Utility Models and Innovation in Developing Countries

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TABLES

ACRONYMS & ABBREVIATIONS

EC	European Commission
EPC	European Patent Convention
EPO	European Patent Office
EU	European Union
GDP	Gross Domestic Product
ICT	Information and Communication Technologies
ICTSD	International Centre for Trade and Sustainable Development
IPC	International Patent Classification
IP	Intellectual Property
IPR	Intellectual Property Rights
OHIM	European Office for Harmonization in the Internal Market
OAPI	Organisation Africaine de la Propriété Intellectuelle
OECD	Organisation for Economic Co-operation & Development
PCT	Patent Cooperation Treaty
R&D	Research and Development
SME	Small and medium sized enterprises
TRIPS	Trade-related Aspects of Intellectual Property Rights
UK	United Kingdom
UNCTAD	United Nations Conference on Trade & Development
USPTO	United States Patent and Trademark Office
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation

FOREWORD

The present paper on the potential use of utility models in developing countries is part of the efforts of the UNCTAD/ICTSD Project on Intellectual Property Rights and Sustainable Development to contribute to a better understanding of issues relating to innovation and the place of developing countries in the globalizing knowledge based economy. Many factors influence the creation and preservation of systems of innovation, including education policies, a country's technological absorptive capacity, its general institutional base to promote domestic research and development (R&D), and legal and economic incentives particularly in terms of adequate intellectual property and investment regimes.

Utility models are a form of patent-like protection for minor or incremental innovations. They tend to protect the functional aspect of a product (examples of utility models apply to the functional aspects of toys, watches, optical fibres, machinery, etc). Utility models are very common in the mechanical, optical and electronic fields and played a role in the industrial development of countries like Germany and Japan, as well as South Korea and India.

With a view to fostering local technological capacity, this study examines one category of intellectual property, namely utility models, and their potential as a tool for spurring innovation, particularly in developing countries. To do so, the study draws from past experience to analyse their potential to accommodate small-scale or incremental innovation in both developed and developing countries today.

Some experts suggest that the specific characteristics of utility models may serve as a useful tool for promoting the type of innovation generated in developing countries. These include: (i) enabling artisans to secure protection for types of innovation that do not meet the stricter novelty and inventive step requirements of patent law; (ii) making it possible to increase the role of traditional innovators and artisans in economic development; (iii) acting as a catalyst to enhanced levels of innovation; (iv) the fact that they are cheaper to acquire than patents; and (v) that they may become a source of data on innovative activity and experience in technological management. Others, however argue, that regardless of the merits of utility models as innovation tools, it is imperative that their adoption be tailored to respond to each country's industrial structure in order to have a positive impact. This study contributes to the understanding of the usefulness and appropriateness of utility models in developing countries. It also explores considerations that policy makers could take into account when implementing or revising their national utility model system.

Intellectual property rights (IPRs) have never been more economically and politically important or controversial than they are today. Patents, copyrights, trademarks, utility models, industrial designs, integrated circuits and geographical indications are frequently mentioned in discussions and debates on such diverse topics as public health, food security, education, trade, industrial policy, traditional knowledge, biodiversity, biotechnology, the Internet, the entertainment and media industries. In a knowledge-based economy, there is no doubt that a better understanding of IPRs is indispensable to informed policy making in all areas of human development.

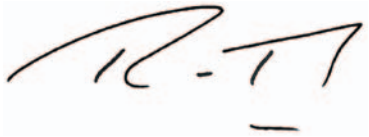
Empirical evidence on the role of intellectual property protection in promoting innovation and growth in general remains limited and inconclusive. Conflicting views also persist on the impacts of IPRs on development prospects. Some argue that in a modern economy, the minimum standards laid down in the TRIPS Agreement will bring benefits to developing countries by creating the incentive structure necessary for knowledge generation and diffusion, thus

inducing innovation, technology transfer and private investment flows. Others counter that intellectual property, especially some of its elements, such as the patenting regime, will adversely affect the pursuit of sustainable development strategies by raising the prices of essential drugs to levels that are too high for the poor to afford; limiting the availability of educational materials for developing country school and university students; legitimising the piracy of traditional knowledge; and undermining the self-reliance of resource-poor farmers.

It is urgent, therefore, to ask the question: How can developing countries use intellectual property tools to advance their development strategy? What are the key concerns surrounding the issues of IPR for developing countries? What are the specific difficulties they face in intellectual property negotiations? Is intellectual property directly relevant to sustainable development and to the achievement of agreed international development goals? Do developing countries have the capacity, especially the least developed among them, to formulate their negotiating positions and become well-informed negotiating partners? These are essential questions that policy makers need to address in order to design intellectual property laws and policies that best meet the needs of their people, as well as to negotiate effectively in the future.

It is to address some of these questions that the UNCTAD/ICTSD Project on Intellectual Property Rights and Sustainable Development was launched in July 2000. One central objective has been to facilitate the emergence of a critical mass of well-informed stakeholders in developing countries - including decision makers, negotiators but also the private sector and civil society - who will be able to define their own sustainable human development objectives in the field of intellectual property and effectively advance them at the national and international levels.

We hope you will find this study a useful contribution to the debate on IPRs and sustainable development and particularly on the experience and use of utility models in developing countries.



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EXECUTIVE SUMMARY

The purpose of this study is to assess the feasibility of utility model regimes for developing countries, while taking into account that utility model systems are quite varied and so analysis must be extended to the type of utility model system likely to be of most benefit to a country. A key element of utility model protection is that it is a legal instrument which is outside the sphere of international influence and hence tends to be specifically tailored for domestic/regional needs and concerns. Undoubtedly, it is well worthy considering the question of why some countries have utility model protection, and much of this report examines such countries and regions.

Even if a country decides on the importance of the utility model system, there is the further need to analyse the type of system required. This is very important. If one references the European Union Member States, for example, one finds a wide disparity in the amount of applications made within each country, and this in turn correlates to the nature of utility model protection. Finally, the report considers alternative modes of protecting minor innovations such as unfair competition and design laws.

Specifically, the study seeks answers to the following questions:

— Do developing countries require rapid, cheap protection for small or minor inventions, and to promote local industrial growth?

— Is there an economic argument as to why such inventions should be protected?

— Would a developing country be placed at a disadvantage if other countries use a utility model system in a major way?

Patents vis-a-vis Public Domain

The revised current theory is that patents are tools for economic advancement that should contribute to the enrichment of society through (i) the widest possible availability of new and useful goods, services and technical information that derive from inventive activity, and (ii) the highest possible level of economic activity based on the production, circulation and further development of such goods, services and information. Once patent rights have been acquired, the owners seek to exploit them in the market-place. The possibility of attaining commercial benefits, it is believed, encourages innovation.

The above rationale, however, should not be carried to logical absurdities and countries should not accept that it is necessary to allocate property rights on *every* intellectual output of the creator. Limits have to be placed on the exact breadth of patent protection of innovations, and countries should take note as to the effects of widening the current patent regime. After a certain period of time, these legal rights are extinguished and the now unprotected inventions are freely available for others to use and improve upon.

Moreover, developing countries should be careful not to make the rights too strong until their economies are more advanced. Historical evidence indicates that several present-day developed countries, rightly or wrongly, took such a policy decision in the past.

Relationship Between Patents and Utility Models

The term utility model is bandied about by policy makers, legislators and jurists to refer to a second tier patent system, offering a cheap, no-examination protection regime for technical inventions which would not usually fulfil the strict patentability criteria. Indeed, the utility model law is not a standard feature within the intellectual property regime of many states. Included amongst the

countries which do not have a utility model regime are significantly the United States, the United Kingdom and Canada. However, major industrial nations which have adopted the utility model regime include Japan, South Korea and Germany.

The rationale for utility models is tied closely to the patent system and its inability to extend legal rights to innovations or discoveries that fall short of the inventive step and/or novelty bars. That is to say, limits are placed on the extent to which patent law will embrace inventive activity: only inventions which fulfil certain criteria will be protected, and adjunct to this axiom is the examination procedure which seeks to ensure that the patent system is not abused by the assertion of patents on spurious inventions.

The question then arises, should we leave such innovations or discoveries unprotected, lower the bars to incorporate them into patent law, or seek an alternative means of protection?

Weighing the Pros and Cons of the Utility Model Regime

It may, on the other hand, be argued that the rationale for utility model systems is inherently unsound. Objections relate to the fact that in essence, the choices facing policymakers in respect of subpatentable inventions are far from straightforward.

Questions for governments are:

— Should we leave sub-patentable inventions unprotected? [sub-patentable meaning those inventions which show little or no inventiveness]
— Should we lower the inventive step threshold under the standard patent law so that more inventions, including minor sub-patentable innovations, become patentable?
— Should we seek to create alternative legal means of protection such as a tort or misappropriation law, or a hybrid property rights system such as design rights?

There are more fundamental problems with utility models as a policy solution to the question of what, if anything, should be done about subpatentable inventions.

(i) Uncertainty and unfairness

First, the fact that the utility model regime encourages a lowering of thresholds without an appropriate examination system in place may result in legal uncertainty and excessive litigation. There is a reasonable concern that larger market players may use utility models as a means of circumventing the more stringent criteria under the patent system and overuse the system in ways that make it hard for SMEs to compete. Certainly, the lack of substantive examination prior to grant will give rise to uncertainty for third parties when conducting infringement searches to ascertain what valid rights exist in a particular field of technology, which may act as an additional barrier to competitors.

(ii) Is copying good or bad?

Secondly, hybrid systems like utility models tend to rely extensively on the argument that cumulative innovations are vulnerable to unfair copying which should not be allowed. This argument is anchored to the classical natural rights justification of the intellectual property regime, that protection is conferred in order to enable inventors and creators to reap their just rewards by preventing misappropriation. Hence, such innovations should be protected. Moreover, it is traditionally thought

that protection against misappropriation is important to SMEs to encourage small-scale innovations (this is discussed below)

However, herein lies a danger. Intellectual property rights are predicated on the notion that inventions and creative works are in the public domain *except* such works that fulfil the traditional standards of novelty, inventive step, originality or distinctiveness. If we provide second and third-tier rights for inventions and works that fail to meet these standards, thereby allowing insufficiently inventive or original works to get protection by the back door, we undermine both the public-private boundary and the integrity of existing IPRs and their doctrines.

Indeed, as some courts and jurists have argued, copying and free riding is necessary, if not beneficial, for competition. Imitation is an essential stage in learning to innovate and can even be creative in itself.

(iii) Practical and economic benefits

- Utility model law may encourage local innovation so that local industries produce more goods
- Utility model law can protect valuable inventions which would otherwise not be protected under the standard patent law or other intellectual property laws
- This type of protection prevents free-riding of inventions by other predatory firms which expend no R&D costs or investment
- Utility model law can provide revenue to governments in the form of registration, search, publication, etc. fees
- Registered utility model rights can act as a source of valuable information via published specifications
- The existence of a utility model system may reduce incentives for industry to lobby for the inclusion of minor inventions in the *patent* regime; this in turn would limit the public domain much more than the less expansive utility model system (shorter terms of protection and exclusivity)

(iv) Costs and disadvantages

- The system may result in more and wider protection of inventions which could lead to an increase in spurious and wasteful claims and litigation
- This law may lead to economic rent-seeking behaviour by companies i.e. a company re-directs funds away from innovation or marketing to obtaining more property rights via utility model protection
- The utility model system may be more utilised by foreign companies rather than local firms, in which case there is a possibility that this will lead to an increase in a flow of royalties and licensing fees to overseas producers [1]
- Utility model rights can be, and have been, used by companies to cordon off areas of research

Empirical Experiences of Other Countries

One must be cautious about gleaning too firm conclusions from those countries where businesses have had decades of experience in operating in a utility model climate. Moreover, one should be doubly cautious as to how statistics can be interpreted. Figures on the usage of the utility model system show that the utility model system works well in China, South Korea and Taiwan, Province of China and, until recently, in Japan. However, statistics can also be used to draw conflicting conclusions. This is a similar problem to that faced when using patent figures to measure technology

and innovation - reports on statistic usages suggest that the policy lessons that can be drawn from patent statistics are widely divergent.[2]

Here is a short overview of the different experiences from different regions (more is elaborated in specific chapters):

— In the East Asian countries such as Japan, South Korea and Taiwan, Province of China, a combination of relatively weak IPR protection and the availability of second-tier patents like utility models and design patents encouraged technological learning. The weak IPRs helped by allowing for local absorption of foreign innovations. The second-tier systems encouraged minor adaptations and inventions by local firms. Later on, the IP systems became stronger partly because local technological capacity was sufficiently advanced to generate a significant amount of innovation, and also as a result of international pressure.

— India's experience is somewhat similar, except that no second-tier protection was provided. This did not hurt the chemical or pharmaceutical industries, but may, it is suggested, have hindered the development of innovative engineering industries.

— In the European Union, the perception was that perhaps there was a need for utility model law throughout the region to specifically protect *minor* innovations in the following industries: toy manufacturing, clock and watchmaking, optics, microtechnology and micromechanics.

— In Germany, there was no coherent industrial property policy until the late nineteenth century when the first patent law in the German Reich was introduced in 1877, and utility model in 1891. Part of the reason for this push for industrial property protection was the change in the economic landscape of Germany. German territories, especially Prussian ones, were agrarian at the beginning of the nineteenth century. Between 1850 and 1870, however, Germany was industrializing rapidly and industrial leaders such as the Siemens firm organized pro-patent lobbies. Utility model law was first introduced in 1891 because it was thought that patent law was not suitable for all types of inventions. The important factor to remember is that the German local market is used to the utility model system and there is knowledge about it.

