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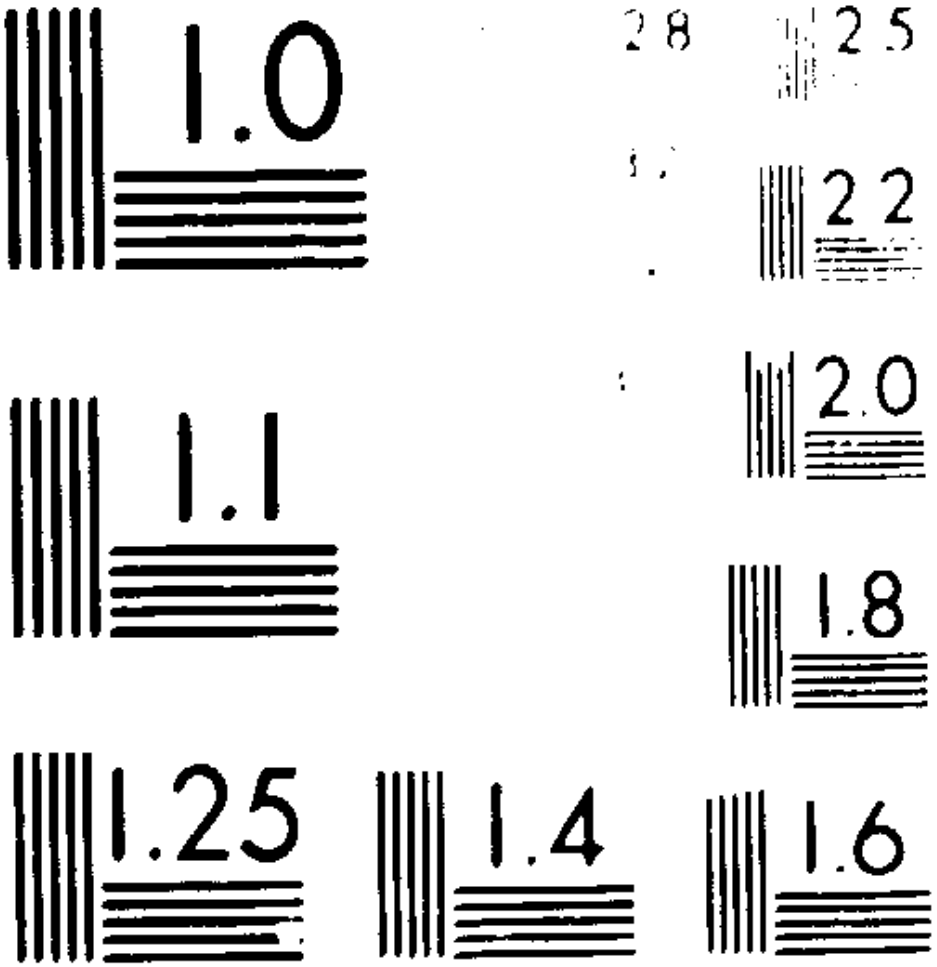
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LICENSING COMPUTER SOFTWARE .

Basic considerations as to protection and licensing of computer software and its implication for developing countries *

Prepared by the UNIDO Secretariat

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I. INTRODUCTION

The computer age is here since a good few years; it has come so naturally that frequently one does not realize the daily impact that the computer now has on our lives.

The 1980s are also said to be the decade of software. The rapidly developing market for software products is projected to expand from its current 5-8 billion $ in revenue to ca. 30-55 billion $ [1/] annually by the middle of the decade.

It should be noted that in some instances, the revenue generated by software products is expected to exceed the revenues generated by associated hardware products.

The largest single market for computer programmes and data bases is the United States, followed by FRG, Great Britain, France, Canada, Italy, the Netherlands and Japan.

While at present the developing countries do not constitute large markets in themselves, some of them like Mexico, India, Brazil, Spain and Argentina are already included within the top 40 import markets [2/].

The sheer size of the market, coupled with its rapid expansion and impact on productivity, employment and industrial "revolutions", make the issue of protection and licensing of software of today's significant interest for developing countries. With this in mind and responding to direct requests by some of the technology registries, this paper has been prepared.

1/ Ronald T. Reiling "Patentability of computer programmes, a worldwide view".

