





**ALEKSEI KELLI**

Developments of the Estonian Intellectual  
Property System to Meet the Challenges  
of the Knowledge-based Economy



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## **LIST OF ORIGINAL PUBLICATIONS**

This dissertation is based on the following articles:

1. A. Kelli, H. Pisuke. Intellectual Property in an Innovation-based Economy. – Review of Central and East European Law 2008 (33) 2, pp. 223–238.
2. A. Kelli. Some Issues of the Estonian Innovation and Intellectual Property Policy. – Juridica International 2008 (15), pp. 104–114.
3. A. Kelli. Improvement of the Intellectual Property System as a Measure to Enhance Innovation. – Juridica International 2009 (16), pp. 114–125.
4. H. Pisuke, A. Kelli. Some Issues Regarding Entrepreneurial Universities and Intellectual Property. – Juridica International 2007 (12), pp. 161–172.

# I. INTRODUCTION

After the collapse of the Soviet regime Estonia made a successful transition from a planned economy to a market economy. The society and local entrepreneurs quickly accepted the basics of a market economy. Today, due to the economic crisis aggravated by the structural weakness of the Estonian economy, Estonia is facing yet another challenge. Namely, Estonia has to find a way how to succeed in a knowledge-based economy.<sup>1</sup> Estonian entrepreneurs have to learn how to leverage knowledge as a strategic business asset. When tangible property has physical characteristics enabling effective protection of the interests of its owner then knowledge does not share these features. Therefore, different mechanisms are developed to establish control over knowledge. Intellectual property (IP) system<sup>2</sup> is one possible mechanism which makes the privatization and exploitation of knowledge possible. The purpose of intellectual property system is not, however, limited to giving control over knowledge only. More importantly, it has to encourage and support the creation and utilization of new knowledge. In other words, IP system has to enhance innovation.

This dissertation concentrates on the interrelations of IP system with innovation and its role in a knowledge-based economy. The author explores opportunities to enhance innovation by improvement of the Estonian intellectual property system. The author's approach is based on the following assumptions.

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<sup>1</sup> On the EU level a knowledge-based economy refers to "economic activity that relies not on 'natural' resources (like land or minerals) but on intellectual resources such as know-how and expertise". – Commission of the European Communities. Green Paper. Copyright in the Knowledge Economy. – COM (2008) 466, 16.7.2008, p. 3. According to OECD the concept refers to "economies which are directly based on the production, distribution and use of knowledge and information. This is reflected in the trend in OECD economies towards growth in high-technology investments, high-technology industries, more highly-skilled labour and associated productivity gains". – OECD. The knowledge-based economy. 1996, p. 7. Available at <http://www.oecd.org/dataoecd/51/8/1913021.pdf> (31.10.2009). For further analysis of the concept of a knowledge-based economy see B. Godin. The Knowledge-Based Economy: Conceptual Framework or Buzzword? – The Journal of Technology Transfer 2006 (31) 1, pp. 17-30. The term 'knowledge-based economy' has sometimes been criticized. For instance, U. Petrusson considers concepts such as 'knowledge economy' and 'information economy' to some extent misleading, because it is not so much knowledge or information as control of knowledge and information that is the basis for creation of business. According to him the term 'intellectualized economy' captures more accurately the current economic trends. – U. Petrusson. Intellectual Property & Entrepreneurship: Creating Wealth in an Intellectual Value Chain. CIP Working Paper Series. Göteborg: Center for Intellectual Property Studies 2004, p. 1.

<sup>2</sup> For the purposes of this dissertation the concept of intellectual property system is not limited to legal aspects of the system (rights resulting from intellectual activities) but it also includes economic aspects (IP as an asset).

Firstly, innovation will help to overcome problems relating to the structural weakness of the Estonian economy and increase economic and social welfare of Estonia. Secondly, intellectual property system plays a crucial role in enhancing innovation.

The functioning of IP system is influenced by country- and region-specific conditions. The author's aim is to determine how to improve the existing IP system so as to enhance innovation in Estonia most. The improvement of IP system has to be compatible with the Estonian legal system, economy and membership of the European Union (the EU). The author analyzes the Estonian IP system in the light of the developments on the EU level.

The author's aim is to analyze the basic theoretical problems of the Estonian intellectual property system and its individual institutes. Based on the theoretical research and its conclusions the author aims to identify the shortcomings of the Estonian IP system and to suggest alternatives to improve them. The author proposes measures to improve the Estonian IP regulations, raise IP awareness of entrepreneurs and academic community and enhance their IP capabilities.

Theoretical and practical results of the research can be utilized to support the development of the Estonian innovation and intellectual property policies (the development of innovation and IP strategies), the formation of the Estonian position concerning the relevant EU policies, the improvement of the Estonian IP regulations, the enhancement of IP capabilities of entrepreneurs and the academia and improvement of higher education system. The results can also be applicable in other countries with similar backgrounds and economies (e.g., in the new EU member states).

The author has relied on the research results when he was involved as an IP expert in the work of the Ministry of Economic Affairs and Communications and a member of an expert group convened by the Ministry of Culture drafting the new Estonian Copyright Act.

To a large extent, the dissertation is based on the research conducted within the EU and national research projects.<sup>3</sup> The author has participated in these projects as a key IP expert of the Estonian partner (the University of Tartu). The author's position has been reflected in the reports submitted to the EU Commission and in theoretical and practical seminars organized in several European countries.

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<sup>3</sup> Intellectual property based business models of innovative companies; business models based on open innovation and their applicability in Estonia (1.01.2009-31.12.2009). Supported by the Ministry of Economic Affairs and Communications; Understanding the Relationship between Knowledge and Competitiveness in the Enlarging European Union (U-Know). CIT5-028519. Period of participation: 2007–2009. FP 6; ScanBalt Intellectual Property Knowledge Network: Building a Sustainable Intellectual Infrastructure by Expanding Regional Competencies in Value-Creation from Bioscience Innovations (ScanBalt IPKN). LSSP-CT-2004-013029. Period of participation: 2005-2007. FP 6.



The author has presented his findings at several international and Estonian workshops and seminars. The research results have also been incorporated into a general course on intellectual property taught by the author at the Faculty of Law of the University of Tartu, a course designed for PhD students of the Estonian University of Life Sciences and several other courses. The author has also supervised numerous research papers and bachelor theses relating to the subject of the research.

The author has lectured at several practical seminars organized by the Estonian Patent Office and other organizations. The author has been the main contributor to an intellectual property case book for entrepreneurs.<sup>4</sup>

The author has studied monographs and articles of the world's leading intellectual property experts, Estonian IP-related scientific literature, case law and legislation, and IP- and innovation-related strategy documents adopted on the EU and national levels.

One of the theoretical bases underlying the dissertation is the so-called Nordic approach to intellectual property. One of its nodes is the Center for Intellectual Property (CIP) located in Gothenburg. CIP is founded by Chalmers University of Technology and the School of Business, Economics and Law at the University of Gothenburg. The author considers especially relevant the writings of U. Petrusson, O. Granstrand and B. Heiden which concentrate on the business aspects of IP. The author critically analyzes the so-called Nordic approach and develops it further in order to adjust the approach to the Estonian legal and economic environments.

The author's analysis of the Estonian intellectual property system also relies on the teaching of the Estonian leading IP experts such as H. Pisuke, A. Kukrus, H. Koitel, J. Ostrat, M. Rosentau and others.

The dissertation is based on four publications. Two of them have been written together with Professor H. Pisuke. The contribution of H. Pisuke is limited to 5% in the article titled "Intellectual Property in an Innovation-based Economy" and 15% in the article titled "Some Issues Regarding Entrepreneurial Universities and Intellectual Property". The contribution of Professor Heiki Pisuke mainly concerned methodical issues and the inclusion of some of his positions and suggestions which are expressly referred to in the articles.

The author has additionally written several articles which specify the author's main theoretical and practical conclusions (especially relating to IP limitations).

The integration of legal and economic aspects of intellectual property as one of the author's central ideas requires an interdisciplinary approach. Therefore, the research is based not only on legal literature, regulations and cases but also includes business studies and literature. The author has cooperated closely with economists from the Faculty of Economy of the University of Tartu when

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<sup>4</sup> A. Kelli, P. Lätt, H. Pisuke. *Intellektuaalse omandi kaasuste kogumik* (Collection of Intellectual Property Cases). Tallinn 2008.

conducting research in the interrelated fields of intellectual property and innovation within the framework of the EU and national research projects.

The author has also resorted to traditional methods of legal science such as analysis, synthesis, comparison and historic approach.

The author poses the following hypotheses:

1. due to the current trends in the world economy which can be characterized as the transformation into a knowledge-based economy and the economic conditions peculiar to Estonia (structural weakness of the economy), enhancing innovation has to be perceived as a conceptual basis of the Estonian IP system in order to increase competitiveness of the Estonian economy.

Since innovation is dependent on exploitation of knowledge it is essential to conceptualize knowledge as an asset from a legal perspective as well.

Fostering innovation also requires appropriate limitations which are flexible enough to be applicable despite technological developments and address instances of overlapping protection;

2. conceptualization of intellectual property should not be limited to solely economic nor legal aspect. Successful utilization of IP system requires the integration of economic (IP as an asset) and legal (IP as legal rights) components;
3. the legal framework of intellectual property in Estonia disregards the fact that the majority of Estonian entrepreneurs are small and medium-sized enterprises<sup>5</sup> (SMEs). The potential measures to tackle the referred problem can be divided into three groups. Firstly, IP regulations have to be amended to increase their clarity, consistency and explanatory nature. SMEs can also be supported by providing detailed dispositive regulations relating to IP contracts. Secondly, the regulation on utility models and trade secret protection has to be reviewed since these IP tools are preferred by many SMEs. Thirdly, entrepreneurs have to focus on the development of capabilities to manage their proprietary knowledge;
4. the concept of entrepreneurial university does not imply that a traditional university has transformed into an entrepreneur. Instead, entrepreneurial university has additional functions such as exploitation of IP created by employees of a university. Although Estonian universities have adopted their IP regulations it is recommendable to harmonize the existing guidelines and set clear objectives and boundaries to exploitation of IP owned by universities.

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<sup>5</sup> Pursuant to the Commission “[t]he category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million”. – Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (2003/361/EC). – OJ L 124, 20.05.2003, p. 36-41.

## 2. Summary of the main research results

### 2.1. Enhancement of innovation as one of the main objectives of the Estonian IP system

The interrelation of innovation and intellectual property has been an overarching theme in all four publications on which this dissertation is based. This subject is particularly important for Estonia and countries with similar economic conditions due to many factors. In addition to the current financial and economic crisis, the Estonian economy has its distinct features which are well characterized by several strategy documents.<sup>6</sup> A white paper presented to the Riigikogu (the Parliament of Estonia) for overcoming the economic crisis and laying the foundation for new growth suggests the structural weakness as the main issue of the Estonian economy.<sup>7</sup> There are numerous reasons which have led to the structural weakness of the Estonian economy (e.g. orientation to domestic market, business models based only on low costs<sup>8</sup>, lack of knowledge-based businesses, etc.). In order to tackle the problems of the Estonian economy, measures are needed to foster innovation.<sup>9</sup> This approach is also supported by Estonian IP experts. For instance, according to H. Koitel weathering the economic crisis requires fostering science and prioritization of innovation.<sup>10</sup> The author, however, mainly focuses on improvement of legal framework of IP as a way to support innovation.

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<sup>6</sup> See, e.g., U. Varblane *et al.* Eesti majanduse konkurentsivõime hetkeseis ja tulevikuväljavaated. Aruanne tellitud Eesti Arengufondi poolt (The Estonian Economy Current Status of Competitiveness and Future Outlooks. Report ordered by the Estonian Development Fund). Available at [http://www.arengufond.ee/upload/Editor/ty\\_raport.pdf](http://www.arengufond.ee/upload/Editor/ty_raport.pdf) (18.08.2009) (in Estonian).

<sup>7</sup> Valge paber Riigikogule kriisi ületamiseks ja uuele kasvule aluse panekuks (A white paper presented to the Riigikogu for overcoming the economic crisis and laying the foundation for new growth), p. 1. Available at <http://www.arengufond.ee/upload/Editor/Publikatsioonid/Publikatsioonide%20failid/Spikker-Valge-paber-Riigikogule-180609.pdf> (18.08.2009).

<sup>8</sup> According to a survey concerning Estonian SMEs 24% of the exporting SMEs perceive low price/low-cost production input as a competitive advantage. 23% of them consider high quality and 18% of them uniqueness of products as a competitive advantage. A well-known trademark is regarded an advantage only by 5% of the exporting SMEs. – Saar Poll uuringu aruanne. Eesti väikese ja keskmise suurusega ettevõtete arengusuundumused. 2008 (Saar Poll survey report. Development Trends of Small and Medium-Sized Enterprises. 2008), p. 87. Available at [http://www.mkm.ee/failid/IVKE\\_2008\\_aruanne\\_.pdf](http://www.mkm.ee/failid/IVKE_2008_aruanne_.pdf) (25.10.2009) (in Estonian).

<sup>9</sup> For the purposes of this dissertation the concept of innovation encompasses knowledge creation and its exploitation.

<sup>10</sup> H. Koitel. Innovatsiooni roll ühiskonna arengus (The Role of Innovation in Social Development). – S. Kaugia (ed.), Õiguse sotsiaalsest olemusest ja toimest ühiskonnas

The objective to foster innovation is generally included in the Estonian strategy documents.<sup>11</sup> However, legislation establishing the Estonian IP system neglects to mention innovation. The Patent Act<sup>12</sup>, the Utility Models Act<sup>13</sup> and the Industrial Design Protection Act<sup>14</sup> do not stipulate enhancement of innovation as one of their main objectives. Subsection 1 (1) of the Estonian Copyright Act<sup>15</sup> describes its objective as follows: “[t]he purpose of the Copyright Act is to ensure the consistent development of culture and protection of cultural achievements, the development of copyright-based industries and international trade, and to create favourable conditions for authors, performers, producers of phonograms, broadcasting organisations, producers of first fixations of films, makers of databases and other persons specified in this Act for the creation and use of works and other cultural achievements”. As seen, the Copyright Act does not prioritize ‘the development of copyright-based industries and international trade’ which could be interpreted as fostering innovation but mentions it in connection with other objectives. The author suggests that the objective to enhance innovation has to be considered a conceptual basis for IP system. It is also necessary to have statutory provisions in IP regulation prescribing that supporting innovation is one of their main objectives. The prioritization of innovation has to form a basis for interpretation, implementation and even further improvement of these Acts.

Introducing innovation as one of the main objectives of the Estonian intellectual property system has an impact on the design of IP system. The author of the dissertation concentrates mainly on two aspects: transformation of knowledge into an asset and the role of IP limitations to foster innovation.

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(Of Social Nature and Function of Law in Society). Avatar Holding OÜ 2009, p. 316 (in Estonian).

<sup>11</sup> Knowledge-based Estonia. Estonian Research and Development and Innovation Strategy 2007–2013. Available at

<http://www.hm.ee/index.php?0&popup=download&id=6175> (1.11.2009).

<sup>12</sup> Patendiseadus. Entered into force on 23.05.1994. – RT I 1994, 25, 406; 2009, 4, 24 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.08.2009).

<sup>13</sup> Kasuliku mudeli seadus. Entered into force on 23.05.1994. – RT I 1994, 25, 407; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.08.2009).

<sup>14</sup> Tööstusdisaini kaitse seadus. Entered into force on 11.01.1998. – RT I 1997, 87, 1466; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.08.2009).

<sup>15</sup> Autoriõiguse seadus. Entered into force on 12.12.1992. – RT 1992, 49, 615; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.08.2009).

Knowledge is increasingly perceived to be a strategic business asset. This approach is supported by scientific literature<sup>16</sup> and policy documents<sup>17</sup>. Therefore, it is crucial that knowledge is treated just as any other asset (including physical). The emphasis has to be shifted from the producer of knowledge (author, inventor) to the owner of the knowledge. After the creation of knowledge it should be possible to transfer all rights relating to it. This holds true not only in respect of industrial property but also in respect of copyright as long as the IP system continues to be perceived in a 'patent-copyright paradigm' as suggested by W. Kingston.<sup>18</sup> Having an IP system which freely allows a separation of knowledge from its creator could make Estonia an attractive environment for innovative companies.

Under the Estonian copyright law an author enjoys the economic and moral rights. The obstacles to exercise the moral rights complicate the commercial exploitation of knowledge protected as works. According to H. Pisuke copyright legislation of countries of Continental Europe usually goes beyond the minimum protection standard established by the Berne Convention for the Protection of Literary and Artistic Works<sup>19</sup> (the Berne Convention).<sup>20</sup> This tendency is very explicit in the Estonian Copyright Act which provides for one of the longest catalogues of moral rights known in the world practice.<sup>21</sup> An extensive catalogue of moral rights combined with an additional requirement

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<sup>16</sup> U. Petrusson (Note 1), p. 2; B. Andersen. If 'intellectual property rights' is the answer, what is the question? Revisiting the patent controversies. – Economics of Innovation and New Technology 2004 (13) 5, p. 417; L. Davis. Intellectual property rights, strategy and policy. – Economics of Innovation and New Technology 2004 (13) 5, p. 402; W. Cornish, D. Llewelyn. Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights. 6<sup>th</sup> edition. London: Sweet & Maxwell 2007, p. 6.

<sup>17</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – More Research and Innovation – Investing for Growth and Employment – A Common Approach. – COM (2005) 488, 12.10.2005, p. 7.

<sup>18</sup> According to W. Kingston "[i]ntellectual property, it seems, is "frozen" into a dual patent-copyright paradigm, into which new ways of inventing and new kinds of information have to be fitted somehow if they are to receive protection". – W. Kingston. Unlocking the Potential of Intellectual Property. – O. Granstrand (ed.), Economics, Law and Intellectual Property. Seeking Strategies for Research and Teaching in a Developing Field. Boston/Dordrecht/London: Kluwer Academic Publishers 2003, p. 312.

<sup>19</sup> Berne Convention for the Protection of Literary and Artistic Works. Berne, 9.09.1886, entered into force in respect to Estonia on 26.10.1994. – RT II 1994, 16–17, 49.

<sup>20</sup> Article 6*bis* (1) of the Berne Convention provides that "[i]ndependently of the author's economic rights, and even after the transfer of the said rights, the author shall have the right to claim authorship of the work and to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honour or reputation".

<sup>21</sup> H. Pisuke. Autoriõiguse alused (Copyright Basics). Tallinn 2006, p. 35.

according to which “[t]he moral rights of an author are inseparable from the author’s person and non-transferable”<sup>22</sup> have an adverse effect on exploitation of knowledge protected as works. It has also been suggested that licensing the moral rights of an author *in corpore et in genere* might not be legally valid.<sup>23</sup> The author asserts that twofold actions are required. Firstly, the catalogue and scope of the moral rights has to be narrowed as much as possible.<sup>24</sup> Secondly, it is necessary to provide *expressis verbis* that the moral rights are licensable.

Similar problems exist in relation to inventions as well. Subsection 13 (8) of the Patent Act states that “[a]n author has the right to receive fair proceeds from the profit received from the invention”.<sup>25</sup> As a rule, proprietary rights attached to knowledge are licensable and transferable. However, the Estonian Patent Act has a provision which makes it questionable whether it is possible to license and transfer “the right to receive fair proceeds from the profit received from the invention”. According to subsection 43 (1) of the Patent Act “[t]he transfer of the right to apply for a patent from the author to another person shall be performed on the basis of a separate written agreement or on the basis of a contract or employment contract pursuant to subsection 12 (2) of this Act. The specified agreement or contract shall contain provisions which ensure, pursuant to subsection 13 (8), the right of the author to receive fair proceeds from the profit received from the invention during the entire period of validity of the patent”.<sup>26</sup> The requirement that a contract transferring the right to apply for a patent has to include a provision guaranteeing the inventor’s right to compensation could constitute an obstacle which complicates commercial exploitation of knowledge protected in the form of patents and utility models.

The inventor’s right to receive compensation for his or her efforts leading to a patentable invention is acknowledged and guaranteed in legal orders of other European countries as well.<sup>27</sup> Therefore, several IP experts have raised the issue of harmonization of regulations on employees’ inventions and employees’ right to compensation.<sup>28</sup> It has been correctly emphasized that “[b]ecause of the

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<sup>22</sup> The Copyright Act § 11 (2).

<sup>23</sup> M. Rosentau. Intellektuaalse omandi õigused infotehnoloogias. Autori isiklikud õigused (Intellectual Property Rights in Information Technology. The Personal (Moral) Rights of the Author). – *Juridica* 2007 (9), p. 654.

<sup>24</sup> The author would go further than just the elimination of collision between the right of integrity of the work which is a moral right and the right of alteration of the work and the right of translation of the work which are economic rights as suggested by M. Rosentau. – *Ibid.*, p. 666.

<sup>25</sup> Subsection 12 (8) of the Utility Models Act provides the same regulation.

<sup>26</sup> Subsection 40 (1) of the Utility Models Act provides the same regulation.

<sup>27</sup> For the German perspective see M. Trimborn. *Employees’ Inventions in Germany: A Handbook for International Business*. Austin, Boston, Chicago, New York, The Netherlands: Wolters Kluwer 2009.

<sup>28</sup> See C. Heath. Remuneration of employees’ inventions in Europe and Japan. *Bimonthly Journal of the International Association for the Protection of the Industrial*

tendency toward more global company structures and the fact that an increasing number of research institutions work in a worldwide environment, the question of ownership of and remuneration for employees' inventions has also become an issue in an international setting and in particular for larger, world-wide operating enterprises".<sup>29</sup> Based on the above, it could be concluded that problems relating to service inventions have significance to many countries.

In principle it is recommended that inventors are rewarded for their effort. Still, rewarding inventors is only one measure which needs to be considered when constructing an IP system that would enhance innovation. Additionally there are several other aspects which have to be born in mind. Firstly, H. W. Chesbrough' has been correct in suggesting that "technology by itself has no inherent value; that value only arises when it is commercialised through a business model".<sup>30</sup> In other words, a patentable idea does not generate any profit on its own. Secondly, one product is usually based on several IP instruments such as patents, trade secrets, copyrights, trademarks, etc. This complicates the determination of the value of a single component (invention). Thirdly, an entrepreneur usually has several projects and only a limited number of them are profitable. Therefore, guaranteeing imperatively an inventor's right to compensation has an adverse effect on entrepreneurship because an entrepreneur has to share only its profits not loss. Fourthly, if the aim is to treat knowledge protected in any form of IP as a business asset and foster business research then the created knowledge has to be free from different encumbrances such as extensive moral rights in case of copyright and an inventor's claim to profits in case of patents.

The author does not share the opinion that inventors should not be rewarded. Rewarding systems, however, have to be designed on organizational levels. The ambiguous regulation obliging entrepreneurs to share their profits with inventors is not the best solution encouraging innovation. At the very least the regulation has to be more detailed. The author's preference would be to amend the Patent Act and the Utility Models Act and include provisions saying *expressis verbis* that an inventor's right to compensation is freely transferable. Of course, even now there is a possibility that the Estonian courts hold that the right to compensation is transferable. Still, for the sake of clarity the law has to explicitly provide it.

Intellectual property system has several stakeholders (e.g. creators, owners, regulatory authorities, third sector, consumers, etc.) each with their own interests. IP system cannot, however, function unless a balance is stricken

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Property of Japan 2002 (27) 6, pp. 398–407; J. Meier, T. Schubert, H.-R. Jaenichen. Employees' Invention Remuneration – Money (f)or Nothing? Available at [http://www.vossiusandpartner.com/pdf/pdf\\_58.pdf](http://www.vossiusandpartner.com/pdf/pdf_58.pdf) (26.09.2009).

<sup>29</sup> J. Meier *et al* (Note 28), p. 1.

<sup>30</sup> H. W. Chesbrough. Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business School Press 2003, p. 156.

between divergent interests. Intellectual property limitations<sup>31</sup> play a crucial role in reaching the balance by granting access to knowledge and at the same time maintaining the motivation to invest in knowledge creation. Efficiency of IP limitations is impaired by technological developments, widening of IP-protected subject matter, public health issues, etc.

The author finds that the cooperation of the stakeholders of IP system is extremely important for the functioning of IP system. In addition, it is necessary to have IP limitations which are wide enough to be applicable in a rapidly changing and dynamic environment.

## **2.2. The concept of intellectual property in a knowledge-based economy**

The concept of intellectual property in a knowledge-based economy is analyzed in the articles “Intellectual Property in an Innovation-based Economy”<sup>32</sup> and “Some Issues of the Estonian Innovation and Intellectual Property Policy”<sup>33</sup>.

Legal and economic concepts of intellectual property differ. The most widely accepted legal definition of IP is provided by the Convention Establishing the World Intellectual Property Organisation<sup>34</sup> (WIPO). Article 2 (viii) of the Convention Establishing WIPO defines intellectual property as rights resulting from intellectual activities. However, the confinement of IP to legal aspects only has its shortcomings.

The preference of legal approach could lead to formalistic goal settings in policy documents. For instance, the strategy document ‘Estonian Success 2014’ sets forth the following objective: “[T]he number of patents registered per 100,000 inhabitants in Estonia will be multiplied by 10”.<sup>35</sup> It is crucial to

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<sup>31</sup> For further discussion see A. Kelli. Intellectual Property Rights and Access to HIV Medicines in Estonia (forthcoming); A. Kelli. Some Issues of Intellectual Property and Ethics. – Recent Developments in IP Law. Kraków: Wolters Kluwer Polska, 2007, pp. 153–165. A. Kelli, A. Kalvi. Compulsory License as a Tool for Limitation of a Patent Owner’s Rights. – Intellectual Property and Bioscience. Compendium of Working Papers from ScanBalt IPKN Project. Stuttgart/Berlin: Steinbeis-Edition 2007, pp. 83–94.

<sup>32</sup> A. Kelli, H. Pisuke. Intellectual Property in an Innovation-based Economy. – Review of Central and East European Law 2008 (33) 2, pp. 223–238.

<sup>33</sup> A. Kelli. Some Issues of the Estonian Innovation and Intellectual Property Policy. – Juridica International 2008 (15), pp. 104–114.

<sup>34</sup> The Convention Establishing the World Intellectual Property Organisation. Stockholm, 14.07.1967, entered into force in respect to Estonia on 5.02.1994. – RT II 1993, 25, 55.

<sup>35</sup> Eesti Edu 2014. Vabariigi Valitsuse strateegiadokument (Estonian Success 2014. Strategy document of the Government of the Republic), p. 10. Available at <http://www.riigikantselei.ee/failid/EE2014.doc.pdf> (6.08.2009) (in Estonian).



acknowledge that protecting knowledge in the form of IP (patents, utility models, designs, etc.) and the subsequent enforcement of the acquired rights is not an objective in itself. It usually depends on business considerations. Therefore, the legal concept of intellectual property (IP as legal rights) has to be developed further to include economic aspect (IP as an asset) in order to comply with the concept of innovation.

Focusing only on the economic side of IP and ignoring its legal aspects usually results in a loss of the investment made in knowledge creation or acquisition.<sup>36</sup> The reason is that economic systems do not offer adequate tools to control and manage the utilization of knowledge. Although there are vehicles to protect knowledge by technological and organizational means, it is not always sufficient. More efficient tools to control one's knowledge are provided by legal systems. For instance, knowledge can be protected in the form of a patent. If an entrepreneur does not manage properly its knowledge then it may not only lose control over this knowledge but someone else may deprive the entrepreneur of the right to use this knowledge. This can happen if a competitor patents the knowledge.

Different aspects of intellectual property are sometimes successfully integrated. For instance, U. Petrusson has suggested the concept of three arenas. According to him IP exists in three arenas: 1) an administrative arena, 2) a judicial arena, and 3) a business arena. The administrative arena includes entities such as patent offices and boards of appeal. Patent examiners and patent attorneys play a significant role in this arena. The judicial arena includes courts and roles such as judges, prosecutors and defence lawyers. From an entrepreneurial perspective, the business arena is the most important one. It consists of markets, innovation systems, commercial relations, etc.<sup>37</sup>

The approach of three arenas is an advanced one and serves as reasonable grounds for the conceptualization of intellectual property. Nevertheless, there are some aspects of this concept that call for further analysis. Firstly, intellectual property is traditionally divided into three main categories: 1) copyright, 2) related rights to copyright (neighbouring rights), and 3) industrial property.<sup>38</sup> According to the Berne Convention for the Protection of Literary and Artistic Works copyright protection does not require fulfilment of any formalities such

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<sup>36</sup> H. Koitel has pointed out that in addition to knowledge creation it is essential to consider getting access to knowledge by means of a license. Technology licensing could have a considerable economic impact since it enables utilization of advanced technologies with modest costs. – H. Koitel. Mõningaid tööstusomandi õiguskaitse probleeme (Some Problems Relating to Legal Protection of Industrial Property). – Audentese Ülikooli Toimetised 2005 (7), pp. 112–113 (in Estonian).

<sup>37</sup> U. Petrusson (Note 1), pp. 104–106.

<sup>38</sup> The author acknowledges that there may be other classifications of intellectual property.

as registration.<sup>39</sup> Therefore, the existence of the administrative arena which is relevant for patenting is not necessary for copyright. The same holds true in respect of some other types of IP (e.g., know-how, unregistered designs, well-known trademarks) as well. Based on the above, it can be concluded that the concept of three arenas is more suitable to describe industrial property (especially patents) than the whole concept of intellectual property (including copyright).

Secondly, it is difficult to grasp why the administrative and judicial arenas are treated separately because they are both provided for by legislation. Therefore, the author prefers the integration of the administrative and judicial arenas into the legal arena.

Irrespective of the fact whether we distinguish between the administrative and judicial arenas, the contemporary concept of intellectual property as an essential component for innovation has to integrate the economic (IP as an asset) and legal (IP as rights) aspects. The adoption of the integrated approach is not sufficient and additional steps are required.

It should not be ignored that in essence intellectual property is an intellectual concept. U. Petrusson explains this notion as follows: “Intellectual property has no existence in itself. The concepts patent, patentable invention, license, etc. only exist because we say that they exist, because we communicatively share beliefs and because we are loyal to these beliefs”.<sup>40</sup> Therefore, measures ought to be taken to reinforce the belief in the existence of IP. Raising awareness is among the first steps. The Estonian case law indicates that even the nature and the scope of protection of the main IP instruments such as patents, utility models and copyright are not always fully understood.<sup>41</sup>

Dissemination of knowledge about IP should not be limited to legal aspects alone. It is essential to address also economic aspects of intellectual property such as management of IP, IP strategy, IP valuation, IP audit, etc. It could be done in seminars, at roundtables and other events. The dissemination can help the stakeholders of IP system (especially industry) to develop necessary capabilities to utilize IP system. For instance, the University of Tartu contributed to the dissemination of interdisciplinary knowledge concerning intellectual property, economics and biotechnology in the Baltic countries within the ScanBalt IPKN project from 2005 to 2007.

In addition to general and well-targeted dissemination activities it is crucial that a general course on intellectual property is included and mandatory in all curricula of contemporary universities. This requirement was one of the key

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<sup>39</sup> Subsection 7 (3) of the Copyright Act provides the same regulation: “[t]he registration or deposit of a work or completion of other formalities is not required for the creation or exercise of copyright”.

<sup>40</sup> U. Petrusson (Note 1), p. 53.

<sup>41</sup> See Judgment of the Tallinn Circuit Court, 19.06.2007, 2-05-17713. Available at <http://www.kohus.ee/kohtulahendid/temp/2-05-17713.pdf> (8.10.2009) (in Estonian).

points of the ScanBalt Declaration for the support of intellectual property.<sup>42</sup> The said course should not, however, be limited to only legal aspects of IP. It is crucial to address economic aspects of IP as well. This approach is also favoured by IP community. It has been emphasized that “[p]atents and intellectual property touch upon a spectrum of legal, economic, political, strategic business management and social issues relating to trade, competition, technology dynamics, knowledge building, economic development, and corporate and social accountability. However, our educational systems approach patents as a narrow legal speciality. Graduate and undergraduate education on patents and intellectual property management is largely relegated to law school and certain MBA-level courses, but even then this education is not uniformly available”.<sup>43</sup>

The general course on IP taught by the author at the Faculty of Law of the University of Tartu aims to integrate legal and economic aspects of IP.

The improvement of the Estonian legal framework of intellectual property has to be based on economic analysis. Cases concerning IP require, in addition to legal analysis, also economic analysis. New information acquired through interdisciplinary approach could be used to amend IP related legislation. At the same time, it has to be born in mind that innovation processes are country- and region-specific. Therefore, the experts involved must have a good understanding of the Estonian economic conditions.

### **2.3. Improvement of IP system to support SMEs**

Means to improve IP system to support business activities of SMEs are mainly analyzed in the articles “Some Issues of the Estonian Innovation and Intellectual Property Policy”<sup>44</sup> and “Improvement of the Intellectual Property System as a Measure to Enhance Innovation”<sup>45</sup>.

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<sup>42</sup> ScanBalt Position Paper. – Intellectual Property and Bioscience. Compendium of Working Papers from ScanBalt IPKN Project. Stuttgart/Berlin: Steinbeis-Edition 2007, pp. 173–174.

<sup>43</sup> IBM. The Inventors’ Forum. A Global Innovation Outlook Report (2007), p. 9. Available at [http://www.ibm.com/ibm/gio/media/pdf/inventors\\_forum.pdf](http://www.ibm.com/ibm/gio/media/pdf/inventors_forum.pdf) (4.10.2009).

<sup>44</sup> A. Kelli. Some Issues of the Estonian Innovation and Intellectual Property Policy. – *Juridica International* 2008 (15), pp. 104–114.

<sup>45</sup> A. Kelli. Improvement of the Intellectual Property System as a Measure to Enhance Innovation. – *Juridica International* 2009 (16), pp. 114–125.

A need to search for measures to support SMEs is well-acknowledged on the EU<sup>46</sup> and national levels. The following table indicates that SMEs constitute the majority of enterprises in Estonia<sup>47</sup>:

	<b>Total by employees</b>	<b>1–9 employees</b>	<b>10–49 employees</b>	<b>50–249 employees</b>	<b>250 and more employees</b>
<b>2008</b>	77 948	69 234	7 137	1 376	201

Estonia is not unique in this respect. For instance, Lithuania has a similar situation. According to Statistics Lithuania the number of enterprises by year and size in Lithuania is as follows<sup>48</sup>:

	<b>Total by employees</b>	<b>1–9 employees</b>	<b>10–19 employees</b>	<b>20–49 employees</b>	<b>50–99 employees</b>	<b>100–249 employees</b>	<b>250–499 employees</b>	<b>500–999 employees</b>	<b>1 000 and more employees</b>
<b>2007</b>	160 114	143 697	7 943	5 233	1 859	1 008	250	83	41

SMEs and big companies usually have different opportunities and also strategies to innovate. A big company has capacity to construct an entire value chain. This is hardly an option for an SME. Therefore, different concepts how to manage innovation are developed.

The closed innovation is an inwardly focused approach according to which companies create, develop and market knowledge on their own. This concept requires firms to be self-reliant.<sup>49</sup> This concept is evidently suitable for a big company.

