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DIGITALISATION OF COMPANY LAW: TRENDS AND FUTURE OPPORTUNITIES

Master Thesis

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## **ABBREVIATIONS**

AG – German joint-stock company

AGM – Annual General Meetings

AI – Artificial Intelligence

AS – Estonian public limited company

BRIS – The Business Registers Interconnection System

CD – The Consolidated Directive

DEI - European Commission's Digitising European Industry initiative

eIDAS - The Regulation on electronic identification and trust services for electronic transactions

EU – European Union

EURL – French Special private limited liability company

GDPR – General Data Protection Regulation

GMBH – German limited liability company

ICLEG – Informal Company Law Expert Group

SA – French joint-stock company

SARL – French limited liability company

SAS – French simplified joint-stock company

SASU – French simplified joint-stock company with only one partner

SRD – Shareholder Rights Directive

SRL – Italian private limited company

SPA – Italian public limited company

SUPP - Proposal for Directive on single member private limited liability companies

TD – Transparency Directive

UAB – Lithuanian private limited liability company

UN – United Nations

OU – Estonian private limited liability company

## INTRODUCTION

Digitalisation process covers more and more areas in different fields of people's activities in daily life. Many people and organisations use technologies in their daily routine and find it beneficial. Naturally it reaches to a company law area as well. For companies, an ability to use technologies contributes to a rapid growth and wider markets for their products or services. It becomes more and more common not only to search for information through electronic sources but also to communicate, buy certain products and to use other online services as well. European Union (hereinafter – EU) guarantees 4 fundamental freedoms for the citizens: The freedom to work anywhere in the Union; the freedom to establish oneself anywhere in the EU; the freedom to provide services across the EU and the freedom to invest across the EU<sup>1</sup>. In order to ensure mentioned rights, appropriate company law provisions may be extremely important as companies gain many advantages by having opportunity to do business in a single EU market without border restrictions. Recent technological breakthrough exposed certain flaws in current legal regulation as new innovative solutions offers new ways of doing business and offers new ways to strengthen EU single market.

**Relevance.** At present, company law has long standing provisions for formation of companies, information exchange between companies and state authorities or communication between shareholders and companies. It is still common to use paper documents with notary approval and to fulfil procedures by physical appearance. These requirements help to prevent possible circumvent of the law. The problem may be that these provisions perfectly suit for society where digital capabilities are not sufficient to communicate and exchange information electronically or for actions within borders of the single country but might be insufficient for cross-border operations EU institutions and Member States acknowledge new digital solutions for business environment and tries to adapt to new demands by harmonising and digitalising company law across Europe. However, company law digitalisation is a recent occurrence and future possibilities are still unclear as certain concerns and disagreements exists between Member States regarding future. As there are a lot of different opinions, it essential to answer the question whether company law digitalisation is necessary or existing legal regulation is already efficient enough. There is a significant amount of companies who have cross-border relations and it is vital to consider if company law provisions could be improved in order to be more adaptive to various needs of companies and their shareholders or there is no demand for that.

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<sup>1</sup>The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p 43.

In this research, author analyses EU member states and their legal provisions and interconnection with EU legislation. The main purpose of the Union is to create single market and common rights for people living within its borders and diversity between countries presumably creates barriers. In a single country, process of digitalisation could be less complexed, but harmonisation and conversion of law in EU member states with common goals might provide substantial information on how company law could improve digitally in order to benefit all EU member states and what innovations may arise as possible solutions to presumably existing problems

EU member states have fairly diverse approach to digitalisation of company law and with existing provisions it may be challenging to ensure that citizens are able to enjoy their fundamental freedoms. In some of the countries, requirements are very conservative while other states have liberal provisions which even makes it possible to create companies online without any physical interaction with state institutions. It is significant to understand whether EU intervention is requisite to harmonise various national laws in regard to digitalisation, as some companies may want to use digital tools while others may not approach it as their best choice and use digitalisation only by limited amount. Countries have different legal traditions formed during the years and it is a challenge to find the best way to harmonise all Member States' national systems and bring them under one flag.

**Scientific research problem.** Company law provisions which exist now in European Union and in various member states are not perfectly suitable for a modern technologically advanced world. It is necessary to make further analysis what problems need to be solved in order to maintain up to date company law across Europe. Interaction between national systems, online formation and management of the companies, security conception of digital transactions and opportunities to use new innovations such as artificial intelligence (hereinafter – AI) and “blockchain” are main topics to analyse as it could provide answers to existing questions on how to shape company law to the digital world. Whether it should maintain traditional provisions or it would be more beneficial to follow more modern approach.

**Scientific novelty.** As company law digitalisation is a modern occurrence, regulations regarding this process is insufficient and highly decomposed across EU member states. Although several authors analysed separate aspects of company law digitalisation, it has never been done by combining existing legal regulation in EU member states, EU actions taken towards digitalisation and analysis of company law adaptation on AI and “blockchain” technologies as they are not sufficiently covered by legal provisions. Despite mentioned technologies are not currently used in large extent, modification incorporation of AI and “blockchain” in EU law could encourage new

opportunities for business communication, company formation or management and provide better identification or security solutions.

**Review of the literature.** Legal background of company law is reviewed by introducing to national company law provisions and legislation by comparing five EU member states (France, Italy, Germany, Lithuania and Estonia) and presenting EU initiatives towards digitalisation. Main sources of the analysis are: The Informal Company Law Expert Group (hereinafter – ICLEG) report which provides information about company law digital potential and existing barriers<sup>2</sup>; also presentations from Wurzburg “Incorporation of Companies in the Digital Age” Conference<sup>3</sup> where various authors from Member States present current digitalisation situation and future possibilities in EU member states; C. Teichmann and R. Knaer article<sup>4</sup> which presents evolution of company law in Germany and provides insights on capital share requirements; article from V. Bitė and G. Gumuliauskienė reviews recent developments of company law in Lithuania and compares them to SUP proposal; presentations from various authors from the 21st European Company Law and Corporate Governance Conference related to Estonian digitalisation process; and other online sources, including national legal codes or information from governmental institutions. In addition, EU legislation will be taken into consideration in a form of newly amended or implemented Directives and Regulations as many of them covers digitalisation topic and provides certain level of regulation on electronic communication. EU proposals such as the one to amend Directive of the European Parliament and of the Council<sup>5</sup> Directive (EU) 2017/1132 are essential as they are shaping the future regulation for digital technologies<sup>6</sup>. Other documents as communications, commentaries, factsheets or resolutions are provided as well.

For further analysis, sources analysing AI and “blockchain” interconnection are provided as few authors already wrote on these topics: Reggie O’Shields<sup>7</sup> provided insights on smart contracts and how they could be used as legal agreements; article of David Yermack<sup>8</sup> presents the relation between Corporate Governance and “blockchains”; similar thoughts can be found in Anne

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<sup>2</sup> The Informal Company Law Expert Group. “Report on digitalisation in company law”. European Union. 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf)

<sup>3</sup> Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018

<sup>4</sup> Teichmann C.; Knaer R. Experiences with the competition of regulators-a German perspective/ edited by Deirdre Ahern et al., ISBN: 978-84-9059-941-9 Cizur Menor: Thomson Reuters Aranzadi [et. al.], 2015, p. 217.

<sup>5</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law, Date of document: 25/04/2018, European.

<sup>6</sup> Directive 2017/828/EC of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement, Date of document: 17/06/2017, European Parliament, Council of the European Union.

<sup>7</sup> Reggie O’Shields, “Smart Contracts: Legal Agreements for the Blockchain”. 2017 <http://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1435&context=ncbi>

<sup>8</sup> David Yermack, “Corporate Governance and Blockchains”. 2017. NYU Stern School of Business and National Bureau of Economic Research. <https://academic.oup.com/rof/article/21/1/7/2888422>

Lafarre and Christoph Van der Elst article<sup>9</sup> which combines shareholders' activism, "blockchain" and corporate governance; Florian Möslein<sup>10</sup> discusses AI benefits regarding for companies and their management bodies such as board of directors. More sources are also used as video conferences and presentations of various digitalisation researchers.

**Significance of the research.** The research could help to understand what limitations exist in EU legal provisions and what main problems need to be solved in order to establish well developed digital company law across Europe as fair amount of restrictions and conservative provisions exists right now. Master Thesis could be useful for scientists and practitioners of law in future researches.

**The aim of the research is** to evaluate current level of company law digitalisation and harmonisation in EU and Member States, to measure practical application of digitalised legal regulations and to discover possible future paths.

The goal will be achieved using these **objectives**:

1. To perform comparative analysis on company law provisions across EU member states and underline current digital accomplishments.
2. To identify main EU legislation related to digitalisation and evaluate the role of EU institutions in company law digitalisation process.
3. To scrutinize practical application of digital friendly regulations and possible development of new solutions like e-Residency, "Virtual Office" or Business Registers Interconnection System.
4. To investigate data security and protection situation regarding new General Data Protection Regulation (hereinafter – GDPR) regulation, Proposal for new Regulation of Cybersecurity and possible security benefits of X-road and "blockchain" platforms.
5. To evaluate future development opportunities of company law in the light of new technological advancements provided by AI and "blockchain".

**Research methodology.** Various research methods are used in this research. The *historical method* is used to review the company law past development and changes in EU legislation. One of the most important methods is a *comparative method* as it is used for a comparison of various national legal systems of EU member states and determining interconnection between national and EU company law. *Data collection and data analysis methods* are used to search and study legal acts, scientific articles, legal reports and other

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<sup>9</sup> Anne Lafarre, Christoph Van der Elst, "Blockchain Technology for Corporate Governance and Shareholder Activism", 2018. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3135209](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3135209)

<sup>10</sup> Florian Möslein, "Robots in the Boardroom: Artificial Intelligence and Corporate Law". 2017. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3037403](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3037403)

information relating company law digitalisation in order to find existing problems and to draw conclusions. A logical-analytical method is used in order to identify current level of digitalisation and to emphasize possible future scenarios for further development of company law.

**Structure of the research.** The structure of the Master Thesis is comprised of an introduction, two chapters containing additional subchapters, conclusions and recommendations. The first chapter will include review of legal company law background in EU member states regarding digitalisation (company formation, online procedures, electronic communication between shareholders and companies, possibility to participate in shareholder meetings by electronic means, security measures and etc.). In addition, EU legislation and initiatives towards digitalisation and harmonisation of company law will be taken into consideration as well. In the second chapter, possible company law development in the future will be analysed. Analysis will be performed in short term and long term perspectives. Second chapter will be divided into three subchapters. First subchapter will be related to short term digitalisation and will cover conceivable harmonisation and cooperation of national laws. Next subchapter will be dedicated to data security and protection in digital world. Third subchapter will cover long term opportunities such as AI and “blockchain”. In the end of the research, conclusions will be drawn and recommendations will be provided.

**Defence statements.**

1. Current variety of company law provisions in EU member states and nonexistence of common legal background creates obstacles for digitalisation.
2. At present, only superficial regulation for digital procedures exists and there are no legal provisions for emerging digital innovations such as AI or “blockchain”.



# 1. LEGAL BACKGROUND OF COMPANY LAW DIGITALISATION IN EUROPEAN UNION AND MEMBER STATES

Company law was established long ago before rapid technological advancement and was guided by more traditional paths instead of using modern digital technologies until nowadays. History of company law can be traced even to Roman times, as there is plenty of evidence that romans had small business entities from a written source. Andreas M. Fleckner in his article distinguishes certain types of existing businesses.<sup>11</sup>

Compared to the roman era, company law developed significantly for reasons such as technological development, increased knowledge of business matters and globalisation. Constant development of company law is necessary, as it has to adapt to a growing amount and size of business entities and their needs for innovations. Until recent years, company law evolved in more traditional manner and usually was regulated inside the borders of individual countries. There is a considerable amount of different approaches to procedures as registration of companies, communication between shareholders or prevention from frauds and these rules varies depending on individual country. Nonetheless company is evolving constantly to current needs of companies, because business environment is very dynamic, and it develops very rapidly respectfully to a fast-paced technological advancement and globalisation. It is important to acknowledge how much it has developed and what future improvements should be made in upcoming years, because technological advancement became very expeditious and existing national company law regulations are starting to fall behind.

Before technological revolution, company law provisions were adjusted to more traditional measures with notary approval, hard paper forms as it was the best way to ensure quality and security of the processes. Although usual methods are working reasonably well until today, different approach to traditional company law starts to emerge as technologies start to offer new means how to simplify and to accelerate these procedures. Countries increasingly modify traditional paper-based company law systems and modify them to be more digital friendly as they realise that digitalisation could bring significant benefits. However, countries have very varying levels of digitalisation and still uphold plenty of conservative rules, as there are concerns about security and reliability of digitalized company law environment whereas traditional provisions proved to be working reasonably well despite having certain disadvantages. It raises a question how rapidly digital measures should be implemented by countries, in order to create the most fulfilling system for businesses to operate. In the next few years this question is likely to be raised

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<sup>11</sup> Andreas M. Fleckner. "Corporate Law Lessons from Ancient Rome ".2011. <http://corpgov.law.harvard.edu/2011/06/19/corporate-law-lessons-from-ancient-rome> [accessed 08/02/2018].

even more often, as EU is leaning towards more digital company law as European Commission's Digitising European Industry initiative (hereinafter - DEI) is already helping to draw digital benefits for businesses<sup>12</sup> and further technological advancement will presumably continue to offer new opportunities for companies to go forward. These questions are especially relevant to EU and all member states, as single market and movement without borders creates a lot of cross border situations.

In order to understand whether it is important to achieve similar level of digitalisation and how EU company law could be developed in the future, it is important to understand what is already have been done and what discrepancies still exist. In this part of the research, existing company law provisions in various EU member states for establishing and running a company will be taken into consideration. Furthermore, it will be specified what measures EU have already taken and what provisions have been implemented in order to help reforming a company law rules and make them more digital friendly. This information will help to predict future of company law in the second part of the research.

### **1.1. Company law rules and actions taken toward digitalisation in EU member states**

One of the main areas to consider is how different approach in member states on company law is and how digital friendly various countries are. On this research, authors' main focus will be on EU member states, because EU is unified in many areas, such as, single currency, single market, no customs inside the borders and for this reason, different company law provisions are creating additional obstacles for businesses to operate cross border, even if they have the right to do so. New technologies might facilitate a lot of procedures and better ensure rights for EU citizens. Moreover, if EU could succeed to adapt company law according to new technological capabilities, it could give a solution for all countries in the world how to use modern technologies in the most efficient way. For this reason, it is valuable to review at least certain amount of countries and their legal requirements for company formation and management. Author will introduce to the existing procedures in France, Germany, Italy, Lithuania and Estonia. It is significant to note, that EU encourages all countries to have company registration procedures not longer than 3 working days and cost should not exceed EUR 100<sup>13</sup>. For this reason, compliance with these recommendations will be reviewed. Analysis will also be carried by reviewing EU member states' individual procedures for company formation, types of the companies, statutory capital and requirements

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<sup>12</sup> "Digitising European Industry: 2 years after the launch of the initiative ". 2018. European Commission. <https://ec.europa.eu/digital-single-market/en/news/digitising-european-industry-2-years-brochure> . [accessed – 13/05/2018]

<sup>13</sup> "Startup ". European Union. [https://europa.eu/youreurope/business/start-grow/start-ups/index\\_en.htm#](https://europa.eu/youreurope/business/start-grow/start-ups/index_en.htm#) [accessed 13/05/2018]

such as payment prior registration, procedures for submitting documents online and differences between template registration forms, third parties rights to access company documents online, communication between shareholders and companies, possibility to participate in shareholder meetings by electronic means, security measures for electronic communication and additional improvements in company law area. In addition, impact of language barrier, different digital culture also has to be taken into consideration. Insights about current situation will be provided and influence on digitalisation will be considered. The above-mentioned countries were chosen, because France, Germany and Italy are the biggest EU member states, with long lasting membership and big economies, presumably it would be impossible to harmonize company law without participation of these 3 nations. Lithuania and Estonia were chosen as smaller and newer members of the EU in order to compare countries with different backgrounds. Moreover, these are probably one of the most advanced countries in digitalisation area.

**France.** Main types of companies in France are limited liability company “société à responsabilité limitée (hereinafter - SARL)” for small or medium sized businesses, classic joint-stock company “société anonyme (hereinafter - SA)” for large businesses, simplified joint-stock company “société par actions simplifiée (hereinafter - SAS)” which has some similarities to joint-stock company but is more flexible and requires only 2 partners for company formation which is similar to a simplified joint-stock company with only one partner “société par actions simplifiée unipersonnelle (hereinafter – SASU). (These<sup>14</sup>. Handbook of Legal Forms in Europe also identifies so-called individual firms, such as, special private limited liability company “entreprise unipersonnelle à responsabilité limitée (hereinafter – EURL)” which is easier to create and less risky<sup>15</sup>.

Shareholders’ protection is basically similar as in other countries and company types are categorised according to various needs of shareholders’ depending on what purpose company is created or how many shareholders’ are participating.

Share capital for SAS and SARL is €1 and for SA it is €37,000<sup>16</sup>. It is important to indicate, that share capitals for SAS and SARL were decreased in order to ensure better conditions for businesses as encouraged by EU according to proposal for Directive on single member private limited liability companies (hereinafter - SUP) It shows, that France is contributing to

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<sup>14</sup> Types of French Companies. <https://www.companyformationfrance.com/types-of-french-companies> [accessed 10/02/2018].

<sup>15</sup> Emmanuele, Lutfalla; Michael J., Munchert. “France”. Founding a Company– Handbook of Legal Forms in Europe/ edited by Michael J. Munkert, Stephan Stubner [et al.]. ISBN: 978-3-9098-642-11258-4. Springer Heidelberg Dordercht London New York, 2010., p 50.

<sup>16</sup> Jean-Marc Tirard, Maryse Naudin and Ouri Belmin, Tirard Naudin, “Establishing a business in France”. 2016. [https://uk.practicallaw.thomsonreuters.com/4-550-7105?transitionType=Default&contextData=\(sc.Default\)&firstPage=true&bhcp=1](https://uk.practicallaw.thomsonreuters.com/4-550-7105?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1)

harmonisation process in EU by reviewing certain company law regulations towards more digital friendly.

Talking about company setting up time and cost, European Commissions' country assessment for 2017, it can be seen that in France, registration of private limited company would take 3.5 days and would approximately cost EUR 84<sup>17</sup>. It means that France is not far away from provided guidelines and almost meets term and cost criteria's.

Current company formation process still has traditional requirements which needs to be kept in mind. During the annual conference about the Incorporation of Companies in the Digital Age it was reviewed that to set up a company in France, not only legal personality has to be created, but also tax, labour and social personalities of the company should be established.<sup>18</sup> It shall be noted, that digitalisation of only legal procedure will keep certain number of barriers intact and further digitalisation might be required in the future. However, as it was reviewed by ICLEG, it is possible to register companies by filling online form and it is also feasible to receive all necessary evidences of registration.<sup>19</sup> It is definitely a step forward towards more digitalised formation system in France, but this procedure is still not fully implemented and has certain flaws. Interesting thoughts were presented during Wurzburg conference, as it was argued that despite a one-stop shop electronic encounter which was created in 2010 in order to facilitate business registration online giving a possibility to complete all formalities in one place by using electronic means, it also has drawbacks such as excluding some formalities as professional liability insurance, registration of the articles of association with the business tax registers or declaring business, in addition, forms of registration are quite complicated and incorporators may need help from legal advisors.<sup>20</sup> From provided information, it is safe to assume, that improvements could be made in the future, as procedure of online incorporation still has traditional limitations and does not provide fully digital solution and does not allow to form and manage companies from a distance. It is especially important for small and medium ones who frequently might be lacking resources to expand and establish themselves in other EU member states by following traditional procedures of company formation. Language barrier also could be seen as an obstacle, as an example, online website for business creation in France<sup>21</sup> has two versions in French and English languages, but English version is not completely translated, and significant amount of information is still

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<sup>17</sup> "Country by country assessment overview table 2017". 2018. European Commission.

<http://ec.europa.eu/docsroom/documents/28069> [accessed – 13/05/2018]

<sup>18</sup> Nathalie Huet, Arnauld Reygrobellet presentation at the Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018

<sup>19</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 57.