— The utility model system in the United Kingdom faltered as it did not have the support of the main lobbying force in relation to patent reform. Nineteenth century patent agents were not keen to reform the existing patent regime; neither, however, were they keen to introduce a new registration system which may have undermined their existing stronghold under the patent law. Importing a utility model law to a developing country would require educating the local industrial users as well as the patent community. This is clear from the historical experience of the utility model system in the UK.

Conclusions: Policy Considerations & Future Agendas for Developing Countries

The fundamental precondition for a decision on whether or not to adopt utility model protection is that developing countries must map out and evaluate their own industrial and innovation base, and identify its current and long term economic requirements. The following points elaborate what type of specific considerations and questions need to be asked.

(i) Importer nations.

There is a growing perception within those countries which are heavy intellectual property importers as opposed to exporters that there is a need for a second tier patent regime. It is perceived that this problem arises with the patent law's inability to cope with an innovative environment dominated by *local* incremental inventions. Consequently much of the rationale in pursuing a second tier patent law is grounded in the fact that the second tier system may respond to or avoid the shortcomings of the patent law in fostering local innovation.

The key questions are:

— Is the country a net importer or exporter of I.P. goods?

— Is there a need to limit imports of foreign goods by encouraging the local industrial base?

(ii) Unfair competition and other alternative IPRs systems

The underlying rationale for utility model rights, in practical and policy terms in many countries, is that these rights are there due to industries' lobbying for an anti-copying right or a misappropriation tort rather than as a spur to local innovation. Indeed, the main practical justification derives from the fact that many inventions are vulnerable to unfair copying and that in many cases the subpatentable ones are the most vulnerable of all. If one accepts the "unfair copying" argument favouring IP protection, it follows that any subject matter which is open to imitation and copying, should be considered worthy of intellectual property protection. However, whilst some industries tend to be very enthusiastic about low cost, fast protection regimes, other industries are highly suspicious of such systems, especially when they are viewed as curtailing industries' right to innovate on the basis of "creative imitation" and access to a large public domain.

The key questions are:

— To what extent is copying a problem in the country, and which types of industries are facing this problem?

— Are such inventions better left in the public domain and open to imitation, adaptation and incremental improvement?

— Is there an economic argument as to why such inventions should be protected (e.g. the importance of maintaining or encouraging or developing a particular industry)?

Note that "inventions" are sometimes looked upon by courts and industries as "three-dimensional products".

Further queries are:

— If there is a need for a quick, cheap and efficient protection regime, should it be a non-registration or registration system?

— Are there already alternative forms of protection in the country which is being offered to such inventions such as trade mark laws, unregistered design rights, unfair competition and registered design laws?

(iii) Small and medium sized enterprises (SMEs)

It is often claimed that utility model systems are particularly advantageous for SMEs, especially in developing countries. It is quite likely that SMEs have a large presence in those industries where cumulative innovation is the norm and copying is rife. Indeed, it is also often argued that a cheap and rapid second tier patent regime would improve the legal environment for SMEs, especially those which are engaged in an ongoing process of innovation and adaptation. This is more so in relation to certain product sectors which are concerned, not so much with revolutionary technological breakthroughs, but more so with incremental or improvement innovation. For another, it may even

be that more innovations, both of the breakthrough and incremental varieties, emanate from SMEs than from larger multinational conglomerates. If this is so, it is important to gauge whether the current patent regime is attuned to the needs of SMEs and the types of inventions they produce. Another reason why utility models may be good for SMEs is that the cost factor may inhibit them from using the patent system as much as they would desire.

The key questions are:

— What is the percentage of SMEs within the region?
— How much innovation, which is important to that region's economy, emanates from these SMEs?
— What type of innovation is being produced?
— Is the current patent regime suited to their needs in terms of criteria of protection, costs and ease of use?

(iv) Historical and economic climate of a country

The discussion above in respect of the empirical findings of certain countries suggest also that sometimes the decision whether utility model can only be made if the following questions are answered:

— What sort of development and innovation is being encouraged by the government?
— If the country's strength lies in the chemical or pharmaceutical industries, is there really a need for a utility model system?
— Alternatively, if the strength lies in minor innovation in engineering or optical technologies, will the utility model system spur or maintain economic growth?

(v) Specific policy considerations for governments

Intellectual property systems are more than just pieces of legislation, and may best be viewed as public policy regulatory institutions. As such, they consist of the relevant statutes, rules and regulations plus the government agencies, courts and professional people involved in interpretation, implementation, enforcement and reform. Importing the utility model system to a developing country would require educating the local industrial users as well as the patent community.

Does the government have resources to create the right type of "intellectual property institutional order" which will support the utility model systems?

(vi) The options

There are three options which a developing country can consider:

- Status quo approach - A developing country can accept the existing intellectual property regime, without introducing any new right.
- Accretion approach - A developing country can adjust the existing intellectual property regime without introducing a utility model right. This can be done by extending existing intellectual property rights to new subject matter (such as sub patentable or functional innovation) by re-defining an existing right to encompass the new material.

- Emulation approach - Emulation involves creating new hybrid rights. If a developing country does not have such a right, it would be the most expensive option in the short run. However, this expense is an immediate real cost which may be offset by long term benefits to the industrial environment such as increased international licensing opportunities.

(vii) The ideal

Should it still be felt that policy considerations necessitate the introduction of a utility model system in a particular country, it is recommended that the following essential features be considered:

- A renewal based term of protection, with renewal and tiered fees
- A non-examination system for the first term of protection, followed by a compulsory examination/ report for the second stage of protection
- A compulsory examination / report when invalidation/infringement proceedings
- Universal novelty standard be adopted
- Government action to increase awareness of utility model protection
- Cross-licensing/compulsory licensing

1 INNOVATION AND THE NATURE OF UTILITY MODEL LAW

1.1 Utility Models in the World

1.1.1 What is a utility model?

There is no global acceptance of the term "utility model" due to there being fundamentally different concepts from one country to another. If one examines national laws, one finds that utility model protection is referred to in Australia as "innovation patent", in Malaysia as "utility innovation", in France as "utility certificate", and in Belgium as "short-term patent". Some systems define utility models as intangible subject matter such as technical concepts or inventions or devices, while others anchor their definitions to three-dimensional forms. Yet others profess to grant "utility model" protection which, in actuality, is equivalent to patent protection without examination and for a shorter duration. Thus, "utility model" is a generic term which refers to subject-matter that hinges precariously between that protectable under patent law and sui generis design law.[3] It is not an accepted or clearly defined legal concept within the intellectual property paradigm.

The confusion reflects the fact that within the international arena, a consideration of the nature and extent of protection under the various national "utility model" laws reveals little consensus. Indeed, the utility model law is not a standard feature within the intellectual property regime of many states. There are currently approximately 75 countries which provide, in some form or another, utility model protection.4 Included amongst the countries which do not have a utility model regime are significantly the United States, United Kingdom and Canada. However, major industrial nations which have adopted the utility model regime include Japan, South Korea and Germany.

The ambiguity of the term "utility model" is also reflected in the cross-referencing and inter-dependency of priority periods between utility model, industrial design and patents. Thus, a period of priority can be secured for an application for industrial design based on the filing date of a utility model; and a period of priority can be secured for a utility model application by virtue of a right of priority based on a patent application (and *vice versa*).[5] Whilst there is no specific reference to utility model protection under the TRIPS Agreement, it is arguable that by reference to Art. 2(1), TRIPS Agreement, the relevant provisions of the Paris Convention provisions (including Art. 1(2)) are extended to all WTO countries. However, we are once again left with our initial position: the Paris Convention does not demand that signatories of the Convention implement utility model laws.

Nevertheless, the term is bandied about by policy makers, legislators and jurists to refer to a second tier patent system, offering a cheap, no-examination protection regime for technical inventions which would not usually fulfil the strict patentability criteria. This is an important factor: utility model protection is accorded, cheaply and quickly, to inventions or innovations, many of which cannot gain protection under the patent regime. As far as one can perceive, there are three traits common to all the national "utility model" laws from a global perspective, which are that:

- all utility model laws confer exclusive rights on the proprietor of the right (as opposed to an anti-copying right)
- novelty is a criterion in all utility model systems, though the standard of novelty varies widely.6
- registration is a requirement but that usually there is no substantive examination of applications.
- most utility model laws protect the technical character of the invention, as opposed to the ornamental function or the appearance of the product.7

The major points of divergence can be summarised thus:

- *Subject matter under protection:* Some utility model laws protect only the three-dimensional form while others extend

the umbrella of protection to cover technical inventions and processes. A majority of utility model laws simply adopt the domestic patent law definition of protectable subject matter.

- *Granting procedure:* Many systems adopt a simple registration procedure with cursory examination; while a few implement a detailed examination process. In practice, some examining offices offer an optional detailed search facility with the payment of supplementary fees. Other jurisdictions expressly call for a detailed search on validity to be carried out on the commencement of civil proceedings.
- *Substantive criteria:* Herein lies the greatest disparity between the utility model systems. While all major utility model systems adopt the criterion of novelty, the level of novelty required ranges from universal novelty, to relative novelty, to domestic novelty. A second criterion is usually, though not always, imposed in the form of inventiveness or usefulness. Again, the standard employed for the level of inventiveness varies greatly. There is also a significant propensity within current utility model laws to link the definition of the utility model to an element of industrial application.
- *Duration of protection:* A final element of divergence is the duration of protection which varies from six years to twenty five years.

1.1.2 Overview of Different Systems

Many supporters of utility models consider them to be especially beneficial for relatively innovative developing countries that are seeking to advance their technological capacities through local innovation by SMEs. A quick overview of some of the developing nations in the Central Asian and Asia-Pacific regions in Table A (see annex) reveals that the utility model law is a popular option in the Asian region. The table also reveals that most of these laws vary greatly, especially in relation to the types of subject matter protected, the level of novelty, the requirement of inventive step, and finally the availability of requesting a substantial examination report. This is not surprising considering the lack of international guidance on this matter.

Some attempt has been made to offer a harmonised regime within the Latin American region. The Andean Community Decision 486 of 2000 establishes a Common Regime on Industrial Property for its five member countries (Bolivia, Colombia, Ecuador, Peru and Venezuela), and although the Decision does not create a unitary utility model regime, it does define the standard that must be adopted by each member. Accordingly, a utility model is considered to be a "new form, configuration, disposition of elements, of any artefact, tool, instrument, mechanism or other object or any part of the same, that permits a better or different functioning, use or manufacture of the object which incorporates or which offers any use, advantage or technical effect that it did not have previously." The term of protection is ten years from the filing date. Utility model applications can be converted upon request to patent applications as well as vice versa.[8]

An attempt has been made to create a unitary In relation to the African region, there is a unitary Annex II of the 1999 Revised Bangui Agreement of March 2, 1977, on the Creation of an African Intellectual Property Organization (OAPI) is much more detailed than the utility model provisions of the Andean Community Decision 486. It also establishes unitary IP systems so that rights granted have automatic effect in the territories of every member state, albeit subject to the relevant countries' national legislation. Accordingly, protected utility models "shall be implements of work or objects to be utilized or parts of such implements or objects in so far as they are useful for the work or employment for which they are intended on account of a new configuration, a new arrangement or a new component device, and are industrially applicable." Novelty is territorial so that an application would fail only if the implement or object had already been publicly used or disclosed in print in the territory of a member

country. The term of protection is ten years from filing date. As in the Andean Community countries, utility model applications can be converted upon request to patent applications as well as vice versa. Searches are carried out for novelty and industrial applicability. There is also an examination of applications to ensure that the subject matter does not fall under the stated exclusions, that the applications are "restricted to a single principle subject", and that "the claim or claims defining the scope of the protection sought" do "not go beyond the contents of the description".

The African Regional Industrial Property Organization Protocol on Patents and Industrial Designs (Harare Protocol)[9] defines utility models as "any form, configuration or disposition of elements of some appliance, working tools and implements as articles of everyday use, electrical and electronic circuitry or other object or part thereof in so far as they are capable of contributing some benefit or new effect or saving in time, energy, or labour or improving the hygienic or sociophysiological working conditions by means of new configuration, arrangement or device or a combination thereof and are industrially applicable." The Office carries out a substantive examination of applications for novelty and industrial application. Utility models need only be new in the designated countries. Again, applications can be converted upon request to patent applications as well as vice versa.

1.2 Utility Models in International and Multilateral Agreements

1.2.1 Paris Convention

On the international front, utility models are recognised under the Paris Convention as industrial property. However the Convention is silent as to its definition and scope, and merely confirms that the international principles of national treatment and the right of priority is accorded to utility models.[10] Thus, Article 1(2) states:

The protection of industrial property has as its object patents, utility models, industrial designs, trade marks, service marks, trade names, indications of source or appellations of origin, and the repression of unfair competition.[11]

The ambiguity of the term "utility model" is also reflected in the cross-referencing and inter-dependency of priority periods between utility model, industrial design and patents. Thus, a period of priority can be secured for an application for industrial design based on the filing date of a utility model; and a period of priority can be secured for a utility model application by virtue of a right of priority based on a patent application (and *vice versa*).[12]

1.2.2 The TRIPS Agreement

The TRIPS Agreement[13] establishes minimum substantive standards for each of the major intellectual property regimes but fails explicitly to mention second tier or utility model protection, thus leaving WTO member countries free to formulate or reject second tier protection regimes as they see fit. Whilst there is no specific reference to utility model protection under the TRIPS Agreement, it is arguable that by reference to Article 2(1), TRIPS Agreement, the relevant provisions of the Paris Convention provisions (including Article 1(2)) are extended to all WTO countries. But this still does not require World Trade Organization members or signatories to the Convention to provide utility model laws.[14]

1.2.3 Other Patent Treaties and Agreements

National utility model systems tend to adopt the International Patent Classification (IPC) as provided by the 1971 Strasbourg Agreement for the International Patent Classification, which facilitates the retrieval of patent documents in order to conduct effective novelty searches and determine the state of the art. Indeed, Article 1 states that the IPC covers not just "patents for invention", but also "inventors' certificates, utility models and utility certificates".