Open innovation approach, however, accepts that knowledge can be generated inside the company but it can also come from and go to outside the company.<sup>50</sup> The open innovation allows participation in some part of a value chain and is therefore suitable to SMEs as well. The author contends that the open innovation route is a viable choice for the majority of Estonian entrepreneurs.

SMEs are a group of stakeholders of IP system who need specific measures targeting their problems directly. Development of any measures requires a

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<sup>46</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions – “Think Small First” – A “Small Business Act” for Europe. – COM (2008) 394, 25.6.2008, p. 2.

<sup>47</sup> Statistics Estonia. Available at [http://pub.stat.ee/px-web.2001/I\\_Databas/Economy/06Economic\\_units/04Entrepreneurs/04Entrepreneurs.asp](http://pub.stat.ee/px-web.2001/I_Databas/Economy/06Economic_units/04Entrepreneurs/04Entrepreneurs.asp) (6.10.2009).

<sup>48</sup> Statistics Lithuania. Available at <http://www.stat.gov.lt/en/pages/view/?id=2534> (6.10.2009).

<sup>49</sup> H. W. Chesbrough (Note 30), p. XX.

<sup>50</sup> *Ibid.*, p. 43.

thorough analysis of the actual needs of SMEs. The best results could be achieved by taking into account all relevant characteristics relating to SMEs such as knowledge-intensity (e.g., investments into R&D, licensing), industry sector (high-tech, low-tech), etc. The current analysis is based on the statistical data relating to the size of an enterprise and the presumption that most of entrepreneurs lack capabilities for IP management.

Estonian entrepreneurs often fail to understand the concept of intellectual property. Therefore, it is imperative that IP regulations are as clear and explanatory as possible. The Estonian Copyright Act which entered into force on 12.12.1992 is modelled upon this approach. The author is convinced that all IP regulations adopted in Estonia have to be patterned upon this example. After IP has become more deeply ingrained in the Estonian legal and economic culture it is possible to adopt less detailed regulations.

Inconsistency of IP regulations has to be avoided. The current regulation where the ownership of IP created by an employee depends on whether this is a copyright-protected work, design or invention is not acceptable. In order to provide a clear legal framework for employees' inventions Estonian leading IP experts have proposed to adopt a separate Act.<sup>51</sup> The author does not consider this a primary objective. It is more relevant to define underlying considerations for this kind of regulation.

According to the author the aim to enhance innovation also has to form the conceptual basis for the determination of the legal status of intellectual property created within an employment relationship. Therefore, the existing inconsistency can be overcome by providing that all IP which is created in the execution of direct duties of an employee belongs to an employer. This approach provides an entrepreneur with a mechanism to concentrate on commercial exploitation of IP and thereby wealth creation. Otherwise an entrepreneur would have to employ resources to prepare an IP contract giving it the control over IP. The need to deal with matters of such nature diverts an entrepreneur's attention away from its core business.

In principle the Copyright Act complies with this approach. The issue here is that only the economic rights are transferred to an employer. The author suggests that an employer has to receive a statutory license to use the moral rights to the extent it is necessary to utilize the work.

It is common that SMEs do not conclude written IP contracts. Therefore, format requirements of IP contracts have to be reviewed. IP regulations have to

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<sup>51</sup> H. Koitel. Teadmistepõhine majandus, konkurentsivõime ja intellektuaalomandi kaitse (Knowledge-based Economy, Competitiveness and Protection of Intellectual Property). – Audentese Ülikooli Toimetised 2004 (6), p. 59 (in Estonian); H. Koitel. Mõningaid tööstusomandi õiguskaitse probleeme (Some Problems Relating to Legal Protection of Industrial Property). – Audentese Ülikooli Toimetised 2005 (7), p. 117 (in Estonian); A. Kukrus. Tööstusomandi õiguskaitse (Legal Protection of Industrial Property). Tallinn: Mats 1995, p. 65 (in Estonian).

provide that oral non-exclusive licenses are valid. A differentiated approach to registered and non-registered IP is acceptable.

The author contends that SMEs could be supported by the adoption of detailed dispositive regulations to address situations such as joint ownership of IP, ownership of IP created to fulfil contractual obligations, rights and obligations of licensor and licensee, etc. Further research is needed to map all eventualities which require regulation. The experience of other countries could be of great assistance here.

The adoption of detailed dispositive IP regulations shall have several advantages. Firstly, it shall allow parties to structure a tailor-made contractual relationship. Secondly, if the parties do not have any contractual arrangement (e.g., in case of joint ownership of IP) or the arrangement is insufficient (e.g., in case of licensing) the dispositive regulation shall be applicable. The absence of relevant IP regulation creates uncertainties which can result in increased litigation. This, however, diverts SMEs' resources away from their core business activities and exerts an adverse effect on innovation.

It is crucial to identify the actual needs of SMEs. Some studies suggest that SMEs prefer certain IP tools. SMEs involved in high-tech sectors (e.g., biotech) usually rely on the patent system. This, however, is not the case for all SMEs. In fact, the current patent system is not always seen as corresponding to the needs of SMEs.<sup>52</sup> This position is expressed in policy documents<sup>53</sup> and scholarly writings<sup>54</sup>. The author does not address problems of the patent system because Estonian SMEs are not yet innovative enough to utilize a patent system.<sup>55</sup> The

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<sup>52</sup> For instance, H. Koitel has proposed that the state in order to encourage patenting should support inventors to pay their patent fees. – H. Koitel. *Innovatsiooni ja patendinduse roll rahvusvahelises majanduses* (The Role of Innovation and Patents in International Economy). – Audentese Ülikooli Toimetised 2002 (2), p. 15 (in Estonian).

<sup>53</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Putting knowledge into practice: A broad-based innovation strategy for the EU – COM (2006) 502, 13.9.2006, p. 6; Communication from the Commission to the European Parliament and the Council. Enhancing the patent system in Europe – COM (2007) 165, 3.4.2007.

<sup>54</sup> W. Kingston. *Innovation needs patents reform*. – *Research Policy* 2001 (30), p. 411.

<sup>55</sup> Statistics of the Estonian Patent Office reveals that from 1.01.2009 to 30.06.2009 sixty-six patents were registered in the Estonian register of patents. Only five of them belonged to Estonian residents. During the same period forty-four patent applications were filed and thirty-three of them were filed by Estonian residents. – The Estonian Patent Office. Statistics. Available at

[http://www.epa.ee/client/default.asp?wa\\_id=525&wa\\_object\\_id=1&wa\\_id\\_key=](http://www.epa.ee/client/default.asp?wa_id=525&wa_object_id=1&wa_id_key=) (15.11.2009). Statistical data provided by the European Patent Office shows that in 2008, three European patents were granted to and seven European patent application filed by Estonian residents. The situation is similar in other Baltic States as well. In 2008, three European patents were granted to and forty-four European patent application filed by Latvian residents and two European patents were granted to and eleven European patent application filed by Lithuanian residents. – The European Patent

author presumes that a low investment in R&D is one of the main reasons why Estonian entrepreneurs are not eager to patent.<sup>56</sup>

The author is also convinced that Estonian entrepreneurs lack capabilities to manage IP. Development of necessary capabilities relies on organizational learning and changing organizational culture. The importance of organizational learning has been described by Estonian economists as follows: “In the 21st century an organization’s ability to learn has become a critical factor for its success”.<sup>57</sup> In order to change an organization it is crucial to manage the change of organizational culture. It has been emphasized that “culture change is a common type of organizational change and that it often occurs in combination with other types of change”.<sup>58</sup> Due to the structural weakness of the Estonian economy and the recession the majority of Estonian entrepreneurs have to implement changes in their organizations in order to survive.<sup>59</sup>

One of the key skills of a contemporary organization is the ability to exploit the IP system. In addition to complex IP tools such as patents, the Estonian IP system also includes utility models. A wider exploitation of the utility model system by Estonian entrepreneurs could enhance their IP capabilities.<sup>60</sup> Utility models are by no means designed to be used only as educational tools. It has rightly been suggested that “industry needs a system of short-term rights protecting minor technical advances, which supplements the patent system and is particularly valuable where know-how cannot be kept secret”.<sup>61</sup> Utility models meet the referred need well. However, due to similarities of the patent and utility model systems, the acquired experiences and capabilities to manage

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Office. Statistics. Available at <http://www.epo.org/about-us/office/statistics.html> (15.11.2009).

<sup>56</sup> See A. Kelli. Some Issues of the Estonian Innovation and Intellectual Property Policy. – *Juridica International* 2008 (15), p. 111.

<sup>57</sup> R. Alas, M. Vadi. The Impact of Organisational Culture on Organisational Learning in Six Estonian Hospitals. – *TRAMES* 2003 (7) 57/52, p. 83.

<sup>58</sup> M. E. Smith. Changing an organization’s culture: correlates of success and failure. – *Leadership & Organization Development Journal* 2003 (24) 5, p. 259.

<sup>59</sup> Change management is defined as “the process of continually renewing the organization’s direction, structure, and capabilities to serve the ever-changing needs of the marketplace, customers and employees”. – J. W. Moran, B. K. Brightman. Leading organizational change. – *Career Development International* 2001 (6) 2, pp. 117–118.

<sup>60</sup> The statistical data reveals that Estonian entrepreneurs are exploiting the system. According to statistics of the Estonian Patent Office forty-five utility models were registered in the Estonian register of utility models from 1.01.2009 to 30.06.2009. Forty of them belonged to Estonian residents. During the same period sixty-nine utility model applications were filed and sixty-six of them were filed by Estonian residents. – The Estonian Patent Office. Statistics. Available at [http://www.epa.ee/client/default.asp?wa\\_id=525&wa\\_object\\_id=1&wa\\_id\\_key=](http://www.epa.ee/client/default.asp?wa_id=525&wa_object_id=1&wa_id_key=) (15.11.2009).

<sup>61</sup> W. Cornish, D. Llewelyn (Note 16), p. 10.

utility models can be used and even leveraged in the process of realization of advantages and prevention of problems brought about by the patent system.

Therefore, the author suggests that interdisciplinary research is needed to analyze the existing utility model system in Estonia. The results of the research could serve as a basis to improve the legal framework of utility model system and even more importantly contribute to development of measures (financial support, counselling, raising awareness, etc.) enhancing the utilization of utility models.

The analysis of case law<sup>62</sup> and economic studies<sup>63</sup> relating to trade secret protection has led to the following conclusions. Firstly, trade secret protection has a high strategic relevance for innovation. Secondly, it is an important IP instrument especially for SMEs.<sup>64</sup> Thirdly, entrepreneurs usually do not have sufficient capabilities to manage their trade secrets. Therefore, it has to be born in mind that raising capabilities of an entrepreneur to protect and manage its trade secrets is even more important than improvement of the existing regulation. Fourthly, regulations concerning trade secret protection require an extensive analysis to identify the existing shortcomings and search for possibilities to improve the regulations. The referred analysis has to include not only legal but also economic aspects of trade secret protection (e.g., impact on knowledge diffusion, mobility of workers). Similarly to other IP instruments, it is essential to consider the enhancement of innovation as a conceptual basis for trade secret protection. The author maintains that in any case the regulatory framework of trade secret protection has to be more detailed (e.g. clarifying issues such as legal status of trade secrets created within employment or performance of contractual obligations, etc.).

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<sup>62</sup> The Decision of the Criminal Chamber of the Supreme Court of 8 June 2009 in matter 3-1-1-46-09 (in Estonian); the Decision of the Civil Chamber of the Supreme Court of 9 December 2008 in matter 3-2-1-103-08 (in Estonian); the Decision of the Civil Chamber of the Supreme Court of 21 March 2007 in matter 3-2-1-22-07 (in Estonian); the Decision of the Civil Chamber of the Supreme Court of 16 November 2005 in matter 3-2-1-115-05 (in Estonian).

<sup>63</sup> K. Hussinger. Is Silence Golden? Patents versus Secrecy at the Firm Level. – *Economics of Innovation and New Technology* 2006 (15) 8, pp. 735–752; A. Arundel. The relative effectiveness of patents and secrecy for appropriation. – *Research Policy* 2001 (30), pp. 611–624.

<sup>64</sup> According to A. Arundel “small firms, on average, do not rely more on patents than on secrecy in comparison with large firms. Instead, small firms are less likely than large firms to find patents to be of greater value than secrecy for product innovations, although there is little difference by firm size for process innovations”. – A. Arundel (Note 63), p. 622.



## 2.4. Entrepreneurial university as a key actor involved in enhancement of innovation

The concept and role of entrepreneurial university in Estonia is discussed in the article “Some Issues Regarding Entrepreneurial Universities and Intellectual Property”.<sup>65</sup>

Entrepreneurial university is a key actor participating in the innovation process. According to M. Jacob *et al.* the term entrepreneurial university refers to “a university that has developed a comprehensive internal system for the commercialisation and commodification of its knowledge. This system includes not just structures such as liaison or technology transfer offices which bridge the gap between industry and the academy but also incentives for adjusting lines of study and the allocation of research budgets to the demand in the private and public sectors”.<sup>66</sup>

The described developments<sup>67</sup> have given rise to several questions. Firstly, do these developments imply that a university has transformed into a business entity? Secondly, whether the existing legal base is sufficient to support new activities of a university and thirdly, how far should a university extend these new activities?

The author has found that participation of a university in commercial activities has not transformed a traditional university into a commercial organization. Exploitation of IP has to be viewed as an additional function of a contemporary university.

Based on the research results the author concludes that the existing legal base does not constitute an obstacle for IP commercialization carried out by the Estonian universities.<sup>68</sup> Universities can rely on the Patent Act, the Copyright Act and other relevant regulation. Estonian universities have also adopted their

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<sup>65</sup> H. Pisuke, A. Kelli. Some Issues Regarding Entrepreneurial Universities and Intellectual Property. – *Juridica International* 2007 (12), pp. 161–172.

<sup>66</sup> M. Jacob, M. Lundqvist, H. Hellsmark. Entrepreneurial transformations in the Swedish University system: the case of Chalmers University of Technology. – *Research Policy* 2003 (32), p. 1556.

<sup>67</sup> For further discussion see H. Etzkowitz, L. Leydesdorff. The dynamics of innovation: from National Systems and “Mode 2” to a Triple Helix of university–industry–government relations. – *Research Policy* 2000 (29), pp. 109–123; M. Wright, S. Birley, S. Mosey. Entrepreneurship and University Technology Transfer. – *Journal of Technology Transfer* 2004 (29), pp. 235–246; B. M. Frischmann. Commercializing University Research Systems in Economic Perspective: A View From the Demand Side. Available at <http://ssrn.com/abstract=682561> (5.11.2009).

<sup>68</sup> From the Danish perspective see N. Baldini. The Act on Inventions at Public Research Institutions: Danish Universities’ Patenting Activity. – *Scientometrics* 2006 (69) 2, pp. 287–407.

own IP regulations.<sup>69</sup> However, the author suggests that IP regulations have to be harmonized across the Estonian universities.<sup>70</sup> The harmonization can be undertaken by universities themselves or by adoption of a separate Act. The amendment of the existing Acts on IP (the Patent Act, the Copyright Act, etc.) is another alternative. The author prefers the second option because the legislative process is probably more efficient than harmonization process conducted on the initiative of Estonian universities. The third option is inadequate because it is not sufficient to merely regulate the ownership issues. It is necessary to include provisions on how a university has to exploit its intellectual property. Therefore, adoption of a separate Act should be opted for rather than amendment of the Patent Act, the Copyright Act and other related Acts.

The main focus of the IP regulations adopted by Estonian universities is on the ownership of IP and distribution of the profit earned from commercialization of IP. The author contends that more detailed harmonized regulation has to be adopted on IP exploitation. The fact that a university commercializes its IP does not make its other functions such as fostering research and disseminating knowledge less relevant. The mission of a university to enrich society with new knowledge and benefits flowing from the knowledge has a considerable impact on IP exploitation as well. The main objective of IP exploitation by universities has to be supporting knowledge dissemination and development of new products and services. This approach also justifies the commercialization of universities' IP.

The regulation of IP exploitation has to guarantee that IP owned by universities will not become an obstacle to further research and development of

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<sup>69</sup> E.g., *Intellektuaalse omandi käsitlemise põhimõtted Tartu Ülikoolis* (The principles governing handling of intellectual property at the University of Tartu). Adopted by Directive No. 17 of 18 November 2003 of the University of Tartu Council. Amended by Directive No. 25 of 19 December 2008 of the University of Tartu Council; *Intellektuaalomandi käsitlemise lähtealused Tallinna Tehnikaülikoolis* (Rules of Handling Intellectual Property at Tallinn University of Technology). Adopted by Directive No. 4 of 21 March 2006 of the Tallinn University of Technology Council; *Intellektuaalse omandi käsitlemise põhimõtted Eesti Põllumajandusülikoolis* (The Principles of Handling Intellectual Property in the Estonian University of Life Sciences). Adopted by Directive No. 15 of 23 December 2003 of the Estonian Agricultural University Council; *Intellektuaalse omandi õiguskaitse eeskiri Tallinna Ülikoolis* (the Regulation of Legal Protection of Intellectual Property in the Tallinn University). Adopted by Directive No. 9 of 14 June 2004 of the Tallinn Pedagogical University Council.

<sup>70</sup> In addition, the author proposes the establishment of one central technology transfer office (TTO) which would exploit intellectual property of Estonian universities. This TTO could serve as a one stop shop for IP owned by Estonian universities. The concept of one TTO could lead to reduction of transaction cost, facilitation of access to knowledge, etc. Still a more comprehensive analysis of this issue falls outside the scope of the dissertation.

products. It has to be stated explicitly that the aim of IP exploitation is to foster research, knowledge diffusion and development of new products.

This aim has to be considered in licensing practices of Estonian universities as well. For instance, it is advisable that universities avoid exclusive licenses or at least reserve the right to grant access to their IP for research purposes.

The regulation of IP exploitation has to address issues relating to the mobility of researchers. It is imperative that a researcher could continue his or her research after relocating from one institution to another.

The impact of the IP regulation depends on how it is implemented. The implementation process is influenced by several factors. It is necessary to ascertain that the academic community is aware of IP regulations of a university. This task can be accomplished by continuous dissemination of the relevant information. It is also essential that the academy accepts and is motivated to adhere to IP regulations. This can be achieved by the adoption of regulations on IP exploitation which comply with the values of academic community, sharing profits with researchers who contributed to the creation of knowledge and regarding patented inventions as first rate publications. No less important is the development of capabilities of technology transfer personnel to manage IP of a university and be able to utilize different technology transfer models.

### 3. CONCLUSIONS

This dissertation concentrates on the interrelation of intellectual property and innovation. The author reached the following conclusions:

1. the objective to enhance innovation has to be adopted as a conceptual basis for the Estonian IP system. This means that the prioritization of innovation has to form a basis for interpretation, implementation and even further improvement of the legislation constituting the Estonian IP system. In order to support innovation it is essential that knowledge is treated just as any other asset. Therefore, the emphasis has to be shifted from the producer of knowledge (author, inventor) to the owner of the knowledge. After the creation of knowledge it has to be possible to transfer all rights relating to it. By creating a system which allows a separation of knowledge from its creator, Estonia might be perceived as an attractive environment for innovative companies.

In addition to efforts to increase the cooperation among the stakeholders of IP system there is a need to have IP limitations which are wide enough to be applicable in a very rapidly changing and dynamic environment;

2. the contemporary concept of intellectual property as an essential component for innovation has to integrate the economic (IP as an asset) and legal (IP as rights) aspects. Although the use of knowledge takes place in business settings, the control over it is established by legal instruments. In order to enhance innovation it is crucial to raise awareness about legal and economic aspects of IP. A course based on an integrated approach to intellectual property has to be included in all curricula of the Estonian universities. The improvement of the Estonian IP regulations calls for, in addition to utilization of legal expertise, also economic expertise;
3. the fact that the majority of Estonian entrepreneurs are SMEs has to be reflected in the design of the Estonian IP system. Since Estonian entrepreneurs often do not fully understand the concept of IP then it is necessary that IP regulations are as clear and explanatory as possible. SMEs could be supported by the adoption of detailed dispositive regulations to address situations such as joint ownership of IP, ownership of IP created to fulfil contractual obligations, rights and obligations of licensor and licensee, etc.

Theoretical literature, economic studies, statistics and case law reveal that SMEs could benefit from the utilization of utility models and trade secret protection. The use of utility models assists SMEs in developing IP capabilities which can be leveraged in the process of realization of advantages and prevention of problems brought about by the patent system. Trade secret protection provides a valuable tool for SMEs who often lack the capacity to acquire and enforce patents. Therefore, the author suggests to review regulations on utility models and trade secrets to adjust them to SMEs needs;

4. the concept of entrepreneurial university does not imply that a traditional university has transformed into a profit-oriented business organization. IP commercialization has to be viewed as an additional function of a university. The author suggests that the existing IP regulations adopted by Estonian universities have to be harmonized. Preferably a separate Act has to be adopted to harmonize the existing regulations and regulate matters relating to IP exploitation. Commercialization of intellectual property has to comply with the mission of a university to furnish the society with new knowledge and benefits flowing from the knowledge. Therefore, it is essential to guarantee that IP owned by universities fosters research, knowledge diffusion and development of new products. The implementation of IP regulations is dependent on awareness, acceptance and competence of the academic community.

Relying on the research results of the dissertation it can be concluded that the importance of intellectual property in all fields of social life is increasing. Currently an intense period of development for intellectual property theory and practice is underway. Intellectual property system is obliged to guarantee social progress by enhancement of innovation. From the Estonian perspective, intellectual property is an essential mechanism to sustain the transformation into a knowledge-based economy and the development of Europe.

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## SUMMARY IN ESTONIAN

### Eesti intellektuaalse omandi süsteemi arengud teadmistepõhise majanduse tingimustes

Käesolev doktoritöö keskendub intellektuaalse omandi (IO) ja innovatsiooni omavahelistele seostele. Uurimustöös uurib autor võimalusi innovatsiooni edendamiseks läbi intellektuaalse omandi süsteemi täiustamise. Autor lähtub eeldustest, et 1) innovatsioon aitab ületada probleeme seoses Eesti majanduse struktuurse nõrkusega ning suurendada riigi majanduslikku ja sotsiaalset heaolu, ja 2) intellektuaalsel omandil on määrav roll innovatsiooni kiirendamisel.

IO süsteemi ja selle toimimist mõjutavad konkreetsed riigi ja regiooni tingimused. Autori taotluseks ongi selgitada, milline intellektuaalse omandi süsteem edendab innovatsiooni kõige enam Eesti kontekstis. Selline IO süsteem peab sobima Eesti majandus- ja õigussüsteemi ja olema sobilik ka Eesti liikmelisuse tingimustes Euroopa Liidus (EL). Autor uurib Eesti IO süsteemi EL-i vastavate arengute valguses.

Autor on seadnud oma eesmärgiks Eesti IO süsteemi ja selle üksikute institutidega seotud fundamentaalsete teoreetiliste probleemide uurimise. Tuginedes teoreetilisele uurimistööle ja selle järeldustele on töö konkreetseteks rakenduslikeks eesmärkideks Eesti IO süsteemi kitsaskohtade tuvastamine ning neile lahenduste pakkumine. Autor pakub välja omapoolsed meetmed Eesti õigusaktide muutmiseks, ettevõtjate ja ülikoolide intellektuaalse omandi alase teadlikkuse tõstmiseks ja nende praktiliste oskuste arendamiseks. Samuti teeb autor ettepaneku IO-alase kursuse lülitamiseks kõrgkoolide õppekavadesse.

Uurimistöö teoreetilised ja praktilised tulemused on kasutatavad Eesti innovatsiooni ja IO poliitikate väljatöötamisel (intellektuaalse omandi ja innovatsiooni alaste strateegiadokumentide väljatöötamisel), Eesti seisukohtade kujundamisel EL vastavate poliitikate edasiarendamiseks, Eesti IO regulatsiooni täiustamisel, ettevõtjate ja ülikoolide IO-alase võimekuse tõstmisel, kõrgharidussüsteemi täiustamisel. Doktoritöö tulemused on rakendatavad ka teistes sarnase majandus- ja õigussüsteemiga riikides, arvestades nende siseriiklikku olukorda.

Autor on uurimustöö tulemusi kasutanud osaledes Majandus- ja Kommunikatsiooniministeeriumi ja Kultuuriministeeriumi intellektuaalse omandi alastes töögruppides.

Doktoritöö tugineb suures ulatuses teaduslikule uurimistööle, mis on viidud läbi Euroopa Liidu ja siseriiklike teadusprojektide raames. Nimetatud projektides on autor osalenud ühe Eestipoolse intellektuaalse omandi põhilise eksperdina. Autori seisukohad on leidnud muuhulgas kajastamist Euroopa Komisjonile esitatud aruannetes ning teoreetilistel ja praktilistel seminaridel, mida viidi läbi erinevates Euroopa riikides.

Autor on oma uurimistöö tulemusi esitanud mitmetel rahvusvahelistel ja Eesti teaduslik-praktilistel seminaridel. Doktoritööl põhinevaid teadmisi on

edasi antud intellektuaalse omandi üldkursuse raames Tartu Ülikooli õigus-teaduskonnas (Tallinnas), õppekursusel Eesti Maaülikooli doktorantidele ja erinevatel koolituskursustel. Samuti on autor doktoritöö pinnalt juhendanud mitmeid uurimistöid.

Autor on lektorina osalenud Eesti Patendiameti ning teiste organisatsioonide praktilistel konverentsidel ja õppepäevadel. Autor on valmistanud põhiautorina ette ettevõtjatele mõeldud intellektuaalse omandi kaasuste kogumiku.<sup>71</sup>

Autor on läbi töötanud paljude maailma juhtivate intellektuaalse omandi valdkonna teadlaste monograafilised uurimistööd ja artiklid, Eesti vastava erialakirjanduse, õigusaktid ja kaasused ning Euroopa Liidu ja Eesti IO ja innovatsioonialased strategiadokumendid.

Doktoritöö üheks põhiliseks teoreetiliseks aluseks on nn. Põhjamaade intellektuaalse omandi käsitus, mille üheks keskuseks on Göteborgis asuv intellektuaalse omandi keskus CIP (*Center for Intellectual Property*), mille asutajaks on Chalmersi Tehnikaülikool (*Chalmers University of Technology*) ja Göteborgi Ülikool (*School of Business, Economics and Law at the University of Gothenburg*). Autor on toetunud eelkõige professor U. Petrussoni, professor O. Granstrandi ja B. Heideni lähenemisele, mis on üles ehitatud IO majandus-teaduslikust käsitlusest lähtudes. Põhjamaade lähenemisele on omane püüe ühendada Ameerika Ühendriikide ja Euroopa intellektuaalse omandi majandus-teoreetilist käsitlust ja praktilisi majanduslikke aspekte (IO juhtimist ja kommertsialiseerimist). Autor analüüsib kriitiliselt nn. Põhjamaade lähenemist ja arendab seda edasi eesmärgiga seostada see Eesti tingimustega. Nimetatud teooria sobib autori enda lähetealusega, mille kohaselt kaasaegne IO käsitus peab endas ühendama nii majandusteadusliku kui ka õigusliku käsitluse.

Eesti intellektuaalse omandi süsteemi analüüsimisel toetub autor muuhulgas Eesti intellektuaalse omandi juhtivatele ekspertidele nagu H. Pisuke, A. Kukrus, H. Koitel, J. Ostrat, M. Rosentau ja teised.

Doktoritöö põhineb neljal artiklil, millest kaks on kirjutatud ühiselt koos teadustöö juhendaja professor H. Pisukesega. H. Pisukese panus seoses artikliga "*Intellectual Property in an Innovation-based Economy*" on hinnatav 5% ning seoses artikliga "*Some Issues Regarding Entrepreneurial Universities and Intellectual Property*" 15%.

Doktoritöö temaga seonduvalt (eelkõige seoses IO piirangutega) on autor kirjutanud täiendavalt mitmeid artikleid, milles täpsustatakse autori teoreetilisi ja praktilisi järeldusi.<sup>72</sup>

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<sup>71</sup> A. Kelli, P. Lätt, H. Pisuke. Intellektuaalse omandi kaasuste kogumik. Tallinn 2008.

<sup>72</sup> A. Kelli. Intellectual Property Rights and Access to HIV Medicines in Estonia (ilmumas); A. Kelli. Some Issues of Intellectual Property and Ethics. – Recent Developments in IP Law. Kraków: Wolters Kluwer Polska, 2007, pp. 153–165. A. Kelli, A. Kalvi. Compulsory License as a Tool for Limitation of a Patent Owner's Rights. – Intellectual Property and Bioscience. Compendium of Working Papers from ScanBalt IPKN Project. Stuttgart/Berlin: Steinbeis-Edition 2007, pp. 83–94.

Kuna autori üheks keskseks ideeks on intellektuaalse omandi õigusliku ja majandusliku külje integreerimine, siis on tegemist interdistsiplinaarse uurin-guga. Autor kasutas lisaks õiguskirjandusele, õigusaktidele ja kaasustele ka majanduskirjandust, majandusteemalisi uurimusi ning analüüse. Innovatsiooni ja intellektuaalse omandi temaatika uurimisel on autor teinud tihedat koostööd Tartu Ülikooli majandusteadlastega Euroopa Liidu ja siseriiklike teadusprojek-tide raames. Uurimustöös on autor samas kasutatud ka traditsioonilisi õigus-teaduslikke meetodeid nagu analüüs ja süntees, võrdlus ning ajalooline lähene-mine.

Doktoritöö põhihüpoteesi kohaselt on kaasaegse intellektuaalse omandi süsteemi üheks põhiliseks eesmärgiks innovatsiooni edendamine. See on oluline globaalselt ja EL seisukohalt tervikuna. Eesti jaoks on IO süsteemil aga eriline tähendus, sest see aitab edendada meie majanduse suhtelist nõrka seisuga ja viia see EL juhtivate majanduste tasemele. Selle eesmärgi saavutamiseks on vajalik teadmuse kohtlemine ka õiguslikult varana.

Innovatsiooni edendamine eeldab samuti võimalust kasutada teadmust, mis kuulub teistele isikutele. Sellise juurdepääsu peavad tagama üldise iseloomuga paindlikud intellektuaalse omandi piirangud.

Uurimustöö tulemusena jõuab autor järeldusele, et innovatsiooni edendamist tuleb lugeda üheks Eesti intellektuaalse omandi süsteemi kontseptuaalseks aluseks. See on lähtealuseks intellektuaalse omandi regulatsiooni tõlgenda-misele, rakendamisele ning ka täiendamisele.

Intellektuaalse omandi regulatsioon moodustab olulise osa õiguslikust baa-sist, mis toetab innovatsiooni. Seetõttu leiab autor, et innovatsiooni edendamine kui eesmärk ei pea kajastuma üksnes erinevates strateegiates, vaid ka intellek-tuaalse omandi süsteemi aluseks olevates õigusaktides (nagu näiteks patendi-seadus, autoriõiguse seadus).

Autor uurib oma töös mitmeid traditsioonilisi intellektuaalse omandi insti-tuute läbi innovatsiooni prisma. Autor püüab välja töötada sellele instituudile omaseid meetmeid, mis võimaldaksid tema arvates innovatsiooni kiirendada.

Autoriõiguses on innovatsioon seotud eelkõige kultuuritööstusega. Doktori-töö autor uurib autori õigusi ja nende seost innovatsiooniga. Ta jõuab järeldusele, et praegu Eesti autoriõiguse seaduses on liiga palju autori isiklikke õigusi. Tema arvates raskendab see teose kommertsialiseerimist. Doktoritöö autor teeb ettepaneku kitsendada autori isiklike õiguste kataloogi. Autor jõuab järeldusele, et teose kommertsialiseerimise tagamiseks tuleb seaduses selge-sõnaliselt sätestada, et isiklikud õigused on litsentseeritavad.

Autor uurib innovatsiooni kiirendamise võimalusi patendiõiguse abil. Ta jõuab järeldusele, et patendi taotlemise õiguse üleandmisel peab eksisteerima võimalus, mille kohaselt leiutaja loovutab ka nõudeõigused kasumile, mida ettevõtja saab leiutise kommertsialiseerimisest. Autor leiab, et ettevõtluse seisu-kohalt on kahjulik olukord, kui leiutise loojal säilib taoline nõudeõigus. Põhju-seid on siin mitmeid. Esiteks määrab tehnoloogia väärtuse selle kommertsiali-seerimise edukus. Konkreetsesse ärimudelisse investeerib aga ettevõtja. Teiseks

on üksiku leiutise väärtust raske hinnata, kuna üks toode võib olla kaitstud suure hulga intellektuaalse omandi instrumentidega, millele lisanduvad veel turustamiskulud. Kolmandaks võib ettevõtjal olla mitmeid kulukaid projekte, millest ainult väike arv osutuvad edukaks. Kui nüüd säilib töötajal nõudeõigus kasumile edukast projektist, siis ei pruugi ettevõtja olla suuteline katma oma teiste ettevõtmiste kahjumeid. Seetõttu pooldab autor lähenemist, mille kohaselt leiutaja ja ettevõtja lepivad ise leiutaja tasustamisrežiimis kokku.

Intellektuaalse omandi piirangud on oluliseks elemendiks IO süsteemis. Autori lähenemine tugines kahele eeldusele. Esiteks intellektuaalse omandi süsteem on pidevalt muutuv. Teiseks on intellektuaalse omandi süsteemi arengu tulemusena hakanud erinevad intellektuaalse omandi režiimid kattuma. Oma uurimuses jõuab autor järeldusele, et IO süsteemi toimimise jaoks on intellektuaalse omandi sidusgruppide koostöö keskse tähendusega. Samas on oluline, et intellektuaalse omandi piirangud on küllalt üldise iseloomuga, et tehnoloogia areng neid kasutuks ei muudaks ning need on kohaldatavad ka IO režiimide kattuvuse korral.

Erinevate intellektuaalse omandi instituutide uurimise pinnal jõuab autor järeldusele, et IO süsteem saab olulisel määral toetada ja edendada innovatsiooni Eestis.

Doktoritöö teise hüpoteesi kohaselt ei tule intellektuaalse omandi mõtestamisel piirduda üksnes selle majandusliku või õigusliku käsitlusega nagu see on senini tavaline meie teoorias ja praktikas. Intellektuaalse omandi süsteemi edukas kasutamine eeldab majandusliku (IO kui vara) ja õigusliku (IO kui õigused) komponendi ühendamist. Nende komponentide ühendamiseks on samuti vajalik vastav infrastruktuur. Autor uurib oma töös nn IO infrastruktuuri ja selle kasutamise võimalusi innovatsiooni edendamisel.

Oma uurimistöös jõuab autor järelduseni, et intellektuaalse omandi käsitlus teadmistepõhises majanduses eeldab intellektuaalse omandi õigusliku külje (IO kui õigused) ja intellektuaalse omandi majandusliku külje (IO kui vara) ühendamist. Keskendumine üksnes IO õiguslikule aspektile võib tuua kaasa formaalsete eesmärkide seadmise. Näiteks on strateegiadokumentides seatud eesmärgiks teatud arv patente elanikkonna kohta. Autor näitab, et patentide arv iseenesest ei ole see, mis kiirendab innovatsiooni. Põhiküsimus on nendes sisalduva teadmusele kõige tulusama kasutusviisi leidmine.