<sup>20</sup> Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018

<sup>21</sup> <https://www.guichet-entreprises.fr/en/> [accessed – 18/04/2018]

presented in French. It might be difficult for foreigners to form a company without sufficient English translation.

Considering legal rules for transparent and secured online company formation and management process, Art. 1316-4 of the French Civil Code should be noticed as it contains rules for electronic registration by establishing presumption in favour of reliability of electronic procedures and specifies that identity of the signatory has to be confirmed by secured instrument<sup>22</sup>. One of such secured instruments could be the “Certigrefe” digital certificate, which allows companies to exchange various documents and information remotely by using USB stick safely<sup>23</sup>. It shall be noted, that currently it is not available to use electronic identity and signature in France. As it was provided during the Wurzburg conference presentation, in order to register company online, the copy of the proof of identity and handwritten signature of the declarant must be scanned<sup>24</sup>. In author’s opinion, it is not exactly the true digitalised way of company incorporation as it requires to use traditional requirements as handwritten signature, but allows to send it via internet. It is more like a compromise between traditional and digital approach.

Talking about third person’s ability to access information about companies, ICLEG report asserts that they may access all the information related to companies, but companies may not publish some documents because it is not fully free or frightened by risk to disclose a valuable internal information to the competitors<sup>25</sup>.

Communication between shareholders plays important role in digitalisation as well. In France, companies may decide to communicate and share information with shareholders electronically and French Commercial Code also states that it is possible for shareholders to participate in a general meeting through Video conference if certain security and quality conditions are fulfilled for communication<sup>26</sup>.

Reviewed information reveals that it is possible to register and manage a company in France by using online sources and that progress has been made towards company law digitalisation. It is safe to acknowledge that digitalisation of company law is developing step by step in France and formation as well as management of the company using online tools are achievable for various business entities. It is also conceivable to communicate electronically regarding shareholder meetings if sufficient security is provided. However, it also shows that

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<sup>22</sup> A consolidated version of the French Civil Code (Version with Automatic Translation Tool), 02/03/2017, <http://www.wipo.int/wipolex/en/details.jsp?id=17359> [accessed 10/02/2018].

<sup>23</sup> “Requirements for electronic signature in France”, <https://www.infogrefe.fr/societes/services-infogrefe/certificat-electronique.html> [accessed 2018-02-10]

<sup>24</sup> Nathalie Huet, Arnaud Reygrobellet presentation at the Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018

<sup>25</sup> The Informal Company Law Expert Group. “Report on digitalisation in company law. European Union”. 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 57.

<sup>26</sup> Ibid, p. 58.

digitalisation has not been fully implemented yet and problems may arise in company formation process in certain cases such as requirement to use notary services. when buildings are brought to the company or if company formation is made between married people<sup>27</sup>. Lack of digitalisation in electronic identification area and non-existence of electronic signature are also concerns to be resolved. Moreover, language barrier could be noticed while trying to register a company online. Information provided suggests, that France is a good example to indicate that digitalisation is still an evolving process and despite constantly evolving regulations, still has to come across remaining legal obstacles in order to make requirements more digital friendly.

**Italy.** Main company types have similarities basic ones differentiating between Private Limited Companies “società a responsabilità limitata (hereinafter - SRL)” and Public Limited Companies by Shares “società per azioni (hereinafter – SPA)”. Since 2014 a “Società a responsabilità limitata semplificata” is also available as a simplified version of an SRL, but share capital cannot exceed EUR 9999<sup>28</sup>.

The time of setting up a limited liability company is 1 day and costs EUR 2000 as specified in European Commissions’ assessment<sup>29</sup>. However, other sources are providing a bit longer period around one week<sup>30</sup>. It can be noted, that either way, Italy should reduce the cost of the procedure as it is highly too expensive in comparison to EU suggestion.

In general, rules of incorporation for companies are traditional to a greater extent than in France. However, minimum capital of limited liability companies can start from EUR 1, but when the capital is below EUR 10,000 certain restrictions apply<sup>31</sup>. Italian company law based on usual incorporation and in usual circumstances it is necessary to get approval from notary institution in order to establish a business. Of course, it does not mean, that Italy is not improving in digital area. As an exception for usual requirements, Italian legislation on innovative start-ups was implemented starting from 2012. This new legislation enables innovative companies to “draw upon new instruments and support measures which have an impact on the whole life cycle of a company”<sup>32</sup>. As it can be seen, innovative companies are treated in a unique way, but in order to get this status, company has to be perceived as innovative.

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<sup>27</sup> Nathalie Huet, Arnaud Reygrobellet presentation at the Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018

<sup>28</sup> “Registration of a Limited Liability Company in Italy”. <https://www.formacompany.com/en/italy/italy-company-registration.php> [accessed 13/05/2018]

<sup>29</sup> “Country by country assessment overview table 2017“. 2018. European Commission <http://ec.europa.eu/docsroom/documents/28069> [accessed – 13/05/2018]

<sup>30</sup> “Company Registration in Italy “. LEXIA Avvocati. <https://www.companyincorporationitaly.com/> [accessed 13/05/2018]

<sup>31</sup> Marco Mastracci. “Establishing a Business in Italy”. [https://uk.practicallaw.thomsonreuters.com/w-006-9469?transitionType=Default&contextData=\(sc.Default\)](https://uk.practicallaw.thomsonreuters.com/w-006-9469?transitionType=Default&contextData=(sc.Default)) [accessed 18/04/2018].

<sup>32</sup> “Italy, a smart choice for innovative start-ups”. <http://www.sviluppoecon/omico.gov.it/index.php/en/202-news-english/2033818-italy-a-smart-choice-for-innovative-startups> [accessed 18/04/2018]

According to executive summary of Italian Ministry of Economic Development, legislation applies only to the new companies with obvious connection to technological innovations<sup>33</sup>. This legislation is an example that Italy is trying to facilitate company law requirements in certain areas, but general approach is more traditional. It can be illustrated with the case related to mentioned exception. During presentation in Wurzburg conference, Prof. Dr. Federico Pernazza introduced a lawsuit of the National Notary Association because of presumed breach of art. 11 Dir. 2009/101/CEE, it was argued that security in online registration process is not enough safeguarded, but the court stated that Italian law provides two alternative procedures for company registration. In the first case, notary is responsible to ensure legality and in the second case, legality is guaranteed by the model or other forms<sup>34</sup>. Notary dissatisfaction illustrates, that digitalisation is not easily achievable goal in Italy. It maintains more traditional procedures. Prof. Dr. Federico Pernazza also distinguished 2 definitions of digitalisation for “soft” digitalisation as the one without changing the role of professionals and public services and “hard” digitalisation which modifies those roles<sup>35</sup>. In author’s view, Italy now achieved only “soft” digitalisation level.

Talking about possibility to submit documents electronically, it shall be mentioned that Italian legislation gives such possibility. As it is presented in ICLEG Report, documents can be submitted electronically to certain extent, but needs to be signed with digital signature and for companies already in the Business registry additional requirement to have a certified email and obligation to submit annual financial statements exists<sup>36</sup>. Despite these possibilities to submit documents online, company cannot be created electronically without traditional procedures, which automatically makes the process more time consuming and physical appearance of incorporator is necessary to conclude the process.

Third persons are allowed to access information from the register, and shareholders’ electronic communication is also allowed. This information is provided in Italian Civil Code provisions as Art. 2366, paragraph 3, as it is written that “companies whose shares are not listed nor widely dispersed among the public can adopt a provision in their articles of association whereby they can be authorised to send the notice convening a general meeting with any means”<sup>37</sup>. Art. 2370, paragraph 3 also ensures the right to exercise of the voting rights electronically<sup>38</sup>. It means that Italian legislation allows to use digital technologies at certain extent. Based on these

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<sup>33</sup> Italian Ministry of Economic Development, “Executive Summary of the new Italian legislation on innovative startups”, p. 5

<sup>34</sup> Prof. Dr. Federico Pernazza, “Incorporation of Companies in the Digital Age in Italy”. Wurzburg. 2018.

<sup>35</sup> Ibid.

<sup>36</sup> The Informal Company Law Expert Group. “Report on digitalisation in company law. European Union”. 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf) p. 65.

<sup>37</sup> Italian Civil Code (approved by Royal Decree No. 262 of March 16, 1942, and amended up to Decree No. 291 of December 7, 2016)

<sup>38</sup> Ibid.

legal provisions, it is safe to assume, that physical appearance of shareholders is not required and can be exercised from different locations by using electronic means, but exact procedures for that are non-existent which may create internal confusion within shareholders' meetings

Basically, it is possible to use electronic signature in Italy and it is legal to do that since 1997<sup>39</sup>. Security measures for using digital technologies are regulated by Legislative Decree 7 March 2005 no. 82 which is based upon EU Directive on a Community framework for electronic signatures<sup>40</sup>.

Overall, Italy stays loyal to more traditional regulation of company formation, so it is impossible to establish a company using a laptop and internet only with one exception to innovative companies, but certain actions are allowed, such as shareholders' electronic communication, participation in shareholders' meetings and submitting documents online. Compared to France, Italy has more traditional formation of the companies and needs to simplify its provisions in order to let online formation of the companies. In addition, language barrier is also might be an issue as foreign incorporators would have to communicate with public institutions and notaries and sometimes it might be an issue if, for example, employees of these institutions will have a low English knowledge.

After review of two countries, common problems are starting to appear. It is safe to assume that existing traditional requirements still prevent businesses from using electronic means fully. It is also debatable whether rights of people who uses electronic tools will be protected enough and all processes will be transparent as there are no exact procedures on how electronic communication should be performed.

**Germany.** Main company types are Limited Liability Company "Gesellschaft mit beschränkter Haftung (hereinafter - GMBH)" with a minimal capital share of EUR 25,000 from which 12,500 have to be deposited in a corporate bank account during the registration procedure, Joint Stock Company "Aktiengesellschaft (hereinafter - AG)"<sup>41</sup>. The reason for mentioning limited liability capital requirement is that minimal capital requirement for limited liability companies has some exceptions. Despite usual requirement as presented in a book related to a company law reform, limited liability company was introduced in 2008 and it is a particular variant of limited liability company with no minimum capital requirements, but with requirement to gather EUR 25,000 capital by collecting it step by step after incorporation<sup>42</sup>.

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<sup>39</sup> European Commission factsheet, "eGovernment in Italy". European Union. 2015.

<sup>40</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf) p. 66.

<sup>41</sup> Types of Companies in Germany, <https://www.lawyersgermany.com/types-of-companies-in-germany> [accessed 18/04/2018]

<sup>42</sup> Teichmann C.; Knaer R. Experiences with the competition of regulators - a German perspective/ edited by Dairdre Ahern et al., ISBN: 978-84-9059-941-9 Cizur Menor: Thomson Reuters Aranzadi [et. al.], 2015, p. 217.



According to European Commissions' assessment, company setting up time in Germany is 6.9 days and it should cost approximately EUR 383<sup>43</sup>. These results are worse than recommended by EU and should be improved in order to ensure similar rights in all EU.

It shows that Germany also has EUR 1 capital requirement which correlates with EU approach. Generally, Germany keeps more traditional approach to company law as notary approval is mandatory in all cases. This can be confirmed by thoughts from ICLEG report which indicates, that the articles of association must be notarized in the beginning and only after legal approval, notary and the register can communicate online<sup>44</sup>. In author's opinion, this requirement is a significant obstacle to use digital tools in company formation for businesses, especially for foreign ones, as physical appearance is necessary. Possibility to form companies online is one of the main digitalisation benefits and without it, company law across EU will remain highly diverse. Information provided in the ICLEG report also allows to presume, that there are no specific requirements for communication between the company and the shareholders according to provisions of German law, but it is possible to establish an internet forum for communicating with each other and include additional questions to the meeting agenda.<sup>45</sup> Equal opinion can be witnessed in paper about shareholders in Germany published in 2018 as it proclaims that electronic communication possibility can be provided in a corporate charter<sup>46</sup>. It shall be noted, that no legislation on electronic communication matter might not be a disadvantage, as it is not forbidden by laws also, so each company can decide whether to engage in digital communication. However, it may establish unequal conditions for shareholders with different approach in every company.

Talking about security measures regarding electronic communication, ICLEG report states, that there is no legal document which would draw exact requirements for using it, so digital signatures are accepted for various purposes in civil law and procedural law<sup>47</sup>. Situation with no requirements for security measures may be harmful, as it may create obstacles for foreigners to have approved e-signature, lack of transparency and low level of trust for businesses. In authors' view, it is better to have common requirements as appliance of security measures becomes more common and it is easier to check validity of digital actions.

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<sup>43</sup> "Country by country assessment overview table 2017". 2018. European Commission. <http://ec.europa.eu/docsroom/documents/28069> [accessed – 13/05/2018]

<sup>44</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf). p. 59.

<sup>45</sup> Ibid

<sup>46</sup> Gabriele Roßkopf, Martin Hitzer et. al., "Shareholder Activism & Engagement", p. 58. <https://gettingthedealthrough.com/area/84/jurisdiction/11/shareholder-activism-engagement-germany/> [accessed 18/04/2018].

<sup>47</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf) p. 57.

Language barrier may be a problem as well. As it was presented in “Private company law in Europe: The race for flexibility” book regarding obstacles for English entrepreneurs company formation in Germany as language barrier was one of the drawbacks<sup>48</sup>.

To sum up, Germany has strict company law procedures and a lot of conservative requirements are in force. Involvement of notary in basically all procedures, not only consumes more time, but also creates additional costs by creating a longer chain which forces people to pay money for a middleman in order to get permission for actions which could be done directly. The reasons for such conservative approach might a willingness to maintain credibility of business register data as business registers in Germany are decentralised in some extent and digitalisation might reduce the level of control for information quality. However, lack of digitalisation might create inequality between citizens of EU and may limit cross border business development and because of that, solutions for further digitalisation should be presented in Germany despite mentioned apprehensions

**Lithuania.** Contrary to the countries already reviewed, Lithuania is one of the newer members in EU and one of the smaller countries as well. According to Lithuanian Centre of Registers, it is possible to use online registration for individual enterprise, private limited liability company “uždaroji akcinė bendrovė (hereinafter – UAB)” , associations, public institution and charity and relief foundations<sup>49</sup>. It confirms that online formation of a company is already in use.

According to a previously mentioned assessment, it takes 3-4 days to register a private limited liability company and it costs EUR 57-289<sup>50</sup>. Of course, as in the previous examples, it includes not only online registration.

However, there are specific conditions. First of all, only Lithuanian citizens are able to register a company by electronic means, for foreigners this possibility is not implemented, unless they have a resident permit with Lithuanian personal code, then they can receive an electronic signature and register company online equally to Lithuanian citizens<sup>51</sup>. As it is presented in the book, in order to register business electronically, it is necessary to consider existing requirements: to hold a qualified electronic signature; to draw up incorporation documents with approved model forms; it is forbidden to use a name of the state (Lietuva) in the company which is being registered; if the headquarters are not the private property of the incorporator, a consent of the owner signed by electronic signature is necessary; the premises must not be seized; shares of private liability company shall be paid by the monetary contribution and the name of the company must be

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<sup>48</sup> Teichmann C.; Knaer R. Experiences with the competition of regulators-a German perspective/ edited by Deirdre Ahern et al., ISBN: 978-84-9059-941-9 Cizur Menor: Thomson Reuters Aranzadi [et. al], 2015, p. 221.

<sup>49</sup> Lithuanian Centre of Registers, <http://www.registrucentras.lt/p/671> [accessed 12/02/2018].

<sup>50</sup> “Country by country assessment overview table 2017“. 2018. European Commission. <http://ec.europa.eu/docsroom/documents/28069> [accessed – 13/05/2018]

<sup>51</sup> Lithuanian Centre of Registers, [http://www.registrucentras.lt/jar/index\\_en.php](http://www.registrucentras.lt/jar/index_en.php) [accessed 12/02/2018].

temporary reserved in the Register of Legal Entities<sup>52</sup>. If these requirements are met, there are no obstacles to establish business online. Additional attention should be paid to requirements for headquarters. It is clearly an obligation to have physical headquarters available in the registration process but during Wurzburg conference, Mr. Gintautas Bartkus proposed that the need for virtual registered office exists, as public consultation showed that 89% of people favours virtual office compared to physical<sup>53</sup>. In author's opinion, virtual office would be a step forward in ensuring fully digital registration and management of the company. Further analysis of virtual office possibility will be carried in the next chapter of the research.

Considering third persons' rights to access the information about companies, ICLEG report provides existing rules which includes allowance to access information about the company code, legal form, and legal status of the company free of charge. Additional information if contract with "Register of Legal Entities" is signed and certain amount of money is paid<sup>54</sup>.

According to ICLEG report, electronic communication between company and shareholders is possible, as they have the right to vote, present certain information or to present the agenda or projects of decisions before the shareholders' meeting<sup>55</sup>. Certain guidelines can be found in the Law on Companies of the Republic of Lithuania, Art. 21, where it is stated, that "For the shareholders to be able to attend and vote at the General Meeting of Shareholders by means of electronic communications, only the requirements and restrictions which are necessary for establishing the shareholders' identity and for ensuring the security of the transmitted information may be applied to the use of the means of electronic communications and only in the case when they are proportionate to achieving these goals". According to the same Art. 21 of the Law on Companies of the Republic of Lithuania, "The company may provide a possibility for shareholders to attend the General Meeting of Shareholders and to vote by means of electronic communications"<sup>56</sup>. Guidelines mentioned above reveal, that rights for electronic communication must be ensured, it can only be limited for security or identification risks of shareholders.

Security is one of the most important areas in digitalisation process. In Lithuania, requirements are specified in Law on Electronic Signature, Art. 8, which indicates that "A secure electronic signature, created by a secure signature creation device and based on a qualified

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<sup>52</sup> Bitė, V.; Gumuliauskienė, G. The Proposal for a Directive on Single-Member Private Limited Liability Company (SUP) from the Lithuanian Perspective. *Private Companies in Europe: The Societas Unius Personae (SUP) and the Recent Developments in the EU Member States* / edited by Jorge Viera González, Christoph Teichmann [et al.]. ISBN: 978-84-9098-369-0. Cizur Menor: Thomson Reuters Aranzadi, 2016, p.133.

<sup>53</sup> Gintautas Bartkus presentation at the Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018

<sup>54</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf) p. 68.

<sup>55</sup> Ibid.

<sup>56</sup> Law on Companies of the Republic of Lithuania, <https://e-seimas.lrs.lt/portal/legalActEditions/lt/TAD/TAIS.106080> [accessed 12/02/2018].

certificate which is valid, shall have the same legal force that a hand written signature in written documents has and shall be admissible as evidence in court”<sup>57</sup>. This article in theory has a significant importance as it confirms, that electronic signature has the same value as ordinary signature and can be used instead of it or even may be used in court if necessity arise. However, as it is correctly assumed in article related to recent developments of private companies in EU member states, reality is a bit different, because The Centre of Registers only electronic signatures that may identify the signatory, which means that only Lithuanian citizens and residents of Lithuania may use it at full extent<sup>58</sup>. Necessity to have Lithuanian personal code has been underlined before, but this particular example shows, that even if laws provide an opportunity to do certain actions, it may be impossible in practice as digitalisation procedures have not been fully implemented yet.

Talking about language barrier, maybe it may be a problem sometimes, for example in search of a headquarters, as native language is not English and information which is provided in Lithuanian Centre of Registers website differentiates slightly, , but English e-guide for new entities registration is basically the same, which should provide all necessary information for foreigners as well.

