

# **Harmonized Intellectual Property protection for software solutions within EU**

## **A modest proposal**

Morgan M. Broman, M.Sc.

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Supervisor

Jonas Ledendal, LL.D



**LUNDS UNIVERSITET**  
Ekonomihögskolan



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# Summary

This thesis picks up the journey from my Bachelor's thesis where it was concluded that current legal protection of the Intellectual Property (IP) for “*computer programs*” and associated components is fractured and contains gaps that provides for legal uncertainty for the author/creator/inventor.<sup>1</sup> The BSc thesis' analysis covered IP protection provided through international treaties, statutory law and case law with a focus on the EU perspective. We now proceed to approach possible ways to modernize, update and improve the legal protection provided by Intellectual Property Rights (IPR) in the area of the more integrated “*software solutions*” of today's IT business. I, the author, aim to take the reader along on a journey through the fragmented borderline between technology and law. The goal is to try and establish a common baseline for a more coherent, sustainable and manageable legal solution for IP protection for the author/creator/inventor of a “*software solution*”. As a fuller harmonization of IPRs for “*software solutions*” within EU most probably would remove the above mentioned issues and thereby benefit the author/creator/inventor.

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<sup>1</sup> Broman, 2014

# Sammanfattning

Denna uppsats fortsätter den resa från min kandidatuppsats som drog slutsatsen att nuvarande juridiska immaterialrättsskydd för datorprogram och tillhörande komponenter är fragmenterad och innehåller luckor som skapar rättslig osäkerhet för författaren/skaparen/uppfinnaren.<sup>2</sup> Kandidatuppsatsens analys omfattade immaterialrättsligt skydd via internationella avtal, lag och rättsfall med ett fokus på EU perspektivet.

Vi fortsätter nu genom att närma oss möjliga vägar att modernisera, uppdatera och förbättra det juridiska skyddet som tillhandahålls via de immaterialrättsliga rättigheterna inom området för integrerade mjukvarulösningar inom dagens IT verksamheter. Författaren har som målsättning att ta med sig läsaren på en resa genom det fragmenterade gränslandet mellan teknologi och lag. Målet är att försöka etablera en gemensam baslinje för en tydligare, hållbarare och mer hanterbar juridisk lösning för immaterialrättsligt skydd för författaren/skaparen/uppfinnaren. Detta då en bättre harmonisering av immaterialrättsliga rättigheter för mjukvarulösningar inom EU högst sannolikt skulle undanröja ovan nämnda problem och därigenom gynna den enskilde författaren/skaparen/uppfinnaren.

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<sup>2</sup> Broman, 2014

# Foreword

This thesis is a continuation of the original research journey performed for my Bachelor's thesis. It takes the research further into the depths of current EU *acquis* in the area of IP and IPRs. It analyses the issue of legal fragmentation in the area of today's "*software solutions*" and strives to provide a combined technical and legal platform for better harmonization of the EU *acquis* in the future. What is presented here is naturally only an excerpt of all the materials and preparatory work done for the thesis. Once again I, the author, have extended my knowledge and understanding of the complexity of IP protection in an international environment. It has been an exhilarating journey and I hope that the readers of this thesis will be able to share a part of that feeling while reading this.

The knowledge, support and insightfulness of my supervisor, Mr. Jonas Ledendal, LL.D, of the department of Business Law at Lund University during this journey cannot be overstated. My thanks also go to Mr. Gordon Alford, M.Sc. and System Developer at Aditro Oy in Finland, for being a technical bouncing board during my development of the new proposed model for describing the subject matter. Last but not least my thanks go to my wife, Pamela Finckenberg-Broman, LL.M, for insightful legal commentary and feedback during the work with this thesis.



# Abbreviations

## *International (non EU)*

CONTU	Commission on New Technological Uses of Copyrighted Works (USA)
US/USA	United States of America
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

## *The European Union (EU)*

acquis	acquis communautaire (the accumulated legislation, statutory law, and court decisions which constitute the body of European Union law)
EC	European Commission
ECJ	European Court of Justice/Court of Justice of the European Union
EPC	European Patent Convention
EPO	European Patent Office
EPOrg	European Patent Organisation
EU	European Union
OHIM	Office for Harmonization in the Internal Market
TEU	Treaty of the European Union
TFEU	The Treaty on the Functioning of the European Union

## *Intellectual Property rights (IPR)*

IP	Intellectual Property
IPR	Intellectual Property Rights
CTM	Community Trade Mark (EU)
RCD	Registered Community Design (EU)
TRIPS	Trade-Related aspects of Intellectual Property rights (WTO)
WCT	WIPO Copyright Treaty

### ***Information Technology (IT)***

API	Application Program Interface
EICTA	European ICT Industry Association
FFII	Foundation for a Free Information Infrastructure
GUI	Graphical User Interface
HCI	Human-Computer-Interaction
IEEE	Institute of Electrical and Electronics Engineers
U/I	User Interface

### ***General***

art	Article
Ch.	Chapter
p.	Page
para	Paragraph
pt.	Point
R&D	Research and Development
SAP	Systeme, Anwendungen und Produkte in der Datenverarbeitung

# 1. Introduction

## 1.1 Background

*“If it ain’t broke, don’t fix it!”*

The quote above has been used by engineers for a long time but is applicable to many other areas of life including the laws that govern our lives. In the case of the European Union’s (EU) Intellectual Property (IP) legislation, specifically in the area of Information Technology (IT), the system is not exactly broken but it does not necessary extend the individual author/creator/inventor the intended protection. This issue is very relevant in regards to today’s *software solutions*. We must remember that even though unseen and many times forgotten a computer without software is like a car without an engine, nice to look at but not very functional.<sup>3</sup>

The current ongoing trend within IT business is to provide more and more integrated (bundled) “*software solutions*”, the subject matter of this thesis, consisting of several different components like several “*computer programs*”, Graphical User Interfaces (GUI), functions and databases to the customer. An excellent example of these bundled “*software solutions*” is those offered by SAP AG (SAP), short for “*Systeme, Anwendungen und Produkte in der Datenverarbeitung*”<sup>4</sup> a German multinational software corporation. Over time SAP has expanded their product offering by purchasing and merging with over 50 other software enterprises bundling their solutions into their own.<sup>5</sup>

This provides for a new and different playing field for the IP legislation. Already in 1994 Professor Samuelson commented on the issue of applying traditional IPR protection schemes for software. In “*A Manifesto concerning the legal protection of*

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<sup>3</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984, p. 675 “...the implications of the development of programmable computers is that such computers could no longer perform any useful function without the direction given by a computer program.”

<sup>4</sup> “Systems, Applications and Products in Data Processing” in English

<sup>5</sup> SAP, 2014 and Blog, 2014

*computer programs*” she and her co-authors look at the lack of a normative analysis in the area of IP protection.<sup>6</sup> The authors comment on how the focus in both literature and public debate is more on how to apply current legislation than on what is worth, and should be provided IP protection by the legislation. This point of view is still to a large extent valid even today as we can see within the European Union (EU). The traditional use of copyright legislation for protection of “*computer programs*” or software, patent legislation for protection of “*functions*” of “*computer programs*” and *sui generis* for databases has been generally accepted despite the issue of national interpretation allowed for the scope of IPR protection.

The EU protection of Intellectual Property Rights (IPR) for “*computer programs*” and associated components are set out *inter alia*<sup>7</sup> in the Directives for Copyright<sup>8</sup>, Computer Programs<sup>9</sup> and Databases<sup>10</sup>. Unfortunately these Directives are covering different components of the “*software solution*” and therefore the legislation currently lacks an overall scope for the subject matter. These Directives are also still dependent of Member State’s (MS) national legislation making a unified interpretation of their scope within each individual member state, though visionary, hard to achieve in reality as the regulatory environment in the different member states is *de facto* varied.<sup>11</sup> This fragmented approach causes a legal uncertainty that creates legal as well as economic issues for the individual author/creator/inventor of an integrated “*software solution*”.

One thing that complicates matters further is that at times the scope of the interpretation of the Directives in relation to a particular form of IPR is not always known due to lack of relevant jurisprudence from the Court and/or insufficient guidance from the Commission. The courts often have to cross-reference several regulations and/or Directives in order to find some kind of solution to the legal

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<sup>6</sup> Samuelson, Davis, Kaptor, & Reichmann, 1994 p 2310

<sup>7</sup> See Appendix A – Current EU Directives, for a more exhaustive list of IP and IT related EU Directives.

<sup>8</sup> European Union, 2006/116/EC Directive on the term of protection of copyright and certain related rights, 2006

<sup>9</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009

<sup>10</sup> European Union, 96/9/EG On the legal protection of databases, 1996

<sup>11</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble recital (4)

issues presented to them. In the EU case *BSA v. Czech Ministry of Culture*<sup>12</sup> the separation of the GUI, in regards to IP protection, from the software and functionality behind it lead to a suggestion to look at two different EU Directives<sup>13</sup> for solving the case of IP protection. Still in the end the case was referred back to the querying member state's national court. The US case on IPR infringements; *Apple v. Samsung*<sup>14</sup> manoeuvres a minefield of IP protection in different forms that Apple used to try and protect their IPR's.

As we can, and will see further on, the current legislation and international agreements covering IP and IPRs surrounding computer software is desperately trying to hit a moving target. The technology and development of new “*software solutions*” moves forward through the fast development of new software applications, functions and capabilities. Meanwhile the legal protection today consists of a mixture of legislations and agreements that were originally created for a different purpose and later amended to also cover “*computer programs*”, associated components and “*functions*”.

## 1.2 Purpose and research question

This thesis strives to cross the diffuse borderline between technology and law; to establish a potential common ground for a framework for a fuller harmonization of IP protection for “*software solutions*” within EU *acquis*. Whereby the individual author/creator/inventor can avoid the current legal uncertainty around the IPRs based on national variations in copyright law as well as additional costs due to multiple registration fees for patents and trademarks and/or potentials court costs for infringement cases when developing a new “*software solution*”

The purpose and intention of this thesis is to initially build an understanding of current EU *acquis* regarding the subject matter including the principles that underlie the classification of its components for IP protection. Based on this I will strive to

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<sup>12</sup> C-393/09 *BSA v. Czech Ministry of Culture*, 2010

<sup>13</sup> European Commission, 91/250/EEC Directive on the legal Protection of Computer Programs, 1991 *since replaced by* European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 *and the* European Union, 2006/116/EC Directive on the term of protection of copyright and certain related rights, 2006

<sup>14</sup> 11-CV-1846-LHK *Apple vs Samsung* - Amended verdict, 2012

establish a basis for a new common *taxonomy*<sup>15</sup>, if needed, through the re-classification of those items and concepts. Therefore the key question is;

- *Does the current legal regime for IP protection give sufficient legal certainty or should a sui generis regime for protection of software development IP and IPRs be enacted?*

The conceptual approach is to try and present new thoughts and ideas originating from this research for improved clarity and provide the basis for a possible *sui generis regime*. This is reflected in the three subsequent “sub-questions” posed;

- *How are the IPRs in the area of the subject matter currently offered legal protection?*
- *What is the subject matter? A proposed model “software solution”?*
- *Why and how should EU proceed towards a more harmonized legal solution for IP and IPR protection of the subject matter?*

### **1.3 Delimitations**

This thesis focuses on EU law for software and does not cover national legislation on the subject. Neither does it touch upon the international treaties unless they have a direct impact on the subject of this thesis.

With the intended target audience being; peers, researchers and practitioners within the field of IP law, particular for IT, it is assumed that the issue being studied and the nomenclature used in this thesis is mastered by the reader to a certain point. This includes *inter alia* both the technical and legal nomenclature used throughout this paper.

This thesis does not approach the area of Software as a Service (SaaS), which is a distribution arrangement. This is at times labelled as “*on-demand-software*” and made available through Independent Software Vendors (ISVs) or Application Service Providers (ASPs). It is also at times referred to as “*cloud computing*”.

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<sup>15</sup> Origins from the Greek word “*taxis*”, meaning 'order/' 'arrangement' and “*nomos*” - 'law/' 'science'

Licensing of “*software solutions*” is not part of the definition of the subject matter, but rather related to the distribution of a finished product and therefore not covered.

The technological components are by necessity simplified so as to stay within what is relevant to establish the subject matter within the legal framework. The terms “*computer program*” and “*software*” are used interchangeably while the term “*software solution*”, being the subject matter, is given a clearer definition for the purpose of this thesis. Computer hardware is not part of the focus of this thesis and will only be mentioned if relevant.

Application Programming Interfaces (API) are only mentioned as a component of the overall “*software solution*”. The legal issue of interoperability between different software solutions through API’s is not brought up specifically. This subject is wide and well covered by other authors.

Some areas that this thesis does not approach at all or just touch on superficially even if they may be important for understanding the complex area of EU legislation that affects IP and IPRs are the socioeconomic aspect and technical development. These are extensive subjects worthy of their own theses.

The US Trade Dress option is left out, as it is primarily used in the U.S.<sup>16</sup> It is a derivate of trademark law and provides protection for a product that is distinctive enough in its appearance to be recognized by the average consumer among other similar products. It ignores any functional aspects.

The legal analysis with suggested changes and improvements presented here reflects the author’s own interpretation and understanding of relevant international agreements, EU *acquis* and associated intellectual property rights relating to the subject matter and are not necessarily established or supported by others.

