Czech University of Life Sciences Prague

Faculty of Economics and Management

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Diploma Thesis

Business Software Piracy

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In this place, please insert
the Diploma Thesis Assignment.
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Declaration

I declare that I have worked on my diploma thesis titled "Business Software Piracy" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any third person.

In Prague on 31st March 2015 _____

Ridan Muradov

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I would like to thank my supervisor Ing. Petr Benda, Ph.D., my family and all other persons, for their advice and support during my work on this thesis.

Softwarové Pirátství v Byznysu

Business Software Piracy

Souhrn

Zatímco rostoucí role počítačů v dnešním světě představuje pozitivní změnu, pirátské zacházení se softwarem znamená vážný problém pro celé odvětví. Pirátství je krádež a je klasifikováno jako trestný čin. Stejně jako při každém procesu trestné činnosti, existují i zde dva hlavní účastníci pirátství se softwarem. Na straně pachatele je koncový uživatel, který nelegálně používá software, zatímco na straně oběti jsou vývojáři počítačových programů.

Studie se zaměřuje na pirátskou činnost vykonávanou právnickými osobami. Diplomová práce popisuje zvýšené úsilí a právní kroky v boji proti této formě pirátství v Ruské federaci. Účelem práce je také prostřednictví již existujících soudních sporů poukázat na vážnost této kriminality. Práce popisuju právnické osoby, které používají nelegální software s cílem identifikování nedostatků jejich počínání a za účelem navržení opatření vedoucích k vývoji proti-pirátských strategii technologickými společnostmi.

Výzkum shromažďuje údaje z dvou set ruských firem. Výsledek pomáhá charakterizovat případy, kdy je ochrana v souvislosti s produktem užitečná k minimalizování pirátství a to s ohledem na vlastnosti a chování koncového uživatele.

Hlavním přínosem diplomové práce je návrh nových proti-pirátských opatření jak pro Ruskou federaci, tak pro vybranou obchodní společnost.

Klíčová slova: porušení autorských práv, porušení licenčních práv, softwarové pirátství v byznysu, právní vymáhání proti softwarovému pirátství, ochrana duševního vlastnictví, softwarové pirátství v Rusku, řízení správy softwaru, řízení správy softwaru v Rusku, Ruská federace.

Summary

While the increasing role of the computer is a positive change, it has created software piracy which is a serious problem for the industry. Software piracy is theft and theft is considered as a crime. As in every crime process, there are two main participants in software piracy: victim and offender. In our case victim is the software developer and the offender is end-user who illegally uses the software.

This study is focused on business software piracy which means piracy of the software by legal entities. It summarizes efforts to combat software piracy which include laws and increased efforts enforce copyright protection in Russian Federation. The work has also application to the firm attempting to raise risk of pirating through litigation against offenders. It describes characteristics of legal entities that use the software in order to identify the weaknesses and to suggest improvements on the anti-piracy strategies of selected developer company.

Survey data was collected from two hundred Russian companies. The result helps characterize the product-market contexts within which protection is most helpful to minimize the piracy and with the regards to end user characteristics what improvement could be done.

Suggestion of new anti-piracy efforts both for Russia and selected company is the key findings of the work

Keywords: copyright infringement, license infringement, business software piracy, legal enforcement against piracy, intellectual property protection, software piracy in Russia, software asset management, software asset management in Russia, Russian Federation.

Table of Content

1.   Introduction

Nowadays, almost every second computer owner pirates the software. Whether it is on purpose or not, there is no excuse for software piracy. Most of us think that if there is no action against software piracy so why for the software should be paid?

Every product is produced to bring some benefit to its producer. Software which is classified as an intangible product and it has own producer like every other product with no regard to its class. Unlike tangible products, the buyers do not own the software they only buy rights to use it. When end-users start to use an intellectual property without having rights, it is called piracy. Software piracy is also defined as the unauthorized copying of an organization's internally developed software or the illegal duplication of commercially available software in order to avoid fees.[1]Not all copying infringes the software producer's copyright. Piracy occurs when the use of the software does not meet the license or software agreements provided by the owners. If it is allowed to install software on one computer by the agreement, installing it on a second computer is infringement and it remains on the first as a violation of agreement. If the agreements, as many modern software license agreements do, allow installing the software on an office workstation and on a home computer, installing it on two office workstations is a violation of the agreement.

As the use of computers increases which means consequently increase of software usage, so does the propensity for abuse. End-user piracy is claimed to be a major problem for the computer software industry. It has been estimated that for every legitimate copy sold there are between from two up to ten illegal copies "bootlegged" from friends or colleagues[2]

Fast advancement and dissemination of peer to peer networking have led to significant increase in the number of pirated digital products. Distribution of illegal copies of the software on physical media has always been a serious issue for copyright holders. However, digital piracy became more serious threat than physical piracy of the software, and its growth gone out of control when physical piracy started to be controlled.

Although technology is improving day by day, programs can be protected by special coding, fingerprinting, and other devices, however these all work until first good hacker. Companies could not make up complete effective approach against software piracy even if there is clear specification of property rights; piracy exists due to the high cost of policing consumer behavior and enforcing the law. The improvements of legislators from all over the world limit by increasing the terms of punishments and expanding the scope which means lack of critical

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[1] STRAUB, D.W. and COLLINS, R. W., 1990. "Key information Liabilities Facing Managers: Software Piracy, Proprietary Databases, and Individual Rights to Privaty" MIS Quarterly (14; 2).
[2] CONNER, K.R. and RUMELT, R.P., 1991. Software Piracy: An Analysis of Protection Strategies. Management Science.

analysis. Copyright protection remains unconsidered and clumsy mechanism which needs to be applied more seriously.

From one point of view it is true that words are weaker than actions. The actual, literal written terms of the agreement control the determinants here, not extrapolations of inferences users may draw from the license terms. Several studies show that users are pressing agree button without reading, to finish installation which means it is not enough to have those electronic agreements. There should be something different to combat the piracy.

Anti-piracy actions are being expensive that's why the software companies are generally focused on business software piracy. To control a business is cheaper than to control a single user, just because in most of the cases one legal entity means many computers.

Not all the end-users know that they are under the security; productivity and legal risk by using pirated the software. They also put the developers under economic risk. According to a study by the Business Software Alliance, 43 percent of the software installed on personal computers around the world in 2013 was not properly licensed. In 2007, according to a global study conducted on behalf of the BSA, the total losses sustained by the software industry as a direct result of software piracy were in excess of 40 billion dollars worldwide. The result of software piracy creates a significant drain on the revenues and retards the continued growth of the software publishing industry. The dissertation contains selected anti-piracy approach of selected company. The research on consumer behavior helped to understand the general situation in Russia. Suggestions, improvements and innovations to selected company anti-piracy actions are based on results from the research and could be useful to take into consideration.

2.   Objectives of the thesis and methodology

2.1.   Research objectives

This project focuses on the international dimension of the software piracy and the development of anti-piracy measurements. It presents analyzed characteristic of the companies. We addressed key issue, along lines of Russian Federation and selected companies' anti-piracy efforts that arise in the context.

The purpose of this work is considering the problem of "piracy" in the software industry. Main aims of the thesis are:

- To consider the scope of the piracy in Russia Federation;
- To determine the most common forms of software piracy in Russian Federation;
- To study the development of a system of international copyright protection and cooperation of Russian authorities with international copyright protection;
- To examine general characteristics of software asset management of certain group of Russian companies.

One of the goals of this paper is to examine the effects of software piracy on the economy of Russian Federation where with the collected data to compare side effects of software piracy with different countries and regions.

The main goal is to suggest new improvement to Russian business software anti-piracy measures after understanding of characteristics.

2.2.   Limitations

The research is mainly focused in selected area which is Russia. According to CNEWS.RU, USA described Russia as one of the leaders of counterfeit products. Piracy problem in Russia is first of all economic and after juridical and political. Less than a decade ago, Russia's piracy rates were significantly higher than today's rates. This study will focus on analyzing how Russia decreased piracy, and which policies and strategies were used from then to now. Research part will also include corporation of Russia with one the most popular software developer company. As this company is one of the largest software developers in the world, it is in their interest to decrease piracy in Russia to avoid loss from piracy.

Today, software asset management programs are one of the tools to avoid piracy within the organizations. Ela (fictional name of the company) is one of minor companies who offer these services to its customers completely for free. On one hand this assessment tool helps companies control costs and optimize existing investments; on the other this tool serves Ela for better understanding of the situation in the market and controlling the loss from the piracy.

Not all the countries could benefit Ela Software Asset Management as they did not implement it for all the countries in the world. The simple reason for that is Ela does not have local representative in all the countries.

Russia was perfect country to study because it is the company who succeed very good results on reduction of software piracy but still considered to be high and the selected tool to combat the software piracy exists and widely used.

2.3. Methodology

Most common methods used in the thesis are qualitative methods. The theoretical part carried out by collecting and studying information from various sources. Mainly, these sources are books, publications, and scientific works, which are available either in hard or soft copies. Many internet sources were used especially for the analysis of the thesis. There are piracy reports of major intellectual property rights representatives.

Certain types of Quantitative research methods use in analysis part of the thesis. Trend analysis techniques was used to judge fluctuations trends of piracy and piracy related indicators. Ratio analysis was used to the loss of economy and its indicators due to piracy. The main tool is Excel where all the calculations are done. Data for calculations mainly gathered from internet reliable sources such as World Bank. Methodology of the calculations is briefly explained in the related topics.

For survey part, qualitative method was used. All the respondents were provided with the same close ended questions where they had only four possible variants. In terms of software estate management of the company, variants were positively increasing from "A" to "D". For instance, to the question *"do you have license recorded in the company"* variants will be A- no; B-up to 50 percent; C- 75% and D- all are recorded.

The close ended questioner helped to respondents to understand questions better after review of the answer and for the authors it is easier to interpret the results

Communication tool with the respondents were email and phone.

3.   Literature review

In an attempt to better understand the battle against software piracy, it is mandatory to understand basics of licensing. This part represents theoretical frame in order to understand piracy approaches and to lay foundation of the introduction to research model.

3.1.   Software types

According to what software is designed to accomplish, there are two primary types of software: system software and application software.

System software is designed to provide platform for application software and to operate the computer hardware, to provide basic functions for users. Operating systems, device drivers, utilities are known as systems software. The most pirated software among them is operating systems.

Application software is being dependent software. It is a set of programs designed to carry out operations for a specific application. There are many different types of application software. The list is so wide that to describe it is easier to say except system software everything else.

Depending on availability computer software has two main types: open source and proprietary software

3.1.1. Open source software

"The term "open source" software is used by some people to mean more or less the same category as free software. It is not exactly the same class of software: they accept some licenses that we consider too restrictive, and there are free software licenses they have not accepted." [3]

Free software gives users the freedom to install or use the software for any purpose with no as well as commercial or non-commercial. There are also no limitations on distribution of the original software and the adapted versions.

Free software is often being confused with gratis software which means for free of charge. Free software is not always for free of charge. The word free here means free release of source code to anyone. It is also possible that *"... a user may have paid money to get copies of free software, or you may have obtained copies at no charge. But regardless of how you got your copies, you always have the freedom to copy and change the software, even to sell copies."[4]*

Free software concept means freedom on any action. A program is free software if the program's users have the four essential freedoms such as to run the program for any wish and

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[3] GNU.org. Categories of Free and Nonfree Software .Free Software Foundation. [Online] Available at: http://www.gnu.org/philosophy/categories.html. [Retrieved 01.03.2015]

[4] GNU.org . What is Free Software? Free Software Foundation. [Online] Available at: https://www.gnu.org/philosophy/free-sw.html [Retrieved 18.02.2015]

purpose, to study or change the program, to redistribute copies to anyone and to distribute any copies of modified versions.

3.1.2. Proprietary software

Non-free software and proprietary software are often being confused but they have different definitions. Proprietary software has almost always, major restrictions on its use, while non-free software is any software which is not free and it may have no restrictions on its use.

The term proprietary is derived from the Latin word "proprietas" meaning property.[5] Proprietary software is software that is owned by an individual or a company. These individuals or companies are the ones that developed software and they are often called copyright holders.

Proprietary software licensed under special legal right of the copyright holder. It intends that the licensee is given the right to use the software only under certain conditions, and restricted from other uses. Usually, its source code is almost always kept secret. Activities such as modification, sharing, studying, redistribution, or reverse engineering are prohibited or restricted.

3.2. Types of Intellectual Property Rights

Technology is commercially valuable and a key element of business strategy which leads industrial growth. Company with better technology has competitive advantage. Technology may allow a company to come up with better and cheaper products. Having advantage on technology is often a key to long term profit. Investments in technological modernization are driven by pursuit profit. In technical change, intellectual property rights often increases the rate of return to investments. Intellectual property rights may permit producers to capture a major part of the commercial value of the technology. That's why for many companies, the protection of intellectual property is a business defence strategy. From the beginning of digital revolution, software producers have been experimenting many forms of protection approaches, to protect their products from piracy.

"Licensing is an arrangement between independent organizations for the sale of the use of technology protected by parents, trademarks or other legal forms of monopoly between a principal (licensor) and a client (licensee)." [6] Software license agreement is the contract between a licensor and a licensee where purchaser's right to use the software is declared.

Based on the evaluation of the profit potential of the technology, the producer can focus on 2 basic strategies: (1) fully vertical integration in the business using the technology and (2) partially vertical integration by contract with technology users. The product value of the

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[5] LINFO.org. Proprietary software is opposite of free software. [Online] Available at: http://www.linfo.org/proprietary.html [Retrieved 14.03.2015]

[6] BROOKE, M.Z., 1994. Licensing: The International Sale of Patents and Technical Knowhow. Edition. Gower Pub Co. ISBN 9780566074615

technology can be captured by integrating the technology into the producer's business environment. A technology producer may incorporate the technology into its products and production process. However, fully vertical integration into all uses and all markets is rarely most profitable strategy and very often this strategy suffers from software piracy. Partial vertical integration by contract is often preferable. These contracts almost always involve a written or unwritten license under intellectual property rights.

Contracts licensing intellectual property rights to technological information are limited by the usual market forces. However setting the price and terms of the licenses are not simply set by markets for rights. Terms and prices for licenses are not easily determined by the technology users and owners by identifying "going market" prices and terms. Most intellectual property transactions are not simple spot market sales. There are no national exchanges in which right are traded.

"One reason is that each bundle of licensed rights is unique. Therefore, each license is unique. IF there is no uniqueness to the rights, there are very probably no rights the law will recognize and enforce and nothing of value to license. Most users will not are to pay for license without evaluating the expected value of the particular rights to their business." [7]Hence, there is no public market in licenses that provides price or other information pertinent to any particular license. The parties must generate this information.

More importantly the price and other terms of a license will have important effects on the long-run demand and supply of products made and sold under the license. The price and terms of the license will affect the profits that "trickle up" to the owner or trickle to the licensee. This happens because the price and terms influence the incentives of the licensee. The behaviour of the license will influence the supply and demand for products incorporating the rights. The supply and demand for those products will determine the revenue and profits from operating under the license. The revenue and profits from licensed operations will determine the revenue and profits available to the owner.

For that reason, sophisticated owners and users of intellectual property rights try to understand and take advantage of the incentives the license creates. The problem is essential one of business organization by contract. How does an owner create, monitor and enforce an agreement so that is licensee or licensees behave in the manner owner would have ordained had they been part of the same company.

Today, owners and users must know more than the business of licensing. Owners and users do not have unfettered control of the price and terms of their licenses. The law regulates

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[7] SCHLICHER, J.W., 1996. Licensing Intellectual Property: Legal, Business, and Market Dynamics (Intellectual Property Series). 1 Edition. Wiley. Pages 4-5 ISBN 9780471153122

their licenses with rules that compel attention. Owners and users of rights must adapt to a bewildering array of legal constraints to successfully maximize profits. The government as antitrust enforce also from time to time looks over their shoulders

Intellectual property laws can appear to be complex detailed and sometime arbitrary sets of rules. This perception is partially deserved. However, intellectual property law has one unifying concept that helps explain the nature of the rights and the legal limits on licensing. Intellectual property rights prohibit certain uses of technical information about the nature and characteristics of physical products and processes. The most important legal regimes relevant to combat against piracy are copyright, patents, trade secrets and contracts. These laws attempts to increase investment of resources in producing information or disseminating information. Why should the law be concerned?

"A market may misdirect resources if private producers do not take into account the effects of their activities on welfare of other people who have not agreed to be affected in that way. These effects may be harmful or beneficial to others. Those harms or benefits are sometimes called externalities. In the absence of corrective rules, producers of information are likely provide external benefits for others."[8]

Since a producer's use of technical information in producing goods and services may require disclosure to competitors and users, other may benefit from the technology without being required to pay. There are many ways a producer of technology may lose exclusive possession of it. Competitor may learn the information by studying products incorporating it. Former employee may carry the information to competitors. Suppliers and customers who need the information may disclose it to competitors.

In these and other ways, information may become available to users who contributed nothing to the production or producer. A portion of the total demand for the information is satisfied without dealing with the produces. The commercial value the information producer expects to capture is lower than the actual value of the information. Information producers who anticipate being unable to capture all of that value will invest too few resources producing information

3.2.1. Contracts

If the law enforces contracts, profit oriented produces and users are also going to apply contracts to maximize production of commercially valuable technical information. These contracts are frequently called know-how where information produced and supplied under contracts. Where users pay agreed fee to information producer to produce or design the product.

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[8] SCHLICHER, J.W., 1996. Licensing Intellectual Property: Legal, Business, and Market Dynamics (Intellectual Property Series). 1 Edition. Wiley. Pages 10-11 ISBN 9780471153122

The contracts are used by producers to avoid harmful incentives of information externalities. If everything goes smooth, the law need enforce the agreements and then get out of the way.

The law will enforce contracts dealing with production and use of information. However, due to enormous transaction costs and strategic bargaining problems, contracts will not solve all externality problems. Costs of gather information about contract opportunities, preparing and negotiating terms, monitoring performance, and enforcing agreements are being transactions costs.

Even if the transactions cost could be overcome there are two major bargaining problems. First, the producer cannot guarantee that the users of information will be the ones who are parties to the agreement. The product can be accessible to non-parties. Some users may decide not to contribute and avoid the fee. This is called free-rider problem which makes such agreement difficult. Free-rider problem is on the main reasons to piracy.

Second, under the contract and trade secret regimes, the rights are not known to both parties prior to entering into an agreement. Lack of information before the agreement creates difficulty agreeing to pay without knowing what it is paying for. It also prevents the price from accurately reflecting the real value of the information to them.

Contracts are likely to be most profitable where the number of producers is small; the number of potential users is small, the information about the cost of production and value in use is certain and inexpensive to obtain and the prospects for a free-rider to benefit from the invention without paying are small because of self-help measures are not costly.

3.2.2. Patents

Patent law is the property law for intangible information where first producer gets rights as in real property laws as if there where owners of tangible products. The patent gives the owner rights to exclude other to use intangible product in the production or sales of good or services.

The Foundation for a Free Information Infrastructure has been proposed description of software patent as a *"patent on any performance of a computer realized by means of a computer program"*.[9]

"The patent right is based on the proposition that inventors must be granted a temporary monopoly over their invention in order to encourage innovation and to promote the expenditure of money on research and development. The patent holder recoups his up-front costs through a

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[9] FFII.se. The Gauss Project. [Online] Available at: http://www.ffii.se/erik/EPIP/img8.html [Retrieved 14.03.2015]

temporary monopoly over sale of the invention." [10]In return to this, the patent holder must unfold information and other details such as test data about production or invention of the software.

A patent is a set of exclusionary rights granted by a state to a patent holder and it is only given temporary. Usually, the period of time is 20 years. Once a patent granted to in given country, no one has right to make, use, sell or import/export the claimed invention in that country, without agreement with the patent holder. Patents are territorial in nature. To obtain a patent, inventor must submit application for patent in every country in which inventor wishes. Every country or region has its standard for granting patent

3.2.3. Trade secrets

In order to create better environment for information production, the law intervened with trade secret law. Trade secret laws give right to the producer, to keep in secret commercially valuable information from competitors. All the valuable information about the invention or creation including formulas, patterns, techniques and methods could be considered as a trade secret. . In case of proprietary software, source code is being kept in secret.