According to the statistics of Lithuanian Centre of Registers which was presented by Mr. Gintautas Bartkus during the “Conference on the Incorporation of Companies in the Digital Age”, 72.4% of private limited liability companies, 56.9% of individual companies, 33.9% of associations, 69.8% of public institutions, 61.9% of charity and relief foundations and 91% of small partnerships were established electronically during 2017<sup>59</sup>. These numbers are high enough to reflect the demand of digitalisation among business entities. In parallel, it is still possible to use traditional incorporation procedures to ensure equal rights, but as it can be seen, majority of incorporators already prefers to use electronic means. From information which was presented, it can be assumed, that Lithuania’s provisions are not fully adjusted to digital environment yet, as it has some obstacles left (for example, necessity to have Lithuanian personal code, but in general, great progress has been made as it can be seen from the percentage of electronic formation of the business entities and provided tools for company management online by using electronic signature or electronic ID card

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<sup>57</sup> Law on Electronic Signature of the Republic of Lithuania as of 11 July 2000, <https://www.e-tar.lt/portal/lt/legalAct/TAR.382345294FBB> [accessed 12/02/2018]

<sup>58</sup> Bitė, V.; Gumuliauskienė, G. The Proposal for a Directive on Single-Member Private Limited Liability Company (SUP) from the Lithuanian Perspective. *Private Companies in Europe: the Societas Unius Personae (SUP) and the Recent Developments in the EU Member States* / edited by Jorge Viera González, Christoph Teichmann [et al.]. ISBN: 978-84-9098-369-0. Cizur Menor: Thomson Reuters Aranzadi, 2016, p.135

<sup>59</sup> Gintautas Bartkus presentation at the Conference on the Incorporation of Companies in the Digital Age, Wurzburg, 2018.

**Estonia.** It is essential to mention Estonia not only because it has high level of digitalisation in many areas, but also because of unique solutions implemented in digitalisation area such as X-Road secured data exchange and e-Residency. According to the Commercial Code, main business entities in Estonia can be categorised to Private limited liability companies “Osühing (hereinafter – OU)” and Public limited company “Aktsiaselts (hereinafter – AS)”<sup>60</sup>. Private limited company has a requirement to have minimum EUR 1 nominal value of a share and the share capital must be a minimum of 2,500 EUR, but if founders are private persons and the share capital is less than 25,000 EUR, they can decide whether to pay their share or not<sup>61</sup>. However, additional conditions are specified in the Commercial Code of Estonia: the founder must be a natural person; the shareholder will be liable to the private limited company for the obligations of the private limited company in the amount of the outstanding contribution if the obligation cannot be performed of the assets of the private limited company; in case of bankruptcy, the claim may be filed by the trustee in bankruptcy; until the complete payment, the private limited company’s share capital has to remain intact and no payments for shareholders can be performed, unless it is salary<sup>62</sup>. As it can be seen, Estonia does not have EUR 1 minimum share capital requirement as some other countries, but have some perks which allows to delay the payment.

Talking about terms and cost of company registration, European Commissions’ assessment of the countries provides 1-2 days term and cost between EUR 145-190<sup>63</sup>. As it will be seen later, there are certain exceptions for even faster registration process, but it may vary as it is not clear whether it is performed online all the time or with notary approval. Mentioned cost is slightly too high according to the mentioned above recommendation of EU.

Estonia’s main distinctiveness is that level of digitalisation in all areas of life is very high and governmental institutions eliminated a lot of legal barriers in order to digitalise the company law. As an example, world record for the fastest founded company was achieved in Estonia, it took only 18 minutes to form a company by using internet<sup>64</sup>. Considering that it was done almost 10 years ago, this is an astonishing achievement and it proves that registration process can be even faster than 1-2 days. Usually, formation of a company in Estonia needs more than 18 minutes, but it is possible to form a company in 3 hours’ period if it is performed online. Moreover, 98 % of companies are established online, 99% of banking transactions are being made using internet, and

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<sup>60</sup> Estonian Commercial Code, <https://www.riigiteataja.ee/en/eli/504042014002/consolide> [accessed 12/02/2018]

<sup>61</sup> Private limited company, <https://investinestonia.com/business-in-estonia/establishing-company/legal-forms/limited-private/> [accessed –12/02/2018].

<sup>62</sup> Estonian Commercial Code, <https://www.riigiteataja.ee/en/eli/504042014002/consolide> [accessed 12/02/2018]

<sup>63</sup> “Country by country assessment overview table 2017“. 2018. European Commission. <http://ec.europa.eu/docsroom/documents/28069> [accessed – 13/05/2018]

<sup>64</sup>New world record in Estonia, <http://www.baltic-course.com/eng/energy/?doc=20451> [accessed 19/04/2018].

95% of tax declarations are filled online as well<sup>65</sup>. In recent years, Estonia made even more improvements. One of them is an emergence of e-Residency system. It can be defined as a digital ID available to anyone in the world. E-Residency offers the freedom to easily start and run a location independent business online using the convenient digital business services of Estonia<sup>66</sup>. By using e-resident card people can establish a company online, manage the company remotely and achieve location independence<sup>67</sup>. However, there are certain limitations for foreigners related with digital signature. These exceptions will be presented in the second part of the research, together with further analysis of e-Residency system. It is evident, that e-Residency provides opportunities for shareholders and people who are related to the company to communicate with company from any place of the world and to attend shareholders' meetings from any place as well.

Another innovation which could be used in other European countries is X-Road secured data exchange. It allows the nation's various public and private sector e-Service databases to link up and function in harmony. Security is ensured by digitally signing and encrypting all outgoing data from X-Road, and all incoming data is authenticated and logged. X-Road is already implemented not only in Estonia, but in Finland, Azerbaijan, Namibia and Faroe Islands. It also allows to exchange data automatically<sup>68</sup>. e-Residency and X-Road are the digital solutions which could be adjusted to all EU member states and it could facilitate cross border interaction by providing tools to create an efficient Single market as it is based on free movement of goods and services in EU, but current administrative obstacles and differentiated legal requirements in member states do not allow to get enough benefit from this general rule. In author's view, e-residence and X-road examples could be applied more broadly across EU, for this reason more detailed analysis will be provided on e-Residency and X-Road in the next chapter of the research.

During 21st European Company Law and Corporate Governance Conference, Ms Kaja Kallas presented main aspects which has to be considered in order to digitalise company law in EU: clear and secured digital identity in order to know with who you are doing a business with; possible application of "blockchain" technology to make transactions or carry other actions; cooperation between member states in order to ensure cyber security and safe data exchange; data storage in the "cloud" as an alternative to local data storing<sup>69</sup>. It shall be noted, that in case of data storage, physical data storage locally sometimes could be more vulnerable than storage online as

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<sup>65</sup> Starting a company in Estonia, <https://investinestonia.com/business-in-estonia/establishing-company/process/> [accessed 13/02/2018]

<sup>66</sup> Using e-Residency, <https://investinestonia.com/business-in-estonia/establishing-company/e-residency> [accessed 13/02/2018]

<sup>67</sup> Ibid

<sup>68</sup> X-Road data exchange, <https://e-estonia.com/solutions/interoperability-services/x-road> [accessed 13/02/2018]

<sup>69</sup> Ms Kaja Kallas presentation, 21st European Company Law and Corporate Governance Conference <https://www.eu2017.ee/political-meetings/21st-european-company-law-and-corporate-governance-conference> [accessed 13/02/2018]

it can be affected by natural disasters and other unpredictable events and information stored online in such circumstances could be retrieved more easily as it is being kept in more than one place

Ms Kaja Kallas also underlined the importance of cooperation related GDPR regulation which set rules for high level protection of personal data and unifies applicable rules in EU as without cooperation, rules of GDPR can be interpreted differently<sup>70</sup>. It is safe to assume that it would harm privacy level and would not give expected result.

In Estonia, people can do a lot of things without leaving their home, even voting in the elections. This kind of approach is making people's life easier, because the pace of the living is very fast nowadays, and it is essential for people to have as much free time to spend at home as possible. Technologies are able to provide this kind of comfort and digitalisation can be really beneficial in all areas, but regarding administrative procedures, still a lot of work needs to be done, until all citizens of EU can enjoy benefits which can be provided by technologies.

In conclusion, five different member states were reviewed to acknowledge their situation regarding digitalisation of company law. The findings suggest that process of digitalisation is evolving in each country constantly and countries acknowledge that technologies are providing benefits such as consummation of time and money, productivity, freedom to establish and provide goods or services in any EU country. However, level of digitalisation is uneven, as it was seen by reviewing countries above. While Germany and Italy have a lot of restrictions to form a company online mainly because of obligatory notary approval, in France, Lithuania and Estonia it is possible to do more easily. However, France lacks of electronic identification measures, as electronic signatures are not used properly. In Lithuania it is not possible to use electronic signature at full extent and both in Estonia and Lithuania, limited liability companies have higher minimum capital requirements than EUR 1, with different conditions. Variety of provisions do not allow for citizens of EU to use their rights fully and creates unnecessary obstacles. Setting up durations and costs also confirms that requirements are different in all countries and not all of them correlates with EU recommendations. As data presented includes not only online company registration, it is important to assess that digitalisation process could help to ensure a better compatibility with EU targets. As European Commissions' progress report on start-up procedures in 2017 specifies that in case of online company registration, average time to start a company in EU was 2.7 days and cost was EUR 283 while generally it is 3.1 days and costs EUR 311<sup>71</sup>. Information provided confirms that digitalisation can help to improve the conditions for the businesses.

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<sup>70</sup> Ms Kaja Kallas presentation, 21st European Company Law and Corporate Governance Conference <https://www.eu2017.ee/political-meetings/21st-european-company-law-and-corporate-governance-conference> [accessed 13/02/2018]

<sup>71</sup> "Start-up procedures: progress in 2017". 2018. European Commission. <http://ec.europa.eu/docsroom/documents/28070> [accessed 13/05/2018]

Notwithstanding, unequal digitalisation levels throughout the EU should not be surprising, because member states' company law was created before the revolution of technologies and all requirements were formulated during times, when it was not possible to form or manage a business only online, without traditional involving procedures. Naturally, for 28 member states, with different legal systems, more time is needed, in order to adapt to the new capabilities which technologies are providing.

To sum up, main problems encountered are lack of unity between member states while implementing new administrative requirements in order to facilitate digitalisation process, identification of the businesses and people involved, as it is necessary to know with whom you are communicating online, ability to ensure people rights in cross border relations, no matter if they are consumers, employees or shareholders also protection of the personal data and security measures to prevent fraud. These main areas will be considered while reviewing EU approach and implementations made towards digitalisation and harmonization of company law in the following subchapter.

## **1.2. European Union legal provisions and initiatives on digitalisation**

In this part of the research, EU company law provisions and actions taken towards improvement of digitalisation will be reviewed. Variety of legal systems in member states create obstacles to more developed digital environment in EU and for this reason it is important to consider how EU is helping to harmonise company law throughout the continent. From the reviewed countries, it is clear, that EU member states have already taken some measures to facilitate the use of digital technologies and electronic communication, but not all the problems are solved, and it is necessary to analyse EU initiatives to harmonise digitalisation across the Europe as well.

**Shareholder Rights Directive**<sup>72</sup>. This directive was implemented in 2007, but recently amendments were made to the SRD. This directive is important to the digitalisation topic because as it was presented during the conference about EU corporate governance, new SRD directive facilitates shareholders interaction with company<sup>73</sup>. It also has other amendments, but author believes, that facilitation of the company and shareholders' communication is the most relevant modification for digitalisation progress. According to ICLEG report, SRD includes requirements

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<sup>72</sup> Directive 2017/828/EC of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement, Date of document: 17/06/2017, European Parliament, Council of the European Union.

<sup>73</sup> Conference on EU Corporate Governance in XXI century Brussels, Presentation of the revised Shareholder Rights Directive and Q&A session, 2017, [http://ec.europa.eu/newsroom/just/item-detail.cfm?item\\_id=58322](http://ec.europa.eu/newsroom/just/item-detail.cfm?item_id=58322) [accessed 22/04/2018].



to enable shareholders to put items on the agenda of the general meeting, draft resolutions by using electronic means and permitting companies to offer any form of participation in the general meeting for their shareholders, for example, real time transmission of the general meeting for shareholders<sup>74</sup>. By having these rights, shareholders can address the meeting from remote location and to vote without attending the meeting and it helps to create a single digital market in EU. Certain provisions from the directive were already observed while reviewing Lithuanian company law provisions and it shows that member states are adjusting their company law provisions to the EU rules and harmonisation is in process at least on certain level. As an example, the Art. 3a of the SRD states, that Member States shall ensure for companies the right to identify their shareholders<sup>75</sup>. However, this should be done only if a shareholder has more than 0.5 % of voting rights as provided in Article 3a of the directive,<sup>76</sup>. According to these new amendments, in order to ensure fluent communication with shareholders, company should have right to collect information about its shareholders which would help to identify them in case of electronic communication more easily.

According to the European Commission, identification of shareholders will help to transfer information more efficiently in cross-border situations, as it will prevent participation of many intermediaries in the process and will decrease the possibility of information not being transferred<sup>77</sup>. It shall be noted, that right to identify shareholders is not exactly providing direct rules for digital communication, but it will definitely provide a better environment for electronic communication as it will be clear who are particular shareholders of the company and it will make it possible to attend the meetings from different location without physical appearance.

After reviewing SRD, it has to be acknowledged that EU is trying to facilitate shareholders' participation and to make it more transparent. SRD will contribute to unobstructed cross-border communication and create a better environment for digitalisation to be developed, when implemented by Member States, it will harmonize shareholders' position considering international business and it will improve the rights of the shareholders. However, it should be noted, that cooperation between member states is also an imperative condition to achieve goals outlined by SRD, because there are no exact instructions on how identification or participation by electronic means should be regulated, so member states are free to choose the way on how it will

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<sup>74</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 9.

<sup>75</sup> The Amended Shareholders' Rights Directive, <https://companylawandgovernance.com/2017/05/28/the-amended-shareholder-rights-directive/> [accessed 2018-02-14].

<sup>76</sup> Directive 2017/828/EC of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement, Date of document: 17/06/2017, European Parliament, Council of the European Union.

<sup>77</sup> European Commission's factsheet on Shareholders' directive, Brussels, 14 March 2017

be ensured and, in author's view, it would be more beneficial to create similar procedures across EU than to have different ones in each country.

**Transparency Directive<sup>78</sup>.** This Directive was implemented in 2004 and amended in 2013. According to ICLEG report, it sets out transparency requirements connected to information about issuers whose securities are admitted to trading on a regulated market which means, provides requirements of information for issuers and request member states to give grant for issuers to use electronic means, but the use of electronic means shall not depend on the location of the seat or residence of the shareholder and shareholders<sup>79</sup>. It shall be noted, that these changes might be interpreted as part of EU harmonisation process and should increase possibilities to use digital solutions as amended Transparency Directive (hereinafter – TD), Article 4.7 provides requirement to prepare annual financial reports in a single electronic reporting format<sup>80</sup>. It can be understood as a change of direction towards facilitation and harmonization of public information. As it will provide a better and more transparent access for people involved with the company. It can be confirmed by the statement from European Commission, as it was explained that it is necessary to ensure the public access to the information disclosed by listed companies as current procedure is complicated and scattered between national databases which are not efficiently interconnected<sup>81</sup>.

Amendments made to the TDTD similarly to SRD identification requirements are not directly providing a higher digitalisation instantly, but it can be noticed, that pattern of these analysed amendments is focused on harmonization and facilitation of company law provisions and it naturally establish a better background for further digitalisation with more common procedures across the continent.

**The Business Registries Interconnection Service (hereinafter - BRIS).** This service was established in accordance with Directive 2012/17<sup>82</sup> together with Commission Implementing Regulation 2015/8842 containing procedures and structure for the system of interconnection of

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<sup>78</sup> Directive 2013/50/EU of the European Parliament and of the Council of 22 October 2013 amending Directive 2004/109/EC on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market, Date of document: 22/10/2013, European Parliament, Council of the European Union.

<sup>79</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 10.

<sup>80</sup> Directive 2013/50/EU of the European Parliament and of the Council of 22 October 2013 amending Directive 2004/109/EC on the harmonisation of transparency requirements in relation to information about issuers whose securities are admitted to trading on a regulated market, Date of document: 22/10/2013, European Parliament, Council of the European Union.

<sup>81</sup> Transparency requirements for listed companies. [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/transparency-requirements-listed-companies\\_en](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/transparency-requirements-listed-companies_en) [accessed 22/04/2018]

<sup>82</sup> Directive 2012/17/EU of the European Parliament and of the Council of 13 June 2012 amending Council Directive 89/666/EEC and Directives 2005/56/EC and 2009/101/EC of the European Parliament and of the Council as regards the interconnection of central, commercial and companies' registers, Date of document: 13/06/2012, European Parliament, Council of European Union.

business registries and security measures<sup>83</sup>. The interconnection system was built mainly on the legal rules drawn in these two EU legal documents. According to the article provided by Vanessa Knapp, BRIS connects the national business registers to a central European platform and allows a common access to information on companies and branches in the EU<sup>84</sup>. This is a significant improvement as until now, national business registers were not connected, and it created obstacles for cross-border actions. In author's view, BRIS provides an opportunity to find any required information about any EU company significantly faster and provides much more clarity as there is no need to contact each business register separately. BRIS also removes a language barrier as not all national business registers may present all information in English individually. BRIS is a step forward towards united EU company law and provides more harmonized and transparent background for EU businesses. This assumption can be verified by the statement presented in the Željka Bregeš and Tina Jakupak article "The gold of BRIS is to access to up-to-date and official information on companies"<sup>85</sup>. BRIS value certainly could be the same or even higher than gold, if possible future benefits for companies and citizens would be calculated.

However, certain things need to be considered. First of all, BRIS might be very dependent on individual countries and their institutions on which information will be provided and how comprehensive it will be. For example, the same information can be provided in different terms and by using various forms of documents. It could bring a lot of confusion and misunderstandings. Taking into account such a possibility, it becomes significantly important for member states to cooperate and coordinate their actions. Clarity and transparency of provided information is the only way to ensure the success of the BRIS. Although BRIS needs cooperation between member states, it is important to understand that it differentiates from another idea which relates European Business Register (EBR). As it was presented by Dr Bartłomiej Kurcz during 21st European Company Law and Corporate Governance Conference, BRIS is not a central business register, but more like a platform for interconnection. A great variety of national institutions makes it very difficult to create one single European Business Register, but interconnection system might be the solution at least in the near future<sup>86</sup>. It shall be noted, that BRIS is truly a step forward in a

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<sup>83</sup> Commission Implementing Regulation EU 2015/884 of 8 June 2015 establishing technical specifications and procedures required for the system of interconnection of registers established by Directive 2009/101/EC of the European Parliament and of the Council, Date of document: 8/06/2015, European Parliament, Council of European Union.

<sup>84</sup> Vanessa Knapp, "Cross border mobility: what do we need in practice?". 2018, <https://link.springer.com/content/pdf/10.1007/s12027-018-0495-6.pdf> [accessed 04/24/2018]

<sup>85</sup> Željka Bregeš, Tina Jakupak. "Digitalisation of business register". p. 97, 2017.

<sup>86</sup> Dr Bartłomiej Kurcz presentation, 21st European Company Law and Corporate Governance Conference <https://www.eu2017.eu/political-meetings/21st-european-company-law-and-corporate-governance-conference> [accessed 13/02/2018]

digitalisation process of company law and opposite to the first initiatives reviewed, provides a significant change for company law future.

**The Consolidated Directive (hereinafter – CD).** One more action taken by the EU is a partial codification of EU company law by merging six different directives into one Directive which relates to certain company law aspects<sup>87</sup>. This step can be embraced as an intention to create a common codified company law in EU. As it is correctly presented in the article of Milena Prisco, the purpose of this codification is to create the conditions to effectively promote the fulfilment of the freedom of establishment and of the freedom to conduct business as it is established by the Treaty on the Functioning of the European Union (TFEU) and the Charter of Nice<sup>88</sup>. Codification brings part of company law rules together and provokes further harmonisation. At the same time, it is indirectly creating a common pattern to build a more digital company law environment. However, it is essential to mention, that this codification was made by combining all six directives without improving them, so it is basically the same directives, but under the same name. Rules set up in the Consolidates Directive are still far from perfect regarding digitalisation as it does not cover all problems and there are new proposals emerging on how company law rules should be improved to be able to use digital tools in a more efficient way. Certain examples on how BRIS could be operated in the future are provided in Vanessa’s Knapp article: a merging company could be allowed to post draft merger terms on its website before the shareholders meeting; also merging companies should be able to provide any information they are required as it would help to speed up the process for competent authorities while exchanging information within BRIS; approval and authorisation of business divisions could be performed by providing information digitally without having to be physically present in the relevant Member State<sup>89</sup>. Mentioned proposals shows that current regulation of company law in a CD is not sufficient enough in a digital way. Ability to check information about companies and cooperation between Member States in exchanging information about companies brings positive results, but the question is whether it is enough as mentioned limitations still exists. Imperfection of existing regulations can also be seen from European Commission’s new proposal which aims to complement the existing rules on EU company law set up in a Directive 2017/1132 with legal basis for that being an intention to ensure that “registration, filing or access to company data should not entail significant additional regulatory burdens for the applicants when registering companies or branches in other Member

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<sup>87</sup> Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law, Date of document: 14/06/2017, European Parliament, Council of European Union.

