Protection of Digital Databases: Sri Lanka as a Reference Point

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Abstract — Economic development in Sri Lanka has relied heavily on foreign and domestic investment. Digital databases are a new and attractive area for this investment. This paper, whilst arguing that investment protection is crucial in attracting future investment seeks to propose a digital database protection mechanism in order to attract investment in relation to digital databases to Sri Lanka.

Whilst examining various existing protection measures the paper mainly focuses on the sui generis right protection which confirms the protection of qualitative and/or quantitative substantial investment in obtaining, verification or presentation of the contents of digital databases. In digital databases, this process is carried out by computer programs which establish meaningful and useful data patterns through their data mining process, and which subsequently use those patterns in Knowledge Discovery within database processes. Those processes enhance the value and/or usefulness of the data/information. As this paper proposes, Computer programs need to be protected, by virtue of patent protection as the process carried out by computer programs is that of a technical process - an area for which patents are particularly suitable for the purpose of protecting.

The issue of investment in databases is addressed in different ways under the existing mechanisms of intellectual property protection. These include Copyright, Contract, Unfair Competition and Misappropriation and Sui generis right protection.

The primary objective of the paper is to improve the laws pertaining to the protection of digital databases in Sri Lanka in order to encourage qualitative and quantitative investment in digital databases in Sri Lanka. To that end this paper suggests a set of mechanisms and rights which consist of existing intellectual protection mechanisms for databases.

Through this it is intended to protect the rights and duties of the digital database users and owners/authors and, eventually, to bring positive economic effects to the country. Since digital database protection is a new concept in the Sri Lankan legal context, this paper will provide guidelines for policy-makers, judges and lawyers in Sri Lanka and throughout the South Asian Region.

Keywords: Digital database, Investment, Intellectual Property Law.

I. INTRODUCTION

This paper examines the existing international and domestic legal protection of digital databases and its relevance to possible new mechanisms for the protection of digital databases in Sri Lanka (Parsons, T. 1977). Protection of digital databases can be divided into two separate parts, namely, legal protections and technological protection measures (TPMs) (Cohen, JE. 1995-1996). This paper does not specifically examine the technical aspect of TPM as they are technical components and are outside the scope of this legal research. This study is particularly relevant at this time because of the current economic climate in Sri Lanka. After 30 years of war, Sri Lanka has been an important economy in the South Asian Region and because of this there is now, more than ever, a compelling need for further investment, innovation and the transfer of technology and knowledge. It has been stated that, “[t]he economies of the First World are dominated by the creation, manipulation and use of [electronic data]” (Davison, MJ. 2003). This trend is now transferring to developing countries around the world. As a developing country, electronic or digital concerns are becoming a vital part of the development of Sri Lanka. With the arrival of the mass-produced personal computer, electronic and digital concepts have become dependent on digital databases (Conley, JM. et al., 1999). Therefore, digital databases have become highly valued commercial commodities; and, in turn, this has meant that a competitive marketplace has developed which has attracted investors.
(Tessensohn, J. 1998). It can be said that digital databases have become one of the building blocks of foreign and domestic investment in Sri Lanka.

II. THE PROBLEM

The focus of this research is digital databases and their legal protection in Sri Lanka. The paper aims to identify the nature of investment in digital databases and to provide protection for the same. The investment in digital databases can be financial or non-financial or both. The paper specifically focuses on the point of the digital version of databases and therefore examines the contribution of computer programs installed in digital databases. This does not mean, however, that the system proposed by paper cannot be applied to the non-digital databases in Sri Lanka.

The current legal frameworks for digital databases are made up of copyright law, (CDPA 1988, ss 3(1)(d), 3A) contract law, (Council Directive 96/9 EC (OJ L 077/20), art.13) sui generis right protection (Council Directive 96/9 EC (OJ L 077/20), ch II) and unfair competition law or misappropriation (Council Directive 96/9 EC (OJ L 077/20), art. 13). Arguably, these legal frameworks provide protection for investment in database creation (Derclaye, 2008). In this research, investment in databases is a reference to the ways in which data is collected, verified, classified and presented in databases. Data or data structures, on their own, do not constitute a digital database; there needs to be an investment to merge the data and structure. The data structure organises the useful data pattern/s(U Fayyad, et al., Fall 1996). Useful data patterns are subsequently used for the process of Knowledge Discovery in Databases (KDD). This structure is provided by computer programs in digital databases, and can enhance the ‘value and/or usefulness of data’ in databases (Davison, 2003). This paper argues that the above mentioned aspects in relation to investment in digital databases have not been identified by the existing database protection mechanisms in Sri Lanka (IP Act of 36/2003/SL, s 7).