#### **1.4 Method and materials**

I have used EU legal methodology, which to a large extent built around case law. This implies using EU Secondary Law, seen within the framework of EU Primary

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<sup>16</sup> WIPO, *Beyond Tradition: New Ways of making a Mark*, 2004 Trade Dress.

Law and international treaties, as interpreted by the European Court of Justice (ECJ).<sup>17</sup> The Court takes into consideration not only the *teleological*<sup>18</sup> interpretation but also purpose and effect as well as the case's context.<sup>19</sup> The court cases I have selected for this thesis will mainly be from within EU to shed light on the practical application and interpretation of the EU legislation by the ECJ and related issues for an author/creator/inventor of a “*software solution*”. Having said this there may be reference to cases from US courts as part of showing the issues with current legislation for IP protection for the individual author/creator/inventor that this thesis is trying to resolve.

As always it is of importance that the criterion for choice of sources is related to the subject matter and particularly relevant to the issue in question. They should improve understanding and explain the legal rules where necessary and if possible explain the normative component behind the legislation.

The legal system of EU works with several layers of legal sources, first there is the Primary Legislation, consisting of the Union Treaties setting out the General Principles of Law. They are the Treaty of the European Union (TEU)<sup>20</sup>, the Treaty on the Functioning of the European Union (TFEU)<sup>21</sup> and the Charter of Fundamental Rights of the European Union<sup>22</sup>. Next are EU's international treaties followed by the Secondary Legislation consisting of three legislative acts - Regulations, Directives and Decisions, implemented in accordance with Art 289 TFEU. There are also two non-legislative acts – Delegation (Art 290 TFEU) and Implementation (Art 291 TFEU) plus a number of other acts (see Art 288 TFEU).<sup>23</sup> The Secondary Legislation of the EU is created through a gradual process deriving its base from and creating momentum for the purpose of the Union Treaties. This creates a progressive and enhanced European legal order over time. This thesis will primarily apply Directives from the Secondary Legislation relating to the *subject*

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<sup>17</sup> Borchardt, 2010, p 81

<sup>18</sup> *Teleological* finds its origin in the Greek word, 'telos' meaning "end". Its meaning is "relating to ends or final causes; dealing with design or purpose." Source: Oxford English Dictionary Vol. XVII (1989).

<sup>19</sup> Hettne, 2011 p 159

<sup>20</sup> European Union, TEU 2012 Treaty on European Union, 2012

<sup>21</sup> European Union, TFEU 2012 Treaty on the Functioning of the European Union, 2012

<sup>22</sup> European Union, Charter of Fundamental Rights of the European Union, 2012

<sup>23</sup> Borchardt, 2010, p 80

*matter*, though the assessment of the current law is based on the whole of the *acquis communautaire*; Primary Law, Secondary law and jurisprudence from the European Court of Justice (ECJ). EU is primarily regulated through Regulations and Directives released by the Commission; these have to pass through the EU Parliament for approval before they can be implemented. Once they are published they come into effect on the date given in the public announcement.

Classical legal dogmatic methodology will also be used from the view of evaluating, interpreting and clarifying the content of current legal norms and associated nomenclature in an effort to systemize them. The goal for this is to establish a foundation for the further discussion and development of these norms and the potential need for a new nomenclature. I.e. this methodology is primarily used for a descriptive analysis of applicable current legislation related to the subject matter of this thesis.

Legal and other doctrine when used will almost exclusively be with a specific focus on those covering IP and IPR *acquis* to get a clear view of how different components of the subject matter are defined. The selection on doctrinal sources is based on previous research done by me into authors that are often referred to as well as having showed a good understanding of the cross-science issues facing the legislators around the subject matter.

The questions about the validity and functionality of the current secondary (Regulations and Directives) legislation in the area of IP protection for “*computer programs*” and related components are many and heavily debated. I.e. Giuseppe Mazziotti<sup>24</sup> in his publication “*EU Digital Copyright Law and the End-User*” from 2008 raises the question if current usage of nomenclature for software in the Directives is inconsistent.<sup>25</sup> Pamela Samuelson<sup>26</sup>, Professor of Law and Management, a well-established expert in the field of the subject matter and Peter

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<sup>24</sup> CEPS, 2014 Ph.D. and Associate Research Fellow, CEPS,

<sup>25</sup> Mazziotti, 2008 p. 70-71, 105

<sup>26</sup> Pamela Samuelson is the Richard M. Sherman Distinguished Professor of Law; Professor of School Information; Co-Director, Berkeley Center for Law & Technology, USA.

Menell<sup>27</sup>, Professor of Law with IP as a speciality have both published extensively within the field copyright, software protection and cyber law. Both authors, in 1984<sup>28</sup> respective 1989<sup>29</sup> looked into the need for specific IP protection of “*computer programs*”. They asked the question whether copyright gave the right type of IP protection for what they called machine code. Though their answers can be seen as inconclusive in many aspects the debate is still on the table. Professor Menell went further by questioned the viability of the use of copyright protection for user interfaces in relationship to the recovery of R&D costs. Professor Samuelson and associates even questions whether copyright has played out its role as IP protector for software development.<sup>30</sup> Currently there seems to be no consensus in the area except that there are issues.

To properly define that definition of the *subject matter* for this thesis is complicated and demands a deep understanding of the technology behind it. Understanding the definition of the term “*software solution*” is the key for understanding the choice of taxonomy and associated nomenclature as well as the authors view on the application of the Directives. A large part of this understanding is based on the authors own academic background<sup>31</sup> and over 20 years of practical experience in the field of Information Technology (IT).

## 1.5 Outline

The disposition of this thesis is, due to its purpose, a bit different than what may be seen as traditional. Chapter two begins our journey by going through the current relevant EU Regulations and Directives for IP and IPR protection relevant to the subject matter of this thesis. The chapter looks at the subject matter (what) and scope (how) of the current EU legislations protection of the individual author/creator/inventor’s IP and IPRs for software development.

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<sup>27</sup> Peter S. Menell is a Professor of Law at the University of California at Berkeley School of Law (Boalt Hall), as well as co-founder and a Director of the Berkeley Center for Law & Technology, USA.

<sup>28</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984

<sup>29</sup> Menell, An Analysis of the Scope of Copyright Protection for Application Programs, 1989

<sup>30</sup> Samuelson, The Uneasy Case for Software Copyright revisited, 2011 p. 1780-1782

<sup>31</sup> M.Sc. Information Systems from Department of Informatics, Lund University, Sweden

Chapter three defines the current subject matter of the EU legislation and *proposes a model* for the definition of a new subject matter. It sorts out key components that are important to give a unified definition for the continuing work of establishing an updated and usable scope for IP and IPR legislators in the area of software development. It strives to create a common nomenclature that can be used in the context of how the technical solution actually works in a simplified and straightforward way.

Chapter four ties it all together with what this author sees as relevant conclusions and remarks drawn from the research into the subject matter, and the related current law and doctrine used, for his thesis. It looks at possible future law as well as possible avenues for further research.

## 2. Software solutions as the subject matter of current EU legislation

### 2.1 Introduction

*“Defining concepts is frequently treated by scientists as an annoying necessity to be completed as quickly and thoughtlessly as possible.” Ackoff<sup>32</sup>*

So what are the current laws in this area and how do they apply to the protection of the IP of the individual author/creator/inventor of a “*software solution*”? EU recognizes an individual’s rights to their own IP through EU Primary Law via the Charter.<sup>33</sup> In recent cases the ECJ has stated that this protection is not necessarily inviolable when balanced by the consideration of other freedoms.<sup>34</sup> The view of a fragmented legal IP protection provided under the Charter for the subject matter is analogously supported by *Promusicae*<sup>35</sup> where the ECJ pointed to a Directive for clarification of the scope of the IP protection provided under the Charter.

Within EU in the field of “*software solutions*” and the area of IP protection for the individual author/inventor/creator we have a very fragmented legal situation. Current legislators have defined “*computer programs*” and provide them copyright protection to a certain extent. But there is also patent protection provided for some unique functionality of a “*computer program*” and a very limited protection for associated GUI design through the 2009/29/EC Directive on the harmonisation of certain aspects of copyright and related rights in the information society (InfoSoc), while databases are provided with a *sui generis*. But when these components are all put together into a more complex “*software solution*” there is no adequate IP protection for the individual author/inventor/creator of the solution as a whole.

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<sup>32</sup> Ackoff R. L., 1971 p. 671

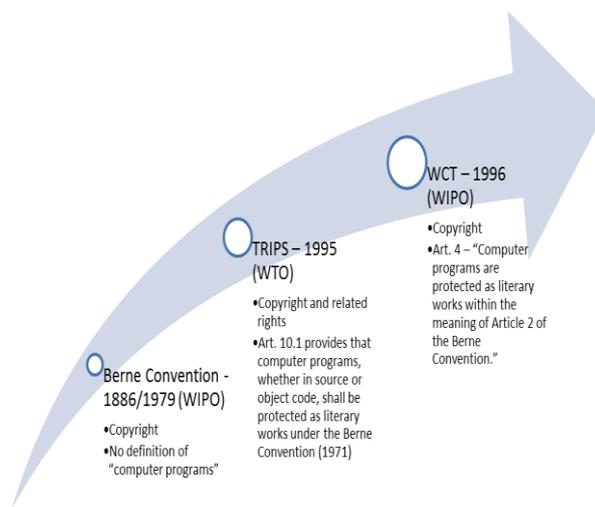
<sup>33</sup> European Union, Charter of Fundamental Rights of the European Union, 2012 Art. 17(2)

<sup>34</sup> C-70/10 Scarlet Extended, 2011 paras 43-46 and C-314/12 UPC vs. Constantin, 2014 paras 61-63

<sup>35</sup> C-275/06 Promusicae, 2008 paras 61-62, 65-66

The core of all current copyright legislation is the Berne Convention<sup>36</sup>. This international treaty originated already in 1886 and was drawn up in Berne, Switzerland. It was last amended in 1979 and currently has been signed by 167 of the world's 206 sovereign states.<sup>37</sup> According to the Berne Convention Art 2 the subject matter is; *“Protected Works: (1) The expression “literary and artistic works” shall include every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression.”* With the term of protection being defined in Art 7(1) as; *“The term of protection granted by this Convention shall be the life of the author and fifty years after his death.”* This is quite an extensive scope for time of IP protection.

Later international treaties signed by EU in the area of copyright are all based on, or refers to, the Berne Convention, including treaties from WIPO<sup>38</sup> and the World Trade Organisation (WTO)<sup>39</sup>. The common principle of all these agreements is the principle of automatic mutual recognition of copyrighted works among its signatories.<sup>40</sup>



**Figure 1 International treaties binding EU member states**

Unfortunately IP and IPR protection for *“computer programs”* is limited in scope to copyright protection as for literature in all these documents.<sup>41</sup> This causes an issue for the author/creator/inventor of a *“computer program”*, and even more so in case of a *“software solution”*, as copyright only protects the original work in its tangible form, i.e. the written text as published, not the underlying concept or idea. That is;

<sup>36</sup> WIPO, Berne Convention for the Protection of Literary and Artistic Works 1979, 2013

<sup>37</sup> WIPO, WIPO-Administered Treaties, 2013

<sup>38</sup> WIPO, WIPO Copyright Treaty (WCT), 2013 p. 2, art 1

<sup>39</sup> WTO, 2013 p. 321, art 1 (3)

<sup>40</sup> WIPO, Berne Convention for the Protection of Literary and Artistic Works 1979, 2013 Art 2 pt. 6

<sup>41</sup> WTO, 2013 Art 10(1) and WIPO, WIPO Copyright Treaty (WCT), 2013 Art 4 and C-393/09 BSA v. Czech Ministry of Culture, 2010 and European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009

the underlying creative thought process and work that creates the “*what*” and “*how*” of a “*software solution’s*” fulfilment of a need for its user has no IP protection, unless it is all documented and then an expression of the idea is created, but even then the legal protection is fragmented. This differs from the way a patent protects the inventive concepts as well as its practical application.<sup>42</sup> This built-in, traditional, limitation was probably a key reason behind EU’s aborted trial to implement a new form of patent solution for “*computer-implemented inventions*” in 2002.<sup>43</sup>

The WIPO adopted the WIPO Copyright Treaty (WCT) in Geneva on 20 December 1996 and it was approved on behalf of the European Community by Council Decision 2000/278/EC of 16 March 2000.<sup>44</sup> The WCT in itself lacks a definition of the term “*computer program*”. In the *travaux préparatoires*<sup>45</sup>, agreed upon beforehand, the states signing the treaty agreed on a definition for a “*computer program*” as; a set of instructions causing a machine to perform a particular task, function and/or create a result. This is achieved by “*incorporating*” it into some form of machine-readable medium and thereby gives the machine the capability to process information.<sup>46</sup> The WCT definition fits reasonably well within the definition, used for this thesis, of “*software*”. (See Ch.3.3.1) Even though I have extended the scope there to include “*solution*”, the purpose of it is still to fulfil some need of the user. The WCT, in line with currently commonly accepted principles, provides that IPR’s of: “*Computer programs are protected as literary works within the meaning of Article 2 of the Berne Convention. Such protection applies to computer programs, whatever may be the mode or form of their expression.*”

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<sup>42</sup> EU Copyright Office, How is a copyright different from a patent or a trademark?, 2013.