<sup>88</sup> Milena Prisco. “European company law in the making – The 2017/1132 directive”. 2017, <https://www.legalmondo.com/2017/10/european-company-law-making-20171132-directive/> [accessed 26/04/2018]

<sup>89</sup> Vanessa Knapp. “Cross border mobility: what do we need in practice?”. 2018

States in cross-border context”<sup>90</sup>. Current CD is not sufficiently developed to ensure the whole process and lacks of deeper regulation. Existing regulation problems are specified in the content of the proposal: there are significant differences between Member States relating availability of online tools for companies in their contacts with public authorities; one of the main Commissions’ priorities is a deeper and fairer internal market; EU requirements for a minimum set of data which must always be provided for free are still not always followed; The lack of rules for online registration, filing and publication or differentiation of rules in the Member States create unnecessary costs and burdens to entrepreneurs who wants to do a cross-border business<sup>91</sup>.

It shall be noted, that reasons for the new proposal correlates with a comparative analysis of EU member states from the previous subchapter. European Commission addresses similar problems to mentioned above, such as, very diverse company law in EU member states and overly superficial regulation of online tools in whole Union.

As it can be noticed, digital environment of company law is still evolving and there are still things to improve. Currently it is neither fully codified nor digitalized. In order to create a modern background, new solutions need to be implemented.

**Proposal on a single member private limited liability companies (SUP).** In order to improve the business environment, in particular for SMEs, one of the main priorities of the EU is ten-year growth strategy, Europe 2020 - making business easier and better<sup>92</sup>. In current situation, without common rules for company types, certain problems can be witnessed. In European Commissions’ proposal, problems such as, lack of SMEs investments abroad, diversity of national legislations, differences in national company laws and the lack of trust in foreign companies among customers and business partners<sup>93</sup>. If these concerns could be solved, it could facilitate company formation and management process as it would provide common cross-border rules in any member state. The key elements of the European Commissions’ proposal include the formation of the company via online registration, creation of a uniform template for the articles of association to be adopted as an implementing act and proposition to have common at least EUR 1 share capital requirement<sup>94</sup>. However, this proposal remains intact as majority of suggestions were left without

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<sup>90</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law, Date of document: 25/04/2018, European Commission.

<sup>91</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law. Date of document: 25/04/2018. European Commission.

<sup>92</sup> Europe 2020 A strategy for smart, sustainable and inclusive growth, Date of the document: 03/03/2010.

<sup>93</sup> Proposal for a Directive of the European Parliament and of the Council on single-member private limited liability companies, Date of the document: 9/04/2014, European Commission.

<sup>94</sup> Teichmann, C.; Gotz, A. How to make a molehill out of the mountain: the single member company (SUP) proposal after negotiations in the council / edited by Jorge Viera González, Christoph Teichmann [et al.]. ISBN: 978-84-9098-369-0. Cizur Menor: Thomson Reuters Aranzadi, 2016, p.39.

approval following unsuccessful negotiations in EU Council<sup>95</sup>. Disagreements prevents further development of the proposals and it is unlikely that common opinion will be reached in the near future. For this reason, it is important to search for another solution. Possible solutions can be found in an article from the Lithuanian authors as it is suggested to include only a minimum amount of provisions for companies with a single owner or to allow for Member States to have specific legal forms without creating a new form with a possible conversion into SUPP<sup>96</sup>. Author believes, it could help to find a compromise between different opinions and Commissions' proposal could be implemented at certain extent.

Directive could facilitate formation and management of the specific type of business in all EU, which would further harmonize company law and would facilitate cross-border actions, for example by giving same template to use in a while exchanging information through BRIS. Now it would solve the problem only partially as it would cover only one type of business, but if proven to be working, further amendments could be made in the future.

**eIDAS Regulation.** This is a regulation which establishes a secure electronic identification tool and ensures security while accessing online services and performing electronic transactions<sup>97</sup>. The eIDAS Regulation offers the solution to insufficient cross-border interoperability between Member States<sup>98</sup>. It enables people from any EU country to engage in online services and contribute its part in pursuit for fully digital single EU market. At the same time, it harmonizes requirements in Member States as well. As it is presented in ICLEG report, The Regulation is already in force and Member States have been able to choose to apply the provisions on the mutual recognition of notified eID means since 29 September 2015, but these provisions will apply mandatorily starting from 29 September 2018<sup>99</sup>.

All these reviewed measures are designated to make more developed and more comfortable business environment in EU territory by providing countries with the guidelines on how to facilitate company law provisions and digitalise it, keeping in mind the security level of the legal procedures at the same time. Apart from reasons mentioned above, EU approach and actions towards digitalisation have additional purpose to ensure a better implementation of the

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<sup>95</sup> Teichmann, C.; Gotz, A. How to make a molehill out of the mountain: the single member company (SUP) proposal after negotiations in the council / edited by Jorge Viera González, Christoph Teichmann [et al.]. ISBN: 978-84-9098-369-0. Cizur Menor: Thomson Reuters Aranzadi, 2016, p.39.

<sup>96</sup> Bitė, V.; Gumuliauskienė, G. The Proposal for a Directive on Single-Member Private Limited Liability Company (SUP) from the Lithuanian Perspective. Private Companies in Europe: The Societas Unius Personae (SUP) and the Recent Developments in the EU Member States / edited by Jorge Viera González, Christoph Teichmann [et al.]. ISBN: 978-84-9098-369-0. Cizur Menor: Thomson Reuters Aranzadi, 2016, p.149.

<sup>97</sup> eIDAS Regulation, <https://ec.europa.eu/futurium/en/content/eidas-regulation-regulation-eu-ndeg9102014>, [accessed 26/04/2018].

<sup>98</sup> e-Identification, <https://ec.europa.eu/digital-single-market/en/e-identification>, [accessed 25/04/2018].

<sup>99</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 12.

Founding treaties of EU as it guarantees four fundamental freedoms for the citizens: the freedom to work anywhere in the Union; the freedom to establish oneself anywhere in the EU; the freedom to provide services across the EU and the freedom to invest across the EU<sup>100</sup>. Until recent technological breakthrough which gave new opportunities to business world, these rights were ensured with limitations, as theoretically it was possible to establish a company in another member state, or provide services by opening a branch of already existing company in another country, but in practice, everything is more complicated. It might be really hard to use the right of establishment if you do not know the language of the country in which you want to do business and provisions of that country do not allow online incorporation. Even after company is established, it can be problematic to manage company from a distance. For large companies it might not seem such a big problem as they can hire lawyers and advisors to facilitate the process, but for small or medium businesses it is costly and time consuming. Mentioned situation uncovers disadvantages of traditional company law and digitalisation could provide help in ensuring fundamental rights of the EU citizens as modern technological capabilities gives new solutions and as it was explained previously, certain actions have been already made in order to change the situation in a positive way, but further developments needed in the future.

Business world is obviously undergoing a revolution as new technologies are emerging and demand for digital solutions is constantly growing. For this reason, it is important for governmental institutions of Member States and EU in general to redesign traditional company law and provide new solutions for businesses. Information provided in the first chapter reveals that company law provisions vary across the continent and from five countries taken into consideration it is clear that digitalisation encounters certain legal barriers. Broad spectre of administrative procedures is part of the obstacles to fully exploit opportunities of digitalisation. Positive side of variety is that different approaches may create alternative solutions and bring fresh ideas, it could also bring uncertainty and legal barriers for businesses to progress. Author of this research believes that with cooperation between Member States and help from EU institutions, company law can evolve to a fully digital extent, providing benefits for everyone, starting from ordinary citizens, companies and finishing with public institutions. If existing concerns such as identification of shareholders or incorporators, transparency of the process, personal data security or rights of certain persons could be resolved, there would be no reasons left for businesses to consume time and money on traditional procedures. It would be possible to form companies in any EU country, to attend shareholders' meetings from any place using only electronic tools and to perform many other actions by using only a personal laptop. For this hypothetical future to become reality, further

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<sup>100</sup> The Informal Company Law Expert Group. "Report on digitalisation in company law. European Union". 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 14.

harmonization and digitalisation should be performed as many traditional provisions still exist. Notwithstanding, it might be too early to replace traditional company law and replace it with the digital one at the moment as legal regulation is still inconsistent and varies between national legal systems while current EU efforts are still lacking digital solutions and provides guidelines only on partial digitalisation. In addition, not only laws, but also mind-set of people has to change. Only the time will tell if digital procedures will fully replace traditional methods, but visible change of direction can be seen throughout EU regarding connection between technologies and law, as demand for digitalisation is constantly growing and revolution of technology is starting to touch everyone.



## **2. FURTHER DEVELOPMENT PROCESS AND FUTURE OPPORTUNITIES FOR COMPANY LAW**

In first chapter of the research, EU member states and their legal background of company law were reviewed. Analysis provided information about different legal regulations and approach to digitalisation throughout Europe revealing main discrepancies in the path for digitalisation. EU legal regulation and initiatives towards digitalisation were also considered. Analysis of both areas gave insights on how company law digitalisation is progressing. Information provided addresses issues such as digital identification of people, data security risks, level of transparency, equality assurance, demand for further harmonisation of national company law provisions, cross border cooperation and necessity to modernize company law further as current regulation is incomplete in order to receive maximum benefits from technologies. Whereas it was a theoretical analysis without providing clear solutions for existing problems, this chapter will provide authors' opinion on will discuss issues with possible future development opportunities. First part asserted already performed actions to facilitate company law and it was revealed that not all problems are resolved completely as businesses are still disabled to use technologies at full capacity. Insufficient regulation on digital matters is one of the concerns, but it can be developed by new proposals as part of them were provided in the previous chapter. However, after analysis, lack of exact digital procedures can be witnessed in national company laws and EU legislation. More specifically, it provides requirements, such as, obligation to ensure online formation of the company or interconnection between national business registers, but the question is, whether such requirements are enough to provide the best tools in the process. In the short term, permission to use electronic means can be sufficient, but in the long term, it could require broader approach as most recent technological developments such as "blockchain" and "artificial intelligence" are already waiting in line. These technologies could be interconnected with company law in the future and contribute to further digitalisation with not yet considered solutions to the existing issues.

### **2.1. Company law harmonisation and cooperation between EU member states**

The literature presented in the first part of the research gives a better understanding on how important it is to have a unified company law across EU. With lack of cooperation and different provisions in member states, it is not possible to use all modern capabilities. For this reason, EU institutions are trying to bring countries closer to each other and improve business environment. It does not mean that countries are not developing their administrative procedures towards digitalisation separately, but in authors' opinion, it is essential to have same approach and to improve at a similar level in order to create equal rights for everyone. According to information

what was obtained, author will discuss how certain measures effect digitalisation process and what could be improved.

Disunity of EU member states aggravates interconnection between law and technologies. Only way to develop digital company law is to move in the same direction for all EU members. In the beginning of the research it was not clear whether digitalisation needs to be left for each country individually or it should be monitored and polished with the help from EU institutions. The findings have indicated that differences might provide new efficient solutions. Each country is trying to create something new, as an example – e-Residency used in Estonia, but it also showed, that it slows down the process of digitalisation. Different administrative regulation is complicating possible ways to form and manage a business. For example, if a citizen from Germany wants to establish a company in Estonia and in Italy, he will have to overcome completely different procedures to incorporate a company. It will be time consuming and probably will require physical appearance in certain cases. In these circumstances, EU interference is probably necessary at certain level in order to equalize significant differences. As it can be seen from information obtained in this research regarding new regulations and directives on company law matter, EU is already taking steps to achieve more harmonised approach towards digitalisation. Great accomplishment was made with introduction of BRIS as it is a perfect example of EU and countries cooperation in reaching common target. According to an article from judges at Commercial Court Zagreb Željka Bregeš and Tina Jakupak, BRIS will provide a higher degree of legal certainty and improve the cooperation between national business registers in cross-border mergers or exchanging relevant information regarding companies and their branches, providing legal certainty and confidence in the internal market<sup>101</sup>. Author agrees to this opinion, as interconnection of business registers is definitely one of the key elements in creating a digital environment for business entities to act. Important aspect of this new cooperation is that it is not one European business register, but it connects all national business registers. This approach might be the most appropriate, as it is hard to expect that company law provisions and requirements will be the same in all EU member states instantly. However, cooperation of different national business registers is a right first step on harmonising variety of law provisions. Connection between national registers not only facilitates cross-border mergers and provide relevant information about companies, but also preserves national registers. As company law has differences in every country, national institutions are the ones who can provide most accurate information for BRIS system. Interconnected business registers will not only provide similar benefits as single European business register, but also maintain unique procedures of each country. National business registers

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<sup>101</sup> Željka Bregeš, Tina Jakupak. “Digitalisation of business register”. 2017. p. 97.

are best at understanding how to possess information collected in individual country. If EU would create European Business register in the future, it could cause difficulties by ensuring that information compose the most relevant data.

It is important to mention, that interconnection of national business registers could have drawbacks also. For example, it might be difficult to ensure that information provided is collected and processed in the same way and regarding same high standards, because national institutions might administer certain procedures differently and include diverged information in the same template documents. One of the ways to resolve it could be achieved by cooperation and information sharing. It would ensure a better transparency and certainty. Basically, author supports initiative to create a BRIS system as it facilitates cross-border business operations and it is significantly easier to find relevant information about a certain company in one portal, than searching all national registers, but it is obviously only one part of the whole digitalisation puzzle.

One more initiative already reviewed at some extent is SUPP. There are a great variety of requirements for different types of companies in different countries. For that reason, proposal for SUP directive on single-member private limited liability companies was introduced in 2014. This proposal addressed private limited companies and their lack of harmonisation. It might look as an insignificant improvement as it is concentrated only on one type of companies, but contrary to that, SUPP directive could give a start of further unification of requirements for companies in EU member states. According to the sources, around 24 million companies in EU are established and 99 % of them are small or medium enterprises which means that digitalisation can help them to grow, as barrier of law creates costs while modern and reliable framework of law can help companies to operate in EU without costly procedures and administrative barriers<sup>102</sup>. This proposal was made in pursuit to increase harmonisation throughout EU. According to the requirements established in a proposal, businesses could have similar legal basis in all member states regarding single-member private limited liability companies. Online registration procedures, templates for registration and articles of association, verification of identity and control of legality, duration of registration procedures or minimal capital requirements were negotiated until now in EU Council<sup>103</sup>. Unfortunately, countries had a lot of disagreements on these propositions and majority of suggestions were not approved. Negotiations between EU member states were basically unsuccessful and only one feature survived which obliges member states to allow online registration of the companies. However, even on this agreement there are no uniform rules how to

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<sup>102</sup> 21st European Company Law and Corporate Governance Conference, <https://www.eu2017.ee/political-meetings/21st-european-company-law-and-corporate-governance-conference> [accessed 20/03/2018]

<sup>103</sup> Jorge Viera González, Christoph Teichmann et al., *Private Companies in Europe: the Societas Unius Personae (SUP) and the Recent Developments in the EU Member States*, p. 55 /Cizur Menor: Thomson Reuters Aranzadi, 2016.

do it and member states can follow the directive or to make additional requirements which means there will be no uniform template for the procedure<sup>104</sup>. It shall be noted, that inability to solve these disagreements is harmful for further digitalisation process, as SUPP proposal involved critical improvements for more unified company law and it would have facilitated formation procedures. Without solution to above mentioned disunion it might be hard to move forward as a single unit. Looking into the future, common company law frames should be created, but apparently there are no solutions to raised questions yet as countries have many concerns on this matter. Despite these hurdles, as it was established in the first part of the research, countries are adapting their company law requirements in certain areas, for example, size of required share capital. Although SUPP does not have full support, it can be seen as certain guidance moving forwards and searching new ways for harmonisation. For now, SUPP is basically European Brand for a corporate legal form which is governed by national law with established possibility of online registration<sup>105</sup>. Significant transformation of the proposal shows, that there is still a long way to go until company law will reach sufficient level of harmonisation. Intentions are good, but lack of internal solutions are leaving existing barriers intact. Despite the stagnation of SUPP proposal, other initiatives as amendments made by new TD and SRD or adoption of eIDAS Regulation are successfully creating common background for businesses to operate as they are already in power.

Despite digitalisation being a new process and only in its first stage of development, EU has clear approach on how company law background should be shaped in the future. In the new proposal from European Commission, it is provided, that more equal opportunities for companies in the EU should be ensured by member states by enabling and promoting the use of digital tools and processes in company law area<sup>106</sup>. EU institutions and member states are only starting to understand the value of digital company law. It is only the beginning and further development will be needed so it would be unwise to confine only on discussed reforms. Other ideas might be considered as future amendments to the company law as well.

One of the ideas worth mentioning is e-Residency program. It is already active and practically everyone can become a participant of it. This program was briefly reviewed earlier, but author believes, additional attention should be given to this new idea as it could bring new solutions

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<sup>104</sup> Jorge Viera González, Christoph Teichmann et al., *Private Companies in Europe: the Societas Unius Personae (SUP) and the Recent Developments in the EU Member States*, p. 55 /Cizur Menor: Thomson Reuters Aranzadi, 2016.

<sup>105</sup> Jorge Viera González, Christoph Teichmann et al., *Private Companies in Europe: the Societas Unius Personae (SUP) and the Recent Developments in the EU Member States*, p. 55 /Cizur Menor: Thomson Reuters Aranzadi, 2016.

<sup>106</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law, Date of document: 25/04/2018, European Commission.

into company law area. E-Residency was created in Estonia and basically it is possible to become e-resident for everyone. Regarding company law, it enables e-residents of Estonia to easily start and run a global business in EU<sup>107</sup>. In order to register a company in a fully online procedure, certain identification requirements need to be considered. It is provided, that “all persons related to the company (board members, founders, council members, etc.) have to have an Estonian, Latvian, Belgian, or Finnish ID card, Estonian or Lithuanian mobile ID, or Estonian e-Residency card”<sup>108</sup>. It basically means that among e-Residency card, other ID cards could be used. However, it is a limited list and e-Residency is fulfilling the gap for other foreigners, not including ones from mentioned countries. Estonian state portal also provides information that in order to log in to the Company Registration Portal for registration procedure it is necessary to have both, an e-Residency ID-card and the digital signature software, which could be an Latvian, Belgian or Finnish ID card or Lithuanian Mobile ID as well<sup>109</sup>. It means that not all foreigners are available to log in to the system and perform registration procedure if owned digital signature software do not fall under mentioned requirements.

There are a few main advantages of e-Residency. Establishment of the company remotely from any place in the world, access to business banking and online payment service providers, full ownership of the company as no local director needs to be appointed, management of the company can be carried remotely as it is possible sign and authenticate documents in any place of the world, possibility to encrypt documents which needs to be sent, declaration of taxes online, no need for re-establishment if owner is moving to the other country<sup>110</sup>. These new possibilities give many new alternatives for doing business and such rules are more flexible than traditional company law. E-Residency is allowing to run a worldwide business without necessity of constant traveling around the globe. As it was already mentioned, there is no common frame for registration of the company in EU right now, so e-Residency could be a step forward in a harmonisation process as it could be adapted for each country individually in the most suitable way. In order to do so, traditional company law rules have to correspond with e-Residency system, because countries without online formation allowance are not able to offer such options. By having e-Residency, countries could monitor and identify all business owners and it would solve some concerns about identification and legality. It could be presumed, that it would be possible to create not only national e-Residency, but EU e-Residency as well, but probably company law rules should be

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<sup>107</sup> “What is e-Residency?” Republic of Estonia e-Residency. <https://e-resident.gov.ee/> [accessed 2018-03-25]

<sup>108</sup> “Five easy Steps to Establish Your Business “. Republic of Estonia e-Residency. <https://e-resident.gov.ee/faqs/business/#business> [accessed 05/05/2018].