Trade secret concept is also geographic indication which is the same as patent. The main difference between patent and trade secret is that trade secret is no temporary. *"Trade secret protection does not expire unless the trade secret becomes known."*[11]

Trade secret law reduces the costs of self-protective measures such as document security system.

3.2.4. Copyright

Copyrights aimed to improve the incentives for authors to invest required time and effort to create original works. Usually for a limited time, copyright grants the creator the exclusive rights to reproduce or distribute copies of work, to prepare derivative works based on it and to perform it publicly. Unlike patents, copyrights do not protect whole work. Copyrights protects only from who copy the work of the original creator. Original expressions are not included in protection from others to reproduce. No rights are provided against identical independently created works. Also, copyrights do not provide owner with rights to exclude others from all uses of the copyrighted work however patents provide. Usually, a copyright violation creates software piracy.

Software copyright is used by proprietary software developers to prevent the unauthorized copying of their software. To enforce their terms, free and open source licenses also rely on copyright law.

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[10] ILIAS, S. and FERGUSSON, I. F., 2008. Intellectual Property Rights and International Trade. Nova Publishers. CRS-2 ISBN 9781604565621
[11] ILIAS, S. and FERGUSSON, I. F., 2008. Intellectual Property Rights and International Trade. Nova Publishers. CRS-3 ISBN 9781604565621

The GNU General Public License and End-User License Agreement are the most popular copyright agreements for intangible products including the software.

The GNU General Public License

The GNU General Public License is copy left concept license for open source software. First version was released in 1989 and originally written by Richard Stallmand. The GNU General Public License is intended to guarantee user's freedom to share and change all versions of a program[12]. The GNU General Public License's aim is to make sure that software remains free software for its entire user. In other words, this license protects free software from turning into proprietary software.

Basically, this licensing provides legal protection of the original terms of the software distribution, which must stay unchanged when the program is redistributed or modified. As it was mentioned before (discussed in the chapter 3.1.1.), it is possible that the program is no longer freely available after modifications even if the original version was free.

End-User License Agreement

A free software license provides its users no restriction use for any purpose, modify and redistribute creative works and software. Both of these are forbidden by the defaults of copyright, and generally not provided with proprietary software. Proprietary software is always used together with End-User License Agreement. End-User License Agreement also known as Software License Agreement is a contract between the licensor and buyer, establishing the buyer's right to use the software. This license agreement briefly and simply explained. It contains software warranty and a warning not to copy and redistribute the software

Unlike, the GNU General Public License this kind of license provides rules for using the software. Usually, End-User License Agreement asserts extensive liability limitations and restrictions because creators of this agreement are the software authors. End-User License Agreement is considered as contract of adhesion where the contract is set only by one of the parties, and the other party has little or no ability to negotiate.

End-User License Agreement might be different for buyer even if the product is the same. Sometimes, software companies make special agreements with large businesses and government entities. These agreements include support contracts and specially drafted warranties.

Some end-user license agreement form contracts accompany shrink-wrapped software that is provided to customer during the installation procedure electronically or even sometimes on a paper. The user always has the choice of accepting or rejecting the license agreement.

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[12] GNU.org. The GNU General Public License. Free Software Foundation. [Online] Available at: http://www.gnu.org/copyleft/gpl.html. [Retrieved 14.03.2015]

The term shrink-wrap license is common for any software license agreement which is enclosed within a software package. Usually, this type of license is not available to the customer before the software purchase. Often, the license agreement has got hard copy on paper included inside the boxed software. It may also be presented to the user on-screen during installation, in which case the license is sometimes referred to as a click-wrap license. The installation of the software is conditional to the user clicking a button labelled "accept". In many cases, the "accept" button is pushed without reading that long and boring End-User License Agreement. The inability of the customer to review the license agreement before purchasing the software has caused such licenses to run afoul of legal challenges in some cases.

3.3. Piracy

One of the main aims of copyright holders is protection of their masterpiece from piracy which appears *"... either through physical duplication of the work, illegal dissemination of copyrighted material (such as computer software, music, or movies) over the Internet, and/or participation in commercial transactions of copyrighted materials without the consent of the copyright owner."*[13] With respect to trademarks, piracy involves the registration or use of a famous foreign trademark that is not registered in the country or is invalid because the trademark has not been used.

Counterfeit is being another concept of piracy and referred an imitation of an original product.

3.3.1. Concept of Piracy in Russian Federation

There is no need to have a sea to be a pirate in twenty first century. Today, it is much more profitable for engaging in copyright infringement of audio, video, software or other intellectual properties. Lack of piracy control for years, it became a vital threat for most of the companies. Pirated products have got wide market share in Russian Federation. Honestly speaking, the situation is not very different in other countries.

All pirated products usually media products, have mainly one these two features in Russia:
- the media files never had permit for mass production in Russia Federation;
- the media files were previously in official production.

In the first case, intellectual property without permit for production in Russia is brought from abroad as one copy to be reproduced illegally or as several copies to be sold.

The second scenario is when right holder was agreed for mass production of it intellectual property in Russia. Contract between right holder and production partner was based

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[13] ILIAS, S. and FERGUSSON, I. F., 2008. Intellectual Property Rights and International Trade. Nova Publishers. CRS-4 ISBN 9781604565621

on agreed quantity of copies. The piracy occurs when partner starts to produce more than agreed quantity while keeping visually as original. Inspection is the only way find out that the product is pirated.

Some producers are pirates. According to Russian Guild for the Development of Audio-Video Trade[14], producer-pirates are mainly divided in to three categories. Private apartments with no special equipment to produce pirated disc are holding 5 % to 10 % of this market.

Small clandestine workshops are holding from 30 % to 40% of this market. These underground offices can produce very good quality of pirated products when they have a good source for that. If before when there was only compact cassette, it was easy to lose the quality of the media products, now it with electronic record it is almost impossible.

The main enemies of licensors are themselves. Holders of major part of counterfeit product are official recording factories. In 2007, there were only 53 official recording companies in Russia.[15] Each of them are able to produce about 50-100 thousands of products per shift. The buyer of these products would never guess whether it is genuine copy or not.

Damages that "pirates" cause for media business, has following positions:
- Revenues that the authors of media products cannot receive;
- Profits that recording companies does not receive;
- Taxes which is not received due to loss of authors revenues and profits of recording companies;
- Investment loss due to high rates of piracy in the market;
- Political and moral damage which piracy cause.

The International Intellectual Property Alliance is U.S. copyright-based industries working to improve international protection and enforcement of copyrighted materials. The International Intellectual Property Alliance is comprised of seven trade associations: the Business Software Alliance, the Entertainment Software Association, the Association of American Publishers, Independent Television and Film Alliance, the Motion Picture Association of America, the National Music Publishers' Association, and the Recording Industry Association of America. Domestically and abroad, bilaterally, and in regional groupings, the U.S. Government remains engaged in building stronger, more streamlined and more effective systems for the protection and enforcement of intellectual property. Over the past 25 years, The International Intellectual Property Alliance provides annual report United States Trade

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[14] LEBEDEV, P., MUXAMMATULIN T., 2007.02.05. Piratam kodeks ne ukaz (Пиратам кодекс не указ)(in Russian). Gazeta. [Online] Available at: http://www.gazeta.ru/2007/02/05/oa_230642.shtml [Retrieved 05.02.2015]

[15] The International Intellectual Property Alliance. IIPA Special 301 Letter to USTR. 12.02.2007 [Online] Available at: http://keionline.org/sites/default/files/iipa_special301_2007.pdf [Retrieved 01.03.2015]

Representative under Section 301 as amended of the Trade Act of 1974. During the period some countries some countries significantly improved in terms of intellectual property rights. For example, Korea, which was in the Priority Watch list and the What List since the beginning. Korea developed innovation as well as high-quality, high-tech manufacturing and anti-piracy policies that reached very satisfying results. These all helped the country to be removed from both the Priority Watch List and the Watch List. Also, Italy who was in the Watch list since the beginning is removed from the Watch List in 2014 in recognition of its latest effort, addressing copyright piracy over the Internet. Likewise, the Philippines, who was the leader on the Watch List in the beginning, is removed from the Watch List in 2014. The decision was based on the improvements and efforts of the Philippines government to combat intellectual property infringements. Over past 25 years of activates of The International Intellectual Property Alliance there have been significant progresses in many other markets including Australia, Israel, Japan, Qatar, Spain, Taiwan, the United Arab Emirates, and Uruguay.

Still, there are certain concern remains. In 2014, there are only 10 countries on the Priority Watch List and 27 countries are on the Watch List. Along with countries like Chile, China, India, Indonesia, Thailand and Turkey which have been listed every year since 1989, there are also Russia, Algeria, Pakistan and Venezuela.

The International Intellectual Property Alliance informed that Russia was leader of the counterfeit intellectual property products in 2006[16]. The same year, 85 percent of the sold intellectual property products in Russia were pirated. The damage to American companies estimated about $ 784.4 million. Counterfeit copies of music sold in Russia were counted about 67 percent and the loss of U.S. companies was about $ 475.9 million. 81 percent of movies and 82 percent of entertainment software were pirated (total sum of these losses to U.S. companies were about $ 489.9 million). U.S. copyright holders of literary and book-related works estimated their loss from piracy in Russia $ 42 million. In total Russian pirates damaged $ 1,756.2 billion to USA. Thus, Russia was second among top three countries with the most active pirates- after China ($2,366 billion) and followed by Italy ($ 1,621).

In the report of the International Intellectual Property Alliance, Russia was called the Priority Watch List Since 1998 until 2014[17]. In 2006, U.S. government warned Russia that from 2007 they will start to monitor Russia's measurements in the field of intellectual property protection and if the government of Russia will not fight against piracy properly, USA will

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[16] The International Intellectual Property Alliance. 2005 Special 301 Report. [Online] Available at: http://keionline.org/sites/default/files/iipa_special301_2006.pdf [Retrieved 25.02.2015]

[17] The International Intellectual Property Alliance, 2014. 2013 Special 301: History of Special 301 Rankings. [Online] Available at: http://www.iipa.com/pdf/2013SPEC301HISTORICALCHART.pdf [Retrieved 12.03.2015]

impose trade sanctions. As it was mentioned before Russia is in the Priority Watch List since 1998. The reasons that Russia is still in Priority Watch List was explained in the report of United States Trade Representative as Russia passed amendments to its Civil Code that substantially weakened protections for industrial designs and introduced confusion into the available scope of copyright exceptions and limitations.

The United States is troubled that intellectual property rights enforcements of Russian Federation continued to decrease overall in 2013, following a dramatic decline in 2012, as well as remained plagued by a lack of transparency and effectiveness. According to the report of United States Trade Representative in 2014[18], Stakeholders express concern about the manufacture, transshipment and retail availability of counterfeit goods, including counterfeits of agricultural chemicals, electronics, information technology, auto parts, consumer goods, machinery, and other products. Enforcement actions combatting end user piracy have sharply declined, including a decrease in raids, initiations of criminal cases, and issuances of court verdicts.

One of the largest neighbors of Russia- Ukraine theft from U.S. companies about $91.8 million. In 2006, the country was added to the special group so called Priority Foreign Country to be monitored which also included Argentina, Chile, Columbia, Costa-Rica, Dominican Republic, Egypt, India, Indonesia, Israel, Libya, China, Philippines, Thailand, Turkey and Venezuela. Belarus (minimum calculated damage $25 million), Kazakhstan (minimum calculated damage $20 million), Latvia (minimum calculated damage $ 25.8 million), Lithuania (minimum calculated damage $ 25.9 million), Tajikistan (minimum calculated damage $ 5 million), Turkmenistan (minimum calculated damage $7 million) and Uzbekistan (minimum calculated damage $ 30 million) were added into the Watch List of International Intellectual Property Alliance. Azerbaijan (minimum calculated damage $15 million) and Estonia (minimum calculated damage $17.9 million) were added to Special Mention list.

The U.S. government is reviewing intellectual property rights practices Russian federation, Kazakhstan, Lebanon Uzbekistan under the Generalized System of Preferences trade program. This trade program is a preferential tariff system which provides for a formal system of exemption from the more general rules of the World Trade Organization.

Similar difficulties in the field of intellectual property rights occurred in 68 countries. Damages from copyright infringements were estimated about $30 - $35 billion (without piracy via internet).

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[18] United States Trade Representative, 2015. 2014 Special 301 Report. [Online] Available at: https://ustr.gov/sites/default/files/USTR%202014%20Special%20301%20Report%20to%20Congress%20FINAL.pdf [Retrieved 01.03.2015]

All estimated damages represent the U.S. publishers' share of software piracy losses in each country. Estimations were based on damages from copyright-protected material, including computer software, films, television programs, music, books, and journals (electronic and print media). For many countries, the "total" loss figure does not include losses for one or more industry sectors where figures are unavailable. Consequently, the totals for these countries are even more conservative (International Intellectual Property Alliance 2006).

3.3.2. Computer software piracy

The economies of all countries in the world are suffering due to software piracy. With the advent of more advanced technologies and expansion of the Internet illegal distribution of software and other intellectual property become a large scale problem.

According to Harison, the term "computer piracy" means infringement of intellectual property rights in relation to software.[19] Such infringements occur when there is '... *an unauthorized copying of an organization's internally developed software or the illegal duplication of commercially available software.'*[20] It also can be defined as an illegal usage or distribution of the software.

The general public has become more aware of intellectual property. This does not mean, however, that most people understand that '*intellectual property is not a single concept but is composed of four different distinct areas of law: copyrights, trademarks, trade secrets and patents.'*[21] These areas were created with regards to protect human created intangible products but they are governed by a unique body of rules and requirements. In addition while there is some overlap they are generally designed to protects different sorts of intellectual creations. For example, copyrights protect works of authorships whereas patents protect inventions. In addition, while there are federal criminal statutes that protect copyrights, trademarks, and trade secrets, there is no statute that criminalizes patent infringement. Therefore, as an initial matter, it is important to understand the basic scope of these four "intellectual property rights" which will be explained in further discussions.

The most modern way to prevent intellectual property infringements is to use free software. The world leading watchdog dedicated to fight piracy, Business Software Alliance, recommends using free software which is actually for free of charge to use for any purposes, instead of pirating commercially available software.

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[19] HARISON, E., 2008. Intellectual Property Rights, Innovation and Software Technologies: The Economics of Monopoly Rights and Knowledge Disclosure. Edward Elgar Publishing. Pages 64-65 ISBN 9781782543268

[20] STRAUB, D.W. and COLLINS, R. W., 1990. "Key information Liabilities Facing Managers: Software Piracy, Proprietary Databases, and Individual Rights to Privacy" MIS Quarterly (14; 2).. Pages 143-158

[21] TOREN, P., 2003. Intellectual Property and Computer Crimes. Law Journal Press. ISBN 9781558521187

The legal way of using commercially available software is acquiring the license for that software. Usually, the consumer gets only rights to use the software, when he or she purchases a licensed copy of the software. The license does not provide ownership of the software to buyers. The copyright of the intangible products remains under author's ownership. The only property buyer receives is an item where the licenses distributed such as discs and documentations.

Computer piracy harms everyone: end-users, legal resellers, software development industry and sometimes countries or regions. We are weaker against software pirates than ten years ago. This is the results of advanced development of the information technology industry and widespread of the computers. All of these factors are simplifying the distribution of illegal copies of the software.

3.3.3. The most prevalent types of software piracy

According to Bidgoli, software piracy is *'any copying of software in contravention of its license.'*[22] It seems that this term is more accurate than Straub and Collins's explanation which was described previously. Computer software infringements can take many forms, but there are five most frequent infringements.[23]

End User Piracy

End user piracy occurs when an individual user or organization reproduces copies of software without authorization or right to that. This piracy often includes infringements with the end user license agreement of the software. For example:

- While having one licensed copy, installation of software on multiple computers but there are some exceptions. For example, installation of software on multiple computers is legal only if it is allowed by the software agreement.

- Copying of software carrier such as discs or jump drives for installation or distribution.

- Taking advantage of the software upgrade and other features, while not having a license to cover the base software. Almost, every commercially available software has features such as customer support or software upgrade. Every licenses holder has rights to use them and in some cases these services are temporary bundled. The infringement occurs when unlicensed user starts to use them or user has not up-to-date license for these features.

- Acquiring academic or other restricted or non-retail software without a proper license.[24] Usually, software companies are providing variation of licenses for different groups of users. These licenses have got different end user agreement, use right and price tags. One of the

[22]BIDGOLI, H., 2004. The Internet Encyclopedia. Hoboken, NJ: John Wiley & Sons. Pages 297-299 ISBN 9780471222019

[23]SYMANTEC.com, There Are Five Main Types of Software Piracy. [Online] Available at: http://www.symantec.com/about/profile/antipiracy/types.jsp [Retrieved 03.02.2015]

[24] SYMANTEC.com, There Are Five Main Types of Software Piracy. [Online] Available at: http://www.symantec.com/about/profile/antipiracy/types.jsp [Retrieved 03.02.2015]

cheapest available license types available in the market is "academic edition". An academic license has got the same features of the software or it can have slight restrictions. These types of licenses are not available for everyone. It is offered at a lower price only for academic institutions or charity organizations that meet established requirements. The infringement occurs when user who does not meet the established requirements uses academic software. It is still piracy even if this user has the academic license. That's why to avoid this kind of piracy; retailers have to demand proof of eligibility of purchase.

- Swapping the software carries such as discs and jumps drives in or outside the workplace. Usually, licenses are bundled per user or per physical device. In both of these cases, swapping discs is piracy even if discs are legally acquired.

- Selling information or package of documentation provided by World Wide Fulfillment the program. The supplement documentation has been provided as component of software under a license agreement or ordered by special World Wide Fulfillment program. There are no licensing requirements for these documentations or product supplements and it is not possible to acquire it separately without the software. The infringement occurs when the user without a proper license acquire these supplements. To avoid this kind of piracy, retailers have to demand proof of eligibility of purchase.

Counterfeiting

'*Counterfeiting is the illegal duplication, distribution and/or sale of copyrighted material with the intent of imitating the copyrighted product. In the case of packaged software, it is common to find counterfeit copies of the compact discs incorporating the software programs, as well as related packaging, manuals, license agreements, labels, registration cards and security features.*'[25] Sometimes, modern technology has been detected in manufacture of counterfeits to achieve the similar quality, packing accuracy, logos and elements of the product. Today, it is very hard to identify original product due to the reason that simply there is no difference between original and fake products. However, Russia and neighbour countries are currently characterized by poor quality of counterfeit products. Obvious signs of counterfeit products are easily noticeable which means that manufacturers do not even try to imitate the features of a genuine product. Such products are usually sold at street markets. In any of its forms, fake software causes great damage to both the intellectual property owner, and users.

In case of audio piracy camcorder piracy exploded in Russia in 2009, with Russia becoming the world's leading source of illicit full-video recordings of films from theatres

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[25] SYMANTEC.com, There Are Five Main Types of Software Piracy. [Online] Available at: http://www.symantec.com/about/profile/antipiracy/types.jsp [Retrieved 03.02.2015]

Distributors of counterfeit software, tend to attract buyers with lower prices. They never familiarize users with the risks of using this kind of software. Usually, distributors of counterfeit software tend to hide the fact that they sell counterfeit product and the buyer is not acquiring the legal right to use the software.

Before purchasing the software, a user has to be sure that he or she was offered to buy the genuine product and not a fake one. Some of software developers has got special department which helps to customers to identify whether the software is genuine or not.

Hard-Disk Loading

Resellers install on devices different types of software to satisfy buyers. This kind of piracy occurs when a business sells new computers with illegal copies of software loaded onto the hard disks to make the purchase of the machines more attractive.[26] Usually, these are not only the operating systems software but also other products such as office, graphics editor and other suits.