<sup>43</sup> European Commission, Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, 2002

<sup>44</sup> European Commission, On the approval, on behalf of the European Community, of the WIPO Copyright Treaty, 2000

<sup>45</sup> United Nations, 2014. French, meaning “preparatory works”, are the official record of a negotiation, see Art.32 of the Vienna Convention on the Law of Treaties (VCLT)

<sup>46</sup> WIPO, Explore WIPO, 2014 Definition given by the WTO in its standard provisions on protection of computer programs on the WIPO internet site

IP is defined by the WIPO as the “...creations of the mind: inventions; literary and artistic works; and symbols, names and images used in commerce.”<sup>47</sup> This in turn is divided into sub-categories;<sup>48</sup>

- Industrial Property including patents and trademarks
- Copyright covering literary works, films, music, artistic and architectural design.

The WTO defines IPRs in their background materials Ch. 24, p 24.3 on TRIPS as; “Intellectual property rights are the rights given to persons over the creations of their minds.”

EU also specifies that the scope of IPRs consist of property rights related to the specific areas of industry, patents, trademarks, designs and copyrights.<sup>49</sup> Today EU considers the development of “computer programs” to be “...of fundamental importance for the Community’s industrial development.”<sup>50</sup> This should be no surprise as our society of today has embraced computer technology and its benefits to the extent that it is hard to envision a life without it. A key issue is how to evaluate what and how to protect the individual author/creator/inventor’s IP. This combines the issue with how to define the “originality” criterion thru non-obviousness and inventive step for a new “computer program” or “software solution” with the issue of the potential different cultural view of what is new and inventive. This means that there may an array of, sometimes conflicting, interests to consider when looking at laws to protect the IPR’s of a creator/author/inventor of a “software solution” under EU *aquis*.

## 2.2 Copyright for Software

As was stated earlier copyright is the preferred choice in legal protection for software, i.e. “computer programs”, by the EU legislators. Copyright arises automatically when an idea is expressed in some form, i.e. literature, art et al, and is

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<sup>47</sup> WIPO, What is Intellectual Property?, 2013 p. 2

<sup>48</sup> WIPO, What is Intellectual Property?, 2013 p. 2

<sup>49</sup> European Commission, A Single Market for Intellectual Property Rights, 2011 p. 3

<sup>50</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble recital (3)

free. Note that it gives its author/creator no protection against the possibility that someone else independently comes up with the same or a similar idea. Then it comes down to proof in some form of who came up with the idea first.

The choice of copyright is partially harmonized throughout EU by Directives that refer to international treaties that EU is a signatory of. In regards to patents for software there is currently no similar harmonization.<sup>51</sup> It is important to note that under the EU Directives the authorship of a “*computer program*” belongs to;

“...the natural person or group of natural persons who has created the program or, where the legislation of the Member State permits, the legal person designated as the rightholder by that legislation”<sup>52</sup>

The reference to member state legislation is a result of the shared competence in the area of IP within the EU. I.e. the legislation in case of the definition of authorship of IP and related IPR may vary between member states. This may cause issue in the case of cross- border cooperation between entities cooperating in developing new “*software solutions*”.

What does current doctrine say about the Directives protecting IP rights within EU *acquis*? There has been quite a longwinded and exhaustive debate, both within EU and internationally about whether copyright, patent or a specific regime for IP protection should be used for “*computer programs*”. Internationally acknowledged experts in this area, i.e. Professors Samuelson and Menell,<sup>53</sup> have been publishing material referring to this issue since the 1980’s up until today. This author finds that insightful as they may be their discussions are still focused on the type of IP protection to be provided for a “*computer program*” and its extensions like databases and API’s. The issue, in the opinion of this author, is that these esteemed authors should have shifted their focus to the technology advancements and their effect on the subject matter. Most importantly for the sake of the legislators there should have been work done to update and establish

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<sup>51</sup> EU Copyright Office, Is computer software protected by copyright?, 2014.

<sup>52</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Art. 2(1)

<sup>53</sup> I.e. Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 and Menell, An Analysis of the Scope of Copyright Protection for Application Programs, 1989, and more currently Samuelson, The Uneasy Case for Software Copyright revisited, 2011 and Menell, Envisioning Copyright Law's Digital Future, 2002

a more specific nomenclature with clarifications of terminology to be used within the IP and IPR legislation.

The older focus on IP protection, as provided by current legislation and how to tweak it to fit a fast moving target like IT is reflected in EU Directives as well. The basic principle of applying copyright protection for the computer's software was accepted as is, and the only computers and/or software related inventions being extended possible patent protection.<sup>54</sup> In their Green Paper<sup>55</sup> from 1988 on the emergence of important copyright issues the European Commission (EC) stated;

*“The development of copyright laws in the Community and elsewhere reveals a continual re-examination of those laws to achieve an appropriate balance, in the light of conditions prevailing at the time, between important objectives that are partially in tension. Protection of the economic interests of the author and other creators, the promotion of ready access to information, and the pursuit of cultural goals have all had to be pursued and reconciled. In recent years and with increasing frequency, this challenge has been raised, in terms of copyright law and policy, at Community Level.”<sup>56</sup>*

In light of this message, which today is even more valid, it may well be time for a closer look at the current fragmented legal situation which is based on the lawmaker's original view of the computer industry based on doctrine in the 1980's stating that the computers and their “*computer programs*” only replace mechanical functions with electronic ones.<sup>57</sup> This approach in turn was based on what was offered in the market at the time and this mechanical viewpoint may also explain why software's functions are not covered by copyright, but by patents. This approach to “*computer programs*” as an electronic replacement for a mechanical function still prevails in case law today through the application of current legislation.

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<sup>54</sup> EU Copyright Office, Is computer software protected by copyright?, 2014

<sup>55</sup> European Commission, Green Papers published before 1990, 2014, COM(88) On copyright and the challenge of technology

<sup>56</sup> European Commission, Green Papers published before 1990, 2014, COM(88) On copyright and the challenge of technology p. 1, pt. 1.1.1

<sup>57</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 p. 675

## 2.3 Current EU acquis

*Inter alia* important EU Directives and Regulations potentially affecting the subject matter of this thesis are;<sup>58</sup>

- Directive 2001/29/EC Directive on the harmonisation of certain aspects of copyright and related rights in the information society (InfoSoc)
- Directive 2009/24/EC Directive on the legal protection of *computer programs*
- Directive 96/9/EC on the legal protection of *databases*
- Regulation No 6/2002 on the Community Designs
- Directive 98/71 on the legal protection of Design
- Directive 2008/95/EC on Community Trademarks (CTM)

These will be processed and given a short, concise analysis in this chapter to try and establish how they apply and what aspects of them might be used for an updated EU legislation regime for IP and IPR protection of the subject matter, i.e. the “*software solution*”.

## 2.4 Directive 2001/29/EC - InfoSoc

This Directive, the “*Directive on the harmonisation of certain aspects of copyright and related rights in the information society*” or “*InfoSoc*” for short, is seen by the EU as a very essential building block for today’s Information Society. The objective of the Directive is to achieve harmonization of national laws within EU in the area of copyrights and related rights.<sup>59</sup> The two main reasons were to try to reflect the technological developments and to fulfil EU’s international obligations based the framework set by the World Intellectual Property Organisation (WIPO).<sup>60</sup>

The horizontal perspective of the Directive of trying to harmonize member state legislation’s scope for the exclusive rights of digital works, unfortunately, fails to

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<sup>58</sup> For a more extensive listing of IP and IPR related EU legislation see Appendix A

<sup>59</sup> European Union, 2001/29/EC Directive on the harmonisation of certain aspects of copyright and related rights in the information society, 2001 Preamble recital (1)

<sup>60</sup> European Commission, Copyright in the Information society, 2014

address a key aspect of copyright protection, i.e. what is the subject matter. Looking at art 1(1) of the Directive regarding its objective and scope it states;

*“This Directive concerns the legal protection of copyright and related rights in the framework of the internal market, with particular emphasis on the information society.”*

But then in art 1(2) it defines what is not, oddly enough, within its scope;

*“2. Except in the cases referred to in Article 11, this Directive shall leave intact and shall in no way affect existing Community provisions relating to:*

*(a) the legal protection of computer programs;*

*[deleted by author]*

*(e) the legal protection of databases.”*

This makes it clear that the InfoSoc Directive leaves intact the, at the time, existing EU Directives in the area of copyright – 91/250/EC (computer programs) and 96/9/EC (databases). This is supported in the case of *SAS vs. WPL* where this Directive is only referred to in regards to copyright infringements based on use of elements from a user manual.<sup>61</sup> Therefore this Directive has a limited impact on the subject matter of this thesis.

## **2.5 Directive 2009/24/EC (repealing 91/250/EEC)**

The original Directive for the protection of computer programs 91/250/EEC was replaced in 2009 with Directive 2009/24/EC. Both Directives share a common baseline in that they strive towards a harmonization of member state’s legislation regarding the protection of “*computer programs*”.<sup>62</sup> Directive 2009/24/EC seeks to harmonise Member States’ legislation in the field of legal protection of computer programs by defining a minimum level of protection.<sup>63</sup> The sixth recital of the Preamble states that the Directive limits the member state in that they should;

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<sup>61</sup> C-406/10 *SAS Institute vs. World Programming Ltd (WPL)*, 2012, Court ruling para 3

<sup>62</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recitals 4-5

<sup>63</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital 6

*“...accord protection to computer programs under copyright law as literary works and, further, to establishing who and what should be protected, the exclusive rights on which protected persons should be able to rely on in order to authorise or prohibit certain acts and for how long the protection should apply.”*

Here is established that this is a shared competence. The member state's have quite an autonomous role in establishing legally who and what is protected, including the definition of what is “*originality*”, as long as they stay within the scope of copyright as established by this Directive under the international treaties.

The older Directive 91/250/EEC lacked a specific definition of the term “*computer programs*”. This lack, interestingly enough, was noted in a report ordered by the Commission on the implementation of the Directive, and it was stated that this only presented “*minor difficulties*” and “*...do not justify action at Community level.*”<sup>64</sup> in regards to harmonisation. This has not changed in the new Directive 2009/24/EC where the term “*computer program*” is defined in the same way;

*“...the term ‘computer program’ shall include programs in any form, including those which are incorporated into hardware. This term also includes preparatory design work leading to the development of a computer program provided that the nature of the preparatory work is such that a computer program can result from it at a later stage”*<sup>65</sup>

Art 1(1) of Directive 2009/24/EC clearly defines that the scope of protection for “*computer programs*” that the member states have to provide for IP and related IPRs is in accordance with the Berne Convention's definition of copyright for literary works. Art 1(2) of the same Directive though put in some limitations that are relevant to this thesis.

First it states that; “*Protection in accordance with this Directive shall apply to the expression in any form of a computer program.*” To most professionals in the IT line of business a GUI for instance would often be considered a graphical expression of the underlying design concept as expressed in the software. The EU legislators do not share this view, and neither does the courts as can be seen by the

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<sup>64</sup> European Commission, Report on the implementation and effects of Directive 91/250/EEC on the legal protection of computer programs, 2000 p. 20

<sup>65</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital 7

ECJ's decision in the case of *BSA v. Czech Ministry of Culture*<sup>66</sup>. The result is a fragmented approach to the IP and IPR legislation for the subject matter of this thesis due to the referral back to member state national legislation.

The next sentence of the same Article; *“Ideas and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright under this Directive.”* severely limits the scope of the legal protection offered. Based on the outcome of *SAS vs. WPL*<sup>67</sup>, for the subject matter of this thesis, it currently removes any opportunity for protection of API's, under this Directive, even when they are an integral internal component for communication within a *“software solution”* and not a way to handle external communication. The next issue this author perceives with this Directive is the criteria to be applied for the test of *“originality”*, a key component in defining the *“non-obviousness”* of a *“software solution”*. The Directive states;

*“In respect of the criteria to be applied in determining whether or not a computer program is an original work, no tests as to the qualitative or aesthetic merits of the program should be applied.”*<sup>68</sup>

Later on it follows up on this with the following;

*“A computer program shall be protected if it is original in the sense that it is the author's own intellectual creation. No other criteria shall be applied to determine its eligibility for protection.”*<sup>69</sup>

Even though this aligns with what we earlier presented as the accepted usage in case of *current legislation* and doctrine in perceiving a *“computer program”* as a *“literary work”*, it effectively kills any concept of trying to establish that even a basic computer program and/or its API's can provide new and innovative ways of providing a response or solution to a user's need.

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<sup>66</sup> C-393/09 *BSA v. Czech Ministry of Culture*, 2010 Court ruling para 1

<sup>67</sup> C-406/10 *SAS Institute vs. World Programming Ltd (WPL)*, 2012 Court ruling para 1

<sup>68</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital 8

<sup>69</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Art 1(3)

This Directive establishes this legal area as a shared competence<sup>70</sup> and leaving decisions regarding what is to be considered “*original*”, a basic requirement for copyright, up to the member state to decide. It therefore does not, in the opinion of this author and others<sup>71</sup>, solve the issue of legal uncertainty nor does it necessarily provide for a consistent high level of IP protection for IPR’s for the author/creator/inventor of a ”*computer program*”.