Another significant agreement is the Patent Cooperation Treaty (PCT), the purpose of which is to facilitate patent applications in more than one country. By simplifying and cheapening the

process, the treaty encourages patentees to secure protection over a broader geographical range. Instead of filing separately in all countries where protection is desired, applicants may file a single application in one language with a national patent office. When doing so they can designate all those signatory countries in which protection is also sought. After the examination of the patent, the application is transferred to one of nine International Search Authorities where a prior art search is conducted. After this it is then up to the patent offices of – or acting for – the designated countries to award the patent.

The facilitated means of securing international protection that the PCT provides for patents covers utility models as well. By virtue of Article 2, the PCT clarifies that '"application" means an application for the protection of an invention; references to an "application" shall be construed as references to applications for patents for inventions, inventors' certificates, utility certificates, utility models, patents or certificates of addition, inventors' certificates of addition, and utility certificates of addition". In short, then, international applications may be for second-tier patents as well as standard ones.

1.3 Theoretical and Policy-related Justifications for Utility Models

1.3.1 History, economics and policy of intellectual property

IPRs ostensibly exist primarily to benefit society. But this does not tell us much about the ends they are meant to serve nor how these ends ought to be achieved.

The rationale for utility models is tied closely to the patent system and its inability to extend legal rights to innovations or discoveries that fall short of the inventive step and/or novelty bars. That is to say, limits are placed on the extent to which patent law will embrace inventive activity: only inventions which fulfil certain criteria will be protected, and adjunct to this axiom is the examination procedure which seeks to ensure that the patent system is not abused by the assertion of patents on spurious inventions. The question then arises, should we leave such innovations or discoveries unprotected, lower the bars to incorporate them into patent law, or seek an alternative means of protection?

The origins of patent protection justifications lie in the ancient European state privileges which granted an exclusive right with the aim of encouraging domestic innovation and exploitation of technology – indeed, "inventive activity" was not a necessary requirement as the value lay in the dissemination of the teachings inherent in the patented technology.[15] Furthermore, the prevailing mercantilist ethos of the time accepted the principle that a system of exclusive privileges would nurture innovative activity which would, in turn, promote the economic well-being of the country. The mercantilist regarded the state as the appropriate instrument for promoting the well-being of his country: in his view the country was regarded as a unit with national interests, irrespective of the interest of particular sections of individuals. In accordance with this, the state harnessed and controlled resources, skills and products for the purposes and profit of the state. Patent privileges were merely one species in the genus of privileges, charters, franchises, licences and regulations issued by the Crown or by local governments within the mercantilist framework.[16]

By the end of the eighteenth century, the general consensus, encouraged by Adam Smith and Jeremy Bentham,[17] was that the existence of the patent regime was justified on the basis of the reward theory. J. S. Mill summarised this view:

> *"The condemnation of monopolies ought not to extend to patents, by which the originator of an improved process is allowed to enjoy, for a limited period, the exclusive privilege of using his own improvement. This is not making the commodity dear for his benefit, but merely postponing a part of the increased cheapness which the public owe to the*

> *inventor, in order to compensate and reward him for the service. That he ought to be both compensated and rewarded for it, will not be denied."*[18]

The revised current theory is that patents are tools for economic advancement that should contribute to the enrichment of society through (i) the widest possible availability of new and useful goods, services and technical information that derive from inventive activity, and (ii) the highest possible level of economic activity based on the production, circulation and further development of such goods, services and information. One common way to interpret the modern patent system is as a regulatory response to the failure of the free market to achieve optimal resource allocation for invention. Once patent rights have been acquired, the owners seek to exploit them in the market-place. The possibility of attaining commercial benefits, it is believed, encourages innovation. But, after a certain period of time, these legal rights are extinguished and the now unprotected inventions are freely available for others to use and improve upon.

Patents are necessarily temporary exclusionary rights. As Geroski puts it,

> *"patents are designed to create a market for knowledge by assigning propriety rights to innovators which enable them to overcome the problem of non-excludability while, at the same time, encouraging the maximum diffusion of knowledge by making it public".*[19]

Such rights can be converted into market monopolies if the invention so protected results in a commercial product and depending on certain factors such as the relationship between the invention and the product, which may actually be protected by more than one patent. The public goods explanation for patents posits that the possibility of acquiring such rights encourages both investment in invention and the research and development needed to turn inventions into marketable innovations. Information about the invention as revealed in the patent and by the invention itself is diffused throughout the economy. In this context, it is helpful to conceive of a patent as a contract between the holder and the government on behalf of the citizenry. The holder receives an exclusive right over his or her invention in exchange for the payment of fees and – which is much more important – for disclosing the invention for others to learn from. Without a patent, the inventor would have no incentive to disclose it. This would be a loss for society if such lack of protection left the inventor with no alternative but to keep it secret. Such an alternative is a feasible option in several technological fields including biotechnology. But it is also true that many kinds of product would upon examination readily betray the invention that brought it into existence.

As for the creation of markets for knowledge, it might be useful here to explain why these are considered beneficial and how patents are thought to bring them into being. The explanation relates to the common situation that many patent holders are poorly placed to exploit their invention in the marketplace. Take the case of a creative but small company lacking the funds to develop and commercialise new products based upon its inventions. If such products are desirable for consumers, failure to commercialize would be a loss for society. But if the company owns a patent, a wealthier company may wish to license or buy the patent secure in the knowledge that the invention is legally protected. And if the invention were kept secret, how would bigger companies know about it? The disclosure of patent information makes it possible for prospective users to find inventions of interest and then to approach their owners.

1.3.2 Follow-on innovation and the public domain

The "market failure" argument should not be carried to logical absurdities and countries should not accept that it is necessary to allocate property rights on *every* intellectual output of the creator. Not everything created under the sun must be awarded intellectual property protection. Limits have to be placed on the exact breadth of patent protection of

innovations, and countries should take note as to the effects of widening the current patent regime. In some instances, intellectual property rights can reach untenable levels whereby the intellectual property owner becomes a monopolist of discoveries or ideas, as opposed to "inventions". For example, if we were to allow every idea or discovery to be claimed and to be exhaustively protected under intellectual property rights, what of the future generations of inventors who would need to use such basic building blocks for further innovative activities? In such an instance, they would either have to incur licensing or other transaction costs to obtain permission to use these building blocks, or else they may attempt to work around the problem by attempting to disguise any appropriation of such blocks, incurring a potential cost of litigation. The final recourse would be to work around the protected building blocks and incur costly research. The costs of creating a new invention would increase, with detrimental effects. If patent protection were structured in such a manner as to require the sacrifice of scarce resources, any societal benefits and economic rent accruing from a patent regime would be dissipated. These arguments are also the basis upon which a high level of inventiveness is required under patent law to ensure that commonplace, obvious or mere workshop inventions are not protected.

Thus, excessive protection will act as a disincentive to future creators and certain types of basic building blocks of creativity must be left in the public domain. Where the line between the private and the public domains should be drawn is very difficult to determine but its ideal location will vary widely from one country to another, and, one may argue from one business sector to another. In countries where little inventive activity takes place, free access to technical information may well do more to foster technological capacity building than providing strong private rights over such information. In fact, technological capacity building may at certain stages of national development be best achieved by requiring foreign technology holders to transfer their technologies on generous terms rather than by trying to encourage domestic innovation by making strong legal rights available to all.[20] This suggests that developing countries should be careful not to make the rights too strong until their economies are more advanced. Historical evidence indicates that several present-day developed countries, rightly or wrongly, took such a policy decision in the past.

1.3.3 Utility models: theoretical and practical considerations

Utility models can thus be justified on both theoretical and practical grounds and these are closely related. The theoretical rationale for utility models derives from the facts that most social welfare-enhancing inventions are cumulative in nature and that a great deal of them are subpatentable in the sense that the novelty and inventive step requirements are too high for the patent system to accommodate them. In fact, in today's industrial society different levels of innovative activity apply in different areas. Major technological breakthroughs may be more common in some industrial sectors (e.g. biotechnology and ICT) than others (e.g. electronics), but are hardly everyday occurrences in any of them.

(i) Importer or exporter of intellectual property products?

There is an accepted view within some industrialised nations that there is a need for a second tier patent regime. This view is being increasingly accepted within other nations too, especially those countries which are heavy intellectual property importers as opposed to exporters and where patent law's inability to cope with an innovative environment dominated by *local* incremental inventions may be seen as constituting a major deficiency. Consequently, much of the rationale in pursuing a second tier patent law is grounded in the fact that the second tier system may respond to or avoid the shortcomings of the patent law in fostering local innovation.

(ii) Copying: creative imitation or misappropriation

However, although utility model laws confer exclusive property rights, the underlying

rationale is usually to accede to industries' call for an anti-copying right or a misappropriation tort rather than as a spur to local innovation. Indeed, the main practical justification derives from the fact that many inventions are vulnerable to unfair copying and that in many cases the subpatentable ones are the most vulnerable of all. If one accepts the "unfair copying" argument favouring IP protection, it follows that any subject matter evincing some sort of intellectual or capital investment, and which is open to imitation and copying, should be considered a worthy intellectual property good requiring protection. Indeed, some products, once invented and marketed, are especially susceptible to being copied at negligible or zero cost. Often, these products come from industries whose innovations tend to be small, incremental and cumulative in character. Evidently, it is for these industries that a utility model system is likely to be most beneficial.

However, whilst some industries tend to be very enthusiastic about low cost, fast protection regimes (such as a no-examination utility model system or a no-registration property right), other industries are highly suspicious of such systems, especially when they are viewed as curtailing industries' right to innovate on the basis of "creative imitation" and access to a large public domain. So one really needs to know to what extent copying is a problem in the different industries, and whether such inventions are better left in the public domain and open to imitation, adaptation and incremental improvement.

(iii) Nature of innovator and innovation

It is often claimed that utility model systems are particularly advantageous for SMEs, especially in developing countries. For one thing, it is quite likely that SMEs have a large presence in those industries where cumulative innovation is the norm and unfair copying is rife. Indeed, it is often argued that a cheap and rapid second tier patent regime would improve the legal environment for SMEs, especially those which are engaged in an ongoing process of innovation and adaptation. This is more so in relation to certain product sectors which are concerned, not so much with revolutionary technological breakthroughs, but more so with incremental or improvement innovation. For example, one reason for the draft European Commission Directive is the perceived need for a rapid and cheap protective regime for such minor innovations in the following industries: toy manufacturing, clock and watchmaking, optics, microtechnology and micromechanics.

For another, it may even be that more innovations, both of the breakthrough and incremental varieties, emanate from SMEs than from larger multinational conglomerates. If this is so, it is important to gauge whether the current patent regime is attuned to the needs of SMEs and the types of inventions they produce. Many inventions which originate in SMEs have a lower standard of inventiveness, and are prime candidates for free riding activities by competitors. Consequently, utility models may be highly pro-innovation and consequently good for the national economy.

Another reason why utility models may be good for SMEs is that the cost factor may inhibit them from using the patent system as much as they would desire. The second tier patent regime is viewed as the ideal solution as it is a system geared towards the needs of SMEs, including in terms of cost.

1.3.4 Policy considerations for governments

(i) The right type of "intellectual property institutional order"?

Intellectual property systems are more than just pieces of legislation, and may best be viewed as public policy regulatory institutions. As such, they consist of the relevant statutes, rules and regulations plus the government agencies, courts and professional people involved in interpretation, implementation, enforcement and reform. Institutions are not static but evolve over time, and they operate in different ways according to the context. Thus, they may be appropriate and functional in one context but inappropriate and dysfunctional in

another, and it can be very difficult to predict how well such an institution transplanted to a completely different cultural, political or economic milieu will work in practice. History can offer some pointers, or can at least help us to reflect on the likely preconditions for a successful transplantation.

(ii) Development and innovation

As mentioned above, there is a view that utility models are especially good for relatively innovative developing countries seeking to advance technological capacity through local incremental innovation. For example, Juma put forward five reasons why utility models are appropriate for such nations.[21] The first is that they enable artisans to secure protection for innovations that do not meet the stricter novelty and inventive step requirements of patent law. Second, they make it possible to increase the role of small-scale innovators and artisans in economic development and help them stay in business in the face of new technologies that might threaten their livelihoods. Third, they act as a spur to enhanced levels of innovation. Fourth, they are cheaper to acquire than patents. And finally, they may become a source of data on innovative activity and experience in technological management.

As for empirical evidence, Kumar[22] found that in the East Asian countries he studied (i.e. Japan, South Korea and Taiwan, Province of China), a combination of relatively weak IPR protection and the availability of second-tier patents like utility models and design patents encouraged technological learning. The weak IPRs helped by allowing for local absorption of foreign innovations. The second-tier systems encouraged minor adaptations and inventions by local firms. Later on, the IP systems became stronger partly because local technological capacity was sufficiently advanced to generate a significant amount of innovation, and also as a result of international pressure. India's experience is somewhat similar, except that no second-tier protection was provided. This did not hurt the chemical or pharmaceutical industries, but may, he suggests, have hindered the development of innovative engineering industries.