Original equipment manufacturer is a term used when one company makes a part or subsystem that is used in another company's end product. The original equipment manufacturer software is bundled together with the computer by manufacturer of the computer. This is a special version of a product intended for distribution only in conjunction with computer equipment. Distribution of individual units of original equipment manufacturer versions of software without computer equipment is a violation of license restrictions. OEM version of the product purchased by the user separate from the computer equipment, cannot be legally licensed

To avoid such situations, consumer has to make sure that the software is genuine. Most of the per-installed software has Certificate of Authenticity on the device but it is also possible that Certificate of Authenticity is faked. A buyer with doubt about legality of pre-installed software, can always contact software developer to clarify the situation.

Internet Piracy

This occurs when illegal software is downloaded from the Internet. The role of internet in illegal copying and distribution of counterfeit is significant due to its popularity and massive use.

Software piracy has got more power since the large scale use of internet. The same purchasing rules apply to on-line software purchases as for those bought in compact disc format. The most common internet piracy concepts are:

- Websites that make software available for free download or in exchange for others. Some of the websites asks pre-payment for unlimited access to illegal software. These kinds of

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[26] SYMANTEC.com, There Are Five Main Types of Software Piracy. [Online] Available at: http://www.symantec.com/about/profile/antipiracy/types.jsp [Retrieved 03.02.2015]

webpages are not popular among the users as there are plenty websites with the same services for free and for enforcement authorities it is easy to find and close them.

Flourish of the internet piracy began with Napster system where plenty of files were free to access to users. However, Napster did not last long. When the court found that the company's activities are direct copyright infringement, it was decided to close the website. Due to the fact that the basis of Napster were centralized servers, the closure of the network was not difficult.

- Internet auction sites that offer counterfeit or out-of-channel software.[27] The main issues on controlling of these kinds of websites are mainly that they are customer-to-customer business. Checking whether the software carrier original or not is almost impossible over the internet

- Peer-to-peer networks that enable unauthorized transfer of copyrighted programs. As these kinds of websites have got decentralized hierarchical structure, it is impossible to shut them down as Napster. This kind of piracy mostly harms audio and movie industry.

Client-Server Overuse

This type of piracy occurs when too many users on a network are using a central copy of a program at the same time. If there is a local-area network and install programs on the server for several people to use, it should be cleared that license entitles installations to do so. If there are more users than in the licensing requirements allow, then there is an overuse. Partially, this kind of piracy is licensing infringement.

3.3.4. Computer software piracy in Russian Federation

Russian Federation is often target of criticism of the West on the software piracy issues. In case of software piracy, Russia has its specific characteristics. For example, Russia has got very low level of copyright infringements in foreign software faking or development More than 30,000 official Russian developers, sometimes members of the organization "Non-profit Partnership of Software Suppliers" are more honest than their western colleagues engaged in developing of the software, in this case.

The Department "K" of the Ministry of Internal Affairs of the Russian Federation, who is fighting against piracy in the sphere of high technologies, informed that most companies and businesses are using counterfeit software. The most "freely" used products in Russia are Microsoft Office and Windows operating systems for which licenses cost about $200. Both private and corporate consumers are not willing to buy software for this price, if when they have possibility to use it for "free".

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[27] BUSINESS SOFTWARE ALLIANCE. Types of Piracy. [Online] Available at: http://ww2.bsa.org/country/Anti-Piracy/What-is-Software-Piracy/Types%20of%20Piracy.aspx?sc_lang=en-AU [Retrieved 01.03.2015]

On one hand attempts to combat the piracy through raids to workshops with the pirated software gave some positive results but on the other hand due to massive use of the internet gave advantage for those who pirate. Consumers still votes for cheaper products even if it could be harmful. The value of unlicensed products in Russia was $2.7 billion in 2013.

As shown on Table no. 1, only 40 percent of the software used in Russia was legally acquired. Despite, the United States has one of the lowest piracy rates but is the first place on the value of the unlicensed software. The reason for this anomaly could be that the United States has very high rates of computer per capita and developed high technology infrastructure in the country, which means pirated software could be much more expensive than the most popular pirated software in Russia or other countries, such as Microsoft Office.

TABLE 1 Top 20 Economies in Commercial Value of Unlicensed PC Software, 2013

Top 20 Economies in Commercial Value of Unlicensed PC Software, 2013			
Country	Unlicensed value($M)	Licensed Market ($M)	Unlicensed Rate
United States	$9,737	$44,357	18%
China	$8,767	$3,080	74%
India	$2,911	$1,941	60%
Brazil	$2,851	$2,851	50%
France	$2,685	$4,773	36%
Russia	$2,658	$1,629	62%
Germany	$2,158	$6,834	24%
United Kingdom	$2,019	$6,394	24%
Italy	$1,747	$1,970	47%
Indonesia	$1,463	$279	84%
Japan	$1,349	$5,751	19%
Mexico	$1,211	$1,032	54%
Canada	$1,089	$3,267	25%
Spain	$1,044	$1,276	45%
Venezuela	$1,030	$140	88%
Argentina	$950	$427	69%
Thailand	$869	$355	71%
Australia	$743	$2,795	21%
South Korea	$712	$1,162	38%
Vietnam	$620	$145	81%

Sources: *Global Software Survey, Business Software Alliance, 2014;*

As clearly seen in the Table no. 1, the "first world countries" such as Germany, United Kingdom, Japan, Canada, and Australia who are on TOP 20 list, have got piracy rates lower than 25 percent. China, who is 4 times more populated than USA, comes on the second place. India

come the third place in the list, but the interesting point is the value of the unlicensed software is three times less than the second place.

Zimbabwe, Georgia and Moldova are top three highest rates of piracy countries in the world. Their piracy rates are all over 90% which means if to exclude original equipment manufacturer licenses, they have got very low level of license purchase.

Business Software Alliance informs that 43 percent of the software installed on personal computers around the world in 2013 was not properly licensed.

GRAPH 1 Piracy rates of Total worldwide, Russia, and European Union
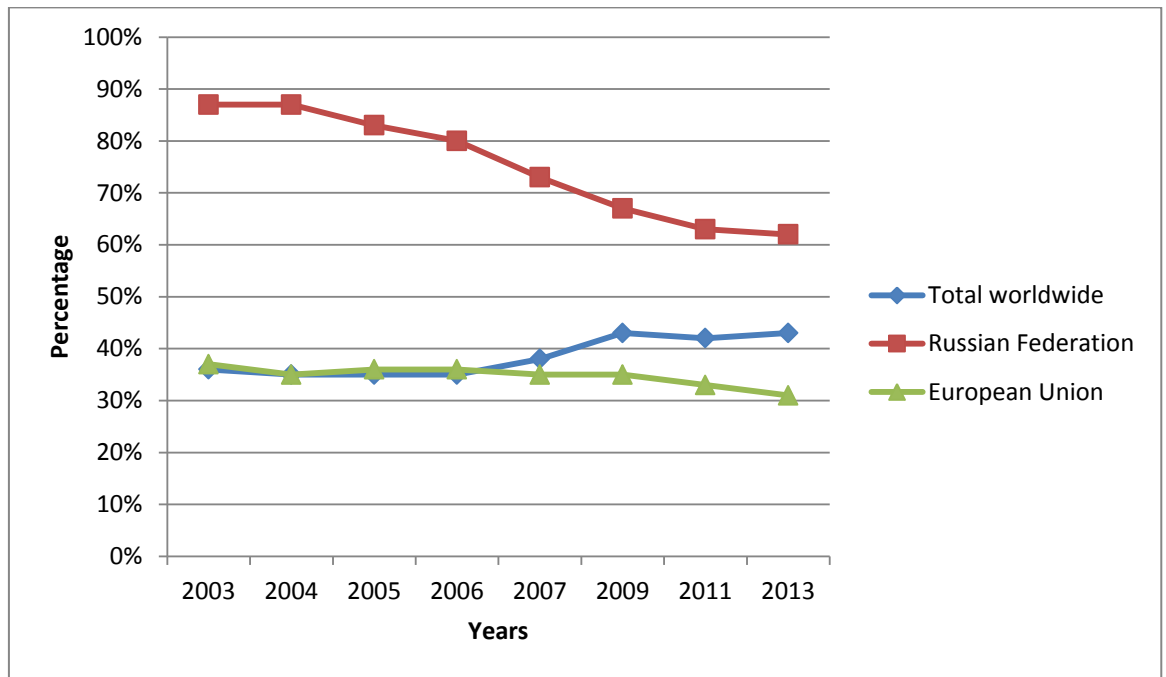
Source: *BSA.org, Global Software Survey, years 2003-20013, own contribution*

That marked an uptick from 42 percent in in previous global study two years prior. [28] According to the Graph no. 1, where data from all previous software piracy studies was demonstrated, we can see that worldwide piracy rates increases from 2003 to 2013 with some fluctuations while the piracy rate of Russian Federation goes unsurprisingly down. This progress is considerably in reaction to a combination of government anti-piracy measures, piracy education, vendor licensing efforts and grows faster in notebook shipments.

Almost always European Union's piracy percentage has been lower than worldwide piracy percentage, yet annually goes down. The results are gained with support of higher level of living standards, law enforcement and piracy education. But relatively low piracy rates are not guaranty of significant monetary losses. As previously remarked, some countries, for example European Union countries have significant value of unlicensed product while having low piracy

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[28] BUSINESS SOFTWARE ALLIANCE, 2014. The Compliance Gap: BSA Global Software Survey. [Online] Available at: http://globalstudy.bsa.org/2013/downloads/studies/2013GlobalSurvey_Study_en.pdf [Retrieved 01.03.2015]

rates. *'This is because their markets are so large that even small piracy rates can generate huge losses.'*[29]

In terms of Russia, the same situation is not repeating in comparison with European Union. The value of unlicensed products and piracy percentage are simultaneously changing. The piracy Russia's piracy percentage drop is the result of government and industry efforts to lower piracy, as well as an increase in the shipments of laptop computers, which are more often from branded original equipment manufacturers than from local assemblers. '*But resellers also report that more consumers seem willing to buy legitimate software as the standard of living rises along with Russia's economic growth.*'[30] The higher is the life standards in the country, so willingness to by genuine software increases.

Buying pirated software for lower prices even if it is not genuine is most common for developing countries, as well as for Russia. For instance, one of most popular the software- 1C Enterprise costs about $2000 while its illegal copy costs only about $100 and even for free. In this case, as a person closely engaged with the culture of post-Soviet states definitely sure that user will choose the cheaper available product. There are not many reasons to buy licensed products. The most common is being responsibilities under law or being punished by the government. Mainly, bigger companies tend to use genuine software because of its supplier support and security issues. Companies with the most licensed products are from government sector, as these companies are not very concerned about the budget.

3.4. Anti-piracy measures

As it was mentioned before, digital piracy is more serious problem than piracy on physical devices. Main tool of the digital piracy is internet. Through the internet, people can download and install illegal copy of software whenever and from wherever they want. Being in different country created obstacles for software creators to protect their right against illegal users. If before, private international law and intellectual property rights avoided relationships and interactions, since 1990's everything have dramatically changed. Now, conflict of laws rule is very needed to resolve these conflicts than before.

Intellectual property rights belong to absolute rights. They provide an authorized person rights to intangible objects. Any third party must refrain from interfering in the exercise of these rights. Also other characteristics of the intellectual property rights with international element are important. Intellectual property rights are territorially limited. There is no unified "international

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[29] BUSINESS SOFTWARE ALLIANCE, 2008. Fourth Annual BSA-IDC Global Software Piracy Study. [Online] Available at: http://globalstudy.bsa.org/2007/studies/2006globalpiracystudy-en.pdf [Retrieved 01.03.2015]

[30] BUSINESS SOFTWARE ALLIANCE, 2006. Third Annual BSA-IDC Global Software Piracy Study. [Online] Available at: http://www.bsa.org/~/media/Files/Research%20Papers/GlobalStudy/2005/IDC_Global_Software_Piracy_Study_2005.pdf [Retrieved 01.03.2015]

intellectual property law", but individual national intellectual property laws. There are many copyright laws but on domestic level. The principle of territoriality provides that the scope of intellectual property rights is limited to the territory for which they have been granted. Rights are independent from each other even if parallel rights relating to identical intangible objects exists different countries. If a person is interested in acquiring intellectual property rights and their protection, he or she must met conditions in every state where he or she wants these rights to be protected.

The right, which is granted to authorized person within particular national territory its formation, expiration, content, possibility do dispose of right to transfer shall be governed by the laws of that State that is right provides and protects. Therefore, due to territorial limitations there are no conflicts among the national legal orders. There is principally only the law of only one State. Intellectual property rights are only protected wherever the legal requirements for protection are met.

Historically there has been a very high level of international cooperation in intellectual property matters. This resulted in adoption of an important group of multilateral convention harmonizing the substantive laws between great numbers of countries through world. The "public international law" intellectual property is formed by these international conventions. These conventions neither eliminate nor supersede the substantive laws of contracting States. The purposes of conventions are to overcome territorial limitations of the intellectual property laws. They are built on two principles, namely the national treatment and minimum substantive standards of protections. Intellectual property law is based on principle of assimilation of foreigners to nationals. The principle asserts that the protection of intellectual property rights in foreign country should have been evaluated according to the country's domestic laws where the foreigner is allowed to enforce his or her rights.

Unfortunately, the substantive harmonization in international conventions does not cover all areas of intellectual property and does not encompass the most protective measures of intangible goods.

Nowadays there is a clash between the territorial fragmented world of intellectual property law and the global cyberspace, where no separate national territories with legal borders exist. The potential impact of the online infringements of intellectual property rights in every state of world has increased transnational cases that require national courts to adjudicate the effect of foreign activities and interpret foreign laws.

3.4.1. International protection of intellectual property

International protection of intellectual property begins from Berne Convention. This convention is an international agreement governing copyright and originally focuses on

protection of literary and artistic works. The Berne Convention was first accepted in Berne, Switzerland, in 1886. Later, the convention was many times revised and amended. Today, there are 167 countries that accepted Berne Convention. World Trade Organization (WTO) requires non-member to all the conditions of Berne Convention.

The Berne Convention requires its signatories to recognize intellectual property of authors from other signatory Berne Convention member countries in the same way as it recognizes the copyright of its own nationals. The Convention relies on the concept of "country of origin". Country of origin is determined elementary as work is published in a signatory country and nowhere else, this country is the origin.

United States and most of the European countries got dissatisfied after inadequate protection of intellectual property in many developing countries during 1980's and 1990's. During the Uruguay Round of trade talks, upgrade of intellectual property rights protection made by the developed countries was the highest priorities. At the end of the Uruguay Round of trade talks, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)was approved as a part of final act.

Intellectual property rights protection remains a highly contentious issue in international relations between developed and developing countries. Developing countries believe that the Agreement on Trade-Related Aspects of Intellectual Property Rights was set against them by their developed country partners. This patent serves the interest of developing countries at expenses of developing countries. It exerts strong pressure on countries to conform to a minimum standard in relation to IP framework and administration, dispute settlement, and enforcement.

In a country that is closed to international trade, Intellectual Property Rights focus to maximize welfare of the government and provide greater incentives for innovations.

The trade-offs are not clear in an open economy. Benefits of innovations are spread outside of the borders, by international trade. In the result, country does not profit all the global benefits from protecting of intellectual property.

The Agreement on Trade-Related Aspects of Intellectual Property Rights is based on the Paris Convention, the Berne Convention, the Rome Convention and the Treaty on Intellectual Property in Respect of Integrated Circuits and all the members have obligations to each other under these conventions.

According to Trade-Related Aspects of Intellectual Property Rights, all the computer software source codes are protected under the Berne Convention (1971). Copyright protection shall only extend to expressions and not to ideas, procedures or methods. All the member countries shall provide exclusive rights of reproductions and rental *"... such as the right to*

authorize or to prohibit the commercial rental to the public of originals or copies of their copyright works."[31]

Members may provide that the judicial authorities shall have the authority, unless this would be out of proportion to the seriousness of the infringement, to order the infringer to inform the right holder of the identity of third persons involved in the production and distribution of the infringing goods or services and of their channels of distribution.

With regards to prevention of infringement of intellectual property and persevering relevant evidence in regard to intellectual infringement, the judicial authority has power to order prompt and effective provisional measures.

3.4.2. The role of Russia in International protection of intellectual property

There is no legal definition of software in the laws of the Russian Federation. However, software programs are regulated as "computer programs and are protected under Part IV of the Civil Code of the Russian Federation.

Computer programs are considered to be intellectual property given that the rights of authorship for all types of computer programs (including software), which can be created in any language and in any form, are treated as author's rights on literary work.

Rights to computer programs are treated as rights of authorship in Russia. In order for software to be protected by law, the civil Code provides the opportunity to register property rights to a computer program by a special governmental authority (the Russian agency on patents and trademarks- Rospatent) by filing an application during the exclusivity period.

It is prohibited to register computer programs that contain state secrets in Russia.

The law of the Russian Federation determines software as intellectual property and accordingly it is protected by copyright.

Article 1255 of the Civil Code stipulates that the author of a work is the of the following rights:

- the exclusive rights to the work;
- the right of authorship;
- the author's right to be named;
- the right to the work's inviolability;
- the right to make the work public.

Besides, it is established that the author owns other rights apart from the abovementioned, which include the right to remuneration for the use of a service work, the right of abidance, the right of access to works of art.

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[31] World Trade Organization. Agreement on Trade-Related Aspects of Intellectual Property Rights. [Online] Available at: https://www.wto.org/English/docs_e/legal_e/27-trips.pdf [Retrieved 01.03.2015]

Therefore, the author's rights can be conditionally divided into two categories: "moral" (intangible rights) and "material" rights.

Copyright is a personal non-proprietary right, subjective, inseparable from the person, non-transferrable and inalienable. Under the laws of Russian Federation, only the author of the work can transfer the copyright.

According to the Civil Code of the Russian Federation license agreement for granting of the right to use the work, should be concluded in written form. This type of license is also known as "shrink-wrap license" which may establish limitations to the right to use.

4.   Software piracy analysis

4.1.   Economic impact analysis

In this chapter, impact of piracy in Russian economy is going to be analysed. All the piracy rates and commercial values of the software have been conducted from annual Software Surveys of Business Software Alliance. Other economic indicators were taken from The World Bank research data.

Mainly, annual surveys from year 2003 until the latest available- 2013, were used . Calculations are mainly done on each odd year to match with piracy the data about rates and values from Business Software Alliance. As the piracy surveys released every two years and the information about piracy for even years are missing.

Besides Russia, calculations is implemented on the results of Brazil, India, Italy, Turkey, United States, Ukraine and total worldwide for understanding of the situation and to showing the differences in each region. All of these countries are selected as representatives of regions. Business Software Alliance divided countries in to six regions - Asia Pacific, Central and Eastern Europe, Latin America, Middle East and Africa, North America and Western Europe. [32]

Brazil and India were selected as respectively representative of Latin America and Asia Pacific. Including Russia, these countries are also at a similar stage of newly advanced economic development and in the same grouping so called BRIC (Brazil, Russia, India, and China). Also, these two selected countries and Russia are on the top 6 in the list of the economies with the highest value of unlicensed software (see the TABLE 1).

Ukraine as a representative of Central and Eastern Europe was selected because it is closely interconnected with Russia by political, economic, and cultural relationship than other countries. Also the situation of the piracy is very similar to Russia. Both of the countries are members of former Soviet Union and current Commonwealth of Independent States. Ukraine is being the second most populated country in this region and also in the regional organisation of the Commonwealth of Independent States. The reason for not selecting countries by area was simply: software is used by the people. The more populated is the country the more software is going to be used.