## **2.6 Directive 96/9/EC on Databases – *sui generis***

Directive 96/9/EG on the legal protection of Databases<sup>72</sup> was adopted in February 1996. The Directive noted that IP protection for databases through copyright is insufficient and fragmented due to member state legislation, where available, has different attributes. This has a negative effect “...*on the freedom of natural and legal persons to provide on-line database goods and services*”.<sup>73</sup>

The Directive’s provisions apply to both analogue and digital databases.<sup>74</sup> It specifies that a “*database*” is a collection of independent materials such as data, works or other materials that has been methodically or systematically arranged and then made individually accessible either through electronic or other means.<sup>75</sup> It also specifies that any form of “*computer programs*” used to access these databases is not protected under the Directive.<sup>76</sup>

Interestingly the Directive provides a 2-tier system for IP protection.

1. a harmonised level of protection copyright protection of “original” databases (Art 3-5)
2. a new “*sui generis*” right to protect investments of time, money and/or effort in the creation of databases (Art 7 & 10-11).

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<sup>70</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009, Preamble, recital (11)

<sup>71</sup> Mazziotti, 2008, p. 52

<sup>72</sup> European Union, 96/9/EG On the legal protection of databases, 1996

<sup>73</sup> European Union, 96/9/EG On the legal protection of databases, 1996 Preamble, recital (1) & (2)

<sup>74</sup> European Commission, Protection of Databases, 2014 & European Union, 96/9/EG On the legal protection of databases, 1996 Preamble, recital (14)

<sup>75</sup> European Union, 96/9/EG On the legal protection of databases, 1996 Art 1, para 2

<sup>76</sup> European Union, 96/9/EG On the legal protection of databases, 1996 Art 1, para 3

The Directive's new exclusive "*sui generis*" IP right for database creators is valid for 15 years. If there is a subsequent substantial investment in changes the IP protection can be extended.<sup>77</sup> Unlike copyright which protects the author's creativity the database Directive protects the "*...qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents...*"<sup>78</sup>

In 2005 the European Commission published an evaluation of the Directive for database protection.<sup>79</sup> The report that focused on the scope and effect of the Directive concluded that it could well be left unchanged by the Commission. It also noted that there were limited regulatory and administrative burdens for the industry in question. Finally it concluded that the "*sui generis*" protection could not be proven to have provided any impact on the stimulation of the production of databases in Europe, though the available empirical data was limited in scope.<sup>80</sup>

## 2.7 Patents for Software

Patents within EU have for a long time, and still is to a certain extent, very much a national competence. Patents are a set of exclusive rights, granted for a limited time to a patent holder by a state. This relates to the fact that they are territorial in scope in the sense that a patent is only valid within certain geographical borders. In EU the time limit is 20 years but only if annual renewal fee is paid.<sup>81</sup> A patent is granted in return for the disclosure of the invention. Once granted no other person beside the inventor may use, make or even sell or export the claimed invention within the territory where the patent is valid without the patent holders permission. Patents have to be applied for in each separate territory where patent protection is wanted. To be patentable by the EPO an invention must be according to EPO's own information;

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<sup>77</sup> European Union, 96/9/EG On the legal protection of databases, 1996 Art 10, para 1-3

<sup>78</sup> European Union, 96/9/EG On the legal protection of databases, 1996 Art 7, para 1

<sup>79</sup> European Commission, First evaluation of Directive 96/9/EC on the legal protection of databases, 2005

<sup>80</sup> European Commission, First evaluation of Directive 96/9/EC on the legal protection of databases, 2005 p. 6 and p. 20

<sup>81</sup> European Patent Office, Forms of IPR, 2014

- New and previously undisclosed.
- Distinguished by an inventive step not obvious to someone expert in that technology.
- Capable of industrial application - that is, it is physically possible to make the invention.

Within Europe “*computer software*”, as EPO name it, cannot receive IP protection “*as such*” through patents but only copyright. The EPO clarifies this as; “*Patents are not granted merely for program listings. Program listings as such are protected by copyright.*”<sup>82</sup> Interestingly enough the EPO opens the door for alternate interpretations by stating;

*“However, an invention that is implemented on computers by means of software - for example, an improved data handling system - is patentable in Europe.”*<sup>83</sup>

Since basically all types of a “*software solution*” is about data/information handling in some form, as we have seen in Chapter 2, this come across as there being either a certain ambivalence or just a lack of clear definitions of the terminology used in this legal area. In either case it shows the need for clearer definitions of terminology and a stricter nomenclature for the legislators in the area of IP and IPR protection.

### **2.7.1 EPO and the “old” European Patent**

The old European Patent is handled by the European Patent Organisation (EPOrg) which was set up in 1977 based on the European Patent Convention (EPC). The EPOrg is not a part of the EU structure, and not legally bound to it, but an independent intergovernmental organisation with two organisational bodies. One is the European Patent Office (EPO) and other the Administrative Council, which supervises the Office's activities.<sup>84</sup> The EPO follows the European patent laws in the EPC which is currently adopted by the 38 member states of the EPOrg.<sup>85</sup>

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<sup>82</sup> European Patent Office, Patents for software?, 2013

<sup>83</sup> European Patent Office, The patenting process, 2014

<sup>84</sup> European Patent Office, European Patent Organisation, 2014

<sup>85</sup> European Patent Office, Patents for software?, 2013 p. 3

The EPO considers the term “*software*” ambiguous due to the dualistic nature of its definition in the current legislation and the fact that it may include related documentation.<sup>86</sup> This view is supported by the approach of ECJ in the case of *SAS vs. WPL*, where the court looked at the alleged IPR infringements by separating the copying of actual source code and the usage of accompanying training manuals.<sup>87</sup> To avoid this ambiguity the EPO introduces their own, in their opinion, less ambiguous term “*computer-implemented invention*”. According to the EPO a “*computer-implemented invention*” is where one or more features of a “*computer, computer network or other programmable apparatus*” are partially or completely executed through the use of a “*computer program*”.<sup>88</sup> Note that under Articles 52(2)(c) and (3) of the EPO’s European Patent Convention (EPC) “*computer programs*” are not patentable in of themselves. The basic criterion for a patent, for this “*computer-implemented invention*”, is that it uses a novel and non-obvious manner to solve a technical problem. This aligns well in an analogue manner with this author’s view of looking at *what* and *how* a “*software solution*” does fulfil a user’s specific needs, and which currently cannot be awarded consistent legal IPR protection.

The EPO’s uniform procedure for granting these European patents is basically autonomous but linked to the EPO member state’s national patent legislation by interfacing with them through a number of stages.<sup>89</sup> A European patent functions for all practical purposes as a national patent but with a geographical scope covering all EPO member states designated in the application, unless it falls under any exception provided by the European Patent Convention (EPC).<sup>90</sup> In 2000 the EPO had already been granting some software patents despite “*computer programs*” already being excluded in the European Patent Convention (EPC) from 1973, with revisions in 2000. These were based on Art 52 of the EPC and supported by EPO jurisprudence from the EPO’s Court of Appeals. I.e. In the case T 115/85 the EPO considered the software methodology patentable as it fulfilled all the

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<sup>86</sup> European Patent Office, Patents for software?, 2013 p. 3

<sup>87</sup> C-406/10 *SAS Institute vs. World Programming Ltd (WPL)*, 2012 para 42-44, 70

<sup>88</sup> European Patent Office, Patents for software? European law and practice, 2014 p. 3

<sup>89</sup> European Patent Office, Patents for software? European law and practice, 2014

<sup>90</sup> European Patent Office, The European Patent Convention (EPC), 2014 Art 2(2)

requirements for a patent for solving a technical problem.<sup>91</sup> In the case T 887/92 the EPO ruled that the displayed commands were to “...constitute a technical means for carrying out the invention.”<sup>92</sup>, therefore the “computer program” was patentable. These and other cases of patents for “computer programs” given out by the EPO under their definition of “computer-implemented invention”, even though they can technically be said to stay within the scope of EU’s vague definitions of the subject matter does cause confusion regarding what is and what is not patentable.

### **2.7.2 The 2002 proposal for Software patent Directive**

In 2002 the EC put a proposal on the table for a Software Patent Directive. The patent was to be based on the term “computer-implemented inventions”.<sup>93</sup> The European Commission’s view was that there was a lack of cohesion between member state legislation in this area and that this created serious barriers to both the trade within EU as well as in relations with EU’s trading partners. The Commission also was of the opinion that this had a negative effect on EU’s competitiveness vs. its major trading partners.<sup>94</sup> This proposal was voted down by the European Parliament by 648 votes to 14 and 18 abstaining.<sup>95</sup> This appeared at the time to be the end of the road for the controversial law.

This proposal became the focus of a major contention. The supporters of the new Directive included major software corporations such as Microsoft, IBM and Hewlett-Packard, the EPO was also a proponent. This led the opposition to claim that the proposal was run by the patent lawyers representing these large corporations’ special interests. On the opposing side were lobbying groups like European ICT Industry Association (EICTA), Foundation for a Free Information Infrastructure (FFII) and the EuroLinux Alliance. The supporters argued that the

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<sup>91</sup> T 0115/85 Method of decoding phrases and obtaining a readout of events in a text processing system, 1988 Reasons for the Decision pt. 9-10

<sup>92</sup> T 0887/92 Method for providing an on-line help facility for interactive information handling systems, 1994 Reasons for the Decision pt. 4

<sup>93</sup> European Commission, Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, 2002

<sup>94</sup> European Commission, Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, 2002, recital 2 & 16

<sup>95</sup> Pinsent Masons, 2005

new proposed Directive only was a codifying of EPO's case law in the sphere of computing. While the opposition insisted that the new Directive was not only a way to achieve harmonisation of the concept that ideas are not patentable, but created an extension of the scope of patentability. These proponents also considered current copyright legislation to provide adequate IP and IPR protection for the expression of those ideas.<sup>96</sup>

The effect of this dismissal of the final draft of the proposed Directive is that member state's national laws remains without harmonisation. It also means that the member state's national legislators can continue enacting laws, enforceable by national courts, allowing "*computer-implemented inventions*". It also means that for the time being the EPO continues its practice based on the same principles in accordance with the EPC.

### **2.7.3 Regulation 1257/2012 Unitary Patent protection**

A formal European Patent with unitary effect allowing both individuals and corporations to get a valid patent throughout the EU has been signed on the 19<sup>th</sup> of February 2013. This agreement enters into force for the countries ratifying it as soon as 13 countries have done so, including France, UK and Germany where most European patents are registered. Its entry into force also requires amendments to the Brussels I Regulation and these took place of the 1<sup>st</sup> of January 2014.<sup>97</sup> Currently only Austria and France has ratified it, while Italy, Spain and Croatia are not signatories. The handling of some of the administration for new patent process is done the EPO parallel with EPO's own patent system.<sup>98</sup> A Unified Patent Court is also in the process of being established in accordance with the Unified Patent Court Agreement, which at the time was not signed by Poland, Spain and Croatia.<sup>99</sup> This new Unitary Patent currently does not change the possible patentability of "*computer programs*" and related matters.

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<sup>96</sup> Software Patents Directive: Wikis, 2014

<sup>97</sup> European Patent Office, Unitary patent - frequently asked questions, 2014 When will the "patent package" enter into force?

<sup>98</sup> European Union, EU Regulation No 1257/2012-Implementing enhanced cooperation in the area of the creation of unitary patent protection, 2012 Ch. VI Art 14

<sup>99</sup> Council of the European Union, 2014

## 2.8 Requirements for Copyright and Patents within EU

One of the most important criteria for any functional copyright legislation on IP and IPR's is the definition of the key aspect of "originality". Directive 2009/24/EC does not specify any "originality" requirement for "computer programs" except that it should be a work of the author's own intellectual creation.<sup>100</sup> There is currently no codified harmonization of the "originality" requirement within EU, the relevant Directives leave the definition up the member state national courts to decide as in *BSA v. Czech Ministry of Culture*<sup>101</sup> where the decision for the criterion for the "originality" requirement's fulfilment was left to the national court to decide. In *Infopac* the ECJ did however interpret available case law to mean that the question about what can be extended copyright protection is within their competence.<sup>102</sup> Thereafter the ECJ seems to have established some more harmonized "originality" criterion, at least for copyright protection, in other areas though. The following currently seems to be the closest to a harmonized variation;

- It is an original creation of the author
- It reflects the author's personality
- There is some form of expression of the author's creative ability through creative choices, thereby providing a personal touch to the creation.

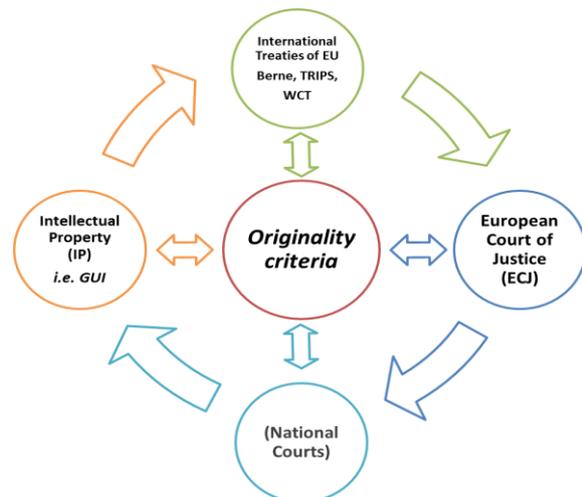


Figure 2 The "originality" criteria's importance

This aligns with the international treaties<sup>103</sup> on copyright that EU has signed and currently provides no uniqueness to the EU legislation in the area. It is of course in the interest of an author/creator/inventor to bring a high level of inventiveness or

<sup>100</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital 8 and art 1(3)

<sup>101</sup> C-393/09 *BSA v. Czech Ministry of Culture*, 2010 para 45-47

<sup>102</sup> C-5/08 *Infopaq v Danske Dagbladet Forening*, 2001 para 27

<sup>103</sup> I.e. WIPO, Berne Convention for the Protection of Literary and Artistic Works 1979, 2013 and WIPO, WIPO Copyright Treaty (WCT), 2013

“*originality*” into the subject matter to make it easier to defend its rights as the individuals IP and therefore worthy of legal IPR protection.