2/ "The World Top 50 Computer Import Markets", by B. C. Suprowin in Datamation, January 1981.

Definitions

Prior to detailed consideration of this paper, we should clarify the terminology because it is often misleading and, additionally, many experts in the field of software do not necessarily agree upon.

For the purpose of this paper, the following definitions will be used [3/]:

A computer programme is a complete set of instructions to manipulate data during the operation of a processor.

Data is usually defined as information that relates to the outside world.

A data base is an accumulation of data that shares one or more common properties, (like for example employee records of corporations or extensive compilation of publications and abstracts available for computer access through the world).

A programme is usually written in source code or what is called high level language instruction. Programmers code their programmes in high level languages which have statements resembling mathematical equations or common declarative statements. Examples of such languages are FORTRAN, COBOL or Basic. Object Code is the machine readable counterpart of a source code programme. It contains the strings of ones and zeros meaningful to a computer's electronic circuit and is the result of a compiler or interpreter programme reading and processing source language instructions.

A flow chart is a computer diagram illustrating the logical progression of the steps and processes performed by a computer executing a programme.

Another item worth defining is the so-called computer firmware which has attributes of both, hardware and software. Firmware is a sequence of computer control instructions (like software) but built into some type

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3/ After extensive search of the available literature, we have adopted the terminology acc to Tipton V. Jennings in his paper "Protection of computer software", October 7, 1981

of hardware device, e.g., a read-only-memory ROM, whose contents usually cannot be changed.

Finally one should mention that computer software exists in many different forms of often significantly different attributes. It can be punched into a deck of computer cards, printed on paper, displayed on a tube (cathode ray tube), written as selected polarities on magnetic materials or transmitted as electrical impulses over telephone lines.

Such difference of forms require a special scheme for protection and transfer of rights (if any) arising from computer software.

The development of the computer software industry was paralleled by the development of intellectual property protection of software.

At the outset, most of the computer software application was designed for the use of a particular computer system, at particular installations, to solve the problems of a particular user.

As a result, different computer companies were developing software to perform the same or similar tasks. The initial sellers (vendors) of software were almost exclusively companies which produced the computer hardware.

The increasing demand for services of the limited available number of computer programmers caused that such type of software become very expensive, and further caused that some software vendors began to develop standard programmes which, with minor variations, could be applied to a variety of computers and save the needs of many different industries and business.

Gradually software packages were developed for legal, accounting, scientific, commercial and industrial application, all of which contained valuable intellectual property.

An important consequence of the increased potential application of standard packages by small business and individuals is the tremendously expanded computer hardware market.

This trend has been very visible in the USA, Japan as well as in Western Europe, however significant inroads were made as well in the more developed among the developing countries; it is the general belief that the computer age will soon begin in other developing countries as well.

II. OVERVIEW OF CURRENT PATENTABILITY OF COMPUTER SOFTWARE

This subchapter will describe the question related to patentability and other forms of protection of computer software in the following major regions: USA, EEC, Japan. Furthermore, extensive comments on WIPO "Model provisions on the protection of computer software" of 1978 as well as an attempt of prediction of development likely to take place in developing countries.

USA

The computer software industry in the US sought from the outset, suitable legal protection of its property embodied in the software with the following three basic goals:

(i) adequate protection of financial investment in software development;

(ii) technological progress from full dissemination of software information;

(iii) public benefit from new applications of computer technology [4/].

In view of the above three basic means have been explored for most effective protection, that is trade secrecy, patent law and copyright law.

4/ See eg. "Intellectual Property Protection for Computer Programmes, are Patents now obtainable?" 26 Cath U.L. Rev. 835/1977. Comment "Computer Programme Protection: the need to legislate a solution" 54 Cornell L. Rev. 486 (1969)

As far as the patent law is concerned, the US Patent and Trademark Office (PTO) released the 14th of October 1980 Guidelines on Computer Protection which provide the possibility for obtaining computer programmes patents and copyrights.

The Guidelines foresee that rejection of application of computer programmes are to be limited to cases in which the claims pertain solely to a mathematical algorithm or formula, method of calculation, method of doing business, abstract intellectual concept or a collection of printed matter 5/.

The said Guidelines include, as an example, a specific claim reciting a "base set" of programme instructions which would be rejected as defining nothing more than the abstract intellectual concept of a programmer.