The United States is being representative of North America region. The was selected because there are special political, economic, and cultural relations between United States and Russia. Besides this reason, United States is the leader in Commercial Value of Unlicensed Software chart (see the TABLE 1) while the piracy rate is one of the lowest in the world. This

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[32] BUSINESS SOFTWARE ALLIANCE, 2014. The Compliance Gap: BSA Global Software Survey. [Online] Available at: http://globalstudy.bsa.org/2013/downloads/studies/2013GlobalSurvey_Study_en.pdf [Retrieved 01.03.2015]

case could be considered as an anomaly and analyzing this country was important for me to understand the characteristics of piracy in this economy.

In the analysis, Italy represents Western Europe. Similar cases in the piracy field drove me to select Italy for the analysis. As it is mentioned, United States treated both Russia and Italy the same in piracy enforcements. Both of these countries have very similar amount of Gross Domestic Product (GDP) and commercial value of piracy.

The reason for selecting Turkey as a representative Middle East and Africa was that this country is one of the closest and the most related by the economy to Russia. The rates of piracy of two countries from last 6 years were very similar to each other[33].

Total world wide data was selected to be as a balance in the analysis. With results of total worldwide, it will be available to compare results of any country with an average one. This indicator is going to help for better understanding of the situation

4.2. Methodology and formulas

The calculations were done for better understanding of the scope of piracy in selected regions. It is quite clear that every negative economic activity affects whole economy. Variables that created during this analysis, has aim to show the possible loss of the wealth due to software infringements.

4.2.1. Main Indicators of Calculations

TABLE 2 Explanation of used variables

Variable	Abbreviation	Definition	Source
GDP[34]	*Gross Domestic Product*	Represents the total sum of all products and services produced in the given economy during the given time period (usually calendar year) including the non-finished production, and that without regard to its further use.	Data taken from The World Bank data base are in current U.S. dollars.
VUS	*Value of Unlicensed Software*	Commercial value of software that is not properly licensed.	Annual surveys of Business Software

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[33] BUSINESS SOFTWARE ALLIANCE, 2014. The Compliance Gap: BSA Global Software Survey. [Online] Available at: http://globalstudy.bsa.org/2013/downloads/studies/2013GlobalSurvey_Study_en.pdf [Retrieved 01.03.2015]

[34] GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources

			Alliance
VLS	*Value of Licensed Software*	Commercial value of properly licensed software.	Own Calculations
PUS	*Percentage of Unlicensed Software*	Percentage of the software that is not properly licensed	Annual surveys of Business Software Alliance
PL GDP	*Percentage of Loss to Gross Domestic Product*	Percentage of Gross Domestic Product due to unlicensed software.	Own Calculations
RDE	*Research and Development Expenditure*	Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications.	The World Bank data base
PLRDE	*Percentage of Loss to RDE*	The percentage ratio between loss of Gross Domestic Product due to unlicensed software and Research Development Expenditure.	Own Calculations
TP	*Total Population*	Total number of people leaving in selected region.	The World Bank data base
PEP	*Percentage of Employed Population*	Employment to population percentage ratio is the proportion of a country's population that is employed. Ages 15 and older are generally considered the working-age population.	Modeled ILO estimate from The World Bank data base
NE	*Number of Employed people*	Total number of employed people.	Own Calculations
VUSpE	*Value of Unlicensed Software per Employee*	Commercial value of unlicensed software per employed people in selected region	Own Calculations

VLSpE	*Value of Licensed Software per Employee*	Commercial value of licensed software per employed people in selected region	Own Calculations

Percentage of Loss to Gross Domestic Product

Percentage of Loss to Gross Domestic Product (PLGDP) due to commercial value of pirated software shows how piracy harms one economy. The formula for finding PLGDP is $PLGDP = \frac{VUS}{GDP} \times 100$% where VUS stands for volume of unlicensed software. As the values of unlicensed software were studied in local currency, to have one unified currency VUS was illustrated in dollars. After the decision of Business Software Alliance, the values of each year were shown according to the exchange rate of the same year. Thus, 2005 values are in 2005 dollars, 2007 values in 2007 dollars.

It is important when evaluating changes in the values over time. Some changes are going to be based on real market dynamics, some on annual exchange rate fluctuations. Due to the fact that GDP and VUS are converted from domestic currencies using single year official exchange rates, there will be light distortions.

For instance, 2011's commercial value of pirated software, if converted to USD at 2013 exchange rates rather than 2011 exchange rates would be 6 percent higher than published. [35]

Besides, the values of unlicensed software were express in dollar figures in the value tables were in current dollars from the year before, by Business Software Alliance.

Value of Licensed Software

All the data about software piracy mentions only value and percentage of unlicensed software. In the analysis, it is calculate as $VLS = \frac{VUS}{PUS} - VUS$. But before this calculation, method of Business Software alliance for calculation commercial value of unlicensed software is as follows:

1. Determine how much software was deployed during the period. Annually, International Data Corporation (IDC) determines how many computers are in selected region. They cover about 106 countries under "PC Trackers" research. Cluster analysis technique is used for the countries that not surveyed Once International Data Corporation determines how many computers there are and using the software load data collected in the survey, it can determine the total software units installed.

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[35] BUSINESS SOFTWARE ALLIANCE, 2014. The Compliance Gap: BSA Global Software Survey. [Online] Available at: http://globalstudy.bsa.org/2013/downloads/studies/2013GlobalSurvey_Study_en.pdf [Retrieved 01.03.2015]

2. Determine how was paid for which means value of licensed software.

3. Subtract one from the other to get the amount of unlicensed of unlicensed software. all three explanation was done before, but there is information only about value and percentage of unlicensed software

4. Value of licensed software and total value of installed software were not published in the previously mentioned surveys. So reverse functions will be used to find how much software was deployed. Since we have value and percentage of unlicensed software, we can find total value of installed software as value of unlicensed software divided by percentage of unlicensed software in numbers where percentage of unlicensed software in numbers equals to percentage of unlicensed software divided by 100 percent.

5. Subtracting value of unlicensed software from total value of installations will be equal to value of licensed software.

Percentage of Loss to RDE

Research and development expenditure is a general term for activities related to the enterprise of corporate or governmental innovation. The information about the percentage of research and development expenditures was provided by World Bank. It stands for percentage of research and development expenditure spending from GDP of selected region.

Research and development expenditure is also known as research and technical development. The development of software industry is directly connected to research and development expenditure. To show the effects of software piracy on research and development expenditure, it was calculated the ratio between percentage of loss to GDP and percentage of research and development expenditure of GDP. Formula for percentage of loss to RDE stands as

$$PLRDE = \frac{PLGDP}{RDE} \times 100\%$$

Value of unlicensed software per employee

This research focused on software piracy in business environment. That's why it has been decided to find out the value of unlicensed software per employee not per citizen in a selected region. Formula for value of unlicensed software per employee is $VUSpE = \frac{VUS}{NE}$ where VUS stand for value of unlicensed software, the data has been provided by Business Software Alliance. NE which defines as number of employee was calculated as $NE = \frac{TP}{PEP}$. In the formula, percentage of employed population stands in numbers not in percentage simply by dividing it by 100 percent. Data for total population (TP) and percentage of employed population (PEP) collected World Bank statistics.

Value of licensed software per employee

Value of licensed software per employee was calculated to compare and analysis positive part of software usage. Formula is identical to the value of unlicensed software per employee formula and stands like $VLSpE = \frac{VLS}{NE}$ where value of licensed software is taken from calculation which was previously discussed. Number of employee calculated the same way for value of licensed software per employee and value of unlicensed software per employee.

4.3. Economic impacts of software piracy

Since software has been started to be used in a great variety, economies of many countries suffered from software piracy. Russia significantly higher rates of piracy than now. Government managed to decrease piracy rates over 20 percent within last ten years. The rate of piracy in Russia was 62% by the end of 2013, which actually is much higher than 43 percent world average. The percentage of loss to gross domestic product (PLGDP) was higher than worldwide average.

GRAPH 2 PERCENTAGE OF ANNUAL LOSS TO RUSSIAN GDP
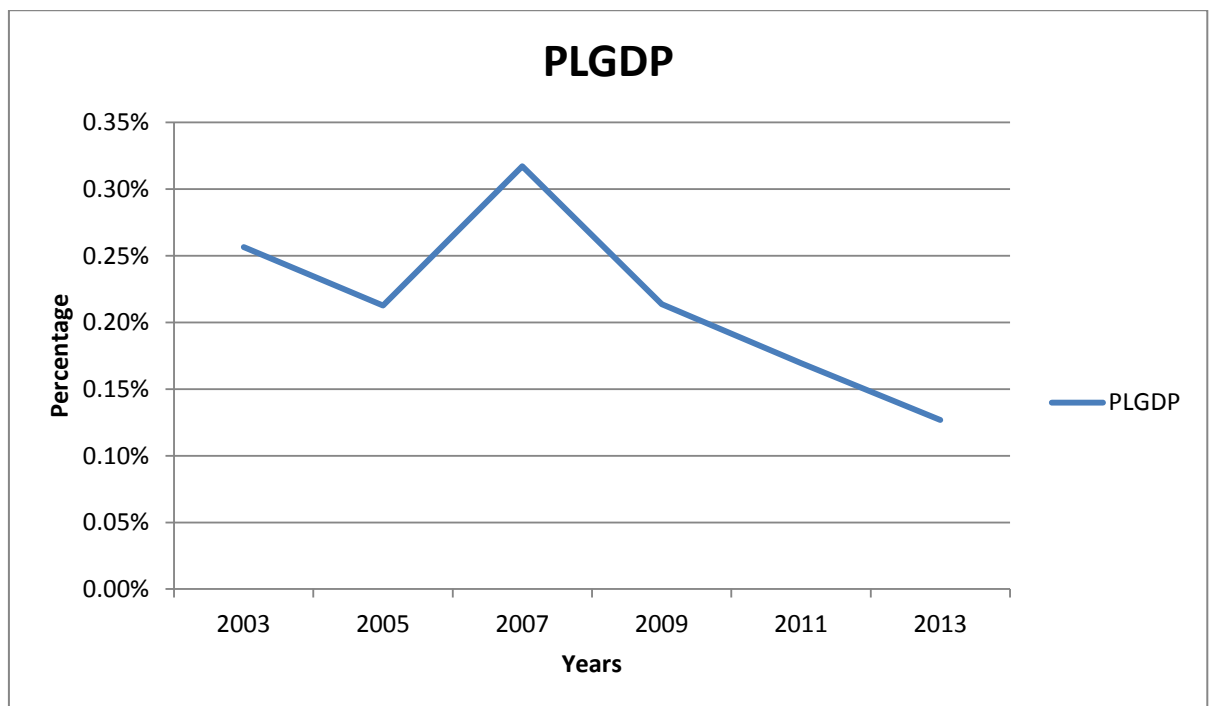
Source: *Own contribution*

It is clearly seen in the Graph 2 that PLGDP indicator fluctuates over time; especially it decreases year by year from 2003 to 2006 but significantly increases by 2007. Since the loss is indicated as a percentage ratio between value of the unlicensed software and GDP of the country, PLGDP is highly dependent on these indicators.

In the global IT market, it seems that high-piracy geographies are also high market growth regions. In 2006-2007, while developed countries like the United States, Japan and the

UK had been expecting IT spending growth in the mid-single digits for the next five years, countries like Brazil, India, China, and Russia were expected to grow between thirteen and twenty percent. This prediction was right. According to Business Software Alliance the value of total installed software in Russia went up by more than 30 percent, the value of unlicensed software even more. GDP of the country did not grow in the same ratio with the value of total installed software. Simply this reason explains significant rise of the loss to GDP due to software piracy

Gradually, GDP of Russia increases except in 2009 as this year followed 2008- the year of great recession in Russia. Russia's fast-growing, oil-driven economy had hard times after Georgian war because the main crude oil price lost 70 percent of its value. The Russian ruble weakened 35 percent against the dollar from the onset of the crisis, from August 2008 to January 2009. Official consumer price inflation in January–August 2008 reached 14.8 percent.[36] By the end of November, food price inflation for an 11-month period reached 15.3 percent. Not only information technology industry, whole economy declined from this crisis.

As the value of unlicensed software shown in current year exchange rates, the values are varies than other years. The impact of exchange rates is so noticeable that if the difference between 2007 losses would be expressed in 2008 exchange rates that would be higher by 167 million USD. But if it would be expressed in January 2009 exchange rates, the difference would be 35 percent less than it was. Since, Business Software Alliance changed expression of dollar from year before to current year exchange rate in 2008 it created huge gap among the variables. For example, in 2007, the value of unlicensed software is higher by 1.5 billion USD than in 2009. That is why, in the following year the PLGDP does not increase as in 2007.

From 2003, Russia increased rates of piracy by 25 percent. The benefits of lowering piracy were studied by International Data Corporation. The model used to create the 2008 study of economic benefit — when shifted to the 2003 time frame — predicted that Russia would gain more than 6 thousand new jobs from lowering piracy by 10 points. In fact, Russia added nearly 60 thousand jobs, 9 thousand of which IDC attributes to lower PC software piracy and this is only results for 2008.

In 2013, there had been working 120 thousand programmers for Russian software companies (including staff of Russian companies' development centers in other countries), at the same time a total of developers had been engaged in software development in all sectors of Russian economy was 400 thousand. Over the past year, a number of developers in software companies increased more than by 11 thousand. Out of them no less than 4 thousand new

[36] SEKRET FIRMY. Raznitsa v roznitse (Разница в рознице) (in Russian). 3 November 2008. [Online] Available at: http://www.kommersant.ru/doc/1050454 [Retrieved 03.02.2015]

employees emerged in foreign development centers of Russian companies. Altogether, the number of software developers in Russia increased by more than 30 thousand people. Increase in personnel of software companies in 2013 on average was 8–9 percent. This could be a reason to say that research and development increases in Information Communication Technology field.

Software piracy directly damages software development industry. Research and development expenditures might be increased by missing revenue from software piracy. From selected regions, Russia is the second place with the highest average ratio between value of unlicensed software and research and development expenditures (see the Table 3).

Research and development expenditure is incurred in the process of finding and creating new products or services. Any expenses associated with the research and development of a company's goods or services considered as a research and development expenditures. In Russia, these expenditures annually are about 1.16 percent of total GDP of the country. The potential loss of research and development expenditures from software piracy in the average is 18.67 percent, in Russia.

TABLE 3 Average Percentage of Loss to RDE due to Software Piracy

Country	Average percentage of loss to RDE
Ukraine	30.33%
Russia	18.67%
India	15.66%
Brazil	10.30%
Turkey	8.19%
Italy	6.78%
Worldwide	3.90%
USA	2.14%

Source: *Own contribution*

In this analysis Ukraine is the first place, where the research and development expenditure in the average from selected years are 0.93 percent. There are several reasons why Ukraine has got higher average percentage of loss to RDE. First of all, the country has got the highest level of piracy among others and at the same time the lowest GDP in total. In this case, the percentage of annual loss to Ukrainian GDP in the average is about 0.27 which is almost double of the Russia's results.

All the BRIC countries including Russia have got high level of loss to RDE. All of these selected countries have very similar amount of total GDP and value of unlicensed software. But having lower rates of piracy and slight advantage on GDP makes Brazil to be the last in this

indicator among all the other. In case of India, having lower percentage of research and development expenditure from GDP, provides better position than Russia.

USA has the lowest results not only among selected countries chart but also compared to worldwide average. The country has got one of the lowest piracy rates in the world. Also, the country has very high GDP and research development expenditure average for selected period. In the result, USA is the least affected country by software piracy

After successful anti-piracy measures, Russia was able to decrease rates of piracy by more than 20 percent. If we consider only last selected year then it has almost the same percentage of loss to RDE which is 5 percent less than the average one.

GRAPH 3 Historical chart of percentage of loss to RDE due to software piracy
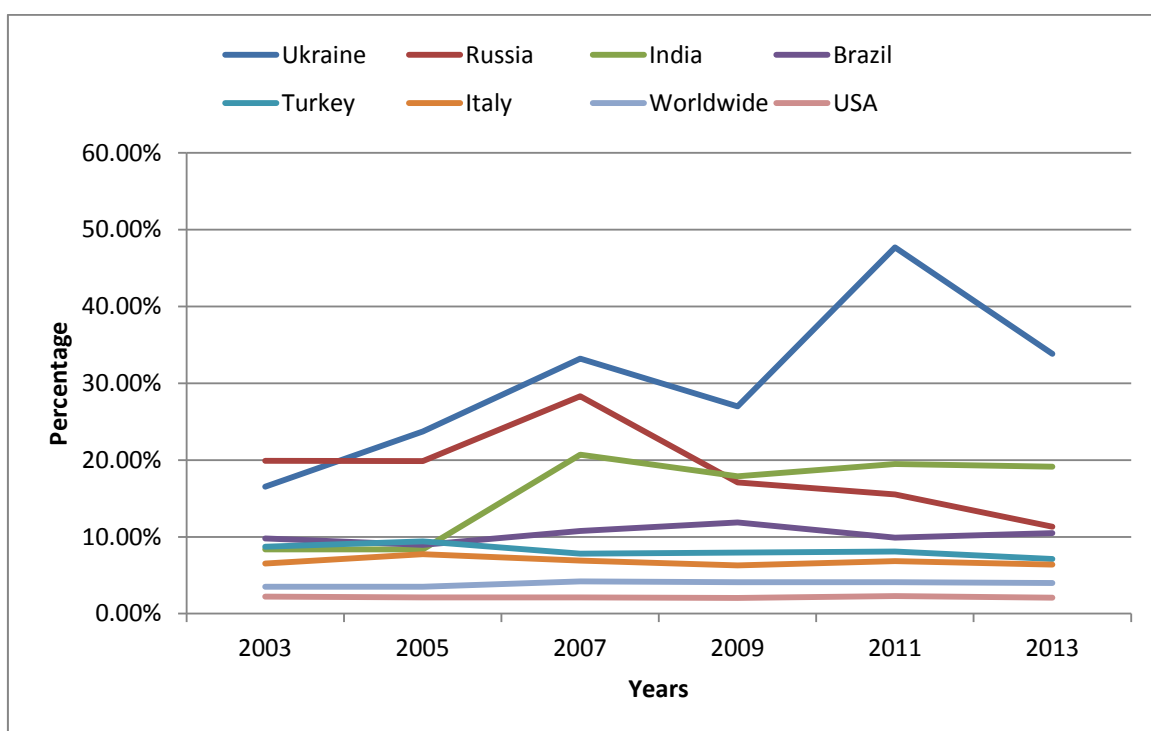
According to the chart it is clear that Russia, is most positively improving country among selected regions. As it was mentioned before, the reason of this progress is successful enforcement policy. In the beginning of selected years, we can see that the results of India, Brazil, Turkey and even Italy cross in some point. The similar percentage of loss to total GDP and research and development expenditures are the reasons for that. Even if Turkey has got twice less total GDP then other three countries, it has the same percentage of loss to RDE because it has it has also lower value of unlicensed software which in the ratio makes similar equality with others. Across the time, India's indicator significantly increased which is negative in this case. Compared to the ratio of early years, the ratio between GDP and value of software increased unequally where GDP increase two times and value of software about eight. In the result loss to

GDP increased. The same amount of expenditures since the beginning stimulated growth of percentage of loss to RDE due to software piracy.

In case of USA, simultaneously decreasing rates of piracy, increasing GDP and research and development expenditures provides lower and stable percentage of loss to RDE due to software piracy.

This case could be explanation for worldwide average, too. While most of the developed countries have very low piracy, many developing countries are trying to combat piracy and to reduce the rates of piracy. In fact, some countries are very successful even if other countries have got increasing rates of piracy improving countries compensates them on worldwide average. In dynamic economic world GDP of the countries increases significantly so simultaneously total loss to GDP is lowering or at least not increasing, gradually.

According to Business Software Alliance, reducing the piracy rate in the United States by 10 percentage points in two years would add more than $52 billion to the country's GDP by 2013, an amount close to last year's corporate profits for all US manufacturing of durable goods. It would meanwhile boost US tax revenues by more than $8 billion, a figure on par with the amount the federal government budgets annually for pollution control and abatement.