Autor leiab, et IO õiguslike instrumentide kasutamine teadmuse kaitsmisel ei ole eesmärk iseeneses, vaid peab tuginema majanduslikele kaalutlustele. Õiguspraktikas, kohtulahendites, õigusteoorias absolutiseeritakse IO kui õiguste käsitlemist. Seega ei pöörata autori arvates piisavat tähelepanu sellele majanduslikule väärtusele, mille pinnal need õigused tekivad ja mille kasutamist nad tegelikult on seatud tagama.

Majandusteaduses ja praktikas küllaltki juurdunud teadmuse käsitlemine äriühingu strateegilise varana võib jällegi viia IO majandusliku külje ületähtsustamiseni ning IO õigusliku külje tähelepanuta jätmiseni. Kuna majandussüsteem

ise ei paku efektiivset mehhanismi teadmuse kaitseks, siis võib investering teadmusloomesse minna kaduma, kui seda ei kaitsta õiguslike vahenditega.

Autor jõuab järeldusele, et kaasaegne intellektuaalse omandi käsitlus peab endas integreerima nii majandusliku kui ka õigusliku külje.

Antud tulemuseni jõudmiseks analüüsis autor kriitiliselt nn Põhjamaade IO doktriini. Selle üheks paremaks väljenduseks on U. Petrussoni pakutud intellektuaalse omandi kolme foorumi kontseptsioon, mille kohaselt IO-d tuleb käsitleda selle õigusliku, administratiivse ja ärilise komponendi ühtsusena. Autor jõuab järeldusele, et õigusliku ja administratiivse foorumi eristamine selles kontekstis ei ole põhjendatud. Seetõttu pakubki autor oma lähenemisena intellektuaalse omandi käsitlemist üksnes õiguslikust ja ärilisest aspektist lähtudes (nn. IO õigusliku ja ärilise foorumina).

Selleks, et integreeritud lähenemine intellektuaalsele omandile saaks soodustada innovatsiooni, tuleb autori arvates astuda järgmisi samme:

1. riik peab tegema suuremaid pingutusi IO-alase teadlikkuse tõstmiseks. Õigus- ja majanduspraktika analüüsi pinnalt järeldab autor, et intellektuaalse omandi olemusest ning põhiinstrumentidest ei saa Eesti ettevõtjad tihti aru. Eriti käib see väikese ja keskmise suurusega ettevõtjate kohta, kes moodustavad autori analüüsi põhjal enamuse;
2. ettevõtjate teadlikkuse tõstmisel tuleb võtta aluseks intellektuaalse omandi integreeritud lähenemine, mis ühendab nii majanduslikud kui ka õiguslikud aspektid. Seetõttu peab teadlikkuse tõstmisel käsitlema lisaks IO õiguslikele aspektidele ka majanduslikke aspekte nagu IO juhtimine, IO audit, ettevõtte IO strateegia ja IO väärtuse määramine;
3. IO kaitsevahendid tuleb valida tuginedes majanduslikule analüüsile teadmuse väärtuse ja kasutusvõimaluste kohta;
4. IO majandusliku ja õigusliku külje integreeritud käsitlusele rajatud intellektuaalse omandi üldkursus tuleb lülitada ülikoolide kõigi teaduskondade õppekavadesse. Osades teaduskondades on vajalik IO süvakäsitlus ka erikursuste raames (näiteks kindlasti õigusteaduskonnas ja majandusteaduskonnas, tehnilistel ja teadusliku uurimistöö eesliinil olevatel erialadel).

Uurimuse tulemusena jõudis autor järelduseni, et intellektuaalse omandi õigusliku regulatsiooni väljatöötamine peab suuremas ulatuses tuginema majanduslikule analüüsile. Samuti on oluline analüüsida õiguspraktikat mitte üksnes õiguslikust perspektiivist, vaid ka majanduslikust. Eestis on olemas vastav üldine ekspertiis IO majandusliku ja õigusliku käsitluse alal. Kuid see on väikesearvuline ja veel alles omandamas IO integreeritud käsitlust kui meetodit. Praeguses etapis on Eestis veel vajalik kasutada väliseksperptide abi IO eriküsimustes. Kuid kuna innovatsioon on riigi- ja regioonispetsiifiline, siis kaasadatud väliseksperdid peaksid omama head ülevaadet Eesti majandusoludest ja õigussüsteemist. Selline tingimus on raskesti täidetav. Järelikult peab Eesti nii ruttu kui võimalik ette valmistama oma rahvuslikud eksperdid IO erivaldkondades. See on autori arvates riikliku tähtsusega ülesanne.

Doktoritöö kolmandas hüpoteesis väidab autor, et Eesti intellektuaalse omandi regulatsioon ei arvesta asjaoluga, et enamik Eesti ettevõtjaid on väikese ja keskmise suurusega ettevõtjad (VKE). Võimalikud meetmed viidatud probleemiga tegelemiseks võib jaotada kolmeks:

1. IO regulatsioon peab olema mõistetav ja selgitava iseloomuga. VKE-de huvides on ka detailne dispositiivne regulatsioon seoses IO lepingutega;
2. kuna paljud Eesti VKE-d eelistavad oma teadmust kaitsta kasulike mudelitena või ärisaladusena, siis on oluline analüüsida, kuivõrd praegune regulatsioon on VKE-sid toetav;
3. ettevõtjad peavad ise keskenduma intellektuaalse omandi alase võimekuse tõstmisele. Selleks tuleb välja töötada ettevõtjate IO-alase võimekuse arendamise strateegia või tegevuskava, vajadusel tellida IO audit, koostada ettevõtja profiilile sobiv IO portfelli ning valida õige kommertsialiseerimise taktika.

Analüüsi tulemusena jõuab autor järeldusele, et Eesti ettevõtjatele sobib avatud innovatsiooni lähenemine. Avatud innovatsiooniks nimetatakse kontseptsiooni, mille kohaselt ettevõtja ei konstrueeri kogu väärtusahelat ise, vaid kasutab ka teiste teadmust ja lubab teistel oma teadmust kasutada. Põhjenduseks on asjaolu, et tulenevalt Eesti ettevõtjate väiksusest ei ole nad organisatoorselt ja finantsiliselt nii tugevad, et suudavad luua kogu väärtusahela ise. Avatud innovatsiooni lähenemine eeldab, et teadmus liigub nii äriühingusse, kui ka sellest välja. Selleks, et VKE-d saaksid osaleda avatud innovatsioonis peavad nad olema suutelised oma teadmust juhtima (kaitsma IO-na, tegema tehinguid IO-ga, astuma samme oma õiguste kaitseks nende rikkumise korral).

Autor jõuab järeldusele, et selleks, et VKE saaks oma teadmust juhtida, peab riiklik IO regulatsioon olema selge, arusaadav ning ka selgitav. See tähendab, et ettevõtja peab saama oma probleemile lahenduse seaduse teksti pinnalt ilma, et oleks vaja ulatuslikult tunda intellektuaalse omandi teooriat.

On oluline, et sarnased suhted tuleb reguleerida sarnaselt ka erinevates IO instituutides. Autor analüüsib teadmuse loomist töösuhetes. Autor tuleb järeldusele, et puudub õigusteoreetiline põhjendus reguleerida töösuhetes loodud intellektuaalse omandi kuuluvuse küsimusi erinevalt autoriõiguses, autoriõigusega kaasnevates õigustes, tööstusdisainiõiguses või patendiõiguses. Autor leiab, et eesmärk edendada innovatsiooni peab olema kontseptuaalseks aluseks ka töösuhetes loodud IO omandi kuuluvuse otsustamisel.

Erinevate IO režiimide ebakõlade ületamiseks tuleb selgelt sätestada, et õigus tööülesannete käigus loodud intellektuaalsele omandile kuulub tööandjale. Selline lähenemine võimaldab ettevõtjal keskenduda IO ärieesmärkidel kasutamisele ning seeläbi väärtuse loomisele. Vastupidisel juhul peab ettevõtja kulutama ressursi lepinguliste konstruktsioonide loomisele, mis annavad talle kontrolli IO üle. See aga viib ettevõtja tähelepanu tema põhitegevuselt kõrvale. Töötaja motiveerimine peab jääma töötaja ja tööandja vahelise kokkuleppe reguleerida.

Eesti autoriõiguse seadus lähtub põhimõttest, mille kohaselt autori varalised õigused teosele lähevad üle tööandjale. Probleemiks on, et seaduse alusel lähevad üle üksnes varalised õigused, ja vaid need, mis on otseselt seotud töötaja töökohustustega. Autor teeb ettepaneku muuta autoriõiguse seadust viisil, et tööandja peab saama seadusel põhineva õiguse teostada ka autori isiklikke õigusi ulatuses, mis on vajalik teose kasutamiseks. Sama lähenemine peab laienema ka kaasnevatele õigustele.

Kuna VKE-d tihti ei sõlmi kirjalikke ning detailseid IO alaseid lepinguid, siis autori arvates on VKE-de huvides vajalik ulatuslikum regulatsioon suhete jaoks nagu intellektuaalse omandi ühisomand, lepingu alusel loodud IO kuuluvus, litsentsandja ja litsentsisaaja õigused ja kohustused. Regulatsioon peab olema dispositiivne, mis võimaldab pooltel leida endale sobiv lähenemine, kui seaduses pakutu konkreetsele õigussuhtele ei sobi. Samas, kui pooled ei ole selgelt kokku leppinud, siis aitab taoline regulatsioon pooltevahelises suhtes selgust luua ja võimaldab kasutada teatud riigi poolt aktsepteeritud käitumismudelit. Ebaselgus võib tuua kaasa õiguslikke vaidlusi, mis piiratud ressursside tingimustes mõjub VKE-de äritegevusele ning ka seeläbi innovatsioonile negatiivselt.

Tuginedes teoreetilistele allikatele, õigus- ja majanduspraktikale, majandus-teaduslikele uurimustele ja statistikale jõudis autor järeldusele, et kuigi biotehnoloogia ja muud kõrgtehnoloogilised sektorid sõltuvad otseselt patendisüsteemist, siis enamiku Eesti VKE-de jaoks on kasulik mudel ja ärisaladuse kaitse sobivam mehhanism oma teadmuse kaitsmiseks.

Autor on sunnitud nentima, et enamikul Eesti ettevõtjatest puudub käesoleval ajal võimekus efektiivseks intellektuaalse omandi juhtimiseks. Autor leiab, et on mitmed võimalused olukorra parandamiseks. Näiteks kasulike mudelite laialdasem kasutamine Eesti ettevõtjate poolt aitab edendada nende intellektuaalse omandi alast võimekust. Oskused, mis omandatakse kasulike mudelite süsteemi kasutamisel on ülekantavad IO kaitse järgmisel astmel, s.o. patendisüsteemi kasutamisel. Seetõttu jõuab autor ettepanekuni, mille kohaselt tuleb interdistsiplinaarselt (õiguslikust ja majanduslikust aspektist) analüüsida Eesti kasulike mudelite süsteemi ning töötada selle pinnalt välja riiklikud meetmed, mis edendaksid kasulike mudelite süsteemi laialdast kasutamist. Selliste meetmete hulka kuuluksid seadusandluse täiendamine, finantsiline tugi, nõustamine, teadlikkuse tõstmine.

Autor uurib alternatiivseid teadmuse kaitse viise, mis sobivad Eesti VKE-dele. Oma uurimuses jõuab autor järgmiste järeldusteni:

1. ärisaladuse kaitse omab suurt tähtsust innovatsiooni edendamise seisukohalt;
2. see on oluline instrument, mis sobib VKE-dele;
3. Eesti ettevõtjatel puudub reeglina võimekus oma ärisaladuste juhtimiseks, mistõttu on ärisaladuse kaitse kohati ebaefektiivne. Seejuures tuleb rõhutada, et just ettevõtjate võimekus oma teadmuse kaitsta ja juhtida on keskse tähtsusega ärisaladuse kaitseks;



4. võttes arvesse ärisaladuse kaitse tähtsust Eesti ettevõtjatele on vajalik kehtiva ärisaladuse regulatsiooni õiguslik ja majanduslik analüüs. See analüüs peab hõlmama ärisaladuse regulatsiooni mõju kaitse efektiivsusele, teadmuse levimisele, töötajate mobiilsusele, ettevõtlusvabadusele;
5. sarnaselt teistele IO instrumentidele peab ka ärisaladuse kaitse kontseptuaalseks aluseks olema eesmärk edendada innovatsiooni. Autor leiab, et ärisaladuse regulatsioon peab olema detailsem. Näiteks peaks olema reguleeritud ka ärisaladuse kuuluvus, kui selleni on jõutud lepingulise kohustuse või töökohustuste täitmisel.

Doktoritöö neljanda hüpoteesi kohaselt ei tähenda ettevõtliku ülikooli kontseptsiooni ülevõtmine, et traditsiooniline ülikool peab muutuma ettevõtjaks. Autor lähtub nn. ettevõtliku ülikooli kontseptsioonist (*entrepreneurial university*). Ettevõtlikuks ülikooliks olemine eeldab, et ülikoolil on täiendavaid ülesandeid seoses innovatsiooniprotsessis osalemisega. IO kaitsmine ja kommertsialiseerimine on ettevõtliku ülikooli iseloomulikud tunnused. Ehkki Eesti avalik-õiguslikud ülikoolid on kehtestanud oma intellektuaalse omandi eeskirjad, on soovitatav kehtivate eeskirjade ühtlustamine ning ülikoolide poolt IO kasutamise selgete eesmärkide ja piiride seadmine.

Oma uurimistöös jõuab autor järeldusele, et ülikooli tegevus oma intellektuaalse omandi kommertsialiseerimisel ei muuda ülikooli ettevõtjaks selle majanduslikus ja õiguslikus tähenduses. Autor leiab, et intellektuaalse omandi kommertsialiseerimine on kaasaegse ülikooli üheks täiendavaks funktsiooniks õpetamise ja teadustöö kõrval.

Analüüsile tuginedes väidab autor, et ülikoolide poolse intellektuaalse omandi kommertsialiseerimisele puuduvad seadusandlikud takistused. Ülikoolid saavad oma tegevuses toetuda autoriõiguse seadusele, patendiseadusele ning teistele IO-d puudutavatele õigusaktidele.

Eesti ülikoolid on kehtestanud oma intellektuaalse omandi eeskirjad. Autor analüüsis avalik-õiguslike ülikoolide intellektuaalse omandi eeskirju ning jõudis järeldusele, et Eesti ülikoolide intellektuaalse omandi eeskirjad on kohati erinevad. Autor ei näe põhjendust, miks iga ülikool peaks lähtudes samast õiguslikust IO riiklikust alusest minema eri suunas. Autor teeb ettepaneku, et ülikoolide IO eeskirjad on mõttekas ühtlustada.

Autor soovitab eraldi seaduse kehtestamist, mis reguleerib lisaks intellektuaalse omandi kuuluvuse ning kasumi jaotamisele ka intellektuaalse omandi kasutamist ülikoolide poolt.

Autori arvates on intellektuaalse omandi kasutamist puudutava regulatsiooni eesmärgiks tagada, et ülikoolide omandis olev intellektuaalne omand ei muutuks takistuseks edasisele uurimistööle ja kaupade ning teenuste väljatöötamisele. Intellektuaalse omandi kasutamise regulatsioon peab selgelt sätestama, et ülikool kasutab oma intellektuaalset omandit teadustöö edendamiseks, teadmuse levitamiseks ning uute kaupade ja teenuste loomise soodustamiseks. Selline lähenemine peab väljenduma ka ülikoolide litsentseerimispraktikas. See

tähendab, et ülikool säilitab õiguse anda loa uurimistöö läbiviimiseks ka kolmandatele isikutele. Intellektuaalse omandi kasutamise regulatsioon peab soosima ka teadlaste liikumist ning mitte tegema teadlastele takistusi oma uurimistöö jätkamiseks mõnes teises teadusasutuses.

Autori seisukohalt on ülikooli missioonil rikastada ühiskonda uue tead-musega ning sellest teadmusest tulenevate hüvedega mõju ka teadmuse kommertsialiseerimisele. Seetõttu leidis autor, et ülikooli poolse intellektuaalse omandi kommertsialiseerimise eesmärgiks on toetada teadmuse levikut ning uute toodete ja kaupade loomist. Taoline lähenemine on ka õigustuseks ülikooli poolsele intellektuaalse omandi kommertsialiseerimisele.

Intellektuaalse omandi regulatsiooni mõju sõltub eelkõige sellest, kuidas seda rakendatakse akadeemilises keskkonnas. Autor jõudis järeldusele, et esi-mese meetmena on oluline akadeemilise kogukonna teadlikkuse tõstmine IO küsimustes. Veelgi olulisem on, et loodud regulatsioon võetakse omaks. Regu-latsiooni aktsepteerituse võib saavutada läbi kasumi jagamise isikutega, kes panustasid IO loomisesse ning patentide lugemise teadustööks. Samavõrra olu-line on ka tehnoloogiasiirde spetsialistide võimekus tulla toime erinevate tehnoloogiasiirde mudelitega.

Uurimistöö pinnal võib väita, et intellektuaalse omandi osatähtsus ühis-konnaelu kõigis valdkondades suureneb. Tegemist on intensiivse arengu-perioodiga nii IO teoorias kui ka praktikas. Intellektuaalne omand on seatud tagama ühiskondlikku progressi läbi innovatsiooni arendamise. Eesti seis-u kohalt on IO süsteemi näol tegemist olulise hoovaga, mis peab tagama tead-mistepõhise Eesti ja kogu ELi arengu.

## **PUBLICATIONS**





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# Intellectual Property in an Innovation-based Economy

*Aleksei Kelli and Heiki Pisuke<sup>1</sup>*

## Abstract

The process of transformation into an innovation-based economy has had a considerable impact on the intellectual property (IP) system. IP has become an integral part of innovative processes. These developments have led to changes in IP concepts. The authors argue that the notion of IP must include both legal (IP as rights) and economic (IP as an asset) aspects. The balance between different kinds of IP (copyright, related rights, industrial property) within innovation processes should be reviewed in order to acknowledge the rightful place of copyright as the core of IP and IP culture. Nevertheless, the major tools for enhancing innovation are still based on industrial property. The role of IP in different kinds of policy documents should be increased.

In order to fully exploit the potential of IP, it is necessary to enhance the development of supportive infrastructure for the utilization and commercialization of IP (intellectual infrastructure). Such infrastructure should support the functioning of IP systems, identifying new knowledge and transferring knowledge from entrepreneurial universities to industry. Raising public awareness about practical aspects of IP and fostering IP competencies are of paramount importance. Teaching IP at universities and adopting university IP policies form an important part of this process.

According to the vision of the authors, a basic course on IP should be taught at every university to all students. Specialized IP courses should be part of the curricula at the faculties of law, economics, engineering, biology, philosophy, etc. The authors outline the Estonian experience with regard to these issues.

## Keywords

innovation, innovation-based economy, intellectual infrastructure,  
intellectual property, knowledge-based economy

## 1. Introduction

Innovation has become of vital importance for enhancing social development and creation of wealth. Intellectual property (IP) is directly connected with innovation. One of the objectives of the IP system is to

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stimulate innovation. IP constitutes a central component of the legal basis for innovation. The existing IP system faces new challenges. Technological progress exerts a destabilizing effect on the IP system. New kinds of knowledge and information products have to be protected within the existing system. The IP system is derived from the legal and administrative systems of a particular country and is of a territorial nature. Changes in the legal framework and administrative infrastructures are based on special procedures. Such legislative and administrative procedures are rather static and time-consuming in most countries. The question is: can traditional forms of IP and the territorial application of IP be adapted to these new forms of innovation?

The current IP system has been described as “‘frozen’ into a dual patent-copyright paradigm, into which new ways of inventing and new kinds of information have to be fitted”.<sup>2</sup> Intellectual property has always been about public and private interests. There should be a balance between these interests. New technological developments have challenged these merely balanced interests. The interests of society to foster its economic development and culture, and the interest of the IP right-holder “to secure a ‘fair’ value for his intellectual effort or investment of capital or labour”<sup>3</sup> is more difficult to achieve. Another important issue is the difference of interests between developed and developing countries and transition economies. These diverse interests have complicated the adoption of several new international instruments in the field of IP. The inability to adopt these instruments results in blocking the attempts to overcome the territorial nature of IP.<sup>4</sup> The rapid growth of IP rights leads to a situation in which IP owners can block each other. Therefore, the central economic, legal and ethical objective of a society should be to construct a balanced IP system, which considers the interests of different stakeholders and fosters innovation.

The structures and activities supporting IP systems are of growing importance. Such new intellectual infrastructures include special institutions fostering knowledge transfer between universities and entrepreneurs. Intellectual property management, development of IP-based business strategies, valuation of IP, collateralization of IP and other activities are

<sup>2</sup> William Kingston, “Unlocking the Potential of Intellectual Property”, in Ove Granstrand (ed.), *Economics, Law and Intellectual Property. Seeking Strategies for Research and Teaching in a Developing Field* (Kluwer Academic Publishers, Boston, Dordrecht, London, 2003), 311-329, at 312.

<sup>3</sup> William Cornish and David Llewelyn, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (Sweet & Maxwell, London, 6th ed. 2007), 12.

<sup>4</sup> For instance, negotiations to update the norms and standards of protection for broadcasting organizations in a new international treaty lasted for almost ten years and failed in 2007.



comparatively new in the practice of European entrepreneurs, the financial sector and other relevant business actors.

The need to design a well-functioning IP system and support the enhancement of intellectual infrastructure is greater than ever before, due to economic trends which could be summarized as the knowledge-based economy.<sup>5</sup> The high strategic relevance of IP within a knowledge-based economy has been emphasized by many scholars.<sup>6</sup> It can be argued that without a functioning IP system there is neither a knowledge-based nor an innovation-based economy.

The aim of this article is to highlight some aspects of the innovation-based economy and the changing character of intellectual property. The underlying concept of an innovation-based economy as a point of departure for the authors is somewhat narrower than the concept of a knowledge-based economy. We consider that the concept of an innovation-based economy allows a better understanding of the role of innovation in contemporary society. The authors analyze the notion of innovation, new concepts of IP and their inter-relations with innovation. The main hypothesis suggests that the traditional notion of IP should be developed further to fit the concept of innovation. In particular, we stress the pivotal role of IP infrastructure in supporting an innovation-based economy.

In the preparation of this article, several EU and Estonian policy documents have been analyzed. The authors also refer to the conclusions of the EU-funded Sixth Framework Programme Project ScanBalt Intellectual Property Knowledge Network<sup>7</sup> (hereinafter “ScanBalt IPKN project”). Furthermore, several theoretical concepts of the article draw on the Nordic economic approach to IP (Ulf Petrusson, Ove Granstrand, etc.).

## 2. Innovation as the Major Driver of Society

The term ‘innovation’ is derived from the Latin *innovare*: ‘to renew’. It should be emphasized that today the word ‘innovation’ has different

<sup>5</sup> These trends are sometimes referred to as ‘knowledge economy/society’ or ‘intellectualized economy’. Despite the fact that concepts behind them might slightly differ, the authors regard them as synonyms in this article. Ove Granstrand uses an even broader concept—intellectual capitalism—which, according to him, is based on two factors: transition to a more knowledge-based society and strengthening of capitalist economic systems. For a detailed discussion, see Ove Granstrand, “Intellectual Capitalism—An Overview”, available at <<http://129.16.27.14/dept/ime/Publications/NOPEC.pdf>>, 1–2.

<sup>6</sup> See Stephan Hundertmark and Frank Graage, *Intellectual Property Strategies in Bioscience. Compendium of Working Papers from ScanBalt IPKN Project* (Steinbeis-Edition, Stuttgart, Berlin, 2007), 32–49, at 37.

<sup>7</sup> ScanBalt Intellectual Property Knowledge Network, “Building a Sustainable Intellectual Property Infrastructure by Expanding Regional Competencies in Value-creation from Bioscience Innovations”, LSSP-CT-2004-013029.

meanings. There is still some confusion as to how innovation should be distinguished from other concepts such as improvement, change, creativity, investment, etc. In the EU documents, the terms ‘innovation’ or “innovation in a broad sense”<sup>8</sup> are used. In many European and national documents, innovation is not defined and is, thus, seen as a self-explanatory notion. The Estonian Research, Development and Innovation Strategy (hereinafter “the Estonian innovation strategy”) merely describes the activities that could be regarded as innovation. The document reads: “[i]nnovation includes implementation of [the] latest outcome[s] of scientific research as well as already existing knowledge, skills and technologies in an innovative manner”.<sup>9</sup>

Innovation is defined in the Estonian Organization of Research and Development Act<sup>10</sup> (ORDA) as

“the utilization of new ideas and knowledge in order to implement innovative solutions, including development and modernization of products and services (product innovation); winning and expanding relevant markets (market innovation); creation and introduction of new methods of production, delivery and sale (process innovation); innovation in management and organization of work (organizational innovation) and development of the working conditions and skills of the staff (staff innovation).”<sup>11</sup>

Innovation is often divided into two main categories: incremental and disruptive (breakthrough, radical). Incremental innovation refers to minor improvements responding to short term goals. Most innovations are of an incremental nature. Disruptive innovation means launching an entirely novel product or service rather than improving existing ones. It involves large leaps of understanding and probably demands a new way of seeing the whole problem.<sup>12</sup>

Innovation is usually associated with the economic development of society. It has been argued that innovation is one of the most important factors in market-related economic competition.<sup>13</sup> Innovation should be

<sup>8</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, “Putting Knowledge into Practice: A Broad-based Innovation Strategy for the EU”, COM (2006) 502, 13 September 2006, 2, at <[http://ec.europa.eu/enterprise/innovation/doc/com\\_2006\\_502\\_en.pdf](http://ec.europa.eu/enterprise/innovation/doc/com_2006_502_en.pdf)>.

<sup>9</sup> “Knowledge-based Estonia: Estonian Research and Development and Innovation Strategy 2007-2013”, 9, at <<http://www.hm.ee/index.php?o&popup=download&id=6175>>.

<sup>10</sup> “Teadus- ja arendustegevuse korralduse seadus”, signed 26 March 1997, I Riigi Teataja (RT) (1997) No.30, 471; (2006) No.14, 114 (hereinafter “Organization of Research and Development Act”).

<sup>11</sup> §2, Organization of Research and Development Act.

<sup>12</sup> See the Wikipedia ‘Innovation’ entry, at <<http://en.wikipedia.org/wiki/Innovation>>.

<sup>13</sup> Markus Pohlmann, “The Evolution of Innovation: Cultural Backgrounds and the Use of Innovation Models”, 17(1) *Technology Analysis & Strategic Management* (2005), 9-19, at 9.

considered to be one of the major drivers for enhancing the knowledge-based economy, and for the social and cultural development of the society. The European Commission has put it as follows: “[r]esearch and innovation are needed to make the EU economy more sustainable, by finding win-win solutions for economic growth, social development and environmental protection”.<sup>14</sup> The Estonian innovation strategy also considers innovation to be at the core of the knowledge-based society model.<sup>15</sup> Innovation has occasionally been placed into an even broader context by arguing that innovation is one of the factors influencing the world’s future,<sup>16</sup> including the environment.

It is obvious that high hopes are pinned on innovation. Innovation is seen as a way to surmount problems facing Europe. An important issue to be addressed is the ageing of the European population. The so-called ‘brain drain’ from Europe and developing countries to the USA weakens the European potential. These developments will put the European social model under stress. At the same time, it is important to remember the pressure on the European environment that might compromise the needs of future generations.<sup>17</sup> The current phase of globalization has exposed the EU economy to mounting competition from abroad.<sup>18</sup> Consequently, it is necessary to tackle these problems. The Commission has stressed that “[i]nnovation in a broad sense is one of the main answers to citizens’ material concerns about their future.”<sup>19</sup>

<sup>14</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, “More Research and Innovation—Investing for Growth and Employment: A Common Approach”, COM (2005) 488, 12 October 2005, 4, at <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0488:FIN:EN:PDF>>.

<sup>15</sup> “Knowledge-based Estonia ...”, *op.cit.* note 9, 5.

<sup>16</sup> Erik R. Peterson, “Seven Revolutions: Global Strategic Trends Out to the Year 2025”, 12(2) *The Multinational Business Review* (2004), 111–119, at 111.

<sup>17</sup> To address environmental problems, a concept of eco-innovation has even been adopted. See Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, “Stimulating Technologies for Sustainable Development: An Environmental Technologies Action Plan for the European Union”, COM (2004) 38, 28 January 2004, at <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2004:0038:FIN:EN:PDF>>; Communication from the Commission, “Report on the Implementation of the Environmental Technologies Action Plan in 2004”, COM (2005) 16, 27 January 2005, at <[http://ec.europa.eu/environment/etap/pdfs/report\\_etap\\_en.pdf](http://ec.europa.eu/environment/etap/pdfs/report_etap_en.pdf)>.

<sup>18</sup> Communication from the Commission to the Council and the European Parliament, “Common Actions for Growth and Employment: The Community Lisbon Programme”, COM (2005) 330, 20 July 2005, 2, at <[http://ec.europa.eu/growthandjobs/pdf/COM2005\\_330\\_en.pdf](http://ec.europa.eu/growthandjobs/pdf/COM2005_330_en.pdf)>.

<sup>19</sup> Communication from the Commission, *op.cit.* note 8, 2.

The European Commission has expressed the view that IP protection is a *sine qua non* for innovation.<sup>20</sup> The Commission has specified its position as follows:

“[a] key element of the renewed Lisbon Strategy for Growth and Jobs is to improve the way intellectual property rights (IPRs) are handled in Europe, as intellectual property rights, and patents in particular, are linked to innovation, which in turn is an important contributor to competitiveness”.<sup>21</sup>

The Commission also suggests the existence of a correlation between the use of IPR and good innovation performance. It is assumed that countries with a high innovation performance are in general characterized by high levels of patenting and the use of other IPRs, such as design and trademark rights. The correlation between IP and innovation can also be seen at the sectoral level. The sectors where more patents are issued tend to be more innovative.<sup>22</sup> The Commission’s arguments are based on and supported by economists.<sup>23</sup>

For lawyers, there is a direct link between innovation and IP.<sup>24</sup> At the same time, we argue that it is not only “patenting and the use of other rights, such as design and trademark rights”,<sup>25</sup> as indicated by the European Commission, that influence innovation. According to Heiki Pisuke, the role of copyright towards innovation is clearly underestimated. Copyright is the core of IP, IP thinking and IP culture.<sup>26</sup> The legal protection of any results of a creative nature starts from copyright protection. Copyright protection is the most universal and strongest protection based on moral and economic exclusive rights that are acquired without any formality. It is also necessary to bear in mind that innovative solutions could sometimes acquire cumulative protection under copyright and industrial property regulations (e.g., designs, logos, marks, etc.). Choosing the appropriate regulation is always a question of IP protection strategy.

<sup>20</sup> *Ibid.*, 6.

<sup>21</sup> Communication from the Commission to the European Parliament and the Council, “Enhancing the Patent System in Europe”, COM (2007) 165, 3 April 2007, 2, at <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0165:FIN:EN:PDF>>.

<sup>22</sup> *Ibid.*, 2.

<sup>23</sup> Tõnis Mets *et al.*, “The Role of Intellectual Property Protection in the Business Strategy of University Spin-off Biotech Companies in a Small Transition Economy”, 32(1) *Review of Central and East European Law* (2007), 19–40, at 20.

<sup>24</sup> See Heiki Pisuke and Aleksei Kelli, “Some Issues Regarding Entrepreneurial Universities and Intellectual Property”, 12 *Juridica International* (2007), 161–172.

<sup>25</sup> Communication from the Commission, *op.cit.* note 21, 2.

<sup>26</sup> Heiki Pisuke, “Copyright—the Core of Intellectual Property”, in *Intellectual Property and Bioscience. Compendium of Working Papers from ScanBalt IPKN Project* (Steinbeis-Edition, Stuttgart, Berlin, 2007), 95–109.

There is a general understanding of the role of IP in the context of innovative processes. Unfortunately, issues of IP importance are not adequately addressed in various policy and legal documents. For instance, there are only a few references to the pivotal role of IP in the Estonian innovation strategy. We strongly believe that every national innovation strategy should include a separate chapter (or other similar subdivision) on IP.

Designing an appropriate infrastructure for the implementation of IP is also of the utmost importance. Several issues related to such infrastructure are dealt with in section four of this article.

A balanced and well-functioning IP system with good infrastructure is an important element of an innovation-based economy. However, these elements cannot function without human capital. The European Commission has planned several actions to address human capital issues (investment in education, elimination of barriers to mobility of researchers, etc.).<sup>27</sup> There are also other European actions going on, based on the Lisbon Strategy (redeployment of state aid towards research and innovation, use of public procurement to foster research and innovation, encouragement of introduction of tax incentives to stimulate business research, simplification of key existing legislation and other support measures).<sup>28</sup> These measures are necessary and should be supported by corresponding actions in the member states. We would also like to emphasize the importance of raising awareness of the practical aspects of IP and creating a European IP culture.<sup>29</sup> According to our vision, a basic course on IP should be taught at every university to all students. Specialized IP courses should be part of curricula at the faculties of law, economics, engineering, biology, philosophy, etc. For example, at the University of Tartu, the general course of IP (2 credits) is compulsory for all law students and an elective for several other faculties. Law students can also take specialized courses on copyright and industrial property law and write bachelor and master theses on IP topics.<sup>30</sup>

We would also like to raise the issue of the systematization of law and the development of the national legal system. Heiki Pisuke has proposed the formation a special body of law—Innovation Law—within the Estonian

<sup>27</sup> The Commission asserts: “[f]urther education and training is essential to keep Europe’s human capital up to date with the skills and knowledge necessary for innovation”. Communication from the Commission, *op.cit.* note 14, 17.

<sup>28</sup> *Ibid.*; Communication from the Commission, *op.cit.* note 18; and Communication from the Commission, *op.cit.* note 8.

<sup>29</sup> ScanBalt Intellectual Property Knowledge Network, “ScanBalt Declaration for the Support of Intellectual Property”, in *Intellectual Property and Bioscience ...*, *op.cit.* note 26, 173–174.

<sup>30</sup> See Heiki Pisuke and Aleksei Kelli, “Teaching Intellectual Property at Universities”, in *ibid.*, 163–172.

legal system. Such a branch of legislation consists of several institutes of law, both public and private law. IP law, with its subdivisions, is a part of innovation law. As national legal systems differ substantially from each other, it is a matter for other national doctrines to accept or reject such a proposal.

### 3. The Reconceptualization of Intellectual Property

The traditional way to define intellectual property is to use the concept accepted by the members of the World Intellectual Property Organization (WIPO). According to Article 2(viii) of the Convention Establishing WIPO,<sup>31</sup> ‘intellectual property’

“shall include the rights relating to literary, artistic and scientific works; performances of performing artists, phonograms, and broadcasts; inventions in all fields of human endeavor; scientific discoveries; industrial designs; trademarks, service marks, and commercial names and designations; protection against unfair competition and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields”.