1.3.5 Possible objections

It may, on the other hand, also be argued that the rationale for utility model systems is inherently unsound. Objections relate to the fact that in essence, the choices facing policymakers in respect of subpatentable inventions are far from straightforward. They may choose to leave them unprotected, to lower the inventive step threshold so that they become patentable, or they may seek to create alternative legal means of protection. Alternatives include introducing a liability rule-based system such as a statute based tort or misappropriation law, or a hybrid property rights system such as industrial design rights or utility models. These systems could operate in place of patents or copyright, as the case may be, or could alternatively operate in parallel, so that patents and copyright could then be used only for those inventions and creative works displaying a demonstrably high inventive step or level of originality.

But there are fundamental problems with utility models as a policy solution to the question of what, if anything, should be done about subpatentable inventions. First, the fact that the utility model regime encourages a lowering of thresholds without an appropriate examination system in place may result in legal uncertainty and excessive litigation. Indeed, there is a reasonable concern that larger market players may use utility models as a means of circumventing the more stringent criteria under the patent system and overuse the system in ways that make it hard for SMEs to compete. Certainly, the lack of substantive examination prior to grant will give rise to uncertainty for third parties when conducting infringement searches to ascertain what valid rights exist in a particular field of technology, which may act as an additional barrier to competitors.

It is difficult to test the validity of such a concern, but it is noteworthy that a survey carried out on behalf of the European Commission in 1993 found that on average 50 percent of industry in the United Kingdom, France, Spain, Italy and Germany was "partly to greatly dissatisfied by the application of the utility model system in Europe at present" with the satisfaction

being greater amongst SMEs. The causes of this dissatisfaction were not totally specified but the fact that different standards exist between various countries was clearly a contributing factor in addition to any discontent that might exist about the specific features of protection in any particular country. Thus, 76 percent of the SMEs surveyed expressed a high interest in the adoption of a community wide utility model system whereas interest among larger companies was much smaller.

Secondly, hybrid systems like utility models tend to rely extensively on the argument that cumulative innovations are vulnerable to unfair copying which should not be allowed. This argument is anchored to the classical natural rights justification of the intellectual property regime, that protection is conferred in order to enable inventors and creators to reap their just rewards by preventing misappropriation. Hence, such innovations should be protected. However, herein lies a danger. Intellectual property rights are predicated on the notion that inventions and creative works are in the public domain *except* such works that fulfil the traditional standards of novelty, inventive step, originality or distinctiveness. If we provide second and third-tier rights for inventions and works that fail to meet these standards, thereby allowing insufficiently inventive or original works to get protection by the back door, we undermine both the public-private boundary and the integrity of existing IPRs and their doctrines.[23] After all, in a market-based economy it is generally accepted that all market actors, including competitors, follow-on creators and consumers, should be allowed to freely use any work which falls short of the required standards. Indeed, as some courts and jurists have argued, copying and free riding is necessary, if not beneficial, for competition.[24] Actually, imitation is an essential stage in learning to innovate and can even be creative in itself. Admittedly, anybody with the right equipment can copy a music CD and will learn very little by doing it. But copying a new medicine, especially a complex protein-based drug, is another story entirely. Indeed, some of the world's most advanced companies learned to be creative after copying other people's inventions first.[25]

2 THE EUROPEAN UNION

2.1 Economic and Innovation Climate Within The E.U.

Economic growth in the EU as a whole slowed markedly in 2000, with growth in several Member States having reached a standstill. During the 1990s, growth in production and in labour productivity in manufacturing in the EU was far below the rates recorded in the United States. During the 1990s, technology driven industries experienced the highest productivity growth in the EU, followed by capital-intensive industries. Evidence from the 1990s suggests that research intensity and productivity growth are significantly related across sectors, both in the United States and within the EU, though not in each Member State. Productivity growth in technology-driven industries (for example, chemicals, pharmaceuticals, medical equipment, radio, TV and telephony equipment, motor vehicles, aircraft manufacturing, spacecraft, optical equipment), in the EU was faster in the second half of the 1990s than in the first. Other factors have also contributed to production and productivity growth, such as the capabilities of firms, the stock of knowledge and information communication technologies. Accumulation of these assets, many of which are intangible, often reflects strategic decisions on the part of businesses and constitutes the basis on which assets are built up in the future.

2.1.1 Is there a link between innovation and utility model?

The EU is characterised by substantial regional diversity in wealth, and competitiveness conditions differ substantially across regions. There are substantial national differences in innovation performance. Variations between Member States are particularly high in relation to business R&D, high-tech patenting and the share of SMEs involved in co-operative innovation. The differences are greater in areas directly influenced by private decision making. In 2004, the European Commission published its summary of enterprise policy indicators in each of the 25 Member States, summarising the areas of strength and weakness in each Member State.[26]

Countries which indicated innovation as one of their areas of strength included Finland, Denmark, Sweden and Germany. However when we cross-refer this data to availability of second tier patent systems, we find that Sweden has no second tier system, whilst utility model systems in Finland and Denmark are relatively new having been introduced in 1991 and 1992 respectively.[27] On the other hand, the survey identifies countries with relatively longer experience of utility model regimes such as Italy and Spain as having weak innovation systems.[28]

The European Innovation Scoreboard shows that the most innovative sector in the EU is electrical and optical equipment, followed by chemical and chemical products; the least innovative is textiles and textile products. Innovation in specific sectors tends to be Member State specific – thus, the electrical equipment sector is most innovative in Finland while Germany leads in transport equipment. Interestingly, one of the factors responsible for the European utility model proposal was the European Commission's claim of a need for the protection of minor innovations by utility model in industries such as clock and watchmaking, optics, microtechnology and micromechanics.

2.1.2 Standard patenting activity

Patent protection within the European Union is available either under national patent systems or under the European Patent Convention, with Member States' patent laws being, to a certain extent, harmonised by the accession of all European Union States to the European Patent Convention. The European Patent Convention does not create a uniform right but it does provide the applicant with protection in as many of the Signatory States as he wishes, and rationalises the grant of patents in Europe by means of a centralised application and examination procedure managed by the European Patent Office in Munich. In this

manner, the European Patent Convention fulfils the function of a harmonising patent regime within the European Union.

If we look at the European Innovation Scoreboard 2004, it indicates that there is an innovation gap between the United States and Japan, on the one hand, and the EU (as a whole) on the other.[29] Although the EU innovation performance has been constant since 1996 and has not faltered, innovation performance in the United States and Japan has improved, thus widening the gap. An interesting element of the research is that the gap is explained away by comparing 3 factors between the United States and the EU:

- Patents (50 percent of the gap)
- Working population with tertiary education (26 percent)
- R&D expenditures (11 percent) – mainly business R&D

Public sector spending on R&D is comparable in the EU, the United States and Japan. The various reports from the European Commission lament the fact that there is, despite the increase in business R&D in several EU Member States, a gap with the United States and Japan in respect of patenting. The major worry is that United States high-tech patenting in Europe is about seven times higher than European patenting in the United States; the situation with Japan is almost as unbalanced, with a strong position of Japanese high-tech patenting in the United States.[30] This is in contrast to the situation in individual Member States. Denmark, Finland, Sweden, Germany, France and the Netherlands record a higher percent of GDP in public sector R&D expenditure than the United States. These Member States also perform well in patent registrations while in the case of Ireland the share of high-tech products in total exports is in excess of 40 percent, compared to around 30 percent in the case of the United States.

If we accept that intellectual property registrations are an indicator of innovation activities, do we also correlate this with the fact that the United States has no utility model system? As the studies discussed in Chapter 4 show, the patenting surge in the United States was driven by several factors:

- changes in the management of research and development activities;
- smaller and medium sized businesses and less established patentees were aggressively exploiting the patent system;
- the amount of United States domestic patent applications granted by USPTO declined very little (with suggestions of regulatory capture of the patent office); and
- the low patentability criteria (as discussed in Chapter 4).

The studies also are doubtful whether the actual intensity of research effort in the United States has risen during the same period.

2.2 Utility Model Laws in Individual Member States

There is currently no consistent policy for utility model protection across European Union member states. Table 1 offers a bird's eye view of the types of second tier protective regimes in 12 European Union Member States. None of these systems conform to a single "utility model" system. Furthermore, not all member states are represented in this listed. Some of the missing countries include the United

Table 1 Current second tier protection regimes in E.U. Member States

Belgium	Brevet de courte durée/ Octrooi van korte duur
Denmark	Brugsmodel
Germany	Gebrauchsmuster
Greece	Πιστοποιητικό νποδειγματοζ χρησιμοτηταζ
Spain	Modelo de utilidad
France	Certificat d'utilité
Ireland	Short-term patent
Italy	Brevetto per modelli di utilità
Netherlands	Zesjarig octrooi
Austria	Gebrauchsmuster
Portugal	Modelo de utilidade
Finland	Nyttighetsmodellagen

Table 2 Classification according to characteristics of the law

Three Dimensional Regime	German Regime	Patent Regime
Italy	Germany	Belgium
Denmark	Austria	Ireland
Finland	E.C. Proposed Utility Model Directive	Netherlands
Greece		France
Portugal		
Spain		

Kingdom, Luxembourg and Sweden. While Luxembourg and Sweden do not have any other means of protection of innovation other than under the patent and design laws, the United Kingdom has a second means of protection via its unregistered design right system.

If we reduce the laws into key elements and categorise them according to their common denominators, for example subject matter protected, conditions of protection, examination and length of protection, we arrive at a different classification as set out in Table 2 – that there are three separate systems at work here. The latter table reflects, for instance, the fact that French and Belgian law, despite terminology, are not really utility model systems but quick "reservation" systems for patent applications, and offer protection akin to the standard patent law. The Italian system, however, despite the usage of the word "patent", is more akin to the traditional utility model regime.

2.2.1 The patent regime

Table 3 shows that the so-called utility model laws in four Member States mimic the domestic patent laws, with identical requirements for protection. The criteria of novelty and inventive step are identical to that under patent law. Thus, the full inventive step criterion and absolute or international novelty is required. There is no three-dimensional or form limitation within the definition.

As stated before, an example of this regime is the French *certificat d'utilité* which runs parallel to the patent law system with identical provisions and conditions of protection applying to both regimes.[31] The only main difference is that inventions are granted a short term protection of six years under a *certificat d'utilité,* and the grant of *certificat d'utilité* is made without a prior search report.[32] Another variation on this patent prototype theme is the Dutch *zesjarig octrooi* which is governed by the Netherlands Patents Act (1995) which provides for a fast-track, no-examination registration system whereby the applicant may obtain a short term patent with a duration of six years from the application date after formal examination. It is open to the applicant to opt for a full patent registration or to remain with this short term registration. The choice must be indicated at the application stage with the applicant requesting a novelty search report if he wishes a full twenty year patent. Conversely, if the applicant makes an immediate request for early entry into the Patent Register and confirms that no novelty search will be requested, the six year patent can be obtained within two to three months of application.

Table 3 Patent type regimes in Netherlands, Belgium, Ireland and France

Countries	Netherlands, Belgium, Ireland , France
Subject matter	Similar to patent law i.e. any invention except those specially stipulated. (identical to Arts. 51-53 European Patent Convention)
Criteria of Protection	Novelty, inventive step, industrial application. Standards of novelty and inventive step are identical to those under patent law.
Duration	6 years: Netherlands, France and Belgium; 10 Years – Ireland
Examination	No examination except as to formalities (correct documentation, name and address of applicant and agent) - except Belgium

Table 4 Utility model type regimes in Italy, Spain, Denmark, Finland, Greece and Portugal

Countries	Denmark, Finland, Greece, Italy, Portugal, Spain
Subject matter	Three-dimensional inventions defined in terms of "form", "structure" or "configuration" which results in a "practical and appreciable advantage" for its use or manufacture and in particular utensils, instruments, tools, apparatus, devices.
Criteria of Protection	The first criterion is novelty. The standard of novelty varies from local novelty (Spain and in practice, Italy[33]) to regional or absolute novelty (Finland, Denmark, Greece). However, at times, the statutory requirements seem to be at variance with actual standards applied. No consensus as to whether there should be a second criterion, and if so, whether it should be "inventive step" or "utility" or "advantage" in particular field. All require industrial application.
Duration	7 years: Greece; 10 Years - Denmark, Spain, Finland, Italy; 15 years - Portugal.
Examination	No examination except as to formalities (correct documentation, name and address of applicant and agent).

2.2.2 The three-dimensional regime

Table 4 demonstrates countries which offer the traditional type of utility model system i.e. the protectable invention must be embodied in a three dimensional form. The conditions of protection are generally also much less stringent than that under patent law. Thus, the standard of inventiveness is much less, and can be termed a diminished inventive step requirement. The standard of novelty differs within all these systems. The three-dimensional model is not only predominant in the European Union member states, but is also the closest one gets to a near-consensual model within the European Union.

