdictions. International patent protection is vital to commercial success in the context of globalization, and careful protection planning can bring major competitive advantages.

2. Innovative proposal for a comparative analysis regarding the ethical aspects in the process of conceiving an application for an invention patent

This subchapter addresses the research hypothesis and objectives, fundamental elements for the proper conduct of a scientific study. The existing relationship between hypotheses, conclusions, the purpose and the result of the research is illustrated in the Figure no. 4.

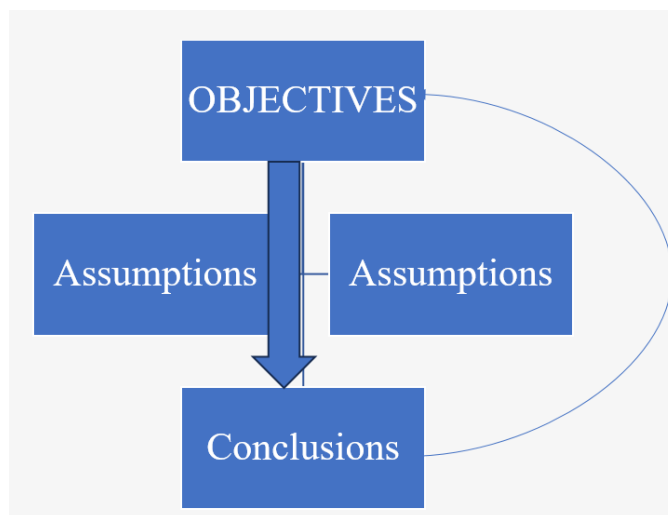


Figure no. 4: *Relationship between research elements*
(Source: Personal contribution)

The proposed hypothesis is that Ethics plays an essential role in the complex process of patenting, influencing

innovation and the protection of the rights of the inventors and of the society. To validate this hypothesis, the research will

pursue several objectives, both general and specific ones. We mention the analysis of the impact of Ethics on the patenting process among the general objectives, and among the specific ones, the exploration of the role of Ethics in patenting decisions, the evaluation of the arguments for and against the application of Ethics and the formulation of recommendations for ethical practices. The research will also provide a pertinent analysis of the impact of Ethics on innovation and will contribute to the development of international patenting policies. The ultimate goal is to provide a balanced perspective on the integration of Ethics in the patenting processes.

The research methodology aims to apply specific principles and instruments to analyze Ethics in the process of patenting scientific inventions. The research is based on three essential principles: the principle of parsimony, which implies the use of a simple and direct approach to validate the hypothesis; the principle of efficiency, which ensures the use of the most appropriate strategies to illustrate the stages and decisions in the patenting process; the principle of structurality, which organizes the work in a clear and logical way, facilitating understanding.

The main methodological approach is the discursive analysis, which explores hypothetical scenarios where Ethics influences patenting decisions, with impact on innovation and the protection of the inventors' and society's rights. The research uses a series of general logical tools: observation, which allows for the ascertainment of the factual situation; analysis, to reveal new contents; synthesis, which rephrases and aggregates information; comparison, which identifies similarities and differences between elements; commenting, to express findings;

generalization, which applies common characteristics to a whole; simplification, which optimizes research by eliminating irrelevant characteristics (Rațiu & Petrișor, 2017).

Using these instruments, the research aims to validate the proposed hypothesis and to contribute to the understanding of the manner in which the ethical principles influence the patenting process, promoting responsible and sustainable innovation.

The analysis of Ethics in the process of patenting inventions brings a series of arguments for and against, highlighting the crucial role of Ethics in promoting responsible and sustainable innovation, but also the challenges it imposes.

The pro-Ethics arguments in patenting, shown further in Figure no. 5, include protecting human welfare, as patented inventions have the potential to affect people's lives directly or indirectly. It is therefore essential that inventors assess the potential impact of their innovations on health, safety and the environment (Beauchamp & Childress, 2019). For example, medical technologies must be rigorously evaluated from an ethical point of view in order to prevent risks to patients. Ethics also promotes justice and equity in access to innovations, helping to solve social problems such as poverty or inequality by providing equitable access to essential technologies, including for developing economies. Integrating Ethics is also essential for sustainable development, encouraging green technologies and combating climate change. Inventors should assess the ecological impact of their innovations, thereby contributing to the prevention of environmental degradation and the conservation of resources for future generations (United Nations, 2019).



Figure no. 5: *Pro arguments regarding the application of Ethics in the process of designing an invention patent application*
(Source: Personal contribution)

Enforcing Ethics increases public confidence in the patent system by demonstrating inventors' commitment to social values. Preventing abuses and unethical uses of inventions is another essential argument, avoiding their use for dangerous purposes. Ethics encourages responsible innovation aimed at solving the problems of humankind and at protecting cultural diversity, acknowledging the contributions of traditional knowledge and preventing biopiracy.

