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Preserving Secrecy within the Patent System to Safeguard Western Countries' Technological Innovation^{*1}

Abstract. Russia's aggression in Ukraine has brought patent-policy debates into sharp focus with regard to secrecy. Russian violations of international and multilateral agreements on intellectual property have drawn significant attention and highlighted potential risks pertaining to safeguarding of technological innovation by Western countries, not least European Union member states. Against this backdrop, the article reflects on the secret-invention regulations in place and opportunities to keep an invention secret under European patent law. While the concept of a secret invention may appear contradictory to the patent system's primary aim – disclosure – secret patents are nothing new in the history of patenting. The paper presents a recommendation to expand the scope of secrecy in current patent law, thereby allowing Western countries to implement sufficient counter-measures in response to adversaries' flouting of international intellectual-property law. The article directs particular attention to expansion of this secrecy's scope to the technical description of a patent application involving dual-use inventions.

Keywords: patent, secrecy, intellectual property, invention, technological innovation

1. Introduction

Rapid technological development and shifting political landscapes have introduced new risks to Western companies' intellectual property^{*2} (IP) and technological innovation. In current conditions, the economy and security are growing increasingly interconnected and woven into geopolitical competition. Technological innovation creates new vulnerabilities in infrastructure and services crucial for the functioning of the state while also opening doors to external threats. Further complicating matters, the IP field covers a broad range

¹ The author would like to thank Professor Aleksei Kelli and Professor Tõnis Mets for their assistance.

² Intellectual property is defined as 'rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields' under the Convention Establishing the World Intellectual Property Organization (signed in Stockholm on 14 July 1967 and as amended on 28 September 1979) <https://www.wipo.int/wipolex/en/text/283854#P50_1504> accessed on 20 March 2024. Traditionally, it is divided into three categories: copyright, related rights, and industrial property. This paper focuses primarily on industrial property. Particular attention is given to patent law.

of technical knowledge and expertise, much of which companies consider private information that helps distinguish them from their competitors.^{*3}

The values of some third countries, with Russia being prominent among them, differ significantly from those of the European Union (EU) and other Western players. The North Atlantic Treaty Organization^{*4} (NATO) has stated that Moscow's behaviour reflects a pattern of aggressive actions by Russia against its neighbours and the transatlantic community at large.^{*5} Moreover, Russia's recent actions, including various violations of international and multilateral agreements in the IP field, have underscored potential risks. In March 2022, the Russian Federation passed a decree allowing local companies and individuals to use inventions, utility models, and industrial designs of patent-holders from 'unfriendly countries' without their consent or any compensation: Decree 299^{*6}. Therefore, one can conclude that Russia is following an antagonistic strategy of deploying technology to expand its sphere of influence, which it refers to as gaining technological sovereignty.^{*7}

The Russian invasion of Ukraine brings technological innovation's protection sharply into focus. Fruits of this innovation can be protected under patents, which give the inventor certain intellectual property rights (IPRs) in return for disclosing the invention to the public. Keeping inventions secret has become a policy imperative not only for the countries involved in the war in Ukraine but also for those nations seeking to assert their role as geopolitical leaders in the years ahead.^{*8} It should be pointed out that measures to keep strategic inventions secret should be adopted at the EU or NATO level. Most companies are not expected to refrain from patenting for the sake of enhanced transatlantic security. Also, it has become evident in the course of the Ukraine war that several businesses have continued their activities in Russia without regard for sanctions, with their main goal being profit. Measures at state, regional, and international levels are pivotal. These are particularly relevant for so-called dual-use inventions.^{*9}

This paper focuses on what lies at the core of secret (or 'classified') patents in patent law. The aim is to explore whether extending the concept of secret patents, with its origins in the international agreement for mutual safeguarding of the secrecy of inventions related to defence for which patent applications have been filed^{*10}, could pave the way for protecting the transatlantic knowledge base and keeping it secure. That agreement is discussed in greater detail in the article's Section 2. Underpinning all patent systems is a rationale under which the public availability of information about some inventions must, in certain circumstances, be prevented for national-security reasons.^{*11} The protection of secret inventions specifically under European patent law is discussed in the article's third section, against the backdrop of examples from Estonian^{*12} patent law.

The central argument here is that the objective for the IP system should not be limited to rewarding innovation and ought to express an aim also of protecting and enhancing the technological knowledge base of Western countries. This implies that countries not supporting the international framework for IP protection should not be able to copy inventions from disclosed patent documents for their benefit.

³ Oksana Kashyntseva, 'How To Be Prepared for the Membership in NATO with the Perspective of Intellectual Property' (2022) 5 *Theory and Practice of Intellectual Property* 103, 105. – DOI: <https://doi.org/10.33731/52022.270913>.

⁴ See the North Atlantic Treaty (4 April 1949) <https://www.nato.int/cps/en/natohq/official_texts_17120.htm> accessed on 20 March 2024.

⁵ 'NATO 2022 Strategic Concept' 1 <<https://www.nato.int/strategic-concept/>> accessed on 14 March 2024.

⁶ Decree of the Government of the Russian Federation of 6 March 2022, no 299, on 'amending item 2 of the methodology for calculation of the compensation amount to be paid to a patent-owner in consequence of a decision to use an invention, utility model, or industrial design without the patent-owner's consent, and the procedure for its payment' <<http://publication.pravo.gov.ru/Document/View/0001202203070005?index=1>> accessed on 22 June 2024.