For example, in Spain, utility models are granted protection under the Spanish Patents Act.[34] A utility model is defined as an invention which consists of a form, structure or constitution which results in a practical and appreciable advantage for its use or manufacture and in particular utensils, instruments, tools, apparatus, devices or parts thereof. Although novelty and inventive step are required, utility models are truly considered as minor inventions, with lower thresholds being required than that for patent protection. Novelty is judged at a local level with the state of prior art consisting of everything which has been published in Spain by any means. There must also be some utility or advantage being offered. Other European Union member states which adopt the three-dimensional paradigm include

- Denmark -- offering protection to any creation which may be industrially applied and which contains the solution to a technical problem.[35]
- Finland -- according protection to any new invention embodied in a shape or design of a device or their combination which is commercially exploitable. Protection is for ten years following a formalities-only examination. An option for a substantive examination is available on payment of a fee.[36]
- Greece -- granting protection to any invention which is novel, industrially applicable and possesses a solution to a technical problem.[37]
- Italy.[38]
- Portugal -- according protection to all models which are new, industrially applicable, functional and consisting of inventive step. Although there is a detailed examination, this has no effect in determining questions of validity in the event of future civil proceedings.[39]

2.2.3 The German regime

The German Utility Model Law protects any inventions of technical character that are new, based on inventive step and are capable of industrial application. A more analytical discussion of this form of utility model protection is available below in Chapter 2. The Austrian law is virtually the same as the German law, though it goes further in allowing utility model protection to extend to the underlying algorithm or process of a computer program; the only exclusions under Austrian law seem to be microorganisms and similar biotechnological inventions, and even chemical processes are protectable by way of a utility model.[40]

2.2.4 Empirical findings

Within the European Union one finds a wide disparity in the amount of applications made within each country, and this in turn correlates to the nature of utility model protection. The statistics in Table 5 show utility model applications over the period 1987–1991. Most countries with utility model protection have less than 1000 applications per annum; the only countries where the applications exceed the 1000 mark are Germany, Spain and Italy. One reason for the disparity is that some systems require a high level of inventive step. A second reason for the differences in filing figures is that this is a reflection of different economies with different manufacturing bases. Finally, the French figures do not take into account the *l'unité de l'art* principle under copyright and design laws, which is generous in offering protection to three-dimensional products.

Table 5 Number of applications for patents & utility models by country selected for the period 1987-91[41]

Country	Applications for national patents	Applications for European patents	Applications for utility models
Germany	88 271	55 672	61 057
Spain	7 306	1 017	17 260
France	31 209	22 350	1 771
Italy	10 369	9 927	10 890

3 COUNTRIES WITH UTILITY MODEL SYSTEMS

3.1 Germany

3.1.1 Economic and Innovation Climate in Germany

Germany had no coherent or unified industrial property policy until the creation of the German free trade area in the late nineteenth century. The first patent law in the German Reich was introduced relatively late in 1877 against a background of anti-monopoly and anti-patent movements. Part of the reason for this push for industrial property protection was the change in the economic landscape of Germany. German territories, especially Prussian ones, were agrarian at the beginning of the nineteenth century. Between 1850 and 1870, however, Germany was industrializing rapidly and industrial leaders such as the Siemens firm organized pro-patent lobbies.

Today, in terms of the number of patents, Germany belongs to the leading international group. German patent output increased in recent years after an initial post-reunification downturn. n addition to higher innovation output, this general growth in patent activity may be at least partly due to companies' increasing strategic focus on legal protection for intellectual property on globalised markets.

A Deutsche Bank Report identified the following facets within Germany's economic and industrial structure:

— Germany has high labour costs coupled with too few other highly skilled personnel;
— There is a lack of innovative drive, and a reluctance to invest by SMEs - indeed, the R&D expenditures by Sweden and Finland now far exceed the German level
— The established companies are now more likely to be the major contributors towards innovation, rather than SMEs, and they generate a far larger proportion of their turnover with innovative products
— Leading German industries are the automobile industry, mechanical engineering, medical, precision and optical instruments, measurement and control engineering, textiles (technical textiles) and parts of the chemical industry.

The Report also identified that, on average across industries, German innovators first take advantage of their time lead and secrecy, with patenting coming only third. Another tactic employed by the industry is to incorporate deliberately complex technical product design, so as to discourage reverse engineering, and to use trade marks.[42] The important factor is that the German local market and industry is considerably knowledgeable as to the intellectual property regime.

3.1.2 Historical influences of design law

The German utility model ("Gebrauchsmuster") system has been in place since 1891. It was introduced because it was perceived that patent law was unsuitable for all types of inventions. This derived from the stringent German patentability requirement that inventions represent a *technischer Fortschritt*, or "technical step forward in the art," a standard that was considered too elevated to be met by minor inventions.[43] Thus, the utility model system was introduced with a lower standard of inventiveness, a non-examination system, and a short period of protection. Conceptually, the German system was not a supplemental patent regime; rather the utility model protection was introduced as a supplement to 1876 legislation protecting copyrights and designs. The German utility model regime was a classic utility model regime i.e. one that is tied inextricably to design protection and to preventing third parties from duplicating the external configurations of certain handtools and other everyday implements whose creative contribution fell chronically short of the inventive height that the mature patent paradigm required.[44] Thus, the classic utility model regime, as exemplified by German legislation, was originally conceived as a form of design protection. [45]

The utility model system was, and is still, considered to be an indicator and encouragement of local innovative activity in the fields of agricultural products and domestic appliances. Thus, historically, there has always been a "three-dimensional" requirement for utility model laws, as such a requirement related to the types of innovative activity to be encouraged. One could almost say that this was an early registered design system for functional designs. What the following analysis reveals is that the German local industry is very knowledgeable about the system and utilises it to its fullest extent.

3.1.3 Current substantive law

The German Utility Model Law, last amended on 21 January 2005, protects any inventions of technical character that are new, based on inventive step and are capable of industrial application.[46] In addition to the usual excluded subject matter under patent law (such as discoveries, scientific theories, aesthetic creations, etc)[47], the utility model law additionally excludes inventions relating to processes and biotechnological inventions. Furthermore, as opposed to German patent law, utility model law requires lesser thresholds of protection. The subject matter of a utility model is considered new if it does not form part of the state of the art. The state of the art comprises any knowledge made available to the public by means of a written description or by use within the territory of Germany before the date relevant for the priority of the application (i.e. "local novelty"). Non-obviousness under utility model law is easier to meet than under patent law as the utility model law refers to "inventive *step*", while the patent act requires "inventive *activity*", which is a higher level of inventiveness.[48] The process of obtaining a utility model registration is made even simpler by the fact that there is no pre-grant examination.

The maximum duration of protection is ten years.[49]

3.1.4 Empirical evidence

Because the utility model registration is issued speedily, inventors tend to file for patents and utility models simultaneously. The result is that nearly one German patent application in every two is accompanied by a utility model registration.[50]

The German utility models system continues to be a popular one. Figures on utility model applications filed at the German Patent and Trade Mark Office, which include PCT filings, show that applications increased steadily up to 1999. The numbers have fallen from their 1999 peak, but not by a great deal and the drop is insufficient to indicate that use of the system is declining. Admittedly, the total of utility models in force has fallen from 115,535 in 2000 to 108,175 in 2003, but given that the number of 2002 and 2003 applications are both greater than in 2001, this may be a short-term trend.

The fact that the Germany utility model system continues to be popular with industry despite Germany's being ranked by the European Commission as sixth most innovative economy in the world[51] suggests that the advantages of utility models are not confined to that of facilitating an economy's advancement from developing to developed country status. But it may not be quite as simple as that given that the poorer East Germany was incorporated into the Federal Republic of Germany in 1990. Moreover, if we compare Germany with Japan we find the two countries despite their similar economic circumstances and innovation climate diverged from the mid 1990s, with the German filing numbers remaining high while Japanese filings markedly declined.

However, it does appear that despite the popularity of utility models in Germany, SMEs are still reluctant to invest into R&D. It is argued that Germany's leading position in the world market for products is a result of its *Mittdstand*, a network of SMEs, including family firms; investment levels according to the report has been steadily dropping since 1998; so worrying is this trend that the German Government has started a seed fund to assist R&D-based start-ups.[52] Arguably, the utility model system in Germany may not really be serving one of its primary purpose which is to spur innovation through SMEs.

3.2 Japan and South Korea

3.2.1 Economics and Innovation in Japan

Does an expansion of the scope of patent rights induce more innovative effort? An analysis was undertaken in 2000 gauging whether the 1987 Japanese patent reforms had had any impact. The reforms had expanded the scope of patent: however, the authors found *no* evidence of a statistically or economically significant increase in either R&D spending or innovative output that could plausibly be attributed to these reforms.[53]

In a more recent 2004 report, Japan ranks ninth in terms of competitiveness though much of its R&D spending is by large corporations, rather than SMEs.[54] Nevertheless, another report states that Japan languishes in the middle of the OECD nations in terms of investment in knowledge creation, R&D by SMEs and venture capital investment as a percentage of GDP; the same report gloomily states that as Japan's technology gap with the United States widens, its edge over China is shrinking.[55] Does the shrinking SME contribution explain why Japanese utility model registration statistics are falling?

3.2.2 The perplexing decrease of utility model registration figures

The first utility model law in Japan was enacted in 1905 to complement the patent system. The main aim of the utility model system was to protect less significant inventions and to foster technologies of small and medium sized enterprises. The utility model system was thought to be rapid and easier, and thus particularly suitable for SMEs.By the end of the 1980's, however, there were long delays in the grant of utility model applications partly because the cost difference between the patent and utility model systems is negligible, and partly because of an increase in the number of applications for utility models by both small and large companies. In response, the Japanese government revised the utility model law to allow accelerated registration without substantive examination, and to shorten the term of protection to six years from the filing date on the basis that product lifecycles were expected to shorten. Table 6 shows the rate of applications and grants of utility models over a 23 year period, as compared to the (almost) inversely proportional rate of patent registrations.

The emerging pattern is a steady drop in applications for registrations from approximately 191,000 (1980) to 77,000 (1993) to 8,000 (2003). While the accelerated registration was popular with industry, the legal uncertainty caused by the "no examination" rule made the system less satisfactory for business – the technology transfer of unexamined rights not being popular in Japan. It also turned out that many firms were unhappy with the reduced term of protection as there is little chance of succeeding in an action for injunctive relief with a protection period of six years. No doubt, these are key reasons for the failure of the revised system to reverse the fall in applications.[56]

Another underlying reason for the drop in popularity of the utility model system can be that the Japanese industry has become more innovative and has increasingly been opting for the patent route to legal protection of its inventions. A more cynical view would be that both Japan and the United States have experienced increased patenting due to the expanded scope of patentable subject matter, and due to the relaxed stance of patent examiners [see discussion on the United States below].

3.2.3 Comparison with the converse experience in Korea

On a regional level, it is interesting to compare the Japanese utility model culture with South Korea. South Korea has had a utility model law since 1961, and the current law is the Utility Model Act 1 July 1999. The law offers utility model protection to any technical creation which utilises the rules of nature – this is similar in ethos to the Japanese utility model law. The utility model must be novel, capable of industrial applicability, and possess an inventive

Table 6 Utility model filing in Japan[57]

	Utility model applications	Utility model registrations	Patent applications	Patent registrations
1980	191 785	50 001	191 020	46 106
1981	198 979	50 900	216 307	50 904
1988	171 656	42 300	345 418	55 300
1989	153 277	47 100	357 464	63 301
1990	138 272	43 300	367 590	59 401
1991	114 687	36 500	380 453	36 100
1992	94 601	65 200	384 456	92 100
1993	77 101	53 400	366 486	88 400
1994	17 531	53 885	353 301	82 400
1995	14 886	63 966	369 215	109 100
1996	14 082	95 481	376 615	215 100
1997	12 048	50 108	391 572	147 686
1998	10 917	35 513	401 932	141 448
1999	10 283	21 986	405 655	150 059
2000	9587	12 613	436 865	125 880
2001	8806	9441	439 175	121 742
2002	8603	7793	421 044	120 018
2003	8169	7694	413 092	122 511

step. Novelty is universal. In parallel with the Japanese development, South Korea withdrew substantive examination from utility models in 1999. Anyone can, however, file a request for the "technical evaluation" of a utility model application or registration, i.e. a detailed examination report. An evaluation report, at any event, is a prerequisite to any action to enforce utility model protection. The right to exercise the utility model right can then only proceed if the registered utility model owner sends a warning letter to the offender including a certified copy of the "technical evaluation".

The Korean Intellectual Property Office statistics note that foreign applications are negligible compared to domestic ones. From 1998-2002, out of the 176,700 applications submitted to the Korean Intellectual Property Office, only 1,889 came from abroad, which is little more than 1 percent of the total. Registration figures tell a similar story, with only 2,332 foreign ones out of the 184,127 registered during the same time period.

Korean experience is interesting in that its domestic sector is active both in utility model and patent filing. Of course, compared to utility models, foreign patenting activity takes place at a much higher rate. However, overall, domestic patent filing and registration rates are far higher.[58]

Table 7 Utility Models statistics for South Korea from 1992-2002

	Applications	Grants
1992	28665	7870
1993	32205	7592
1994	39790	7817
1995	59856	8148
1996	68822	9191
1997	45809	13713
1998	28890	25715
1999	30650	32868
2000	37163	41745
2001	40804	43842
2002	39187	39955

3.2.4 Correlation between utility model and innovation culture?

It may be that there has been a shift in Japanese filing behaviour in the past 10 years due to the shift in the innovation culture in Japan. Japanese industries tended to focus

on incremental innovation rather than radical innovation during the period from the post-war years to the 1980's,[59] and this trend has reversed. This, in turn, meant that the utility model system was not seen to be as vital as it had once been.[60] The important lessons from Japan are that considering that Japan was the first Asian country to introduce the utility model regime into its domestic law, this feature may have enhanced its industrial and economic capability in the early 20th century. However, innovation may not necessarily have been encouraged by non-examination – a feature which was only introduced in 1993, when utility model registrations were on the decline. The drop in registration figures may be a consequence of the change in her industrial and innovation policy.

In South Korea, the central government's innovation policy has been focused on SMEs and it has recently resulted in a "regional innovation support system". Moreover, South Korea's industrial, technology and regional policies have changed so that her economy has been re-structured from low-technology, labour-intensive, 'mass production' types of industry to high-technology, capital- and skill-intensive, 'flexible specialisation' types of industry. Conversely, it is also reported that one of the weaknesses in South Korea's innovation system is the lack of technological spin-offs and the lack of transfer of basic research results technology to transfer research results from public research establishments to industry and particularly to SMEs.