III. TYPES OF DATABASES

Article 1(1) and 1(2) of the Database Directive provide protection for both types of databases, namely public and private. The public databases are publicly accessible, for example youtube, and private databases are only available to the contracted parties, for example the Electronic Library of the University of Exeter (Electronic Library/University of Exeter-website). Bouganim observed that, “[d]atabases that have been made publicly available are vulnerable to misuse and misappropriation. Arguably, the legal protection of databases is concerned mainly with this kind of database” (Bouganim, 1999). The distinction between public and private signifies the notions of right of public, the term of protection and the user’s rights.

These public or private databases may be in digital or physical format. If Article 1(2) of the Database Directive is taken into account, a collection of works, data or other materials is considered to be a database. Recital 17 of the Database Directive suggests some definitions for the terms of works, data, or other materials since the Database Directive does not have precise definitions for the same terms. Recital 17 states that “the term ‘database’ should be understood to include literary, artistic, musical or other collections of works or collections of other material such as texts, sound, images, numbers, facts, and data”. Art galleries such as the National Gallery in London (The National Gallery-website) and collection of movie tapes such as the collection of films which is maintained by National Film Corporation of Sri Lanka (National Film Corporation of Sri Lanka website) can therefore be databases. However, the copyright protection of these collections is “immaterial since works fallen into the public domain can easily fit into ‘data’ or ‘material’” (Derclaye, 2008).

It is observed form the above discussion that the term “materials” opens an avenue for the question of tangibility of the collected data. This is a rather doubtful passage in terms of the recitals 10 and 12 of the Database Directive. The Directive encourages the function of “advanced information processing systems” and “modern information storage and processing systems”. However, these information systems or storage systems are sometimes connected to the tangible materials. The end users expect to obtain tangible materials through the process of manipulation of digital data in digital databases. For example, suppose that Tandoori Chicken is ordered for dinner through a digital database – the consumer would not be
happy until he could see the meal on the dining table.

This paper focuses mainly on digital databases which are stored in computer programs and accessible by electronic means. This does not necessarily mean that this deviation would contradict the provisions of WIPO Copyright Treaty and the Agreement on Trade Related Aspect of Intellectual Property Rights (TRIPS). The Database Directive provides protection over databases without considering the means of access. However the Database Directive does not apply to the computer programs “used in the making or operation of databases” (art.1(3)). This paper deviates from this point and pays special attention to the computer programs in digital databases which are used to manipulate data in digital databases. The paper identifies this process as the enhancement of value and/or usefulness of data in digital databases.

All digital databases are either off-line or on-line, for example a digital library stored in a CD with a computer program for its data manipulation is an off-line digital database and a digital library stored with a computer program which links to the Internet is an on-line digital database. Both of these versions enhance the value and/or usefulness of data thanks to installed computer programs. In terms of this distinction Bouganim suggested that, “…the application of contractual terms that will govern the rights and obligations concerning databases is arguably more suitable for on-line databases” (Bouganim, 1999).

IV. DEFINITION OF A DATABASE

‘Database’ is a term with no precise definition, (Herr, 2008) and this is certainly the case in the digital context (Conley et al., 1999). In its most general definition, “a database may be described as an organized collection of data, which is probably, but not necessarily, electronic in nature” (Lanzotti, D. Ferguson, D. 2006). A database is also a “collection of independent works, data or other materials that are arranged in a systematic or methodical way and are individually accessible by electronic or other means” (Football Dataco Ltd v Sportradar GmbH, Case C-173/11). The US Copyright Office has stated that, “in the terminology of copyright law, a database is a compilation: a work formed by the collection and assembling of pre-existing materials or of data” (D Lanzotti, D Ferguson, 2006). Databases can be divided into two parts based on the content of the database and the structure or arrangement of the database (Conley et al., 1999). The structure or arrangement of data should enhance its value and/or usefulness (Conley et al., 1999). In digital databases, computer programs enhance the value and/or usefulness of data. The meaning of data will be evaluated through electronic, legal, and sociological perspectives.