This notion is accepted by all the national legal systems of 184 WIPO member states.<sup>32</sup> The notion provided by WIPO is also the basis for the global IP society.<sup>33</sup> For a common understanding, it is important to acknowledge that, from the legal point of view, IP means legal rights.<sup>34</sup>

Furthermore, IP is not only about rights. It is also about creation, investment and commercialization. Creators, entrepreneurs, investors, economists and lawyers often use their own terminology based upon their own understanding of IP. For economists, IP constitutes, first and foremost, an asset.

WIPO and common law countries, as a rule, classify IP as copyright (and related or neighboring rights) and industrial property. Such a classification does not correspond to the doctrine and legislation of European

<sup>31</sup> Convention Establishing the World Intellectual Property Organization, signed 14 July 1967, entered into force 26 April 1970, 828 UNTS 3.

<sup>32</sup> Available at <[www.wipo.int/members/en](http://www.wipo.int/members/en)>.

<sup>33</sup> Heiki Pisuke, “Building a National Intellectual Property Protection System: Some Issues Concerning Copyright and Related Rights in Estonia”, 42 *Scandinavian Studies in Law* (2002), 127-145; Heiki Pisuke, “Estonia in a Global Intellectual Property Society: Copyright and Related Rights”, in René Värk (ed.), *Estonian Law Reform and Global Challenges. Essays Celebrating the Tenth Anniversary of the Institute of Law, University of Tartu* (Tartu University Press, Tartu, 2005), 97-117.

<sup>34</sup> WIPO provides the following definition: “[i]ntellectual property, very broadly, means the legal rights which result from intellectual activity in the industrial, scientific, literary and artistic fields [...] Those rights do not apply to the physical objects in which the creation may be embodied but instead to the intellectual creation as such.” WIPO, *WIPO Intellectual Property Handbook: Policy, Law and Use* (WIPO, Geneva, 2001), 3.

countries based on civil law and *droit d'auteur* doctrines. The European legal system, including the legal system of Estonia, deems it proper to divide IP into three categories: authors' rights (commonly known as copyright), rights related to copyright (related rights)<sup>35</sup> and industrial property.<sup>36</sup>

Several authors have criticized the traditional legal approach to IP. Peter Drahos writes: "[m]ost definitions, in fact, simply list examples of intellectual property rights or the subject matter of those rights (often in inclusive form) rather than attempting to identify the essential attributes of intellectual property."<sup>37</sup> He explains that the definitional dimensions of IP are influenced by different philosophical and legal traditions.<sup>38</sup> Drahos himself defines IP as rights of exploitation in information.<sup>39</sup> The same concept is used by Cornish and Llewelyn: "[i]ntellectual property protects applications of ideas and information that are of commercial value."<sup>40</sup>

The official WIPO definition and legal scholars (including Drahos) place IP solely in a legal context. However, it is important to bear in mind that IP is not only about legal rights. To illustrate this, the concept of three arenas has been proposed by Ulf Petrusson.

Petrusson asserts that IP exists in (1) an administrative arena; (2) a judicial arena; and (3) a business arena. The administrative arena is a platform, including entities such as patent offices and boards of appeal, and roles, such as patent examiners and patent attorneys. The important elements of this arena also include infrastructure of patent information, formalistic procedure and the bulk of regulations. The judicial arena is a fundament of the state. Courts are one of the institutions in which states perform their monopoly of violence, through the administration of justice. Judges, prosecutors and lawyers play important roles in this arena. Legislation and court decisions contribute greatly to the constitution of this arena. From an entrepreneurial perspective, the business arena is the most important one. It consists of markets, innovation systems, commercial relations, etc.<sup>41</sup>

<sup>35</sup> The synonym 'neighboring rights' is also used.

<sup>36</sup> Heiki Pisuke, *Autor ja ülikool. Autoriõiguse alused* (Tartu Ülikooli Kirjastus, Tartu, 2004), 13-17.

<sup>37</sup> Peter Drahos, "The Universality of Intellectual Property Rights: Origins and Developments", 1-36, at 1, at <<http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/drahos.pdf>>.

<sup>38</sup> Compare the concepts of *droit d'auteur* and copyright. For a detailed analysis of the concepts of *droit d'auteur* and copyright, see Brad Sherman and Alain Strowel, *Of Authors and Origins. Essays on Copyright Law* (Clarendon Press, Oxford, 1994), 235-253.

<sup>39</sup> Drahos, *op.cit.* note 37, 1-2.

<sup>40</sup> Cornish and Llewelyn, *op.cit.* note 3, 6.

<sup>41</sup> Ulf Petrusson, *Intellectual Property & Entrepreneurship: Creating Wealth in an Intellectual Value Chain. CIP Working Paper Series* (Center for Intellectual Property Studies, Göteborg, 2004), 104-106.

We agree that IP can be explained through these three arenas. This is a more complex approach to IP than simply regarding it only as rights or assets. Still, some of the elements of the arenas can be the subject of debate and further development.

The economic approach is to regard IP as assets, property and capital.<sup>42</sup> Bo Heiden defines ‘assets’ as valuable objects, ‘property’ as objects for commercial transactions, and ‘capital’ as objects accepted by the financial establishments.<sup>43</sup> Ulf Petrusson emphasizes that IP is becoming the most valuable commercial asset of many firms.<sup>44</sup> According to this line of reasoning, a decision to claim and protect IP has to be based on economic considerations. The Study Group of the ScanBalt IP Knowledge Center has emphasized that the current

“techno-legal construction of patents and trademarks, which are most often processes without a major focus on business strategies (*e.g.*, commercialization and branding strategies) are insufficient to foster successful innovations and markets”.<sup>45</sup>

Estonian economists Mets *et al.* support the idea. According to their view, an invention should be patented only if it has a high market value and high enforceability, and if it provides strong competitive advantages in the market.<sup>46</sup> In the ScanBalt IPKN project, IP in its economic meaning is defined as “intellectual resources that can be controlled and leveraged to extract value”.<sup>47</sup>

The authors agree with the economic concept of IP used in the works of the Nordic school (Petrusson, Heiden, etc.). At the same time, one cannot forget that in the legal meaning IP is a question of rights.<sup>48</sup> Economists, as a rule, construct their theories, terminology and practical examples only on the economic approach, and avoid legal concepts and terms. Lawyers, *vice versa*, use only a legal approach based on IP as exclusive rights. This is also the case in Estonian case law on intellectual property, where courts have based their argumentation, as a rule, on legal

<sup>42</sup> The Commission acknowledges the importance of using IP as an asset as well. Communication from the Commission, *op.cit.* note 8, 6.

<sup>43</sup> Bo Heiden, “Bioscience Innovation in the Wake of the Emerging Knowledge Economy”, in *Intellectual Property and Bioscience ...*, *op.cit.* note 26, 13–27, at 14.

<sup>44</sup> Ulf Petrusson, “Patents as Structural Capital—Towards Legal Constructionism”, in Ove Granstrand (ed.), *Economics, Law and Intellectual Property. Seeking Strategies for Research and Teaching in a Developing Field* (Kluwer, Boston, Dordrecht, London, 2003), 363–394, at 365.

<sup>45</sup> IP Knowledge Centre within the ScanBalt BioRegion, Project No.02150, 33.

<sup>46</sup> Mets *et al.*, *op.cit.* note 23, 27.

<sup>47</sup> Annex I of the IPKN Core Contract No.013029. ScanBalt Intellectual Property Knowledge Network, *op.cit.* note 7, 3.

<sup>48</sup> To emphasize the legal aspect of intellectual property, the authors use in this article the term ‘intellectual property rights’ or the abbreviation ‘IPR’.



concepts. A combination of the economic (assets) and legal (rights) approaches could be the basis for an understanding of IP for the twenty-first century. In addition, case law in the future should take (more) account of the economic concept of IP.

The development of an innovation-based economy has given rise to the increased importance of the business arena. IP is the most valuable asset for the growing number of entrepreneurs. The logical consequence is that an increasing number of business actors claim IPRs. This could lead to a situation in which different actors block the activities of each other by extensive use of IPRs.

The current IPR ideology is still based on the eighteenth and nineteenth-century ideas of privilege and monopoly. At the same, the subject matter of IP has expanded dramatically in the twentieth century. Some of this subject matter is protected by traditional IPRs (e.g., the protection of software through copyright law, the patentability of micro-organisms). For some new subject matter, new IPR regimes have been created (e.g., the protection of new plant varieties and circuit layouts).<sup>49</sup> Similar trends can be followed in Estonia as well. For instance, the Estonian Supreme Court has ruled that domain names may be considered to be intellectual property.<sup>50</sup>

The expansion of IP-protected subject-matter has been criticized on different levels. For instance, this process has been criticized from the ideological point of view: “[p]atents are the key to this neo-colonial world order, or even to what has been termed an ‘informational feudalism’,<sup>51</sup> based not on free competition but on monopoly privileges granted to global corporations by the princes of the major military powers”.<sup>52</sup> Some authors have taken a more practical approach. Heller and Eisenberg characterize the current situation as “the tragedy of the anticommons”.<sup>53</sup> They are of the opinion that the recent proliferation of IPRs creates a situation in which people under-use scarce resources because too many owners can block each other. More IPRs lead paradoxically to fewer useful products.<sup>54</sup>

<sup>49</sup> See Drahos, *op.cit.* note 37, I.

<sup>50</sup> Civil Chamber of the Supreme Court, judgment of 30 March 2006, No.3-2-1-4-06, RT III 2006, 12, 118, clause 49.

<sup>51</sup> See Peter Drahos and John Braithwaite, *Information Feudalism: Who Owns the Knowledge Economy* (Oxford University Press, New Delhi, 2003).

<sup>52</sup> GRAIN, “One Global Patent System? WIPO’s Substantive Law Treaty”, 9, at <[http://www.grain.org/briefings\\_files/wipo-splt-2003-en.pdf](http://www.grain.org/briefings_files/wipo-splt-2003-en.pdf)>.

<sup>53</sup> Garrett Hardin published in *Science* an article entitled “The Tragedy of the Commons” in 1968 in which he argued that resources in commons are not used economically and at the end of the day it would lead to a tragedy (the tragedy of the commons). Heller and Eisenberg, on the other hand, have pointed out that the privatization of resources would cause another kind of tragedy in which different owners block each other (the tragedy of the anticommons).

<sup>54</sup> Michael A. Heller and Rebecca S. Eisenberg, “Can Patents Deter Innovation? The Anticommons in Biomedical Research”, 280 *Science* (1998), 698-701, at 698.

Yet, the expansion of IPRs due to innovation may possibly become an obstacle to future economic development and innovation. One way forward is to design an adequate set of limitations to IPRs. This could be supported by an efficient utilization of existing tools for balancing the IP system. Such tools include compulsory licensing,<sup>55</sup> non-commercial use, research exemptions, etc. At the same time, one should remember that IPRs have time limits (*i.e.*, patents: 20 years; copyright: life plus 70 years after the death of the author, etc.). Once the period has passed, the IP-protected knowledge and works become a part of the public domain.

Questions have been raised about the protection period being too long for some kinds of works (*i.e.*, life of the author plus 70 years for computer programs). In practice, it is difficult to change this term due to the interests and extensive lobbying of computer and software industries. Only new alternative business models such as free and open source software (F/OSS), etc., can compete with the established legislative schemes.

Intellectual property is just a fragment in innovative processes and should be neither overestimated nor underestimated. The IP system cannot also function efficiently without its supporting infrastructure.

#### **4. Intellectual Infrastructure to Enhance Innovation**

One of the main characteristics of the innovation-based economy is that knowledge has become a valuable commercial asset. Adequate knowledge management is of decisive importance to facilitate value extraction from knowledge. A way to manage knowledge is to package it in the form of intellectual property (*e.g.*, apply for a patent, register a trademark or industrial design, etc.). The transformation of knowledge into capital is dependent on the framework conditions supporting the process. We call these conditions 'intellectual infrastructure'. In order to have an innovation-friendly IP system, the development of supportive infrastructure is crucially important. The evolution of an innovation-based economy requires, in addition to a traditional infrastructure, an intellectual infrastructure<sup>56</sup> that fosters the knowledge-transfer process by constructing innovation systems and development of tools for IP commercialization.

A well-created IP portfolio, its proper and regular evaluation, IP audit and commercialization are comparatively new topics for European companies. The relevant practice in the US is far ahead. There is also a need for action in the EU. The European Commission has proposed to member

<sup>55</sup> See Aleksei Kelli and Anne Kalvi, "Compulsory License as a Tool for Limitation of a Patent Owner's Rights", in *Intellectual Property and Bioscience ...*, *op.cit.* note 26, 83-94.

<sup>56</sup> Heiden, *op.cit.* note 43, 19.

states an investment in anticipating and accompanying structural change in order to cope with the challenges of the twenty-first century.<sup>57</sup>

Ulf Petrusson argues that the value of IP as assets flows very much from a psychological background. The question is how much we believe a potential subject of IP to be worth.<sup>58</sup> He also stresses the continuous need for validation of IP. This means that the validity of IP has to be proved across all the three arenas (administrative, judicial and business) over and over again. For instance, the judicial arena has to give a signal to society and, especially, to the business community that IPR infringement results in prosecution and awarding of damages arising thereof. The role of the judicial arena for the enforcement of IPR is also perceived as pivotal by WIPO, which stresses that intellectual property systems require a strong judicial system.<sup>59</sup>

The business arena validates IP, for example, by accepting it as collateral. In fact, the legal systems and practice of many countries, including Estonia, enable the use of intellectual property as collateral.<sup>60</sup> Still, there is a need for further development of this practice. Bo Heiden compares the possibilities of collateralization of real estate and IP and concludes that IP is still rarely accepted as collateral.<sup>61</sup> Granstrand has expressed the same view.<sup>62</sup>

A prerequisite for validation of intellectual property is IP awareness. The importance of raising awareness of the practical aspects of IP is acknowledged in several EU<sup>63</sup> and national policy documents and by many authors. The Estonian innovation strategy also emphasizes the importance of measures for increasing intellectual property awareness.<sup>64</sup>

IP awareness is achievable by the use of different methods. The Scan-Balt IPKN project raised IP awareness by communicating the importance of IP for value creation and economic growth. Creation of IP and IPR awareness was mainly based on knowledge dissemination, network creation and collaboration of stakeholders.<sup>65</sup> IP awareness requires continuous

<sup>57</sup> Communication from the Commission, *op.cit.* note 8, 3.

<sup>58</sup> Petrusson, *op.cit.* note 44, 368.

<sup>59</sup> WIPO, *op.cit.* note 34, 207.

<sup>60</sup> For example, according to the Estonian Trademark Gazette, the trademark 'KALEV' (31327) was pledged to AS Hansa Liising Eesti for the sum of EEK 60 million. See 4 *Eesti Kaubamärgileht* (2005), 110.

<sup>61</sup> Heiden, *op.cit.* note 43, 16.

<sup>62</sup> Granstrand, *op.cit.* note 5, 2.

<sup>63</sup> Communication from the Commission, *op.cit.* note 8, 7.

<sup>64</sup> "Knowledge-based Estonia", *op.cit.* note 9, 31.

<sup>65</sup> Annex I of IPKN Core Contract No.013029, *op.cit.* note 47, 3-4.

effort, which is facilitated by development of networks of stakeholders. Networks consist of actors and ties among them. There are also special actors in networks who could be termed nodes,<sup>66</sup> *i.e.*, network actors who assist in establishing ties among actors and other nodes that have no link to each other. The University of Tartu as a node in the network of ScanBalt IPKN has contributed significantly to the development of the network for raising IP awareness and the creation of a platform for the cooperation of societal stakeholders in the Baltic region in the field of biotechnology. IP awareness includes the development of competencies and capabilities in IP management. Only a complex approach to IPRs enables their full utilization and enforcement.

Innovation has a direct impact on universities. Traditional universities (universities as producers of knowledge) are transforming into entrepreneurial universities (universities as commercializers of knowledge). Entrepreneurial universities encompass both commercialization (*e.g.*, further education courses, consultancy services) and commodification (*e.g.*, applying for patents, licensing, faculty or student owned start-ups). Entrepreneurial universities possess a wide range of infrastructural support mechanisms for fostering entrepreneurship within the organization, as well as packaging entrepreneurship as a product.<sup>67</sup> Entrepreneurial universities require different normative and institutional frameworks than traditional universities. The new normative and institutional frameworks of entrepreneurial universities have become an integral part of the intellectual infrastructure supporting the innovation-based economy. The pivotal character of these structures has been analyzed by several scientific reports and policy documents. The report on "Creating an Innovative Europe" concludes: "[i]t is also important to facilitate the transfer of knowledge and intellectual property from publicly-funded institutions to industry."<sup>68</sup> The European Commission has expressed the same concerns.<sup>69</sup> The Commission has gone even further by proposing the following: "[s]

<sup>66</sup> Benjamin. M. Oviatt and Patricia P. McDougall, "Defining International Entrepreneurship and Modelling the Speed of Internationalization", *Entrepreneurship Theory & Practice* (2005), 537-553, at 544.

<sup>67</sup> Merle Jacob, Mats Lundqvist and Hans Hellsmark, "Entrepreneurial Transformations in the Swedish University System: The Case of Chalmers University of Technology", 32 *Research Policy* (2003), 1555-1568, at 1555-1556.

<sup>68</sup> The report of the Independent Expert Group on R&D and Innovation appointed following the Hampton Court Summit and chaired by Esko Aho, "Creating an Innovative Europe", 7, at <[http://ec.europa.eu/invest-in-research/pdf/download\\_en/aho\\_report.pdf](http://ec.europa.eu/invest-in-research/pdf/download_en/aho_report.pdf)>.

<sup>69</sup> Communication from the Commission, *op.cit.* note 8, 8.

structured and strategic partnerships between business and universities need to be strengthened.”<sup>70</sup>

Several Estonian public universities have features of an entrepreneurial university.<sup>71</sup> Consequently, they concentrate on the development of normative and institutional conditions supporting commercialization activities. Therefore, five out of six Estonian public universities have adopted IP policy documents.<sup>72</sup> They have also established special structures to facilitate technology transfer (Technology Transfer Offices). However, future efforts are still required to strengthen ties between the business sector and universities to secure their position as leading actors of innovation-based society.

## 5. Conclusion

Innovation is the solution for many European and global problems. The notions of ‘innovation’ and the ‘knowledge-based economy’ have different meanings in different legal and policy documents. The concept of the ‘innovation-based economy’ as a basis for this article is narrower in scope than the concept of the ‘knowledge-based economy’. The authors argue that the concept of the innovation-based economy allows a better interpretation of the specific role of innovation in contemporary society.

The innovation-based economy faces several challenges. Some of these challenges are connected with the new role of intellectual property (IP) in society. The policy documents and legislation in several jurisdictions contain some provisions on IP, but—on our view—this is not enough. We argue that there should be a special subdivision on IP in such policy documents. Furthermore, we also propose the formation of a special branch of law—Innovation Law—within the national legal system.

IP is about creation, utilization, commercialization and rights. Our view is that the contemporary notion of IP should integrate both economic (IP as an asset) as well as legal (IP as rights) aspects. This should also be the case in legal practice, including case law. Our conclusion is that the economic aspect of IP takes precedence over its legal aspect.

The dominance of the IP’s business arena has created conditions for continuous expansion of IP-protected subject matter. Such a development might easily bring about a situation in which different actors block each other. This is due to the use of the old monopoly and exclusive rights-based

<sup>70</sup> *Ibid.*, 8.

<sup>71</sup> For a detailed discussion, see Pisuke and Kelli, *op.cit.* note 24, 161–172.

<sup>72</sup> See, for example, Council of the University of Tartu, “Intellektuaalse omandi käsitlemise põhimõtted Tartu Ülikoolis. Kinnitatud Tartu Ülikooli nõukogu”, a määrusega No.17, adopted 18 November 2003, entered into force 28 November 2003.

IP paradigm conceived in the eighteenth and nineteenth centuries. The exceptions to exclusive IPRs (*e.g.*, compulsory licenses) and new business models have been the balancing factors between the owners of exclusive rights and society. This should avoid the situation in which actors in the business arena can block each other and, consequently, damage innovation and competitiveness.

In the European legal tradition, IP is classified as authors' rights (copyright), rights related to copyright and industrial property. It is argued that the role of copyright is underestimated in policy documents and commercial practice. Copyright is the core of IP, IP thinking and IP culture, and its role in the business arena should grow.

The IP system is only one component in innovative processes. As a rule, in order to guarantee the sustainability of innovation, the results of innovative processes need to be protected. One possible way to protect innovative solutions is to package them in the form of IP (*e.g.*, apply for a patent). Therefore, actors in an innovation-based economy should enhance their skills to manage, utilize and commercialize IP. However, the existence of an IP system is not the only precondition for a functional innovation system. Innovation needs to be facilitated by numerous measures (*e.g.*, investment in human capital, tax incentives, management of knowledge processes, etc.).

The IP system requires a supportive infrastructure (intellectual infrastructure). The process of value extraction from knowledge is dependent on actors' awareness of practical aspects of IP as well as existing mechanisms for knowledge identification and transfer among market participants. Special attention should be given to strengthening ties between universities and industry. Traditional universities should be transformed into entrepreneurial universities. For instance, five of six Estonian public universities have adopted IP policies between 2003 and 2005. Our vision is that IP basics should be taught to all students at universities and other institutions of higher education. In particular university faculties (law, economics, engineering, etc.), all students should pass a compulsory IP course and have the possibility to study several IP electives.



A. Kelli. Some Issues of the Estonian Innovation and Intellectual Property Policy. –  
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# Some Issues of the Estonian Innovation and Intellectual Property Policy<sup>\*1</sup>

## 1. Introduction

The global economic trends characterised as the transformation into a knowledge-based economy have had remarkable implications for entrepreneurs and the society at a larger level. The Estonian business environment is no exception. The main consequences of this transformation are that knowledge is perceived as a valuable commercial asset and innovation has become a core process for value creation within a knowledge-based economy and a means for tackling social and environmental problems. Since protection of intellectual property (IP) constitutes an essential condition for innovation, the transformation has had an impact on the IP system as well. As a result, the enhancement of innovation should be regarded as a central IP system objective. Therefore, the value of an intellectual property system lies in its ability to foster innovation.

In this article, the author analyses some aspects of innovation and intellectual property policy that need to be considered to support innovation in Estonia. For the purpose of this article, innovation policy refers to actions taken to extend and accelerate innovation. Intellectual property policy forms an integral part of innovation policy.

The author suggests that innovation and IP policy is country- and region-specific, which means that almost every country and region has its unique conditions that need to be considered in designing innovation and intellectual property policy measures. The article focuses mostly on some essential aspects of Estonian IP policy.

The paper addresses problems related to IP protection at two levels: the first level concerns state-level IP policy, and the second level of discussion addresses actions that Estonian entrepreneurs may be able to take to enhance their IP competencies and foster innovation.

The author presumes that the profile of Estonian entrepreneurs should be considered in the design of the state-level IP policy. The author suggests that utility models and trade secret protection are very useful IP tools for Estonian entrepreneurs and therefore it would be appropriate to review critically the existing regulations on utility models and trade secrets.

The author recommends that, in addition to state-level IP policy measures, there must be entrepreneurs developing their IP competencies. Entrepreneurs could start with the adoption of internal IP regulations that address issues such as ownership of IP created during employment, strategies for managing IP, and the like.

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## 2. Interrelation of innovation and intellectual property

The term 'innovation' is derived from the Latin word *innovare*, which means 'to renew'. As a rule, policy documents and legal acts do not provide an exhaustive and universal definition of innovation. For instance, in EU documents, the terms 'innovation' or 'innovation in a broad sense'<sup>2</sup> is used. The Estonian Research and Development and Innovation Strategy<sup>3</sup> (more simply referred to as the Estonian innovation strategy) describes activities that could be summarised as innovation: "Innovation includes implementation of the latest results of scientific research as well as existing knowledge, skills, and technologies in an innovative manner."<sup>4</sup> Section 2 of the Organisation of Research and Development Act<sup>5</sup> defines innovation as "the utilisation of new ideas and knowledge in order to implement innovative solutions". The definitions referred to seem to exclude knowledge creation by means of innovation. The author argues that knowledge production constitutes an integral part of innovation. It is not reasonable to assume that knowledge comes from somewhere else and innovation means only its implementation. For the purpose of this article, the author defines innovation as a process that includes both creation of knowledge and its subsequent utilisation.

Objectives of innovation can be analysed from different perspectives. The most visible and noticeable outcomes of innovation are new products and services. The purpose of innovation, however, is not limited to the creation of commodities. Innovation is also believed to have an impact on the economy. Therefore, it has been suggested that innovation is "one of the most important factors in economic competition".<sup>6</sup> It is possible to place innovation in an even broader context by arguing that it generates wealth and tackles social and environmental problems. Supporting innovation is seen as a way to surmount challenges (problems related to ageing populations, environmental issues, mounting competition, etc.) facing Europe. At least the European Commission believes so: "innovation in a broad sense is one of the main answers to citizens' material concerns about their future".<sup>7</sup> Not surprisingly, innovation is sometimes thought to be one of the factors influencing the world's future trends.<sup>8</sup>

In view of the complexity of the objectives of innovation and the fact that innovation policy can be implemented on different levels (e.g., regional, country, sector, and industry levels), it becomes evident that innovation policy encompasses a variety of components. Therefore, in order to enhance innovation, it is necessary to invest in human capital, improve the legal framework, stimulate business research, facilitate knowledge transfer from academia to industry, etc. Depending on the implementation levels and specific objectives, the role and importance of innovation policy measures vary. However, the author assumes that protection of intellectual property constitutes an essential condition for innovation.

Intellectual property is traditionally defined as legal rights resulting from intellectual activity.<sup>9</sup> The traditional approach places IP in a legal context. The role of intellectual property, however, has changed. Knowledge as a subject of IP protection has become a valuable commercial asset to many firms, other organisations, and individuals. This development has shifted the emphasis from the legal aspect of IP (that is, IP as legal rights) to its economic aspect (IP as a commercial asset). Consequently, intellectual property is considered rather more as an economic asset than in terms of legal rights. The author argues that the contemporary notion of IP should incorporate both — the economic (IP as an asset) and legal (IP as rights) aspects.<sup>10</sup> Without any doubt, it is important to acknowledge the economic nature of intellectual property and its interrelation with innovation. At the same time, the legal nature of IP is no less important. The great relevance of the legal aspect of intellectual property is caused by the fact that knowledge by nature is a public good.<sup>11</sup> This means that knowledge

<sup>2</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Putting knowledge into practice: A broad-based innovation strategy for the EU – COM(2006) 502, 13.09.2006, p. 2.

<sup>3</sup> Knowledge-based Estonia. Estonian Research and Development and Innovation Strategy 2007–2013. Available at <http://www.hm.ee/index.php?0&popup=download&id=6175> (10.11.2007).

<sup>4</sup> *Ibid.*, p. 9.

<sup>5</sup> Teadus- ja arendustegevuse korralduse seadus. Entered into force on 2.05.1997. – RT I 1997, 30, 471; 2007, 12, 66 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (14.05.2008).

<sup>6</sup> M. Pohlmann. The Evolution of Innovation: Cultural Backgrounds and the Use of Innovation Models. – Technology Analysis & Strategic Management 2005 (17) 1, p. 9.

<sup>7</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Putting knowledge into practice: A broad-based innovation strategy for the EU – COM(2006) 502, 13.09.2006, p. 2.

<sup>8</sup> E. R. Peterson. Seven Revolutions: Global Strategic Trends Out to the Year 2025. – The Multinational Business Review 2004 (12) 2, p. 111.

<sup>9</sup> See Article 2 (viii) of the Convention establishing the World Intellectual Property Organisation. Stockholm, 14.07.1967, entered into force in respect to Estonia on 5.02.1994. – RT II 1993, 25, 55.

<sup>10</sup> For further discussion see A. Kelli, H. Pisuke. Intellectual Property in an Innovation-based Economy. – Review of Central and East European Law 2008 (33) 2, pp. 223–238.

<sup>11</sup> For further discussion see B. Andersen. If 'intellectual property rights' is the answer, what is the question? Revisiting the patent controversies. – Economics of Innovation and New Technology 2004 (13) 5, pp. 417–442.

does not have any attributes that could facilitate the exclusion of others from exploiting it. In the absence of an adequate protection, any investment made in creation of new knowledge is prone to become lost. Since the economic system does not offer sufficient control mechanisms to protect the valuable knowledge generated, it is up to the legal system to fill the gap. The IP system provides legal tools to control the utilisation and commercialisation of the knowledge created. Analysing the essence of IP, one can state that, despite the fact that the utilisation of knowledge takes place in business settings, the control over it is established by the legal system. To sum up, the term 'intellectual property' in this article refers to a combination of the economic (an asset) and legal (rights) concepts. To emphasise the legal aspect of intellectual property, the author uses the term 'intellectual property rights' or the abbreviation 'IPRs'.

The EU innovation strategy is based on the assumption that protection of intellectual property is a *sine qua non* for innovation.<sup>12</sup> It is obvious that profit-oriented actors are interested in securing their investments.<sup>13</sup> Intellectual property is certainly a suitable tool to package some results of innovation. Therefore, the European Commission assumes the existence of a correlation between the use of IPRs and good innovation performance.<sup>14</sup>

In order to analyse correlation between the use of IPRs and innovation performance, one must first highlight some key elements. The mere existence of a large number of IPRs does not necessarily represent outstanding innovation performance. Still, some policy documents prioritise formal indicators such as the number of patents granted. For instance, the strategy document 'Estonian Success 2014' sets forth the following objective: "[T]he number of patents registered per 100,000 inhabitants in Estonia will be multiplied by 10".<sup>15</sup> The author personally has doubts regarding formalistic goal-setting. A high number of IPRs neither guarantees wealth generation nor certifies innovation performance as excellent. Furthermore, it is also useful to take into account that the number of IPRs could be influenced by other factors and trends. For instance, K. Hussinger hypothesises that "the increase in patents rather is motivated by their heightened strategic value".<sup>16</sup> In other words, the growing use of IPRs is not necessarily a result of improved innovation performance and a substantial rise in R&D investments; it could reflect a change in business behaviour. The underlying cause of the changed behaviour might be that business actors have started to regard knowledge as a valuable asset that has to be protected. This line of reasoning is supported by Estonian economists, stating that, among other things, "[t]he growing role of knowledge intensity in the economy is also reflected in the explosive growth in the use of different means of intellectual property protection".<sup>17</sup>

Despite the fact that innovation and intellectual property are intertwined with each other in a rather complex way, the use of IP instruments — patents, in particular — could shed some light on the intensity, extent, and direction of innovation. Since knowledge production is costly, there is a need for protection. Consequently, knowledge is packaged in the form of IPRs (e.g., patents). On account of the design of IP instruments (e.g., disclosure requirements in patenting procedure), outcomes of innovation become visible. Therefore, patent information is a primary source providing valuable insights into emerging technologies as well as trends of innovation. The high costs associated with patents (registration, maintenance, possible infringement suits, etc.) should at least in theory ensure that only the most advanced core technologies are patented. Today's reality is, however, that the majority of patents protect incremental rather than breakthrough inventions. Still, patent databases provide a good overview of innovation. Information concerning the utilisation of IPRs supports the development of models to investigate correlation patterns of IP and innovation.

<sup>12</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Putting knowledge into practice: A broad-based innovation strategy for the EU – COM(2006) 502, 13.09.2006, p. 6.

<sup>13</sup> In addition to acquiring intellectual property rights, it is also possible to protect investments in innovation by relying on a short innovation cycle, effects of learning curve, advantages of economies of scale, natural or statutory monopolies, etc. A strategic decision to use only IP-based instruments, combine IP tools with other mechanisms or rely solely on other mechanisms depends on a variety of sector-specific factors.

<sup>14</sup> Communication from the Commission to the European Parliament and the Council. Enhancing the patent system in Europe – COM(2007) 165, 3.04.2007, p. 2.

<sup>15</sup> Eesti Edu 2014. Vabariigi Valitsuse strateegiadokument (Estonian Success 2014. Strategy document of the Government of the Republic). Available at <http://www.rigikantslei.ee/failid/EE2014.doc.pdf> (19.03.2008), p. 10 (in Estonian).

<sup>16</sup> K. Hussinger. Is Silence Golden? Patents versus Secrecy at the Firm Level. – Economics of Innovation and New Technology 2006 (15) 8, p. 737.

<sup>17</sup> T. Mets, M. Leego, T. Talpsep, U. Varblane. The Role of Intellectual Property Protection in the Business Strategy of University Spin-Off Biotech Companies in a Small Transition Economy. – Review of Central and East European Law 2007 (32), p. 20.

### 3. Implications of a specific innovation context for the design of IP policy

General objectives and basic principles of innovation are usually similar in all regions and countries. As a rule, innovation is expected to advance physical, social, economic, and environmental welfare. However, the policy measures to achieve the objectives and implement underlying principles of innovation may differ substantially from one national or regional context to the next. Therefore, it has been argued that the transfer of successful regional models for innovation to a different national context fails on account of the lack of their institutional embedding.<sup>\*18</sup> The author agrees that framework conditions for innovation are essentially unique in every country and fostering innovation requires tailor-made solutions. In this section of the paper and those that follow, the author addresses some selected issues that need to be considered in the design of innovation and IP policy measures on country and company level.

Toomas Luman, the president of the Estonian Chamber of Commerce and Industry, has pointed out that in order to design appropriate innovation policy it is crucial to consider the profile of Estonian entrepreneurs.<sup>\*19</sup> According to the official statistics prepared by Statistics Estonia, the profile of Estonian enterprises by number of employees in 2007 was as follows<sup>\*20</sup>:

#### Enterprises in the statistical profile by year and number of employees

	More than 250	50–249	10–49	Fewer than 10
2007	187	1,379	7,187	67,406

**Note:** Economically active sole proprietors registered in the Commercial Register, excl. economically active sole proprietors registered only in the Register of Taxable Persons.

From statistical data, we know that the majority of Estonian entrepreneurs' undertakings are small and medium-sized enterprises (SMEs).<sup>\*21</sup> This gives rise to the question of whether the profile of Estonian enterprises has an impact on the design of innovation and intellectual property policy. The author is convinced that it does. For reasons of space, the subsequent analysis is confined to consideration of the implications of firm size for IP policy.

The author suggests that the size of an enterprise could influence its capabilities to create, acquire, manage, and utilise proprietary knowledge. The suggestion is based on the assumption that the resources invested in the creation or acquisition of new knowledge (innovative solutions) are independent of firm size. Bigger firms could even reap the benefits of economies of scale and gain advantage from their absorptive capacity. Furthermore, the cost of innovation is not influenced by the subsequent utilisation of the knowledge created. This means that the expenses of developing a product are virtually the same whether for local, regional, or global markets. However, because of the intangible nature of knowledge, entrepreneurs are motivated to exploit it to the maximum extent. When the use of tangible property has limits (e.g., I can use my phone myself or hire it out to someone else, but exercising these two exploitation options simultaneously is not physically possible), then the concurrent exploitation of intangible property is a potential option (I can use my invention myself and license it to someone at the same time). Consequently, enterprises are striving to commercialise their proprietary knowledge in as many markets as possible. To facilitate the process of commercialisation, knowledge is usually packaged in the form of IP (e.g., in the form of patents). Successful commercial exploitation of knowledge is heavily dependent on efficient IP management. It is obvious that large firms are better equipped to manage their IP than small ones are. Of course, there are some exceptions. Still, the superior management capabilities of bigger enterprises result in higher returns, which can be reinvested in knowledge creation or access (e.g., licensing). Small firms, on the other hand, lack the necessary resources for conducting R&D, which is a primary

<sup>18</sup> M. Pohlmann (Note 6), p. 9.