Generally to be patentable the invention must be “...*new, industrially applicable and involve an inventive step.*”<sup>104</sup> In patent evaluation “*non-obviousness*” is the key. I.e. that it is not too trivial and/or obvious. This is combined with an evaluation of the inventions relationship to “*prior art*” i.e. known technology within the area of the patent application.<sup>105</sup>

## **2.9 Regulation No 6/2002 on Community Designs**

EU’s Community Trademark and Design registration and administration are handled by the Office for Harmonization in the Internal Market – Trademarks and Design (OHIM) and its activities are subject to EU law.<sup>106</sup> OHIM is an agency of the European Union established under Council Regulation 6/2002 in December 2001.<sup>107</sup> The ECJ is responsible for overseeing the legality of the Office's decisions. The Council Regulation No 6/2002 on Community designs<sup>108</sup> was adopted on 12 December 2001 and has since been amended. The Community Design provides a unitary IPR for designs across the EU. Once again the European Commission’s view was that there was a lack of cohesion between member state legislation in this area and that this created serious barriers to both the trade within EU as well as prevented and distorted due to the combination of numerable applications needed with corresponding fees and other administrative costs for the applicant. The Regulation aligns itself in the establishment of the Community Design with the provisions of the initial Directive on IP protection for Design 98/71/EC.<sup>109</sup>

### **2.9.1 Directive 98/71/EC on the legal protection of design**

This Directive covers designs; which is the appearance of a product. This covers its shape but also patterns and colours that are part of the product. Once registered the

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<sup>104</sup> EPO, How to apply for a European patent, 2014 pt. 1

<sup>105</sup> European Patent Office, The European Patent Convention (EPC), 2014 Art 52(1) and 56

<sup>106</sup> OHIM, Trade marks and designs, 2014 About OHIM

<sup>107</sup> European Union, 6/2002 Council regulation on Community Design, 2002 Art 2 Office

<sup>108</sup> European Union, 6/2002 Council regulation on Community Design, 2002

<sup>109</sup> European Union, 6/2002 Council regulation on Community Design, 2002 Preamble, recital (3) and (9)

Community Design is valid in all member states of EU.<sup>110</sup> The definition of design is according to the Regulation's Art 3(1) the “...*appearance of the whole or part of a product resulting from the features of...the product itself and/or its ornamentation.*” In the same Art 3(2) “*computer programs*” are excluded though in Art 3(3) there is a form of “*complex product*” mentioned which has an ambiguous definition, i.e. what exactly is the defining criteria for a component?<sup>111</sup> These definitions are identical to those in Directive 98/71/EC Art 1(a-c).

Note that when a design is part of a more complex product the key is that is visible during normal use, i.e. Gaultier's distinctly designed perfume bottles. Note that this IP protection does not protect any designs based on the need for interconnection to other technical products to perform a function, or those designs whose appearance is determined by a technical function. This author thinks this choice of definition is a bit short-sighted by the legislators, since many IT products these days consist of integrated hardware and software, i.e. mobile phones, pads et al. These consists of a combination of hardware and software components making up the whole, and they can all “...*be replaced permitting disassembled and re-assembled of the product.*” as defined for a “*complex product*”. And in most cases at least the U/I's for HCI are clearly visible.

To be protected a design must;

- be *novel*, that is if no identical design has been made available to the public;
- have *individual character*, that is the "informed user" would find it different from other designs which are available to the public.<sup>112</sup>

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<sup>110</sup> OHIM, Trade marks and designs, 2014 Designs

<sup>111</sup> European Union, 6/2002 Council regulation on Community Design, 2002 Art 3(a-c)

<sup>112</sup> European Union, Harmonisation of trade mark law in the European Union, 2014

There are two Community Design IP tiers within EU;

- RCD –Registered Community Design, valid for 5 years, with renewal up to 25 years.
- UCD – Unregistered Community Design, which is given 3 years of protection from the date it was first made available to the public within EU. No renewal.

This 2-tier solution could be of interest for a new legislation on the subject matter of this thesis.

### **2.9.2 Directive 2008/95/EC on Community Trademarks (CTM)**

*“Your trade mark tells customers who you are.”<sup>113</sup>*

Trademarks fall under EU Directive on Trademarks 2008/95/EC.<sup>114</sup> It can be a design that uniquely identifies and distinguishes a products origin or source but also a word or phrase. It separates one producer’s product from another’s, and it gets exclusivity of usage by registration, though in some countries it may achieve the same by long-time usage.<sup>115</sup> The Community Trademark provides a unitary IP right for trademarks across the EU. The OHIM works in cooperation with national legislation and the national industrial property offices of EU’s member states. OHIM works through a number of legal “interfaces” to the national trade mark systems.<sup>116</sup> This scope of the Directive includes individual and collective trademarks as well as guarantee (i.e. the Nordic Swan) and certification (i.e. ISO) marks.<sup>117</sup>

Basically to be registered the conditions are that it is clearly defined, so that there can be no misunderstanding what it stands for.<sup>118</sup> Once registered, your CTM can

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<sup>113</sup> OHIM, Trade marks and designs, 2014 Trademarks

<sup>114</sup> European Union, 2008/95/EC Directive to approximate the laws of the Member States relating to trade marks, 2008

<sup>115</sup> European Trademark Agency, 2014

<sup>116</sup> OHIM, International treaties & National laws, 2014, National Law Relating to the Community Trade Mark and the Community Design p. 7

<sup>117</sup> European Union, 2008/95/EC Directive to approximate the laws of the Member States relating to trade marks, 2008 Art 1 Scope

<sup>118</sup> OHIM, Trade marks and designs, 2014 Trade mark definition

be renewed indefinitely every ten years.<sup>119</sup> This leaves the owner with the option to keep the trade mark protected or let it become free and accessible to the public. Since this legislation only covers one specific item used to distinguishing mark for identification of origins or source and intentionally excludes items with technical functionality relevant for a “*software solution*” in this authors opinion it falls outside the scope for the subject matter of this thesis.

## 2.10 Summary and conclusions

We can deduce from the above that EU does recognize an individual’s rights to their own IP through the Charter,<sup>120</sup> but in regards to the subject matter the legal situation is fragmented. The key issue with this is that the components of a “*software solution*”, as offered by the IT market today, lacks a consistent legal IP protection for its author/creator/inventor. The research done here shows that today there are two key EU Directives for the subject matter – 2009/24/EC and 96/9/EC, the first providing copyright protection as for literary works to “*computer programs*” and the second a *sui generis* for databases.

In Directive 2009/24/EC the member states are given a quite autonomous role in the definition of “*originality*”, within the scope of copyright as established by this Directive under the international treaties.<sup>121</sup> The outcome of the case *SAS vs. WPL*<sup>122</sup>, for the subject matter of this thesis, currently removes any opportunity for IP protection for API’s, under this Directive, even when it is an integral internal component used only for communication within the “*software solution*” itself.

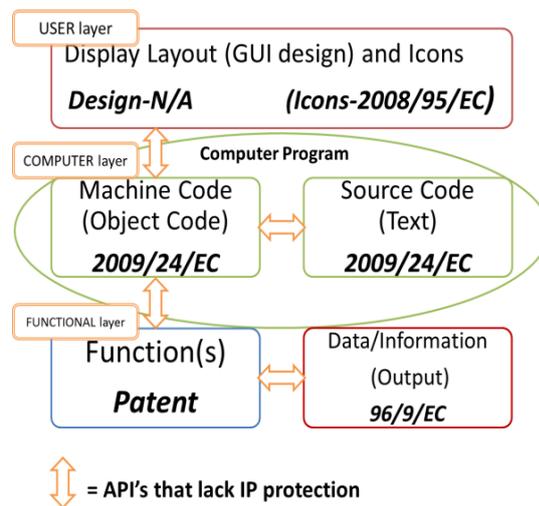


Figure 3 *De lege lata* - the fragmented reality

<sup>119</sup> OHIM, Trade marks and designs, 2014 Trade marks in the European Union

<sup>120</sup> European Union, Charter of Fundamental Rights of the European Union, 2012 Art. 17(2)

<sup>121</sup> Mazziotti, 2008 p. 53

<sup>122</sup> C-406/10 SAS Institute vs. World Programming Ltd (WPL), 2012 Court ruling para 1

Directive 96/9/EC supports the view of the insufficient and fragmented copyright protection being provided in the area of IT due to the different attributes required for IP and IPR protection under the different member states national legislations. The new “*sui generis*” adds an interesting point of view though, the right to protect investments of time, money and/or effort in the creation of databases.<sup>123</sup> This could provide an interesting basis for evaluation of the need for IP protection of a future new type of subject matter for IP legislation.

Basically EU does not provide patent protection for “*computer software*” only copyright. Under Arts 52(2) (c) and (3) of the EPC “*computer programs*” are not patentable in of themselves. The EPO does allow for “*computer-implemented inventions*” to be patented if it “*is implemented on computers by means of software...*”<sup>124</sup> This makes the current legislation contradict itself, from an IT business point of view, since basically all types of a “*software solutions*” or even “*computer programs*”, are solutions by implementation of software in a computer. This shows the need for clearer definitions of terminology used and a stricter nomenclature for the legislators in the area of IP and IPR protection. The Commission proposed a Software Patent Directive 2002; it was based on the term “*computer-implemented inventions*”.<sup>125</sup> It was voted down by the Council with the effect that member state’s national laws in this area remain without harmonisation.

Another area that would benefit from harmonization is the area of “*originality*”, with some components of the subject matter being given patent protection based on use “*non-obviousness*” and “*inventive step*” while others are using copyright that only needs to show a “*threshold of originality*”. This difference leads to different parts of a potential new subject matter such as a “*software solution*” being evaluated using different criteria, similar to the current situation.

Outside of the subject matter itself Regulation 6/2002 on Community Design Art 3(1). Of interest for our subject matter its approach to IP and IPR protection. It uses a two-tier system. First is the Registered Community Design, valid for 5 years, with

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<sup>123</sup> European Union, 96/9/EG On the legal protection of databases, 1996 Art 7, 10-11

<sup>124</sup> European Patent Office, The patenting process, 2014

<sup>125</sup> European Commission, Proposal for a Directive of the European Parliament and of the Council on the patentability of computer-implemented inventions, 2002

possibility for renewal up to 25 years. Second is the Unregistered Community Design, which is given 3 years of protection from the date it was first made available to the public within EU, with no renewal. This could well be looked into as an option for a possible future *sui generis regime* for IP protection of software.

People often talk about “*software*” patents, but there is no clear definition of what it means according to EPO.<sup>126</sup> This uncertainty is, in the view of this author, based on the fact that the legislators in *current legislation* seem to misinterpret the key issue with the fragmentation of the legislation by inconsistent use of terminology. This is most likely due to a lack of an appropriate level of understanding of the subject matter for the IP and IPR legislation in this area. I.e. first of all the use of the term “*computer program*”, which we have already come to consider as too limiting for today’s more complex “*software solutions*”, second, what is a “*feature*” of a “*computer program*”? Is it a “*function*” and in that case is it the “*how*” or the “*what*” of the specified function that is the key? This use of terminology and approach to the subject matter is based on a return to trying to use relatively outdated methods and terminology to be able to apply some form of current legislation w/o looking at the subject matter properly. Without a clear definition of the nomenclature to use the legislation becomes unclear, leaves gaps and at times creates contradictions in interpretation for the IP and IPR protection provided for the individual author/creator/inventor.

In the view of this author’s professional background current legislation puts the cart before the horse. The focus is on the “*use*” of a computer where “*one or more features*” are realised by means of a computer program. The legislative focus should be on “*what*” and “*how*” the “*software solution*” provides a solution or satisfies the need of its user.