<sup>109</sup> “Start a business in Estonia”. Estonian State Portal. <https://www.eesti.ee/en/entrepreneur/establishing-a-company/start-a-business-in-estonia/> . [accessed 13/05/2018]

<sup>110</sup> “Become an e-resident “. Republic of Estonia e-Residency. <https://e-resident.gov.ee/become-an-e-resident/> [accessed 25/03/2018]

more harmonised across the continent than it is now. For now, there are no uniform company law provisions and company types can vary, so it is unlikely EU will have similar system as e-Residency instantly, but it might be an option in the future. e-Residency is providing many benefits in Estonia for business formation and management while Estonia is ranked 12 in world for how easy is to do business<sup>111</sup> in the country. It partially proves the point that e-Residency could be a great idea for all EU.

Another idea possible to implement is “Virtual office” for businesses. Advertisements can be seen online with offerings to buy virtual office services from certain providers already<sup>112</sup>. However, company law provisions in EU member states, basically requires a physical office for businesses. Virtual office service now is available only to a certain extent, as all providers are working as intermediaries by providing physical address for the business. “Virtual office” without physical address is not available right now because of existing legal regulation. Even by using e-Residency in Estonia, it is not possible to use only virtual address, according to legal regulation, physical address is required as e-Residency page is only offering to contact intermediaries to attain the physical address<sup>113</sup>. According to the research exercised in Lithuania by public institution “Investuok Lietuvoje”, it is increasingly common practice that people without the right to own a property, when registering a new legal entity, purchase a so-called “Virtual office” service from intermediaries at the time of setting up a business<sup>114</sup>. It shall be noted, that it does not exactly correct to call it a “Virtual office” in these circumstances as it is a physical address, but only provided by third parties through online communication. For this reason, possibilities to create only “Virtual office” should be considered, as it would give opportunity for businesses to act directly. In the research it is also argued that, due to the fact that the addresses are inaccurate, the communication of state institutions with legal persons is difficult, sending correspondence often does not reach or reaches the representatives of the company too late and the solution is offered to legitimise a “Virtual office” concept without any intermediaries involved in the process which would enable a platform to receive real-time key messages and documents from public authorities<sup>115</sup>. Author agrees to this opinion, that “Virtual office” without any third parties’ participation in the process would give more direct and more rapid communication between companies and business registers

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<sup>111</sup> “Ease of Doing Business in Estonia “. The World Bank.

<http://www.doingbusiness.org/data/exploreeconomies/estonia> [accessed 29/03/2018]

<sup>112</sup> “Virtual Offices “. Europe Register. <https://www.europeregistry.com/virtual-offices> [accessed 05/05/2018].

<sup>113</sup> Virtual Office service providers. [https://e-resident.gov.ee/service\\_category/virtual-office-contact-person/](https://e-resident.gov.ee/service_category/virtual-office-contact-person/) [accessed 29/03/2018]

<sup>114</sup> Adelė Jaškūnaitė, Raminta Olbutaitė., “Virtualios buveinės įkūrimo galimybės Lietuvoje” [Virtual office establishment opportunities in Lithuania], p. 3, 2017. <http://kurkl.lt/wp-content/uploads/2017/10/Virtualios-buvein%C4%97s-%C4%AFk%C5%ABrimo-galimyb%C4%97s-Lietuvoje.pdf> [accessed 30/04/2018]

<sup>115</sup> Adelė Jaškūnaitė, Raminta Olbutaitė., “Virtualios buveinės įkūrimo galimybės Lietuvoje” [Virtual office establishment opportunities in Lithuania], p. 3, 2017. <http://kurkl.lt/wp-content/uploads/2017/10/Virtualios-buvein%C4%97s-%C4%AFk%C5%ABrimo-galimyb%C4%97s-Lietuvoje.pdf> , [accessed 30/04/2018]

or other governmental institutions. The idea has potential to further facilitate business formation and contribute to a more simplified online registration procedure. However, company law regulation would have to be adjusted to a more favourable one as existing laws require having a physical place of registration in all EU member states usually. This is completely understandable, as transfer of company office to virtual world only, without sufficient control could provide tools for some companies to avoid undesirable documents such as bailiff requests or hide from other obligations.

Another problem may arise when deciding on applicable national company law. In a recently released proposal, European Commission is distinguishing two types conflict of law rules as some member states uses the real seat theory (law is determined by the place of central administration of the company) and incorporation theory (where law is determined by the place of registered seat)<sup>116</sup>. These different approaches may create certain problems for companies with “virtual office”. Currently, place of incorporation usually means the place of physically registered office. In case company would have only “virtual office”, legal regulation would be insufficient to determine where is the place of incorporation in reality. According to existing company law, it would look like real seat theory probably would be more suitable as place of central administration looks more tangible. However, in case it is a small company with a single owner, company might not have a central administration to distinguish the applicable law. In the same proposal, the Court of Justice practice is summarised on this matter: company must be recognised throughout the EU if it has any of its registered office, central administration or principal place of business in a member state<sup>117</sup>. This court practice suggests that both theories should be available. In this case, “virtual office” could be established in a platform provided by individual member states. By this method, registered place would remain clear, but it would not be physically accessible place in reality, but just a platform provided by on or another member state. In authors’ view, with newly enabled BRIS system, it would be possible to distinguish “virtual office” place in individual country, but at the same time it would help to spent less and would not require changing place of registration if company assets transfers to another place. It could be done virtually, for example by notice to the national business registers about change of a business place.

Naturally, in order to ensure transparency and observance of the law, various risks have to be considered as platform has to be sufficiently covered by law and provide warranties for creditors and clients of companies who may register their place of business virtually, but in general, “virtual office” idea has potential to improve certain process of the businesses

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<sup>116</sup> Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2017/1132 as regards the use of digital tools and processes in company law, Date of document: 25/04/2018, European Commission, p. 33.

<sup>117</sup> Ibid.

Availability to use public electronic services is constantly growing as study carried for European Commission regarding “eGovernment” development in Europe claims<sup>118</sup>.

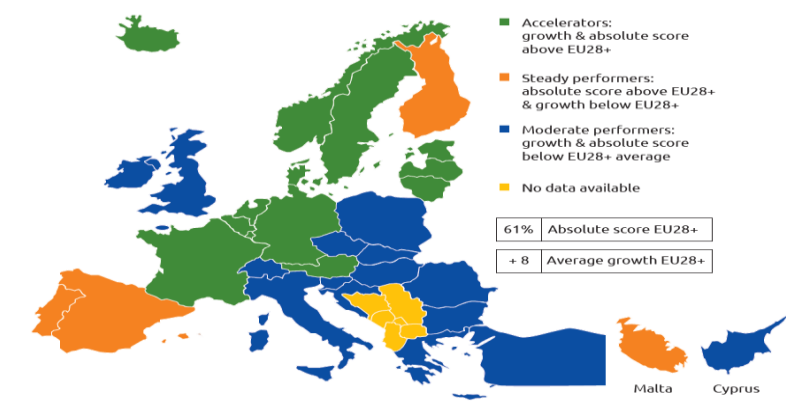


Figure 1: Illustration how countries are progressing compared to the EU28+ average<sup>1</sup>

1 Picture

From the given picture, it can be seen, that various countries are developing their “eGovernment” systems as promoted to do by European Commission in its EU “eGovernment” Action Plan 2016-2020, which highlights “eGovernment” initiative as a way to support administrative processes, improve the quality of the services, public sector efficiency including reduced administrative burden and easier interactions for businesses with public authorities<sup>119</sup>. However, the pace of improvement is diverse. While some countries are progressing above EU28+ level, other states have slower pace but high level of “eGovernance” in general and there are certain countries, with development level below EU28+ average and their current “eGovernment” level is under average results also. This survey is relevant to the topic, because one of the barriers for digitalisation of company law is lack of modern possibilities to interact with public institutions for businesses and different levels of “eGovernance” is slowing digitalisation and delaying efficient cross-border interactions. The picture also confirms reliability of information provided in the first part of the research. Although EU is entering a harmonisation process, great variety of approaches is preventing to use fundamental freedoms and establish anywhere in the Union, to provide services across the Union or to invest across the Union<sup>120</sup> and creates obstacles for a unified EU single market to emerge. That is why harmonisation of company law provisions, digitalisation of public services and cooperation between member states in search for new digital solutions are the main areas to focus on in the near future.

<sup>118</sup> EU eGovernment Report 2016, <https://ec.europa.eu/digital-single-market/en/news/eu-egovernment-report-2016-shows-online-public-services-improved-unevenly> [accessed 03/04/2018]

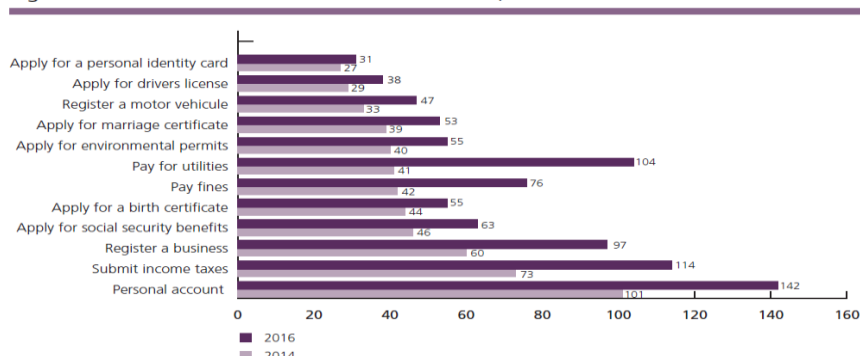
<sup>119</sup> EU eGovernment Action Plan 2016-2020, <https://ec.europa.eu/digital-single-market/en/news/communication-eu-egovernment-action-plan-2016-2020-accelerating-digital-transformation> [accessed 03/04/2018]

<sup>120</sup> The Informal Company Law Expert Group. “Report on digitalisation in company law. European Union”. 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 6.



In parallel with growing variety of electronic public services, demand is also rising. In a survey, carried by United Nations (hereinafter – UN) on “eGovernment” situation in UN countries, trends of transactional services online are emphasised<sup>121</sup>.

Figure 4.3. Trends of transactional services online, 2014 and 2016



2 Picture

Picture of the survey shows, that usage of electronic services to perform many daily actions which was only available by physical appearance in the past was growing significantly between 2014 and 2016 and it confirms that people are seeing benefits in digitalisation and tend to use it more if they are provided with the right tools to do so. The most important row in the picture regarding company law is registration of the business by using electronic means. Significant grow can be seen even considering that increase reflects arguably short period of time, covering two years. Such an increase indicates that people are ready to approach new technological opportunities which allows them to register or manage their businesses online as it helps to consume time, money and makes it possible to accomplish a lot of goals without leaving home. It is easy to imagine how much more time it would take if person would want to perform all actions reflected in the picture by physical appearance. Correlation between development of „eGovernment“ and growing usage of transactional services online can be seen after reviewing both illustrated surveys. As governments are providing citizens with new digital tools and more electronic capabilities, they tend to use it more often than not. This correlation brings evidences that people want digital tools to perform daily actions online and it shows that EU member states are moving to the right direction by giving new electronic opportunities for its citizens.

Synergy between technologies and legal regulation can provide a better and more comfortable future for businesses. From assessed information, it can be presumed that a lot of progress have been made on company law field to enter the digital era, but disagreements between member states and uneven digitalisation across EU, blocks full technological potential and plenty

<sup>121</sup> United Nations E-Government Survey 2016, <https://publicadministration.un.org/egovkb/en-us/reports/un-e-government-survey-2016> [accessed 03/04/2018]

of company law provisions are still waiting in line to be modified and connected with new electronic capabilities. Constant development and search for new solutions to improve legal business environment is necessary to keep up with technological progress, maintain world level competitiveness and to ensure equal rights to register or operate business cross-borders within internal EU market. At the same time, emergence of new ideas like e-Residency or “Virtual office“ should be considered not only on national level, but shared across all EU as implementation of such kind of ideas could increase level of harmonisation and digitalisation across Europe in concert.

## **2.2. Data security and protection in digital environment**

Data security and protection is one of the most important issues to ensure a safe usage of electronic services. It is significant to ensure that personal data of people or confidential company information is secured and not vulnerable for unnecessary exposure or cyber-attacks. As we are living in a world in which data is becoming as much valuable as oil was for many years right now, it is essential to have sufficient protection methods. Lack of security measures might generate a lot of damage and it could even surpass all benefits digitalisation provides. For this reason, author believes that data security and protection is a topic which needs to be taken into a more comprehensive consideration.

In the first part of the master thesis, “X-Road” security system was presented which is used by Estonia to prevent vulnerability of personal data. This system could be the answer for raised security concerns not only in Estonia, but also in all continent. In addition, options such as “blockchain” technologies should be considered as well, as they can provide high level of security likewise. New requirements enforcement of GDPR regulation<sup>122</sup> starting from 25<sup>th</sup> of May should also be kept in mind as it underlines how important data security and privacy is becoming for EU. Moreover, Proposal for a Regulation of the European Parliament and of the Council regarding cybersecurity matter is being considered<sup>123</sup>.

Author will generate main attention to personal data protection and cybersecurity as it is significantly important for digitalisation including company law area. Without sufficient protection, digital EU would look like an expensive apartment without doors and locks to protect it from thieves. In such circumstances, probably majority or all furniture would be stolen without

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<sup>122</sup> Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) Date of document: 27/04/2016, European Parliament, Council of European Union.

<sup>123</sup> Proposal for a Regulation of the European Parliament and of the Council on ENISA, the "EU Cybersecurity Agency", and repealing Regulation (EU) 526/2013, and on Information and Communication Technology cybersecurity certification. Date of document: 13/09/2017, European Commission.

possibility to retrieve it. Not to mention all the private family information which would be exposed to any trespassers. It is doubtful that anyone would like to be in situation like that. This is a very simple example, but it displays a situation in which organisations, companies or governmental institutions could find themselves with lack of understanding about risks coming with digitalisation of company law and new ways for data processing. Security is a serious topic, and this subchapter is designated for personal data protection and cybersecurity because it forms a transparent background for people who are providing their personal information or for companies transferring confidential data online.

First of all, author wants to distinguish personal data protection and cybersecurity definitions. According to Robert de Souza who is associate partner at the Head of Privacy Practice Chaucer Consulting, personal data protection is related to legislation and EU directives while cybersecurity is the practice of shielding information from being accessed, used, changed or interfered with against the law<sup>124</sup>. As it can be seen, these two concepts are different and should not be confused. Author will provide his opinion and insights on both of them separately.

Talking about personal data protection, part of it is regulated by national laws, but EU is also trying to create a common framework to secure personal data. According to Art. 16 of the Treaty on the Functioning of the European Union, “Everyone has the right to the protection of personal data concerning them”<sup>125</sup>. As it is the main framework of the EU it underlines that right for protection is the natural right for everyone. The protection of personal data under the EU Charter of Fundamental Rights article 8 also refers to everyone<sup>126</sup>. Surely, these articles give only very broad description and it is difficult to understand how this right could be protected. For this reason, more comprehensive analysis needs to be provided. In recent years, EU is trying to strengthen law provisions on data protection significantly. One of the steps taken is a modified GDPR which will be compulsory starting from 25<sup>th</sup> of May. It is basically oriented towards natural persons and their personal data protection, but at the same time it impacts legal entities as well, who are operating in the EU and processing personal data. As we are entering the digital age, for fair amount of people, it is unclear how much personal data is collected and how it is used. More than 90% of Europeans wants to have same data protection rights across the EU including the data which is processed outside the EU borders<sup>127</sup>. This statement shows that despite demand for digitalisation, legislation on data protection needs to be improved as well. Main GDPR goals are

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<sup>124</sup>Robert de Souza, “Cyber Security and Data Protection the differences”. <https://www.linkedin.com/pulse/cyber-security-data-protection-differences-robert/> [accessed 05/04/2018]

<sup>125</sup> Treaty on the Functioning of the European Union as amended by the Treaty of Lisbon, signed on 13 December 2007 in Lisbon and which entered into force on 1 December 2009, Date of the document: 13/12/2009

<sup>126</sup> Charter of Fundamental Rights of the European Union, Date of the document: 26/10/2012

<sup>127</sup> Data protection in the EU. [https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu\\_en](https://ec.europa.eu/info/law/law-topic/data-protection/data-protection-eu_en) [accessed 2018-04-09]

to protect rights of data subjects like security and confidentiality of personal data, proper notice, choice, right of access, rectification and erasure and etc., while keeping up with the pace of new technology landscape which has changed significantly during the years and now unifies 28 disparate privacy laws of the EU member states<sup>128</sup>. GDPR is directed on the data which is being processed by companies and provides new tools for citizens to protect their rights. The relevance to the company law topic unfolds with realization that many companies will be effected by this regulation and privacy laws will be more harmonised across the continent. In contradiction, certain difficulties will emerge as it will become harder for businesses who are dependent on data collection to modify their products and services from the obtained data and companies will need to adapt and to learn how to manage information according to stricter requirements. From authors personal experience during the time of internship at IBM, it can be seen, that a lot of preparations needs to be performed in order to prepare for the new requirements by training employees who are used to more liberal data management. It definitely requires fair amount of time and additional expenses to adapt. Furthermore, it might be a hard task for companies with smaller resources. According to the GDPR, companies from outside the EU should comply to the same requirements as ones from within EU. Equal requirements and transparent framework should give more confidence for citizens, as approximately 250 million people are now using the internet every day in Europe. Personal data being shared by using online banking, shopping, social media or electronic tax returns. Without having a common framework for protection risks as unauthorised disclosure, identity theft or online abuse may affect anyone involved in online operations<sup>129</sup>. Success of digital business also relies on these risks, as people confidence in technologies has to be high in order to create fully digital environment and transfer all services to electronic space. Despite GDPR main target to protect data of the natural persons and additional requirements for companies processing the data, certain benefits for companies can also be observed. Such benefits are provided in European Commissions' fact sheet as it is mentioned, that until now, businesses in the EU had to deal with 28 different data protection laws. After GDPR, it will be enough to notify different national data protection authorities about the personal data they are processing. Rules for all companies will be the same, despite if it is in the EU or outside the EU<sup>130</sup>. Common rules for data protection will further harmonise laws for companies needed to follow while operating within

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<sup>128</sup> Getting Ready for the European Union's General Data Protection Regulation? Learn, Think and Prepare, <https://securityintelligence.com/getting-ready-for-the-european-unions-general-data-protection-regulation-learn-think-and-prepare/> [accessed 09/04/2018]

<sup>129</sup>EU Data Protection Reform: better data protection rights for European citizens, [https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules\\_en](https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en), [accessed 09/04/2018]

<sup>130</sup> EU Data Protection Reform: better rules for European businesses, [https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules\\_en](https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en), [accessed 09/04/2018]

EU borders. So despite stricter requirements, personal data legal regulation will become more transparent and clear for everyone. As an example, company who is carrying its activities only in Lithuania and is processing personal data for their services, wants to expand its business to France and Estonia. In a situation without GDPR, company would need to deal with different requirements of each country separately and as each country has different requirements, it might create problems. If it is a big company with a lot of resources it can hire legal advisors for each country despite amount of expenses, but if it is a small or medium company, costs for expansion can be very painful and it might block the process. With GDPR in force, company has to deal with common requirements in all 3 countries and process of business expansion will be less costly. In this case, GDPR will protect natural persons while providing equal rights across EU and facilitate regulation for businesses by giving clear and unified rules for data management. Previous example shows that small and medium size companies can have the most benefits from this new regulation as expenses with common rules will be much lower. In addition, the GDPR aims to remove burdensome administrative requirements for smaller companies with certain exceptions as companies with fewer than 250 employees will not be obliged to keep records of their processing activities unless they are processing data regularly, poses a threat to individuals' rights and freedoms, criminal or sensitive data<sup>131</sup>. It will definitely give small companies an advantage, but keeping in mind the fact, that big companies are much more financially capable, such exceptions only gives a better chance to compete and allows small companies to grow despite harsh competition with big enterprises. By following GDPR requirements, technologies such as mentioned above will be able to provide new solutions throughout Europe maintaining high level of data protection. European Commissions' fact sheet regarding rules for European business provides opinion that new GDPR common rules will facilitate international data flows by giving "possibilities for companies to use existing instruments like standard contractual clauses and binding corporate rules, and reduce red tape by abolishing the requirement of prior notification to Data Protection Authorities"<sup>132</sup>. So, despite having new requirements to adapt, businesses can take advantage of new opportunities GDPR regulation is providing.