<sup>19</sup> T. Luman. Teadus- ja arendustegevus ning majanduse konkurentsivõime. Probleemid, areng ja suundumused (Research and Development Activities and Competitiveness of Economy. Problems, Developments and Trends). – Tehnoloogia ja teadmussuhte konverents. Ettevõtlike ülikoolide teenused – teaduspõhine koostöö (Conference on Technology and Knowledge Transfer. Services of Enterprising Universities). 24.01.2008.

<sup>20</sup> Information available at <http://pub.stat.ee/px-web.2001/Dialog/SaveShow.asp> (29.04.2008).

<sup>21</sup> Pursuant the EU policy document "[t]he category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million". See Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (2003/361/EC). – OJ L 124, 20.05.2003, p. 36–41.

input of innovation.<sup>22</sup> Even if the research activities of a small company lead to a breakthrough invention, it is highly unlikely that the firm can market it regionally and globally on its own. The decisive issue here is the ability of the company to protect and enforce its rights. The protection of rights usually takes place in court, which is rather costly, especially when enforcement is required in different jurisdictions. The same concern has been raised in the theoretical literature as well: "High litigation costs are particularly destructive of the contributions to innovation that smaller firms have proved they can make. It is obvious that the measurable costs of prosecuting or defending an action for patent infringement are far beyond the resources of all but the largest firms, apart from the fact that the burden of the costs that cannot be measured (such as distraction from more immediately paying tasks) falls most heavily on smaller ones."<sup>23</sup>

The aim of the above discussion is not to say that SMEs cannot be innovative, or that innovation and IP policy should disregard them. The author feels quite the opposite. The main concern is whether an innovation and IP policy designed mainly for big companies and IP tools used by large corporations meet the needs of small enterprises. Understandably, concrete IP policy cannot be based only on formal characteristics such as the size of the firm involved. There are also suggestions in the literature that "[f]irm size affects the probability to introduce an innovation, but it is less important in affecting the innovation strategy followed by firms. Most of the differences between the innovation behaviours and performances of large and small firms are, therefore, due to compositional effects, that is, to the fact that large corporations tend to concentrate in highly innovative industries (and countries), whereas small firms concentrate in more traditional sectors."<sup>24</sup> Therefore, it would also be necessary to monitor the dynamics of patent applications and patents granted to Estonian enterprises. Analysis of patenting trends could provide a basis for identification of emerging innovative sectors and development of measures to support these sectors.

In addition to state-level policy measures, there are certain steps that Estonian entrepreneurs can take themselves for improved competitiveness. The key issue here is the adoption of an appropriate innovation model. It is possible to distinguish between different approaches to innovation on company level. One possible way to manage innovation is that of a single company trying to control its entire process of creation of value from knowledge. H. W. Chesbrough refers to this model as the Closed Innovation. According to Chesbrough, the Closed Innovation is an internally focused approach, one that requires companies to generate their own ideas and then develop and commercialise them on their own. The Closed Innovation approach expects entrepreneurs to be self-reliant.<sup>25</sup> It is obvious that, in order to be a successful actor in the framework of the Closed Innovation, an entrepreneur needs a considerable amount of resources. Since small companies lack financial strength, they cannot effectively be involved in innovation. However, there is another way to manage innovation. It is called Open Innovation. Chesbrough describes it as follows: "Open Innovation means that valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well. This approach places external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths to market during the Closed Innovation era."<sup>26</sup> As described above, the logic of Open Innovation does not require an entrepreneur to capture value in the construction of an entire value chain on its own. A high proportion of the value can be claimed for fulfilment of some key functions (e.g., generation of new knowledge, adding useful features to existing products, etc.) within a value chain. The approach of Open Innovation is especially relevant for small companies, since it allows them to operate with only modest resources. Considering the profile of Estonian enterprises, one can see several advantages of Open Innovation for them.

In the following sections of the paper, the author discusses possible implications of the profile of Estonian enterprises for IP policy. First the author concentrates on state-level IP policy, before exploring possible company-level actions to foster innovation.

<sup>22</sup> It is necessary to emphasise that R&D expenditure is not the only characteristic of innovative firms. R. Evangelista and V. Mastrostefano conclude correctly that "the innovation strategy of firms cannot be defined only through their commitment to R&D. Other activities such as the design and the acquisition of know-how and training do differentiate the innovative behaviours of firms and the technological profile of industries." See R. Evangelista, V. Mastrostefano. *Firm Size, Sectors and Countries as Sources of Variety in Innovation*. – *Economics of Innovation and New Technology* 2006 (15) 3, p. 266.

<sup>23</sup> W. Kingston. *Innovation needs patents reform*. – *Research Policy* 2001 (30), p. 410.

<sup>24</sup> R. Evangelista, V. Mastrostefano (Note 22), p. 267.

<sup>25</sup> H. W. Chesbrough. *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard Business School Press 2003, p. XX.

<sup>26</sup> *Ibid.*, p. 43.

## 4. Proposed areas of focus for Estonian IP policy

### 4.1. State-level IP policy

Estonia has adopted the major IP-related international legal instruments. For instance, Estonia is a signatory to the Paris Convention for the Protection of Industrial Property<sup>27</sup>, the Berne Convention for the Protection of Literary and Artistic Works<sup>28</sup>, and the Agreement on Trade-Related Aspects of Intellectual Property Rights<sup>29</sup> (the TRIPS agreement). Estonia is also a party to key regional agreements in the field of IP (such as the European Patent Convention<sup>30</sup>) and has harmonised its legislation with the corresponding EU directives in the field of IP. Therefore, it could be said that the general legal framework for IPRs in Estonia does not differ substantially from that in highly developed and innovative European countries (e.g., Sweden, Finland, Germany, and Denmark). Still there is a remarkable difference in R&D investments as a primary input to innovation when one compares Estonia to the countries mentioned. In 2006, gross domestic expenditure on R&D as a percentage of the gross domestic product was 3.73% in Sweden, 3.45% in Finland, 2.53% in Germany, 2.43% in Denmark, and 1.14% in Estonia.<sup>31</sup>

A co-ordinated effort spanning many years definitely is going to be required of public and private stakeholders alike before Estonia can reach a comparable R&D investment level. For instance, it is crucial to support university and business research in technical fields and the life sciences. If new knowledge is created by university researchers, it is vital to assure that other stakeholders in a knowledge-based economy can utilise it. For reasons of space, it is not possible to consider all necessary actions on these pages. In this section, the author discusses only some state-level IP policy measures. The author's main argument here is that, even though Estonian intellectual property regulations are mostly based on international and EU principles, it is still possible to adjust them to the Estonian economic context, which could in the end foster innovation. The author would also like to emphasise that even an excellent legal framework for IPRs is useless unless entrepreneurs and other stakeholders are aware of it.

The author is convinced that a key issue of innovation policy is the creation of IP awareness. Special measures have to be designed for different target groups (university students, entrepreneurs, etc.). In order to raise the level of IP awareness of those who will contribute to the construction of a knowledge-based economy, it is crucial that a general course on IP be made compulsory for all university students. In some fields (among them law, economics, engineering, and the biological sciences), students should be offered advanced courses on IP. When it comes to entrepreneurs, special attention in promoting IP awareness (e.g., through training and consultancy) should be paid to economic exploitation of intellectual property. In addition to understanding the basics of IP, entrepreneurs have to acknowledge their need for IP competencies. In the context of this paper, IP competencies are defined as skills that are crucial for creating, protecting, and commercialising intellectual property, as well as for managing it in the intellectual value chain.<sup>32</sup> Put differently, entrepreneurs require capabilities to construct IP-based business models, develop their IP strategy, evaluate IP, etc.

Besides traditional methods of increasing IP awareness (training and courses, consultancy services, etc.), case law could also be considered as an efficient mechanism to enhance IP awareness, particularly among lawyers and entrepreneurs. Case law evolves alongside the economy and provides market participants with valuable guidelines and feedback for evaluating their business strategies, including IP strategies.

Estonian IP-related case law is not very extensive, and only a few cases have addressed protected inventions. There are still some landmark decisions, however. For instance, the case *AS Balteco v. AS Neoqi* decided by the Estonian Supreme Court is quite explicit as to what happens to entrepreneurs who do not manage their productive knowledge properly. In this case, some ex-employees of AS Balteco established the company AS Neoqi, which started to manufacture products similar to those of AS Balteco. Additionally, AS Neoqi protected its product as a utility model. Even though AS Balteco claimed that its trade secrets were misused and the utility model was invalid (allegedly, it lacked novelty and an inventive step), the Estonian Supreme Court did not support these claims.<sup>33</sup> The case shows that it is not enough if we treat IP as an asset; we should also

<sup>27</sup> Paris Convention for the Protection of Industrial Property. Paris, 20.03.1883, entered into force in respect to Estonia on 24.08.1994. – RT II 1994, 4–5, 19.

<sup>28</sup> Berne Convention for the Protection of Literary and Artistic Works. Berne, 9.09.1886, entered into force in respect to Estonia on 26.10.1994. – RT II 1994, 16–17, 49.

<sup>29</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights. Marrakech, 15.04.1994, entered into force in respect to Estonia on 13.12.1999. – RT II 1999, 22, 123.

<sup>30</sup> Convention on the Grant of European Patents. München, 5.10.1973, entered into force in respect to Estonia on 1.07.2002. – RT II 2002, 10, 40.

<sup>31</sup> Eurostat. Gross domestic expenditure on R&D as a percentage of GDP. Available at [http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid=1996,39140985&\\_dad=portal&\\_schema=PORTAL&screen=detailref&language=en&product=REF\\_SI\\_IR&root=REF\\_SI\\_IR/si\\_ir/tsiir20](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=REF_SI_IR&root=REF_SI_IR/si_ir/tsiir20) (18.07.2008).

<sup>32</sup> IP Knowledge Centre within the ScanBalt BioRegion (2003), project No. 02150, p. 15.

<sup>33</sup> CCSCd 16 November 2005, in matter 3-2-1-115-05. – RT III 2005, 40, 400 (in Estonian).

establish control over it by packaging knowledge as a patent or utility model or another IPR form. It is also crucial to take the steps necessary to protect one's trade secrets.

The next required measure taken simultaneously with creation of awareness is to design and fine-tune IP tools that correspond to the actual needs of Estonian entrepreneurs. As shown above, the majority of Estonian entrepreneurs are very small enterprises. The following analysis concentrates mainly on utility models, patents, and trade secrets and their role for small businesses.

The author suggests that utility models could be useful IP tools for SMEs for a variety of reasons. Subsection 5 (1) of the Utility Models Act<sup>34</sup> defines utility models as "inventions that are new, that involve an inventive step, and that are susceptible to industrial application". Utility models have lower inventive step thresholds than do patents, which makes them particularly suitable for small companies. An important role of utility models has also been acknowledged in the theoretical literature. For instance, W. Cornish & D. Llewelyn emphasise that "industry needs a system of short-term rights protecting minor technical advances, which supplements the patent system and is particularly valuable where know-how cannot be kept secret".<sup>35</sup> The author of the present work presumes that the role of utility models is not limited to protecting incremental inventions. Positive features of utility models (e.g., the lesser inventive step requirement, the affordable registration fees, and efficient protection) could lead to wide acceptance of this IP tool by entrepreneurs. All of this would create a good environment to enhance IP culture among Estonian enterprises. After development of capabilities to manage utility models, it would be easier to realise the potential of the patent system. Therefore, the author suggests analysis of the existing regulation on utility models and its practical implementation to identify and tackle potential problems. It would also be advisable to further develop mechanisms encouraging and supporting the use of utility models. In addition, the author would welcome the substantial harmonisation of the regulation on utility models at the EU level. Since business activities of even small firms are not always confined to the territory of a state, the absence of a similar legal framework might become an obstacle to value creation via innovation.

As a general rule, patents are not considered suitable IP tools for SMEs. For instance, W. Kingston argues that the patent system "serves small firms, which have most need of effective protection for their inventions, particularly badly".<sup>36</sup> K. Hussinger seems to support this position by arguing that "patents are used where the expected monopoly profits are large".<sup>37</sup> There are also surveys that show that small enterprises prefer specific IP tools. For instance, "small firms, on average, do not rely more on patents than on secrecy in comparison with large firms. Instead, small firms are less likely than large firms to find patents to be of greater value than secrecy for product innovations, although there is little difference by firm size for process innovations".<sup>38</sup> The discussion above indicates that it would be appropriate to review critically the existing legal mechanisms for protection of trade secrets<sup>39</sup>, especially in economies largely composed of SMEs. The author's intention is not to suggest that the Estonian economy does not need a patent system. In fact, the author is convinced that a patent system is an essential condition for innovation. The main argument here is that an efficient mechanism for legal protection of trade secrets and a functioning patent system could complement each other. In addition, strong protection for trade secrets would benefit not only SMEs but also large corporations. Even for big companies, it is not always useful to patent inventions (e.g., if market exploitation of the inventions is very far off or the inventions relate to a process). In the cases described, secrecy could be a good option.

Legal protection of trade secrets is regulated by a number of legal acts in Estonia. Since Estonia is a party to several IP-related international agreements, it is necessary to consider the regulation material of these as well. For instance, Article 39 of the TRIPS agreement establishes a general framework for protection of undisclosed information.<sup>40</sup> Sections 50 and 52 of the Competition Act<sup>41</sup> address misuse of confidential information prohibited as unfair competition. Section 50 of the Republic of Estonia Employment Contracts Act<sup>42</sup> obliges an

<sup>34</sup> Kasuliku mudeli seadus. Entered into force on 23.05.1994. – RT I 1994, 25, 407; 2007, 13, 69 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

<sup>35</sup> W. Cornish, D. Llewelyn. *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights*. 6<sup>th</sup> edition. London: Sweet & Maxwell 2007, p. 10.

<sup>36</sup> W. Kingston (Note 23), p. 411.

<sup>37</sup> K. Hussinger (Note 16), p. 751.

<sup>38</sup> A. Arundel. The relative effectiveness of patents and secrecy for appropriation. – *Research Policy* 2001 (30), p. 622.

<sup>39</sup> In this article the terms 'trade secret', 'know-how', 'undisclosed information' and 'confidential information' are regarded as synonyms.

<sup>40</sup> Pursuant to the referred article of the TRIPS agreement "persons shall have the possibility of preventing information lawfully within their control from being disclosed to, acquired by, or used by others without their consent in a manner contrary to honest commercial practices so long as such information: (a) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question; (b) has commercial value because it is secret; and (c) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret".

<sup>41</sup> Konkurentsiseadus. Entered into force on 1.10.2001. – RT I 2001, 56, 332; 2007, 66, 408 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

<sup>42</sup> Eesti Vabariigi töölepingu seadus. Entered into force on 1.07.1992. – RT 1992, 15/16, 241; 2007, 44, 316 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

employee to maintain the business and production secrets of the employer. Sections 186, 313, and 325 of the Commercial Code<sup>43</sup> provide that the members of the management and supervisory board shall preserve the business secrets of the company. Sections 372 and 625 of the Law of Obligations Act<sup>44</sup> require a licensee and a mandatary to maintain the confidentiality of information of which they become aware in connection with the fulfilment of the agreement.

The author is of the opinion that, on account of a presumption of high strategic relevance of trade secret protection to Estonian entrepreneurs, regulations on trade secrecy could be more detailed. Even adoption of a special legal act (e.g., a 'Trade Secrets Act') should be considered. The scope of information protected as trade secrets need not be necessarily extended. Rather, the main issue is to specify protection criteria, the legal status of trade secrets developed by an employee, procedural issues (e.g., the burden of proof), etc. The design of effective legal measures to protect confidential information requires a comprehensive understanding of the economic context of trade secret misappropriation. Legal acts and contracts forbid an employee or other person (e.g., a party to some contract, a management board member, or the like) who becomes aware of a trade secret during employment or fulfilment of his or her contractual obligations from revealing or using it. A company's unlawful exploitation of someone else's trade secret is generally regarded as unfair competition, which is prohibited by law. To sum up, the measures to protect trade secrets are applied on two levels: on the first level, an employee or other person is obliged to maintain somebody else's trade secret, and on the second level entrepreneurs (usually competitors) are forbidden to obtain a rival's trade secret by means of dishonest commercial practices. In a dispute, the measures described may turn out to be ineffective. Elise Vasamäe has raised a relevant issue related to the existence of effective legal protection measures in the case where it is obvious that a competitor is using a rival company's trade secret but the latter is not able to prove that the trade secret was acquired by dishonest means (e.g., from an employee of the rival company).<sup>45</sup> Without any doubt, all entrepreneurs should create strategies to protect their IP (including trade secrets). These strategies should include routines to map existing trade secrets, even establishing platforms for digital management of documents containing trade secrets. However, the reality is that SMEs might not have the resources to do so. One possible solution might be that if a company discovers that a competitor is exploiting its trade secret and other circumstances suggest that it was obtained unlawfully (e.g., from an employee of the company) the competitor would be required to prove the origin of the trade secret. A similar approach is used to protect process patents.<sup>46</sup> Still the proposal requires further analysis since reversal of the burden of proof as described could create many new problems (for example, in order to find out more about a competitor's trade secret, it would be enough simply to accuse the competitor of stealing your trade secret).

## 4.2. A need to enhance the IP competencies of Estonian entrepreneurs

Statistical information shows us that Estonian gross domestic expenditure on R&D as a percentage of the gross domestic product was 0.93% in 2005 and 1.14% in 2006.<sup>47</sup> The percentage of the total R&D expenditure borne by Estonian industry was 38.5% in 2005 and 38.1% in 2006. In other European countries, the percentage of gross domestic expenditure on R&D financed by industry was 65.7% in Sweden, 66.9% in Finland, 67.6% in Germany, 59.5% in Denmark, 79.7% in Luxembourg, 20.8% in Lithuania, and 34.3% in Latvia in 2005.<sup>48</sup>

The data can reveal several relevant facts. Firstly, there has been growth in Estonian R&D expenditure. Secondly, Estonian entrepreneurs have not increased their investments in R&D. Finally, industry in developed countries accounts for a greater share of R&D investments. The author suggests that, because of the changes taking place in the Estonian economy<sup>49</sup>, Estonian entrepreneurs increasing their R&D spending is inevitable.

<sup>43</sup> Äriseadustik. Entered into force on 1.09.1995. – RT I 1995, 26–28, 355; 2007, 67, 413 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

<sup>44</sup> Võlaõiguseadus. Entered into force on 1.07.2002. – RT I 2001, 81, 487; 2007, 56, 375 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (30.04.2008).

<sup>45</sup> A communication with Elise Vasamäe during the author's presentation in IP seminar held by Professor Norbert Reich (26.04.2008).

<sup>46</sup> Article 34 of the TRIPS agreement sets out the following principle: "if the subject matter of a patent is a process for obtaining a product, the judicial authorities shall have the authority to order the defendant to prove that the process to obtain an identical product is different from the patented process".

<sup>47</sup> Eurostat. Gross domestic expenditure on R&D as a percentage of GDP. Available at [http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid=1996,39140985&\\_dad=portal&\\_schema=PORTAL&screen=detailref&language=en&product=STRIND\\_INNORE&root=STRIND\\_INNORE/innore/ir021](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=STRIND_INNORE&root=STRIND_INNORE/innore/ir021) (12.04.2008).

<sup>48</sup> Eurostat. Gross domestic expenditure on R&D by source of funds — industry. Available at [http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid=1996,39140985&\\_dad=portal&\\_schema=PORTAL&screen=detailref&language=en&product=STRIND\\_INNORE&root=STRIND\\_INNORE/innore/ir022](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal&_schema=PORTAL&screen=detailref&language=en&product=STRIND_INNORE&root=STRIND_INNORE/innore/ir022) (12.04.2008).

<sup>49</sup> See U. Varblane *et al.* Eesti majanduse konkurentsivõime hetkeseis ja tulevikuväljavaated. Aruanne tellitud Eesti Arengufondi poolt (Current Competitive Status and Prospects of the Estonian Economy. Report ordered by the Estonian Development Fund). Available at [http://www.arengufond.ee/files/ty\\_raport.pdf](http://www.arengufond.ee/files/ty_raport.pdf) (12.04.2008) (in Estonian).



The Green Paper on the European Research Area also emphasises that “[t]he business sector is supposed to contribute two-thirds of the 3% of GDP R&D intensity target”.<sup>50</sup> Besides investing more in knowledge production, Estonian entrepreneurs need to enhance their IP competencies in order to manage the outcomes of innovation effectively. In this section of the article, the author analyses some IP-related issues that entrepreneurs have to consider in their everyday business.

One of the objectives of doing business is to make a profit. Economic reality is that services and products used for creation of wealth are becoming increasingly knowledge-intensive. Therefore, it has been suggested that the three traditional factors of production (land, labour, and capital) are overshadowed by knowledge.<sup>51</sup> B. Andersen has explained this further: “The battles are not for control of raw materials, but for the control of the most dynamic strategic asset, namely ‘productive knowledge’.”<sup>52</sup> Thus it can be argued that it is vitally important for an entrepreneur to enhance and protect its productive knowledge base. One of the first steps an entrepreneurial enterprise could take is to develop its internal IP regulation. The author outlines only some practical matters (ownership of IP created within the employment context, a policy of rewarding employees’ creativity, and strategies to manage IP).

On account of the nature of legal entities, it is evident that a legal person cannot create any knowledge on its own. Therefore, a legal person has to establish a mechanism for control over the knowledge generated by its employees. This is especially important for Estonian entrepreneurs since the existing legal framework is inconsistent and insufficient.<sup>53</sup> For instance, § 12 (2) of the Patents Act<sup>54</sup> provides that “[i]f an invention is created in the performance of contractual obligations or duties of employment, the right to apply for a patent and to become the proprietor of the patent is vested in the author or other person pursuant to the contract or employment contract”.<sup>55</sup> However, pursuant to § 14 (2) of the Industrial Design Protection Act<sup>56</sup>, “[t]he right to apply for the registration and ownership of an industrial design created in the performance of duties of employment or contractual obligations is vested in the employer or the customer, unless the duties of employment or the contract prescribe otherwise”. In practical terms, this means that if a person during an employment period or in the course of fulfilment of contractual obligations creates an invention and a design and IP issues are not *expressis verbis* agreed upon, then the right to apply for the registration of the design would belong to the employer or the customer and the right to apply for a patent would be vested in the inventor. The author of this article is unaware of conceptual considerations that explain why the ownership presumption is regulated differently in the cases of patents and designs.

Difficulties could arise also in relation to copyrights. Subsection 32 (1) of the Copyright Act<sup>57</sup> sets out a general rule, under which “[t]he author of a work created under an employment contract or in the public service in the execution of his or her direct duties shall enjoy copyright in the work but the economic rights of the author to use the work for the purpose and to the extent prescribed by the duties shall be transferred to the employer unless otherwise prescribed by contract”. Still, it is sometimes important for an employer to have a licence covering the author’s moral rights as well. For example, when an employee creates a logo, the economic rights shall be transferred automatically to the employer. However, the author’s consent is needed for change to the logo since, pursuant to § 12 (1) of the Copyright Act, the right of the integrity of the work and of supplementation of the work are moral rights that are not automatically transferred to the employer. In addition to problems related to moral rights, it is necessary that employment contracts are specific enough to define the direct duties of an employee. The reason is that the economic rights of an author are transferred to an employer only in respect of works created in the execution of the employee’s direct duties.

In summary, all of the potential problems described here that relate to the ownership of IP and could face entrepreneurs can be alleviated through the adoption of internal IP regulation. However, the author is somewhat confused when confronted with the present situation. At the moment, we have more than 70,000 enterprises in Estonia, all of which must consider the issue of IP ownership. The business reality is that a company in

<sup>50</sup> Green Paper. The European Research Area: New Perspectives – COM(2007) 161, 4.04.2007, p. 7.

<sup>51</sup> E. R. Peterson (Note 8), p. 116.

<sup>52</sup> B. Andersen (Note 11), p. 417.

<sup>53</sup> A very good analysis in respect of legal status of inventions created within employment or contractual relationships in Estonia is provided by J. Ostrat. See J. Ostrat. Töösuhtes või muu lepingu täitmisel tehtud leiutise õigusliku reguleerimise probleem. Kas lepinguvabadus või eraldi seadus? (Problems in the Legal Regulation of an Employment-Relationship Invention. Freedom of Contract or a Separate Law?). – Juridica 2007/3, pp. 189–198 (in Estonian).

<sup>54</sup> Patendiseadus. Entered into force on 23.05.1994. – RT I 1994, 25, 406; 2007, 13, 69 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

<sup>55</sup> Subsection 11 (2) of the Utility Models Act provides similarly: “[i]f an invention is created in the performance of contractual obligations or duties of employment, the right to apply for the registration of a utility model and to become the owner of the utility model is vested in the author or another person pursuant to the contract or employment contract”.

<sup>56</sup> Tööstusdisaini kaitse seadus. Entered into force on 11.01.1998. – RT I 1997, 87, 1466; 2007, 13, 69 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

<sup>57</sup> Autoriõiguse seadus. Entered into force on 12.12.1992. – RT 1992, 49, 615; 2007, 13, 69 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.04.2008).

need of, say, a logo contacts some enterprise or individual and commissions creation of the logo. After the work has been done and approved by the customer, the latter pays the sum of money agreed upon. In another scenario, an employee generates new knowledge that could be packaged in the form of IP (e.g., a patent or design) in the course of employment and gets rewarded. The cases described could be regarded as involving normal business practice. Still, serious problems arise if IP issues are not agreed upon in detail. The Estonian legal environment requires entrepreneurs and other individuals to conclude special IP contracts, adopt internal regulations, etc. The author believes that it is not always necessary to change business practices and raise awareness among more than 70,000 Estonian enterprises; it would be more appropriate to make the Estonian legal environment more business- and innovation-friendly by providing, for instance, that in certain cases IP rights are assigned and conclusion of licence agreements is presumed automatically.

In order to leverage human capital, it is essential to establish an appropriate employee incentive system. The aim of incentives is to reward employees who contribute to generation of wealth. The development of the incentive system within a knowledge-based economy is a complicated challenge from both the legal and the economic standpoint — one that entrepreneurs have to face. Legal acts provide a general framework that needs to be taken into account in the design of economic incentives. Subsection 13 (8) of the Patents Act entitles an inventor to the following proprietary right: “An author has the right to receive fair proceeds from the profit received from the invention.”<sup>58</sup> A key issue for both employer and employee is how to interpret the concept of fair proceeds. The mere creation of IP (e.g., a patentable invention) should not necessarily be rewarded. It has been asserted that “technology by itself has no inherent value; that value only arises when it is commercialised through a business model”.<sup>59</sup> It is also necessary to bear in mind that a marketable product could be protected by many intellectual property rights (patents, design rights, trademarks, copyrights, etc.). Consequently, it is a quite complicated business to assess the value of a single protected invention. In addition, an entrepreneur might invest in many projects and find that only a few of them generate any returns. To sum up, the determination of what constitutes fair proceeds can only be based on economic analysis. Therefore, the legal framework has to be flexible and provide an employer and employee with considerable amount of freedom in determining their relations.

The success of a company depends a great deal on its business strategy. Best practice would be to incorporate an IP strategy into the general business strategy of each enterprise. An IP strategy should include guidelines on choosing an appropriate form of protection. For instance, after the creation of a patentable innovative solution, an entrepreneur faces three options: 1) to patent the invention or apply for a utility model, 2) to make the invention public, and 3) to keep the invention secret.

For numerous reasons, applying for a patent or a utility model is not always the best option. In order for one to patent an invention or apply for a utility model, the invention must be disclosed. This means that everyone can become aware of it. Since patent and utility model protection is territorially bounded and has time limits, it is possible to exploit the invention after the patent or utility model has expired or in jurisdictions where protection was not sought. Patenting is a costly procedure, and granting of a patent does not guarantee income. Even if the patent once issued is not invalidated for failure to comply with patentability criteria (concerning novelty, the inventive step, and industrial application) in a legal dispute, this does not mean that the patent is going to generate returns. A large proportion of patents do not yield any income. As a consequence of the lower costs, applying for utility model registration could be a good alternative to patenting. It is also necessary to consider that a single product could incorporate many patented inventions and other IPRs (e.g., designs, copyrights, and trade secrets). In these circumstances, it would be advisable to protect the core components or technology of the product rather than all possible features.<sup>60</sup> A decision to seek a patent or apply for a utility model should depend on the business model of the relevant enterprise.

Decision not to apply for a patent or utility model leads to another dilemma: to make the essence of the invention public or keep it secret. Both options have their advantages and disadvantages. The defensive publishing of the invention prevents someone else patenting it<sup>61</sup> and as a result excluding others from using the invention. A company can disclose the invention itself or use someone else's services.<sup>62</sup> However, after publication, the invention enters the public domain and no-one has control over it.

<sup>58</sup> Subsection 12 (8) of the Utility Models Act provides the same principle: “[a]n author has the right to receive fair proceeds from the profit received from the utility model”.

<sup>59</sup> H. W. Chesbrough (Note 25), p. 156.

<sup>60</sup> Trade secrets could be considered very useful tools to supplement patent and utility model protection. For instance, production of a product usually requires extra knowledge than the information which can be obtained from patent databases. In case this information is kept secret, the patent expiration does not necessarily mean that everyone can manufacture the product. They still need additional know-how.

<sup>61</sup> In order to patent an invention, it must be new, involve an inventive step and be industrially applicable. Due to the publication, an invention loses its novelty.

<sup>62</sup> For instance, IP.com offers a wide range of services including Prior Art Database as an outlet for publishing and searching technical disclosures. Further information available at <http://www.ip.com/> (18.04.2008).

A firm might prefer to keep the invention secret. As stated above, SMEs often protect their knowledge as trade secrets. On the one hand, this form of protection does not require following a formal registration procedure, filing of any applications, payment of a registration fees, etc., but, on the other hand, there are many complicated problems related to the protection of trade secrets. In order to have an effective protection strategy, entrepreneurs must clearly define<sup>63</sup> and list their trade secrets. The list should not be closed. It is recommendable to regulate who owns trade secrets developed by an employee. There is one additional practical matter that needs to be considered. Even if a company treats an invention as a trade secret, it is possible for another firm to create the same invention independently and patent it. In this scenario, the concept of prior user's right guarantees that the former company may continue to use the invention. Prior user's right is a statutory non-exclusive licence.<sup>64</sup> Subsection 17 (1) of the Patents Act describes the prior user's right as follows: "A person who, prior to the filing of a patent application for an invention by another person, has, in good faith and independently of the applicant, used the same invention for industrial application in the Republic of Estonia, may continue to use the invention retaining the same general nature of application".<sup>65</sup> Still, in order to rely on the concept of prior user's right, one must prove that one has that right. Therefore, a company's internal IP regulation should include well-specified procedures (e.g., files containing trade secrets could be signed digitally) to ensure the right of prior use for the firm even if the firm's trade secret becomes patented by someone else.

## 5. Conclusions

Because of the transformation into a knowledge-based economy, intellectual property has become an integrated component of the innovation process. Consequently, the IP system has to be constructed with the aim of enhancing innovation. In order for one to understand the contemporary concept of intellectual property fully, it is not sufficient to conceptualise IP either as an economic asset or as legal rights. The two aspects have to be integrated. In analysis of the essence of IP, it can be said that, despite the fact that the utilisation of knowledge takes place in business settings, the control over it is established within the legal system.

The framework conditions for innovation are essentially unique in every country, and fostering innovation requires tailor-made solutions. For instance, an important issue to be considered is the profile of the entrepreneurs. The majority of Estonian enterprises are small SMEs, which influences their capabilities to create, manage, and exploit IP. In order to be successful, small companies should adopt an Open Innovation model, which allows extraction of value from their knowledge without creation of an entire value chain on their own.

The author suggests that utility models could be very useful IP tools for SMEs, for a variety of reasons. The role of utility models is not limited to protecting incremental inventions. Positive features of utility models (e.g., lower inventive step requirement burden, affordable registration fees, and efficient protection) could lead to wide acceptance of this IP tool by entrepreneurs. All of this would create a good environment to enhance IP culture among Estonian enterprises. After development of capabilities to manage utility models, it would be easier to realise the potential of the patent system. Therefore, the author proposes analysis of the existing regulation concerning utility models and the practical implementation thereof, for identification and tackling of potential problems. It would be advisable to develop mechanisms encouraging and supporting the use of utility models. The author would also welcome substantial harmonisation of regulations concerning utility models at the EU level, to provide SMEs with a suitable IP tool to protect the results of innovation in many EU countries.

The theoretical literature and empirical surveys confirm that small firms usually prefer trade secrets to protect their knowledge base. Therefore, the author suggests critical review of the existing legal mechanisms for protection of trade secrets in economies such as that of Estonia, which consist largely of SMEs. The author is of the opinion that, because of presumption of high strategic relevance of trade secret protection to Estonian entrepreneurs, regulations on trade secrecy could be more detailed in Estonian legal acts. Even adoption of a special legal act (in such a form as an act on trade secrets) should be considered. The scope of information protected as trade secrets need not be necessarily extended. The main issue is, rather, to specify protection criteria, the legal status of trade secrets developed by an employee, procedural issues (e.g., the burden of proof), etc.

The success of an innovation does not depend solely on actions taken at the national or regional level. There is much that entrepreneurs could do. For instance, they could adopt internal IP regulations to address relevant issues such as ownership of IP created within the employment context, a policy to reward employees' creativity, and strategies for managing IP.

<sup>63</sup> In case trade secrets are not defined it is very complicated to prove that someone has misused them. See CCSCd, 16 November 2005, in matter 3-2-1-115-05. – RT III 2005, 40, 400 (in Estonian).

<sup>64</sup> It is still necessary to bear in mind that the concept of prior user's right might differ in different jurisdictions.

<sup>65</sup> Subsection 16 (1) of the Utility Models Act provides the same principle: "A person who, prior to the filing of a registration application for an invention by another person, has, in good faith and independently of the person who files the registration application, used the same invention for industrial application in the Republic of Estonia, may continue to use the invention retaining the same general nature of application".





A. Kelli. Improvement of the Intellectual Property System as a Measure to Enhance Innovation. – *Juridica International* 2009 (16), pp. 114–125.



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# Improvement of the Intellectual Property System as a Measure to Enhance Innovation<sup>\*2</sup>

## 1. Introduction

The Estonian economy requires a transformation to tackle economic crisis and to achieve sustainable growth. The recent report on the competitiveness of the Estonian economy emphasises that Estonia has to concentrate on increasing exports and innovation.<sup>3</sup> It is obvious that orientation to the domestic market and low labour costs cannot serve as competitive advantages for Estonia any longer. As a result, Estonian companies should start creating value within different value chains by contributing to knowledge-incentive products and services. In other words, more Estonian companies have to become innovative<sup>4</sup> and internationally oriented. As a matter of fact, these two objectives are closely interrelated. The cost of knowledge creation does not depend on whether the knowledge is utilised in domestic, regional, or global markets. Because of the possibility of such parallel exploitation of knowledge, entrepreneurs are interested in commercialising it in regional and global markets. Since intellectual property (IP) encourages innovation by protecting investments in knowledge creation and enhancing utilisation of knowledge, the author analyses the possibilities of improving the legal framework for IP to enhance innovation in the example case of Estonia.