A key issue is the lack of definition of the subject matter that the Commission is made aware of in its report on Directive 91/250/EEC, where is stated that this lack of definition only leads to “*minor difficulties*” and “*...do not justify action at*

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<sup>126</sup> European Patent Office, Patents for software?, 2013

*Community level.*” in regards to harmonisation.<sup>127</sup> The Commission concurs with the report’s conclusion by not making any changes in this regard when publishing the codified version of the same Directive.<sup>128</sup>

Currently there is a lack of an easily comprehensible IP legislation with sufficient scope for the protection of the IP of the individual author/creator/inventor of today’s more sophisticated and integrated “*software solutions*”. In this author’s opinion this clashes quite strongly with EU’s intentions based on the following statement in the Charter which is a legal basis wherever EU law applies;

*“Intellectual property shall be protected.”*<sup>129</sup>

There can be no doubt in this author’s opinion that there is a gap in the EU legislation between Primary Law and Secondary Law in this matter. This legal uncertainty for the author/creator/inventor in how the IP is protected, in accordance with Primary Law through the Charter, under EU’s secondary legislation causes concerns. The effect of this is that it may well cause issues in the case of cross border cooperation between entities cooperating in developing new “*software solutions*”. This supports the point of view that it may well be time for a closer look at the current fragmented legal situation which is based on the lawmaker’s original view of the computer industry based on doctrine in the 1980’s stating that the computers and their “*computer programs*” only replace mechanical functions with electronic ones.<sup>130</sup>

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<sup>127</sup> European Commission, Report on the implementation and effects of Directive 91/250/EEC on the legal protection of computer programs, 2000 p. 120

<sup>128</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009

<sup>129</sup> European Union, Charter of Fundamental Rights of the European Union, 2012 Art 17(2)

<sup>130</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 p. 675

# 3. The proposed Software Solution

## 3.1 Introduction

*“There is nothing wrong in change, if it is in the right direction. To improve is to change, so to be perfect is to change often.” - Winston Churchill<sup>131</sup>*

In regards to IP and IPR law relating to the subject matter this is important to avoid structural issues with the laws implemented, particularly in today’s fast-moving high-tech society. In the currently relevant EU related legislation for software protection the term “*computer program*” is used frequently and differently defined in different legal sources;

- In Directive 2009/24/EC it is considered to be all programs, in any form even when incorporated in hardware. It also includes preparatory design work leading up to its creation.<sup>132</sup>
- The World Intellectual Property Organisation (WIPO) Copyright Treaty mentions the term “*computer program*” with a footnote reference to the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) and the Berne Convention w/o its own definition.<sup>133</sup>
- TRIPS refers to “*Computer programs, whether in source or object code...*”<sup>134</sup>. Source code is human readable computer language, while object code is machine-readable.
- The Berne Convention only mentions “*literary and artistic work*” and what type of protection it is provided, i.e. copyright.<sup>135</sup>

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<sup>131</sup> Winston S. Churchill, 23 June 1925, House of Commons

<sup>132</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009, Preamble, recital (7)

<sup>133</sup> WIPO, WIPO Copyright Treaty (WCT), 2013 Art 4 footnote 3

<sup>134</sup> WTO, 2013 Art 10 (2)

<sup>135</sup> WIPO, Berne Convention for the Protection of Literary and Artistic Works 1979, 2013 Art 2

Consequently, within EU, the IPRs related to “*computer programs*” are provided protection in the form of copyright as “*literary and artistic work*” when in the non-exclusive forms of; preparatory design material, source code or object code. This leaves several components of today’s advanced “*software solutions*” outside this IP protection legislation. A partial solution has been to create a *sui generis* for databases<sup>136</sup>, but there is for instance no sufficient scope of IPR protection legislation for GUI design nor any clear definition for the differentiation between the “*what*” and “*how*” of the functionality provided by a “*computer program*”. API’s, though being “*computer programs*”, are not considered protected by Directive 91/250/EEC on the legal protection of computer programs according to ECJ in the case of *SAS vs. WPL*, but no alternative IPR protection is proposed.<sup>137</sup>

Today the terms “*software*” and “*solution*” are placed together in our common business language without considering what it actually means. If one uses Google to search on “*software solution*” one gets many variations of definitions and even corporate names incorporating the term. Most of these corporations offer some kind of solution to their customer’s problems through the usage of information technology (IT). As one reporter stated in an article in 2005;

*“This is marketing genius. Somewhere, the standard-issue salesperson who first married the two words ought to be kicking back with an umbrella-topped drink, content in a lifestyle with no cares.”*<sup>138</sup>

After over 20 years in the IT and Telecom business I tend to agree. In the IT marketplace of today the two words “*software*” and “*solution*” are so frequently used together that most people use the combination rather than one or the other when looking to buy or sell IT to support businesses. Therefore I, the author of this thesis, argue that the currently often used term “*computer program*” is no longer sufficient to provide the individual author/creator/inventor legal certainty and reasonable protection of his/her intellectual property (IP) in the field of IT and specifically software. I therefore further argue that to help us legislate in a

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<sup>136</sup> European Union, 96/9/EG On the legal protection of databases, 1996

<sup>137</sup> C-406/10 *SAS Institute vs. World Programming Ltd (WPL)*, 2012 Court ruling para 1

<sup>138</sup> Shermach, 2014, “The True Meaning of Software Solutions”

consistent manner we need to formalize our view on the term “*software solution*” and its definition, based on currently used business terminology to avoid confusion.

## **3.2 Current Terminology and Definitions in EU law**

### **3.2.1 Computer program – Source and Machine code**

The often seen and more or less standardized term “*computer program*” is regularly separated into two separate components called source code and machine code (object code).<sup>139</sup> They are usually present in a different layer of a “*software solution*” than the GUI. For the purpose of this thesis source code is human readable computer instructions, usually in text format, used by the author/creator/inventor to create a “*computer program*”. The source code describes the functions that the programmer wants the computer to perform, often including the description of the GUI and API’s. Source code, once it is written, is provided copyright protection if fulfilling the basic “*originality*” requirements of Directive 2009/24/EC.<sup>140</sup>

This text in turn is translated into machine readable computer instructions that the computer uses to perform the required/requested function.<sup>141</sup> This machine code has been compiled and made in to so-called executable code, i.e. understandable by the computer. It is also protected by copyright as it is seen as an extension of the source code analogue to a translation of literature.<sup>142</sup>

### **3.2.2 Functions**

An important aspect of the current legal IP protection for software within EU is that the actual functionality of the software is not protected by copyright, but by patent, this is based on the general principle that copyright should be extended to the

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<sup>139</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 p. 683

<sup>140</sup> Samuelson, Vinje, & Cornish, Does copyright protection under the EU Software Directive extend to computer program behaviour, languages and interfaces?, 2012 p. 3 and European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Art 1(3)

<sup>141</sup> Oxford University Press, 2103. Computer programming language

<sup>142</sup> Handig, 2013 p. 5-6

computer's software (i.e. the listed code) while the computers themselves or so called "*computer-implemented*" inventions should be extended patent protection.<sup>143</sup>

An interesting case for insight into how the ECJ interprets the Directive 91/50/EEC<sup>144</sup> is *SAS vs. WPL*<sup>145</sup> regarding. It began in July 2010 the English High Court through Mr Justice Arnold made the decision that World Programming Ltd had not infringed on the copyright of SAS "*software solution*". The decision that there was no infringement is based on the definition of the copyright protection for IP protection of "*computer programs*". Justice Arnold, using Wikipedia (as last modified on 25 April 2010) on the "*SAS Language*" as the source, in paragraph 56, in support of his ruling, decided to define it as a programming language and as such exempted from copyright protection in accordance with the Directive.<sup>146</sup> Further, according to Justice Arnold there was no infringement of SAS copyright since substantial parts of the similarities between SAS and WPL's "*computer programs*" lay in their use of the same programming language and functional behaviour, and not least their ability to process the same data formats. The ECJ concurred and according to the ECJ the functionality of a "*computer program*", the programming language used to create it and the format of data files are not considered "expressions" of that program, and fall outside the current legal scope the Directive's protection for the IP of the individual author/creator/inventor.<sup>147</sup>

### 3.2.3 Graphical User Interface

The generic term User Interface (U/I) is defined by IEEE as an interface enabling a human user to pass information back and forth to the software and hardware components of a "*computer system*".<sup>148</sup> Interaction with individuals or groups using a "*computer program*" usually happens through different types of Human-Computer-Interaction (HCI) components. Some examples of this are;

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<sup>143</sup> EU Copyright Office, Is computer software protected by copyright?, 2014

<sup>144</sup> Note that Directive 91/250/EEC, now replaced by the codified Directive 2009/24/EC was used by the High Court, the changes were the sequence of the recitals and the numbering of some of the Directive's articles.

<sup>145</sup> C-406/10 SAS Institute vs. World Programming Ltd (WPL), 2012

<sup>146</sup> European Commission, 91/250/EEC Directive on the legal Protection of Computer Programs, 1991 Preamble p. 43 - later European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital (11)

<sup>147</sup> European Commission, 91/250/EEC Directive on the legal Protection of Computer Programs, 1991 Art 1(2)

<sup>148</sup> IEEE, 1990 p. 80

- Manual input – User Interfaces (U/I) such as keyboards, buttons, touch screens, scanners etc.
- Output on screens – GUI
- Sounds – music, reading etc.
- Output on paper – Printing

Those U/I's that are hardware based, i.e. keyboards, voice recognition, printers, speakers and headsets etc. are outside the scope of this thesis as they often have their own independent IP protection. The API's that empowers interaction with the “*computer programs*” on the other hand are treated differently. (See Ch. 2.5)

The graphical representation of the underlying code that is displayed to a user and at times is used to communicate with the “*computer programs*” is known as the Graphical User Interface (GUI). The GUI may occasionally be provided a basic patent protection if part of an invention using the “*computer program*” and its design is based on functionality. Note that it is not provided any copyright protection in of itself due to any uniqueness in its design. In the Advocate General's opinion which was upheld by the European Court of Justice's (ECJ) preliminary ruling in the case of *BSA v. Czech Ministry of Culture*<sup>149</sup> this separation of the GUI layer was upheld. In this case the decision of the ECJ was that a GUI is not to be seen as an “*expression*” of the computer program, meaning it lacked copyright protection under Directive 91/250/EEC (replaced by 2009/24/EC) as a computer program.

Interestingly the same Advocate General in his opinion in the case *SAS vs. WPL* states that; “...*protection of a computer program is not [therefore] confined to the literal elements of that program, that is to say the source code and object code, but extends to any other element expressing the creativity of its author.*”<sup>150</sup>

Though in the context of *SAS vs. WPL* the GUI is not the subject matter, the statement is of interest if one would try to argue the extension of copyright protection to the IP and IRP's for GUI design. Especially as AG Bot refers to the

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<sup>149</sup> C-393/09 *BSA v. Czech Ministry of Culture*, 2010 para 34 and 41

<sup>150</sup> C-406/10 Opinion of Advocate General Bot, 2011 para 50

case of *BSA v. Czech Ministry of Culture*<sup>151</sup> in the paragraph preceding this text, though in that case the decision on the scope of IP protection for the GUI was referred back to the member state's national court. In the US case, from 1995, of *Lotus v. Borland*<sup>152</sup> it can be seen that any GUI design driven by technical considerations, i.e. "*functionality*" cannot be extended IP protection by copyright. The case also highlighted that any considerations of legal protection of original IP for derivate GUI designs may be severely restricted by license agreements.

### 3.2.4 API's - Application Programming Interface

What is this Application Programming Interface (API) thing? An interface can be several things, but the Institute of Electrical and Electronics Engineers (IEEE) in their "*Standard Glossary of Software Engineering Technology*" first and foremost defines it as a boundary across which information is passed. For the purpose of this thesis, an API is any coded method used by a "*computer program*" to communicate and/or access data or information from a source outside itself.<sup>153</sup> To simplify it; in the construction and writing of a "*computer program*" this is the method used to display a menu, write to file, request data or information or ask other programs to perform tasks for the original "*computer program*". This aligns reasonably well with Directive 2009/24/EC that states;

*"The parts of a program which provides for interconnection and interaction between elements of software and hardware are generally known as "interfaces".*<sup>154</sup>

According to the ECJ pre-ruling in the case of *SAS vs. WPL* these API's are not provided IP protection under Directive 2009/24/EC.<sup>155</sup> Another thing to be aware of is that for the purpose of this thesis it is necessary to classify two (2) types of API's in regards to a "*software solution*", external and internal API's. The internal API's are for communication within the "*software solution*", including for instance an integrated GUI or other computer programs that are part of the same solution. While the external API's are for communication with other modes of input and

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<sup>151</sup> C-393/09 *BSA v. Czech Ministry of Culture*, 2010

<sup>152</sup> 49 F.3d 807 *Lotus Dev. Corp. v. Borland Int'l, Inc.*, 1995

<sup>153</sup> IEEE, 1990 p. 41

<sup>154</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital (10)

<sup>155</sup> C-406/10 *SAS Institute vs. World Programming Ltd (WPL)*, 2012 para 31

output used or generated by the solution. For example in the creation of output to databases, independent U/I's or other external IT systems, while input could come from different external sources like databases and/or other external IT systems or independent U/I's.

An Application Program Interface (API), for the purpose of this thesis, in line with previous definitions, is any coded method used by a “*computer program*” to communicate and/or access data or information from a source outside itself. API's communication externally should be in the “*public domain*” while API's that are purely internal it can be argued should be provided some form of IP protection as part of the integrated “*software solution*”. Note that API's in of themselves are computer programs too!

### **3.2.5 Data and Information**

When discussing input and output in this context it is important to separate the input/output material itself from the method used to provide it to/from the “*software solution*”. We have to simplify this in order to be able to categorize it in a way that will be useful for legal application;

- Category 1 - Consists of the “*material*” input/output.
- Category 2 – Consists of the “*methods*” for input/output.

The input/output comes in these two basic categories are drawn from the two bottom layers of the Data, Information, Knowledge and Wisdom (DIKW) Hierarchy;<sup>156</sup>

- Data – The raw, unorganized facts to be processed by the “*software solution*”. I.e. a series of test results from a class.
- Information – Data that has been interpreted - processed, organized, structured and/or presented by a user or “*software solution*”. I.e. that average of the class' test results extracted from the data.

Both these types of input/output can be utilized by the “*software solution*” depending on its purpose.