The claims that define 6/ a process, apparatus (machine or article of manufacture) or composition of matter, or as an improvement of any of those, and involve the operation of a programmed computer, are acceptable (under § 101) so long as they do not directly or indirectly recite a mathematical algorithm.

Clauses that directly or indirectly recite mathematical formula or algorithm are to be accepted "if claims implements or apply the formula in a structure or process which, when considered as a whole, are performing a function which the patent laws were designed to protect, e.g. transforming or reducing an article to a different state or thing".

Finally, the Guidelines point out that clauses in a patent application must be considered as a whole and can no longer be "directed" into old and new components for the purpose of § 101 analysis.

5/Richard H. Smith and Robert J. Gaybrick "Rules for Safeguarding Computer Programmes Clarified" in Legal Times of Washington.
6/Ibid.

In terms of copyright law, a new ammended law signed on December 12, 1980, clarifies significantly the scope of copyright protection for computer programmes.

According to this copyright law, the following is a definition of the computer programme: A Computer Programme" is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result". By such a definition protection is extended to both source code and object code, and thus owners of copyright on computer programmes could prevent the unauthorized copying of the programme, including the right to prevent the making of derivative works of the programmes.

It should be however mentioned that under the US law, a reproduction of a computer programme which is not fixed in a tangible medium is not a copy of that programme 7/.

Furthermore, copyright laws were criticized for protecting only against copying the expression and for not preventing the unauthorized use of a programme to control the operation of a computer.

In this view many owners of computer software have turned to using proprietary markings and non-disclosure agreements as the preferred mode of protection. Unfortunately, trade secret protection is unsuitable for mass distributed software.

European Economic Community

Members of the EEC are also members of the European Patent Convention (EPC) which provides the establishment of a single European Patent Office, uniform procedural system for centralized filing, searching, examination and opposition and European Patent, which when granted, results in a series of individual patents for laws of the EPC countries designated by the applicant.

7/ See "Protection of Computer Software" by Tipton D. Jennings and Data Case System, Inc. v. JS and A Group, Inc., 480 F. Sapp (N.D. I 11.1979).

From the point of view of obtaining patent protection for computer software, two articles of EPC are crucial, that is Article 52 (2) defining categories not include in the definition of invention ((i) discoveries, scientific theories and mathematical methods (ii) aesthetic creations; (iii) schemes, rules and methods for performing mutual acts, playing games or doing business and programmes for computers; and (iv) presentation of information) and article 52 (3) stating that the above categories are excluded only to the extent that the application relates to such subject matter or activities "as such".

Although the examinations in the European Patent Office began only in June 1979 and practice has not yet evolved, the Guidelines for Examination in the EPO indicate likely results.

Chapter IV of the Guidelines state that "computer programmes need not necessarily be an abstract entity but may also appear in terms of a process for operating a computer or a record, for instance on magnetic tape. As regards the mathematical method, it is said that, for example, a shortest method of division is not patentable, but a calculating machine designed to operate accordingly may well be patentable. All in all, for the time being, one must come to the conclusion that computer related applications which are not of evident technical substance, will be thoroughly revised against the article 52 (2) prohibitions" 8/.

Finally, it should be mentioned that the resolution of patentability of software products, computer programmes or data bases under EPC does not end with a granting of a European patent. That patent must then be enforced in the various national court systems.

JAPAN

In Japan, on the initiative of the Ministry of International Trade and Industry, it was decided that legal protection of the software products should be fully ensured.

8/ Patentability of Computer Programmes, a worldwide view" by Robert T. Reiling.

In addition the statutory requirements contained in the Patent Law, the Patent Office in Japan established a set of "Examination Standards for Inventions relating to Computer Programmes" in effect since March 1976.

WIPO "Model Provisions on the Protection of Computer Software"

The above WIPO Guidelines, the result of several years of work are aimed at assisting countries in introducing certainty into their existing legislation and in harmonizing their legislations with that of other countries.

The model provisions are attached in Appendix I to this paper.

The WIPO model provisions essentially adopt combined patent, trade secret and copyright approach.

Section Five of the model provisions sets forth the type of protection needed for computer software. The owner of the rights in computer software can prevent any person from disclosing the computer software or from aiding in its disclosure before the programme is made public. The computer software owner may also prevent any person from allowing or aiding someone to have access to any apparatus storing or reproducing the computer software before the computer software is made public.