For the purposes of this paper, it will be useful to consider other relevant definitions of the term ‘database’. There are a number of possibilities. Article 1 of the Database Directive, which concerns the legal protection of databases in any form, describes a database as “a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means” (Council Directive 96/9 EC (OJ L 077/20), art. 1 (2)). It is noteworthy that protection under this database does “not apply to computer programs used in the making or operation of databases accessible by electronic means” (Council Directive 96/9 EC (OJ L 077/20), art. 1 (3)).

Derclaye herself notes this, but subsequently questions the appropriateness of this exclusion of computer programs (Derclaye, E. 2008). This paper respects this observation regarding computer programs and examines the contribution of computer programs in digital databases.

Returning to the definitions, Davison observes that “in particular, databases are a form of compilation, collection, collective work or composite work. In addition, a given database may be considered to be a literary work because it is a table, and tables are treated as a form of literary work in a number of jurisdictions [Ex- Australia]” (Davison, MJ. 2003).

This paper respects this observation in line with copyright protection. Furthermore, Sri Lankan databases still depend on a definition of ‘compilation’ under the copyright protection (IP Act of 36/2003/SI, s 7 (1) (b)). However, copyright is only one of the mechanisms under the proposed system.

Herr observes that, “[a] typical database comprises three components: (1) the contents, (2) a logical
schema which describes the contents and the relationships within it and (3) a database management system through which one can find, manage and transform data” (Herr, RE. 2008). As she further notes, the contents of a database take different forms which will vary “from unoriginal numbers or facts to copyrighted expression to a combination of both” (Herr, RE. 2008). It should be noted that the analogue databases due to their physical paper form are restricted to writings, drawings or pictures, but the electronic or digital databases in contrast “can accommodate many media including film and sound” (Herr, RE.) and again writings and pictures. Computer programs in digital databases can transform media into multiple formats.

A database is literally supposed to transform a ‘collection of data’ (IP Act of 36/2003/SL, s 7 (1) (b)) which would otherwise have no meaning “into something useful – information – [which can be easily] understood, analyzed and further transformed” (Herr, RE.). As Herr states “the value-adding process” or as this paper identifies, “value or usefulness enhancing process” is of paramount importance in any database. In the first level which is data, this enhancement process is inclusive of “selection, verification, updating and addition of complementary data” (Herr, RE.). The presentation of the database’s organization is occurred at the next level i.e. “the logical schema”. This paper identifies this logical schema as the process of data mining and knowledge discovery. Herr emphasises that, in terms of “the Database Directive, these are some of the investments that form the basis of database content protection” (Herr, RE.). This paper suggests that such investments should be protected.

This paper accepts Herr’s definition of transformation of data. The definition of transformation of data shows the need to examine the contribution of computer programs in digital databases, as they enhance the value and/or usefulness of data content.

Bouganim states that introducing a sui generis right for databases demands a precise definition of databases for the purpose of intellectual property law: “international measures and addressing database copyright refer to ‘compilations’ although it is understood that the objects of protection are databases” (Bouganim, VH.). He goes on to say that “[a] database is based upon pre-existing materials. It is an assemblage of such materials. Having characterised databases as such, it suggests that there is nothing new in a database in terms of materials. It is a derivative work based on other materials” (Bouganim, VH.).

He has clearly distinguished data from computer programs for the purpose of defining databases: “when the information is the object to be processed, manipulated or presented, it is ‘data’ and not a ‘computer program’” (Bouganim, VH.). However, he further observes that “it is still hard to draw the exact line between ‘data’, a ‘database’ and a ‘computer program’” (Bouganim, VH.). In this regard, this paper suggests that the notion of enhancement of value and/or usefulness in digital databases is an example of the contribution of computer programs in digital databases.

V.REASONS FOR A RESEARCH INTO DIGITAL DATABASE PROTECTION

Traditionally, databases have been protected by copyright, i.e., copyright protects a degree of investment made in databases (Davison, MJ. 2003). While copyright in common law countries protects labour, in civil law countries copyright protects creativity (Garnett, K. 2011). Although Sri Lanka has adopted a mixture of these two legal traditions, it does not have a proper legal regime for database protection. In addition to this, the existing intellectual property law regime in Sri Lanka is inadequate and inappropriate for protecting digital databases. Previous studies on intellectual property law have paid little or no attention to digital databases. Furthermore, these studies have not sufficiently considered new methods of regulation and have failed to identify the significance of the protection of investment in order to attract investors into the country. These reasons have triggered this study, with a view to improving this area of law in Sri Lanka.