On a more cautious note, however, we should note that filing statistics alone do not explain macroeconomic trends, and further research is needed to explain why the figures are falling in Japan but not in Korea despite similar laws and reforms.

3.3 China

3.3.1 Economic and Innovation Climate in China

China has experienced a paradigm shift and has now become a common outsourcing manufacturing centre for the United States, Japan and Europe. Tremendous growth has been witnessed in recent years after establishing its open door policy towards foreign trade and investments, and improving its economic and legal structures. Advancements in the area of information and telecommunications have made China a competitive nation in the post-WTO accession era based on its abundance of cheap labour and natural resources.

Despite the remarkable economic growth and development, innovation seems to be rather limited as most of the private sector do not possess the necessary financial and human resources to conduct their own research & development activities.[61] The strengths that are visible within the Chinese economy are its industrial restructuring and strengthening of economic competitiveness. Weaknesses included a critical need for improvement in relevant laws and regulations and weakness in some industries with respect to international competitiveness. One World Bank report stated, amongst its many recommendations, that China should institute an economic regime that offers incentives for the efficient use of existing knowledge and creation of knowledge and entrepreneurship.[62]

3.3.2 China's three tier patent system

China's first patent law was enacted in 1984 and came into effect in 1985. Since then, the law has been amended twice. The first revision, undertaken in 1992, extended the patent length from 15 to 20 years for invention patents and from 5 to 10 years for patents on utility models and external designs. The second revision, which was completed in September 2000, eliminated the provisions under the old law that prevented state-owned enterprises from trading their patents in technology markets. The second revision also introduced new provisions designed to make it more rewarding for enterprise employees to innovate. Since the passage of the 1984 patent law, the central government has issued over twenty regulations and guidelines to promote innovative activity in China. Today's patent law in China is pretty much

in line with the international standard. Up till now, China has acceded to all the international patent treaties and its laws on intellectual property rights meet the requirements of the WTO's Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS).

Three types of patent protection are available in China, namely the invention patents, utility models and design patents respectively.

Invention (standard) Patents – These are conventional patents. The protection period is 20 years from the date of filing or priority date. However, excluded from invention patents are scientific discoveries, rules and methods for diagnosis or the treatment of diseases, animal and plant varieties and substances obtained by nuclear transformation.

Design Patents – Original designs relating to the shape, pattern, colour or a combination of an object. They have a life-span of 10 years from the date of application or priority date.

Utility Models – Besides the restrictions in the invention patents, these include restrictions on chemical compounds. Faster protection under the utility model is obtained as no examination is required. The time taken for a grant under the utility model system typically ranges from six months to a year, as against one to four years for an invention patent. A utility model is also more attractive as it costs around 40 percent[63] of the invention patent where technologies are rapidly changing. Chinese patent law defines utility model as a "creation or improvement relating to the form, construction, or fitting of an object".

Novelty means that before the filing date no identical invention or utility model has been publicly disclosed, used or made known to the public anywhere in the world. Despite this, as we will see, utility models are being granted to local "inventors" for inventions imported from overseas. Allegedly, this is giving rise to perverse behaviour by some utility model owners – if true, a good justification for universal novelty to be applied strictly. Inventiveness means that as compared with the technology existing before the filing date the utility model has prominent substantive features and represents progress. Practical applicability means that the utility model can be made or used and can produce effective results. The subject of protection is different from that of an invention patent as the technical requirements are not as high.

3.3.3 Empirical analysis of the utility model system

Out of a total of 1,569,324 patent applications that were made in China between 1994 and 2003, about two-fifths (41.3 percent) of them were utility models, of which almost all were local applications. In contrast, foreign applications constituted the majority for standard patents. Applications for utility models started to increase faster in 2000, reaching 109,115 cases in 2003. The higher growth in foreign ownership of utility models was due in part to a small base of less than 1 percent in absolute numbers for both applications and awards respectively for each year between 1994 and 2003. Therefore, growth in overall utility models was basically determined by the domestic market.

The composition of applications by type and ownership was as follows:

Type of application	Total applications	Local applicants	Foreign applicants
Utility model	648, 665	644,038 (99.3 percent)	4,627 (0.7 percent)
Standard patents	476, 041	226,674 (47.6 percent)	249,367 (52.4 percent)
Design patents	444, 618	407,338 (91.6 percent)	37, 280 (8.4 percent)

3.3.4 Policy implications

No economic or statistical analysis of utility models in China would be complete without mentioning that many utility models are being granted to local "inventors" for inventions imported from overseas.

There are two alternative but possible explanations for the statistics. One explanation can be that the surge in utility model applications can reflect the growth in the innovative sectors in China, and a growing awareness of intellectual property protection and rights. Apparently such second-tier innovation has been put to good use by smaller local enterprises, implying a lower level of high-value innovation by domestic inventors.

An alternative explanation is that these statistics reflect the fact that counterfeiters are now employing the utility model and design patent systems to claim protection for their modified versions of goods and products which are protected only under foreign patents. Allegedly, this is giving rise to perverse behaviour by some utility model owners who are threatening to take legal action against the true inventors who are often foreign companies seeking to expand their commercial activities in China. If true, a strong case can be made to argue that universal novelty should be applied strictly not only by the granting office but also by the courts.[64]

Finally, as one commentator indicated, although the utility model system is viewed as being valuable in China, problems exist within this system. In his view, the fact that the Chinese system offers utility model protection without substantive examination means that it is difficult to guarantee the quality or level of inventiveness involved in a utility model. Consequently disputes have occurred. Thus, the author suggests that this can be resolved by insisting that all applications for utility models provide a corresponding search report.[65] Nevertheless, this will increase the costs of the system.

Moreover, as the number of patent applications and patents granted increase quickly, the requests for re-examination and invalidation also increase. A Re-examination Board was set up in China to deal with appeals filed by applicants who were not satisfied with the decision of the lower examining board. The Board also deals with patent invalidation requests and the rate of invalidation requests has been high, making up more than 40% of the total. One Chinese Patent Office examiner opined that the reason for the high invalidation rate is because most invalidation proceedings relate to utility models i.e. 95% of the invalidation requests were filed against patent rights for utility model, and more than 60% of the cases ended in the invalidation of the utility model right.[66] Yet another Chinese attorney laments that the utility model system is being abused since no examination as to substance is made, either at grant stage or even at infringement stage (it remains an option for the court or administrative authority to ask the patentee to furnish a search report). [67]

3.4 Malaysia

3.4.1 Substantive features of the utility model system

The following is a summary of the Malaysian utility innovation regime:

- No requirement for inventive step
- The application can only contain one claim
- The duration of protection is for 20 years
- Need to show that the invention is in commercial or industrial use in Malaysia
- Not subject to compulsory licence
- Lower registration and maintenance costs

Under the Malaysian Patents Act 1983 (as amended), two types of protection are available - the first is through the grant of a patent, and the second is through the issue of a certificate for a utility innovation. The latter system of protection available under the Act aims to protect "minor inventions", called "utility innovations" in the statute, whereby a lower level of patentability criteria needs to be satisfied. A utility innovation is defined in the Act as

> *"any innovation which creates a new product or process, or any new improvement of a known product or process, which is capable of industrial application and includes an invention".*[68]

A certificate for a utility innovation can be granted if the utility innovation is new and is

capable of industrial application. There is no requirement for an inventive step, this being specifically excluded by the Act.[69]

The procedure involved in an application for a certificate for a utility innovation, except in relation to the number of claims permissible, is the same as that for a patent for an invention. Unlike a normal patent, where more than one claim can be applied for, in the case of a utility innovation only one claim is allowed. Two forms of substantive examination are available, a full substantive examination or a modified substantive examination.[70] Although it is not possible for an applicant to be granted both a patent and a certificate for utility innovation for the same invention.[71] However, it is possible to convert an application for a patent into an application for a utility innovation and vice versa.[72]

A certificate for a utility innovation expires 10 years from the filing date.[73] However, before the expiration of this 10-year period, an application for extension for two additional five year periods of protection can be made. This means that the total possible length of protection is 20 years from filing date of the application, which is the same period available for a normal patent. However, before such extensions can be granted the owner has to file an affidavit showing that the utility innovation is in commercial or industrial use in Malaysia. Failing this, he has to give satisfactory explanations for its non-use.[74]

3.4.2 Empirical analysis of the utility model system

According to the Malaysian Intellectual Property Office, between 1986 and 2003, there were 1,222 utility innovation applications. Table 8 represents the breakdown by year and field of technology.

3.4.3 Policy implications

The main users of the utility innovation system come from the region, with 47.3 % of users coming from Taiwan, Province of China, followed by 38.9 % of the applications emanating from Malaysia. The third and fourth most popular users of the system originate from the United States (4.3 %) and Japan (1.3 %).

Turning to the proportion of utility innovation applications coming from companies and individuals and comparing the numbers with patents, one finds that from 1999-2003, 34.2 % of the utility innovation applications came from companies and institutions, while 65.8 % came from individuals. When one turns to the patent statistics during the same period, the percentages are very different: companies and institutions are responsible for 96.2 % of applications with only 3.8 % coming from individuals. It might appear from this that individual inventors find the utility innovation system to be more accessible than the patent system. Nonetheless, the total of utility innovation applications from individuals is substantially lower than the number of patent application from individuals: 329 for utility innovations and 1,102 for patents.

From the data above, it can be concluded that the utility innovation system does have a place in the intellectual property system of Malaysia. The percentage of Malaysian innovators who make use of the system is high compared to the use of the patent system. The fact that the biggest users of the utility innovation system are from Taiwan, Province of China could be explained by the fact that a lot of investors for the small and medium enterprises come from Taiwan, Province of China.

Table 8 shows that the highest numbers of utility innovations encompasses innovations relating to human necessities such as footwear, furniture, agriculture, jewellery and travelling articles. The second highest category is in relation to performing operations and transporting, classifies innovations relating to mechanical operations involving physical or chemical processes, machines, apparatus and also transportation such as railways, aircraft and vehicles. These are areas in which individual innovators and SME's could be involved in the creation of incremental improvements without the use of high technology. This may reflect the fact that the percentage of individual innovators compared to companies/institutions making use of the utility innovation system is very much higher as compared to the use of the

Table 8 Malaysian utility innovations based on field of technology

Section	88-89	'90	'91	'92	'93-95	'96	'97	'98	'99	'00	'01	'02	'03	Total	%
Human Necessities	-	2	6	2	-	27	11	5	6	2	2	2	3	68	24.9
Performing Operations; Transportation	-	4	5	1	-	30	8	3	3	1	2	1	3	61	22.3
Chemistry; Metallurgy	-	-	-	-	-	8	-	2	1	3	-	1	-	15	5.5
Textiles; Paper	-	-	-	-	-	3	2	-	-	-	-	-	-	5	1.8
Fixed Constructions	-	3	5	-	-	10	4	1	2	2	4	-	-	31	11.4
Mechanical Engineering; Lighting; Heating; Weapons; Blasting	-	-	3	-	-	14	6	1	2	1	4	7	1	39	14.3
Physics	-	-	1	-	-	6	1	-	3	1	3	1	2	18	6.6
Electricity	-	-	2	-	-	12	5	-	6	2	7	2	-	36	13.2
Total	**0**	**9**	**22**	**3**	**0**	**110**	**37**	**12**	**23**	**12**	**22**	**14**	**9**	**273**	**100**

patent system.

3.5 Taiwan, Province of China

3.5.1 Substantive features of the utility model system

The first Patent Act, which was introduced into Taiwan, Province of China on 1 January 1949, included invention patents, utility models and design patents.[75] The latest version of the Act came into effect on July 2004 and introduced several substantial amendments to the utility model patent.

The purpose of the utility model patent is to protect smaller inventions; under the system the inventive step requirement is lower than that of a normal invention patent.[76] Although many aspects of patent law requirements will apply to utility model *mutatis mutandis*, there are some fundamental differences between patents and utility models, the most important of which are as follows:

- patents cover method, substance or a device whereas utility models protect shape, structure or device;[77]
- the duration of patents is 20 years from the date of filing, whereas utility model protection lasts for 10 years from the date of filing;[78]
- compulsory licensing is available only for patents, and not for utility models;
- after the June 2004 amendments, utility model applications will not be substantively examined whereas patent applicants have to request a substantive examination within three years from the filing date or else the patent application will be deemed abandoned. [79]

In Taiwan, Province of China "utility model patent" is defined as a creation or an improvement which has been made in respect of form, construction or fitting of an object.[80] A creation is defined as

- a shape i.e. a two or three dimensional structure/ appearance of an object which may be defined by lines and planes and which is functional;
- a structure i.e. the internal or integral structure of an object. A structure may be expressed by arrangements or layouts

or the relation between components contained in an object. In the structure, all components shall have functions other than their respective original functions;

- or a device i.e. a device is the purposeful combination of a plurality of independent objects. The statute further states that a device should not be simply a collection of objects.[81]

The Taiwan, Province of Chinaese Patent Act requires the device to be novel, inventive and industrially applicable. Taiwan, Province of China adopts an absolute novelty principle.[82] The level of inventiveness was unclear in that it was aligned with creativity.

3.5.2 Alignment with the Japanese system – the 2003 utility model revisions

The utility model provisions were revised in three major ways. First, substantive examination was abolished and utility models are now not examined for novelty and inventive step prior to grant. This was to meet the demand from the industry for a faster patent protection for products of short lifecycle. However, substantial examination will be made in invalidation procedures.