The *arguments* against applying Ethics are based on pragmatic concerns. One of them is the complexity and length of the patenting process through Ethics reviews, which delays the commercialization of inventions, essential in fast-moving technology sectors. This delay is particularly problematic in the rapidly changing technological and scientific sectors, where the speed necessary to get to the market is often critical to commercial success and effective innovation (de Rassenfosse & Higham, 2021). Ethical reviews also involve additional costs, which may discourage start-ups or independent inventors, for whom obtaining a patent quickly and at low cost is crucial.

The subjectivity of ethical assessments introduces uncertainties and ambiguities, as ethical norms may vary according to cultural and social context. This can lead to divergent decisions in similar cases, eroding the consistency and predictability of the patent system. On the global stage, differences in the application of ethical standards by various jurisdictions further complicate the situation, and ethical restrictions can limit research in sensitive areas such as genetics, hindering scientific progress.

In conclusion, Ethics in the patenting process is essential to ensure that innovations serve the interests of society and contribute to a culture of responsible innovation. However, the practical and economic challenges associated with ethical evaluations raise questions about the efficiency of this process and the equity of access to innovations.

The strict integration of ethical considerations into the patenting process has the potential to create a cautious environment, where researchers and companies become reluctant to explore certain areas of research perceived as ethically sensitive or controversial, such as

genetic engineering or the development of artificial intelligence. This reluctance can be understood in terms of the perceived risk of violating established ethical norms, which could attract not only legal or financial consequences, but also significant reputational damage.

While it is essential to ensure that research and development are conducted within an ethically responsible framework, it is equally important to strike a balance that does not discourage innovation. An approach is needed that recognizes and accepts some level of risk inherent to research, while providing a clear and flexible framework that enables researchers to explore new horizons ethically and responsibly.

Ethical restrictions in the patenting process can generate intense debate about the balance between ethical responsibility and freedom of expression and innovation. A frequently raised argument is the idea that by limiting the types of innovations that can be patented under the pretext of Ethics, a framework is created that can be interpreted as a restriction of the freedom of research and development. This perception is anchored in the principle that scientific research and technological exploration are forms of creative and intellectual expression fundamental to the progress of society.

Essentially, the basic idea is that innovation must benefit from an open space, where researchers and inventors are free to explore various directions, even those that may initially seem controversial or ethically challenging. Too strict

restrictions or rigid interpretations of Ethics can indeed act as a form of censorship, limiting this exploratory space and inhibiting the potential of innovations to bring significant benefits to humankind. Integrating ethical aspects into the patent application process is essential to ensure that innovations not only bring technological progress, but are also socially and morally responsible. In Figure no. 6 one can notice the procedures we propose in relation to the involvement of the ethical aspect in the process of applying for an invention patent. These procedures are to be detailed below.

The first proposal is to institute a preliminary ethical impact assessment for all patent applications. This assessment would involve collaboration between inventors and Ethics experts, aiming to identify and address potential issues regarding the environment, human rights, social equity, transparency and accountability of the invention. Inventors should prepare the initial documents detailing the invention, which will be reviewed by a multidisciplinary team.

It is advisable to form a dedicated Ethics committee, comprising experts from various fields such as science, philosophy, law and representatives of the civil society. The committee will evaluate the documentation of the inventions, will discuss the ethical implications and will develop recommendations for modifying or improving the invention from an ethical point of view. Such a committee will provide a multidisciplinary perspective, contributing to the patenting decisions.