The author's approach is based on the following assumptions. Firstly, without any doubt highly qualified and skilled human capital combines with entrepreneurial spirit to constitute a key driving force behind innovation.

Secondly, fostering innovation requires several measures. Improvement of IP regulations is one of these. The regulatory framework that supports innovation is, however, much wider than that covering just IP matters. For instance, the legal framework for biotechnological research is just as crucial for innovation as IP law is. These

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<sup>3</sup> U. Varblane *et al.* Eesti majanduse konkurentsivõime hetkeseis ja tulevikuväljavaated. Aruanne tellitud Eesti Arengufondi poolt (The Estonian Economy's Current Status of Competitiveness and Future Outlooks. Report ordered by the Estonian Development Fund), p. 39. Available at [http://www.arengufond.ee/upload/Editor/ty\\_raport.pdf](http://www.arengufond.ee/upload/Editor/ty_raport.pdf) (8.02.2009) (in Estonian).

<sup>4</sup> For the purpose of this paper, innovation means creation and exploitation of new knowledge. For further discussion, see A. Kelli, Some Issues of the Estonian Innovation and Intellectual Property Policy. – *Juridica International* 2008 (15), pp. 104–114.

regulations are especially relevant since Estonia has defined biotechnologies as the strategic key technologies in supporting innovation.<sup>55</sup> In addition, different incentive systems (tax incentives to stimulate business research, export subsidies, etc.) could play an important role.<sup>56</sup> Still the impact of IP should not be underestimated. The pivotal role of IP for innovation has been given particular emphasis by the European Commission.<sup>57</sup>

Thirdly, the author presumes that every country has its unique cultural, economic, demographic, natural, historical, and other conditions that have to be considered in the structuring of legal frameworks for enhancing innovation. As a result, the legal framework of IP cannot be 'imported' even from highly innovative and successful countries.<sup>58</sup> However, this definitely does not mean that experience of other countries should be disregarded.

The first section of the paper addresses problems pertaining to the legal validity and scope of IP protection. The author argues that possibilities to challenge legal validity of IP rights applying to specific knowledge and the existence or absence of a clearly defined scope of protection influence the utilisation of the IP system. Some practical aspects of this are highlighted in the article.

In the second section, the author analyses how to increase the comprehensibility and consistency of IP legislation. According to the OECD, good regulations have to "(i) serve clearly identified policy goals, and be effective in achieving those goals; (ii) have a sound legal and empirical basis; (iii) produce benefits that justify costs, considering the distribution of effects across society and taking economic, environmental and social effects into account; (iv) minimise costs and market distortions; (v) promote innovation through market incentives and goal-based approaches; (vi) be clear, simple, and practical for users; (vii) be consistent with other regulations and policies; and (viii) be compatible as far as possible with competition, trade and investment-facilitating principles at domestic and international levels".<sup>59</sup> Acknowledging the importance of all requirements put forward by the OECD, the analysis in the paper is, for reasons of space, confined to addressing clarity, simplicity, practicality for users, and consistency of IP regulations.

In the last section of this article, the author focuses on enhancement of the flexibility and appropriateness of IP limitations. The author's argument is that strong IP regimes that would include a broad scope of protection, extensive rights, few limitations, harsh sanctions, etc. do not necessarily facilitate innovation. The design of an IP system (including limitations) should be based on the socio-economic conditions of the relevant country. In addition, a constantly changing IP system requires limitations that are flexible enough to balance the differing interests of the stakeholders of the IP system.

## 2. The legal validity and scope of IP protection

IP is traditionally defined as legal rights resulting from intellectual activity.<sup>60</sup> It has been explained that information constitutes the subject matter of IP protection.<sup>61</sup> The immaterial nature of protectable subject matter entails advantages and challenges at the same time. One of the advantages is the possibility of parallel exploitation of information. Given the intangible nature of knowledge, it is also a challenge to exclude others from using it. The protection of information in some form of IP establishes control over it.

Utilisation of IP is facilitated when the legal validity of protection is not easily challenged and the subject matter of IP protection is clearly defined. For instance, the parties to a copyright or patent licence agreement usually assume that a work or invention is legally protected and invalidation or narrowing the scope

<sup>55</sup> Knowledge-based Estonia. Estonian Research and Development and Innovation Strategy 2007–2013, p. 6. Available at <http://www.hm.ee/index.php?0&popup=download&id=6175> (25.03.2009).

<sup>56</sup> Innovation voucher scheme and a start-up and growth assistance programme are good examples. See *Innovatsiooniosakute toetusmeetme tingimused ja kord* (Conditions and Procedure for Support Measure of Innovation Vouchers). Entered into force on 7.02.2009. – RTL 2009, 13, 141 (in Estonian); *Alustava ettevõtja stardi- ja kasvutoetuse tingimused ja kord* (Conditions and Procedure for Start-up and Growth Assistance for Starting Entrepreneurs). Entered into force on 8.02.2008. – RTL 2008, 11, 136; 2008, 96, 1327 (in Estonian).

<sup>57</sup> See, e.g., Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Putting knowledge into practice: A broad-based innovation strategy for the EU – COM(2006) 502, 13.09.2006, p. 6.

<sup>58</sup> See G. S. Erickson. Patent Systems: Does One Size Really Fit All?, pp. 1–10. Available at [http://www.iprinfo.com/tiedostot/Erickson\\_FINAL.pdf](http://www.iprinfo.com/tiedostot/Erickson_FINAL.pdf) (15.12.2008); M. Pohlmann. The Evolution of Innovation: Cultural Backgrounds and the Use of Innovation Models. – Technology Analysis & Strategic Management 2005 (17) 1, pp. 9–19.

<sup>59</sup> OECD. OECD Guiding Principles for Regulatory Quality and Performance, p. 3. Available at <http://www.oecd.org/dataoecd/19/51/37318586.pdf> (26.02.2009).

<sup>60</sup> See Article 2 (viii) of the Convention establishing the World Intellectual Property Organisation. Stockholm, 14.07.1967, entered into force in respect to Estonia on 5.02.1994. – RT II 1993, 25, 55.

<sup>61</sup> See W. Cornish, D. Llewelyn. Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights. 6<sup>th</sup> ed. London: Sweet & Maxwell 2007, p. 6; P. Drahos. The Universality of Intellectual Property Rights: Origins and Developments, p. 2. Available at <http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/drahos.pdf> (10.01.2006).



of protection is not very likely. The same holds true in cases of collateralisation of, for example, a patent. In this section, the author considers how well the subject matter of IP protection is defined and how well the validity of the acquired rights is guaranteed under Estonian law. The following analysis is mostly limited to copyright<sup>12</sup> and patent issues.

The Copyright Act<sup>13</sup> provides that copyright protection does not require registration or fulfilment of any formalities (following the principle of the absence of formalities)<sup>14</sup> and that the creation of a work gives rise to copyright.<sup>15</sup> Works that enjoy copyright protection have to be “original results in the literary, artistic or scientific domain which are expressed in an objective form and can be perceived and reproduced in this form”.<sup>16</sup> At the same time, “[t]he purpose, value, specific form of expression or manner of fixation of a work shall not be the grounds for the non-recognition of copyright”.<sup>17</sup>

There are provisions in the Copyright Act that make it virtually impossible to challenge the legal validity of the protection of a work by copyright. For instance, § 4 (6) of the Copyright Act sets out that “[t]he protection of a work by copyright is presumed except if, based on this Act or other copyright legislation, there are apparent circumstances which preclude this. The burden of proof lies on the person who contests the protection of a work by copyright”. Already early decisions of the Estonian Supreme Court have supported the argument that it is very complicated to challenge the legal validity of copyright protection of a work.<sup>18</sup>

On the basis of the above, it can be said that the absence of registration requirements has not caused significant disputes as to the existence and legal validity of copyright protection. One of the main reasons is that copyright protects not ideas but expression of ideas. Furthermore, the expression itself does not have to be new in the sense of patent law but has to be original. Originality is defined as “the author’s own intellectual creation”.<sup>19</sup> This means that there are no legal obstacles to using an independently created work even though it is very similar to a pre-existing work created by somebody else. It has also been noted that “[i]f the level of originality of a work is very low, then it is difficult to distinguish the work from its idea”.<sup>20</sup> The author agrees that works with a high level of originality enjoy stronger protection than do works with a low level of originality. The likelihood of independent creation of a similar work decreases if the work is highly original.

To sum up, the utilisation of copyright-protected works is not substantially hindered by the possibility of a successful challenge to the protection by copyright. Firstly, it is almost impossible to prove that a work does not enjoy copyright protection. Secondly, on account of the concept of originality, different embodiments of the same idea are protectable.<sup>21</sup> Still the exact scope of copyright protection can cause disputes.<sup>22</sup> The present author is of the opinion that there is no need to amend the legal framework under analysis to make it more innovation-friendly. Some measures, however, could be taken at the company level. Since the principle of presumption of authorship<sup>23</sup> does not always preclude authorship disputes<sup>24</sup>, companies whose business models depend on copyright protection should develop procedures to guarantee the existence of proof of their title.

<sup>12</sup> Even though innovation is often associated with patents (e.g., innovation is measured by number of patent applications, etc.) the role of copyright for innovation should not be underestimated. It has been correctly emphasised in an EU directive that “[c]opyright and related rights play an important role in this context as they protect and stimulate the development and marketing of new products and services and the creation and exploitation of their creative content”. See Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society, the preamble, p. 2.

<sup>13</sup> Autoriõiguse seadus. Entered into force on 12.12.1992. – RT 1992, 49, 615; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (13.02.2009).

<sup>14</sup> The Copyright Act § 7 (3).

<sup>15</sup> The Copyright Act § 7 (1).

<sup>16</sup> The Copyright Act § 4 (2).

<sup>17</sup> The Copyright Act § 6.

<sup>18</sup> See, e.g., CCSCd, 6.05.1998, 3-2-1-60-98. – RT III 1998, 17, 178 (in Estonian); CCSCd, 25.06.1998, 3-2-1-84-98. – RT III 1998, 22, 227 (in Estonian).

<sup>19</sup> The Copyright Act § 4 (2).

<sup>20</sup> K. Härmand. Autoriõiguse ja autoriõigusega kaasnevat õiguste kohtupraktika küsimusi Eestis ja Euroopa Liidus (Some Issues about Estonian and European Union Court Practice on Copyright and Related Rights). Master’s thesis. Supervisor Professor H. Pisuke (2006), p. 64. Available at <http://dspace.utlib.ee/dspace/bitstream/10062/993/5/harmand.pdf> (16.03.2009) (in Estonian).

<sup>21</sup> However, some case law indicates that it is not always understood that copyright does not protect ideas. For instance, the court has had to explain that the use of technical solution described in documents did not constitute copyright infringement. See Judgment of the Tallinn Circuit Court, 19.06.2007, 2-05-17713. Available at <http://www.kohus.ee/kohtulahendid/temp/2-05-17713.pdf> (6.06.2009).

<sup>22</sup> The analysis of the Estonian legal practice implies that there is a lack of capabilities in conducting expert assessments related to issues such as whether a work constitutes an unlawful reproduction of work(s) created by other authors. See, e.g., Ruling of the Harju County Court, 3.04.2007, 1-04-156. Available at <http://www.kohus.ee/kohtulahendid/temp/kohtumaarus.pdf> (15.03.2009).

<sup>23</sup> Presumption of authorship is provided by § 29 (1) of the Copyright Act which reads: “[t]he authorship of a person who publishes a work under his or her name, a generally recognised pseudonym or the identifying mark of the author shall be presumed until the contrary is proved”.

<sup>24</sup> This has been acknowledged in Estonian legal literature as well. See M. Rosentau. Intellektuaalse omandi õigused infotehnoloogia valdkonnas. Infotehnoloogilise loomingule olemus (Intellectual Property Rights in Information Technology. The Essence of a Work in Information Technology). – Juridica 2008/3, p. 180 (in Estonian).

There are also other problems of copyright regimes, such as issues related to ownership of a work created in the fulfilment of contractual obligations<sup>25</sup>, exercise of moral and economic rights, limitations, and procedural issues (e.g., estimating damages and proving infringement on the Internet<sup>26</sup>), which should not be ignored by entrepreneurs. Proper IP management (with conclusion of detailed contracts, development of enforcement strategy, etc.) could be of great help.

Although copyright and patent systems form a part of the IP system, their basic principles in respect of giving protection are not similar. A work is protected by copyright as of its creation without fulfilment of any formalities. In order to protect an invention<sup>27</sup> that complies with the criteria for patentability (novelty, inventive step, and susceptibility to industrial application), formal registration is required.<sup>28</sup> Patenting is a complex procedure that involves filing a patent application that could lead to the issuance of a patent. It is important to bear in mind that a patent application and a granted patent are substantially different. Application for a patent has been described as an expression of the applicant's interest and will but a granted patent as an expression of the will of the patent office.<sup>29</sup> The question is to what extent stakeholders of the IP system can rely on legal validity and a clear scope of protection of granted patents. It should be noted that a patent can be invalidated and that legal disputes as to the exact extent of the protection are possible. It has been explained that "since the purpose of any patent law is to protect inventions, the patent office will only refuse to grant a patent if the results of the examination clearly preclude the grant. In general, any doubt is resolved in the applicant's favour, since final adjudication on the validity or otherwise of a patent is usually possibly via the courts".<sup>30</sup> At the same time, it is essential to consider that low quality of patents could cause several problems (expensive legal disputes, high transaction costs, etc.). The statistics on patents that are valid in Estonia reveal that 172 patents were granted under the Estonian Patent Act<sup>31</sup> and 1,009 European patents were entered in the Register of European patents valid in Estonia in 2008.<sup>32</sup> As one can see, the quality of European patents is even more relevant for innovation in Estonia than the quality of national patents is. Concerns have been raised over patent quality by the European Commission<sup>33</sup> and IP experts.<sup>34</sup> The aim of this paper, however, is neither to analyse different aspects of the quality of the European or Estonian national patents nor to make any suggestions on how to improve the quality of patents. The author's main argument is that, even though inventions are protected through patenting procedure, there is no guarantee that a granted patent cannot be invalidated or the scope of its protection disputed. In cases of licensing, transfer, or collateralisation of patent rights, it is crucial in addition to finding the value of a patented invention, analysing technical aspects of the invention, etc. also to address the risks caused by the possibility of invalidation of the patent and unclear scope of protection. It has been suggested that a patent "will only have industrial value to the extent that it covers all embodiments of its innovative concept. Otherwise there will be ways of taking the idea over without infringing the right and any patent will be good only against simple imitators".<sup>35</sup> Therefore, it is hard to overestimate the importance of knowing the exact scope of patent protection.

Although the risks outlined can usually be managed by means of a detailed contract, some economic activities, such as collateralisation of IP, could be hampered. The main initiative now should be to raise the IP awareness of Estonian entrepreneurs. These actions should follow the European Commission's advice that "[a] bigger effort is needed to raise awareness of the practical aspects of IP protection in the innovation community".<sup>36</sup>

<sup>25</sup> Subsection 32 (1) of the Copyright Act provides that the economic rights in respect of a work created under an employment contract or in the public service are transferred to the employer. The Supreme Court has extended the concept of employment contract by saying that it also covers other lasting contractual relationships such as a contract between a company and a board member. See CCSCd, 23.05.2003, 3-2-1-39-03, paragraph 23. – RT III 2003, 20, 196 (in Estonian). Still the situation is not clear if a work is created to fulfil a single order.

<sup>26</sup> Section 111<sup>1</sup> of the Electronic Communications Act, which became effective on 15.03.2009, obliges a communications undertaking to preserve information concerning electronic communications. This regulation could be useful in proving copyright infringement taking place on the Internet. See *Elektronilise side seadus*. Entered into force on 1.01.2005. – RT I 2004, 87, 593; 2008, 28, 181 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (14.06.2009).

<sup>27</sup> An invention could be defined as "a solution to a specific problem in the field of technology". See WIPO. WIPO Intellectual Property Handbook: Policy, Law and Use. Geneva: WIPO publication 2001, p. 17.

<sup>28</sup> Protection of an invention as a utility model or trade secret and defensive publishing are not analysed.

<sup>29</sup> B. Godenhjelm. *Patentskyddets omfattning i europeisk och nordisk rätt*. Juristförlagets förlag 1994, p. 150. Cited from: U. Petrusson. *Intellectual Property & Entrepreneurship: Creating Wealth in an Intellectual Value Chain*. CIP Working Paper Series. Göteborg: Center for Intellectual Property Studies 2004, pp. 197–198.

<sup>30</sup> WIPO. WIPO Intellectual Property Handbook: Policy, Law and Use. Geneva: WIPO publication 2001, p. 26.

<sup>31</sup> *Patendiseadus*. Entered into force on 23.05.1994. – RT I 1994, 25, 406; 2009, 4, 24 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (7.03.2009).

<sup>32</sup> Statistical data available at [http://www.epa.ee/client/default.asp?wa\\_id=525&wa\\_object\\_id=1&wa\\_id\\_key=](http://www.epa.ee/client/default.asp?wa_id=525&wa_object_id=1&wa_id_key=) (19.01.2009).

<sup>33</sup> See Communication from the Commission to the European Parliament and the Council. Enhancing the patent system in Europe – COM(2007) 165, 3.04.2007.

<sup>34</sup> See B. Andersen, S. Konzelmann. In search of a useful theory of the productive potential of intellectual property rights. – *Research Policy* 2008 (37), pp. 12–28.

<sup>35</sup> W. Cornish, D. Llewelyn (Note 11), p. 8.

<sup>36</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. Putting knowledge into practice: A broad-based innovation strategy for the EU – COM(2006) 502, 13.09.2006, p. 7.

### 3. Increasing the comprehensibility and consistency of IP legislation

It has been explained in the legal literature that the success of regulation depends on that regulation's comprehensibility.<sup>37</sup> Ambiguous and contradictory regulations could lead to high transaction costs, which might hinder entrepreneurship and innovation. Furthermore, considering that the majority of Estonian entrepreneurs are SMEs with limited resources, the legislator should provide standard regulations to address situations wherein companies have not concluded detailed IP-related contracts. Absence of clear and sufficient regulations serves as good grounds for legal disputes, which divert resources from companies' core business.

The need to analyse the consistency of Estonian IP regulations with the rest of private law was already being emphasised by Estonian lawyers in 2006.<sup>38</sup> The author agrees with their argument and adds that there is also a need for some unification within the IP system itself. For instance, the legal status of IP created within an employment relationship should not depend on whether this is a design, invention, or copyright-protected work.<sup>39</sup> At the same time, it is necessary to bear in mind that knowledge protected by IP rights is often exploited in regional and global markets. Some IP instruments (e.g., European patents, Community trademarks, and designs) even though valid in Estonia are not 'products' of the Estonian national legal system. Consequently, initiatives to improve the existing IP system should not be limited to alignment of IP legislation with the rest of national law, including private law. The author argues that one of the main objectives of improvement of the Estonian IP system is to make it more user-friendly. Stakeholders of the IP system (entrepreneurs, consumers, the third sector, public institutions, academia, etc.) should be able to understand and utilise that system. To achieve this objective, fragmented and unsystematic efforts should be avoided. Currently, the Organisation of Research and Development Act<sup>40</sup> provides that "the Ministry of Economic Affairs and Communications shall organise technological development and innovation policy".<sup>41</sup> It should be acknowledged that fostering innovation requires contributions from all public institutions and agencies. Of course, at the end of the day, it is up to Estonian entrepreneurs how well they can manage innovation and take advantage of the IP system.

The European Commission has suggested: "The assessment of the impact of regulation on innovation needs to be enhanced. Regulation should be predictable, flexible, simple and effective."<sup>42</sup> This advice is especially valid for Estonia because the IP awareness of Estonian society (including entrepreneurs) is not very high and the majority of Estonian entrepreneurs are SMEs who have not acknowledged all of the possibilities that IP offers. The actions to be taken are twofold. Firstly, there is a continuous need to raise entrepreneurs' IP awareness and encourage them to actively use IP instruments (e.g., patents, utility models, designs, licensing and assignment of rights, and compulsory licensing). Secondly, the author shares the widespread opinion among Estonian IP experts that IP regulations should be clear, detailed, comprehensive, and even explanatory. The author believes that development of the legal framework for IP according to this approach could facilitate exploitation of the IP system. This section focuses on the last measure mentioned. There are a myriad of controversial issues that should also be addressed — for instance, procedural issues such as the compatibility of the obligation to provide information in action related to IP<sup>43</sup> set out by § 280 of the Code of Civil Procedure with the principle *nemo tenetur se ipsum accusare* provided by § 22 (3) of the Constitution of the Republic of Estonia.<sup>44</sup> The analysis in this article is for the most part limited to issues of clarity and consistency of regulation concerning exploitation of IP rights. The Estonian copyright, patent, and utility model regulations are used as examples.

<sup>37</sup> R. Narits. Õiguse entsüklopeedia (Encyclopaedia of Law). Juura, Õigusteabe AS 2002, p. 133 (in Estonian).

<sup>38</sup> M. Käerdi, R. Lang, J. Raidla, P. Varul, U. Volens. Ettevõtja õigus. Tegevuskava ettevõtjasealase õiguskeskonna rahvusvahelise konkurentsivõime parandamiseks (Entrepreneurial Law. Action Plan for Improving the International Competitiveness of the Corporate Legal Environment). – Juridica 2006/4, p. 232 (in Estonian).

<sup>39</sup> This approach is also supported by Estonian IP professionals. See, e.g., J. Ostrat. Töösuhtes või muu lepingu täitmisel tehtud leiutise õigusliku reguleerimise probleem. Kas lepinguvabadus või eraldi seadus? (Problems in the Legal Regulation of an Employment-Relationship Invention. Freedom of Contract or a Separate Law?). – Juridica 2007/3, p. 198 (in Estonian).

<sup>40</sup> Teadus- ja arendustegevuse korralduse seadus. Entered into force on 2.05.1997. – RT I 1997, 30, 471; 2007, 12, 66 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (26.02.2009).

<sup>41</sup> The Organisation of Research and Development Act § 13 (3) 1).

<sup>42</sup> Putting knowledge into practice: A broad-based innovation strategy for the EU (Note 36), p. 6.

<sup>43</sup> Subsection 280 (1) of the Code of Civil Procedure provides: "If an action is filed due to an infringement or danger of infringement of copyright and related rights or industrial property rights, the court may require at the reasoned request of the plaintiff that the defendant or another person provide written information concerning the origin and distribution systems of the goods or services infringing a right arising from intellectual property". See Tsviilkohtumenetluse seadustik. Entered into force on 1.01.2006. – RT I 2005, 26, 197; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (8.03.2009).

<sup>44</sup> Eesti Vabariigi põhiseadus. Entered into force on 3.07.1992. – RT 1992, 26, 349; 2007, 33, 210 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (7.03.2009).

The conclusion that it is almost impossible to challenge the legal validity of the protection of a work by copyright does not mean that there are not any problems related to the copyright regime. Besides issues concerning the subject matter of protection, other elements in the copyright system are crucial as well. For instance, the catalogue of rights vested in the author of a work and the possibilities for exercising these rights form a legal framework within which economic exploitation of a work takes place. The Copyright Act provides a general principle that “[a]n author shall enjoy the exclusive right to use the author’s work in any manner, to authorise or prohibit the use of the work in a similar manner by other persons”.<sup>45</sup> The Copyright Act, however, does not explain specific issues such as the possibility to transfer and license an unknown use of a work. Since the Copyright Act does not forbid or restrict it, because of the principle of freedom of contract<sup>46</sup>, these agreements should be held to be valid. The IP-related literature supports the position that it is allowed to transfer and license the right to use a work in a manner that was unknown at the time of the conclusion of the contract.<sup>47</sup> Still, if we adhere to an approach whereby the Copyright Act must enhance awareness and be explanatory, a provision allowing transfer and licensing of an unknown use of a work could be added.

The exercise of the moral rights of an author and the interrelation of economic and moral rights is a problem requiring clear regulation. Some moral rights may interfere with the economic exploitation of a work.<sup>48</sup> The usual practice is that Estonian entrepreneurs do not always conclude detailed author’s contracts<sup>49</sup> that include provisions on the exercise of moral rights.

While economic rights are transferable<sup>50</sup>, the same cannot be said of moral rights. The Copyright Act<sup>51</sup> explicitly provides that “[t]he moral rights of an author are inseparable from the author’s person and non-transferable”.<sup>52</sup> This provision gives rise to the question of whether it is possible to license the moral rights. The general understanding is that it indeed is allowed to license moral rights.<sup>53</sup> The wording of some provisions of the Copyright Act supports this approach.<sup>54</sup>

From the above, it can be said that, presumably, it is possible to license at least some of the moral rights. Still many aspects of licensing of moral rights remain a controversial issue in the Estonian legal literature. For instance, H. Pisuke by referring to ‘ghost authorship’ and trademark issues<sup>55</sup> suggests that “for the purposes of Estonian law, moral rights cannot be assigned. However, it is possible to issue an exclusive licence and a non-exclusive licence for exercising any moral right”.<sup>56</sup> There are also opinions that differ from this. M. Rosentau poses the question of how to distinguish a general exclusive licence from transfer of the moral rights, the latter being forbidden. Therefore, he argues that it is not allowed to license the moral rights *in corpore et in genere*. It is essential to agree on how every single moral right will be exercised. Some moral rights are not licensable at all.<sup>57</sup> The author admits that licensing moral rights involves some degree of risk. This gives rise to questions such as what happens when there is a general exclusive licence for the exercise of the moral rights or no agreement exists in respect of the moral rights.

<sup>45</sup> The Copyright Act § 13 (1).

<sup>46</sup> The principle of freedom of contract is based on the right to free self-realisation which is guaranteed by § 19 of the Constitution of the Republic of Estonia.

<sup>47</sup> See A. Kalvi. *Autorilepingu uus kuub* (New Skin of Author’s Contracts). – *Juridica* 2003/4, pp. 251, 257 (in Estonian); P. Varul, I. Kull, V. Kõve, M. Käerdi. *Võlaõigusseadus II. Kommenteeritud väljaanne* (Law of Obligations Act II. Commented edition). Tallinn: Juura, Õigusteabe AS, 2007, p. 337 (in Estonian).

<sup>48</sup> Subsection 12 (1) of the Copyright Act defines the right of integrity of the work, the right of additions to the work and the right of supplementation of the work as moral rights. Pursuant to § 13 (1) of the Copyright Act the right of alteration of the work is an economic right. As seen there is an overlap of these rights.

<sup>49</sup> An author’s contract is defined as “an agreement between the author or his or her legal successor and a person who wishes to use the work for the use of a work on the basis of which the author or his or her legal successor transfers the author’s economic rights to the other party or grants to the other party an authorisation to use the work to the extent and pursuant to the procedure prescribed by the conditions of the contract”. See the Copyright Act § 48 (1).

<sup>50</sup> The Copyright Act § 11 (3).

<sup>51</sup> Section 39 of the Constitution of the Republic of Estonia also provides the following principle: “[a]n author has the inalienable right to his or her work”. Literal interpretation of this section could mean that it is not allowed to transfer or license the moral and economic rights. This, however, is not the case. The problem has been analysed by H. Pisuke. See H. Pisuke. *Kas autori õigusi saab võrandada?* (Are the Author’s Rights Inalienable?) – *Juridica* 1994/4, pp. 89–90 (in Estonian).

<sup>52</sup> The Copyright Act § 11 (2).

<sup>53</sup> See, e.g., A. Kalvi (Note 47), p. 258; P. Varul, I. Kull, V. Kõve, M. Käerdi (Note 47), p. 337; H. Pisuke. *Moral Rights of Author in Estonian Copyright Law*. – *Juridica International* 2002 (7), p. 170.

<sup>54</sup> See the Copyright Act §§ 12 (1) 3) and 4).

<sup>55</sup> H. Pisuke refers that sign marks usually do not contain any reference to the authors who created them.

<sup>56</sup> H. Pisuke (Note 53), pp. 170–171.

<sup>57</sup> M. Rosentau. *Intellektuaalse omandi õigused infotehnoloogias. Autori isiklikud õigused* (Intellectual Property Rights in Information Technology. The Moral Rights of the Author). – *Juridica* 2007/9, pp. 653–654 (in Estonian).

The author is of the opinion that there are some safety net provisions that can be used in the above described situations. Subsection 370 (3) of the Law of Obligation Act<sup>58</sup> provides: "If the right of use to which a licence agreement extends is not clearly specified in the agreement, the extent of the right of use shall be determined pursuant to the objective of the agreement." According to the Estonian legal literature, the above-mentioned provision might be applicable to moral rights as well.<sup>59</sup> It could also be assumed that if an author had given someone else his permission to use his work, for instance, as a logo incorporated into a trademark, and were to claim afterwards that this use violates his moral rights (e.g., his name not being attached to the trademark violates his right of authorship), then his conduct could be considered to go against the principle of good faith (the prohibition of *venire contra factum proprium*).

M. Rosentau proposes that the overlap of some moral and economic rights should be removed.<sup>60</sup> The current position of the Estonian Ministry of Culture, which is responsible for drafting the new Copyright and Neighbouring Rights Act, seems to be that the right of integrity of the work, the right of additions to the work and the right of supplementation of the work will be moved to the catalogue of the economic rights.<sup>61</sup> The author supports both suggestions and is also of the opinion that it should be provided *expressis verbis* that all moral rights which concern exploitation of a work are licensable. This would certainly enhance legal certainty.

The lack of legal certainty is not common only for copyright law. The same problems exist in Estonian industrial property law as well. The Patent Act and the Utility Models Act<sup>62</sup> do not provide regulation concerning how two or more patent or utility model owners can exercise their rights (if together, separately, or some rights together and others separately). Some Estonian patent law experts have suggested that, because of unity of invention (an invention is an indivisible whole), joint owners of a patent or utility model should exercise their rights together. It is not excluded that law should be amended to entitle every patent or utility model owner to the right to issue non-exclusive licences. Preferably, however, these issues should be regulated by joint owners in a contractual relationship.<sup>63</sup> Still the author would like to emphasise that, especially in respect of utility models, which are often utilised by SMEs, there could be some standard dispositive regulation. Even though in the absence of a detailed contract the principle of analogy and provisions on interpretation of a contract etc. could be applied the rights and obligations of joint patent or utility model owners remain unclear. Therefore, a dispositive regulation is needed that would determine how joint patent or utility model owners could exercise their rights.

The possibilities for exercising the rights of an inventor are not very clearly set out either. Subsection 13 (9) of the Patent Act provides that "[t]he proprietary rights of an author are transferable and inheritable". On the basis of this principle, it could be assumed that the right of an inventor "to receive fair proceeds from the profit received from the invention", as provided by § 13 (8) of the Patent Act, is freely transferable. However, § 43 (1) of the Patent Act sets out that a contract transferring the right to apply for a patent "shall contain provisions which ensure, pursuant to § 13 (8), the right of the author to receive fair proceeds from the profit received from the invention during the entire period of validity of the patent".<sup>64</sup> This requirement creates legal uncertainty. On the one hand, the right to receive fair proceeds from the profit received from the invention is a proprietary right and therefore transferable. On the other hand, the wording of § 43 (1) of the Patent Act prescribes that a contract transferring the right to apply for a patent has to ensure an inventor's right to fair proceeds from the profit received from the invention. The author of this paper suggests that, in order to avoid legal disputes and foster exploitation of the patent system and thereby innovation, it should be clearly provided that the right to fair proceeds from the profit received from the invention is transferable. Subsection 43 (1) of the Patent Act should be amended to comply with the principle of transferability of the proprietary rights.

The format requirements for IP contracts (contracts related to licensing or transfer of IP rights) involve practical issues concerning copyright and industrial property regimes alike. The Copyright Act, the Patent Act, the Utility Models Act, and the Industrial Design Protection Act<sup>65</sup> require a written licence agreement.<sup>66</sup> The Trade Marks Act<sup>67</sup> does not prescribe format requirements for licence agreements. Despite the fact that licence agreements are essential tools for the utilisation of IP, written form is not always used. Subsection

<sup>58</sup> Võlaõigusseadus. Entered into force on 1.07.2002. – RT I 2001, 81, 487; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (14.02.2009).

<sup>59</sup> A. Kalvi (Note 47), p. 258.

<sup>60</sup> M. Rosentau (Note 57), p. 666.

<sup>61</sup> Isiklike õiguste kataloog (The Catalogue of the Moral Rights). Available at <http://wp.kul.ee/> (14.06.2009).

<sup>62</sup> Kasuliku mudeli seadus. Entered into force on 23.05.1994. – RT I 1994, 25, 407; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.02.2009).

<sup>63</sup> The author's personal communication with R. Kartus (e-mail, 11.02.2009).

<sup>64</sup> The Utility Models Act provides the same regulation. See the Utility Models Act § 12, 40.

<sup>65</sup> Tööstusdisaini kaitse seadus. Entered into force on 11.01.1998. – RT I 1997, 87, 1466; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.02.2009).

<sup>66</sup> The Copyright Act § 49 (1), the Patent Act § 46 (1), the Utility Model Act § 43 (1); the Design Act § 74 (7).

<sup>67</sup> Kaubamärgiseadus. Entered into force on 1.05.2004. – RT I 2002, 49, 308; 2006, 61, 456 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.02.2009).

83 (1) of the General Part of the Civil Code Act<sup>68</sup> provides that “[u]pon failure to comply with the format provided for a transaction by law, the transaction is void unless otherwise provided by law or the objective of the format requirements”. The Estonian Supreme Court has found that an author’s contract authorising the use of a work is not void on account of not having been concluded in writing. The requirement of written form protects both parties by ensuring legal certainty in respect of the rights and obligations. However, declaring oral author’s contracts void would be harmful for authors because they would lose their rights and the other parties would be freed from their obligations.<sup>69</sup> The author is of the opinion that the impact of the Supreme Court’s decision is not limited to copyright licence agreements. In principle, it should be applicable to technology and design licence agreements as well. Since entrepreneurs do not always conclude written IP contracts, the author proposes that IP laws should be changed to allow oral non-exclusive licences. Depending on the type (e.g., licensing or transfer of the rights) and object (e.g., a work, an invention, a design, or trade secrets) of the IP contract, format requirements can be differentiated. Any approach that may be chosen, however, should be consistent.

Format requirements are only one facet of problems related to IP contracts. It has also been suggested that IP contracts require a consistent conceptual framework, the legal status of the industrial property registers has to be specified, and regulations concerning similar issues should be unified.<sup>70</sup> All of the issues raised require thorough and extensive analysis.