Secondly, the law introduced the concept of the "Technical Evaluation Report". Anyone who is uncertain of the enforceability of the utility model patent may apply for a technical evaluation report from the competent authority such as the Taiwan, Province of China Intellectual Property Office on a claim by claim basis. The technical evaluation report has multiple purposes. It acts as an early warning system for patentees wishing to enforce the utility model system, aims to avoid abuse of the utility model system, and finally, it stimulates public inspection. However, the technical evaluation report does not have legal binding effect or as an administrative order.[83]

Finally, an important clarification in relation to inventive step was made. The new law differentiates the level of inventive step required between a patent and a utility model. For a standard patent, the requirement of inventive step is satisfied if it could not have been easily made by those skilled in the art, while a utility model is protectable unless it would obviously be easy for those skilled in the art to invent it.

3.5.3 Empirical analysis and policy implications

We can see from the tables and statistics below that Taiwan, Province of Chinaese nationals use utility models rather heavily as compared to foreigners. Utility model patents appeal to Taiwan, Province of China because 98 percent of the country's businesses are small and medium

Table 9 Statistics for utility model patent in Taiwan, Province of China (2001-2003)[86]

Year	Application	Rejection	Approval	Certificate issued
2001	25,370	9,668	21,212	16,680
2002	21,750	9,453	16,115	15,200
2003	21,935	11,165	21,439	15,505

Table 10 Statistics on domestic and foreign patent applications in Taiwan, Province of China (2001-2003) [87]

Year	Domestic	Foreign
2001	24,220	1,150
2002	20,962	1,058
2003	21,231	704

sized enterprises (SMEs) with very diverse R&D capability.[84] Taiwan, Province of China businesses' patent applications tend toward the type of patent where they can be rapidly granted in order to keep a large number of manufacturing process and product patents.[85]

Has the high issuance of utility models created more disputes? Judging from the table below that seems not to be the case, although the numbers were for total applications of invention patents, utility models and design patents. The numbers for utility model applications in 2001-2003 were 25,370, 21,750 and 21,935 respectively. But the table below shows a relatively low invalidation rate, probably because prior to June 2004, all utility models and invention patents were examined substantially by the Intellectual Property Office.

In 2003, the top 5 foreign country recipients of granted utility models were: Japan (508), the United States (299), Germany (24), South Korea (32) and the Netherlands (24). In year 2003, the top 5 domestic industry applications by type for utility models were:

1. Transporting (2,344)
2. Basic Electronic Elements(2,258)
3. Working of metal (1,962)
4. Domestic Articles (1,933)
5. Pharmaceutical & Entertainment(1,664)

In 2003, the top 5 foreign industry applications by type for utility models were:

1. Basic Electronic Elements(188)
2. Transporting(157)
3. Pharmaceutical & Entertainment (148)
4. Domestic Articles(117)
5. Optics(56)

4 THE UNITED STATES: A COUNTRY WITH NO UTILITY MODEL SYSTEM

4.1 The United States National Innovation System and Patent Law

The United States is, perhaps, the world's biggest intellectual property producer. Nevertheless, the United States has never had second tier patent protection, though there are some calls for such a system to exist.[88] How far, then, does the United States intellectual property law protect minor innovations? There is limited scope for protecting innovation under the United States design patent and trade dress laws; however, highly functional innovations usually claim protection under patent law. One can, of course, speculate on the reasons why the United States has felt no need for a second tier regime. Perhaps as a net exporter of intellectual property goods, the United States has no need to worry about reducing the level of imports - the fact that it is a major exporter of intellectual property goods, including patented goods, shows that the current system of patent law and design patent law works for this particular economic and social environment. Another possibility is that most of the innovations and inventions do not emanate from SMEs but rather from large transnational corporations, and the level of competition amongst these firms is high enough to maintain the incentive and momentum to create - no further legislative activity is required to furnish additional inducement. Finally, one can also state that the main concern of the United States legislators is not so much its domestic market, but protecting its intellectual property goods outside its jurisdiction, and its national policy has focused on maintaining a high intellectual property regime outside its borders.

But however tempting these conclusions are, they do not hold up against recent studies which show, first, that small to medium sized corporations dominate the patenting scene, and second, that the rate of grant of patents is high compared to the low rate of invalidation.[89] Part of the reason stems from the 1982 patent law reforms which opened the path to higher patenting levels in the United States.[90] Moreover, developing countries must note that part of the innovative environment and climate is engendered by the United States Government which has, since the 1980s, actively pursued a patent policy which has promoted the interests of patent owners.[91]

4.2 Current United States Patent System

4.2.1 Features of United States patent law

The United States patent law is unique in the sense that it is the only country retaining a first-to-invent, as opposed to first-to-file system. There are no explicitly defined subject matter exceptions such as lists of what is not patentable as in European patent law. The criteria for patentability are novelty, utility and non-obviousness. In practice the latter two are not very different from industrial applicability and inventive step as in numerous other jurisdictions. One interesting feature is that, unlike in Europe inventors or their successors in title who disclose their invention are allowed a grace period of up to 12 months during which they can still file a patent despite this prior disclosure.

The United States has reviewed and is still reviewing the possibility of introducing second tier patent systems to address several problems and issues in their current patent system. Advantages of a lower-tier patent protection being envisaged include the following:

- to raise fees and reduce applications for top-tier patents. This would provide efficiency with the patent office having to examine fewer standard patent cases;
- to eliminate the coverage gap between designs and utility models;
- to quickly and cheaply protect inventions of incremental nature and having short commercial life in a fast moving technology market as is the United States;

- to discourage defensive patenting by firms as standard patents become much more expensive.

4.2.2 The policy implications

One view is that the United States, in not introducing a second tier protection regime, together with its equally strict design patent regime, has an industrial policy that emphasises free competition within the product and innovation markets. Developing countries wishing to emulate the innovative spirit and culture of this major industrial country may conclude that the absence of a second tier regime is a contributing factor. However, whilst some may be led to think that this is the best course for a pro-competitive innovative climate, it can be argued that the United States intellectual property system is difficult to transplant to other jurisdictions.[92]

First, it is difficult to appreciate the scope of its patent law without recognising how this interacts with other laws such as trade dress (as discussed below) and competition laws. Thus, one should note that in some cases of unfair copying of innovation in the United States, firms do resort to unfair competition laws.[93] Secondly, the legal and political infrastructure of the United States (as ensured by the constitution) ensures that there is a balance between intellectual property rights owners and the public interest, albeit that this balance has shifted in recent years towards a pro-intellectual property position.[94] Nevertheless, the legal infrastructure within the United States ensure that a check is made at some point – either by Congress or by the courts. Developing countries may not be able to implement such checks and balances.

An alternative view is that the United States has no need for a second tier system as the current patent system is relaxed enough to protect minor innovations, especially by small and medium sized firms. First, the USPTO and the courts have been granting patents to inventions which show a low level of inventive step.[95] Secondly, analyses undertaken by Lerner et al since 1997 to 2003 suggests that the increase in patenting activity in the United States may be due to increased innovative activities of smaller firms. The studies show that whilst there was no evidence to suggest that larger firms were particularly innovative, there was nevertheless disproportionate representation of smaller firms, especially those with stronger academic ties.[96] Finally, the Lemley and Thomas studies show that the USPTO has extended patent protection to new technologies such as biotechnology, software and Internet business without being unduly hampered by lack of documentation relating to the state of art or the lack of training of its patent examinees in these new technologies.[97]

Indeed, one can perhaps go further and argue that the **lack** of a second-tier system puts pressure on the patent system to accommodate minor inventions. Indeed, the 2003 FTC Report has expressed concern in the United States as to the maintenance of the proper balance between patent protection and competition, as the current swing is too much in favour of patents. Is it arguable that the introduction of a second-tier system in the United States may contribute to keeping the public domain freer than under the more expansive patent system? (i.e. longer terms of protection).

5 ALTERNATIVES TO UTILITY MODELS : DESIGN LAW AND UNFAIR COMPETITION

When it comes to extending intellectual property to new "things", in this case subpatentable inventions, the options available to policymakers are to fit such products into existing intellectual property categories or to create new intellectual property rights. In the words of William Cornish[98],

Intellectual property may be extended to new subject matter either by accretion or by emulation. Accretion involves re-defining an existing right so as to encompass the novel material; emulation requires the creation of a new and distinct right by analogy drawn more or less eclectically from the types already known.

Utility models are an example of emulation. But emulation is inherently risky in the sense that they are essentially experimental. Accretion may be a safer option. One possibility, that we explore in this chapter, may be to protect subpatentable inventions under design law. Our research into the British, German and Australian utility model systems from a historical perspective indicates that the inception and subsequent development of second-tier patent protection was a response to perceived deficiencies in both patents and designs law. Existing design legislation did not, in the German and Australian[99] experiences, protect functional innovations; whilst in the British case, design legislation was adapted so as to plug the gap that was found to exist in the protection of minor and incremental innovations and inventions. Moreover, a consideration of the actual subject matter of protection under the various European utility model laws reveals that the term "utility model" often incorporates many of the elements that would ordinarily constitute a functional or technical design.

Another possibility is to take advantage of unfair competition. This may be justified on the basis that, as indicated earlier, although utility model laws confer exclusive property rights, the underlying rationale for having them is usually to accede to industries' call for an anti-copying right or a misappropriation tort. Indeed, the main practical justification derives from the fact that many inventions are vulnerable to unfair copying, and that in many cases, the subpatentable ones are the most vulnerable of all.

5.1 United States Federal Design Patent and Trade Dress Laws

5.1.1 Design patent law

The United States design patent law is extremely demanding in comparison with other countries. Protection is available under patent law for "any new, original and ornamental design for an article of manufacture."[100] Furthermore, in order for a design to qualify for design patent protection, it must present an aesthetically pleasing appearance that is not dictated by function, and it must satisfy the general criteria of patentability, i.e. full novelty and non-obviousness.[101] In brief, the law does not give protection to "new designs" or "original designs", but rather to designs which fulfil both criteria and requires candidates to fulfil a higher threshold of protection by requiring non-obviousness as well, a term more identified with the patent criterion of "inventive step".

The problems which arise stem from the impossibly high criteria imposed on designs. In practice, the rate of invalidation of design patents is high as the federal appellate courts are in the habit of routinely invalidating issued design patents that reach them in infringement actions.[102] Moreover, the thresholds of protection imposed on design patents are far higher than those applied to patents. The specific criteria of protection, and the related problems, are:

(i) Novelty: a high standard of novelty is applied although the Patent Act does provide a one year novelty grace period for both utility and design patents, allowing designers the opportunity to market test their designs.[103]

(ii) Ornamentality: this test can be set at high levels whereby the court must be satisfied that the design appeals to the eye as a thing of beauty.[104]

(iii) Non-obviousness or "inventiveness":[105] a major issue in respect of the last criterion is determining from whose perspective obviousness is judged. The Court of Customs and Patents Appeals *In re Nalbandian*[106] stated that, in design cases, the fictitious person identified in § 103 as "one of ordinary skill in the art" will be the designer of ordinary capability who designs articles of the type presented in the application.

The difficulties posed by the statute are exacerbated by the judicially forged and developed "functionality" doctrine which is an attempt to prevent the circumvention of patent law by technically dictated designs. While most courts agree that design patent law should eschew fully functional designs, what remains unclear is the exclusionary device. One method is to cross-refer the test of functionality with the market environment, by either looking at the commercial success of the design or the existence of competing designs within the same product market.[107] A second method is to view functionality as being the flip side of non-obviousness.[108] A third, and more usual, method is to use the criterion of ornamentality to exclude functional designs.[109] A final means by which the functionality doctrine is applied can be seen in the decision of *Avia Group International v L.A. Gear California*[110], where the Federal Circuit held that the design patents for shoes patterns were valid and not functional:

…if the functional aspect or purpose could be accomplished in many other ways that is [sic] involved in this very design, that fact is enough to destroy the claim that this design is primarily functional.

5.1.2 Trade dress laws

Designs are also protected under the U.S. federal copyright and trade dress protection (a branch of trademark protection). Theoretically, functional designs are excluded from protection. Practically, the USPTO exercises a more strict control over functional designs under design legislation than under trademarks legislation, or the courts over federal trade dress protection.