⁷ For further discussion, see Anna Nadibaidze, 'Understanding Russia's Efforts at Technological Sovereignty' (2022) *Foreign Policy Research Institute paper* <<https://www.fpri.org/article/2022/09/understanding-russias-efforts-at-technological-sovereignty/>> accessed on 20 March 2024.

⁸ Duncan Matthews and Hanna Ostapenko, 'The War in Ukraine Raises Questions about Patents for Secret Inventions' (2023) 72(7) *GRUR International* 665. – DOI: <https://doi.org/10.1093/grurint/ikad042>.

⁹ Defining dual-use items is especially relevant for export control. Dual-use items are specified as 'goods, software and technology that can be used for both civilian and military applications': European Commission, 'Exporting Dual-Use Items' <https://policy.trade.ec.europa.eu/help-exporters-and-importers/exporting-dual-use-items_en#:~:text=Dual%2Duse%20items%20are%20goods,both%20civilian%20and%20military%20applications> accessed on 20 March 2024.

¹⁰ Agreement for the Mutual Safeguarding of Secrecy of Inventions Relating to Defense and for Which Applications for Patents Have Been Made (UN treaty 5664, 21 September 1960) <<http://treaties.un.org/doc/Publication/UNTS/Volume%20394/volume-394-I-5664-English.pdf>> accessed on 20 March 2024.

¹¹ Matthews and Ostapenko (n 8) 665.

¹² Estonia is taken as an example since the author has a suitably extensive understanding of Estonian patent law.

The contention, then, is that expanding the scope of secrecy in patent law necessitates concluding that, for the sake of keeping sensitive information secret from the public, some portion of a patent application shall not be disclosed in public patent registers. That portion consists primarily of the technical description of a dual-use invention. An inventor restricted from commercialising the invention should be compensated for losses that arise from that restriction. Though this is far from incidental, the subject of compensation for secret inventions is not within the scope of this article, on account of limitations related to the volume and the focus of the paper. Therefore, the topic of compensation shall be discussed in connection with further research.

The discussion below relies on traditional legal methods such as legal analysis, with assessment based on examination of regulatory instruments, policy documents, and theory-oriented research literature.^{*13}

2. The intersection of patents and secrecy

The concept of a secret invention may appear contradictory to the primary aim and rationale of the patent system. Namely, said system is purported to incentivise inventors to reveal their inventions rather than keep them secret, with patents therefore being frequently characterised as a form of social agreement. Under that agreement, society bestows upon inventors a temporary monopoly and specific rights in exchange for disclosure of their secrets. However, in conditions of threats acting in opposition to Western countries' technological security, secrecy in the patent system can help prevent adversaries' misappropriation of technological innovation.

Secret patents are not a new phenomenon in national patent systems. From a historical perspective, security-classified patents have their origins in the early years of World War I, which propelled the extension of secrecy to patenting in France, Germany, the United Kingdom, and the United States.^{*14} In the course of that war and World War II, it became increasingly apparent that disclosure pertaining to those inventions most beneficial to the developers' governments in wartime could convey helpful information also to the enemy, about said nations' military capabilities.^{*15} Secret patents emerged in response to the conflicts of war, for protection of a nation's security.

Patent applications are generally published up to 18 months after either the filing date or the earliest 'priority date' of the patent application.^{*16} Before that publication, the application is confidential to the patent office with which it was filed. Even when such delays are imposed, however, requiring the disclosure of inventions through patents poses a significant risk to innovative companies, potentially diminishing their competitive edge and technological foothold. If disclosure represents an existential threat, it is reasonable to expect the inventor to opt for secrecy instead of mere delays to revealing the information.^{*17}

At this juncture, it is essential to point out also that inventions that might merit security-based classification are being developed more extensively than ever before in the private sector. In connection with the pattern identified, reports indicate that the balance of financial support for associated research and development activities has shifted from government funding to private funding. In telling evidence of this, nearly 70% of all business-based research and development in the largest OECD^{*18} countries before 1970 was directly funded by government entities, but the figure had dropped to roughly 10% in 2018.^{*19}

¹³ Full disclosure of methods also requires acknowledging utilisation of OpenAI's ChatGPT and Grammarly to improve sentence structure and the effectiveness of the communication in draft versions of the paper. The substance of the output nonetheless is exclusively the author's own work. It bears reiterating that all aspects of the analysis and core insight are fruit of that human work.

¹⁴ John A Martens, 'Secrecy in the USSR and German Democratic Republic Patent Systems' (2021) 14 <https://www.ssoar.info/ssoar/bitstream/handle/document/74323/ssoar-2021-martens-Secrecy_in_the_USSR_and.pdf> accessed on 15 March 2024.

¹⁵ Gregory Saltz, 'Patently Absurd: The Invention Secrecy Order System' (2022) 8(2) Texas A&M Journal of Property Law 211, 215. – DOI: <https://doi.org/10.37419/jpl.v8.i2.6>.

¹⁶ European Patent Convention (5 October 1973) art 93 <<https://www.wipo.int/wipolex/en/treaties/details/226>> accessed on 20 March 2024.

¹⁷ Juliana Pavan Dornelles, 'Why Are They Hiding? Patent Secrecy and Patenting Strategies' (2020) 22(3) Innovation: Organization & Management 313, 317. – DOI: <https://doi.org/10.1080/14479338.2019.1685886>.