TABLE 4 Economic Impact of Reducing Selected Country's PC Software Piracy by 10 Percentage Points

		10-pt Reduction	10 pts in First 2 of 4 yrs ($M)		10 pts Spread Over 4 yrs ($M)		Rapid-Reduction Dividend, 2 yrs v 4 yrs	
	2009 Piracy Rate	New Jobs	Added GDP	Extra Taxes	Added GDP	Extra Taxes	Added GDP	Extra Taxes
India	65%	59,728	$6,132	$676	$4,662	$512	32%	32%
Ukraine	85%	1,957	$755	$116	$586	$88	29%	31%
Turkey	63%	2180	$1,041	$205	$783	$154	33%	33%
Brazil	56%	12,333	$5,223	$1,189	$3,900	$888	34%	34%
Russia	67%	5,708	$5,456	$412	$4,199	$317	30%	30%
Italy	49%	7,538	$7,130	$2,450	$5,213	$1,785	37%	37%
USA	20%	25,431	$52,084	$8,425	$37,810	$6,094	38%	38%

Source: *BSA.org, The economic Benefits of reducing software piracy; Own contribution*

The calculations in reality differ very much. Gladly, the real numbers are positively different than calculations. In 2010, nearly 50,000 jobs added to the Russian IT industry as a whole through regular market growth because Russia was successful on reducing the piracy rates. While it has been calculated 6 thousand new job places in software sales, distribution and services, there were added 9 thousand jobs for that period only for lowering software piracy. In the result, piracy harms economy more because all the sectors are interconnected.

Besides international regulations every country should have its own law enforcement against piracy. It is clear that to combat with every user in the country will be hard and almost impossible. So, one of most popular strategy for countries is following up juridical persons on software usage. This strategy reduces number of persons so that they can treat companies.

TABLE 5 Average Value of Software per Employed Person

	Licensed	Unlicensed
India	$1.54	$2.78
Ukraine	$2.64	$13.99
Turkey	$7.10	$12.03
Brazil	$11.90	$14.39
Russia	$13.54	$30.54
Worldwide	$17.71	$11.79
Italy	$65.43	$62.89
USA	$184.87	$45.44

Source: *Own contribution*

Due to large number of inhabitants, India has got the lowest value of either licensed or unlicensed software. The country with over one billion population is going to have higher number employment. Not because it is very developed country with good living standard, it is only because of scale.

Developed countries are having higher value of software installed per employee than developing countries. As it shown in the table, the gaps between countries are not significantly different until the first developed country. It important to mention that Russia has about five times difference than Italy either in the value of licensed or unlicensed software.

The difference between USA and Italy is about 3 times and this could be explained by the different rates of software piracy in the countries and the size of the countries. As previously discussed, while having lower rates of software piracy, USA has the highest value of licensed product per employee. The value of the unlicensed product is less than Italy's indicators

Within selected periods, Russia has got 72 percent of average piracy which reflects in this chart, too. Earlier mentioned, fluctuations of Russia's indicators are due to reasons such as exchange rate results fluctuation of value of software per worker. For instance, the value monetary value of licensed software in 2007 before the recession is almost equal to the last selected year. While in 2013, the value of licensed products was 19$ and the value of unlicensed products was 31$, in 2007 the value of unlicensed products was 49$. In the ratio between unlicensed and licensed software it is clear that percentage of unlicensed product much higher in

2007. The interesting part is total amount of installed software, because among the selected years, the total value of installation in 2007 is the highest.

4.4. Government enforcement

Among other industries the business software industry is the only one with positive story in Russia. The most of copyright industries – motion picture, recorded sound, entertainment software, music and book publishing – experiences not good results in Russia. Since 2003, country authorities focused mostly on business software usage. Other industries had smaller number, size, and scope of enforcement actions undertaken by the enforcement authorities; a lack of focus by Russian authorities on the growing threat of internet and other forms of piracy rates slows the decrease of piracy rates.

After encouragement of several intellectual property protection alliances the Obama Administration to continue to work with the Russian Government for making better and rapid progress on software piracy issues, the U.S. and Russian Governments signed a "fresh start" on protection of intellectual property rights in Russia in 2009.

Russia has also expressed interest in promoting technology, better markets and jobs. The first scenario after agreement between U.S. and Russia was ensuring the full implementation of the November 19, 2006, Intellectual Property Rights Agreement between them. It is also important to mention that after agreement in 2006, Russia's enforcement succeeded 10 percent drop in software piracy until 2009. The Russian Government conducted many raids and seizures and the Russian police continued to take actions against copyright infringers, particularly with respect to street vendor piracy and companies involved in the installation and use of pirated software.

Since 2003, the business software industry has been the only copyright industry that has seen a positive trend in piracy rates in Russia. Software industry piracy rates reduced significantly in the past several years from 87% in 2003 to 63% in 2011. This has been due to criminal and civil enforcement efforts directed against end-user software piracy and progress made on legalization of software purchased by the government.

However, because of a significant decline in Russian enforcement activity the progress of reducing piracy has stalled. The Government of Russia needs to recommit to ensuring legal software use in government institutions and state owned enterprises

In comparison of selected years the number of recorded criminal cases in selected years, there is significant increase from 2005 to 2006. Within one year the numbers of criminal cases were more than doubled from 2,924 to 7,423 recorded crimes. Just in first eleven month of 2007, there were 7,578 such crimes recorded. But later, there is a decrease in the recorded number of crimes. It is impossible to mention that, after 2009 the Government of Russia usually provides

comprehensive annual statistics on intellectual property cases, and investigations commenced; however last years they refused to do. From preliminary data, however, it is clear that criminal enforcement is down significantly, from prior years. According to the governmental statistics (through November), the number of criminal investigations in 2013 was 2,535, down from 3,580 in 2012 and less than half the (full year) statistics for 2007, when 7,874 investigations were commenced (there were 5,033 in 2011 and 6,118 in 2010). The number of convictions under Article 146 of the Criminal Code in 2013 (through June) was 580, compared with 1,325 in all of 2012, and 2,676 in 2010. These reductions in the number of initiated criminal cases are a concern to copyright holders and software developers.

In top copyright industries provides growth of digital markets for copyrighted works by eliminating the operation of illegal pay-per-download internet sites and illegal peer-to-peer services. Russian government fails to take effective action against board distribution of software over the internet, primarily through unsolicited emails (spams) originating from groups operating in Russia.

The Intellectual Property Rights Agreement obligates Russia to combat the growing threat of Internet piracy "with the objective of shutting down websites that permit illegal distribution of content protected by copyright or related rights" (and especially for websites whose servers are situated in Russia). According to the International Telecommunications Union, as of June 2013, over 53% of the Russian population now has Internet access which means over 70 million users. While having high piracy rates Business Software Alliance reported only two raids against Internet users or services in 2013 (compared with 22 in 2011, 14 in 2010, and 25 in 2008), and three criminal cases initiated in 2013, with one conviction. In 2012, only one raid against Internet users or services in 2012 which did not result in the commencement of a criminal case. This compares, for example, to 6 cases initiated and 3 verdicts in 2011, and 15 cases and 7 verdicts in 2008.

It seems that, the suggestion of International Intellectual Property Alliance on amending Russia's Civil Code to provide for ISP liability and establishing a specialized Internet Intellectual Property Rights Unit within the Ministry of Interior are of utmost priority if Russia is to be able to respond to ex-president Medvedev's call to improve the effectiveness of IPR protection on the Internet was not considered seriously.

Business Software Alliance reported that the overall number of raids decreased in 2013, which was already mentioned before as a trend for past years. In 2013, even in major cities including Moscow, Rostov-on-Don, and Novosibirsk (among others) the number of ex officio raids declined, and there was unstable enforcement in other cities and regions. As in prior years, the majority of raids are "channel" raids against DVD and CD sellers and pre-installed hard disk

loaders. There were 333 end-user raids in 2013 (down from 506 in 2012, and 554 in 2011); there were 1000 "channel" case raids, up from 931 in 2012, but down from 1161 in 2011. The number of criminal cases initiated (as a result of these raids) declined from 97 in 2012 to 66 in 2013 against end-users, and from 609 "channel" cases in 2012 to 556 in 2013. The total number of court verdicts was up substantially for "channel" cases with 260 in 2013, but was substantially down for end-user cases, failing from 24 verdicts in 2012 (and 83 in 2007), to only 11 in 2013.[37]

4.4.1. Raids against Businesses

Due to severe cuts in police resources, among other copyright industries only the business software industry reported an increase in the number of raids, most of the other industries claimed important declines in the number of raids. Although the raids were substantially improved, the number of criminal cases initiated declined. In the result software industries concern that the proportion of raids to the initiation of cases, and to criminal verdicts is very disproportionate.

There were significantly fewer criminal cases in 2011 (63) than in 2008 (154) and 2007 (200) against end-users, and in "channel" cases (pre-installed hard disk piracy) – 427 in 2011 versus 496 in 2009 and 491 in 2010. The data was not fully provided by Russian Government after 2012, that's why it was impossible to discover last year's results.

Business Software Alliance reported that there were only 19 verdicts in 2011 involving end-user piracy compared to 41 in 2010 (and 83 in 2007), 180 involving "channel" piracy compared to 325 in 2010, and three involving Internet piracy (the same number as in 2010, but down from seven in 2008).

In 2011, as it is last available data, quantity of end-user raids in business software industry was increased against businesses remained high. Even the progressed to 2007 levels after several years of decline in the number of raids. However, as already noted, there exists disproportionate between the number of the raids and the number of criminal cases initiated and verdicts rendered (and raids in many federal districts resulted in no criminal investigations proceeding). In 2011, there were 554 raids, up from 436 raids in 2010 (but down from 589 in 2007), but only 63 cases initiated and only 19 leading to verdicts, compared with four times those numbers in 2007.[38] Such regions as St. Petersburg and the Siberia are recently started to develop enforcement activities. In the result enforcement of Intellectual Property Rights are

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[37]The International Intellectual Property Alliance, 2015. 2014 Special 301: History of Special 301 Rankings. [Online] Available at: http://www.iipa.com/pdf/2014SPEC301HISTORICALCHART.pdf [Retrieved 18.03.2015]
[38] The International Intellectual Property Alliance, 2013. 2012 Special 301: History of Special 301 Rankings. [Online] Available at: http://www.iipa.com/pdf/2012SPEC301HISTORICALCHART.pdf [Retrieved 14.02.2015]

inconsistent, with such cities and regions. Such disparity between the number of raids and the number of criminal cases was generated from the lack of a uniform methodology promulgated by the Investigative Committee of the Russian Government, and the General Prosecutor's Office in relation to implementation of Article 146 of the Criminal Code, although efforts to update the methodology began in 2010. In 2011, police ran 1,161 raids against chain retail stores (up from 1,098 in 2010, and 740 in 2008). Even if the evidence were strong a majority of the raids against businesses using illegal software never resulted in the initiation of an investigation. Investigators often do not consider evidence collected by police during raids as sufficient, but they have been unable or unwilling to provide police with guidelines for evidence collection. Thus, majority of criminal cases are frequently suspended by investigative authorities or terminated by prosecutor. For the copyright industries the key is that these laws properly enable police to start raids and to protect evidence, especially against commercial enterprises.

4.5. Analysis of selected company measure in Russia

The main tool Intellectual Property Rights enforcement tools in Russia remains criminal enforcement by the police. Using unlicensed software as a secondary enforcement method the business software industry has been able to expand its civil search practices against enterprises in the past five years. While the number of searches is low (12 in 2013, 11 in 2012), this activity has contributed to public awareness for businesses especially about legal versus illegal activities, as well as helping to legalize software in commercial entities. One additional recommendation is the adoption of judicial guidelines on civil search practices, including provisional measures (consistent with the WTO TRIPS requirements).

Ela (fictional name of the company) is one the biggest software developers in Russia. The company shares huge part as a vendor in Russian software market. As a copyright holder the company is motivated to protect its intellectual property because the Russian Government enforcements have many weak points.

There are many types of enforcements and antipiracy measures in Ela. Most of them are directly undertaken from legal department.

4.5.1 Software Asset Management

Software Asset Management (SAM) is a business practice that involves managing and controlling software applications throughout all stages of lifecycle within an organization. Usually, Software Asset Management is being offered as service by many software or consulting companies.

FIGURE 1 Life span of the product from anti-piracy aspects

Source: *Own contribution*

Ela is not selling the software right after developing it. Before selling the software to customer, it passes through many procedures. Activities of sales, marketing and legal departments are important as much as development and engineering of the software. Sale, creation of product use rights and further protections intellectual property is the main activity of these software. Simultaneously being part of sales and marketing department, software asset management is in close corporation with the legal department.

Ela as a customer friendly company offers SAM to its' customers for free while most of the competitor companies either does not provide at all or as a paid service. Ela provides SAM on for its products and for their optimization in organizations' IT assets. After implementation of SAM, customer gets an effective management and protection control of the software asserts within a company, throughout all stages of the product life cycle, keeping compliant with any kind of licensing agreements.

Majority of the business processes are done through partner. Usually, except customer support, clients do not contact Ela directly. In case of SAM, the situation is the same. Ela provides, its authorized partner with variety of information customer and customer's licensing agreements. SAM engagement kits enable those partners to provide customers with data-driven facts and information around key technology events or challenges to help customers make informed technology decisions.

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Due to reasons speed and efficiency of working, flexibility, geographical constraints, cost savings, usually provides to it small and medium sized customers virtual SAM engagement. Sometimes it is also called Tele SAM because it is done through the phone calls.

Bigger customers need to be carefully treated due to potential revenue gaining. In general, this kind of SAM engagement cannot be focused on larger customers. Simply, virtual SAM has two main processes - customer deploys what installed in the company and analysis of deployed information. Analysis consists mainly matching of licensing requirements and licenses to the installations. It is common that the customer will be asked to provide proof of purchases for some products because those product licenses are OEM or Full Packaged Product (FPP - shrink-wrapped boxes). These kinds of licenses can be purchased in any retail shops so to have the database for that is unavailable for Ela. As proof of these licenses, the product key from the sticker should separately be provided to analytics team. This is been one of the most problematic part of the procedure and for the companies with a lot of devices it seems impossible to do.

4.6. Software Asset Management engagement for small and medium sized companies in Russia

Ela international software corporation is concerned about its intellectual property rights protection in Russia. Inconsistency between the number of raid and the number of criminal cases in such high piracy rates in Russia is being the main reasons for concerning. After fresh start of intellectual property rights protection in 2009, Ela decided to engage some its customers in SAM. Due to limitations because of Russian legal frame, Ela decide to engage special group of customers. These are the customers who at least once acquired products through volume licensing of Ela. The customer who acquires volume license they sign volume licensing agreements where they agree to engage software licensing audit if it is needed

The Russian law limits the software vendors to force customers on software audits. The companies can be only checked by following organs:
- Bodies of internal affairs (police):
- Department for Combating Economic Crimes under the Interior Ministry of the Russian Federation;
- Departments "K" Bureau of special technical activities of the Interior Ministry prosecuting authorities;
- prosecuting authorities;
- customs authorities;
- preliminary investigation bodies (the Investigation Department of the Ministry of Interior of Russia and the Investigative Committee of the Russian Federation);

- Right holders themselves (in the order of obtained evidence in civil and arbitration process).

So any kind of audits cannot be done with Ela but it only can be initiated with Ela's queries. To start the audit on some organization, Ela needs to provide authorities with some reliable evidences. As this process takes long time, many resources and effort, Ela created new strategy of SAM. This strategy lies on providing clients with the free SAM engagement. Due to the reason discussed before, Ela initiates to its small and medium size customers (companies) to engage in virtual SAM. Bigger companies often have got the person in Ela who is customer's direct contact and that person is called account manager. If needed that account manager can start different software audit such as SAM on the spot in order to check legality of software usage in that company

Through this kind of engagements Ela is able to learn the current market. Especially, the role of virtual SAM for small and medium business is decent because of its massive usage by Ela. For Ela, small sized company has to have up to 100 personal computers or other devices in a company while medium size company varies from 100 to 250 personal computers in the balance. In terms of SAM the personal computers and other computer devices are defines as seat counts of companies.

There are 2 main teams in Russia who is in charge of SAM engagement. The first team engages only with high priority medium sized companies. The team is located in the Ela's headquarter in the capital of Russia. Sometimes, with the desire of the customer it is possible that the first SAM team can visit the customer. The number of customer that was selected for SAM engagement is twice less than the second team which will be discussed late. This team engages customer mainly via phone calls. The customers are mainly the ones who are ready or have desire to take part in SAM engagement. Mostly, these companies engage SAM procedure due to its benefits and such reasons as:

- If there is a need to update the software, consultation through SAM engagement is the most reliable and free way;
- If there is any missing licenses and the company plans to buy the licenses but not familiar with licensing policies, they can be consulted for free for Ela products;
- If company wants to be sure so initiated pre self-audit before the audit by legal bodies;
- If there is any doubt that there could be license shortfall.

The second team usually locates out of Russia, due to cheap expenditure and inner policies. The activity of this team is little bit different than the first one. The second team is getting a list with greater quantity of customer that should be offered or convinced to engage in SAM activity. Most of the companies are small and medium sized companies. Usually number of seat counts in engaged customer is not more than 300.

Stated telecommunication tools are phone calls and emails. Calling customer and informing about that they were selected for SAM engagement is considered as a standard procedure. Email is used as follow up and further communication tool. As the team is located there is almost no other ways of communication. The process of SAM engagement can be divided into three parts

The first part is after introduction call or email; customer is asked fulfill within 10 working days the document that a consultant is going to send. The document consist list of the Ela products. The customer should enter the information about installations such as version quantity and types of the software.

The team will prepare customer's ownership position estimations within 10 working days after received fulfilled document. Estimation position will have questions based on the installation of the customer and will be sent to customer to answer them within 10working days. Average percentage of fulfilled document return is 30 percent, in Russia. Due to very low support of legal frame SAM is processed as a consultation. As it has not got any legal power, customer can easily slip from the procedure without explanations. Only in case of doubt in high value of piracy, company could be passed to legal department of the company to engage them in software audit. There is very low number of cases initiated by the Legal department due to insufficient evidences.

After receiving estimation document with all the clarifications, closing the process is final part of the engagement. Usually, there are two types closure: compliancy and non-compliancy. Compliancy is when the customer has all the licenses to cover the installation. In this case, the customer will receive certificated about successful engagement and compliancy. Respectively, non-compliancy is when customer has got missing licenses. Basically, there is pirated software in use in that company. The customer will receive email about recommendations to purchase the missing licenses. Within set period of time if the customer does not react to those recommendations, customer details will be passed to legal department where they will preliminary evidence about intellectual property infringement.

Average SAM engagement procedure lasts from 2 to 6 months due to delays from customer side while ideally should be done within one month. One third of those customers who sent back fulfilled document ignore answering to estimations document.

It is also important to say that besides everything SAM is sales tools to boost the sales of the Ela. After SAM engagement if there will be any missing licenses, the companies will be recommended to purchases it as soon as possible.

4.7. Analysis of characteristics of small and medium size companies in Russia

In this part of the work there will be the characteristics of Russian companies which are analyzed by using qualitative research method. Companies were from SAM procedure described their IT infrastructure within the organization. This analyze could help to give new ideas for boosting reduction of software piracy in Russia.

4.7.1. Methodology

The analysis of characteristic of IT infrastructure of the company was made through the close ended questioners or also called quantitative questions. This type of questioner is the best choice because its quickness. As the questioner was asked to be fulfilled together with first document of the SAM engagement procedure customers would not be ready for other kinds of research because others types are more time consuming. On one hand close ended questioners is the best for statistical analysis for researcher, on one hand the response choices can make easier and clarify question meaning for respondents.

The questioner was sent to up to 280 small and medium size Russian companies. Only 200 respondent answers will be analyzed during this work simply because some of companies could not fully complete the questioner.