Under model provisions, a propietor of computer software is also given the right to prevent copying of computer software, including the right to prevent the making of derivative works.

Furthermore, model provisions permit the owner to prevent the actual use of a computer programme to control a machine with information processing capabilities and to prevent the storage of the programme in the memory of a computer. He can also prevent the sale, lease or licensing of computer software or objects storing the software, such as ROM'S.

The model provisions are intended to supplement rather than provide, the protection of computer software under the patent, copyright or unfair competition laws of subscriber states.

Beering in mind the rapid development of the computer industries and inadequacy of most of the national laws, the model provisions may eventually become a case of international convention on the protection of computer software.

Protection of computer software in developing countries

As far as can be ascertained the degree of legal protection available to computer software, either by means of patent, trade secret or copyright in developing countries is very limited, basically embodied in their national patent and copyright laws which with few exceptions (Mexico, India, Brazil) have not been ammended since their adoption and enactement.

This situation leads therefore to the resolution of a fundamental issue, namely, whether it is in the interest of developing countries to extend legal protection to the computer software.

UNIDO's preliminary investigation concluded that in the developing countries such as Mexico, Brazil, Argentina, Egypt, India, Thailand, Malaysia, PRC, Singapore, S. Korea and a few others, the potential for the development of a computer software industry exists; this industry may, eventually, become internationally competitive, thus requiring, in its own interest, measures of protection similar to the ones employed by the leading software producers.

This trend will probably be followed by those among developing countries which at present do not have potential for the development of a software industry.

Premature introduction of protection of software may cause more harm than positive effects, particularly for the development of such industry (if such an industry is to be developed). WIPO's model provisions may be used in those countries as guidelines in the above respect.

III.- CHANNELS FOR TRANSFER OF COMPUTER SOFTWARE

The growing software industry has adopted for its purposes a variety of contractual forms for use of the computer software.

For reasons described in earlier subchapters, licensing under patents, trade secrets or copyrights has become the most proper vehicle for utilization of the software. The present subchapter will deal with basic types of agreements, describing their main features and recommending options for technology regulatory agencies when dealing with this type of transactions.

CUSTOM SOFTWARE CONTRACTS 9/

Custom software contracts deal with any procurement of computer software, either alone or in conjuntion with the acquisition of computer hardware and related products and services, which involve either the development of new products and services or the substantial modification of the existing programmes (supplied by either the vendor or the user).

The most important part of a contract for custom software is the development of a complete set of functional specifications for the software, i.e. a set of documents which describes the business functions that the software must perform in the context of the overall data processing system in sufficient detail so that the functional specifications can provide the basis for the standards of performance that will be used to evaluate the vendors' performance.

The functional specifications will generally include:

(a) functional description of the package, that is (i) all tasks the package must accomplish, (ii) all inputs, (iii) all outputs, (iv) all processing requirements, (v) all data files and (vi) volumes of activities and files;

9/ This section is based on "Custom Software Contracts" by Richard L. Bernacchi, 25.08.1981

(b) description of the hardware environment in which the package must operate, including: (i) storage restrictions, (ii) peripheral equipment restrictions, (iii) data transmission procedures and (iv) communication interface;

(c) description of the software environment within which the programme must reside including (i) specifications of the operating systems, (ii) the programming languages, (iii) other programmes with which the customized software must properly interface, (iv) any specific nomenclature system which must be used for programmes;

(d) statements concerning the performance of the software relation to (i) its internal organization, (ii) its execution speed, (iii) its capability for enhancement and modifications, (iv) its error dedection properties, (v) its error correction and recovery properties and (vi) any restriction of the activities which the user must avoid;

(e) programming and documentation standards, including details as to (i) documentation content, (ii) quantity, (iii) forms, and (iv) the nature and extent of coding.

An important, and specific to this type of agreement, issue is the one of pricing. The least desirable form of pricing is a pure "time and materials" (T+M) contract, as in this type of agreement the risks are high that custom developed software will take longer than anticipated.

Sometimes T+M contracts provide for the overall ceiling of the amounts the vendor can charge to the user; in those situations the formula is close to fixed price contract, which usually is the best formula from the user's point of view.

It is quite common that part of the fix price (or T+M price) is hold back by the user in order to encourage the vendor's co-operation.