¹⁸ See the Organisation for Economic Co-operation and Development Web page <<https://www.oecd.org/about/>> accessed on 22 June 2024.

¹⁹ Ioannis Rematisios and Yannis A Pollalis, 'Strategic Value of NATO's Investment on Science, Technology & Innovation (STI): Management of Information and Knowledge As Intangible Assets' (2018) 9(2) Journal of Defense Resources Management 5 <<https://doaj.org/article/55ed92b91b6a43599a50c252add73ef0>> accessed on 16 March 2024.

Overall, the inventions granted classified status are inventions that have a dual-use option. Technologies defined as 'dual-use' have both military and civilian applications. Their development typically includes private firms, and the fruit of that development can serve a private market.^{*20} In acknowledgement of the growing significance of military technologies and to obstruct their dissemination to potential rivals, many developed market economies have adjusted their patent systems to introduce classified patents despite this adjustment conflicting with the disclosure principle.^{*21} Until a few decades ago, defence technology was quite distinct from civilian-use technology – such technology had relatively unique application or a niche customer base. Today, however, this technology has become closely intertwined with its commercial counterparts, particularly in fields such as information technology, artificial intelligence, and robotics.^{*22} The author submits, then, that expanding the scope of secrecy in patent law is relevant primarily with regard to dual-use inventions and their technological description.

The European Council adopted Regulation 428/2009, of 5 May 2009, to set up a community regime to control exports, transfer, brokering, and transit for dual-use items.^{*23} Under its Chapter 1, Article 2 (1), 'dual-use items' denotes items, among them software and technology, that can be used for both civil and military purposes and shall encompass all goods that could function for both 'non-explosive' uses and assisting in any way in the manufacture of nuclear weapons or other nuclear explosive devices. Annex I to that regulation provides a list of items and technology qualified as dual-use, thus assisting in understanding which inventions may be classified after filing of a patent. The list comprises 10 categories of innovation, across various fields (e.g., 'computers', 'electronics', and 'telecommunications and "information security"'), dealing also with unique materials and related equipment. Importantly, not all dual-use inventions are covered by classification aimed at protecting national security. This creates a reason to discuss expanding the concept of secrecy to all dual-use items. The author preliminarily proposes that the annex's categorisation should function as the basis for arranging a scheme for identifying dual-use inventions eligible for secrecy protection under the regional or international patent system.

Dual-use technology may offer a means of enhancing competitiveness at company but also regional level. An empirical study of the world's largest defence companies indicated that European firms engaged in operations with dual-use technologies show higher technological productivity than corresponding United States firms.^{*24} At the time of writing, in mid-2024, the European Commission is considering allowing technologies with both civilian and defence applications to be funded under Framework Programme 10, to boost the union's strategic autonomy.^{*25} Accordingly, it seems imperative not to restrict focus on dual-use technology to solely defence agencies' activities. Significant technological advancements at large offer far more opportunities through development of dual-use technology within the private sector and in light of vital civilian uses.

Furthermore, neuroscience research has not only played a role in advancing weaponry and other technology for national-security purposes but also led to collapsing the dichotomy between what constitutes a military *versus* civilian application.^{*26} Alongside many cutting-edge technologies with relatively direct application – high-performance computers, drones, special software of several sorts, etc. – a threat is posed by hostile state and other entities' practices applying reverse-engineering or replication technologies. Authoritarian regimes could exploit these tools to suppress their populace but also to weaponise the public for orchestrated attacks. With patent applications being publicly accessible, authoritarian regimes can advance that agenda by gleaning details of another country's technical capabilities. Therefore, protecting

²⁰ European Commission, 'EU Funding for Dual Use: A Practical Guide to Accessing EU Funds for European Regional Authorities and SMEs' COM (2014) 8 <<https://ec.europa.eu/docsroom/documents/12601/attachments/1/translations/en/renditions/pdf>> accessed on 14 March 2024.

²¹ Martens (n 14) 14.

²² Rematisios and Pollalis (n 19) 9.

²³ Council Regulation (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items [2009] OJ L134/1.

²⁴ Manuel Acosta and others, 'Patents and Dual-Use Technology: An Empirical Study of the World's Largest Defence Companies' (2018) 29(7) *Defence and Peace Economics* 821, 836. – DOI: <https://doi.org/10.1080/10242694.2017.1303239>.

²⁵ Martin Greenacre and David Matthews, 'EU Commission Launches Bid To Expand Funding of Dual-Use Research in Horizon Europe's successor' (*Science Business*, 24 January 2024) <<https://sciencebusiness.net/news/dual-use/eu-commission-launches-bid-expand-funding-dual-use-research-horizon-europes-successor>> accessed on 11 March 2024.

²⁶ Tara Mahfoud and others, 'The Limits of Dual Use' (2018) 34(4) *Issues in Science and Technology* 73.