## 4. Enhancement of flexibility and appropriateness of IP limitations

One of the main objectives of IP limitations is to strike a balance between the interests of the stakeholders of the IP system. This means avoiding blocking of the development of new useful products, ensuring the free movement of goods, allowing private use, etc. It is possible to distinguish among several types of limitations. Firstly, the definition of protectable subject matter (e.g., the scope of protection can be narrow or wide, and some information may even be excluded from protection) and also the catalogue, extent, and duration of exclusive rights have an impact on a right holder’s legal position.<sup>71</sup> Secondly, there are explicitly provided limitations existing within IP systems (e.g., a private use exception). Thirdly, the limitations can also originate from outside the IP system (e.g., competition law concepts to avoid abuse of dominant position). All of these limitations constitute an integral part of the IP system.

The author’s approach is based on the assumption that strong IP regimes (those with a broad scope of protection, extensive rights, few limitations, harsh sanctions, etc.) do not necessarily enhance innovation. Extensive IP limitations should facilitate innovation as well. The design of the IP system should be determined by general and country- and region-specific requirements. A general question that needs to be answered is what kind of IP system would enhance innovation the most. In addition, the IP system should not ignore country- and region-specific conditions (e.g., stage of development). At least wealthy and developed countries have not done this.<sup>72</sup> Although Estonia is bound by international obligations, there might be some room for manoeuvring without infringing these obligations. The author takes no stand on whether Estonia should favour a high or low level of IP protection. Probably the approach should be differentiated on the basis of the specific IP regime concerned, the subject of protection, etc. Sometimes extra incentives are created to encourage development of knowledge.<sup>73</sup>

<sup>68</sup> Tsiviilseadustiku üldosa seadus. Entered into force on 1.07.2002. – RT I 2002, 35, 216; 2008, 59, 330 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (19.02.2009).

<sup>69</sup> CCSCd, 13.12.2006, 3-2-1-124-06, paragraph 16. – RT III 2006, 47, 397.

<sup>70</sup> V. Kõve. *Varaliste tehingute süsteem Eestis* (System of Proprietary Transactions in Estonia). Doctoral thesis. Supervisor Professor I. Kull (2009), p. 226. Available at <http://dspace.utlib.ee/dspace/bitstream/10062/8251/1/k%C3%B5vevillu.pdf> (8.07.2009).

<sup>71</sup> W. Cornish and D. Llewelyn regard protectable subject-matter and the rights conferred as core components of IP system: “As a regime is developed for protecting a form of intellectual property a number of basic decisions have to be made: What types of subject-matter are to be included? Is the right to be conferred only upon application to a government office? How long is it to last? Is it to be a right good only against imitators (as with copyright and unregistered designs), or is it a “full monopoly” that even affects independent devisers of the same idea (as with patents for inventions, registered designs and trade marks)?” See W. Cornish, D. Llewelyn (Note 11), p. 12.

<sup>72</sup> According to S. Salazar “[t]he exclusion of chemicals from patentability occurred for the first time in history in a German law of 1877. The reasons given at the time were that it was necessary to reinvigorate an industry that was lagging behind its counterparts in other countries. Even before that, a French law of 1844 had expressly excluded pharmaceutical chemicals from patentability. [...] It is said that, once they had achieved a certain level of development of their pharmaceutical industries, the developed countries amended their legislation to extend patent protection to pharmaceutical products. What is certain is that it was not until 1960 that France introduced protection, with Germany following in 1968, Italy in 1978, and Japan and Switzerland in 1976 and 1977 respectively”. See S. Salazar. *Intellectual Property and the Right to Health*, p. 8. Available at <http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/salazar.pdf> (12.03.2009).

<sup>73</sup> See, e.g., Regulation (EC) No. 141/2000 of the European Parliament and of the Council of 16 December 1999 on orphan medicinal products. – OJ L 18, 22.01.2000, pp. 1–5.

In this section of the paper, the author analyses some key issues that have to be considered when one designs a set of IP limitations that are intended to enhance innovation. The author's approach is based on two postulates. Firstly, the IP system is in essence a constantly changing dynamic system. This also has implications for the IP limitations. Secondly, the overlap of IP regimes (e.g., the same object can be protected as a work, design, or trademark) has to be considered in the design of limitations.

The IP system is undergoing transformation due to several circumstances.<sup>\*74</sup> Among other factors, the extension of the IP system plays an important role. Broadening of the subject matter of IP protection has been a characteristic feature of the IP system since its inception.<sup>\*75</sup> In addition to the extension of protectable subject matter (to encompass software, biotechnological inventions, domain names, *sui generis* databases, etc.), the inherent tendency toward expansion of the IP system applies to the catalogue of rights as well (e.g., the list of an author's economic rights<sup>\*76</sup> was supplemented with the right of making the work available to the public<sup>\*77</sup>). Also, the term of protection has continuously been extended.<sup>\*78</sup> According to P. Drahos, "[t]he strongly expansionary nature of IP systems shows no sign of changing".<sup>\*79</sup> Consequently, the concept of IP limitations cannot ignore the dynamic nature of IP systems.

It has been emphasised that "[b]efore the WTO TRIPS Agreement<sup>\*80</sup> was signed, states were free to determine what would or would not be patentable within the country. [...] The patenting of essential goods such as medicines and foods was for a long time thought to be self-evidently against the public interest".<sup>\*81</sup> Setting a general standard on an international level, the TRIPS Agreement requires that patents be available for all inventions, whether products or processes, in all fields of technology.<sup>\*82</sup> The TRIPS Agreement explicitly provides that exclusion of micro-organisms from patentability is not allowed.<sup>\*83</sup> Article 1 of the directive on biotechnological inventions<sup>\*84</sup> obliges the EU's member states to protect biotechnological inventions under national patent law, and Recital 11 emphasises the importance of the patent system for encouraging research in biotechnology.

This course of action has raised several ethical<sup>\*85</sup> and practical concerns. W. Cornish and D. Llewelyn have noted that "each type of subject-matter calls for a different balance of public and private interests — the interests of the society as a whole in its economic and cultural development, and interest of the individual to secure a 'fair' value for his intellectual effort or investment of capital or labour".<sup>\*86</sup> Opinions have been expressed also that concern the issues of drug patents specifically. It has been suggested that the patent protection of pharmaceuticals "is a subject with strong social connotations: it touches on areas as sensitive as health and man's quality of life, even his survival".<sup>\*87</sup> In addition, M. A. Heller and R. S. Eisenberg have pointed out that "the lack of substitutes for certain biomedical discoveries (such as patented genes or receptors) may increase the leverage of some patent holders, thereby aggravating holdout problems".<sup>\*88</sup>

Various suggestions have been put forth for addressing this issue. For instance, W. Kingston has expressed an opinion that patents are unsuitable for biotechnology, for a variety of reasons (monopolisation of life science,

<sup>\*74</sup> L. Davis describes the following trends which have affected IP: growing prominence of intangible assets as sources of competitive advantage, globalization of business activities, advances in digital technologies of replicability and transferability, and changes in the regulatory framework governing intellectual property rights. See L. Davis. The Changing Role of Intellectual Property Rights. – *Economics of Innovation and New Technology* 2004 (13) 5, pp. 401–404.

<sup>\*75</sup> See P. Drahos (Note 11), p. 1; W. Cornish, D. Llewelyn (Note 11), p. 34.

<sup>\*76</sup> The Copyright Act § 13.

<sup>\*77</sup> H. Pisuke characterises the right of making the work available to the public as an Internet environment right. See H. Pisuke. *Autoriõiguse alused* (Copyright Basics). Tallinn 2006, p. 41 (in Estonian).

<sup>\*78</sup> E.g., Council Regulation (EEC) No. 1768/92 of 18 June 1992 concerning the creation of a supplementary protection certificate for medicinal products. – OJ L 182, 2.07.1992, p. 1–5; Regulation (EC) No. 1610/96 of the European Parliament and of the Council of 23 July 1996 concerning the creation of a supplementary protection certificate for plant protection products. – OJ L 198, 8.08.1996; Council Directive 93/98/EEC of 29 October 1993 harmonizing the term of protection of copyright and certain related rights. – OJ L 290, 24.11.1993, p. 9–13.

<sup>\*79</sup> P. Drahos (Note 11), p. 1.

<sup>\*80</sup> Agreement on Trade-related Aspects of Intellectual Property Rights. Marrakech, 15.04.1994, entered into force on in respect to Estonia 13.12.1999. – RT II 1999, 22, 123.

<sup>\*81</sup> P. Boulet, C. Garrison, E. 't Hoen. Drug Patents under the spotlight. Sharing practical knowledge about pharmaceutical patents (2003), p. 5. Available at [http://www.who.int/3by5/en/patents\\_2003.pdf](http://www.who.int/3by5/en/patents_2003.pdf) (11.03.2009).

<sup>\*82</sup> TRIPS Article 27 (1).

<sup>\*83</sup> TRIPS Article 27 (3) b).

<sup>\*84</sup> European Parliament and Council Directive 98/44/EC of 6 July 1998 on the legal protection of biotechnological inventions. – OJ L 213, 30.07.1998, 13.

<sup>\*85</sup> For further discussion, see A. Kelli. Some Issues of Intellectual Property and Ethics — Recent Developments in IP Law. Kraków: Wolters Kluwer Polska 2007, pp. 153–165.

<sup>\*86</sup> W. Cornish, D. Llewelyn (Note 11), p. 12.

<sup>\*87</sup> S. Salazar (Note 72), p. 8.

<sup>\*88</sup> M. A. Heller, R. S. Eisenberg. Can Patents Deter Innovation? The Anticommons in Biomedical Research. – *Science* 1998 (280), p. 700.

blocking, and difficulties in determining the type of funding: public or private).<sup>89</sup> Recital 2 of the directive on biotechnological inventions, on the other hand, emphasises that “in the field of genetic engineering, research and development require a considerable amount of high-risk investment and therefore only adequate legal protection can make them profitable”. The author is of the opinion that there is no simple solution to the problems described. For the most part, the success of an IP system in fostering innovation depends on the co-operation among the stakeholders of that IP system. There are also legal instruments such as competition law and compulsory licensing that can be used to address problems caused by non-co-operative behaviour.

It is commonplace for one product to be protected by several patents, designs, trademarks, copyrights, secret know-how, etc. Furthermore, several IP instruments could be used to establish control over the same knowledge. Therefore, it is crucial to ensure that these aspects all are considered in the design of IP limitations.<sup>90</sup> The copyright, design, trademark, and patent regimes are used as examples.

It is possible for the same object to be protected as a work, design, and trademark. The illustrative list of works protected by copyright includes works of design and fashion design.<sup>91</sup> Subsection 2 (3) of the Industrial Design Protection Act provides that “[t]he legal protection of industrial designs provided for in this Act is independent of the protection provided for in the Copyright Act”. The Trade Marks Act requires the author’s consent if a work is to be protected as a trademark.<sup>92</sup> The problem is that every IP regime (among them copyright, design, and trademark) has its own set of limitations, which is not necessarily coherent with those of the other regimes. For instance, a trademark owner has no right to prohibit other persons from using the trademark to indicate the intended purpose of a product.<sup>93</sup> The Copyright Act does not explicitly provide this kind of limitation. The problem described is not merely of a theoretical nature. The *Dior v. Evora* case<sup>94</sup> also involved a question of cumulative protection of trademarks containing pictures by the trademark and copyright regimes. The court held that “the protection conferred by copyright as regards the reproduction of protected works in a reseller’s advertising may not, in any event, be broader than that which is conferred on a trademark owner in the same circumstances”.<sup>95</sup>

There is an overlap of patent and design protection as well. This means that the same technical solution can be protected by both patent and design regimes. M. Schlötelburg explains that “[t]he close relation between design and function is, however, common knowledge (‘form follows function’) and established practice. [...] Supplementary protection of an invention by a design in addition to a patent can be achieved in a fast and cost-efficient way by using the figures contained in the patent application for the design registration”.<sup>96</sup> The possibilities for protecting a technical solution as a design are limited. It has been emphasised that “design law is only applicable to patentable matter where the invention has materialised in a specific product. The design law does not allow protection of ideas, concepts, or methods. A design right can only provide protection for a concrete embodiment of an apparatus claim or a well-defined product achieved with a method claim”.<sup>97</sup> Article 7 (1) of the directive on the legal protection of designs<sup>98</sup> sets an additional requirement that “[a] design right shall not subsist in features of appearance of a product which are solely dictated by its technical function”. According to the opinion of Ruiz-Jarabo Colomer, “a functional design may, none the less, be eligible for protection if it can be shown that the same technical function could be achieved by another different form”.<sup>99</sup> This reasoning is supported by the EU documents<sup>100</sup> and theoretical literature.<sup>101</sup> A relevant issue has been raised that it is possible to obtain a monopolistic position over a technical solution by registering all of its materialisations as designs.<sup>102</sup>

<sup>89</sup> W. Kingston. *Unlocking the Potential of Intellectual Property*. – O. Granstrand. *Economics, Law and Intellectual Property. Seeking Strategies for Research and Teaching in a Developing Field*. Boston/Dordrecht/London: Kluwer Academic Publishers 2003, p. 314.

<sup>90</sup> The need to analyse the existing system of IP limitations from a holistic perspective has been acknowledged by IP experts. See A. Kur. *Differentiated Approach Based on Unitary Ground — A Feasible Approach?* Available at [http://www.iprinfo.com/tiedostot/Netti1\\_Kur.pdf](http://www.iprinfo.com/tiedostot/Netti1_Kur.pdf) (13.06.2009).

<sup>91</sup> The Copyright Act § 4 (3) 16).

<sup>92</sup> The Trade Marks Act § 10 (2).

<sup>93</sup> The Trade Marks Act § 16 (1) 4).

<sup>94</sup> Case C-337/95 (*Parfums Christian Dior SA and Parfums Christian Dior BV v. Evora BV*). – ECR 1997, p. I-06013.

<sup>95</sup> *Ibid.*, paragraph 58.

<sup>96</sup> M. Schlötelburg. *Design protection for technical products*. – *Journal of Intellectual Property Law & Practice* 2006 (1) 10, p. 675.

<sup>97</sup> *Ibid.*, p. 676.

<sup>98</sup> Directive 98/71/EC of the European Parliament and of the Council of 13 October 1998 on the legal protection of designs. – OJ L 289, 28.10.1998, pp. 28–35.

<sup>99</sup> Opinion of Mr. Advocate-General Ruiz-Jarabo Colomer delivered on 23 January 2001, Case C-299/99 (*Koninklijke Philips Electronics NV v. Remington Consumer Products Ltd.*). – ECR 2002, p. I-05475, paragraph 34.

<sup>100</sup> The Commission of the European Communities. *Green Paper on the Legal Protection of Industrial Design*. Working document of the services of the Commission. III/F/5131/91-EN, June 1991, p. 60; The Commission of European Communities. *Amended proposal for a European Parliament and Council directive on the legal protection of designs* – COM(1996) 66, 21.02.1996, p. 7.

<sup>101</sup> G. Tritton. *Intellectual Property in Europe*. 3<sup>rd</sup> ed. London: Sweet & Maxwell 2008, p. 573; WIPO. *WIPO Intellectual Property Handbook: Policy, Law and Use*. Geneva: WIPO publication 2001, p. 114; M. Schlötelburg (Note 96), p. 677.

<sup>102</sup> G. Tritton (Note 101), p. 573; W. Cornish, D. Llewelyn (Note 11), p. 579.



It has been suggested that “[b]ecause overlapping protection presents a variety of challenges to the IP system, disrupts the IP balance, and impoverishes the public domain, we should work to eliminate the overlaps that do exist and, perhaps more importantly and more realistically, attempt to avoid creating overlaps in the future”.<sup>103</sup> In principle the author agrees with this suggestion. However, since it is very hard to avoid overlapping protection then the re-conceptualisation of the existing limitations could also be of help. The author does not argue that it is absolutely necessary to introduce several new limitations. Recommendable among the first actions is to analyse the exact scope of the existing limitations and determine whether they are applicable to cases of overlapping protection. For instance, in *Dior vs. Evora* case the court extensively construed the principle of exhaustion of rights by saying that “when trade-marked goods have been put on the Community market by the proprietor of the trademark or with his consent, a reseller, besides being free to resell those goods, is also free to make use of the trademark in order to bring to the public’s attention the further commercialization of those goods”.<sup>104</sup> It has also been suggested that “increasing dynamism of technical development and frequency of overlaps will call for “creative interpretation” of the law in any case”.<sup>105</sup>

In addition, two further elements remain to be considered. Firstly, the design of the national IP system cannot disregard international and regional legal instruments. The author is of the opinion that Estonia has not taken advantage of all flexibilities found in international IP instruments. For instance, only recently was the Patent Act amended to include provisions on public non-commercial use of invention (§ 47<sup>1</sup>).<sup>106</sup> Secondly, since IP lawmaking is to a large extent moving into regional and international arenas, perhaps it is more appropriate to take the necessary steps for adopting the necessary limitations in those arenas.

## 5. Conclusions

The global economic downturn is not the only challenge that Estonia has to face. The problem is that the Estonian economy is not as advanced as the economies of many other European countries. This makes the current economic situation especially difficult. A possible solution could be for Estonian entrepreneurs to focus on the development of innovative and competitive services and products. In this article, the author has explored some possible improvements of the IP system that could enhance innovation in Estonia.

The author presumes that the utilisation of IP is facilitated when the legal validity of protection is not easily challenged and the subject matter of IP protection is clearly defined. In respect of the copyright system, the author concludes that it is very hard to challenge protection of a work by copyright. However, the exact scope of copyright protection can occasion disputes and there is a need to develop capabilities in conducting expert assessments related to issues such as whether a work constitutes an unlawful reproduction of work(s) created by other authors. Measures should be taken by authors to provide ability to prove authorship.

In respect of the patent system, the author has concluded that, although inventions are protected through patenting procedure, there is no guarantee that a granted patent cannot be invalidated or the scope of its protection disputed. The risks created by the possibility of a patent being invalidated or its scope of protection being narrowed have to be managed by means of detailed contracts.

In neither case does the author recommend amendment of the law. Raising the IP awareness of Estonian entrepreneurs could have a better effect for business. Entrepreneurs have to enhance their skills to contractually manage IP-related risks.

The consistency of Estonian IP regulations with the rest of private law is important. Still it is necessary to bear in mind that knowledge protected by IP rights is often exploited in regional and global markets. Some IP instruments, such as European patents and Community designs, are not ‘products’ of the Estonian national legal system. Consequently, initiatives to improve the existing IP system should not be limited to alignment of IP legislation with the rest of national law, including private law. The author has argued that one of the main objectives of improvement of the Estonian IP system is to make it more user-friendly for Estonian entrepreneurs by increasing its comprehensibility and through provision of standard regulations to be applied in cases where the parties have not concluded detailed contracts. Measures to encourage Estonian entrepreneurs’ active use of IP instruments should be initiated.

As a result of the analysis of the legal framework determining the possibilities for exercise of an author’s exclusive rights, the author of this article arrived at two conclusions. Firstly, if we adhere to an approach by

<sup>103</sup> V. Moffat. Mutant Copyrights and Backdoor Patents: The Problem of Overlapping Intellectual Property Protection. – Berkeley Technology Law Journal 2004 (19), p. 1530.

<sup>104</sup> *Parfums Christian Dior SA and Parfums Christian Dior BV v. Evora BV*, paragraph 2 of the operative part.

<sup>105</sup> A. Kur (Note 90).

<sup>106</sup> Tööstusomandi õiguskaitset reguleerivate seaduste ja nendega seonduvate seaduste muutmise seadus. Entered into force on 1.03.2009. – RT I 2009, 4, 24 (in Estonian).

which the Copyright Act must enhance awareness and be explanatory, provisions on permissibility of transfer, on licensing an unknown use of a work, and on similar matters should be added. Secondly, considering problems related to the moral rights, the author supports the position that the overlap of some moral and economic rights has to be removed by narrowing the scope of the moral rights. It should be provided *expressis verbis* that all moral rights which concern exploitation of a work are licensable. This would certainly enhance legal certainty.

The lack of legal certainty is not only common for copyright law. Similar problems exist in Estonian industrial property law as well. For instance, the Patent Act and the Utility Models Act are silent about how joint patent or utility model owners can exercise their rights (for instance, if together, separately, or some rights together and others separately). Although in the absence of a detailed contract the principle of analogy and provisions on interpretation of a contract, etc. could be applied, the rights and obligations of joint patent or utility model owners remain unclear. Therefore, a standard dispositive regulation is needed that would determine how joint patent or utility model owners could exercise their rights.

The author also proposes that, in order to comply with the principle of transferability of economic rights and avoid legal uncertainty, it should be clearly provided that an inventor's right to fair proceeds from the profit received from the invention is transferable.

Format requirements for IP contracts are a practical issue concerning copyright and industrial property regimes alike. The author proposes that IP laws should be changed to allow oral non-exclusive licences. Depending on the type (e.g., licensing or transfer of the rights) and object (e.g., a work, invention, design, or trade secret) of IP contracts, format requirements can be differentiated. Any approach chosen, however, should be consistent.

On the basis of the analysis of flexibility and appropriateness of IP limitations, the author proposes that strong IP regimes do not necessarily enhance innovation. Equally, extensive IP limitations could facilitate innovation. The design of IP systems should be determined by general and country- and region-specific requirements.

The author suggests that a need to review the existing IP limitations is created in consequence of two factors. Firstly, the IP system is a constantly changing dynamic system. For instance, the area subject to IP protection is becoming broader. Intellectual property limitations that are appropriate and proportionate in one phase of development are not necessarily so in another phase. Secondly, the current tendency is for IP regimes to overlap, which means that a technical solution can be patented and also its appearance protected as a design. In addition, it is usual that many different IP rights are attached to a single product. Consequently mechanisms are needed to reduce the possibilities of abuse of the IP system (use of exclusive rights to block development of new products, problems of excessive pricing, etc.). The problem is that every IP regime has its own set of limitations, which does not necessarily match the other regimes. The author does not argue that it is absolutely necessary to introduce several new limitations. Among the first actions to be taken it is recommendable to analyse the precise scope of the existing limitations and determine whether they are applicable to cases of overlapping protection.



H. Pisuke, A. Kelli. Some Issues Regarding Entrepreneurial Universities and Intellectual Property. – *Juridica International* 2007 (12), pp. 161–172.



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# Some Issues Regarding Entrepreneurial Universities and Intellectual Property

## 1. Introduction

Historically, the main tasks of a university have been instruction and research. *Alma mater* has been a benevolent and kind mother feeding society with knowledge. The state has given its guarantees to such education and research activities at universities. Section 38 of the Constitution of the Republic of Estonia<sup>1</sup> provides that: “Science and art and their instruction are free. Universities and research institutions are autonomous within the restrictions prescribed by law”.

The present reality is, however, that the university as an instructor and disseminator of knowledge is increasingly becoming a seller of knowledge. The objective of this article is to examine the change in the role of the university in society as well as some accompanying theoretical and legal issues. The article discusses whether the university is becoming a type of entrepreneur in contemporary society and which role is played by intellectual property in it. Of various types of intellectual property<sup>2</sup>, the article focuses only on some issues of the patent policy of the university. The examples are mostly based on the regulatory documents of two leading Estonian universities — the University of Tartu (UT) and the Tallinn University of Technology (TUT).

<sup>1</sup> Eesti Vabariigi põhiseadus. Entered into force on 3.07.1992. – RT 1992, 26, 349; 2003, 64, 429 (in Estonian). English translation available at <http://www.legaltext.ee/et/andmebaas/document.asp?ptyyp=RT&q2=p%F5hiseadus&order=TA&tyyp=X&query=&display=1&nupp=Otsi%21> (17.09.2007).

<sup>2</sup> In this article, the notion of intellectual property is used as defined in article 2 (viii) of the Convention establishing the World Intellectual Property Organisation (WIPO), i.e., as the rights relating to the results of various creative and commercial activities. See Convention establishing the World Intellectual Property Organisation. Stockholm, 14.07.1967, entered into force on 26.04.1970. – 828 UNTS 3 (entered into force on in respect to Estonia 5.02.1994. – RT II 1993, 25, 55 (in Estonian)).

## 2. University as entrepreneur or entrepreneurial university?

The traditional activities of a university are instruction and research. In Estonian legal literature, the autonomy of a university has been defined through provision of instruction and research.<sup>3</sup> This gives rise to the question of whether such constitutional guarantees also cover the business and economic activities of universities.

The contemporary university has been subjected to the task of participating in direct economic activities and promoting the development of society as a whole. Today's keyword, both in the European Union and on the global level, is innovation, and the role of universities in developing the innovation of a society is considerable.

The European Commission communication "Putting knowledge into practice: A broad-based innovation strategy for the EU"<sup>4</sup> contains ten politically prioritised actions to implement the EU Lisbon strategy. Action 1 is directed towards the significant increase of "the share of public expenditure devoted to education and to identify and to tackle obstacles in their educational systems to promoting an innovation friendly society". Action 4 "Strengthening research-industry links" should contribute to the removal of administrative barriers which affect knowledge transfer between universities and industry. One of the aims is to encourage researchers' interaction with industry and their activities related to patenting, licensing and spin-off creation. Actions 7 and 8 are directed towards the enhancement of IPR protection. Special measures are introduced for universities by a special Communication<sup>5</sup> to provide "better education and innovation skills". Several other EU documents have been passed to enhance university and industry links in developing innovation.<sup>6</sup>

Estonian legislation proceeds from the traditional directions in the activities of universities when regulating the relations between universities and society. Section 1 of the Organisation of Research and Development Act<sup>7</sup> regards scientific and technological creation as part of the Estonian economy. The Universities Act<sup>8</sup> (UA), University of Tartu Act<sup>9</sup> (UTA), and also the statutes of the University of Tartu<sup>10</sup> (Statutes) set out as one of the missions of a university to provide services based on instruction and research, which are necessary for society.<sup>11</sup> The statutes of the Institute of Technology<sup>12</sup> operated by the University of Tartu imposes on the Institute of Technology, as an institution of the University of Tartu for research and development, the obligation to protect and commercialise the intellectual property of UT and to create a contemporary technological and material basis for filling the orders placed by entrepreneurs as well as state and other organisations in the fields of activity developed by the Institute of Technology.

The statutes of the Tallinn University of Technology proceed from different theoretical grounds. Subsection 47 (5) of the statutes of TUT<sup>13</sup> defines TUT as an "entrepreneurial university" that "shall promote the innovative activities of its membership, offer in an active capacity research and development services to society, plan profit-based activities and make allocations contributing to the development of TUT".

The new role of the contemporary university is also reflected in several Estonian state and university strategies. The Government of the Republic Strategy Paper "Estonian Success 2014" provides that in order to increase the competitiveness of the Estonian economy it is important to develop cooperation relations between

<sup>3</sup> T. Annus. § 38. – Panel of editors led by E.-J. Truuvali. *Eesti Vabariigi põhiseadus. Kommenteeritud väljaanne* (Constitution of the Republic of Estonia. Commented Edition). Tallinn: Juura, Õigusteabe AS 2002, pp. 291–292 (in Estonian).

<sup>4</sup> COM (2006) 502 of 13.09.2006.

<sup>5</sup> COM (2006) 208 of 10.05.2006.

<sup>6</sup> Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of Regions. COM (2007) 182 final, 4.04.2007. Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation. Implementing the Lisbon agenda; Commission Staff Working Document Accompanying document to Economic and Social Committee and the Committee of Regions Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation. Implementing the Lisbon agenda — Voluntary guideline for universities and other research institutions to improve their links with industry across Europe.

<sup>7</sup> Teadus- ja arendustegevuse korralduse seadus. Entered into force on 2.05.1997. – RT I 1997, 30, 471; 2006, 14, 114 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (17.09.2007).

<sup>8</sup> Ülikooliseadus. Entered into force on 18.02.1995. – RT I 1995, 12, 119; 2005, 61, 475 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (17.09.2007).

<sup>9</sup> Tartu Ülikooli seadus. Entered into force on 21.03.95. – RT I 1995, 23, 333; 2004, 56, 404 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (17.09.2007).

<sup>10</sup> Adopted by decision No. 47 of the University of Tartu Council on 28.05.1999, registered by Minister of Education directive No. 201 of 24.08.1999.

<sup>11</sup> UA § 4 (2), UTA § 2 (2), Statutes § 4.

<sup>12</sup> Approved by regulation No. 8 of the University of Tartu Council on 26.05.2006, clauses 3.2 and 3.4.

<sup>13</sup> Approved by regulation No. 14 of the Tallinn University of Technology Council of 16.12.2003, registered by directive No. 86 of the Minister of Education and Research of 4.02.2004.

enterprises, their clients as well as institutions of higher education, and research and development.<sup>14</sup> The development plan of the University of Tartu for 2008 (UT Development Plan) proceeds from the objective that “the University of Tartu shall increase intellectual capital through the transfer of knowledge and know-how as well as research and development activities, shall use it on a much wider scale in society, particularly in innovative production and knowledge-based politics, and shall considerably increase the profit derived from the implementation and protection of intellectual property.”<sup>15</sup> Further to that, the development plan of the Tallinn University of Technology for the years 2006–2010<sup>16</sup> (TUT Development Plan) provides that in the context of an entrepreneurial university, TUT shall promote the development of the national innovation system and technology and know-how transfer and extend contract-based cooperation with domestic large enterprises and organisations of the public sector.

To define the new role of the university in society, above all, two alternative questions must be answered: (1) has the university become a type of entrepreneur — an entrepreneurial university —, or (2) whether it continues to be a traditional university, but the traditional areas of activity of the university must be complemented, and participation in entrepreneurship must be included as a new area of activity. This also gives rise to the question whether the new role of the university should be clearly reflected in legislation as well.

The activities of universities are increasingly associated with the provision of commercial education, additional training and consulting services offered for a fee, organisation of research events based on the participation fee, commercialisation of intellectual property, which could be manifested in the creation of spin-offs<sup>17</sup>, licensing of intellectual property and its assignment, etc.<sup>18</sup> Both commercial training as well as research and development services constitute a rather significant part of the budget of Estonian public universities. At the same time, the bulk of the funds used for research in Estonian universities comes from the state budget. The share of private capital in financing research in Estonian universities is still relatively modest, if compared to the relevant proportions in the US, for example.

It is common knowledge that the task of a university is to participate in the promotion of the economic development of society. The state takes clear interest in financing research in universities. The classical areas of interest of the state to finance the research in universities comprise culture, health and national defence.<sup>19</sup> The need to ensure a healthy living environment must be included here as well. At the same time, the creation of prerequisites for financing research contributes to the economic development of the state. This prerequisite has been taken as the basis in the relevant research and development policies of the US, Japan and European Union. It is the extremely clear interest of the state in obtaining a specific service from the universities that does not allow for defining universities as classical entrepreneurs in private law in our opinion. Universities may engage in entrepreneurship within the limits of the tasks imposed by the state and the rules prescribed by the state. These tasks allow for referring to the contemporary university as an entrepreneurial university.

The category of the entrepreneurial university has established itself in specialised literature over the past few years. For example, the entrepreneurial university has been defined as a university that has a wide scale infrastructure for supporting internal enterprise. In addition to traditional fields, the activities of such a university include commercial courses, consulting services, the patenting of its inventions, licensing of the results of various creative activities deriving from the university and establishment of start-ups.<sup>20</sup> The contemporary

<sup>14</sup> Estonian Success 2014. Government of the Republic Strategy Paper, clause 9. Available at <http://www.riigikantselei.ee/failid/EE2014.doc.pdf> (7.11.2006) (in Estonian).

<sup>15</sup> Approved by decision No. 79 of the University of Tartu Council, clause 14.

<sup>16</sup> Approved by decision No. 10 of the Tallinn University of Technology Council, clause 5.3.

<sup>17</sup> The TUT has defined a spin-off as a legal person in private law, which has been established at the participation of an employee of a university or research institution or a member (members) of a university or an employee (employees) of a research institution and uses the results and/or know-how of the research and development of the university or research institution in its activities and has been registered according to the internal rules of procedure of the TUT. See § 1 (3) of the Principles of the External Economic Activities of the Members in the Tallinn University of Technology. Approved by regulation No. 8 of the Tallinn University of Technology Council of 22.04.2003.

<sup>18</sup> The bases of the knowledge services in the Tallinn University of Technology, approved by regulation No. 5 of the Tallinn University of Technology Council of 18.03.2003 can be provided as an example here; their objective is to develop a range of TUT knowledge services provided and ensure the development of knowledge services (§ 2 (1)).

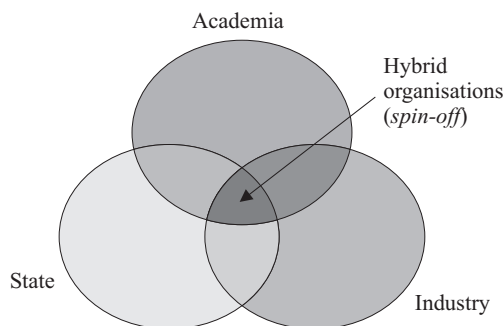
<sup>19</sup> H. Etzkowitz, L. Leydesdorff. The dynamics of innovation: from National Systems and “Mode 2” to a Triple Helix of university–industry–government relations. – Research Policy 2000/29, Elsevier Science B. V, pp. 110, 117.

<sup>20</sup> M. Jacob, M. Lundqvist, H. Hellsmark. Entrepreneurial transformations in the Swedish University system: the case of Chalmers University of Technology. – Research Policy 2003/32, Elsevier Science B. V, pp. 1555–1556. For the concept of an entrepreneurial university, see B. R. Clark. Creating Entrepreneurial Universities: Organizational Pathways of Transformation. – Issues in Higher Education 1992/12. London: Pergamon Press; L. L. Leslie, S. Slaughter. Academic Capitalism — Politics, Policies and the Entrepreneurial University. Baltimore, MD: John Hopkins University Press 1997; H. Etzkowitz, A. Webster et al. The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. – Research Policy 2000/29, pp. 313–330; H. Etzkowitz. MIT and the Rise of Entrepreneurial Science. London: Routledge 2002; H. Etzkowitz. Research groups as quasi firms: the invention of the entrepreneurial university. – Research Policy 2003/32, pp. 109–121.

university has become an important part of creative industries.<sup>\*21</sup> The role of the university in creative management is expressed in the creation of new knowledge and its commercialisation, and to a lesser degree also in production.

An entrepreneurial university promotes a regulatory and institutional framework that differs from that of a traditional university. The regulatory framework must provide prerequisites for researchers to support the entrepreneurship of the university. One of the potential measures is to consider inventions as part of research.<sup>\*22</sup> An entrepreneurial university presumes the existence of a structural unit that unites academics and industry, research and the utilisation of resources assigned for research in line with market demand.<sup>\*23</sup> As a rule, a special structural unit (Technology Transfer Office — TTO; Research and Development Department — RDD, etc.) is established to support the entrepreneurship of a university, and its activities are prescribed by the rules issued by the university. Scholars have also raised a justified question to what extent would knowledge be communicated to industry if there were no mechanisms for identifying knowledge and ensuring its use.<sup>\*24</sup> Some universities have taken as the basis an approach according to which such technology transfer organisations must work very closely with the faculties and researchers of universities. This would contribute to the identification of the opportunities provided by research, which can be used in business and which the university can commercialise.<sup>\*25</sup> However, any commercialisation presumes the analysis of new knowledge created by the university from the point of view of legal protection. It must be emphasised that the creation of a structure supporting commercialisation is not an objective on its own. There is a point in such a structure, provided that it supports the protection and commercialisation of the intellectual property created at the university or by the university. Thus, there is a direct link between the new role of the university and intellectual property.