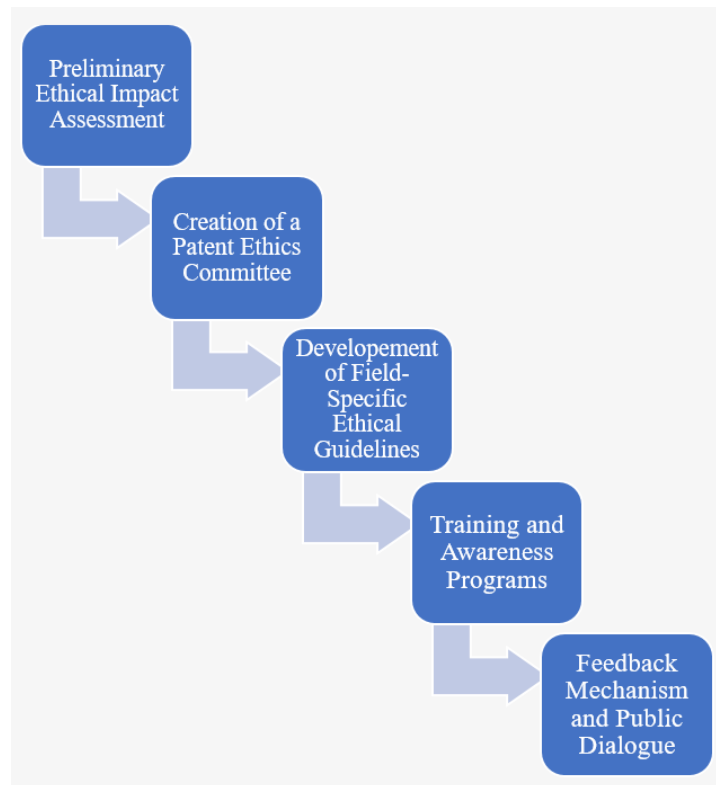


Figure no. 6: *Procedures regarding the involvement of the ethical aspect in the process of applying for an invention patent*
(Source: Personal contribution)

Another crucial element is the development of specific ethical guidelines for various technological fields. These will include fundamental principles, specific guidelines and practical examples to help inventors identify ethical dilemmas and make the right decisions. Another proposal refers to the organization of training and awareness programs for inventors, lawyers and other stakeholders to emphasize the importance of Ethics in innovation and patenting. The programs will include seminars, learning modules and online resources aimed at raising awareness and promoting integrity in the invention development process.

Another important aspect is the creation of a feedback and public dialogue mechanism on the ethical implications of patented inventions. Through online platforms, discussion forums and public consultations, society can offer opinions

and suggestions on inventions, and these can influence the decisions in the patenting process. The responsible institutions will analyze the public feedback and will include these suggestions in their assessments, thus promoting transparent and responsible innovation.

By implementing these procedures, the aim is not only to integrate ethical considerations into the patenting process, but also to promote a culture of responsible innovation. This approach will contribute to the development of a sustainable innovation ecosystem, aligned with the social and moral values, and it will increase public confidence in the innovation process. At the same time, these procedures will serve as a model for other areas of research and innovation, contributing to a more equitable and responsible technological progress.

3. Example of good practice: ethics from the IHL perspective in the comparative analysis of two weapons systems

In this section, we present the analysis of two weapons systems from the perspective of the principles of International Humanitarian Law (hereinafter referred to as IHL), in order to establish the ethicality of the patenting process in relation to their compliance with the principles. Through this analysis, we will be able to concretely understand how Ethics in the process of patenting certain weapons systems can have real effects on the battlefield and on the compliance with the IHL principles. Adherence to the principles of International Humanitarian Law (IHL) is essential for the protection of persons and property during armed conflicts. For the relevance of this analysis, the main principles of the IHL are presented and are briefly explained below (Stroe, 2014):

- *Distinction*: The distinction between combatants and non-combatants is fundamental. This principle requires the parties taking part in a conflict to always differentiate between the civilian population and the combatants, and between the civilian and military objectives. Attacks must be directed only at military targets.

- *Proportionality*: Attacks against military objectives must be proportional with the anticipated military advantage. This principle prohibits attacks if they could cause accidental civilian damage that would clearly outweigh the military advantages, with the aim of minimizing damage to civilians and to civilian property. This includes warning civilians before attacks, if circumstances permit, and choosing the means and methods of warfare that are least likely to cause excessive damage.

- *Humanity*: The principle of humanity prohibits the use of unnecessary

suffering and violence. It aims to limit suffering and to protect the physical and moral integrity of all those involved. Torture, cruel treatment and humiliation are strictly prohibited.

- *Neutrality of humanitarian assistance*: Humanitarian organizations must operate in a neutral manner, providing aid without discrimination and without favoring any side of the conflict. This ensures that aid reaches those most in need, without influencing the course of the conflict.

- *The principle of military necessity*: allows for the use of force only to the extent absolutely necessary to achieve a legitimate war goal. This principle restricts armed actions to those that are essential to defeating the enemy. This means that armed forces can only attack military targets that contribute to the enemy's combat capability and the neutralization of which provides a clear military advantage. The use of force must be proportional and not exceed what is necessary to achieve military objectives. Unnecessary or excessive attacks are prohibited.

- *The principle of non-discrimination*: it is one of the fundamental pillars of IHL and emphasizes the obligation to treat all persons affected by a conflict equally and without favoritism. This principle prohibits discrimination on the basis of race, religion, gender, nationality, political affiliation or other similar criteria when it comes to humanitarian protection and assistance. Non-discrimination also ensures that IHL rules are applied uniformly to all parties involved in a conflict, without regard to the reasons or justifications for the conflict.