As noted above, this study notes that copyright, contract law, unfair competition and misappropriation and the sui generis right protection have been used to offer protection in this area. The aim of this study is to compare and contrast these, in order to determine which of them are suitable for the proposed legal regime to protect digital databases in Sri Lanka. The current study shows the need to identify the contribution
of computer programs in digital databases. In so doing, the study considers patent protection for the purpose of protecting computer programs in order to protect investments in digital databases.

Computer programs and databases are traditionally protected under copyright law (Computer program - CDPA 1988, 3 (1)(b) and Databases - CDPA 1988, 3A). However, some countries, for example Japan, Korea have given patent protection to computer programs. Although some countries have considered the patentability of computer programs, patent protection is more controversial when it relates to digital formats (Aerotel Ltd v Telco Holdings Ltd Macrossan's Patent Application (No.0314464.9) [2007] Bus LR 634). It suggests that if patent protection is granted to computer programs which run on digital databases, then the scope of patent protection of computer programs could be affected. This demonstrates that providing patent protection over computer programs in digital databases is complicated. In fact, copyright protection is more usefully and widely employed in existing database protection regimes elsewhere in the world. For this purpose, computer programs are considered “as such”. However, recently, in SAS Institute Inc. v World Programming Limited [2013] EWHC Ch 69, Arnold J held that “neither the functionality of a computer program nor the programming language and the format of data files used in a computer program in order to exploit certain of its functions constitute a form of expression of that program and, as such, are not protected by copyright in computer programs for the purposes of that [Software] directive”.

Therefore, copyright does not protect a programming language as such, nor its interfaces, data file formats or functionality. Furthermore, an Australian case, Telstra Corporation Limited v Phone Directories Company Pty Ltd., [2010] FCA 44, held that copyright was not suitable for protecting all types of databases. These decisions call for more research on database protection with special attention to the different types of databases, i.e. digital databases. The functionality of computer programs brings value-enhanced data and/or useful data. Therefore, the functionality of computer programs should be identified in the process of establishing a protection mechanism.

The current protection mechanisms in the EU, the UK and the US are considered comparatively in this research. Although EU database protection discusses the sui generis right protection, this concept has been questioned (Commission of the European Communities, The EU Single Market, 2006). To this end, this study evaluates the desirability of the sui generis right protection. While the EU has a specific right for protecting databases i.e. the sui generis right protection, UK databases are already protected by copyright. In Football Dataco Ltd v Britten Pools Ltd, (2010) RPC 17, the High Court of Justice (Chancery Division) decided that databases (the Fixture Lists) were protected by database copyright, not by the sui generis database rights or any other copyright (Football Dataco Ltd v Britens Pools Ltd [2010] EWHC Ch 841).

In the US, databases are protected primarily by unfair competition, contract, TPM and anti-circumvention provisions (17 USC §103). TPM and anti-circumvention provisions are not the subject of this study. The positive effects/advantages and negative effects/disadvantages of these current mechanisms are examined in comparison with the requirements of protection of investment. The main objective of this process is to make a sui generis right for the protection of digital databases in Sri Lanka in order to attract investment into the digital database arena.

The obligations under the TRIPS Agreement require it to update the Sri Lankan Code of Intellectual Property 52/1979 to meet the TRIPS Convention’s minimum requirements. The suggested amendments of the IPR Reform Commission were finally placed in the IP Act of 36/2003/SL that consisted in the TRIPS Agreement obligations (Fernando, J. (Internet)). The WIPO Copyright Treaty (WCT) and WIPO Performance Phonograms Treaty (WPPT) have also played a role in the field of protection of computer programs. Although they cover copyright, patent, trademarks and trade secrets, they do not cover digital databases. Therefore, complying with the TRIPS or WCT will not provide a solution for the protection of digital databases in Sri Lanka. This observation further shows the necessity for Sri Lanka to have its own mechanism for the protection of digital databases. However, the proposed domestic protection should comply with international legal instruments.
As noted above, traditionally, copyright provides a considerable level of protection for databases. For example, in the United Kingdom, databases are adequately protected by copyright (CDPA 1988, s 3A (2)). This protection is divided into two separate parts in databases: the content of databases and the databases themselves. The Copyright and Rights in Databases Regulations 1997, which implement the EU Database Directive do not make any changes to the copyright protection of the individual content of databases. The individual content can simply be protected by copyright. The problem arises over whether this protection is granted to the owner or creator of the particular database. Copyright protection of the data as content already goes to the owner of the particular data. In the UK, databases themselves are protected by copyright if they are original literary works. The Regulations do not explain whether copying of parts or a whole of a database is an infringement of copyright. The EU Directive on the legal protection of databases provides clarity in this regard; copyright in databases only extends to the selection or arrangement if it is an intellectual creation of the author (Council Directive 96/9 EC (OJ L 077/20), recitals 15, 27, 35, 39).