The institutions operating in society have different functions; hence, it is necessary to create a new model of cooperation between universities and society. Etzkowitz and Leydesdorff provide the following model for discussing society, industry and university, which in our opinion is an excellent expression of the role of the contemporary university.<sup>\*26</sup>



The model creates a new institutional infrastructure in the overlapping area of the activities of various institutions, where each participant assumes the role of the other participants and the characteristics of a so-called hybrid organisation appear. The authors are of the opinion that it is a universal model that is characteristic

<sup>21</sup> Several doctrines of creative industries, cultural industries, copyright-based industries, etc. have been developed. See, e.g., A. Kalvi. The Impact of Copyright Industries on Copyright Law. – *Juridica International* 2005 (10), pp. 95–104; A. Kalvi. Kultuuritööstuse olemus ja selle osatähtsus rahvamajanduses (The Nature of Cultural Industry and Its Role in the National Economy). – *Juridica* 2002/10, pp. 656–657 (in Estonian).

<sup>22</sup> For instance, the patent applications and patents registered in a member state of the Organisation for Economic Cooperation and Development (OECD) or the European Union are considered as a criterion for assigning basic financing (§ 3 (1) 5)). The coefficient of both a patent application and two or more chapters in a recognised monography of international circulation is two (§ 3 (1) 4)). See Conditions and procedure for assignment of basic finances to research and development institutions. Regulation No. 11 of the Minister of Education and Research of 21 March 2005. – *RTL* 2005, 34, 483 (in Estonian).

<sup>23</sup> M. Jacob, M. Lundqvist, H. Hellsmark (Note 20), pp. 1555–1556.

<sup>24</sup> H. Etzkowitz, L. Leydesdorff (Note 19), p. 110.

<sup>25</sup> M. Wright, S. Birley, S. Mosey. Entrepreneurship and University Technology Transfer. – *Journal of Technology Transfer*, Kluwer Academic Publishers 2004/29, p. 241.

<sup>26</sup> The authors themselves call it the Triple Helix Model of University-Industry-Government. See H. Etzkowitz, L. Leydesdorff (Note 19), p. 111.



of all states seeking to create an innovation and knowledge-based economy.<sup>\*27</sup> Estonian universities have significant experience in the practical application of that model.<sup>\*28</sup>

Although the model provided describes, above all, the overlapping objectives and activities of different institutions, the impact of its implementation is wider. It has also been pointed out in specialised literature that the university culture is in the process of change. Entrepreneurship, as an economic and business activity, is increasingly accepted as part of university culture.<sup>\*29</sup> Acknowledgement of intellectual property is becoming more and more a part of university culture; an entrepreneurial university is unthinkable without intellectual property. The principle “patent and prosper” has become part of academic culture.<sup>\*30</sup>

The entrepreneurship of a university does not mean that the university must become a company. The concept of an entrepreneurial university based on economic and business activities must be linked to the traditional concept based on instruction and research. It may be inferred that Estonian universities have redefined, to date, or are redefining their traditional role. Nevertheless, only TUT has defined itself unambiguously as an entrepreneurial university in its regulatory documents. Although the activities of UT conform to all the criteria of an entrepreneurial university, UT does not specifically define itself as an entrepreneurial university. Perhaps the concept of an entrepreneurial university still needs to be adjusted to the present university culture in Estonia.

Proceeding from the principles concerning the role of universities in developing innovation provided in the EU regulatory documents and the current practice of the Estonian universities, we are of the opinion that the principal Estonian legislation governing the activities of universities (above all, the Universities Act, the University of Tartu Act, the Research and Development Organisation Act) should be improved. It would be necessary to specify the rights and duties of a university in the Universities Act, which would facilitate the use of the research results for commercial purposes (commercialisation).

It would also be necessary to redefine the interpretation of the autonomy of universities provided in § 38 of the Constitution. This constitutional provision should serve as a guarantee for the instruction, research and economic activities of universities.

### 3. Intellectual property as a prerequisite for an entrepreneurial university

#### 3.1. Significance of intellectual property in society

Intellectual property is one of the foundations of a knowledge-based economy. Intellectual property aims to encourage the development and dissemination of knowledge and innovations, with a view towards fostering social progress.<sup>\*31</sup> Intellectual property ensures investment in research, culture and other areas. Unless investments in research are protected, this could become an impediment to scientific progress. The provisions of intellectual property can be regarded as the protective mechanisms of certain economic interests. Economic activities may also in turn affect the development of intellectual property. That is why specialised literature has indicated that the scope of intellectual property continues to expand.<sup>\*32</sup> Intellectual property is the main property of a university and its creation may be seen as the core role of a university.<sup>\*33</sup> As the objective of this paper is to analyse, first of all, the effect of patent law upon the implementation of the entrepreneurial university theory, the other types of intellectual property will be discussed only in the context directly related to the subject below.<sup>\*34</sup>

<sup>27</sup> H. Etzkowitz, L. Leydesdorff (Note 19), pp. 111–112.

<sup>28</sup> Several spin-off companies have been established in Estonian universities, such as Quattromed AS in the UT, ProtoBios OÜ in the TUT.

<sup>29</sup> M. Wright, S. Birley, S. Mosey (Note 25), p. 236.

<sup>30</sup> H. K. Schachman. From “Publish or Perish” to “Patent and Prosper”. – *Journal of Biological Chemistry* 2006 (281) 11, March 17, p. 6903.

<sup>31</sup> OECD Council. Recommendation on the Licensing of Genetic Inventions. 23 February 2006 (C (2005) 149/Rev1), p. 5. Available at <http://www.oecd.org/dataoecd/39/38/36198812.pdf> (23.03.2006).

<sup>32</sup> P. Drahos. The Universality of Intellectual Property Rights: Origins and Developments, p. 1. Available at [www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/drahos.pdf](http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/drahos.pdf) (10.01.2006).

<sup>33</sup> M. Wright, S. Birley, S. Mosey (Note 25), p. 235.

<sup>34</sup> For problems of copyright law in universities, see H. Pisuke. Copyright at Universities: Some Issues Concerning the Regulation of Academic Works. – *Autoriu teisės i literatūros, mokslo ir meno kurinius: aktualijos ir perspektyvos. Prane imu rinkinys*. Vilnius Lietuvos Respublikos kultūros ministerija, Vilniaus universitetas, Mykolo Romeris universitetas 2004, pp. 57–67.

### 3.2. Intellectual property regulation supporting the entrepreneurship of a university

The Estonian legal system does not contain an Act directly regulating the intellectual property issues related to a university.<sup>35</sup> Yet, it would not be correct to assert that such a regulation is non-existent. Thus, it is derived from § 12 (2) of the Patents Act<sup>36</sup> (PA) that if an invention is created in the performance of contractual obligations or duties of employment, the right to apply for a patent and to become the proprietor of the patent is vested in the author or other person pursuant to the contract or employment contract. Subsection 13 (8) of the Patents Act provides that an author has the right to receive fair proceeds from the profit received from the invention.<sup>37</sup> Subsection 32 (1) of the Copyright Act<sup>38</sup> sets out a general rule, pursuant to which the author of a work created in the execution of his or her direct duties shall enjoy copyright of the work but the economic rights of the author to use the work for the purpose and to the extent prescribed by the duties shall be transferred to the employer. Consequently, a contract and provisions applicable within a university are decisive when it comes to an invention and works created in an employment relationship.

Section 117 of the UT statutes provides an important principle: UT shall recognise its members' moral and property rights resulting from their intellectual activity. Clause 11 of subsection 3 (2) of the TUT statutes sets out the development of legal protection of intellectual property as a task of TUT. The intellectual property policy of the universities is embodied in the principles of treating intellectual property (IP Principles), adopted by the universities as separate documents). The existence and content of the IP Principles serves as evidence of the objectives of the universities. On the one hand, it confirms that the administration of the university considers the area an important one and in need of independent regulation; on the other hand, it presumes the willingness of the academic community to adhere to the regulation. It would be ideal if the IP Principles are set out as the result of the natural development of the university culture, that is, when the academic members of the university recognise the need to protect their intellectual property and use it for economic purposes. It is claimed in literature that the relationship between the policy of the university as an institution and the individual behaviour and conduct of teachers and scientists often remains unclear.<sup>39</sup> Based on Estonian practice, it may also be said that the academic staff of the university is frequently unaware or has minimum knowledge of the intellectual property policy of their university or does not observe several of its principles in practice. Below, the regulation of some intellectual property principles in Estonian universities will be analysed.

From a practical point of view, the most important question is to whom the rights to inventions created at a university belong. The principles governing the handling of intellectual property at the University of Tartu<sup>40</sup> (Principles Governing IP at UT) provide an answer in clause 5.2. According to the provision, the transfer of the right to apply for a patent or other protection document, and the right to become the proprietor of a patent, utility model or other object of industrial property from the author, shall be formalised if the object of industrial property is created:

- (a) as the result of the author's creative activities in the execution of his or her duties or on the basis of any other contract entered into between the university and the author;
- (b) in the execution of duties arising from a contract between the university and the person ordering research and development or a research and development cooperation project by the author;
- (c) when using the property of the university (equipment, working premises, contribution of the university staff, etc.).

In a similar manner, the proprietorship of intellectual property rights is governed by the Rules of Handling the Intellectual Property at the Tallinn University of Technology<sup>41</sup> (Rules of Handling IP at TUT). Subsection 8 (1) of the Rules of Handling IP at TUT sets out a general principle according to which "[t]he industrial property belongs to TUT, if it has been created in the execution of contractual duties or official duties and/or the material resources of TUT have been used in the creative process". The Principles of Handling Intellectual

<sup>35</sup> Finland adopted in 2006 an Act governing the ownership of rights to inventions made at universities. See Laki oikeudesta korkeakouluissa tehtäviin keksintöihin (369/2006). Available at [www.finlex.fi](http://www.finlex.fi) (29.11.2006).

<sup>36</sup> Patendiseadus. Entered into force on 23.05.1994. – RT I 1994, 25, 406; 2006, 58, 439 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (17.09.2007).

<sup>37</sup> In principle, it can be said that the rights of an inventor have constitutional bases in Estonia. See A. Kelli. Patendiõiguse põhiõiguslikud alused ja piirangud (Constitutional Bases and Limitations of Patent Law). – *Acta Societatis Martensis* 2005/1, pp. 158–172 (in Estonian).

<sup>38</sup> Autoriõiguse seadus. Entered into force on 12.12.1992. – RT I 1992, 49, 615; 2007, 13, 69 (in Estonian). Unofficial translation available at <http://www.legaltext.ee> (17.09.2007).

<sup>39</sup> M. Wright, S. Birley, S. Mosey (Note 25), p. 239.

<sup>40</sup> The principles governing handling of intellectual property at the University of Tartu. Adopted by directive No. 17 of 18 November 2003 of the University of Tartu Council (entered into force 28 November 2003).

<sup>41</sup> Rules of Handling Intellectual Property at Tallinn University of Technology. Adopted by directive No. 4 of 21 March 2006 of the Tallinn University of Technology Council (entered into force 21 March 2006).

Property in the Estonian University of Life Sciences<sup>42</sup> (IP Principles of Estonia University of Life Sciences) (clause 4.2) and the Regulation of Legal Protection of Intellectual Property in the Tallinn University<sup>43</sup> (IP Regulation of Tallinn University) (clause 3.3) generally proceed from a similar solution. Thus, all the leading Estonian universities in public law have proceeded from the interests of the university as an institution regarding the proprietorship of intellectual property. Several countries use, as an alternative, a completely different approach where the rights rest with the immediate creator. Sweden, for example, uses a system, according to which the teacher has exclusive rights to the inventions created by him or her, which he or she exercises at his or her discretion (so-called teacher's exception).<sup>44</sup>

Several problems may arise in practice when determining the inventions created in the execution of duties and the proprietorship of the rights. For example, who will hold the rights if a researcher finds a technical solution while on holiday? There have been situations in practice when an employee of a university keeps the knowledge of an invention created in the exercise of duties to himself or herself, takes up a post with a new employer and then applies for the legal protection of the invention. The above-mentioned situation has been regulated in Finland where the Act of Inventions Made at Universities has been adopted. Subsection 12 (3) of the Finnish Act provides that if the patent application is submitted within six months of the expiry of the employment contract, the inventor must prove that the invention was not created during the validity of the previous employment relationship. In Estonia, a similar dispute must be settled on the basis of the regulations on intellectual property of the universities and it must be agreed, on a case-by-case basis, who holds the rights.

If it derives from an employment contract that the university as the employer holds the rights to the invention created in the course of work, the inventor has the right to receive remuneration for his or her invention. Subsection 13 (8) of the Patents Act provides that an author has the right to receive fair proceeds from the profit received from the invention. This gives rise to the question what constitutes "fair proceeds". Specialised literature recommends the application of the principle that the compensation payable to a researcher for his or her invention should at least be as good as he or she would receive when commercialising the invention himself or herself.<sup>45</sup> Such a principle cannot obviously be applied in practice as it does not take into account of the interests of the university.

The principles of intellectual property of Estonian universities apply the principle of "fair proceeds" rather differently, leaving the author 1/3 to 2/3 of the profit received. Thus, clause 5.3 of the Principles Governing IP at UT prescribes that UT generally pays the author 2/3 of the profit received from the invention, from which the legal protection of the invention and other such costs have been deducted first.<sup>46</sup> Clause 3.16 of the IP Regulation of Tallinn University provides that the author has the right to receive fair proceeds on account of the profit received from the invention and the proceeds are divided according to the principle that the share of the university may not be below 33%. Section 10 of the Rules of Handling IP at TUT is the most specific concerning the proceeds payable to the inventor, which provides that the division of proceeds shall be based on the general rule, according to which the authors' proceeds constitute 1/3 of the profit received, 1/3 of the profit belongs to the structural unit(s) of TUT contributing to the creation and development of the industrial property and 1/3 to the commercializer of the industrial property; exceptions may be made upon the division of the proceeds at the rector's consent, while the share retained by TUT may not be below 20%.

The model chosen by TUT, in which the inventor, the faculty and the technology transfer unit obtain 1/3 of the profit each is also relatively widespread elsewhere in the world. Such division of proceeds may be reasoned by a researcher's duty to contribute to the development of the university and his or her structural unit as well, since he or she receives his or her basic salary in addition to the 1/3. However, it is questionable if 1/3 of the profit is sufficiently motivating for the employee. The decision of the University of Tartu to give 2/3 of the profit to the researcher may be ascribed to the expected objective of motivating researchers to more intensive inventing activities, which will certainly have a positive outcome both for the reputation of the university and its economic activities.

It has been studied in several countries to what extent the formal pay policies to researchers, the faculty and technology transfer unit contribute to the commercialisation of research and the entrepreneurship of the university.<sup>47</sup> It is obvious that without the positive attitude of researchers and the faculty the university cannot

<sup>42</sup> Approved by regulation No. 15 of the Estonian Agricultural University Council of 23.12.2003.

<sup>43</sup> Approved by regulation No. 9 of the Tallinn Pedagogical University Council.

<sup>44</sup> There is a discussion about the possible change in the current system. Two alternatives are seen as the main options. Firstly, an obligation to notify the university of the invention could be imposed on employees with research duties (mandatory reporting). This enables the university to decide whether to start negotiations with the employee for the acquisition of the rights or not. According to the other option, the university will, in return for compensation, acquire immediately all the rights related to the invention (takeover). See M. Levin et al. The right to the results of higher education research, p. 26. Available at <http://regeringen.se/content/1/c6/05/34/08/5b44c128.pdf> (21.02.2007).

<sup>45</sup> M. Levin et al (Note 44), p. 22.

<sup>46</sup> Clause 4.3 of the IP Principles of Estonian University of Life Sciences is essentially identical with clause 5.3 of the TU IP Principles.

<sup>47</sup> G. D. Markman, P. T. Gianiodis, P. H. Phan, D. B. Balkin. Entrepreneurship from the Ivory Tower: Does Incentive Systems Matter? – Journal of Technology Transfer 2004/29, Kluwer Academic Publishers, p. 354.

develop and introduce new technical solutions. One such study showed, however, that increasing the share of proceeds given to researchers and faculty did not correspond with their entrepreneurship or result in the creation of additional inventions to be commercialised. Nevertheless, increasing the share of the proceeds of employees of the technology transfer unit had a positive effect on the commercialisation of the inventions.<sup>48</sup> Perhaps it would be necessary to conduct a similar study in Estonian universities and research institutions, which would enable the universities to implement certain more uniform criteria in the future.

In order to allow for the patenting of inventions and their later economic exploitation, the university must have enough information about the potential intellectual property objects created by its employees. For this purpose, the Estonian universities require, in their principles of intellectual property<sup>49</sup>, their teachers and researchers to report all potential inventions to the specified unit at the university.<sup>50</sup> However, this gives rise to the question what happens if, instead of reporting to the relevant unit of the university, the teacher or researcher publishes an article describing the invention or gives a presentation at a research event. The obligation imposed on teachers and researchers in the intellectual property principles of the universities to patent the research results may come into conflict with § 38 of the Constitution. The comments on the Constitution, dating from 2002, take the position that “academic freedom protects both research and teaching of research achievements at the universities. As to research, both conducting research in itself as well as the publication and dissemination of the research results are protected”.<sup>51</sup> Naturally this does not mean that academic freedom could not be limited under any circumstances. The comments to the Constitution also set out that individual academic freedom and the objectives of the university may differ<sup>52</sup> while the autonomy of the university and research institutions essentially means the right to organise itself<sup>53</sup>, which in turn may set as its objective the commercialisation of research results. It must be nevertheless analysed whether the desire of the university to commercialise inventions and participate in economic activities thereby is a sufficient basis for limiting academic freedom and whether the limitation of academic freedom for such purposes would be proportional.

It may be said that Estonian universities do not face any impediments arising from legislation to implementing the doctrine of an entrepreneurial university. The general regulation of the relevant legal Acts (the Patents Act, the Copyright Act, etc.) can also be applied to universities, and the lack of specific provisions does not hinder the entrepreneurship of the universities. Estonian universities have adopted their own intellectual property rules that are quite different from each other. It would obviously be necessary to harmonise these rules between the universities. This is in compliance with the interests of all the universities and teachers and prepares the ground for legislative regulation based on the interests of the universities. In such a case, it would also be possible to prevent any potential problems arising from the mobility of academic staff between the universities. The recommendation that the consistent implementation of the existing regulation, dissemination of information within the university and compliance with the regulations by teachers and researchers may sometimes be even more important than the creation of new intellectual property regulation<sup>54</sup> applies also to Estonia.

At the same time, the authors support the position that the regulator should regulate more precisely the issues related to intellectual property created in the exercise of duties in the future. Several researchers have supported, since the beginning of the 1990s, the adoption of a special Act on inventions created in the course of work.<sup>55</sup> One of the most recent scientific analyses originates from Jaak Ostrat, who has assumed the following position: “The legal regulation of industrial property created in an employment relationship and in the performance of any other contract needs to be developed further in Estonia”.<sup>56</sup> The idea of adopting specific provisions deserves to be supported. Yet it is disputable whether the inventions created at the universities need specific regulation in the form of an independent Act in Estonia, as has been done in Finland. It would be pos-

<sup>48</sup> *Ibid.*, pp. 357–360.

<sup>49</sup> Clause 8.2 of the TUT IP Principles; § 5 of the Rules of Handling IP at TUT; clause 7.2 of the IP Principles of Estonian University of Life Sciences; § 5 of the IP Regulation of Tallinn University.

<sup>50</sup> Further to the imposition of the reporting obligation on researchers, a measure supporting efficiently the commercialisation of research is the construction of research financing mechanism. If the state reduces the funds prescribed for research, the university must take better account of the needs of the economy and orientate itself to the wishes of the economic sector. Decrease in state financing may come into conflict with academic freedom. The comments on the Constitution have inferred correctly that academic freedom and institutional autonomy cannot be possible if there are no funds for research and teaching. Funds obtained from the private sector entail guidance by the wishes of those who allocate the funds; thus, it is important that the state support basic research. See T. Annus (Note 3), p. 292.

<sup>51</sup> See T. Annus (Note 3), p. 290.

<sup>52</sup> *Ibid.*, p. 291.

<sup>53</sup> T. Annus. Riigiõigus (Constitutional Law). Tallinn: Juura, Õigusteabe AS 2001, p. 266 (in Estonian).

<sup>54</sup> H. K. Schachman (Note 30), p. 6897.

<sup>55</sup> Professor Ants Kukrus has proposed to adopt an Act on inventions made in employment relationships. See A. Kukrus. Tööstusomandi õiguskaitse (Legal Protection of Industrial Property). Tallinn: Mats 1995, p. 65 (in Estonian).

<sup>56</sup> J. Ostrat. Töösuhtes või muu lepingu täitmisel tehtud leiutise õigusliku reguleerimise probleemid. Kas lepinguvabadus või eraldi seadus? (Problems in the Legal Regulation of an Employment-Relationship Invention. Freedom of Contract or a Separate Law?). – *Juridica* 2007/3, p. 198 (in Estonian).

sible and obviously more economical to provide the principles of intellectual property created at universities in the applicable Patents, Utility Models and Copyright Acts.

### 3.3. Dilemma — to patent or publish?

The functioning of a university has historically proceeded from the principle that the academic community shares their knowledge with society through teaching and publication of research. When it comes to the patenting of inventions, however, the university acts based on commercial considerations. The goal of the patent system in itself is simple and understandable — to continually improve upon existing technology. At the same time, the knowledge created must become accessible to the public. The patent system guarantees to the inventor, in return for making his or her invention public, for a certain period, the exclusive right to prohibit any other persons from using the invention, except for those exceptional cases prescribed by law. The provision of exclusive rights is reasoned by the fact that if there had not been an inventor, the invention would not have been created.<sup>57</sup> Below, we will examine the impact of patenting by the university on one of the underlying principles of the university — publication of research results.

The problem arising in connection with patenting and publication is related to the novelty requirement of the invention to be patented. Pursuant to § 8 (1) of the Patents Act, an invention is patentable if it is new, involves an inventive step and is subject to industrial application. The disclosure of the nature of the invention, for example, in a research paper, conference presentation and conference theses, can preclude the patenting of the invention later on. The legislator has attempted to alleviate the situation here and provided the grace period regulation of the invention<sup>58</sup>, according to which, in determining the state of the art, any information relating to an invention is not taken into consideration, provided that a corresponding request is submitted, if such information is disclosed by a person who is entitled to the patent or another person with the knowledge of the said person within twelve months before the filing date of the first patent application containing the invention in the Republic of Estonia or abroad.<sup>59</sup> Here it must be kept in mind that due to the principle of territoriality of intellectual property the grace period need not exist in other jurisdictions or it may be considerably different there.

Any behaviour violating the novelty of an invention (e.g., publication of a research paper, public recital of a conference presentation, etc.) can be prevented by explanation of the novelty requirement for patentable inventions to the researchers at a university. A researcher should thus know when a potentially patentable invention is concerned. When creating a potential invention as a result of research, he or she should consult the head of the structural unit, an employee of a technology transfer unit or any other employee of the support structure who helps decide whether patenting is economically justified. After the patent application has been filed, the researcher may publish the outcome of his or her research in research papers and presentations.

The relationship between publication and patenting may give rise to the question to what extent the university must patent inventions. Several arguments have been pinpointed in literature against patenting by universities.

The first argument against patenting by universities is related to the financing of research. One of the areas of activity of the university is research, and the necessary means are generally provided by the state (and ultimately by the taxpayer). This gives rise to the question why the university should make further profit through commercialising the patented invention and cannot simply disclose research data to society by publishing the outcome of research in an article, for example. Several objections can be made to this argument.

Patenting may indeed inhibit the use of research results, for which society has already paid.<sup>60</sup> Patenting is traditionally motivated by remuneration of the inventor, return of the investments made, and other arguments. The widespread opinion is that an unpatented invention is not an attractive investment object for companies.<sup>61</sup> Even the goal of the patenting strategy of the university is to promote investments in the economic application of

<sup>57</sup> WIPO. Introduction to Intellectual Property: Theory and Practice. London/Hague/Boston: Kluwer 1997, p. 7. See also H. Koitel. Rahvusvaheline eraõigus ja intellektuaalomandi kaitse (Private International Law and Protection of Intellectual Property). – Audentese Ülikooli Toimetised 2001/1, p. 49 (in Estonian).

<sup>58</sup> About the grace period for an invention, see J. Ostrat, R. Kartus. Leiutise uudsussoodustus (Grace Period for Inventions). – Juridica 2002/10, pp. 695–701 (in Estonian).

<sup>59</sup> Patents Act § 8 (3).

<sup>60</sup> B. M. Frischmann. Commercializing University Research Systems in Economic Perspective: A View From the Demand Side (2005), p. 2. Available at <http://ssrn.com/abstract=682561> (6.11.2006).

<sup>61</sup> For a more substantial analysis of the statement it should be examined to what extent the industrial sector has implemented unprotected technologies created by the university. In essence, this is not precluded because besides intellectual property rights there may be other market barriers (expensive equipment, the financial capacity of the entrepreneur, the existence of the necessary human capital), which encourage investment in technology.

the invention.<sup>62</sup> It has been correctly claimed in literature that an unprotected invention remains underutilised, since the research institution may lack the necessary resources while companies lack interest in developing the unprotected invention.<sup>63</sup> An example could be the development of a medication, the discovery and marketing of which may be separated by several years, and which demands large investments. In the absence of adequate protection, the medicine would simply not be placed on the market.<sup>64</sup>

Another argument against patenting by the university is the idea that companies have most often not reacted when their rights to patented inventions are infringed in research conducted at universities (*de facto* research exemption). Thus, unless universities engage in commercialising intellectual property, companies would overlook the infringement of intellectual property held by them in research.<sup>65</sup> We cannot agree with such a position. A university cannot expect that there will be no reaction to their unlawful acts, but should instead influence the legislator to apply a more extensive exception to the use of inventions in research, restrict the range of patented objects, or apply for additional grants.

A threat to changing academic conventions has been pinpointed as the third argument against patenting by the university. It has been claimed that if the patenting of research results becomes an established practice, it will bring about imposition of restrictions on the use of knowledge and impede the dissemination of research results in society. Therefore, universities and researchers will no longer share research information with each other.<sup>66</sup>

Such a threat does exist. It is nevertheless important to emphasise that patenting, in itself, is neither good nor bad. The core question is how the university will use the patented invention. The university may set the goal of only earning profit and blocking the activities of other people in certain areas in both the research and business sectors. At the same time, it is possible to pursue an open patent policy supporting society, economy and research, which will ensure honour, fame and income for the university. We can agree with the idea expressed by G. Hardin that society faces several problems that do not have a technical solution.<sup>67</sup> The creation of the balanced intellectual property policy of the university is one of them. The progress of technology cannot prescribe here how the university should act.

Thus, patenting and publishing need not be always contrasted. Although publication should be avoided before filing the patent application, this is not the most important thing. The main question is related to what is patented and how the exclusive rights are used.

### 3.4. Intellectual property policy aimed at openness

A functional and mutually supportive cooperation between various social institutions is in the interests of the development of society. A university can contribute to achieving this through intellectual property policy aimed at openness. Some of the main aspects of this intellectual property policy will be discussed below.

It has been pointed out in scientific literature that the United States of America is characterised by a strong trend of measuring the contribution of universities to technical progress by the number of patents issued. Such an attitude is about to spread to both Europe and Japan.<sup>68</sup> The strategy document "Estonian Success 2014" sets out the following objective: "the number of patents registered per 100,000 inhabitants in Estonia will be decupled, developing for that purpose technology transfer programmes and institutions".<sup>69</sup> In our opinion, an increase in the number of patent applications and patents issued cannot serve as an objective itself. Applying for patents must proceed from economically justified grounds. When analysing the patenting of biotechnological inventions by universities, H. K. Schachman reached the conclusion that regardless of the large number of

<sup>62</sup> The Bayh-Dole Act regulating patenting by US universities is based on the theoretical assumption that technology transfer from the university to industry becomes simpler if universities have applied for patents for their inventions. The Bayh-Dole Act constituted the principle that universities could patent inventions that have been created from research funded by the state. – R. R. Nelson. Is University Patenting Necessary or Sufficient to Make University Research Valuable Economically? – O. Granstrand. Economics, Law and Intellectual Property. Seeking Strategies for Research and Teaching in a Developing Field. Boston/Dordrecht/London: Kluwer Academic Publishers 2003, pp. 349–350.

<sup>63</sup> B. M. Frischmann (Note 60), p. 25.

<sup>64</sup> Unfortunately IP protection does not solve all problems. For instance, recital 18 of Directive on biotechnological inventions (European Parliament and Council Directive 98/44/EC of 6 July 1998 on the legal protection of biotechnological inventions. – OJ L 213, 30/07/1998, p. 13) points out that the patent system provides insufficient incentive for encouraging research into and production of biotechnological medicines which are needed to combat rare or orphan diseases. That kind of goods could be considered "non-market goods" that are not provided or demanded effectively through market mechanisms. For the general discussion on non-market goods see B. M. Frischmann (Note 60), p. 13.

<sup>65</sup> R. R. Nelson (Note 62), p. 359.

<sup>66</sup> *Ibid.*, p. 357.

<sup>67</sup> G. Hardin. The Tragedy of the Commons. – Science 1968 /162, p. 1243.

<sup>68</sup> R. R. Nelson (Note 62), p. 348.

<sup>69</sup> Eesti Edu 2014. Vabariigi Valitsuse strateegiadokument, p. 10. Available at <http://www.riigikantselei.ee/failid/EE2014.doc.pdf> (7.11.2006) (in Estonian).

patents for which the universities had applied, the majority of them had not produced actual income.<sup>\*70</sup> Hence, the formal approach patent for the sake of a patent does not take account of the economic prerequisites for intellectual property. Application for and commercialisation of a patent is related to large financial expenses and labour costs. From an economic point of view it is not reasonable to hold a patent if the income is zero or the expenditure exceeds revenue.

Even if formal indicators are not pursued as the goal, the university still has to consider what it should patent. It is appropriate to apply for protection if the invention is likely to make its way to market. Scholars also emphasise that it is justified to patent inventions which are close to commercial use.<sup>\*71</sup> The decision to patent is an important question of the intellectual property policy of a university. The patent policy of a university always serves as a link between innovation and the motivation of subsequent research.<sup>\*72</sup> It is in essence logical that further research output is based on the previous output. The university must regard itself here as part of the general infrastructure of knowledge-based economy and acknowledge that patenting is not the duty of the university but its right. The entire functioning of society cannot rely solely on market mechanisms because there are also, so to say, non-market goods. The allocation of such benefits is not regulated by the market but it is ensured by other mechanisms (culture, society, family, etc.) The free provision of knowledge by the university in its historically developed form is comparable to such unmarketable values as freedom of speech, access to education, etc.<sup>\*73</sup> When exercising its patent policy, the university must also have regard for the promotion of research not only within its own institution but on the regional and global level. The objective of an entrepreneurial university should not be the monopolisation and blocking of further research. It would be in conflict with the internationalisation of the university and the principles of international cooperation.

If the university has decided to patent the invention, an approach aimed at openness is possible here as well. The fact that the university holds an exclusive right does not mean that the university should not permit the other research institutions to use its invention. Opinions have been expressed in literature that if universities patent inventions that are important inputs to further research, their licensing policies should ensure that all potential researchers are able to use the inventions for low transaction costs.<sup>\*74</sup> In other words, the university should, above all, enter into non-exclusive licence agreements with users for commercial purposes or delimit the objective of an exclusive licence agreement so that the university itself retains the opportunity to issue licences for research.

It must be pointed out that the intellectual property principles adopted in Estonian universities attempt to govern the proprietorship of rights but remain rather laconic regarding the use of intellectual property. The authors of the paper are of the opinion that the objective of using the intellectual property created in research institutions should be clearly set out in the regulatory documents of the university. The wording of the objective of using intellectual property would send society an unambiguous message about the priorities of the university, including for example promotion of research through an open licensing policy, support for regional economic development, earning of income for teaching and research as well as for developing the infrastructure of the university, etc.

An important aspect in the use of intellectual property is consideration of the interests of the creator. Worth being observed, § 9 (5) of the Rules of Handling IP at TUT provides that TUT shall take account of the interests of the authors when entering into a licence agreement and also involve the authors in the negotiations.

## 4. Conclusions

The tasks of a university have undergone a significant change to date. Historically, universities have been characterised by open instruction and research. The provision of commercialised services and the use of research results for commercial purposes (commercialisation) have, by today, become an integral part of the activities of a university and its culture. Yet universities do not become commercial entrepreneurs. The concept of an entrepreneurial university, serving as the basis for the approach used by the authors of the paper, allows for defining the new role of the university as a participant in direct economic activities. The concept of an entrepreneurial university has been provided in the regulatory documents of the Tallinn University of Technology, while the University of Tartu in fact also functions as an entrepreneurial university. A relevant institutional

<sup>\*70</sup> H. K. Schachman (Note 30), p. 6902.

<sup>\*71</sup> R. R. Nelson (Note 62), p. 358.

<sup>\*72</sup> B. Koo, B. D. Wright. *Economics of Patenting an Input Essential to Further Research*. – O. Granstrand. *Economics, Law and Intellectual Property. Seeking Strategies for Research and Teaching in a Developing Field*. Boston/Dordrecht/London: Kluwer Academic Publishers 2003, p. 332.

<sup>\*73</sup> B. M. Frischmann (Note 60), pp. 11–14.

<sup>\*74</sup> R. R. Nelson (Note 62), p. 359.

structure has been established for promoting innovation. Nevertheless, according to the authors, the new role of the university as a participant in economic activities should also be reflected in Estonian legal acts.

The central notion of an entrepreneurial university is intellectual property. The general provisions of the applicable Estonian Acts concerning intellectual property (Patents Act, Copyright Act, etc.) can also be applied to universities. Estonian universities have adopted separate documents, defining the bases of the intellectual property policy of a university and establishing specific provisions for the individual types of intellectual property. As there are considerable differences between the principles, it would be necessary to harmonise them between universities. It is disputable whether the inventions created at universities require specific regulation in the form of an independent Act, as has been done in Finland. Yet it would be necessary to set out the principles of intellectual property created at universities by specific provisions contained in the applicable Patents Act, Utility Models Act and Copyright Act, etc.

Because of the use of research results for commercial purposes, questions about the relationship between the disclosure of research results for the public (publication) and patenting have become more frequent at universities. Patenting and publishing need not be always contrasted. However, as a rule, it is advisable to avoid publication before the patent application has been filed.

According to the authors, an increase in the number of patent applications and patents issued cannot serve as a goal in itself. Application for patents by universities must proceed from economically justified grounds.

One of the main issues related to intellectual property at universities is what is patented and how exclusive rights are used. Universities should use the exclusive rights obtained through patenting based on concordance between business interests and interests in promoting research. A university should issue licences to other universities and research institutions for using its inventions at favourable conditions. The authors are of the opinion that the intellectual property policy, including the patent policy, of universities should be open, enabling society to use the research results of universities.



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