The survey completed by the respondents during last three month of 2014. The communication tools used here were phones and emails. Analyze was done through the second SAM team which is located out of country. Due to this reason there were no face to face interviews conducted with the respondents. The survey sent electronically to respondents and before send they had been informed about that. Every respondent received the same questioner that contains 10 questions with only four possible answers and 2 general questions about the company. Questions were focused to find out trending weaknesses of small and mid-size companies in Russia. After analyzed data it would be easier to recommend new strategies or updates for antipiracy measures.

A key component of the survey is there were 200 companies with more than 14,000 computer devices in total. The capacity of the companies was as followed:
- 10 percent of the companies had more than 120 devices in their estate
- 26 percent of the companies had device estate in 80 to 120 device range
- 28 percent of the companies had device estate in 50 to 80 device range
- 36 percent of the companies had device estate in 5 to 50 device range

There were only 3 companies from that 10 percent with seat counts larger than 300. These companies were selected for Ela's SAM engagement small and medium business

according to older information and later on they will be added to different business category. Respectively, for the next SAM engagement they will probably conducted by the first team. Also, there are 4 percent of the companies who are local subsidiary of foreign company.

Outcome of the survey has been summarized in the Excel where later demonstrated in percentages. These percentage results is based on number of companies answered certain variant not on the number of seat counts answered certain variant. For instance, if one company answers A the other B, the interpretation will be 50 percent A answered and 50 percent answered B. Not like, if the first company has 90 devices and the second 10, the result will be demonstrated has 90 percent answered A and 10 percent B.

Basically, using Ela's SAM engagement, information about companies' internal policy was conducted. Even if the SAM engagement was designed to audit only software production of Ela this survey's aim was to understand characteristics of behavior on software management of any software deployed in the company

4.7.2. Executive summary of research

Ela was one the first starters of engaging with customer through SAM. The begging of this SAM engagement was late 2008. Since then many companies, were detected with license gaps and most of them remedied those license gaps, already. As the time runs and the companies tend to infringe intellectual piracy under no control (the years without SAM is evidence). This is why SAM engagement is held each 2-3 years. Less than half of the respondents were participated in the SAM engagement in previous years. On the basis of this reason, it can be assumed that if the survey would be held 5-6 years before, the results would be much worse that now.

GRAPH 4 Allocation of resources

Source: *Own contribution*

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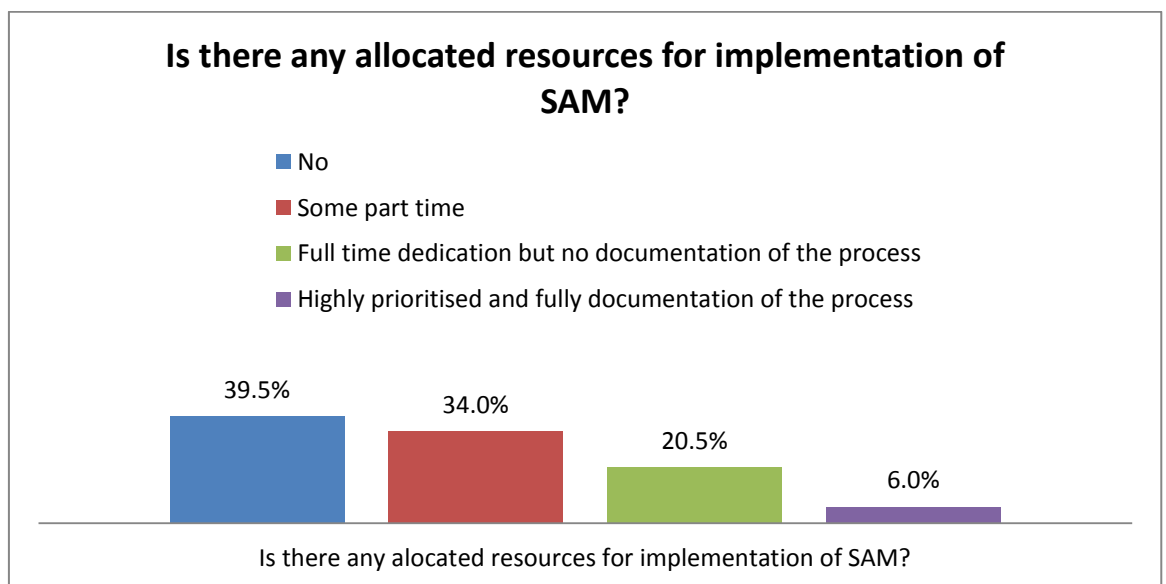
Most of the respondents (respectively 39.5 and 34 percent) reported having no resources or partially allocated resources for implementation of Software Asset Management (GRAPH 4). Less than 21 percent of companies in the survey have fully existence of Software Asset Management but the procedure itself is not documented anywhere. Only 6 percent, reported having Software Asset Management as top priority task of the organization and the processes have been established and formally documented

GRAPH 5 SAM improvement review in organizations
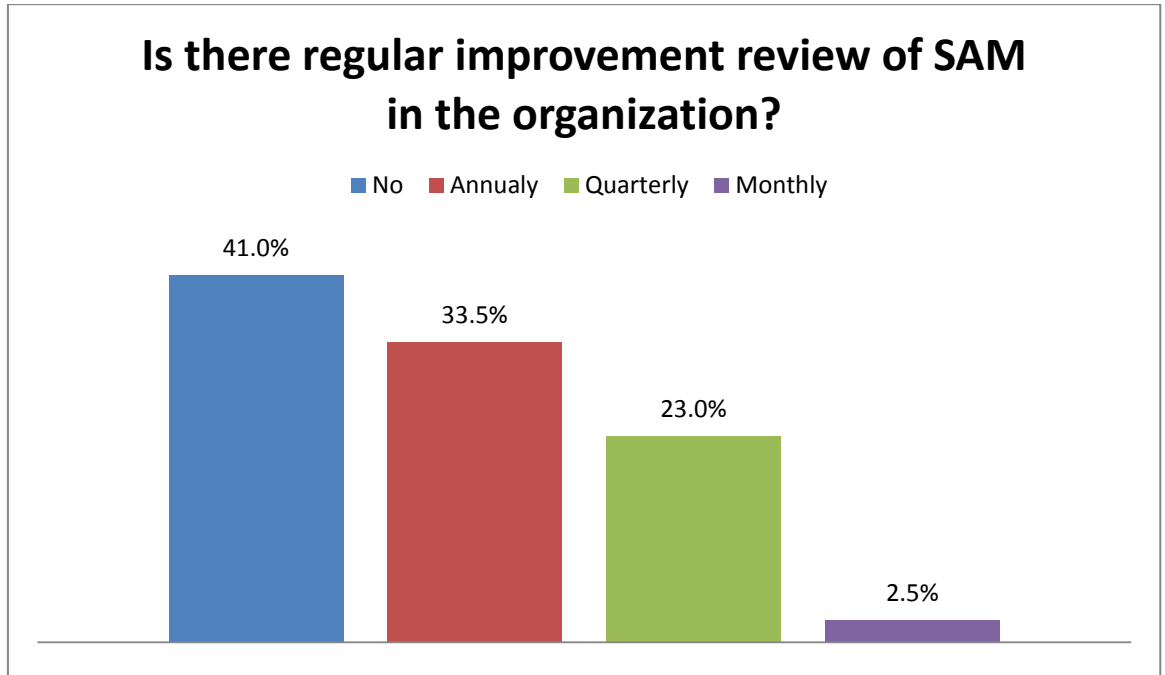
Source: *Own contribution*

Forty-one percent of companies in the survey do not conduct regular reviews of SAM process to identify areas of improvement (GRAPH 5). Thirty-three and half percent reported conducting of such review every year while twenty-three percent reported conducting quarterly and only two and half percent of the respondents reported that E. SAM performance reviews are carried out at least monthly and used to perform improvements against the plan.

Most of the respondents (45 percent) answered that they do not use any kind of hardware and software inventory tool (GRAPH 6). Thirty-eight and half percent reported deploying kind of hardware and software inventory tool that detects up to 95 percent of hardware estate, fourteen and half percent reported having a tool can detect between 95%-99% of hardware estate and only two percent reported that their hardware and software inventory tool detect 99% of hardware estate, sweeps are conducted weekly and deltas are investigated. The last type of tool, more characterized with large companies but it is assumed that those who uses this tool are mostly foreign subsidies.

GRAPH 6 Deployed hardware and software inventory tool

Is there a hardware and software inventory tool deployed?

- ■ No tools, only manual inventory
- ■ Tool detects up to 95%
- ■ Tool detect between 95%-99%
- ■ Tool detects 99%, sweeps are conducted weekly and deltas are investigated

45.0%

38.5%

14.5%

2.0%
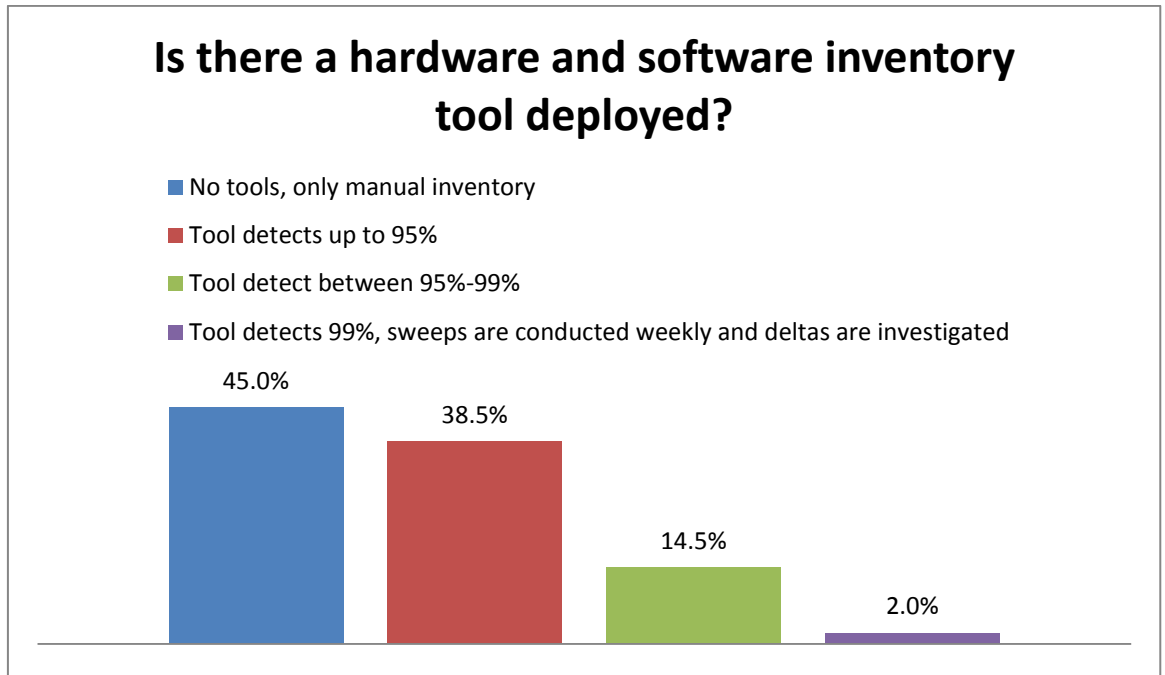
Source: *Own contribution*

GRAPH 7 Conducted perform checks of the software inventory

Is there perform checks to ensure the accuracy of the software inventory?

- ■ Currently not performed
- ■ Annualy
- ■ Quarterly
- ■ Contniously under control

44.5%

33.5%

17.5%

4.5%
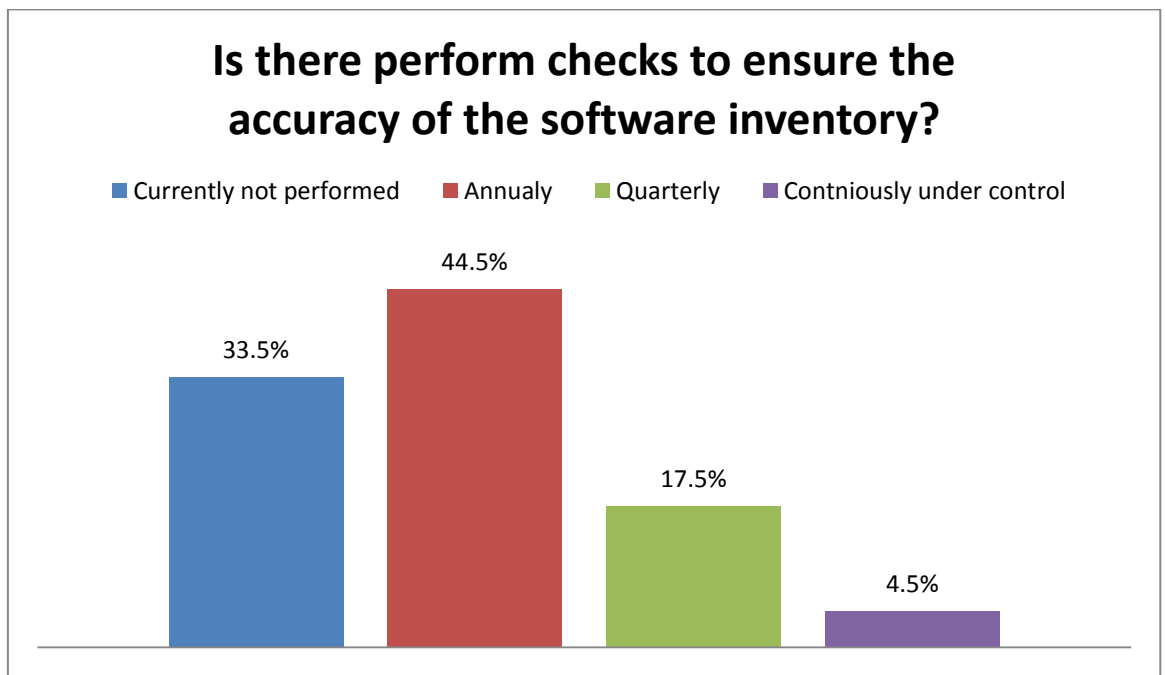
Source: *Own contribution*

The respondents who do not conduct any perform checks are less (33.5 percent) than the ones who conducts annually (44.5 percent) or at least once (GRAPH7). Seventeen and half percent does perform checks on quarterly bases while only four and half percent conducts perform checks continuously to ensure accuracy of the software installed.

Is there repository of software asset register that contains details of all licenses?

- No register
- 70%-90% of licenses are tracked in some forms
- 90-99% of licenses are tracked in a dedicated repository or license management tool
- All licenses are recorded in a dedicated license management system, new licenses are added immediately

51.5% 17.0% 20.5% 11.0%

GRAPH 8 Availability of software asset register in the organization
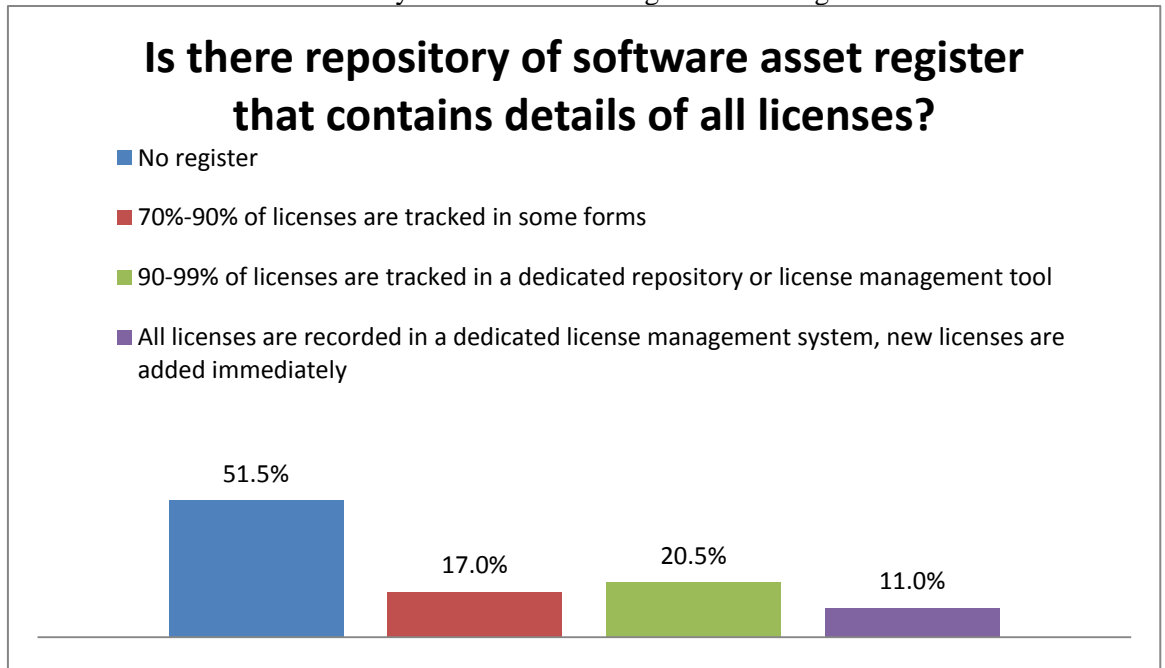
Source: *Own contribution*

More than half of the respondents (51.5 percent) do not have any repository of software asset register (GRAPH8). Surprisingly, the ones who has 90-99 percentage of licenses tracked in a dedicated repository or license management tool (20.5 percent) are more than the seventeen percent of respondents who register about 70-90 percent of their software assets in dedicated spreadsheet or the other form of database.

GRAPH 9 Reconciliations carry out between software deployed and licenses in the organization

Are there reconciliations carry out between software deployed and licenses purchased?

- Currently not performed
- Annualy
- Quarterly
- Contniously under control

27.5% 22.5% 25.0% 25.0%
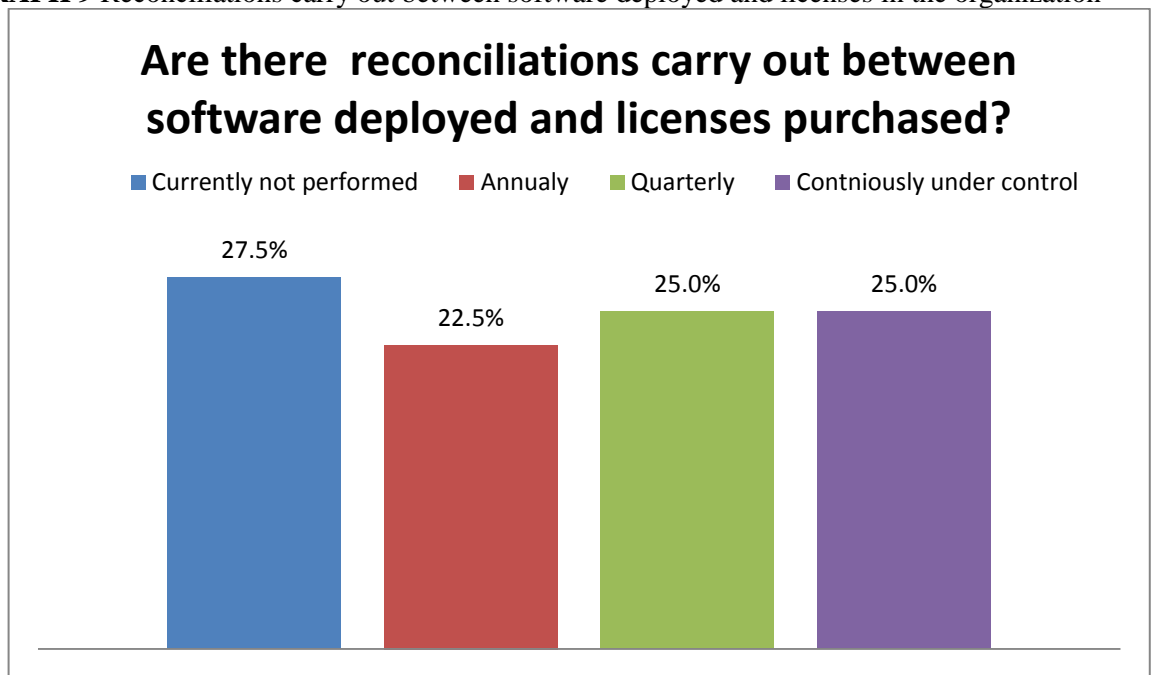
Source: *Own contribution*

Less than one third of respondents (27.5 percent) reported not matching purchased licenses with software used (GRAPH 9). Twenty-two point five percent reported that they carry

out reconciliations between software deployed and licenses purchased annually while twenty five percent said quarterly and the other twenty five percent reported that they continuously under control.