In custom software agreements, the concept of liquidated damages as an incentive to performance is automatically and frequently used. It may be applied for example to: (i) unliquidated credits for late performance (ii) delayed payments, (iii) free machine time, (iv) increased level

of service, (v) temporary back-up personnel, (vi) substitute processing, (vii) use of outside contractors and (viii) substitute personnel.

Another feature of the custom software contract is the quality of the personnel which should be specifically spelled out, as well as responsibilities for project management and control.

At present the most complicated software system requires extensive documentation and training for which extensive provisions are to be provided for.

As software developed, at least in some of the countries, certain legal protection, title to the software, and related information (including design aspects) and rights to use such systems should be included in the contract.

The following are basic issues involved which should be clarified in the contracts (as need arises):

(a) whether title; and/or unlimited rights to use software should remain with the vendor;
(b) whether exclusive title to the software should remain with the user;
(c) possibility for joint ownership;
(d) sole ownership by user with limited marketing rights granted to the vendor;
(e) sole ownership by vendor with limited use/marketing rights granted to user;
(f) sole ownership by vendor with royalties payable to user;
(g) sole ownership by vendor in return for reduced development charges, future services, etc.

As other licensing agreements, this type of contract will usually include provisions related to the protection of software from intentional or inadvertent disclosure, third party infringement and acceptance testing

which will include test procedures, acceptance testing, acceptance criteria and ultimate measure of suitability of software functions in relation to:

(i) the hardware and software system environment;

(ii) the test data, (iii) time period for testing, (iv) the degree of reliability, (v) the degree of accuracy;

(iiI)the response time and the turn around time for error correction.

Finally, as in other licensing contracts the following provisions are to be included:

(i) limitation of assignments;

(ii) termination procedures;

(iii) choice of law and venue;

(iv) arbitration vs. litigation;

(v) limitations of liability;

(vi) force majeure;

(vii) offset rights;

(viii)users' access to vendors work product;

(ix) future modifications and enhancements.

AGREEMENTS FOR PACKAGED SOFTWARE 10/

The so called packaged software is a software developed for use by more than one customer and ready to use with usually minor adjustments to the users' needs.

There are four types of packaged software, depending on parties to the agreements as described below.

Packaged software is customarily licenced rather than sold and that licence is customarily non-exclusive and non-transferable.

10/ This subchapter is based on "Agreements for packaged software" by Susan H. Nycom 25.8.81

A. DEVELOPER (of the software) - END USER CONTRACT

The following would be the provisions included in this type of agreement.

(i) the description of the software (including provisions for updates and new versions).
(ii) price and payment schedule;
(iii) taxes;
(iv) terms of agreement;
(this may include termination provisions in a perpetual licence);
(v) maintenance;
(vi) proprietary protection;
(including third party infringements);
(vii) Escrow arrangements for source (to secure services in case the vendor ceases to do business);
(viii) ownership of user-made changes;
(ix) documentation;
(x) training (or varying duration and scope depending on complexity of the software);
(xi) limitation of use;
(limiting the use of the programme to single CPV or use at single location or inside the user company);
(xii) acceptance criteria;
(xiii) liquidated damages; (these are not generally used in software, however the concept may be useful in the ca... "leak" of the software to third parties);
(xiv) warranties; (may or may not be included, depending on the nature of the software);
(xv) limitation of remedies;(usually consequential and indirect damages are excluded);

B. VENDOR (Licensor) - OEM AGREEMENT

In addition to provisions provided under A type of an agreement, this type of an agreement will provide for volume price discounts and authorization for sublicensing. The agreement will spell out which key conditions OEM will be required to sublicence or cause to sublicence to execute.

C. VENDOR - DISTRIBUTOR AGREEMENTS

In addition to many of the foregoing conditions, these are contracts which usually contain provisions for pre-distribution inspection and post-distribution returns.

There may be conditions not to compete by one or both parties; guaranteed order levels and production levels, etc.

D. VENDOR - SERVICE BUREAU AGREEMENTS

The additional clauses may include the establishment of the basis for payment as a function of amount of use. However, there may be minimum payments or flat rates.

Furthermore, usually the vendor will require access to the licencee accounts and security arrangements. Maintenance of training will be of a more extensive and substantial nature. The licencee in those cases may be of exclusive character.