In addition to the copyright law, databases can be protected by contracts. Contracts may provide a method of regulating access to, and the use of, a database, but which can be especially problematic with digital databases. With digital databases, ‘Standard form contracts’ (Burke, JIA. 1999-2000) or ‘Adhesion contracts’ (Trakman, LE. 2009) are more common that with traditional databases. In these contracts, a database owner or author provides the terms and conditions of the contract and subsequently users have to agree to them. Database users are left without the option of effective negotiation on the terms and conditions of the contract (Armendariz v Foundation Health Psychcare Serv. 24 Cal. 4th 83 (2000)). This means that there is no ‘meeting of the minds’ (consensus ad idem) which is the basis of an agreement (Cohen, MR. 1933). This disadvantage as regards the contract protection in digital databases needs to be resolved in order to ensure optimal investment in digital databases. There is also no provision for misuse of a database by a third party. This is identified in this study and the result, such as third party licensing processes, TPM (or Digital Rights Management) would be a part of the proposed mechanism for the protection of databases in Sri Lanka.

Copyright or contracts are not the only available methods for the protection of databases. Unfair competition laws and misappropriation are also relevant. The sui generis rights have been criticised as “they harm science and education or restrict the public domain and lead or may lead to monopolies on information” (Dercaye, E. 2008). The extraction or re-utilisation of any database in which there has been a substantial investment in obtaining, verifying or presenting the data contents is not protected under the sui generis rights regime. Therefore, there is no requirement for creativity or originality. In contrast, “unfair competition protects all databases against all types of extractions and reutilizations” (Sawdy, C. 2010). Commentators argue that “misappropriation is a more flexible and equitable solution than an intellectual property right and better respects the public domain” (Dercaye, E. 2008). The problems with these arguments are that they are not presented with substantial reasoning and have hardly been developed. For example, US commentators “advocate a federal codification of the misappropriation doctrine for databases but have not proposed a concrete model for protection” (Fujichaku, RY. 1998).

In Metropolitan Opera Association v Wagner-Nichols Recorder Corp 101 NYS 2nd 483(1950), the defendant made recordings of broadcasted performances of operas which were produced by the complainant opera producing company, and subsequently advertised and sold those inferior quality recordings at lower prices. The defendant was held liable for unfair competition by misappropriating the intellectual product of the plaintiff. The basis of liability was unfair business practice to profit from the labour, skill, and expenditure of the complaint opera producing company. However, the difficulty with these laws is that there is a possibility of overlapping with copyright and that cannot be accepted under US law. Although it has happened in the US, commentators have suggested that in other countries, such as England and Australia, “there is a significant link between unfair competition principles and the approach to infringement of copyright” (Davison, MJ. 2008). These arguments show that there is a conundrum when database protection depends on unfair competition law and
this shows the need for further research on this subject. However, it is worth mentioning that the US Federal sui generis intellectual property rights have been based on unfair competition laws (Davison, MJ. 2008). The purpose of a discussion on unfair competition law concepts is to provide a specific form of unfair competition law which could be employed in the proposed Sri Lankan database regime.

VI. CONCLUSION

Emerging trends in the digital environment, and the technological advancements in the respective fields in the South Asian region, steer the necessity of doing research toward the field of digital databases in Sri Lanka. There is a lack of understanding in the acceptable level of protection available under the existing domestic laws, and for likewise reasons, I address the point of investment of digital databases, which are the driving forces in this research. The paper first identifies the digital databases with specific attention to the structure of digital databases and the contribution of computer programs installed towards the digital database. In relation to this point, the process of enhancement of value and/or usefulness of data is made out as the key element of the contribution of computer programs in digital databases. The system proposed by the paper expects to protect the investment behind the process of creating a digital database. The proposed system consists of an array of protective rights and mechanisms - one mechanism can provide protection in the event of a failure of another.

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