IPRs and industrial interests is crucial for any decision-making process in a global world rife with political instability.^{*27}

Secret patents are not the only pertinent exception introduced to traditional patent law. In 1968, the German Democratic Republic issued a special decree for secret patents whose subject was economic secrets that percolate to other state interests.^{*28} Its aim was to allow cultivation of an advantage over capitalist competitors and surprise market adversaries. More recently, the notion of economic-secret patents entered discussion in the United States in 2012 in conjunction with arguments as to whether the state should bar the publication of specific patent applications as detrimental to the nation's economic security.^{*29}

The concept of a patent connected with economic secrets should be revisited for today's patent law. Restricting publication of those patent applications that might include technological-innovation details whose public nature could harm a state's economic security is controversial yet may offer an avenue for Western countries against adversarial countries. Secret economic-innovation patents could help to keep information related to economic capacity secret and, thereby, prevent specific knowledge from reaching adversaries who might otherwise be able to use it to gain a technological advantage in war activities while potentially also obtaining an advantage in the general economy and market competition. The author suggests that, in contrast against secret patents justified by national security, secret economic-innovation patents could enjoy a fairly broad scope, wider than that for dual-use inventions. There is doubt, though, as to whether a government has the competence or expertise to declare any invention a highly economically valuable development whose exposure could damage state economic interests, while the equivalent is seldom argued in discussion of secret patents that could impinge on national security interests. These decisions directly affect the freedom of the inventor, who has the right to determine how to exploit the invention, including whether to maintain its secrecy and under which conditions.

3. The legal framework for secret inventions

3.1. Incentive for keeping an invention secret

National-security threats have precipitated an increase in the number of secret patents, but their use is not limited to times of warfare, and use of them continues into peacetime.^{*30} With regard to secrecy in the domain of patent law, national security is a powerful talking point, and its appearance in debates over patent policy points to a need for careful thought about how exactly patent policy and national security intersect.^{*31}

The intention behind classified patents is to protect IP and secrets related to national defence by NATO standards. Today, authoritarian actors pose a significant challenge to NATO's interests and values, showing little regard for international norms and commitments.^{*32} Therefore, in the coming decades, NATO and its allies must redirect their attention to crafting strategies and action plans to tackle the associated security challenges.

The purpose of NATO's agreement on mutual safeguarding of the secrecy of defence-related inventions for which patent applications have been made^{*33} (the NATO Mutual Safeguarding Agreement) is to facilitate defence co-operation among NATO member states and provide protection for classified defence inventions. The secrecy measures in place under this agreement still hold force today and constitute means of safeguarding patent rights related to classified military inventions.^{*34}

²⁷ Rematisios and Pollalis (n 19) 9.

²⁸ Martens (n 14) 22.

²⁹ Ibid 23.

³⁰ Matthews and Ostapenko (n 8) 668.

³¹ Charles Duan, 'Of Monopolies and Monocultures: The Intersection of Patents and National Security' (2020) 36(4) Santa Clara High Technology Law Journal 369, 379–80.

³² Albulena Halili, 'Non-Traditional Security Threats and NATO's Response in the Contemporary Security Environment' (2023) 18(2) SEEU Review 148, 149. – DOI: <https://doi.org/10.2478/seeur-2023-0095>.

³³ Agreement for Mutual Safeguarding (n 10).

³⁴ Rematisios and Pollalis (n 19) 8.

Also, NATO has adopted an agreement on the communication of technical information for defence purposes^{*35}. Known as the NATO Agreement for Protection of Technical Information, this agreement is broadly intended to encourage the flow of technical information for defence purposes among NATO governments and affiliated organisations. The preamble states that the rights of owners of proprietary technical information communicated accordingly (e.g., inventions, drawings, know-how, and data) should be recognised and protected. A significant part of the invention is its technical description. However, that agreement's Implementing Procedures^{*36} text establishes that the communication of copies of patent applications placed under a secrecy order is expressly excluded from the scope of the agreement. This is to prevent any conflict with the NATO Mutual Safeguarding Agreement.

In its Article 1, the NATO Mutual Safeguarding Agreement states that NATO member states are obliged to protect the secrecy of inventions, which encompasses protection of inventions from within the country of origin and also protection of inventions that is requested by other member states. The prerequisites for protection are submitting patent applications and declaring the corresponding invention classified for reason of national defence. Article II sets out the entities that may perform actions related to a patent application. The obligation to safeguard the secrecy of a classified invention follows upon the request of either the originating country's government or the patent applicant.

Article III governs the procedure for damages claims connected with patent applicants. Under that procedure, a government called upon to safeguard the secrecy of an invention under the terms of Article I is entitled to demand from the patent applicant a waiver of any claim to compensation for loss or damage due solely to the imposition of secrecy on the invention as a condition prerequisite to the application of said safeguard. In return, the applicant is awarded compensation for losing the right to exploit the invention. Rules for annulling secrecy, in turn, are laid out in Article IV, which states that only the country of origin can rescind the secrecy of the invention. The country of origin must inform the participating countries of its intention to do so six weeks in advance of lifting the secrecy requirement.

Although the NATO Mutual Safeguarding Agreement pertains to classified military inventions, principles set forth in the agreement form the basis for today's regulation of classified patents in nations' patent law. The role of NATO in the global security environment is pivotal, profoundly influencing, among other activities, the use of technology in political conflict and war-related actions. Keen attention should be given to emerging issues such as energy security, hybrid threats, cyber-threats, and certain types of new technologies. The definition of threats to national security should not be limited to purely 'defence issues'; the argument here is that it should be broadened to explicitly include non-traditional threats to the functioning of the economy and technological innovation, where 'non-traditional threats' refers to risks that conventional forces and weapons cannot completely address.^{*37} Accordingly, threats to national security should be considered to include threats to a nation's economy, IPRs, and technological innovation.