IV SUGGESTIONS AS TO DEVELOPING COUNTRIES' APPROACH TOWARD LICENSING OF COMPUTER SOFTWARE

The brief overview of the current status of protection of computer software (chapter II) and current practice of its licensing (chapter III) enables to draw certain basic conclusions as well as suggestions as to how technology registries should deal with this type of agreements.

Primarily, in developing countries, we will deal with non-protected computer software, and their protection will only be available (either in a form of patent or copyright) in the next few years.

This lack of legal protection in the user country leads towards an important consideration by technology registries in terms of their attitude and position vis-a-vis:

- duration of the agreements;
- rights of use after expiration of the agreements;
- limitation of use;
- payment level;

that is the basic contractual elements considered by technology registries.

Prior to going into detailed recommendations as to how to deal with the above elements, the UNIDO Secretariat is of the view that agreements for use (licence) of computer software are to be subject matter of scrutiny by technology registries in developing countries.

By law, the following registries are enforced to deal with these contracts:
India[11/], Spain[12/], Argentina[13/], Mexico[14/], Philippines[15/] and Portugal[16/].
It is our feeling that although in other developing countries computer software agreements are not clearly spelled out, yet, they are either subject of scrutiny, or they should be included soonest, as this type of agreements will become very popular in the imminent future.

In terms of types of agreements, the technology registry will be dealing with, either packaged computer software agreements (which we believe to be more frequent) and/or custom software contracts.

The following are basic suggestions made by UNIDO as to the approach towards main contractual provisions. They are dealing, under one heading, with both main types of the agreements.

1. DURATION

In both cases, that is custom software and packaged software contracts, the duration should be limited and be equal to the minimum period of time required by the user (licencee) to absorb and use the transfered software. No perpetual agreement should be allowed for, as this is a very fast moving field of technological development.

11/ Guidelines on Foreign Technology Collaborations
12/ Decree 2343
13/ Law 21,617
14/ Law on Technology Transfer dated 11.01.1982
15/ Decree 1520 of 1978
16/ Decree 53/77

2. PAYMENTS

With respect to custom software agreements, it is suggested to use the fixed price formula combined with very precise performance standards. With respect to packaged software, one time payment may be prefered, however including additional (improved) software.

3.- MAINTENANCE

In both types of agreements these should be precisely spelled out including payments for such services.

4.- TRAINING

Specifically in custom software agreements, the training provision should be extensive; in the packaged licence they are also essential.

5.- TITLE TO THE SOFTWARE

In case of custom software, registries should insist on users sole title to the software (eventually with limited marketing rights by the vendor). In packaged software agreements, however, during the term of agreements, the title may be with the vendor, the user will have the right to use it free in the same scope.

6.- THIRD PARTY INFRINGEMENTS - PROPERTY PROTECTION

As in most of the developing countries no legal protection can be granted to computer software, (except through trade secret), the licensor/ vendor has to secure that his software does not infringe third party rights.

7.- ACCEPTANCE CRITERIA

Those conditions are particularly important for custom software agreements; they are also of sifnificance for packaged software and in both cases the criteria should be extensive and worked out in utmost detail.

8.- LIQUIDATED DAMAGES AND WARRANTIES

Both provisions are of significance, particularly for custom software; therefore a good deal of time and effort should go into the preparation of those clauses.

9.- DOCUMENTATION

This clause is of crucial importance for custom software.

10.- FUTURE MODIFICATIONS AND ENHANCEMENT

The licencee should secure for themselves rights of access to future modifications, particularly in case of packaged software.

11.- RIGHTS OF USE AFTER EXPIRATION OF CONTRACT TERM

It is recommended that users have unlimited rights in using the software after the expiration of an agreement.

12.- LIMITATIONS OF USE

Particularly in packaged software agreements, many vendors try to limit the use of their software to the users plant/and or location. In our view such limitations should not be acceptable in principle.

We believe that this paper covers the most crucial issues of protection and licensing of computer software and provides a solid background material for Technology Registries to establish their own practice and policy.

No doubt that Technology Registries will deal increasingly with this type of agreements, therefore adoption of guidelines and rules in this respect is of great significance.

We believe also that discussion of so-far experience by some Registries will assist in the further clarification of the issues involved and in establishing a clear and coherent policy.

UNIDO will be, as in the past, always ready to assist in this important area.