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<sup>156</sup> Ackoff R. L., 1989 p. 3-9

### 3.3 New Terminology and Definitions

The first step in establishing the term “*software solution*” which is to be used as the subject matter of this thesis is to break it down into its basic components in such a way that it can be used for legislative purposes. I see no reason to part ways with the current terminology used for the components as defined above. It works fairly well as we will see, provided we more clearly define the boundaries for their scope and interaction. The purpose is focused on better clarification of what exactly the current terminology covers, or should cover, for a new and wider scope for the individual author/creator/inventor’s IP protection. To do this we will try to establish a common nomenclature that has its basis in a thorough understanding of IT software development and make it generic enough to function in a legal context. I therefore propose the following framework for a clearer definition of the term “*software solution*”.

#### 3.3.1 Software Solution

The combined term “*software solution*” name itself points towards where we should start. The term defines that it provides its user with a solution to an issue or problem using some form of software. It does not provide any information on how this service is rendered to a user, an area that is outside the scope of this thesis. Breaking down the term into its components we see the following;

- *Software* – This is very close to today’s definition in current legislation of “*computer programs*”
- *Solution* – This points towards the software solving an issue, a problem or at least providing help towards a solution in some way.

Today “*software*” is often used as a generic term for many different computer based solutions. The European Patent Office (EPO) states on their homepage that the term “*software*” is “...*considered to be ambiguous.*”<sup>157</sup> Based on experience this author tends to disagree with this statement. Already in 1984 Professor Samuelson<sup>158</sup>

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<sup>157</sup> European Patent Office, Patents for software? European law and practice, 2014

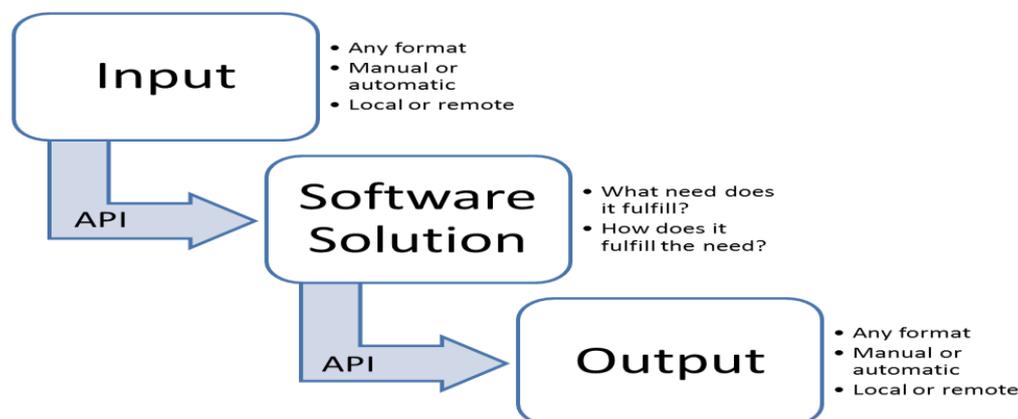
<sup>158</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 p. 676-682

divided *computer programs* into three different types, a division that is still valid today.

- Microcode – It controls the electronic impulses inside the Hardware to make it perform its function.
- Operating system – Provides system functions that an application program can access.
- Application program – The program that performs a task for the user.

A “*solution*”, within the area of IT and software is generally a product or combination/mix of products and services provided by a vendor.<sup>159</sup> If we look at the outcome of the aforementioned Google search it point towards a relatively consistent picture of the market offerings in the area of “*solutions*”. This leaves its interpretation too wide and ambiguous to be of use for the purpose of this thesis, thus the benefit of the combination of “*solution*” with “*software*” narrowing it down to a more useful definition.

Basically, in a very simplified manner all “*software solutions*” works as follows;



**Figure 4** The subject matter - "*Software solution*"

This author, based on both personal practical experiences in the area of software development and as a result of the research done here, proposes the use of the following definition for legislative purposes relating to the *subject matter* of this thesis;

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<sup>159</sup> Rouse, 2014 Definition solution

A “*software solution*” is a coded method using hardware to fulfil a need of a user, including;

1. “*Computer program*” as defined earlier, providing the “*functions*”, i.e. *how* it fulfills a need, i.e. entertain or solve a problem
2. User Interfaces (U/I) for Human-Computer interaction in any form
3. API; i.e. the “*computer program*” for interaction i.e. receiving input (API) or creating output (API) from/to any source.
4. External and internal databases

This definition of “*software solution*” gives us the following key components to consider for the legislative purposes mentioned before;

1. Code – the “*computer program*” consisting of source code (text) and object code (machine readable), this is the “*functions*” – i.e. “*how*” the process works by which the software fulfills a need
2. Input/output methods – Manual User Interface (U/I) for Human-Computer interaction, i.e. keyboards, touchscreens, voice etc. Can either be part of the overall solution or a separate entity for IPR protection.
3. Data/Information – Automatic/manual (API) and/or formatted data and information.

All input and output are handled through APIs; these may be fully internalized as part of the overall solution or used for external communication. This should provide the legislators with a relatively clear picture of what these components are, how they interact and what to base any requirements for legal protection offered both under *de lege lata*. It should also help to provide a better understanding of the scope of the term “*software solution*”.

### **3.3.2 Functions as criterion for defining inventiveness**

To make this workable for the future this author suggest that the definition of functions should be divided into two separate aspects for clarification of what can or should be protected by the IP legislation;

First is “*What need the software fulfils?*” i.e. entertainment, economic calculations and so on. *What* need the software fulfils is often generic (bookkeeping, gaming) and as such not valid to provide IPR for, unless it is an entirely unique solution (i.e.

a combination of software components providing a substantially improved user-experience).

Secondly we should look at “*How the software fulfils a need?*” For example new creative GUI designs, new or improved methodologies, faster and/or more usable “*software solutions*”. This does not *inter alia* include specific tools used to create the solution. *How* the software fulfils a specific need can be unique and if having enough of an *inventive step* and/or *newness* should be able to be provided IPR protection in some form.

I.e. light bulbs can be used as a useful analogue; there are many ways to provide light. Providing light through electricity is not unique in itself. But if you develop a new, different technology to provide it in energy-saving form that is unique it can be provided IP and IPR protection. Why not then an improved “*software solution*”? Both fulfil a need; both improve the experience for their user.

### 3.4 Summary and conclusions

*“Defining concepts is frequently treated by scientists as an annoying necessity to be completed as quickly and thoughtlessly as possible.” Ackoff<sup>160</sup>*

This can be seen as part of the issue with the current patchwork of EU legislation trying to protect the IP and IPR’s of the individual author/creator/inventor of subject matters “*computer program*” and “*database*”. The currently used term by the legislators “*computer program*” is separable into two separate components called source code and machine code (object code).<sup>161</sup> Inside a “*software solution*” they are usually technically placed in a different layer than for instance the GUI (above) or the database (below), but in the overall definition of the subject matter for our legal purposes this is relatively irrelevant as they are handled as one component. Currently the GUI lacks proper IP and IPR protection under Directive 2009/24/EC based on the outcome of the case of *BSA v. Czech Ministry of*

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<sup>160</sup> Ackoff R. L., 1971 p. 671

<sup>161</sup> Samuelson, CONTU Revisited: The Case against Copyright Protection for Computer Programs in Machine-Readable Form, 1984 p. 683

*Culture*<sup>162</sup>. In *SAS vs. WPL AG* the same Advocate General, Bot, in his opinion states that; “...protection of a computer program is not [therefore] confined to the literal elements of that program, that is to say the source code and object code, but extends to any other element expressing the creativity of its author.”<sup>163</sup> An interesting statement if one would argue the extension of copyright protection to the IP and IRP’s for GUI design. For the purpose of this thesis it is generally and purposely defined as a method for input/output and treated as an integrated component of the “*software solution*”.

The next component in need of a clear definition is the API; for the purpose of this thesis and in line with previous definitions, this is any coded method used by a “*computer program*” to communicate and/or access data or information from a source outside itself. The API’s should be divided into two groups for clarity of definition as well as the possibility of different legislation to be applied;

- External API’s should be in the “*public domain*”
- Purely internally integrated, to the “*software solution*”, APIs should inarguably be provided some form of IP protection as part of the overall IPR for a “*software solution*”.

It is important to note that APIs in of themselves are “*computer programs*” too, and like all others have their own specialized function!

Data and information are two variations of the same as we have seen and can be used as either input or output by the “*software solution*” depending on its purpose. Databases can also be of two different types these days, internal and/or external.

- External databases’ have their own *sui generis*
- Purely internally integrated, to the “*software solution*”, databases should inarguably be provided IP protection as part of the overall IPR protection for a “*software solution*” rather than using the more general *sui generis*

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<sup>162</sup> C-393/09 BSA v. Czech Ministry of Culture, 2010

<sup>163</sup> C-406/10 Opinion of Advocate General Bot, 2011 para 50

This is in line with our approach to the APIs and therefore gives a more streamlined approach to the new term and definition for the subject matter; the “*software solution*”. The term for the subject matter “*software solution*” breaks into two components. First is “*software*”, this is very close to today’s definition in current legislation of “*computer programs*”. The second part is “*solution*“ which indicates that the purpose of the software is solving an issue, a problem or at least providing help towards a solution in some way by fulfilling a need of the user. The focus of a “*software solution*” is to fulfil a need of its user by means of software. Based on our finding in this chapter and as a starting point for a new and stricter definition of the subject matter, the “*software solution*”, these basic components should be considered for the future legislative purposes;

- Code – the “*computer program*” consisting of source code (text) and object code (machine readable) providing functionality
- Input/output methods – Human-Computer Interaction (HCI) through GUIs and other interfaces, uses APIs
- Data/Information – Automated input and output handled through APIs; these data flows may be fully internalized as part of the overall solution or used for external communication with databases or interaction with other systems.

This provides the legislators with a relatively clear picture of what these components are, how they interact and what to base any requirements for legal protection offered both under current legislation as well as providing a better understanding of the scope of the term “*software solution*”.

As we can deduce from the materials presented in this chapter a “*software solution*” is either a “*computer program*” or a combination of such that fulfils a need for its user. What is added to the original “*computer program*” definition is the aspect of the possibility, within a legal framework, to consider a combination of “*computer programs*” dealing with input and output in all its forms, including the GUI’s, as one entity. This would in this authors view, and in light of the research done for this thesis, provide a much higher level of legal certainty and consistency for the individual author/creator/inventor in regards to IP and IPR protection. Therefore, for the purpose of this thesis the new subject matter will be;

A “*software solution*” is the solution to a problem or issue by means of software, including;

- The “*computer program*” as defined earlier, providing the “*functions*”, i.e. “*how*” it solves the issue
- User Interfaces (U/I) for Human-Computer interaction in any form
- Data and information, usually from databases, may be external or internal
- APIs; i.e. “*computer programs*” for interaction i.e. receiving input from and/or creating output to any source, external or internal

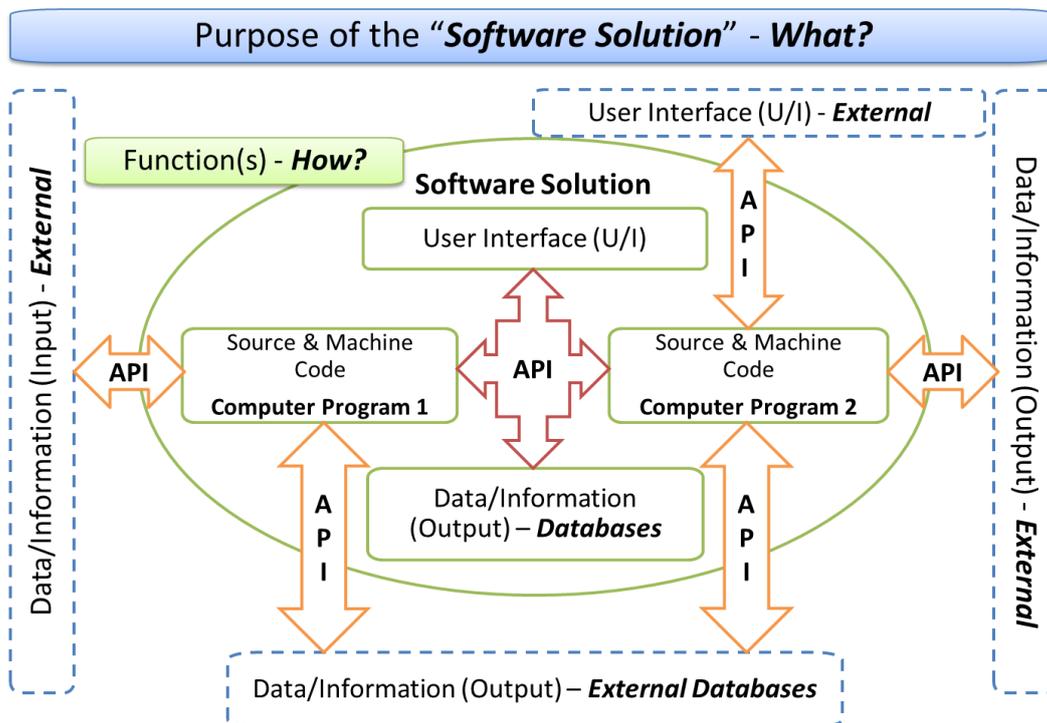


Figure 5 "Software Solution", a proposed model for defining the subject matter

It is also of key importance for the legislators to separate two aspects of the functionality of the “*software solution*” itself for the definition of “*originality*”. For the purpose of properly defining the requirements for considering it an individual’s IP and whether to extend legal IPR protection to the subject matter;

- What user need does the “*software solution*” fill?
- How does the “*software solution*” fulfil the user’s need?