NATO has stated that strategic competitors and potential adversaries are directing investments toward technologies that target civilian and military infrastructure, undermine defence mechanisms, and pose security threats.^{*38} As emerging disruptive technologies bring both opportunities and risks, they alter the character of conflict, acquiring greater strategy-linked importance and forming new key arenas of global competition.^{*39} It needs pointing out, therefore, that Western countries must tackle challenges ushered in across the vast landscape of rapidly developing technologies and global relations in collaboration with international organisations. Particularly because adjustment to and integration of new technology both require alignment with a contested and unpredictable global field, collaborative efforts need a sharper focus on limiting the disclosure of information in patent applications. Therefore, the author recommends expanding the current framework of secret patents to prevent disclosure of the technological description of dual-use inventions.

³⁵ NATO Agreement on the Communication of Technical Information for Defense Purposes (19 October 1970) <<https://www.regeringen.se/contentassets/882f6758ed7547d6a6c2aea6484f60b8/sveriges-tilltrade-till-vissa-natoavtal-del-3-ds-202322.pdf>> accessed on 20 March 2024.

³⁶ Implementing Procedures for the NATO Agreement on the Communication of Technical Information for Defense Purposes <<https://www.regeringen.se/contentassets/882f6758ed7547d6a6c2aea6484f60b8/sveriges-tilltrade-till-vissa-natoavtal-del-3-ds-202322.pdf>> accessed on 20 March 2024.

³⁷ Halili (n 32) 149.

³⁸ NATO 2022 Strategic Concept (n 5) 5.

³⁹ NATO 2022 Strategic Concept (n 5) 5.

3.2. Secret patents in international patent law

In addition to NATO agreements, secrecy-based orders to classify patents are anchored in several other instances of jurisdiction at international level. The Agreement on Trade-Related Aspects of Intellectual Property Rights^{*40} (TRIPS Agreement) is the most relevant international agreement addressing the issue of protecting IP in trade-related arenas. Its regulation mandates that the parties provide invention patents encompassing products or processes across all technological domains, without prejudice, subject to evaluations of novelty, inventiveness, and industrial applicability. In addition, however, the terms provide several flexible options to facilitate development and protect national security interests.

The TRIPS Agreement comprises provisions for security exceptions in its Article 73. It does not restrict the authority of governments in any way with regard to supplying information or disclosure they consider contrary to their fundamental security interests. Under these provisions, a World Trade Organization (WTO) member^{*41} is permitted to implement measures that are otherwise non-compliant with the TRIPS Agreement so as to protect its vital security interests amid war and other emergencies in international relations.^{*42} Consequently, Article 73 equips WTO member states to pursue their vital security interests and fulfil global peace and security obligations.^{*43}

The same design is implemented via the international agreement called the Patent Law Treaty^{*44} (PLT), intended to harmonise and streamline formal procedures related to national and regional patent applications and patents. The PLT's Article 4 specifies that this treaty shall not constrain the contracting party's freedom to undertake any action necessary for safeguarding essential security interests. Hence, the PLT does not restrict secrecy in the realm of patent law.

How does Russia fit into the picture? It has violated many rules of international IP law. Among Russia's counter-sanction mechanisms is the implementation of specific legal instruments related to IPRs owned by residents of Western countries that imposed sanctions against Russia over its invasion of Ukraine or entities domiciled there.^{*45} One such counter-sanction entails, in effect, compulsory licensing, with no compensation to the IPR-owners. The Government of the Russian Federation has declared that it may decide to use an invention, utility model, or industrial design without the rights-holder's consent, ostensibly in cases of 'emergency' and 'under the necessary conditions', irrespective of international commitments of the Russian Federation.^{*46}

The above-mentioned Decree 299^{*47} of the Government of the Russian Federation, dated one week after the 2022 invasion, grants permission to lift IPR protections. The meaning is that in circumstances deemed to involve critical necessity of supporting the defence and security of the state, Russia's government possesses the authority to waive the IPRs of third parties without the consent of the right-holders. According to Russian patent law, a rights-holder shall be compensated for waiving of IPRs; however, said remuneration shall amount to zero per cent under Decree 299 if the rights-holder conducts unfriendly actions against Russian legal entities or natural persons.^{*48} A link thus is articulated between the person and said right-holder's state of residence or domicile – i.e., a foreign state carrying out actions against Russia. Thereby, this instrument allows appropriation of IPRs that is similar to a compulsory licence.

Although this may appear to be a significant abnormality, it is not unprecedented in the history of Russia. In the early years of the Soviet Union, a similar effect on patents was established when Lenin decreed in 1919 that inventions could be declared property of the state government and subject to use by all citizens through compulsory licensing.^{*49} This decree precipitated a low volume of patent applications. In

⁴⁰ Agreement on Trade-Related Aspects of Intellectual Property Rights (15 April 1994) <https://www.wto.org/english/docs_e/legal_e/27-trips_01_e.htm> accessed on 18 March 2024.

⁴¹ See the organisation's Web site <<https://www.wto.org/>> accessed on 29 March 2024.

⁴² Olga Gurgula, 'Invoking Article 73 TRIPS in Good Faith: No Recourse to "Security Exceptions" for Russia's Violation of TRIPS' (2023) 18(6) *Journal of Intellectual Property Law and Practice* 418, 431. – DOI: <https://doi.org/10.1093/jiplp/jpad032>.