The weapons systems proposed for analysis from the perspective of Ethics related to IHL principles are the 7.62 mm submachine gun, model 1963 (Wikipedia, n.d.,a) and the 5.45 mm automatic rifle, model 1986 (Wikipedia, n.d.,b), presented illustratively in Figure no. 7.



a)



b)

Figure no. 7: a) 7.62 mm submachine gun, model 1963

(Source: https://ro.wikipedia.org/wiki/PM_Md._1963)

b) 5.45 mm automatic rifle, model 1986

(Source: https://en.wikipedia.org/wiki/Pu%C8%99c%C4%83_Automat%C4%83_model_1986)

Futhermore, for the relevance of the study carried out on the ethicality of using one weapons system at the expense of

another, the main technical-tactical characteristics of the two weapons systems were presented in Table no. 1:

Table no. 1

The main technical-tactical characteristics of the two benchmarks

Characteristic	Submachine Gun Model 1963	Automatic Rifle Model 1986
Caliber	7.62x39 mm	5.45x39 mm
Barrel length	415 mm	415 mm
Weight	3.45 kg	3.69 kg
Initial bullet velocity	715 m/s	879 m/s
Effective firing distance	300 m	300 m

To assess which of the two weapons, Submachine Gun Model 1963 and the Automatic Rifle Model 1986, is more ethical from the perspective of International Humanitarian Law (IHL), one should analyze how their technical-tactical characteristics could influence the compliance with the principles of IHL in their use in conflict:

Distinction and military necessity

- The Automatic Rifle Model 1986: With an initial bullet velocity of 879 m/s and a barrel length of 415 mm, this weapon can provide increased accuracy, which helps distinguish between military and civilian targets, thus complying with the principle of distinction and military necessity.

- The Submachine Gun Model 1963: Similarly, it has a barrel length of 415 mm but a lower initial bullet velocity of 715 m/s, which could reduce accuracy in comparison with the Automatic Rifle

Model 1986, possibly affecting the ability to correctly distinguish between combatants and non-combatants.

Proportionality

- The Automatic Rifle Model 1986: Improvements in accuracy and burst control (including the three-round fire mode) suggest a better ability to limit the use of force to strictly military necessity, aligning with the principle of proportionality.

- The Submachine Gun Model 1963: With a more traditional and possibly less controllable burst fire mode, there may be an increased risk of excessive use of force.

Humanity

Both weapons are designed for military efficiency, with no specific features to increase unnecessary suffering, thus conforming to the principle of humanity. However, the absence of damage limitation measures can be problematic.

Neutrality of humanitarian assistance

This principle is less applicable directly to the characteristics of weapons, but their effectiveness in avoiding unintended harm can influence the capacity of humanitarian organizations to operate in conflict zones.

Nondiscrimination

None of the weapons include features that discriminate between different groups; however, the accuracy and the fire control of the Automatic Rifle Model 1986 could facilitate a more consistent and equitable application of force.

Following this analysis, the Automatic Rifle Caliber 5.45x39 mm Model 1986 appears to be superior from an IHL perspective due to technical features that promote a more controlled and precise use of force, aligning better with the principles of distinction, proportionality and, indirectly, humanity. The improved accuracy and fire control characteristics help minimize collateral damage and limit the impact on non-combatants, thus conforming more strictly to the IHL principles in comparison to the Submachine Gun Model 1963, which, while robust, may not offer the same level of control in combat situations. In conclusion, we can state that the patenting of the Automatic Rifle Model 1986 was a more ethical process due to the considerations resulting from our analysis, the weapon being optimal for the targeted and concise neutralization of the adversary, without directly having the strongest killing effect, thus allowing for a combatant to be

removed from the battle with the possibility of his survival in certain cases.

4. Conclusions

The study emphasizes the need to integrate Ethics into the patenting process, highlighting the idea that principles such as transparency, accountability and fairness must be present at every stage of innovation. Ethics is not optional, but essential to ensure a positive impact of inventions on society and on the environment. The creation of Ethics committees and the involvement of the public in the evaluation of inventions facilitate dialogue between the parties involved, helping to identify ethical issues. It also emphasizes the importance of a proactive approach by inventors and patent institutions to assess the impact of inventions on humanity and the environment, promoting responsible and sustainable innovation.

A concrete example is the application of these principles in the patenting of armaments, in order to minimize the negative effects. In conclusion, integrating Ethics into patenting is not only a moral responsibility, but also an opportunity to improve innovations, ensuring that they serve the common good. The paper reveals that ethical challenges can be turned into opportunities by adopting a balanced approach that combines technological innovation with moral integrity, thus contributing to sustainable and equitable progress.

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