The “*what*” is the purpose of the “*software solution*”, in this can be found the parameters for defining “*novelty*” and it shows the intellectual effort of creativity of

the overall solution. This can be interpreted as being relatively close to current copyright requirements in accordance with Directive 2009/24/EC for “*computer programs*”<sup>164</sup>, but adds the dimension that like patents it requires that the fulfilment of a user’s need: “...*was not available to the public in written or oral form, by use, or in any other way before...*”<sup>165</sup>. If a “*software solution*” is so revolutionary that it opens a whole new potential business area for its author/creator/inventor and/or user, it should be provided with legal IPR protection in some form.

The “*how*” is more technical and looks at the actual code and methodology behind the “*software solution*”. It shows both the technical “*non-obviousness*” or “*inventive step*” and once more the intellectual effort behind the “*software solution*”. This part is closer to current patent requirements and this approach has support in the case *EPO T 049/04* from 2005. The EPO ruled that; the display of natural language text so as to improve that efficiency of a user performing a task, on a screen, was considered a contribution to a technical solution to a technical problem and therefore patentable.<sup>166</sup> Though the subject matter was the “*inventive step*” this case shows that depending on the “*what*” and “*how*” definition there is a distinct possibility for IP and IPR protection for a “*software solution*”. Note that this does not include *inter alia* any specific tools used to create the solution. *How* the software fulfils a specific need can be unique and if having enough of an *inventive step* and/or *non-obviousness* should be able to be provided legal IPR protection in some form.

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<sup>164</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Art 1(3)

<sup>165</sup> EPO, Glossary, 2014 Glossary - Novelty

<sup>166</sup> T 049/04 Text processor, 2005 Catchword

## 4. Summary and conclusions

The stated purpose and intention of this thesis was to be descriptive and try to establish a basis for a common *taxonomy*<sup>167</sup>, *through the classification of items and concepts, including the principles that underlie such classification* for IP protection in EU *acquis* for “*software solutions*”.

The individual’s right to his/her IP within EU is clearly to be protected according to the Charter<sup>168</sup>, but ECJ has stated in recent cases that this protection is not necessarily inviolable when balanced by the consideration of other freedoms.<sup>169</sup> The opinion presented by this author in this thesis, of the fragmented legal IP protection provided under the Charter for the subject matter, is analogously supported in the case *Promusicae*<sup>170</sup> where the ECJ pointed to a Directive for clarification of the scope of the IP protection provided under the same.

There is however an additional key consideration for the legal IP protection of the subject matter of this thesis; EU’s view of a European Single Market. This consideration is clearly spelled out by the Commission in regards to IP and IPRs in the Commission’s information website on Intellectual Property; i.e. to remove restrictions on the freedom of movements and anti-competitive practices and to create “...*an environment favourable to innovation and investment.*” as well as “*promoting innovation and creativity...*” and “...*for developing employment and improving competitiveness.*”<sup>171</sup> EU wants to support economic progress based on new ideas and new knowledge by creating an environment that promotes investments in innovations by companies and entrepreneurs.<sup>172</sup>

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<sup>167</sup> Origins from the Greek word “*taxis*”, meaning 'order/' 'arrangement' and “*nomos*” - 'law/' 'science'

<sup>168</sup> European Union, Charter of Fundamental Rights of the European Union, 2012 Art 17

<sup>169</sup> C-70/10 *Scarlet Extended*, 2011 paras 43-46 and C-314/12 *UPC vs. Constantin*, 2014 paras 61-63

<sup>170</sup> C-275/06 *Promusicae*, 2008 paras 61-62, 65-66

<sup>171</sup> European Commission, Intellectual Property, 2014

<sup>172</sup> European Commission, Intellectual Property, 2014, Leaflet-Intellectual Property Rights Europe’s asset, Europe’s priority

But does current legislation live up to these ambitions? Based on outcome of the research done for this thesis I think that though the EU legislators have tried hard to please everyone they have also substantially missed the mark. The current Secondary legislation is unclear, fragmented and causes legal uncertainties for the individual author/creator/inventor. It therefore has the potential to cause major obstructions to in particular cross-border inventive cooperation and the provision of products and services based on it within the area of the subject matter.

The so called competences, i.e. areas of jurisdiction, within the EU are defined in Art 2-6 of the Treaty on the functioning of the European Union (TFEU).<sup>173</sup> Today's legal environment for IPR's within EU is a so called *shared competence* between the EU and the member states based on Art. 4 (3) TFEU which states;

*“3. In the areas of research, technological development and space, the Union shall have competence to carry out activities, in particular to define and implement programmes; however, the exercise of that competence shall not result in Member States being prevented from exercising theirs.”*

This means that cultural differences between countries that have helped shape member state's national legislation have an impact on any attempt at harmonizing a future legislation on the subject matter. The current fragmented IPR regulations are as we can see in this thesis based on an outdated separation of the different components of a modern “*software solution*”, i.e. the subject matter. An analogue probably describes it best; that of the repairing of an old clock where the watchmaker has taken all the mechanical components out of the watch-case and adjusted them, but does not know how to put them all back together again correctly in order to make them interact properly for the clock to function.

In case the decision eventually becomes to create a more harmonised *sui generis regime*; for the extension of IPR protection in accordance with the Charter, based on the need to protect the individual author/creator/inventor's IP, when creating a “*software solution*” as in the proposed model for definitions presented in this thesis it is important to keep in mind;

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<sup>173</sup> European Union, TFEU 2012 Treaty on the Functioning of the European Union, 2012

- The purpose behind the new legislation and how it fits into;
  - Purpose of EU
  - Purpose of EU Primary Law
  - Purpose of EU Directives and Regulations (Secondary Law)
  - How it relates to the subject matter

What would serve the purpose of all these best? Today there is always the option of asking for a preliminary ruling from the Court based on the Primary law, i.e. the Charter. The issue with that approach is that the ECJ works on case by case basis, providing narrow and case specific ruling. And with a lack a solid definition for the subject matter “*software solution*” as presented here, based on what the technology business is dealing with today, there is currently no ECJ ruling in place. Since the ECJ, as we have seen turn to the Secondary laws for definitions, and again as we have seen here, these definitions are outdated the ECJ’s analysis of the subject matter has a weak starting point. This means a cross-referencing of several cases, as has been partially provided in this thesis, could provide a possible solution. But the same problem with the definitions remains. The individual author/creator/inventor cannot reasonably have to wait for there to be several court cases in place to achieve any form of legal certainty. Therefore in the opinion of this author, based on the research done for this thesis and presented here, full harmonization will in the end be the only way to properly protect the value of the IP for the author/creator/inventor of a *new and inventive “software solution”*.

EU *aquis* needs a more structured nomenclature and a more harmonized IP protection for software than is provided by the current legislation. In this authors view the modest proposal, if applied as described, could become a stepping stone for the EU legislation on IP and IPR protection within the area of software development to take a leading role in the international business environment. It solves to a certain extent the courts inconsistent usage of the definitions of the nomenclature that causes legal uncertainty for the individual author/creator/inventor.

So to answer the original question; Does the current legal regime for IP protection give sufficient legal certainty or should a *sui generis regime* for protection of software development IP and IPRs be enacted?

Many of today's advanced "*software solutions*" are complex and take a large investment to develop.<sup>174</sup> They often solve complicated issues/problems or at least provide an easier way to try and solve issue/problems for their users, thereby fulfilling a need of the user's. It is important to realise that the key to defining what IP should be protected by a *sui generis regime* must be based on "*how*" a software solution provides the fulfilment of a need which often is solution specific, and not "*what*" need it fulfils which is mostly generic. It is definitely worth protecting the IPR's of the author/creator/innovator behind innovative "*software solutions*" that improve the fulfilment of their user needs in a new and creative manner. This is in line with EU's stated purpose of providing protecting the individual's rights to their own IP in the Charter.

As this thesis has shown current Secondary EU IP legislation, in regards to the subject matter, does not provide either adequate nor even complete coverage of the scope of IP and IPR's involved in the development of "*software solutions*" created to fulfill the user's needs. But the complexity of disassembling and reassembling a "*software solution*" shows that this is not a "one size fits all solution" that is needed initially. This leads up to a hybrid solution proposal as a first step. This would consist of a use of current legislation for the individual components as described in chapter 3.2, with the addition of some form of IPR protection for GUI design based on its "*inventiveness*", with the criterion possibly being "*improved usability*". At the same time the work of creating an overall *sui generis regime* for a complete "*software solution*" should be put into motion so as to provide adequate protection of the IPR's of the individual author/creator/inventor of a new solution that fulfills a user's needs in a "*new and inventive manner*", in accordance with the Charter.

Use of the proposed model would provide a clear but flexible baseline for any type of definition for a "*software solution*" or part thereof. The proposed model provides a more up-to-date nomenclature for the legislators to work with in constructing a *sui generis regime* for IP and IPR protection within software development that would lack the current legislations issues of inconsistency and fragmentation. This

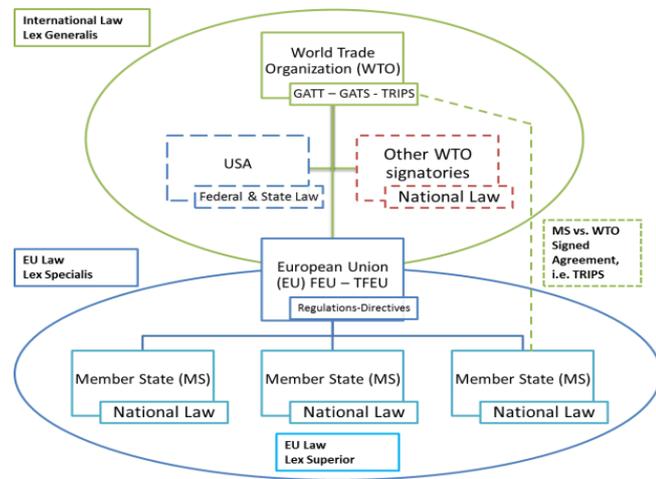
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<sup>174</sup> European Union, 2009/24/EC Council Directive on the legal protection of computer programs, 2009 Preamble, recital (2)

would in turn provide the individual author/creator/inventor with a higher degree of legal certainty and consistent IP protection and minimize the issue of conflicts with the Charter.

The hierarchy of the European legal order must also be considered; all EU's member states are bound by the International treaties that EU is a signatory to, irrelevant of whether the member state has signed the treaty separately or not. With EU Primary Law being the supreme source of law within the European legal order it overrides all other sources of law within EU. Even EU secondary law has to be dealt with within the context of

EU primary law. This is important for the subject matter of this thesis, since even if there was to be developed a *sui generis regime* for “software solutions” it cannot simply bypass or circumvent any of the international treaties EU has currently signed. Neither can the member state's national legislation bypass or



**Figure 6 International, EU and National law's relationship**

circumvent EU law. The key to success in dealing with this hierarchy of treaties and legislation is to make sure that a *sui generis regime* does not provide worse IP and IPR protection than current legislation. An important aspect to keep in mind is that a potential *sui generis regime* will have a wider scope than current legislation and thus may need leeway in how certain aspects for the protection is handled, e.g. timelines.

Further suggested research would be into the scope and criteria for a possible new *sui generis regime* for the protection of IP and related IPRs using the new proposed model for the legal definition of the subject matter.

# Appendix A –EU Directives on IP

## Intellectual Property Directives

- On the harmonisation of certain aspects of copyright and related rights in the information society (InfoSoc) (2001/29/EC 22 May 2001)
- Enforcement of intellectual property rights (IPRED2 - Criminal) ((COM(2005) 276/1 proposed, then withdrawn)
- Enforcement of intellectual property rights (IPRED1 - Civil) (2004/48/EC 29 April 2004).
- On the term of protection of copyright and certain related rights (2006/116/EC 27 December 2006)
- Legal protection of designs (98/71/EC)
- On the legal protection of Databases (96/9/EC 11 March 1996)
- Patentability of biotechnological inventions (98/44/EC 6 July 1998)
- Patentability of computer-implemented inventions ((COM(2002) 92) proposed, then rejected)
- Rental and lending rights (2006/115/EEC 12 December 2006)
- On the legal protection of topographies of semiconductor products (87/54/EEC 16 December 1986)
- Trademark Directive (2008/95/EC 22 October 2008)
- On the coordination of certain rules concerning copyright and rights related to copyright applicable to satellite broadcasting and cable retransmission (93/83/EEC 27 September 1993)
- On the re-use of public sector information (2003/98/EC 17 November 2003)

## Information technology (IT)

- Certain legal aspects of information society services, in particular electronic commerce, in the Internal Market directive (2000/31/EC 8 June 2000)

## Electronic communication

- Access and interconnection Directive (2002/190/EC 7 March 2002)
- "Authorisation" Directive (2002/20/EC 7 March 2002)
- "Framework" Directive (2002/21/EC 7 March 2002)
- Universal service and user's rights Directive (2002/22/EC 7 March 2002)
- On Privacy and Electronic Communications (2002/58/EC 12 July 2002)

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