⁴³ Peter K Yu, 'The Objectives and Principles of the TRIPS Agreement' (2009) 46(4) *Houston Law Review* 979, 1010.

⁴⁴ Patent Law Treaty (1 June 2000) <<https://www.wipo.int/treaties/en/ip/plt/>> accessed on 18 March 2024.

⁴⁵ Gurgula (n 42) 419.

⁴⁶ WIPO Background Paper on the Zero Remuneration Rate (26 April 2022) <https://www.wipo.int/edocs/mdocs/sct/en/sct_45/sct_45_russian_federation_info_paper_2.pdf> accessed on 18 March 2024.

⁴⁷ Russian Federation decree 299, of 6 March 2022 (n 6).

⁴⁸ WIPO Background Paper (n 46).

⁴⁹ Martens (n 14) 3.

1931, a new regulation entered force, with an invention-focused law introducing an 'inventor's certificate'.⁵⁰ The logic was that if an inventor's certificate was granted, the innovation was new to the world and hence should be used by industry.⁵¹ Inventor's certificates were held by the state, eliminating any worries about ownership.

Currently, Russia relies on the TRIPS Agreement's Article 73 to impose counter-sanctions in the domain of IP law. It has been argued that it should not be allowed to rely on Article 73, because the current emergency in international relations was triggered by Russia's own unlawful act of invading Ukraine, for which numerous countries sanctioned it.⁵² The author finds that any argument otherwise, supporting Russian invocation of Article 73, would cut against good faith and the principle of reasonableness.

By refusing to issue compensation to patent-owners from countries unfriendly to it, Russia violates Article 3 of the TRIPS Agreement, in that Russian patent-owners continue to receive compensation when a compulsory licence is issued in relation to their patent rights.⁵³ Article 3 addresses national treatment by obliging every WTO member state to afford the nationals of other member states treatment no less favourable than that it accords to its own nationals for IP protection.

Furthermore, the agreement's Article 31 states that if compulsory licensing is applied, the right-holder shall be paid remuneration that is adequate in the circumstances of each case, with consideration for the authorisation's economic value. There is no exception to the requirement for paying compensation. If a decree stipulates that the compensation to owners from unfriendly countries is to be set at zero per cent, it makes a blanket statement that those IPR-holders are to receive no compensation for use of their IPRs.⁵⁴ Because Article 31 mandates payment of compensation, Russia's Decree 299 clearly violates the terms of the TRIPS Agreement.

In conclusion, the NATO framework, the PLT, and the TRIPS Agreement all deal with international regulation of secret patents. While the last of these permits member states to implement measures to protect their essential security interests (in the main, measures for keeping patent applications secret), the NATO agreement sets out specific terms to be considered in implementing secret patents as part of a country's patent law. The author submits that NATO's framework for classified patents allows expanding the scope of secrecy in patent law to protect the interests of Western countries' technological security. Still, a workable proposal for protection of Western technological innovation could implement regulations to expand secrecy under patent law not through NATO agreements but via regional or international agreements. This is because the NATO agreements pertain mainly to protection of military inventions' use. Under the reasoning presented above, dual-use inventions should not be delineated as out of scope through instruments limited to only military technology. They should cover a broader space, as Annex I of European Council Regulation 428/2009 implies.

4. Secret inventions' protection within the European patent system

4.1. Legislation in European-level patent law

The European Patent Convention⁵⁵ (EPC) established a system of law for the European patent system. According to the EPC's Article 2 (2), a European patent has the effect of and is subject to the same conditions as a national patent unless the convention's terms state otherwise. The EPC is managed through the European Patent Organisation⁵⁶, whose primary purpose is to grant European patents, which are handled by the European Patent Office (EPO) and supervised by the Administrative Council. For protection of European

⁵⁰ Ibid.

⁵¹ Ibid 4.

⁵² Gurgula (n 42) 431.

⁵³ Ibid 422.

⁵⁴ Gurgula (n 42) 422.

⁵⁵ European Patent Convention (5 October 1973, 17th edition November 2020) <<https://www.epo.org/en/legal/epc>> accessed on 27 June 2024.

⁵⁶ See the European Patent Office Web site <<https://www.epo.org/en>> accessed on 25 March 2024.

technological innovation, the author recommends implementing regulations added to the EPC whereby expanding secrecy to patents for dual-use items is expressly permitted. Drafting such regulation directly addressing the secrecy of dual-use-invention patents could significantly enrich European Union law.

According to the EPC, Article 75, a European patent application may be filed with the EPO, the relevant state's central industrial-property office, or another competent authority of the individual state. Any application filed by the competent authority has an effect fully equivalent to filing on the same date with the EPO. The EPC's Article 77 (1) and Implementing Regulations⁵⁷ Rule 37 establish that applications filed through the central industrial-property office – i.e., the local patent office – shall be forwarded to the EPO in the shortest time compatible with the relevant national law related to the secrecy of inventions in the interests of the state. According to Article 77 (2), a European patent application that has been made secret shall not be sent to the EPO. Therefore, if a European patent is sought for a classified invention through the central industrial-property office, the classified invention shall not receive protection under a European patent.