GRAPH 10 Collaboration between divisions on hardware and software register in the organization

Do other business divisions within the organization have access to your hardware and software asset registers?

- ■ No register
- ■ Only IT department
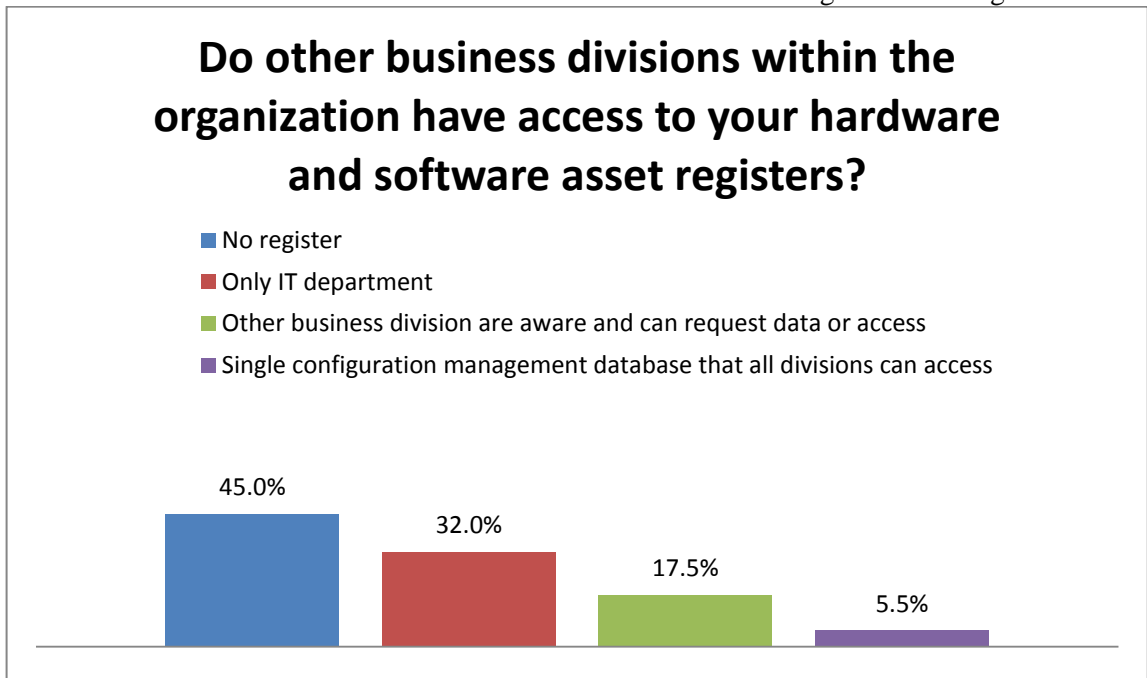- ■ Other business division are aware and can request data or access
- ■ Single configuration management database that all divisions can access
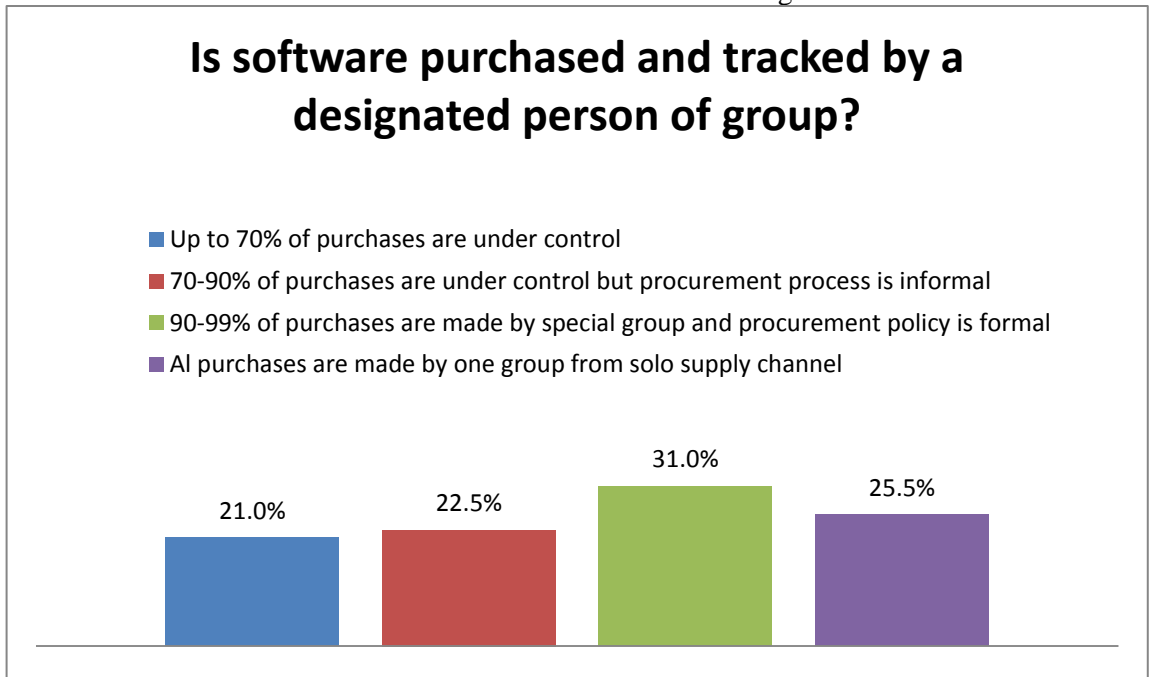
45.0%   32.0%   17.5%   5.5%

Source: *Own contribution*

About half of the respondents (45 percent) do not have any register to share with other business divisions within the organization (GRAPH 10). The interesting thing is the one who answered do not have register was more in the question it was on asked about register availability (GRAPH 8). Thirty percent of respondents have register and only accessible to IT department. The companies where other business divisions are able to access or request any data about software assets is seventeen point five percent among respondents and only few companies has got single configuration management database that all divisions can access. This configuration management tools are rarely met among SAM small and medium business companies simply due to their size.

Only twenty one percent of the respondents reports that there is anyone is permitted to order software or less than 70 percent is controlled by an individual or group (GRAPH 11), twenty two point five percent of respondents claims from 70 to 90 percent of purchases are made by an individual/group but the procurement processes is informal. One third of the respondents (31 percent) reports that between 90 and 99 percent of purchases are made by and individual/group, the procurement policy is formal and a limited number of suppliers are used. The companies where procurement of software is highly controlled, all purchases are made by an individual/group and the procurement policy is formally documented and the organization has awarded sole supply for all its software are twenty five point five percent of all respondents.

GRAPH 11 Purchase and track of software in the organization

Is software purchased and tracked by a designated person of group?

- Up to 70% of purchases are under control
- 70-90% of purchases are under control but procurement process is informal
- 90-99% of purchases are made by special group and procurement policy is formal
- Al purchases are made by one group from solo supply channel

21.0%   22.5%   31.0%   25.5%

Source: *Own contribution*

GRAPH 12 Standardized processes for software deployment in use

Is there standardized processes for software deployment in use?

- Only manual methods
- 70% - 95% follow a standardized processes
- 95%-99% follow a standardized process
- All installations are carried out using a software distribution tool

60.0%   25.0%   10.0%   5.0%
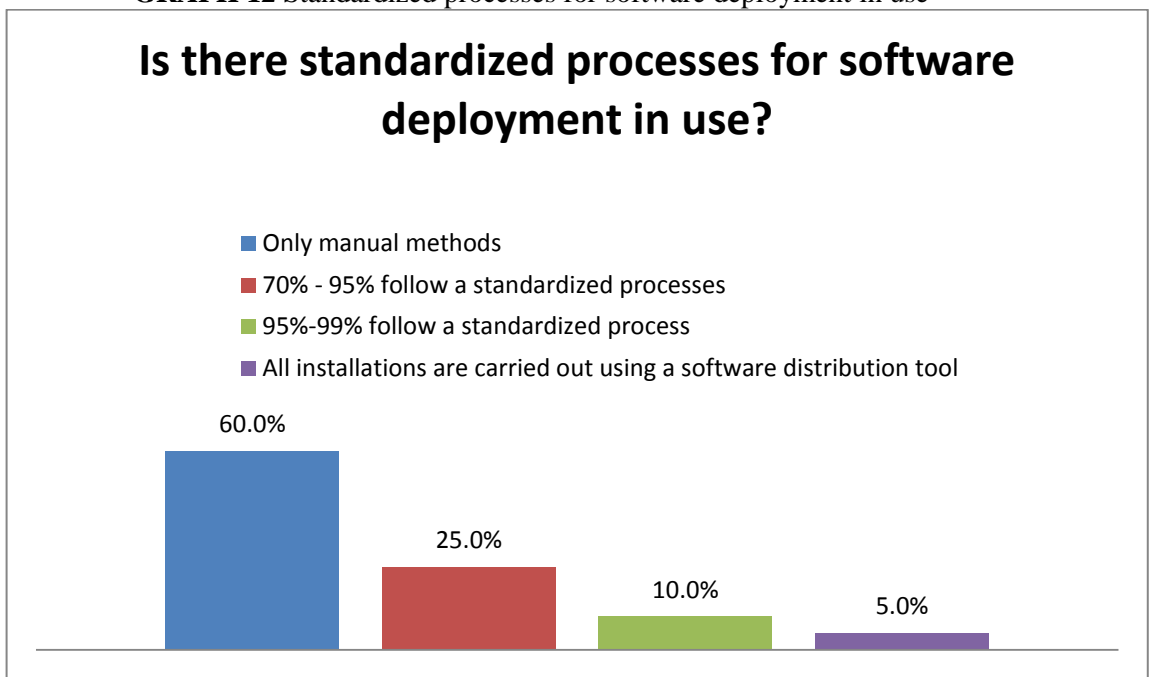
Source: *Own contribution*

Most of the companies (60 percent) in the survey do not have any tool for software deployment and all the processes carried out manually (GRAPH 12). Quarter of respondents use manual methods or deployment tools are used for software installations and from 70 to 95 percent follow standardized processes. Ten percent uses software distribution tool nearly for all installations and between 95 and 99 percent follow a standardized process. Only five percent carry out installations by using a software distribution tool and all those processes are formal documented. The questions before showed that only few companies are using centralized tools

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for software assessment. As there is very low probability of such small companies having this kind of expensive tool in estate it can be assumed that mostly those answers are gained from reports of foreign companies. Even if the representative is small, there can be parent company that controls everything remotely throughout centralized tools.

GRAPH 13 Recycle of licenses in the organization

If it is legal to do, is there re-use licenses when disposing of hardware assets?

- No tracking of software licenses from disposal devices
- Re-used ad-hoc
- The inventory tool detects licenses quarterly basis
- All software is tracked immidiately

39.0%   36.0%   15.0%   10.0%
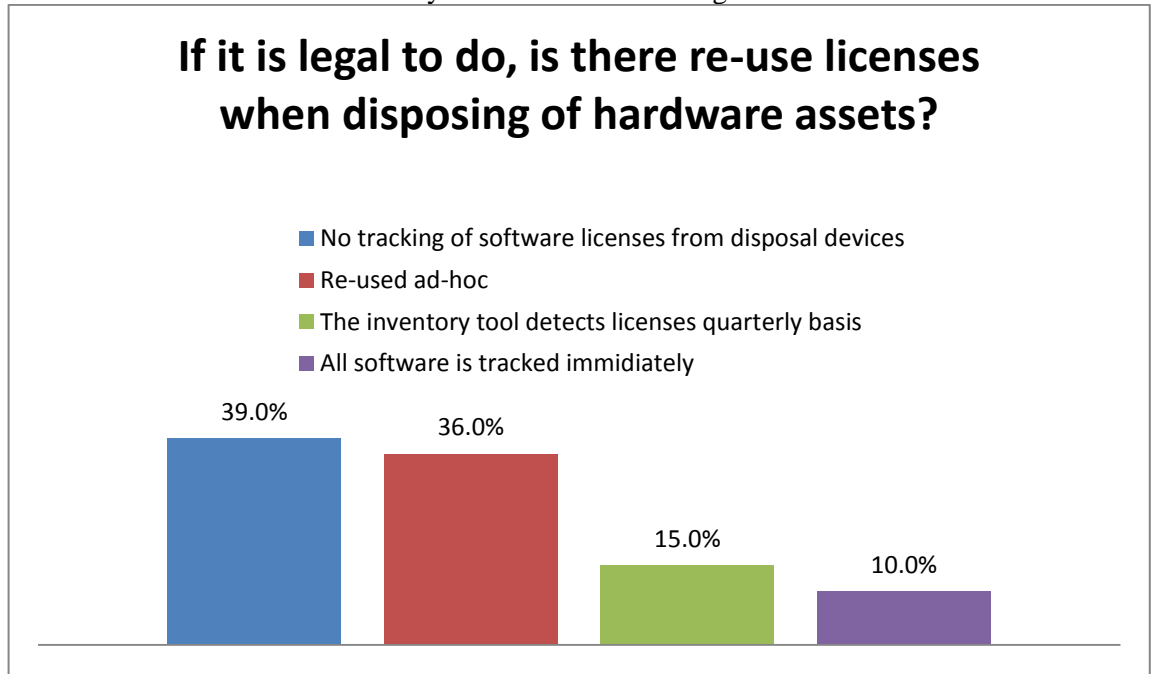
Source: *Own contribution*

Even if it is legal, thirty nine percent of the respondents are not recycling the software licenses when disposing of hardware assets (Graph 13). This leads to extra unnecessary expenditure of the company or to software piracy due to lack of tracking. Thirty six percent of respondents answered that licenses are re-used ad-hoc, typically based on an individual's knowledge or annual reconciliation. Fifteen percent reported that the inventory tool detects licenses from disposal machines during quarterly reconciliation. The remaining ten percent claims all software is tracked from disposal machines and the inventory tool picks up and verifies manual information.

5. Conclusion

5.1.Suggestions to anti-piracy enforcements

The main goal of the thesis is to suggest upgrade or improvement to anti-piracy measure of Russia. After studying, intellectual property rights protection and related measurements in Russia, the thesis suggest following priority enforcement actions and legal reforms in Russia Federation:

- Undertaking effective actions against Internet piracy – including peer-to-peer, pay-per download websites, software hacking sites, illegal key generator websites, cyber lockers, Bit Torrent sites, private servers and other commercial enterprises that provide services with the clear intent to promote or induce infringement, whether or not the servers are located in Russia.

- Extension of resource and staff for the Internet enforcement in the Ministry of Internal Affairs (MVD) – such as Department K – and elimination of copyright infringements should be prioritized

- Increasing the overall number of criminal intellectual property rights cases to levels as five-six years ago, and bring deterrent criminal actions against retail chains that sell any kind of pirated software, entities using unlicensed software, and organized criminal syndicates involved in piracy. There should be significant improvement in its criminal enforcement activity.

- Amendment the Civil Code, Part IV, by:
    - Implementation of digital treaties of the World Intellectual Property Organization (WIPO) especially the WIPO Copyright Treaty (WCT)
    - Implementation of injunctive relief and efficient and scalable notice and takedown procedures
    - Better defining the basis of online service providers' liabilities- especially for those who induce or encourage the infringements of copyrights or those who facilitate infringement and does not show any effort to prevent such activities
    - Introduction of legal standards that motivates Internet Service Providers to cooperate with copyright owners against software piracy that takes place over their platforms
    - Induction of duties on Internet Service Providers where they have to provide information copyright owners and authorities

- Amendment of the Criminal Code to order to establish criminal liability against legal entities, including for Intellectual property crimes

- Improvement of copyright liability under the Administrative code by raising administrative penalties to restrictive levels. For instance, violations from the side of legal entities or individual should be much higher fines; fines can be proportionated to corporate revenues and etc.

- Ensure government agencies and state owned enterprises procure and use only legal software. Because governments are the largest consumers of software in the world, one of the most effective mechanisms for public persuasion stems from governments actively managing their own software assets and sending a clear message that they will not tolerate piracy. In case of, Russia is receiving such warnings from other countries (especially from U.S.) since the beginning of piracy problem because government still does not come up clear answer

- Establishment of an official uniform methodology that requires investigation and prosecution of any copyright infringements. Government should set software asset management policies for both private and state-owned enterprises, contractors and suppliers that require the use of legal software. For example, to sell shares on stock market companies have to have transparent business divisions which means in case of IT department all the licensing issues should be compliant. The survey part of the analysis proved that most of respondents do not have any proper software estate management structure in the company. Of course, 200 companies are not all the companies of Russia and it is impossible that all the companies have the same situation. But answer of these companies matches with piracy rates in the country, in overall.

- Establishment of new antipiracy measures from the side copyright holders experiences. Bringing them together in order to consider voluntary best practices.

- Education of software piracy. Propaganda of electronic (such as data loss) and legal risks of software piracy. Education of the companies for effective use of software licenses and propaganda of free software instead of pirated software.

- Adjustment of software prices according to cultural and economic factors of countries by the software developer.

5.2. General conclusion

In the beginning of the thesis there are set objectives of the study, and explanation of methods used throughout the thesis, in order to show the expected outcome.

As a base of the study readers were introduced with basic of software and software licensing types. The aim of this part is explanation of types of software such as commercial and non-commercial and their licensing requirement to give opportunity to readers imagine possible

copyright or licensing infringements. Readers are able to match their imagination with the reality in the Chapter 3.3 where general types of software piracy are explained.

The most common ways of software piracy in Russia was explained from Chapter 3.3.1. This chapter aimed to determine the most common forms of possible software piracy in Russia. In the chapter, it is also explained major licensing infringement scenarios. There is also statistical evidence that is based on gradual surveys of Business Software Alliance that indicates software piracy rates in the country for ten years since 2003. The overall development of piracy shows that it is annually decreasing in Russia but still the results cannot be considered as a good. This is the reason that Russia cannot allow itself to reduce antipiracy effort in the country.

Not only for copyright holders but also for governments piracy is considered to be a negative development. This is why many countries put together their efforts to reduce intellectual property infringements. There are many organizations, alliances or other units specialize in combat of software piracy.

All the internationally adopted efforts is discussed together with the efforts of Russia in the Chapter 3.4. The aim the chapter is to study and analyze the development of these systems and cooperation between two systems.

In the first part of analysis, there we studied an economic impact of piracy on Russian Economy. In this part we proof the piracy is a negative development in an economy. Based on different criteria there were selected several regions with different and similar characteristics to compare effects with Russia. Basically, those companies are representatives of their regions. As none of them had identical parameters it was easy to see negative impacts on the calculations which were expressed mainly in graphs. Those graphs helped to reach the aim of the thesis by showing comparative results amongst. Model of calculations was described to find possible loss to county GDP and all the revenue tax that could be gathered from additional taxes on sales of those products. It was also mentioned loss of workplaces only considering the software piracy since 2003. Never the less, it is impossible to calculate exact number of loss due to the reason that fields of economies are interconnected and if there is a loss in one there will be negative affect on others.

Indicators talks for their selves, none of the countries had positive impact of the piracy. In fact, all the countries suffered according to their piracy rates and sizes. It is important to mentions that, Russia is not in good position and it seems that need for piracy enforcements remains in the country.

There were selected special tool of antipiracy measure to understand characterizes of the companies in Russia. Via using Software Asset Management program of selected company there were conducted a survey about software estate management. The results in overall were not

satisfactory. The respondents were small and medium companies and it could be the reason for bad results.