It is important to underline that, as it can be seen from information above, diversity of data protection rules also impacts digitalisation of company law as it conflicts with current EU harmonisation policy. New common data protection and privacy requirements will facilitate cross-border business as it will provide new common rules. Eventually it will have a positive impact for

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<sup>131</sup> EU Data Protection Reform: better rules for European businesses, [https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules\\_en](https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en), [accessed 09/04/2018]

<sup>132</sup> EU Data Protection Reform: better rules for European businesses, [https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules\\_en](https://ec.europa.eu/commission/priorities/justice-and-fundamental-rights/data-protection/2018-reform-eu-data-protection-rules_en), [accessed 09/04/2018].

digitalisation of company law as not only company registration procedures will be harmonised, but data processing will be also more transparent and equally treated across the continent. Common requirements for personal data might also help to better expose weak areas of data processing and help to improve security not only for natural person's data, but also provide new ideas for company data protection as it will be applied more broadly with all EU member states following and developing same rules. It is easier to find solutions by cooperation than working individually.

Legal regulation for personal data protection provides main framework on how data should be protected, nevertheless, tools are required to ensure that everyone would comply to the rules and security tools have to be used for that. It refers to information security which means measures for securing digital or traditional data. It is a broader definition than cybersecurity, but according to the topic, author will write only about cybersecurity as it is most relevant to digitalisation process. Certain security measures were discussed in the first part of the research already, in a form of electronic signature. To provide new ideas and possible solutions for more digital company law, it is important to discuss other existing regulations on cybersecurity area as without eIDAS regulation on electronic trust services, there are other policies worth mentioning. According to scientific opinion from high level group of scientific advisors on Cybersecurity in the European Digital Single Market which is called "EU Cybersecurity Strategy" the Directive on attacks against information systems which is designed to help EU member states deal with attacks against businesses and government organizations and the Directive on security of network and information systems (NIS) designed for important businesses with an important role for society and economy to take appropriate security measures and to notify serious incidents to the relevant national authority<sup>133</sup> are also important to consider.

Basically, data protection and cybersecurity correlate with each other and requires new policies to be implemented as reviewed above. EU is trying not only to digitalise the market, but also to provide safe environment for businesses. Such requirements as to send notifications about serious security incidents, are helping to have clear pattern on how everyone should act in case of security failures. It is extremely important as risk of experiencing a cyberattack for businesses is very high. European Commissions' insights confirm that cybersecurity is not regulated sufficiently enough: policies and approaches to cyber security vary greatly across member states; EU institutions, agencies and bodies also have a dispersed approach to the cybersecurity matter; companies and citizens are not always aware of the cyber risks<sup>134</sup>. A lot of information is being

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<sup>133</sup> Cybersecurity in the European Digital Single Market, High level group of Scientific Advisors, March 2017

<sup>134</sup> "Executive summary of the impact assessment ". Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on ENISA, the "EU Cybersecurity Agency", and repealing Regulation (EU) 526/2013, and on Information and Communication Technology cybersecurity certification. Date of document: 13/09/2017, European Commission.

processed online now and lack of transparency may prevent further digitalisation as certain level of distrust remains. It could be one of the reasons, why certain countries are still having doubts about digitalisation of their company law provisions and allowance to use online tools in the process of formation and management of the company.

It remains unclear how capable are organisations to prevent cyberattacks but with further development of digitalisation and initiatives like “eGovernment” or “Single Digital Market” probability of some sort of cyberattacks against organisations is increased and new solutions have to be found in order to ensure that data will be secured as inability to act against cyber threats may lead to company law digitalisation failure. Loss of personal or confidential data would strengthen the critical approach to technologies and could encourage return to the traditional company law, without innovative digital tools. It is worth mentioning the quotation of European Commission President Jean-Claude Juncker “Cyber-attacks can be more dangerous to the stability of democracies and economies than guns and tanks. [...] Cyber-attacks know no borders and no one is immune. This is why, today, the Commission is proposing new tools, including a European Cybersecurity Agency, to help defend us against such attacks”<sup>135</sup>. This quotation perfectly describes how dangerous could it be not to have serious enough approach on cyber risks. Anonymity which is provided by the internet can assist in doing crimes easily if not protected enough. In example, it is unlikely to go to the bank and to take the money from other persons bank account without being caught. It would be obvious for the bank employees that person taking money is not authorised to do so, but online operations is a completely different story. Anybody can pretend anyone if proper security and identification is not ensured. As mentioned above, EU is trying to provide necessary regulation for cyber-security in order to harmonise security provisions across Europe and to provide equal protection for various organisations. In a new proposal, necessity to create EU-wide cybersecurity certification scheme is underlined as currently, companies in many circumstances have to be certified separately which results in increased costs, heavier administrative burden and slower emergence of the digital single market in each Member State<sup>136</sup>.

It shall be noted, that cyber-security approach is similarly differentiated as national provisions on company law digitalisation. According to the same proposal, individual EU member states create national cyber-security initiatives, but because of individual efforts, risk of market fragmentation and interoperability exist<sup>137</sup>. This means that even if irregularities for online

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<sup>135</sup> European Commission President Jean-Claude Juncker, State of the Union Address, 13 September 2017

<sup>136</sup> Proposal for a Regulation of the European Parliament and of the Council on ENISA, the “EU Cybersecurity Agency”, and repealing Regulation (EU) 526/2013, and on Information and Communication Technology cybersecurity certification. Date of document: 13/09/2017, European Commission, p. 9-10.

<sup>137</sup> Ibid.

company formation, digital business communication and etc., will be harmonised, it might be difficult to use mentioned procedures in practice as each country would still have different methods for information certification and protection. For this reason, cyber-security must be approached as a part of digitalisation process. Otherwise, common company law rules on digitalisation would remain difficult to implement because of many different requirements for security measures.

Separate approach could be customised for individual businesses. Losing confidential information could be very harmful for business itself as, for example, exposed confidential information could erase advantages over the competitors or give an advantage for others. For this reason, businesses need to concentrate not only on creating new advanced products, but also to consider if these products do not have weak spots against cyber attackers. During the internship, author witnessed how technological company such as IBM is trying to prevent cyberattacks. All workers despite their position has to go through cybersecurity training which involves training videos related to fake emails, instructions on password creation, recognition of colleagues who might have intentions to attain information without authorisation and etc. Such kind of approach to security might look like over cautious for some employees as it might seem company are seeing its employees as untrustworthy ones, but over cautiousness is better than lack of security. Internal measures of companies play important part, in addition to legal regulations from governmental institutions and EU. As digital age is already here, companies can no longer treat cybersecurity carelessly. CEO of the business must ensure that company will cooperate with the government, professional organizations and members of the supply chain to reduce risk, authors of the book “Beyond Cybersecurity: Protecting Your Digital Business” believes<sup>138</sup>. These insights confirm the necessity of cooperation. Digitalisation is not a simple process. It has many participants and components and if one of the components fail, all digitalisation process may be suspended. Internal protection and awareness of the companies is an important component to assure not only digital single market, but also a safe market. If everyone will work in the same direction, it will be possible to keep similar approach across Europe and maintain trust of the consumers

Author believes certain security solutions might be applied commonly across whole EU. “X-road” technology which is being used in Estonia to prevent unauthorised access to transferred data and to interconnect various institutions, as well as new possibilities of “blockchain” technology, could offer a formidable security against cyber-attacks. “X-road” technology was briefly reviewed earlier in the master thesis already, but author is certain that it deserves more attention as it could help for other EU member states as well. X-road system was launched back in 1990’s and its purpose was to allow interoperability between state registers ensuring high level

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<sup>138</sup> James M. Kaplan, Tucker Bailey et al. “Beyond Cybersecurity: Protecting your Digital Business” (McKinsey & Company, Inc., 2015)



of security for transferred data at the same time<sup>139</sup>. During those times, security problem was not that significant as amount of information stored online was greatly lower, but it proved to be successful as years passed by until today. First reason why X-road is being successfully used in Estonia is that the system uses “Unified eXchange Platform” (UXP) technology and contains its own “Public Key Infrastructure” (PKI) which enables to make exchanged data confidential and traceable<sup>140</sup>. Another reason is that implementation<sup>140</sup> of X-Road is straightforward from organisation information system side and it contains no central gateway which means that all connected organisations can communicate without any intermediates and it means that there is no central data base to which cyber-attack could be concentrated<sup>141</sup>. Basically X-road system helps to connect different information from different organisations while providing high level of security and without actually storing it in one place. In authors opinion, such kind of security system does not interfere with governmental organisations as they are still responsible for the information management and transfer to other parties, but at the same time they have better security. It was mentioned in the first part of the research that X-road system is already implemented in few other countries, but in case of Finland and Estonia, automatic data exchange capability has been established between these countries starting 2017<sup>142</sup>. It shows that national institutions of one country can be connected to other national institutions existing in other member states. It gives possibility not only to exchange information safely within borders of one country, but possibly could provide security within borders of whole EU or even more countries in the future if developed further. It would provide trust in carrying business activities such as registration of the company or transition of company documents to the business registers as it would be clear that information will not be disclosed accidentally.



3 Picture

<sup>139</sup> X-Road, <https://cyber.ee/en/e-government/x-road/> [accessed 10/04/2018]

<sup>140</sup> Ibid

<sup>141</sup> Ibid

<sup>142</sup> X-Road data exchange, <https://e-estonia.com/solutions/interoperability-services/x-road> [accessed 13/02/2018]

This visualisation of Estonian information system may provide a better understanding how “X-road” security is working. As we can see, it is a platform combining all institutions, citizens, enterprises, public servants with many layers of security. It does not contain any information of any parties in the picture, but it helps to maintain direct connection to each other, by using electronic tools of communication. What is important, this direct communication is available not only between registers and citizens, transfer of data can be made between institutions as well. As it is an online platform, exchange of the documents can be made in a short period of time in contrast to traditional procedures, where it is necessary to present physical form of documents with confirmation from the head of that institution. It can be very time consuming. An example can be provided from personal authors experience while working in a local municipality as a public servant. One of the responsibilities while working there was to provide free of charge legal help for people who are not able to afford it. Usually people were seeking help in civil proceedings and before any lawyer could be appointed, chief specialist has to fill documents about financial situation about certain person. After that, documents were sent to another institution which evaluated whether free of charge legal help will be provided. As all these procedures were made by hard paper form and it had to be sent by post, it was very time consuming and usually a person had to wait around 2 weeks to find out if free legal services will be provided. It is not only uncomfortable, but also can be risky as courts have their own deadlines and requires additional written request to postpone the deadline. In case it is not postponed, people who are not financially capable to hire a lawyer could lose their right to obtain legal help. Hypothetically speaking, if local municipality could communicate and transfer all documents with other institutions it could be performed in a significantly shorter period of time. However, traditional measures sometimes are still considered as safer ones, maybe because it is already proven to provide certain transparency, but with security systems as “X-road” it could ensure safe transfer of data as well. For businesses “X-road” gives same ability to share data in less time-consuming way and with less difficulties as traditional procedures required to store and transfer all information physically. Traditional approach can be quite uncomfortable as if company needs to find certain document they need to go through all paper-based documents while it is much easier to search documents stored online with key words. X-road has similarities to BRIS initiative as both of these systems are supposed to provide interconnection between many involved parties, however BRIS is a new initiative which will need time to develop while X-road established itself as a successfully working system since 1990’s. For this reason, new system of EU interconnection of business registers could be based or at least to implement certain decisions which are already being used in X-road. There are also different interconnection systems in other member states. One of them is MAGDA platform which is being used in Belgium. The platform provides a common service-oriented data exchange

infrastructure and its purpose is to change from a type of government in which businesses or citizens has to ask for services by their initiative to the type of government which would proactively inform about the benefits applicable to them<sup>143</sup>. Emergence of new systems indicate that each country is looking for modern solutions regarding digitalisation and it might provide benefits for all members together if used properly. In general, many different interconnection systems could be welcomed as it might provide the best solutions compared to each other, but countries have to cooperate on this matter to extract the best ideas and to maintain a common pattern. Incompatible solutions may bring more problems than benefits and security level might suffer as well, but by working together, the common result could be achieved. For example, analysis of “X-road” and “MAGDA” systems, including other existing interconnection technologies might help to find weak areas in all of them and strengthen it with solutions taken from the other. In authors view, BRIS project should not be developed from the scratch, but by analysing already existing interconnection systems. Cooperation will help to ensure not only a better security of the data, but also a common approach across EU and as one of the main targets for EU institutions is to develop a single digital market in the upcoming years, single interconnection and security systems should also be created by consulting all member states and taking the best solutions from each of them. In order to do so, legal regulation needs to be developed further and allow such systems to be used in all EU member states.

“Blockchain” technology will be the main topic of the next subchapter, but author will shortly distinguish the offered security solutions of this technology “Blockchain” is a new trend which is mainly famous because of its connection to cryptocurrencies such as Bitcoin, Ethereum and etc. However, it is a mistake to fuse “blockchain” and cryptocurrency terms into a single description. To support this statement, opinion of Ilja Laurs from his presentation related a “blockchain” technology could be considered as he described that perception of “blockchain” and cryptocurrency as same concept is the equal to understanding that internet and a website is the same thing, because cryptocurrency economy is a separate sphere with high profile of risk and “blockchain” can offer a wider spectre of innovative solutions<sup>144</sup>. “Blockchain” basically is a register of all transactions that occurs authenticated by network of computers and added to the chain of all prior transactions by using encryption and public or private “keys” granting secure, permanent and immutable qualities for the technology, as author Reggie O’Shields in the article about smart contracts and “blockchain” presents<sup>145</sup>. Certain similarities to X-road security system

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<sup>143</sup> About MAGDA platform, <https://joinup.ec.europa.eu/solution/magda-platform/about> [accessed 10/04/2018]

<sup>144</sup> Ilja Laurs pranešimas - Kriptoekonomika, Vadovų konferencija [Crypto Economy, Managers conference] EBIT, 2018, [accessed 11/04/2018] <https://www.youtube.com/watch?v=YNcEw68kYDA> [accessed 11/04/2018]

<sup>145</sup> Reggie O’Shields, “Smart Contracts: Legal Agreements for the Blockchain”. 2017, p. 4. <http://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1435&context=ncbi>

can be noticed, as it is also a register and a decentralised system which uses encryption. Nonetheless, “blockchain” unique attribute is that all happened transactions are permanent and cannot be erased. Moreover, it can provide possibility to make transactions between any two parties directly<sup>146</sup>. It could be adopted by businesses to develop new ways of secured transactions between companies and their customers and also used by governmental institutions. However, from legal regulation provided in the first part of the master thesis it is clear that “blockchain” is not specifically regulated by company law provisions. Legal basis for digital environment is improving constantly, but it does not outline rules on how “blockchain” type transactions should be exploited to improve digital business. Author thinks that despite non-existing legal base, this technology should be considered more seriously as it could further strengthen digital single market of EU and provide secured cross-border transactions. Regarding cyber-security and data protection, this technology can improve already existing security measures for all participants of the data transfers as it ensures secure, permanent and immutable records of all transactions. It might be features which could match notary functions as notary is also trying to ensure security and traceability of performed actions by the clients. The benefits would be that similar level of security could be transferred to virtual transactions. Current company law provisions are allowing electronic communication, transactions or company registration, but it offers no steps on how data protection and security should be ensured online. “Blockchain” could offer a solution and alternative to traditional security measures.

Data security and protection is still a sensitive topic as new legal regulation is only starting to provide new common rules for new digital processes. It will take time to adapt as digital knowledge is not always sufficient enough to protect data which is being stored, processed or transferred by using electronic capabilities. An example with “expensive apartment” perfectly describes the existing situation on data protection. Europe is now experiencing transformation between traditional and digital approach. If traditional company law rules were explicit for everyone participating in business, new digital opportunities and adaptation of laws within brings certain amount of confusion on how to protect same assets in an unfamiliar environment. Development of national and EU legal provisions on digital security will make the situation clearer over the time and new common framework on data protection combined with cybersecurity solutions will be polished, but risks of data exposure or cyber-attacks will always remain a possibility. For this reason, implementation of new ideas such as incorporation of “blockchain technology” is necessary. Assurance of digital security would increase trust and confidence in the occurrence of modern technologies and legal provisions combination. With adequate level of

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<sup>146</sup> Reggie O'Shields, “Smart Contracts: Legal Agreements for the Blockchain”. p. 9. 2017.  
<http://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1435&context=ncbi>

digital knowledge and right legal framework, capabilities of digital single market could be successfully exploited by citizens, organisations or businesses.

### **2.3. Company law interconnection with “blockchain” technology and artificial intelligence**

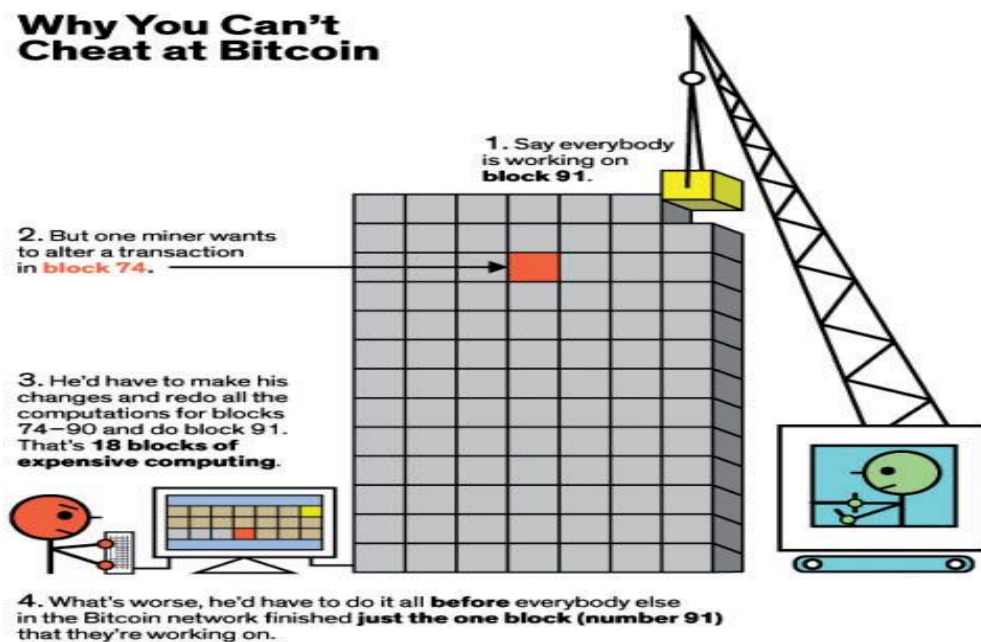
Present of the company law looks already improved comparing to what it was 10 years ago. In the near future a lot of progress should be made in order to facilitate and to harmonise business environment by modifying company law provisions in national and EU levels and providing new security solutions. During this research, problems like communication between companies and its shareholders, lack of harmonisation, security concerns were exposed and with existing legal regulation it is difficult to solve them. For example, new provisions to facilitate cross border business and to improve communication for shareholders of companies looks promising, but there are no clear solutions how to ensure equal rights for everyone during the process as participation in a shareholders meeting from a distance may raise certain concerns. Long term future of digitalised company law is still uncertain and technological development will probably only increase the pace by offering more advanced solutions surfaced from innovations which are present now. It can be presumed from technological innovations such as mobile phones, computers, internet which already considered as a daily used items while it was completely non existing 80 years ago. In modern days, while countries are trying to reduce the gap between digitalisation and existing law provisions to facilitate and improve businesses, new innovative decisions emerge which are not in the scope of legal regulations yet. Such innovations could be “blockchain” technology for further solutions in corporate law area including smart contracts or new communication tools for companies and the shareholders and artificial intelligence as it is starting to cover legal regulations and business contracts. In this subchapter author will analyse what impact could these new innovations bring and how they could solve the problems concerning digitalisation of company law.