Things are different when a European patent application is directly submitted to the EPO. After submission, the application undergoes examination in accordance with the procedures and criteria set forth by the EPC. Once the EPO grants a European patent, it protects the designated Member States without requiring separate filings or examinations in each country. Under the EPC's articles 2 (1) and 52, a European patent may be granted for any invention that meets the criteria of novelty, an inventive step, and industrial applicability, without regard for whether the invention has been classified in individual Member States. Furthermore, the EPC's Article 64 (1) stipulates that the European patent, once granted, shall confer on its proprietor a right to prevent third parties from commercially exploiting the patented invention, from the date of publication of the mention of the grant. This right extends to the contracting states' territories where the patent is in force. The EPC states in Article 98 that, simultaneously with notice of the issuance of the European patent, the EPO shall publish a European patent description, containing the invention's description, patent claims, and drawings.

Hence, even if the invention is classified in one or more of the EPC signatory states at the same time, obtaining a European patent based on the EPC is still possible if application is made directly to the EPO. This is because classified patents are not disclosed in public patent registers. If the EPO carry out the examination, they cannot compare EPC states' classified patents to the patent application under examination. This situation diverges from that of patent proceedings undertaken by a regional patent office, which is discussed in greater depth below. In a contrast against patent proceedings under the EPC, the regional patent office considers classified patents too during its examination. The author suggests considering applying the latter approach for EPO patent proceedings, to avoid situations wherein an invention's patent is classified in an EPC state but also receives protection under a European patent, with the accordant risk of disclosure of a classified invention.

4.2. Legislation specific to Estonian patent law

Patent procedures and patent grants are regulated in Estonia by the country's Patents Act⁵⁸. It employs a definition under which a classified invention is an invention of national-defence importance. According to Section 7 (6) of the State Secrets and Classified Information of Foreign States Act⁵⁹ (or States' Secrets Act), secrets related to national defence consist of items of information pertaining to inventions and studies conducted for public-defence purposes and their outcome, except information the disclosure of which would not damage the security of Estonia. Such information shall be classified as Secret, Confidential, or Restricted for a maximum of 30 years. The Patents Act's Section 61 (7) states that in cases of patent applications involving a classified invention, the provisions of the States' Secrets Act and the NATO Mutual Safeguarding Agreement shall be applied in addition to the requirements of the Patents Act.

Overall, the processing of classified-patent applications is the same as processing for unclassified patents. All the criteria for filing an application for an unclassified patent apply to one for a secret patent;

⁵⁷ Implementing Regulations to the Convention on the Grant of European Patents (signed on 5 October 1973) <<https://www.epo.org/en/legal/epc/2020/regulations.html>> accessed on 25 March 2024.

⁵⁸ RT I 1994, 25, 406.

⁵⁹ RT I 2007, 16, 77.

alongside these, there are some additional requirements, though. Classified patents adhere to specific procedures to prevent the disclosure of ideas detailed in the application. In Estonia, a properly formalised patent application for a classified invention is submitted to the Estonian Patent Office in line with the relevant legal norms specified in the Patents Act. A request to maintain the secrecy of the invention can be made either by the applicant for the patent or by the patent office examining the patent application.

Generally, classified inventions can be divided into two categories on the basis of the origin of the invention: inventions with domestic origins and inventions that originate from a foreign country. The category dictates which documents shall accompany the patent application in the submission to the patent office. According to the Patents Act, specifically items 4–5 in its Section 19 (2), in cases involving an application for classifying the patent, the applicant must provide a certificate from the Ministry of Defence addressing the classification of the invention. If the invention is classified in a foreign state and the application is being submitted by the applicant instead of by the competent authority of that foreign state, the applicant must supply, again in addition to the patent application itself, a statement of permission from that competent authority.

During the application's processing, requirements arising from the States' Secrets Act apply to the employees of the Estonian Patent Office. A patent officer dealing with classified patent applications must have an official permit to work with items of information involving classified inventions. This is the only significant difference in proceedings between classified patents and cases of applications for unclassified patents. The confidentiality of the secret-patent proceedings, inclusive of confidentiality of technical information disclosed in the application, is ensured by having only patent officers who are authorised to access classified materials and state-secret permits deal with classified patents.

The Ministry of Defence has the authority to keep an invention secret. Under the States' Secrets Act, Section 11 (2), the level and term of information's classification are established separately for each invention/study by the minister in charge of the relevant policy sector. The Ministry of Defence communicates information to the Patent Office that specifies which branches of technical fields might be important for national-defence purposes and, therefore, be subject to classification. Such information is classified at Restricted level as appropriate, or as information intended for internal use only.

According to Section 22 (5¹) of the Patents Act, if an application for classifying a patent application has not been annexed to the application, such that proceedings rely instead on the information forwarded by the Ministry of Defence, the Patent Office may conclude that the patent application might concern the entities charged with national defence. In this event, the Patent Office submits an enquiry to the Ministry of Defence for a decision on whether the patent application shall be classified. That is, if suspecting that application is being made to patent an invention that may be important for the national defence, the patent officer forwards the corresponding information with the patent application to the Ministry of Defence, which decides on secrecy. The application need not be classified if a decision by the Ministry of Defence is not forthcoming; for this protection, it must reach the patent office within four months.

By default, patents are disclosed to the public; i.e., patent registers are publicly accessible. In contrast against unclassified patents, the content of a classified-patent application is not made available to the public after the passing of 18 months from the date of submission. In Section 24 (4), the Patents Act prohibits publication of the latter entirely. In addition, Section 34¹ (2) states that no information is to be released from the register with regard to any information related to classified-patent applications. Upon granting of a patent for a classified invention, an entry is made in the patent register and a patent number is issued, as in the case of unclassified patents. The difference is that a classified patent is not displayed to the public.