Studying of the characteristics of respondents and antipiracy enforcement of Russia, there were suggested improvements and updates for Russia. These improvements and updates have already been experienced in many of low piracy rate country, so it might be good for the government to consider them. These suggestions were main goal of the work and they are briefly described in the Chapter 5.1.

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7. Supplements

7.1. List of graphs

7.2. List of tables

7.3. List of figures

8. Appendixes

APPENDIX 1 Calculations – Brazil

Brazil	2003	2005	2007	2009	2011	2013	Average
GDP	$552,469,288,268	$882,185,702,547	$1,366,823,994,659	$1,620,188,056,417	$2,476,694,763,271	$2,245,673,032,354	
Value of Unlicensed Software	$519,000,000	$766,000,000	$1,617,000,000	$2,254,000,000	$2,848,000,000	$2,851,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$331,819,672	$430,875,000	$1,123,677,966	$1,771,000,000	$2,525,584,906	$2,851,000,000	
Percentage of Unlicensed Software	61.00%	64.00%	59.00%	56.00%	53.00%	50.00%	57.17%
Percentage of Loss of GDP due to software Piracy	0.09%	0.09%	0.12%	0.14%	0.11%	0.13%	0.11%
Research and development expenditure	0.96%	0.97%	1.10%	1.17%	1.16%	1.21%	1.10%
PLD to RDE ratio = (PLD/RDE)%	9.79%	8.95%	10.75%	11.89%	9.91%	10.49%	10.30%
Total Population	181752951	186142403	189996976	193490922	196935134	200361925	
Percentage of Employment to population ratio, 15+, total	62.00%	64.00%	64.00%	64.00%	65.00%	66.00%	64.17%
Number of Employees= TP*PEP%	112686830	119131138	121598065	123834190	128007837	132238871	
Unlicensed software per employee Ratio= VUS/NE	$4.61	$6.43	$13.30	$18.20	$22.25	$21.56	$14.39
Licensed Software per employee ration= VLS/NE	$2.94	$3.62	$9.24	$14.30	$19.73	$21.56	$11.90

Source: *Data from annual reports, own contribution*

APPENDIX 2 Calculations - India

India	2003	2005	2007	2009	2011	2013	Average
GDP	$618,356,467,437	$834,215,013,606	$1,238,700,195,645	$1,365,372,433,341	$1,880,100,141,185	$1,876,797,199,133	
Value of Unlicensed Software	$367,000,000	$566,000,000	$2,025,000,000	$2,003,000,000	$2,930,000,000	$2,911,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$135,739,726	$220,111,111	$909,782,609	$1,078,538,462	$1,720,793,651	$1,940,666,667	
Percentage of Unlicensed Software	73.00%	72.00%	69.00%	65.00%	63.00%	60.00%	67.00%
Percentage of Loss of GDP due to software Piracy	0.06%	0.07%	0.16%	0.15%	0.16%	0.16%	0.12%
Research and development expenditure	0.71%	0.81%	0.79%	0.82%	0.80%	0.81%	0.79%
PLD to RDE ratio = (PLD/RDE)%	8.36%	8.38%	20.69%	17.89%	19.48%	19.15%	15.66%
Total Population	1093786762	1127143548	1159095250	1190138069	1221156319	1252139596	
Percentage of Employment to population ratio, 15+, total	58.00%	58.00%	56.00%	54.00%	53.00%	52.00%	55.17%
Number of Employees= TP*PEP%	634396322	653743258	649093340	642674557	647212849	651112590	
Unlicensed software per employee Ratio= VUS/NE	$0.58	$0.87	$3.12	$3.12	$4.53	$4.47	$2.78
Licensed Software per employee ration= VLS/NE	$0.21	$0.34	$1.40	$1.68	$2.66	$2.98	$1.54

Source: *Data from annual reports, own contribution*

APPENDIX 3 Calculations - Italy

Italy	2003	2005	2007	2009	2011	2013	Average
GDP	$1,570,330,699,774	$1,853,465,900,612	$2,203,972,558,211	$2,186,107,544,937	$2,278,230,390,030	$2,149,484,516,712	
Value of Unlicensed Software	$1,127,000,000	$1,564,000,000	$1,779,000,000	$1,733,000,000	$1,945,000,000	$1,747,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$1,173,000,000	$1,386,943,396	$1,851,612,245	$1,803,734,694	$2,107,083,333	$1,970,021,277	
Percentage of Unlicensed Software	49.00%	53.00%	49.00%	49.00%	48.00%	47.00%	49.17%
Percentage of Loss of GDP due to software Piracy	0.07%	0.08%	0.08%	0.08%	0.09%	0.08%	0.08%
Research and development expenditure	1.10%	1.09%	1.17%	1.26%	1.25%	1.27%	1.19%
PLD to RDE ratio = (PLD/RDE)%	6.52%	7.74%	6.90%	6.29%	6.83%	6.40%	6.78%
Total Population	57313203	57969484	58438310	59095365	59379449	59831093	
Percentage of Employment to population ratio, 15+, total	45.00%	45.00%	46.00%	45.00%	44.00%	43.00%	44.67%
Number of Employees= TP*PEP%	25790941	26086268	26881623	26592914	26126958	25727370	
Unlicensed software per employee Ratio= VUS/NE	$43.70	$59.95	$66.18	$65.17	$74.44	$67.90	$62.89
Licensed Software per employee ration= VLS/NE	$45.48	$53.17	$68.88	$67.83	$80.65	$76.57	$65.43

Source: *Data from annual reports, own contribution*

APPENDIX 4 Calculations - Russia

Russia	2003	2005	2007	2009	2011	2013	Average
GDP	$430,347,770,733	$764,000,901,160	$1,299,705,247,686	$1,222,643,696,992	$1,904,793,021,649	$2,096,777,030,571	
Value of Unlicensed Software	$1,104,000,000	$1,625,000,000	$4,123,000,000	$2,613,000,000	$3,227,000,000	$2,658,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$164,965,517	$332,831,325	$1,524,945,205	$1,287,000,000	$1,895,222,222	$1,629,096,774	
Percentage of Unlicensed Software	87.00%	83.00%	73.00%	67.00%	63.00%	62.00%	72.50%
Percentage of Loss of GDP due to software Piracy	0.26%	0.21%	0.32%	0.21%	0.17%	0.13%	0.22%
Research and development expenditure	1.29%	1.07%	1.12%	1.25%	1.09%	1.12%	1.16%
PLD to RDE ratio = (PLD/RDE)%	19.89%	19.88%	28.32%	17.10%	15.54%	11.32%	18.67%
Total Population	144667468	143113885	142114903	141909244	142956460	143499861	
Percentage of Employment to population ratio, 15+, total	56.00%	58.00%	59.00%	58.00%	59.00%	60.00%	58.33%
Number of Employees= TP*PEP%	81013782	83006053	83847793	82307362	84344311	86099917	
Unlicensed software per employee Ratio= VUS/NE	$13.6	$19.6	$49.2	$31.7	$38.3	$30.9	$30.5
Licensed Software per employee ration= VLS/NE	$2.0	$4.0	$18.2	$15.6	$22.5	$18.9	$13.5

Source: *Data from annual reports, own contribution*

APPENDIX 5 Calculations - Turkey

Turkey	2003	2005	2007	2009	2011	2013	Average
GDP	$303,005,303,082	$482,979,839,089	$647,155,131,936	$614,553,921,807	$774,754,155,284	$822,135,183,160	
Value of Unlicensed Software	$127,000,000	$268,000,000	$365,000,000	$415,000,000	$526,000,000	$504,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$65,424,242	$144,307,692	$196,538,462	$243,730,159	$322,387,097	$336,000,000	
Percentage of Unlicensed Software	66.00%	65.00%	65.00%	63.00%	62.00%	60.00%	63.50%
Percentage of Loss of GDP due to software Piracy	0.04%	0.06%	0.06%	0.07%	0.07%	0.06%	0.06%
Research and development expenditure	0.48%	0.59%	0.72%	0.85%	0.84%	0.86%	0.72%
PLD to RDE ratio = (PLD/RDE)%	8.73%	9.40%	7.83%	7.94%	8.08%	7.13%	8.19%
Total Population	65938265	67743052	69496513	71241080	73058638	74932641	
Percentage of Employment to population ratio, 15+, total	42.00%	41.00%	41.00%	41.00%	45.00%	45.00%	42.50%
Number of Employees= TP*PEP%	27694071	27774651	28493570	29208843	32876387	33719688	
Unlicensed software per employee Ratio= VUS/NE	$4.59	$9.65	$12.81	$14.21	$16.00	$14.95	$12.03
Licensed Software per employee ration= VLS/NE	$2.36	$5.20	$6.90	$8.34	$9.81	$9.96	$7.10

Source: *Data from annual reports, own contribution*

APPENDIX 6 Calculations – Ukraine

Ukraine	2003	2005	2007	2009	2011	2013	Average
GDP	$50,132,953,288	$86,142,018,069	$142,719,009,901	$117,227,769,792	$163,421,733,019	$177,430,609,756	
Value of Unlicensed Software	$92,000,000	$239,000,000	$403,000,000	$272,000,000	$647,000,000	$444,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$9,098,901	$42,176,471	$82,542,169	$48,000,000	$123,238,095	$90,939,759	
Percentage of Unlicensed Software	91.00%	85.00%	83.00%	85.00%	84.00%	83.00%	85.17%
Percentage of Loss of GDP due to software Piracy	0.18%	0.28%	0.28%	0.23%	0.40%	0.25%	0.27%
Research and development expenditure	1.11%	1.17%	0.85%	0.86%	0.83%	0.74%	0.93%
PLD to RDE ratio = (PLD/RDE)%	16.53%	23.71%	33.22%	26.98%	47.70%	33.82%	30.33%
Total Population	47812950	47105150	46509350	46053300	45706100	45489600	
Percentage of Employment to population ratio, 15+, total	52.00%	54.00%	55.00%	53.00%	54.00%	55.00%	53.83%
Number of Employees= TP*PEP%	24862734	25436781	25580143	24408249	24681294	25019280	
Unlicensed software per employee Ratio= VUS/NE	$3.7	$9.4	$15.8	$11.1	$26.2	$17.7	$14.0
Licensed Software per employee ration= VLS/NE	$0.4	$1.7	$3.2	$2.0	$5.0	$3.6	$2.6

Source: *Data from annual reports, own contribution*

APPENDIX 7 Calculations – United States of America

United States of America	2003	2005	2007	2009	2011	2013	Average
GDP	$11,510,700,000,000	$13,093,700,000,000	$14,477,600,000,000	$14,418,700,000,000	$15,517,900,000,000	$16,768,100,000,000	
Value of Unlicensed Software	$6,496,000,000	$6,895,000,000	$8,040,000,000	$8,390,000,000	$9,773,000,000	$9,737,000,000	
Value of Licensed Software= (VUS/PUS)-VUS	$23,031,272,727	$25,938,333,333	$32,160,000,000	$33,560,000,000	$41,663,842,105	$44,357,444,444	
Percentage of Unlicensed Software	22.00%	21.00%	20.00%	20.00%	19.00%	18.00%	20.00%
Percentage of Loss of GDP due to software Piracy	0.06%	0.05%	0.06%	0.06%	0.06%	0.06%	0.06%
Research and development expenditure	2.55%	2.51%	2.63%	2.82%	2.76%	2.79%	2.68%
PLD to RDE ratio = (PLD/RDE)%	2.21%	2.10%	2.11%	2.06%	2.28%	2.08%	2.14%
Total Population	290,107,933	295,516,599	301,231,207	306,771,529	311,582,564	316,128,839	
Percentage of Employment to population ratio, 15+, total	61.00%	62.00%	62.00%	58.00%	58.00%	57.00%	59.67%
Number of Employees= TP*PEP%	176965839	183220291.38	186763348	177927486.82	180717887	180193438.23	
Unlicensed software per employee Ratio= VUS/NE	$36.7	$37.6	$43.0	$47.2	$54.1	$54.0	$45.4
Licensed Software per employee ration= VLS/NE	$130.1	$141.6	$172.2	$188.6	$230.5	$246.2	$184.9

Source: *Data from annual reports, own contribution*

APPENDIX 8 Calculations – Total worldwide

Total Worldwide	2003	2005	2007	2009	2011	2013	Average
GDP	$40,913,38 6,100,827	$46,964,57 2,241,580	$57,327,85 2,313,281	$59,539,28 0,829,015	$73,514,22 3,629,332	$75,592,94 0,968,183	
Value of Unlicensed Software	$28,803,00 0,000	$34,482,00 0,000	$47,809,00 0,000	$51,443,00 0,000	$63,456,00 0,000	$62,709,00 0,000	
Value of Licensed Software= (VUS/PUS)-VUS	$51,205,33 3,333	$64,038,00 0,000	$78,004,15 7,895	$68,191,88 3,721	$87,629,71 4,286	$83,125,88 3,721	
Percentage of Unlicensed Software	36.0%	35.0%	38.0%	43.0%	42.0%	43.0%	39.5%
Percentage of Loss of GDP due to software Piracy	0.07%	0.07%	0.08%	0.09%	0.09%	0.08%	0.08%
Research and development expenditure	2.00%	2.10%	2.00%	2.10%	2.10%	2.10%	2.07%
PLD to RDE ratio = (PLD/RDE)%	3.5%	3.5%	4.2%	4.1%	4.1%	4.0%	3.9%
Total Population	635799174 9	649017681 5	664571655 3	680374200 4	696463802 7	712454396 2	
Percentage of Employment to population ratio, 15+, total	60.7%	60.8%	60.8%	59.7%	59.6%	59.7%	60.2%
Number of Employees= TP*PEP%	385930099 2	394602750 4	404059566 4	406183397 6	415092426 4	425335274 5	
Unlicensed software per employee Ratio= VUS/NE	$7.46	$8.74	$11.83	$12.66	$15.29	$14.74	$11.79
Licensed Software per employee ration= VLS/NE	$13.27	$16.23	$19.31	$16.79	$21.11	$19.54	$17.71

Source: *Data from annual reports, own contribution*

APPENDIX 9 Survey results (Part I)

Question	Variant A	Variant B	Variant C	Variant D
1st question was answered by (quantity)	72	56	52	20
1th question was answered by (percentage)	36%	28%	26%	10%
2nd question was answered by (quantity)	9	191	X	X
2th question was answered by (percentage)	4%	96%	X	X

Source: *Survey, own contribution*

APPENDIX 10 Survey results (Part II)

Question	Variant A	Variant B	Variant C	Variant D	Total
1st question was answered by (quantity)	79	68	41	12	200
1th question was answered by (percentage)	39.5%	34.0%	20.5%	6.0%	100.0%
2nd question was answered by (quantity)	82	67	46	5	200
2th question was answered by (percentage)	41.0%	33.5%	23.0%	2.5%	100.00%
3rd question was answered by (quantity)	90	77	29	4	200
3th question was answered by (percentage)	45.0%	38.5%	14.5%	2.0%	100.00%
4th question was answered by (quantity)	67	89	35	9	200
4th question was answered by (percentage)	33.5%	44.5%	17.5%	4.5%	100.00%
5th question was answered by (quantity)	103	34	41	22	200
5th question was answered by (percentage)	51.5%	17.0%	20.5%	11.0%	100.00%
6th question was answered by (quantity)	55	45	50	50	200
6th question was answered by (percentage)	27.5%	22.5%	25.0%	25.0%	100.00%
7th question was answered by (quantity)	90	64	35	11	200
7th question was answered by (percentage)	45.0%	32.0%	17.5%	5.5%	100.00%
8th question was answered by (quantity)	42	45	62	51	200
8th question was answered by (percentage)	21.0%	22.5%	31.0%	25.5%	100.00%
9th question was answered by (quantity)	120	50	20	10	200
9th question was answered by (percentage)	60.0%	25.0%	10.0%	5.0%	100.00%
10th question was answered bye (quantity)	78	72	30	20	200
10th question was answered by (percentage)	39.0%	36.0%	15.0%	10.0%	100.00%

Source: *Survey, own contribution*

Survey on Software Asset Management

I.   PART – General information

Size of the Company:

A. 5-50 Seats

B. 50-80 Seats

C. 80-120 Seats

D. 120-350 Seats

Is your company local company or foreign company subsidiary?

A. local company

B. foreign company subsidiary

II.   PART – IT infrastructure of the company

1. Is there an individual or team that is dedicated to implementation of Software Asset Management within your organization

   A. SAM roles and responsibilities are not defines. Sam is only performed as and when required, such as during vendor audit

   B. There is some part time resource allocated to SAM, this is in addition to their "day job". There is no formal SAM policy

   C. There is a full time, dedicated resource to SAM. SAM processes exists, however they are not documented

   D. Senior executives have demonstrated that SAM is a top priority for the organization. SAM processes have been established and formally documented

2. Does your organization conduct regular reviews of SAM processes to identify areas of improvement?

   A. There is no plan for implementing SAM; or no SAM improvement plan has been completed

   B. SAM performance reviews take place once a year

   C. SAM performance take place every quarter

   E. SAM performance reviews are carried out at least monthly and used to perform improvements against the plan.

3. Do you have a hardware and software inventory tool deployed?

   A. There is no inventory discovery tool implemented, manual checks can be completed

   B. There is an inventory discovery tool implemented and can detect up to 95 % of hardware estate

   C. There is an inventory discovery tool implemented and can detect between 95%-99% of hardware estate

   D. There is an inventory discovery tool implemented and can detect 99% of hardware estate, sweeps are conducted weekly and deltas are investigated

4. Do you perform checks to ensure the accuracy of the software inventory?

   A. Checks to verify the Accuracy of the software inventory are not currently performed

   B. Checks are performed annually

   C. Checks are performed quarterly

   D. Checks are performed continuously

5. Do you have repository of software asset register that contains details of all licenses you have purchased

   A. There is no dedicated software asset register

   B. Between 70%-90% of licenses are tracked in dedicated spreadsheet or the other form of database

   C. Between 90-99% of licenses are tracked in a dedicated repository or license management tool

   D. All licenses are recorded in a dedicated license management system, new licenses are added immediately

6. Do you carry out reconciliations between software deployed and licenses purchased

   A. Deployment and entitlement reconciliation is rarely done or ad-hoc

   B. Deployment and entitlement reconciliation is done annually

   C. Deployment and entitlement reconciliation is quarterly

   D. Deployment and entitlement reconciliation is done continuously

7. Do other business divisions within your organization have access to your hardware and software asset registers?

   A. There is no software asset register at all

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B. Only personnel from the IT department use the software asset register

C. Other business divisions are aware of software asset register and can request data or access

D. There is a single configuration management database that all divisions can access for viewing purposes

8. Is all of your software are purchased and tracked by a designated person of group?

   A. Anyone is permitted to order software or less than 70% is controlled by an individual or group

   B. Between 70% - 90% of purchases are made by an individual/group and the procurement processes is informal

   C. Between 90%- 99% of purchases are made by and individual/group, the procurement policy is formal and a limited number of suppliers are used

   D. Procurement of software is highly controlled; all purchases are made by an individual/group. The procurement policy is formally documented and the organization has awarded sole supply for all its software.

9. Do you use standardized processes for software deployment?

   A. The organization utilizes manual methods for all software deployment

   B. Manual methods/deployment tools are used for software installations. 70% - 95% follow a standardized processes

   C. A software distribution tool is used nearly all installations, 95%-99% follow a standardized process

   D. All installations are carried out using a software distribution tool. All processes are formal documented

10. Where it is legal to do so do you re-use licenses when disposing of hardware assets?

    A. The organization does not track software from the disposal of machines

    B. Licenses are re-used ad-hoc, typically based on an individual's knowledge or annual reconciliation

    C. The inventory tool detects licenses from disposal machines during quarterly reconciliation

    D. All software is tracked from disposal machines, the inventory tool picks up and verifies manual information