As it was affirmed above, “blockchain” technologies provide high security level for data processing and transactions between the parties. In addition, it could improve identification and transparency levels because of unique design of the technology. Great visualisation is available by the author of the paper “Corporate Governance and Blockchains”<sup>147</sup>. It explains how hard is to change actions already performed in the blockchain and why it gives a high level of transparency for participants. In traditional agreements, for example a contract concluded to sell a car, can be modified by the parties even after signatures if both of them can gain benefits, like lowering a

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<sup>147</sup> David Yermack, *Corporate Governance and Blockchains* (NYU Stern School of Business and National Bureau of Economic Research, 2017), p. 15.

price of the contract to avoid taxes or to cover certain defects, however by using “blockchain” technology it is way more difficult to perform unauthorised amendments.



4 Picture

This simple example explains the situation. “Blockchain” can be perceived as a building of many small blocks, similarly as a building a house in reality. Once you put other bricks on the first one, it becomes very hard to remove it as it can be done only by removal of all the other bricks. In a “blockchain” it is quite similar, after you make one transaction, it is almost impossible to change the middle one without influencing later performed transactions. It gives opportunity to prevent modification of already performed actions and increases level of transparency for participants. In authors view, this is should be considered as a possible future platform for business transactions, however it is important to notice, that despite high level of transparency, few risks still exist. David Yermack also provides an example that change is possible as the saboteur hypothetically could control enough mining power and force a change in the cost of everyone else but acquiring so much mining power would be extremely expensive<sup>148</sup>. Potential risks have to be considered and it is not recommended to dive straight into the world of “blockchain” but benefits it could provide may be significantly higher than few drawbacks as already mentioned before, as traditional transactions also could be changed illegally after conclusion in certain circumstances. EU has shown a fair interest in the “blockchain” technology as it can be affirmed by initiatives like a recent call for tenders to make a study on opportunity and feasibility of a EU “blockchain”

<sup>148</sup> David Yermack, Corporate Governance and Blockchains (NYU Stern School of Business and National Bureau of Economic Research, 2017), p. 21.

Infrastructure<sup>149</sup>. Despite this study is still in preparation, it shows that EU is searching for possibilities to adopt certain “blockchain” solutions.

Carefully adopted and with sufficient legal regulation, “blockchain” platform could provide new opportunities to operate for businesses. As transactions are being made directly from one party to another, contracts which were unavailable in the past to perform. Notary services are now required for certain types of contracts in basically all the countries. One of these types is real estate contracts. In Lithuanian civil code, Art. 1.74, it is specifically implied that notary approval is necessary for real estate contracts<sup>150</sup>. Intermediaries do require more time and more expenses, also it may subtract the possibility to use certain types of contracts. Ilja Laurs during the presentation about the “blockchain” topic argued that new types of contracts would be possible to use if legal obstacles like requirement to have a notary approval would be removed as “blockchain” registers could be created for contracts like real estate and it could be possible for one real estate object to have for example, 1000 owners<sup>151</sup>. It shall be noted, that in a traditional procedure it would be impossible as all 1000 contracts would need to receive approval by notary and in order to make these changes, acceptances of all owners should be acquired. It highly unlikely in practice. Hypothetical “blockchain” registers could give the possibility for anyone to buy a part of commercial office and to receive rent according to the owned part. Such new possibilities would provide significant improvements and new abilities to do business. However, existing law has barriers to perform such transactions. Recent implementation of SRD was already reviewed in this research and showed that SRD established specific new requirements such as electronic transition of general meeting, right to use electronic communication or to upload company information online in order to enable shareholders’ participation from the distance. Facilitation of company law requirements and ability to use electronic communication is a step forward, however SRD does not exactly provide the guidelines how these rights should be protected and implemented. Certain solutions could be applied regarding shareholder rights and general meetings of the companies. Authors of law working paper called “blockchain Technology for Corporate Governance and Shareholder Activism” suggests, that in practice, flaws in Annual general meetings (hereinafter – AGM) exist: time is often limited during AGM and the speaking time can be restricted; small shareholders have low incentives to engage in decision-making; fast decisions cannot be made because of very different notice periods of AGM across the Europe; moreover, current remote voting system cannot ensure sufficient transparency, verification and identification

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<sup>149</sup> “Study on opportunity and feasibility of a EU blockchain infrastructure “. European Commission. [accessed 07/05/2018].

<sup>150</sup> “Lietuvos Respublikos civilinis kodeksas. Pirmoji knyga. Bendrosios nuostatos“ [Lithuanian Civil Code, First book, General provisions]. Valstybės žinios, 2000-09-06, Nr. 74-2262.

<sup>151</sup> Ilja Laurs pranešimas - Kriptoekonomika, Vadovų konferencija [Crypto Economy, Managers conference] EBIT, 2018, [accessed 11/04/2018] <https://www.youtube.com/watch?v=YNcEw68kYDA>

of the process<sup>152</sup>. Author of the master thesis agrees to presented opinion, that mentioned flaws are important to overcome as it aggravates company management. There is no purpose of using digital technologies in communication process if they are not practically working and creates uneven conditions between shareholders who attend the meeting physically and those who are participating through electronic communication. Current situation is not allowing to extract full potential of digitalisation, because traditional rules are forcing electronic communication to comply with usual requirements who are not designed for modern approach and create misunderstandings. An example is provided by the above-mentioned paper, where the proposal to elect a director in AMG was rejected with a margin of 0.2 percent of the votes and apparently an independent expert found that shareholders actually voted in favour<sup>153</sup>. Such failures to ensure transparent decisions can cause a lot of damage as it legitimises illegal outcomes. In this example, electronic communication proved to be working not as expected and this is not kind of digitalisation which should be pursued. It shows, that in order to facilitate and improve situation of shareholders it is not enough to change laws and obligate companies to provide electronic communication of shareholders. It is equally critical to develop new procedure and find innovative ways on how to carry the process in practice. “Blockchain” could improve these procedures. As it is already established, “blockchain” is a very transparent and unchangeable platform. For these reasons, it could provide answers for shareholder’s meetings and eliminate existing concerns. Research of Anne Lafarre and Christoph Van der Elst suggests that the process of voting could be carried by private “blockchain”, accessible only for company shareholders and once a proposal would be placed in the “blockchain”, shareholders could be notified to exercise their voting rights during a short period of time with results available instantly after a cut-off point<sup>154</sup>. This could provide transparent voting results as it was established that “blockchain” is very difficult to change and would provide a fast decision without a need of a notice long before the meeting. This suggestion could be confirmed by David Yermack, who suggests that “blockchain” elections could provide faster, more precise vote counting and equal real-time transparency of the voting outcome for management and shareholders<sup>155</sup>.

One more concern is suggested by Anne Lafarre and Christoph Van der Elst paper, as it is observed that opponents of virtual meetings worry that board members may ignore questions in

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<sup>152</sup> Anne Lafarre, Christoph Van der Elst, “Blockchain Technology for Corporate Governance and Shareholder Activism”. 2018, p. 18.

<sup>153</sup> Anne Lafarre, Christoph Van der Elst, “Blockchain Technology for Corporate Governance and Shareholder Activism”. 2018, p 18.

<sup>154</sup> Ibid., p. 19

<sup>155</sup> David Yermack, “Corporate Governance and Blockchains” (NYU Stern School of Business and National Bureau of Economic Research, 2017), p. 28.



AGM's and physical meetings prevent this from happening<sup>156</sup>. This opinion is partially true, as in ordinary electronic communication, shareholders could be ignored in certain cases, but "blockchain" may provide a solution for this problem as well. The same authors argue that to a discussion platform for shareholders and board members in the form of a video could be established, which would provide equal treatment of all participants of the shareholders meeting as all questions from shareholders would be included in the "blockchain" and thus become transparent.<sup>157</sup> These ideas about the possible development of the shareholders meetings by using "blockchain" platform may spark a crucial increase of trust among companies who are still lags behind because of their conservative approach to virtual communications. It may also provide contra arguments to the opposition of electronic meetings. It shall be noted, that "blockchain" could be the answer for existing flaws in existing electronic communication and could improve transparency, identification and security of shareholders and management body of the company. This could be achieved by further facilitation of company law provisions regarding shareholders' meetings by adapting administrative regulations to innovative decisions like "blockchain" technology. One more interesting example could be witnessed in the "blockchain technology for Corporate Governance and Shareholder Activism" paper, as review is presented about common Nasdaq and Estonia's cooperation to facilitate a blockchain based e-voting service to allow shareholders of companies listed on Nasdaq's Tallinn Stock Exchange to vote in shareholder meetings<sup>158</sup>. The cooperation is noteworthy as it is based on Estonia's e-residency system which was presented in the first part of the master thesis and was defined as a digital identity. It demonstrates the importance of cooperation not between EU member states governmental institutions, but also cooperation between companies and governmental institutions in a pursuit of the better solutions for digital market. On January 2017, it was announced that test was successfully completed.<sup>159</sup> In Authors' view, it has a significant importance as it provides evidence that blockchain could be used and incorporated in national legal systems. Such opinion can be reaffirmed by another example. Recently, it has been announced, that "Lithuania is looking to become the first ever country to offer entities from around the world the opportunity to register and manage companies using blockchain technology"<sup>160</sup>. In the same article, Virtual Limited

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<sup>156</sup> Anne Lafarre, Christoph Van der Elst, "Blockchain Technology for Corporate Governance and Shareholder Activism". 2018, p. 22

<sup>157</sup> Anne Lafarre, Christoph Van der Elst, "Blockchain Technology for Corporate Governance and Shareholder Activism". 2018, p 22

<sup>158</sup> Ibid.p. 24.

<sup>159</sup> "Nasdaq successfully completes blockchain test in Estonia". Reuters. 2017.

<https://www.reuters.com/article/nasdaq-blockchain-idUSL1N1FA1XK> [accessed 07/05/2018].

<sup>160</sup> "Lithuania to introduce blockchain-based companies as early as 2019". Fintech finance.

<http://www.fintech.finance/01-news/lithuania-to-introduce-blockchain-based-companies-as-early-as-2019/> [accessed 05/05/2018].

Liability companies are presented as a way to give companies a range of advantages such as “ability for the company to be remotely managed, and for all share transactions to be fully transparent, as they would be performed entirely on an immutable blockchain”<sup>161</sup>.

Author believes, that following such examples as mentioned above, other countries could develop new “blockchain” solutions to the existing company law barriers as well. It would facilitate business environment by use further encouraging the usage of digital technologies.

Another innovation of recent years is a concept of “smart contracts”. This idea is closely related to blockchain technology as it can be defined as the terms of an agreement between parties are programmed into code as certain amount of instructions that are stored on a ”blockchain” in the same way as how they are stored on other “blockchains”<sup>162</sup>. It works as the set of instructions, as previously author provided the example about real estate, after transaction of rights for certain amount of real estate, instruction will be made to make a payment. According to Reggie O'Shields, the main benefits of smart contracts could be distinguished as higher speed and accuracy of business transactions, more efficient operations and better enforcement of contracts<sup>163</sup>. It may even sound as promising features which could be used as an improvement for contracts or even encourage a substitution of traditional contracts. However, the latter is not very likely in the near future as traditional contracts are adapted to the system by long standing practice and often there are certain individual clauses in the contracts which needs to be considered by the lawyers. Instant enhancement of smart contracts could bring chaos into the system as not all possible scenarios are considered at the moment. The code as a contract still seems a bit unusual occurrence and additional researches needs to be exercised. National Governments also needs to be precautionous as legal regulation is far from ready for this new type of contracts. It is not clear, how “smart contracts” should be controlled and approached. Idea by itself, in authors’ opinion has good potential to change the shape of business contracts in the future when all existing concerns will be clarified. Even pre-drafted company registration documents may be used in the future if specific requirements would be included in the legal regulation. Reggie O'Shields argues, that smart contracts in order to be enforceable, would have to meet traditional obligations for contracts, as all contracts has to meet legal conditions such as multiple parties, the capacity of the parties, mutual assent and consideration without giving exceptions to the smart contracts<sup>164</sup>. Such arguments look reasonable as legal regulation has to be remained for all transactions. “Smart contracts” cannot be

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<sup>161</sup> “Lithuania to introduce blockchain-based companies as early as 2019“. Fintech finance. <http://www.fintech.finance/01-news/lithuania-to-introduce-blockchain-based-companies-as-early-as-2019/> [accessed 05/05/2018].

<sup>162</sup>Philip Boucher, Susana Nascimento et. al., “How blockchain technology could change our lives”, p. 16. (Brussels, © European Union, 2017)

<sup>163</sup> Reggie O'Shields, “Smart Contracts: Legal Agreements for the Blockchain”. 2017. p. 9. <http://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1435&context=ncbi>

<sup>164</sup> Ibid. p.10

managed without clear legal rules. By using traditional contracts, everyone knows that it is regulated by the laws and court precedents who provides level of security and transparency in case of a dispute or loss of assets. Smart contracts are not sufficiently covered by law at the moment and possibility of existing loops remains. This opinion can be based on thoughts presented in the in-depth analysis released by European Parliament Research Service as few drawbacks of the innovation are pictured: smart contracts are not well suited to contracts which contains possibility of a substantial change during the contract period; and it is not possible to break the contract as the payment is automated in a smart contract; moreover, smart contracts could also contain illegal clauses if not properly harmonised with law<sup>165</sup>. It shall be noted, that these concerns require to have a careful approach to smart contracts, as some incompatibilities with law are present because of innovative nature of a new contract type and it cannot be instantly highly developed. Author believes, it will become more compatible with legal provisions in the future. For now, smart contracts could be used for pre-drafted contracts in various situations. As an example, banks like JP Morgan and Credit Suisse recently successfully tested of a smart contract prototype for equity swaps and The French bank BNP Paribas is considering opportunities which could be provided by the automatic legal contracts<sup>166</sup>. Equity swaps is only one example on how smart contracts could be used by businesses. Professor from the Tilburg University believes, that many actual contracts such as a sale in a shop are oral or drafted in fairly informal language, which allows these agreements to be substituted with smart contracts<sup>167</sup>. The attention shall be paid that contractual agreements as mentioned are very common and one person probably performs at least a few each day. Even more complexed contracts, such as mentioned equity swaps or other pre-drafted documents, for example certain templates of company formation documents can be adjusted if majority of the contract clauses remain the same for various contract parties.

Artificial intelligence (AI) is also a new innovation which is starting to find its place in business and law world. Many people are still not very familiar with the concept of this innovation. AI can be defined as an area of computer science which is related with creation of intelligent machines that work and react like humans<sup>168</sup>. AI is chosen as one of the research areas, because author's internship in the "IBM" company was very much related with AI and it gave new understanding about possible law and technologies interconnection. Author was a member of "Watson" team which is developing the AI platform for new business solutions which could easily

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<sup>165</sup> Philip Boucher, Susana Nascimento et. al. "How blockchain technology could change our lives", p. 16. (Brussels, © European Union, 2017).

<sup>166</sup> Reggie O'Shields, "Smart Contracts: Legal Agreements for the Blockchain". 2017, p. 10.  
<http://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1435&context=ncbi>

<sup>167</sup> Tjong Tjin Tai, Formalizing contract law for smart contracts, p. 7. (Tilburg Law School, 2017)

<sup>168</sup> <https://www.techopedia.com/definition/190/artificial-intelligence-ai> [accessed 15/04/2018]

process millions of data points and provide predictions on various business matters<sup>169</sup>. For the internship period, author joined the team which is developing a tool for legal part of “Watson” project and contributed to the legal analysis. The simple example on how the development process looks like, could be comparison to a teaching. In usual circumstances, law student is learning law at the university to learn how to read and analyse the legal documents. Artificial intelligence is attending different kind school in IBM and “Watson” team is its teacher. The process of training is being carried by the help of special tool which provides a possibility to label the regulations or contracts. These labelled legal documents later are transformed to a code language for artificial intelligence platform and it can analyse them in order to learn how to label new regulations or contracts individually without help from human beings.

Artificial intelligence can cooperate and supplement human lawyers, help for people without legal background to understand legal documents easier and faster. It would also benefit companies as majority of small or medium companies probably do not have sufficient resources to hire lawyers every time they need to read a contract or regulation. AI tool will be able to provide information for contract parties about what obligations or rights they have in the specific contract and will underline other essential conditions. For example, the demo tool is available to provide a better understanding:

Exclusion - Supplier	1	Buyer shall withhold Taxes as required under applicable law on payments made to Supplier hereunder and shall be required to remit to Supplier only the net proceeds thereof. Buyer agrees to remit in a timely manner all Taxes withheld to the appropriate government authority in each respective jurisdiction. Upon Buyer request, Supplier will deliver the appropriate documentation as required by the corresponding jurisdictional tax laws, within 15 business days from such request.
Obligation - Affiliates	5	
Obligation - All Parties	5	Supplier will reimburse Buyer for any claims by any jurisdiction relating to Taxes paid by Buyer to Supplier; and for any penalties, fines, additions to Tax or interest thereon imposed as a result of Supplier's failure to timely remit the Tax payment to the appropriate governmental authority in each respective jurisdiction. Supplier shall also reimburse Buyer for any claims made by a taxing jurisdiction for penalties, fines, additions to Tax and the amount of interest thereon imposed with respect to Supplier's failure to invoice Buyer for the correct amount of Tax.
Obligation - Buyer	10	
Obligation - Supplier	103	
Right - All Parties	4	<b>5.0 Payments &amp; Acceptance</b>
Right - Buyer	21	Terms for payment will be specified in the relevant SOW and/or WA. Payment of invoices will not be deemed acceptance of Deliverables and/or Services, but rather such Deliverables and/or Services will be subject to inspection, test, acceptance or rejection in accordance with the acceptance or completion criteria as specified in the relevant SOW and/or WA. <b>Buyer or Customer may, at its option, either reject Deliverables and/or Services that do not comply with the acceptance or completion criteria for a refund, or require Supplier, upon Buyer's written instruction, to repair or replace such Deliverables or re-perform such Service, without charge and in a timely manner.</b>
Right - Customer	2	
<i>Describes specific terms which the Customer is guaranteed to receive.</i>		

5 Picture<sup>170</sup>

It shall be noted, that this is only a demo version and the final version may differ from the provided example, but basically it shows how it should work. As in the example, user of this tool will be able to see how many and what obligations buyer has. It will not be necessary to read all the contract and find all important conditions manually as AI will analyse and categorise it automatically. In the future, it should be able to analyse and explain mostly any regulation or

<sup>169</sup> “Watson”. <https://www.ibm.com/watson/index.html> [accessed 15/04/2018]

<sup>170</sup> “AI tool demonstration “. <http://watson-compare-and-comply-demo.mybluemix.net/>, [accessed 16/04/2018]

contract in any given language. At the moment it is trained to understand only and only English written documents. If AI platform for legal documents will prove to be successful, it will probably include legislation and contracts from different countries of the world, including EU member states. AI intelligence could benefit in a way by facilitating analysis of the legal documents and it could benefit not only individual persons but also provide new solutions in a company law area. It could be used to analyse legislative provisions in a cross-border situation. More specifically, it could perform legal analysis for companies trying to re-establish in other countries. It would be especially beneficial for small and medium companies, as it would provide all relevant information and all requirements which needs to be fulfilled according to national laws. AI could be used for company registration, management operations and other areas of company law which requires analytical work. As AI is capable to analyse millions of various data, it could check registration documents and their correlation with existing company law regulations. It would be very beneficial in developing EU digital single market by further facilitating cross-border interaction. It is especially relevant for small and medium companies, as they could use AI instead of lawyers to transfer their business to another member state. AI would analyse company law background in individual country and would provide what kind of requirements have to be met for specific company to operate in certain area. It is relevant even if differentiation of company law in EU will be reduced. Even with common rules, it may be difficult to understand what needs to be done for persons without legal knowledge. AI would provide more clarity and less time would be spent on legal matters.

Considering long term future, it could be beneficial to combine “blockchain” and AI by using their strengths together. If “blockchain” security and transparency features could be combined with and AI analytical capabilities, autonomous tool to create contracts could be created. It may even provide a possibility to improve smart contracts in a way that it could be modified according to individual circumstances by AI analysis. However, it is not very likely in the near future. Combination of mentioned technologies could also create a possibility to perform all necessary actions of notary institution virtually without physical interference. In China, entrepreneurs are already using AI for company registration and all they need to do is to use automatic machine, type all requested information and in 10 minutes time, company is set up<sup>171</sup>.