This does not imply that the application shall be merely filed away after the examination procedure. Rather, the Patents Act stipulates, in Section 24 (2¹), that a classified-patent application is considered in the comparisons with later patent applications, for ascertaining their novelty and whether they represent an inventive step. One may conclude, then, that it is not excluded for a classified-patent application to prove to be an obstacle to granting a patent in cases of an unclassified-patent application. When carrying out an examination, the patent officer compares the new filing with the patents issued, including classified patents. If it turns out that a classified patent already protects the invention in question, the new application, for an unclassified patent, does not render it eligible for protection. The inventor cannot prepare for such a consequence – after all, from the public patent registers, it appears possible to patent the invention.

The situation described above raises the question of whether keeping the previously classified patent application secret is reasonable. The rejected patent application still represents the state of the art, and

the technical description is available for public inspection from the day on which the application for an unclassified patent is made public.^{*60} Keeping the classified patent secret cannot prevent others from accessing the information; the benefits of secrecy get undermined in either case. For such scenarios, the author suggests that alternative strategies, such as seeking protection through other means or adapting the innovation for a different application, might be more effective. Estonia does not yet have case law dealing with infringement on a classified patent.

Generally, patent protection granted for an invention lasts up to 20 years. There is no distinction between classified and non-classified patents in that respect. This term delineates the legal right of an inventor to exclude others from making or using the invention. The ideal term of protection for any given invention may depend primarily on the technology in question.^{*61} However, in light of today's rapid development of technology, it is unlikely that the duration of secrecy for inventions could reach levels comparable to the term of a patent's validity.^{*62} While an invention has been classified for a certain period, it is not beyond the realm of possibility that the solution represented becomes known to the public in some other way by the time the classification ends. Still, the inventor's commercialisation efforts may be subject to strict regulatory oversight and scrutiny throughout the term of secrecy. By the time secrecy is lifted from a patent, the inventor has most probably lost the opportunity to sell the results of the creation for his own benefit even though the invention was duly patented at its creation. Consequently, the inventor's loss must be subject to compensation.

In many countries, patent law states the criteria applicable for compensation when an invention is kept secret.^{*63} In Estonia, the Patents Act specifies that in the event of an invention being classified on the initiative of the minister in charge of the relevant policy sector, the proprietor behind the patent / the author has the right to receive, throughout the term for which the invention is classified, compensation for the restriction to the invention's use that arises from classification, per Section 18¹ (1). The author does not have the right to receive said compensation if having transferred this right. The amount of compensatory payment is decided upon by the minister in charge of the corresponding policy sector. According to Section 18¹ (2) of the Patents Act, the setting of compensation amounts shall consider, among other factors, the estimated service life of the invention as of the date of classification and the commercial profit that the author or proprietor could be presumed to gain from the use of the invention were the invention not classified. The issue of compensation for keeping an invention secret merits specific attention in further scholarly discussion.

5. Concluding remarks

The Russian invasion of Ukraine brings heightened urgency to safeguarding Western countries' technological innovation. Current conditions highlight the importance of prioritising respect for inventors' intellectual property rights in aims of protecting Western countries' technological innovation from exploitation by adversarial parties. Attention should be directed to pivotal issues in the debate surrounding secrecy in patent policy. While secrecy may appear to contradict the central aim of the patent system (i.e., disclosure), it benefits crucial interests related to the protection of technological innovation against unfriendly state actors, the rule of law, etc.

Preserving the secrecy of inventions is a crucial mandate in a world witnessing global political instability. It seems clear that such an environment demands not limiting consideration of national-security threats to narrowly defined 'defence issues'. The protection mechanisms, then, should be broadened to tackle non-traditional threats. One could justifiably contend that threats to national security tie in with threats to the nation's economy, IPRs, and technological innovation. Therefore, these must be attended to in combination.

From the reasoning presented in this article, one must conclude that the legal framework for secret patents provides opportunities for keeping an invention secret. This is particularly relevant with regard to

⁶⁰ Jaak Ostrat, 'Salastatud leiutis Eesti õiguses [Classified Invention in Estonian Law]' (2012) 7 *Juridica* 565, 568.

⁶¹ Michael McGurk and Jia Lu, 'The Intersection of Patents and Trade Secrets' (2015) 7(2) *UC Law Science and Technology Journal* 189, 203 <https://repository.uclawsf.edu/cgi/viewcontent.cgi?article=1023&context=hastings_science_technology_law_journal> accessed on 17 March 2024.

⁶² Ostrat (n 60) 566.

⁶³ Matthews and Ostapenko (n 8) 668.

dual-use inventions. Keeping secret the technical description of a patent should prove to be to be a sufficient counter-measure against adversaries' violations of international IP law. This conclusion is supported by the application of economic patents from Germany's history, and the approach is aligned well with NATO agreements and international regulation of secret patents.

The author submits that secrecy should be integrated into current patent law by extending the scope of secrecy to the technical description of dual-use inventions. Regulations should be implemented at regional or international level – i.e., via the EPC or European Union regulations – rather than through NATO agreements. Classifying a dual-use invention's technical description allows the patent to be displayed in the patent register but not in full; only a certain part of the patent application is omitted. Finally, the topic of compensation for keeping an invention secret is a crucial one, to which thorough attention will be devoted in further research.