The attention shall be paid, that it is unrealistic that AI could replace lawyers in the near future if ever, as its main function is to analyse, process and provide needed answers in the existing legal documents. It is not designed to legislate the law and it cannot foresee what improvements are necessary to make in order to adapt the legal system to the society needs, so human lawyers

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<sup>171</sup> “Artificial intelligence shortens business registration process in China “. He Weiwei. 2018. [https://news.cgtn.com/news/35496a4e786b7a6333566d54/share\\_p.html](https://news.cgtn.com/news/35496a4e786b7a6333566d54/share_p.html). [accessed 07/05/2018]

probably will still have the upper hand in making judgments regarding interpretation of the law, but AI may be able to facilitate the analysis and processing part. It would be beneficial, as analysis of the legal documents or regulations requires a lot of time from the lawyers and it would save huge amount of time. Authors personal experience with AI was limited to the development of the comparison tool which could be used in the circumstances discussed above, but it was enough to understand, that AI could benefit company law area as well

AI opportunities could be also used in a corporate law by assisting boards of directors or performing other tasks. Practical example could be an appointment of AI algorithm named Vital by Hong Kong-based venture capital firm to the board of directors. The algorithm had the right to decide on whether company should make an investment in other companies and proved to acknowledge trends that were not immediately obvious to humans<sup>172</sup>. It shall be noted that this algorithm has similarities to the AI tool which is being developed by IBM. As it is also able to process much more data than human could in the same period of time and is able to provide predictions on noticed trends. The reason why AI proves to be more efficient in mentioned example, is that it can concentrate on the analysis without any distractions contrary to humans. Existing social relationships, tiredness, mood and other factors, might influence focus and productivity of humans as AI has no such distractions. Despite the ability to be involved in a company decision making, current legal regulation is not allowing to make these decisions freely. As an example, German Limited Liability Companies Act section 6 paragraph 2 specifies that only natural person may be a director<sup>173</sup>. Naturally it blocks AI algorithm to become a member in a board of directors. It is an open question whether it should be changed in a way, that AI could become a full member of the board or it should be modified in a way that it could create a new status. In authors view, new options should be certainly taken into consideration whether adjustments to legal regulations are needed as AI is improving constantly. Presumably, AI will be able to offer even more help in embracing the most logical business decisions or creating the business itself. In his research, Florian Möslein argues that corporate law is not keeping pace with AI and ignores the legal challenges of AI by restricting digitalisation to electronic communication<sup>174</sup>. Lack of understanding can be witnessed by reading The Informal Company Law Expert Group report on digitalisation of company law as it describes digitalisation as “the representation of communication in writing or sound by electronic means and the concept thus concerns electronic communication including the transmission of information and the storage of

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<sup>172</sup> Florian Möslein, *Robots in the Boardroom: Artificial Intelligence and Corporate Law*. 2017, p. 1.

<sup>173</sup> German Limited Liability Companies, as consolidated and published in the Federal Law Gazette III, Index No. 4123-1.

<sup>174</sup> Florian Möslein, *Robots in the Boardroom: Artificial Intelligence and Corporate Law*. 2017, p. 4.

such communication electronically and electronic access and retrieval from such storage”<sup>175</sup>. It narrows the concept of digitalisation to electronic communication which is an important topic at the moment, but legal regulation may soon fall behind again as it will not cover innovations like AI. For this reason, it is important to consider digitalisation in a broader sense and try to keep it open for new technologies. EU is already starting to acknowledge artificial intelligence and ”The European Commission will put forward a European approach to AI and robotics in the first half of 2018”<sup>176</sup>. Whether it will be more general approach to AI or it will include digitalisation of company law is unknown, but it would be wise to discuss on how AI could be encouraged to improve company law in the future. It may take time to adapt, but if properly regulated, AI could provide benefits rather sooner than later.

This chapter revealed that company law digitalisation in EU is moving forward by further modifying company law rules and harmonising law across EU. People already have more opportunities to do business online and to communicate with governmental institutions or within companies internally. However, new rules do not propose exact answers on how digital rights such as shareholder participation in shareholders’ meetings by electronic communication or online company registration could be ensured, and it shows that EU is only beginning its digital reform of company law as not all digitalisation concerns are solved and there is still no single digital market, because member states still have a significant difference of approach. Important improvements have been made in data security area, but it is still unknown how new GDPR regulation and new proposals will shape data protection and cybersecurity. Despite clear EU steps towards digitalisation, a lot of uncertainty still exists whether digitalisation should be understood only as an electronic communication, as new technological solutions emerges in a form of “blockchain” and AIEU current initiatives might be more oriented into the near future and it will reshape company law to a more digital friendly way, but whether it is enough remains uncertain. EU have to think even further, by considering new possible digital improvements. Otherwise, current digitalisation level might be soon insufficient as “blockchain” and AI innovations will provide new long term solutions and only EU institutions combined with member states can decide on whether practical implementation will be executed.

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<sup>175</sup> The Informal Company Law Expert Group. “Report on digitalisation in company law. European Union”. 2016 [http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016\\_en.pdf](http://ec.europa.eu/justice/civil/files/company-law/icleg-report-on-digitalisation-24-march-2016_en.pdf), p. 6.

<sup>176</sup> “eGovernment Report 2016”. <https://ec.europa.eu/digital-single-market/en/artificial-intelligence> [accessed 20/04/2018]

## CONCLUSIONS

1. Company law provisions in EU member states are highly differentiated as they were developed before technological breakthrough and were customised more for operations within single country borders. Despite the fact that all reviewed countries modify their legal systems to be more digital friendly they remain diverse and innovative solutions are not equally allocated throughout Europe. It causes deficiency of common solutions for inflexible law regulations.

2. Considering recent EU legislation and positive approach to digitalisation, and efforts to harmonise and facilitate company law provisions across EU member states, conclusion may be drawn that EU chose the path to create digital environment to do business and to perform other operations online without any restrictions. As certain initiatives have been blocked and existing legislation is constantly amended, it is clear that situation does not satisfy EU institutions and still a long road awaits ahead.

3. The demand for digitalisation is high according to various surveys and insufficient or over complicated regulation must be adapted to the new social environment. In order to offer new opportunities and to provide more benefits, innovative decisions such as “Virtual Office” or e-Residency have to be encouraged as currently e-Residency system is used only in Estonia and “Virtual Office” idea is not possible because of legal regulation in basically all countries.

4. Rapid transformation of society’s needs creates uncertainty, as people and businesses are not acquainted enough to understand security risks related to data storage online. Legal regulation on security matters were quite liberal as well, however, EU is trying to increase people abilities to control their private information by newly amended GDPR and awareness for data protection and cybersecurity is increasing. If new technologies, such as X-road system and “blockchain” security solutions will be effectively managed by the laws and common security standards will be established, EU secure and digital single market has potential to develop further.

5. New technologies as AI and “blockchain” may reshape company law face completely by not only providing simple new digital tools but giving completely unseen digital opportunities with providing high level of security and efficient high number of data analysis which is impossible for human being. However, current company law provisions are not sufficient enough to use these ideas in practice at full extent and with highly differentiated company law system in Europe with many inconsistencies, it is hard to imagine AI and” blockchain” could effectively regulated by company law without EU intervention.



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## APPENDICE

- a) “eGovernment” development in Europe”. <https://ec.europa.eu/digital-single-market/en/news/eu-egovernment-report-2016-shows-online-public-services-improved-unevenly>

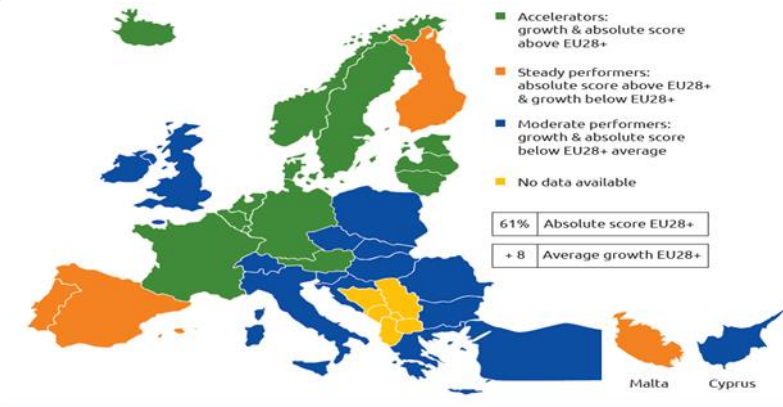
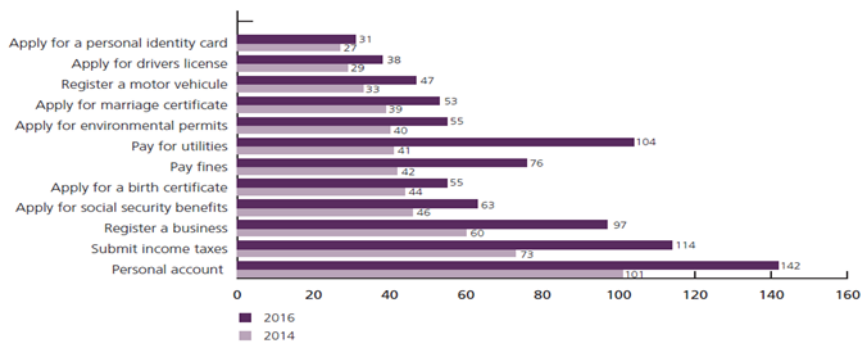


Figure 1: Illustration how countries are progressing compared to the EU28+ average<sup>1</sup>

- b) “eGovernment” situation in UN countries, trends of transactional services online”. <https://publicadministration.un.org/egovkb/en-us/reports/un-e-government-survey-2016>

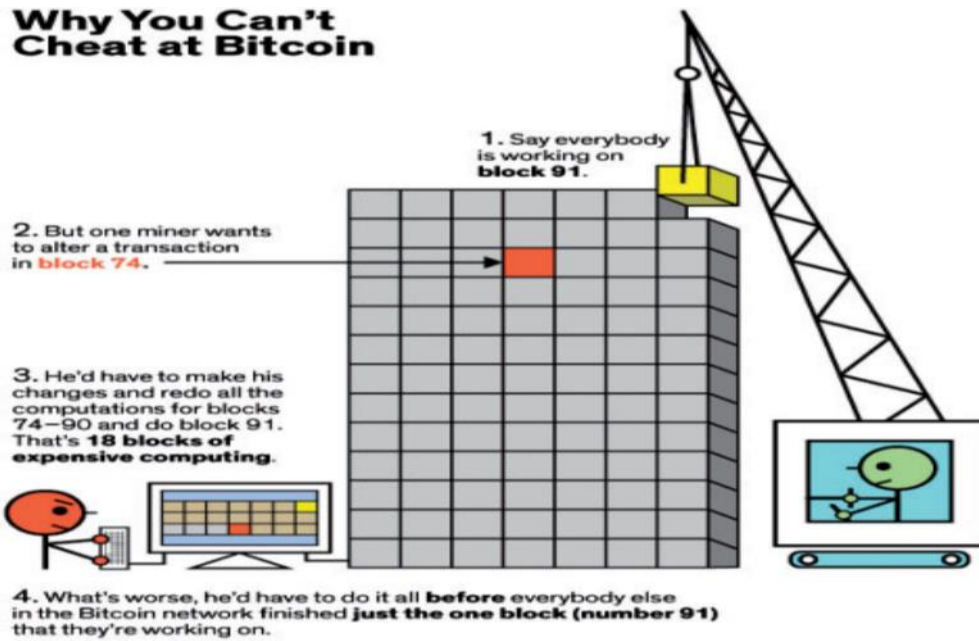
Figure 4.3. Trends of transactional services online, 2014 and 2016



- c) “Estonian information system”.



d) “Why you cannot cheat bitcoin?”



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Exclusion - Supplier	1	Buyer shall withhold Taxes as required under applicable law on payments made to Supplier hereunder and shall be required to remit to Supplier only the net proceeds thereof. Buyer agrees to remit in a timely manner all Taxes withheld to the appropriate government authority in each respective jurisdiction. Upon Buyer request, Supplier will deliver the appropriate documentation as required by the corresponding jurisdictional tax laws, within 15 business days from such request.
Obligation - Affiliates	5	
Obligation - All Parties	5	Supplier will reimburse Buyer for any claims by any jurisdiction relating to Taxes paid by Buyer to Supplier, and for any penalties, fines, additions to Tax or interest thereon imposed as a result of Supplier's failure to timely remit the Tax payment to the appropriate governmental authority in each respective jurisdiction. Supplier shall also reimburse Buyer for any claims made by a taxing jurisdiction for penalties, fines, additions to Tax and the amount of interest thereon imposed with respect to Supplier's failure to invoice Buyer for the correct amount of Tax.
Obligation - Buyer	10	
Obligation - Supplier	103	
Right - All Parties	4	<b>5.0 Payments &amp; Acceptance</b>
Right - Buyer	21	Terms for payment will be specified in the relevant SOW and/or WA. Payment of invoices will not be deemed acceptance of Deliverables and/or Services, but rather such Deliverables and/or Services will be subject to inspection, test, acceptance or rejection in accordance with the acceptance or completion criteria as specified in the relevant SOW and/or WA. Buyer or Customer may, at its option, either reject Deliverables and/or Services that do not comply with the acceptance or completion criteria for a refund, or require Supplier, upon Buyer's written instruction, to repair or replace such Deliverables or re-perform such Service, without charge and in a timely manner.
Right - Customer	2	
Describes specific terms which the Customer is guaranteed to receive.		

## ANNOTATION

Bakšys R. Digitalisation of Company Law: Trends and Future Opportunities. Supervisor Prof. PhD. Virginijus Bitė. – Vilnius: Mykolas Romeris University, Faculty of Law, 2018. – 79 p.

In the Master thesis the main theoretical issues of company law digitalisation is analysed, including practical problems and possible solutions. Legal company law background in EU member states and measures towards digitalisation from EU institutions are scrutinized in the first chapter. In the second chapter, further development process and future opportunities presented, including company law correlation with blockchain and artificial intelligence. Conclusions and recommendation for future development of company law is given.

Keywords: Company law digitalisation, EU company law harmonization, blockchain, artificial intelligence

## SUMMARY

Company law digitalisation in EU is not sufficiently developed. Highly diverse national company law provisions in EU member states creates many obstacles for citizens to use digital tools for company registration, management and various operations. Until recent technological breakthrough, company law digitalisation was not such an important topic, but with new digital opportunities it becomes one of the most important trends to observe.

The main purpose of the Master thesis is to expose main problems for company law digitalisation process and to determine possible paths of development.

In the first chapter of the research, theoretical problems of company law in EU, such as lack of harmonisation and cooperation between EU member states and insufficient EU legislation are considered. It is done by comparing 5 EU countries company law provisions and their interconnection with digitalisation. EU involvement in harmonisation process is also taken into consideration.

The second part of the Master thesis is dedicated to further development perspectives. The demand for digitalisation is being presented through various surveys and opportunities to implement narrowly used or absent ideas such as “Virtual Office” or e-Residency are discussed as possible solutions for all EU. Furthermore, constantly changing security environment in the light of the new GDPR regulation and new proposal for regulation on cybersecurity matters and necessary improvements are suggested, including “x-road” system and “blockchain” technology security solutions. The last subchapter analyses possible implementation of “blockchain” technology and AI in company law digitalisation process as there is no existing provisions on this matter.

The conclusions confirm that digitalisation of company law is still not sufficiently developed as legal regulation is highly differentiated in EU member states and EU legislation is insufficient to ensure high level of digital operations. However, demand of the society is constantly growing and EU acknowledges the necessity to increase digitalisation by harmonisation of national company law systems and by implementation of new more digital friendly legislature. In order to keep the pace of technological development, security of digital transactions and data privacy legislation needs to be further improved and new ideas including “blockchain” and AI considered already.

For this reason, author recommends to evaluate possible company law adaptation to AI as this topic will become very relevant in the future.

## SANTRAUKA

Įmonių teisės skaitmenizavimas ES nėra pakankamai išvystytas. Ypatingai skirtingos nacionalinės bendrovių teisės nuostatos ES valstybėse narėse sukuria daugybę kliūčių piliečiams pasinaudoti skaitmeninėmis galimybėmis įmonių registracijai, valdymui ir įvairioms kitoms įmonių operacijoms. Iki technologijų proveržio, bendrovių teisės skaitmenizavimas nebuvo toks svarbus klausimas, tačiau pasikeitusių aplinkybių kontekste, ji tampa viena iš labiausiai pastebimų tendencijų.

Pagrindinis magistro darbo tikslas - atskleisti pagrindines bendrovių teisės skaitmenizavimo proceso problemas ir nustatyti potencialius plėtros būdus.

Pirmajame tyrimo skyriuje nagrinėjamos bendrovių teisės teorinės problemos ES, pvz., ES valstybių narių teisės derinimo ir bendradarbiavimo trūkumas bei nepakankamai sureguliuoti ES teisės aktai. Tai daroma lyginant 5 ES šalių bendrovių teisės nuostatas ir jų tarpusavio ryšį su skaitmenizacija. Taip pat atsižvelgiama į ES dalyvavimo svarbą harmonizacijos procese.

Antroji magistro darbo dalis skirta tolesnėms raidos perspektyvoms. Skaitmenizavimo poreikis pateikiamas įvairiais tyrimais, taip pat aptartiamos kol kas plačiai nenaudojamos arba visai nepritaikomos idėjos, pvz., "Virtualus biuras" arba "E-Residency" ir jų galimas panaudojimas EU lygmeniu. Be to, svarstomi pasiūlymai tobulinti saugumo aplinką, atsižvelgiant į naują GDPR reglamentą ir naują pasiūlymą dėl reglamentavimo kibernetinio saugumo srityje, įskaitant "x-road" sistemos ir "blockchain" technologijos saugumo sprendimus.

Paskutiniame skyriuje analizuojamas galimas teisinio reglamentavimo tobulinimas "blockchain" ir AI technologijų srityje, kadangi šiuo klausimu teisės aktai nėra pakankamai išsamūs.

Išvadose patvirtinama, kad bendrovių teisės skaitmenizavimas yra vis dar nepakankamai išvystytas dėl skirtingo požiūrio ir teisinio reguliavimo ES valstybėse narėse. ES teisės aktuose taip pat pasigendama konkrečių sprendimų skaitmenizacijos skatinimui, nepaisant matomo progreso. Magistro darbe taip pat atskleidžiama, kad skaitmenizacijos paklausa visuomenėje nuolatos auga, o ES pripažįsta būtinybę pereiti prie labiau skaitmenizuoto teisinio reglamentavimo. Tai EU bando atlikti derindama nacionalines bendrovių teisės sistemas ir teikdama naujus pasiūlymus teisės aktų tobulinimui. Norint neatsilikti nuo technologijų tobulėjimo, reikia nuolatos ieškoti būdų kaip patobulinti bendrovių teisę skaitmeninių sandorių ir duomenų privatumo apsaugos srityje bei surasti būdų kaip į teisinę sistemą įtraukti naujas idėjas kaip "blockchain" ar AI.

Dėl šios priežasties autorius rekomenduoja įvertinti galimą bendrovių teisės adaptaciją AI, kadangi ši tema ateityje taps labai aktuali.

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## **HONESTY DECLARATION**

16/05/2018

Vilnius

I, \_\_\_\_\_, student of  
*(name, surname)*

Mykolas Romeris University (hereinafter referred to University),

---

*(Faculty /Institute, Programme title)*

confirm that the Bachelor / Master thesis titled

“ \_\_\_\_\_  
\_\_\_\_\_ :

1. Is carried out independently and honestly;
2. Was not presented and defended in another educational institution in Lithuania or abroad;
3. Was written in respect of the academic integrity and after becoming acquainted with methodological guidelines for thesis preparation.

I am informed of the fact that student can be expelled from the University for the breach of the fair competition principle, plagiarism, corresponding to the breach of the academic ethics.

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*(signature)*

\_\_\_\_\_  
*(name, surname)*