The common law of unfair trade or passing off was formally codified in the Lanham Act 1946 and serves as the basis for trademark actions. In light of the difficulty faced in gaining protection under the patent, copyright and state unfair competition laws for minor innovations and designs, attempts were made using the Lanham Act to obtain protection for product shape and configurations as unregistered trade dress. The basis of protection was obtained under section 43(a) of the Lanham Act. The provision stipulates:

Any person who, on or in connection with any goods or services, or any container for goods, uses in commerce any word, term, name, symbol, or device, or any combination thereof, or any false designation of origin, false or misleading description of fact, or false or misleading representation of fact, which….is likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person….shall be liable in a civil action by any person who believes that he or she is likely to be damaged by such act.[111]

The notion of trade dress of a product consists of the "overall image used to present it to purchasers; it could thus include, to give a partial list, the product's size, shape, colour, graphics, packaging, and label."[112] By including physical features of the product itself, traditional trade dress protection, which normally protected only the appearance of packages and advertising displays, has been expanded to include physical features of the product itself. In the past, two fundamental rules preserved the balance between trade dress protection and patent protection of designs. The first rule was that designs could only gain trade dress protection if the product shape had acquired secondary meaning.[113] The second principle was that any successful trade dress suit had to demonstrate that the alleged copier's product was similar enough to cause confusion in the public as to the source of the product.[114]

The first development which was to expand trade dress protection was the jettisoning of the criterion of secondary meaning.[115] In 1992, the Supreme Court confirmed this approach in *Two Pesos, Inc. v Taco Cabana, Inc.*[116] which held that an inherently distinctive restaurant motif was protected as trade dress despite a lack of secondary meaning. The second development was the expanded definition of trade dress from the product's packaging to the actual product. Finally, the courts commenced applying an extremely liberal definition of public or consumer confusion, which included dilution. The Supreme Court has recently confirmed that this requirement is no longer necessary if the trade dress is inherently distinctive.[117]

Thus, under trade dress protection, a product could gain unlimited protection.[118] There appears to be little demarcation between trade dress and utility or design patent laws. However, the extent of protection under the former is subject to the functionality doctrine which states that functional aspects of the product will not be accorded either trade mark or trade dress protection - it is feared that this protection would impede the entrance of competitors into the market place.[119] However, a small amount of functionality will not invalidate protection if the overall effect of the product is non-functional.[120]

In relation to the protection of product shape or trade dress, functionality is said to be present when such features are essential to the use or purpose of the article.[121] In *re Morton-Norwich Products Inc.*[122], the court re-assessed the question of functionality and consequently reasoned that trademark law only excludes product designs which are *de jure* functional. In respect of the Morton-Norwich's shape of a spray container, the court held that *de jure* functionality was to be resolved by determining whether the bottle was "the best or one of a few superior designs available." There was no evidence that the shape of the bottle was required to be as it was. The same function could be performed by a variety of other shapes.[123] On the other hand, in *re Deister Concentrator Co.*[124] the court refused trade mark registration to a rhomboidal shaped table for cleaning coal as the shape was functional. The court noted that any feature dictated by functional considerations may not be protected as a trade mark; however, the court emphasised again that the mere possession of a function is not sufficient reason to deny protection.

5.2 Design Law in Europe

5.2.1 Substantive features of the EU design system

The European Union design regime is governed by the Community Design Regulation 2001 and the Design Directive 1998.[125] The prospective rights owner has a choice as to the type of CDR required as the Regulation offers a two-tier system:

(a) the Registered Community Design Right which confers registration-based exclusive rights; and

(b) the Unregistered Community Design Right which confers an automatic anti-copying right based on first marketing.

It may be possible to claim protection under the European design regime for minor innovations due to the broad ambit of the law. For example, the definition of "design" is wide enough to encapsulate all types of products including parts intended to be assembled into a complex product. The only problem for minor innovations is that they may fall foul of the exclusion clauses. Design protection will not be granted to the following subject matter:[126]

- features of appearance of a product which are solely dictated by its technical function;
- "interconnection" features, i.e. features of appearance of a product which must necessarily be reproduced in their exact form and dimensions in order to permit the designed product to be mechanically connected to or placed in, around or against another product so that either product may perform its function; [127]
- designs which are contrary to public policy or to accepted principles of morality.

The "technical function" exclusion is apparently to be construed narrowly - a design feature will only be excluded if the feature concerned is essential in order to achieve a particular technical result. In other words, if form follows function. Thus, functional innovation can be eligible for protection as long as one shows that the same technical function could be achieved by another different form.[128]

Design law has no high threshold of protection – the design must be novel and must have individual character.[129] Novelty is assessed at a universal level, with the prior state of art encompassing any identical design (or a substantially similar design which differs only in immaterial details), made available to the public. A design will have individual character if the overall impression it produces on the informed user differs from the overall impression produced on such a user by any design which has been made available to the public. Notably, a further limitation is placed on the width of the prior art taken into consideration for the purposes of novelty and individual character: in some cases, published designs will not be taken into account where the publication could not reasonably have become known in the normal course of business to specialized European business circles.[130]

The design proprietor can opt for a registered or an unregistered Community design right. In respect of the latter, the proprietor will have an exclusive right to use it.[131] Indeed, the registered design right offers exclusive monopoly for a longer term of period than the proposed utility model right, or indeed the existing patent right. The duration of protection is for an initial period of five years, which is renewable for four further periods of five years, up to a maximum of twenty five years. Examination is restricted to formalities and excluded subject matter – there is no search as to novelty or individual character.

If, on the other hand, the proprietor opts for the unregistered Community design right, a lesser right against copying is conferred. Moreover, the anti-copying right is limited in that it will not be effective where use is deemed to result from "copying the protected design if it results from an independent work of creation by a designer who may be reasonably thought not to be familiar with the design made available to the public by the holder."[132] The unregistered Community design right, admittedly, is a poor relation to both the Community registered design right or to the British unregistered design right (which is not affected by all these European developments, and remains distinct and *sui generis*). The Community unregistered design right arises automatically and lasts for a period of three years only, from the date from the date on which the design was first made available to the public within the Community.[133]

5.2.2 Empirical findings for the EU design law

In the first half of 2004, the European Office for Harmonization in the Internal Market (OHIM), which is the office responsible for the Community trade mark and Community design registrations, showed that 30,162 designs were filed. The figure below shows a cross comparison between the European registration office, the German office and the Japanese office.

Table 11 Comparative table of design filing in 1999-2004

Year	Offices	design registrations
1/1/2004-30/6/2004	European Office for Harmonization in the Internal Market	30,162
1/1/2004-30/6/2004	German Patent and Trademarks Office	21,078
1/1/2004-30/6/2004	Japan Patent Office	16,646
2003	Office for Harmonization in the Internal Market	19,935
2003	German Patent and Trademarks Office	54,670
2003	Japan Patent Office	31,342
From 1999 – 2002	*No European Design Law*	-
From 1999 – 2002	German Patent and Trademarks Office	279,584
From 1999 - 2002	Japan Patent Office	145,829

It appears from OHIM's statistics that very little is rejected compared to the total amount of filed registrations. The table below shows that the total amount of rejected applications is less than 1 percent of received applications.

Table 12 Rate of refusal and grant under the Community design law

	2003	2004	Total
Designs received	40,623	53,650	94,273
Refused	4	274	278
Registered and published	19,934	57,765	77,699

5.2.3 Policy Implications

What sort of protection is offered to three-dimensional products within the European Union under other laws? How generous are these systems in protecting minor innovations? Can the presence of such systems explain the low registration figures (i.e. quick, cheap, non-registration protection regimes such as the unregistered design right or unfair competition)?

The major fault in obtaining protection for minor innovations under the EU design law is that the scope of protection may be limited to the "overall impression" of the design. In other words, the law will not protect an underlying function or principle but rather the appearance of the product. This is different to the United Kingdom unregistered design right which extends protection to the shape and configuration of the design, as opposed to the "impression" that the design produces on the informed user.134 Although the law specifically excludes protection from "methods or principles of construction", there may be instances where the UK unregistered design right does lead to underlying technical functions & principles being protected, especially if such features are inherent in the (directly) protected shape & configuration.

Developing countries may have two alternatives: to either introduce a UK type unregistered design right which extends to protecting functional shapes, or a utility model type of law which is specifically designed for the protection of technical functions.

5.3 Unfair Competition

According to Article 10bis of the Paris Convention, the following acts are prohibited on the grounds of constituting unfair competition:

- all acts of such a nature as to create confusion by any means whatever with the establishment, the goods, or the industrial or commercial activities, of a competitor;
- false allegations in the course of trade of such a nature as to discredit the establishment, the goods, or the industrial or commercial activities, of a competitor;
- indications or allegations the use of which in the course of trade is liable to mislead the public as to the nature, the manufacturing process, the characteristics, the suitability for their purpose, or the quantity, of the goods.

Many countries have a general unfair competition law which is based on fault or wrongdoing.[135] Any infringement of an intellectual property right invariably involves fault or wrongdoing on the part of the imitator. Thus, although serving to punish the conduct of the imitator, unfair competition laws can indirectly protect proprietary rights, and in this manner can be employed to supplement the protection of a design.

5.3.1 Rationales for unfair competition law

One view as to the function of unfair competition law is that it acts as a corollary to competition law. While competition law protects the institution of competition as the chosen order of the marketplace, unfair competition theory regulates the behaviour of the various competitors with regard to their behaviour to the marketplace.[136] This is in tandem with the view that unfair competition

law relates to the conduct of an imitator, rather than what is imitated. The second view holds that unfair competition should not be based on ethics as determining the standards of behaviour but rather should determine whether or not the result of the competitor's behaviour hinders or stifles the competitive process of differentiation and imitation.[137] This view upholds the sanctity of consumer welfare as the prime consideration, as opposed to upholding moral standards within the marketplace. For instance, imitation products on the market may reflect the dishonest business practices of the imitator, but there should be some consideration as to whether the products are also economically beneficial to the consumer if they bring the market price down and force standardisation of the product.

5.3.2 Minor innovations and unfair competition

Inventions with lower inventive step do not fulfil the patent criteria and it was, thus, traditionally thought that such inventions should be left in the public domain. The problem of extending unfair competition protection to such innovations is that this move undermines the perceived need to have specific exclusions of technically necessary or functional features from copyright, design, and trade mark laws. The whole rationale for these latter exclusions is that technical inventions which did not meet the patent criteria should not gain protection by the back door.

Secondly, unfair competition laws, in some jurisdictions, will protect against such copying or imitation. Although some member states' laws have developed some jurisprudence that unfair competition laws cannot usurp other intellectual property statutory rights, especially in relation to patentable features, the law is not totally clear and there have been many instances where the tort of slavish copying has stepped in to protect such technical or functional features.

Thirdly, is it now the standard rule in intellectual property law that wherever there is some investment or some creativity which is open to imitation and copying, that the intellectual property good should be protected? Have we all succumbed to Mr. Justice Peterson's adage that "what is worth copying is worth protecting"? The danger of applying unfair competition laws liberally to protect intellectual property subject matter is that an untenable monopoly can arise in relation to a work which has either been denied protection under other intellectual property rights or ceased to be protected under any intellectual property rights.[138] Unfair competition laws can undermine the delicate balance between intellectual property laws and competition laws, thereby resulting in anti-competitive protection of minor innovations.

5.3.3 Unfair competition in Europe

European Union Member States' courts are reluctant to extend protection for subject matter which has already enjoyed protection under other intellectual property rights. The general principle is that the imitation of products is allowed if they are not protected by other intellectual property laws.[139] This is especially true in the absence of further and special circumstances, such as behaviour contrary to ethical business practices, misleading or confusing behaviour, unfair exploitation of the plaintiffs' goodwill or obstructing the plaintiff from exploiting the economic benefits of his products.[140] An apt summary of the position was offered by the Dutch Supreme Court:

> Everybody should be, generally speaking, free to develop his industrial products in the best way possible and to give them the highest utility - except when exclusive rights are awarded to others on the basis of the patent or copyright statutes which prevent this - it is permitted for that purpose, in his own interest and possibly to the detriment of his competitor, to make use of the inventive ideas and results which are embodied in his product, even if (it is) only on the basis of that use confusion could be the result between his own product and the competitor's... thus the imitation of the product of a competitor is not allowed only if, without doing harm to the function and use, another avenue could have been followed on certain points, and by not being followed confusion is created.[141]

(i) Germany

German unfair competition law[142] prohibits all acts of competition that are unfair and capable of materially distorting competition by harming competitors, consumers or other market participants. There is no definite duration of protection as each case will depend on the facts; in general, however, the court will offer unfair competition protection sometimes to unprotected innovation for a reasonable period so as to enable the creator to exploit his competitive advantage. Protection consists in the right of the plaintiff to ask for a cessation of the infringing activity and the removal of infringing products.

German unfair competition law assumes that in absence of intellectual property protection, there should be nothing to impede the copying of an innovation.[143] Thus, the mere copying of a competitor's product will not necessarily be tantamount to a breach of the unfair competition law, especially where the product has been initially protected under an intellectual property right which has since expired. The courts will protect against the copying of products under the unfair competition laws only where additional elements or circumstances are present, such as:

- misleading customers and disloyalty
- causing confusion and / or unfair exploitation of the plaintiffs' goodwill
- obstructing the plaintiff from exploiting the economic benefits of his products
- value of the innovation in terms of its functionality or cost effectiveness
- short life span of the innovation
- direct misappropriation and/or regular and systematic copying

There are exceptions. First, courts will protect innovation if in their view the plaintiffs require protection against competition in order to reap their profits, especially taking into account the expenditure of resources in innovating the new product. Secondly, highly original and innovative products are not generally open to copying, especially if they function as a source indicator and where the conduct of the imitator can be considered as unfair.[144]

Although copying another person's product is generally allowed in the name of free trade and competition, especially where confusion is not an issue, sometimes the jurisprudence does prohibit direct misappropriation or slavish copying of another's product. The unfairness of this activity is found in the fact that in addition to the imitation, the defendant is also making direct use of the product of the plaintiff-manufacturer without any expenditure on his part, thus taking the fruits of the plaintiff's money, skill and labour, without investing any of his own. For direct misappropriation to be found unlawful, there are three main requirements. First, the work sought to be protected must have some characteristics worthy of protection i.e. there must be evidence of the plaintiff's investment in the work or the product has a certain distinctive character; secondly, the copying must have caused some actual damage to the creator of the work; finally, the imitator could have reasonably have utilised other features which differed from the original product.[145]

(ii) France

In France, unfair competition (*concurrence déloyale*) law provides remedies for any civil or legal wrong based on the finding of "fault".[146]

The most frequently sought circumstances under which an action on unfair competition is brought, concerning an intellectual property subject matter, are confusion, rival disparagement or unlawful attacks. However, it is debatable as to whether imitation, *per se*, is insufficient to constitute an action, especially where the work or product is not protected by any intellectual property right. As a fundamental principle, in the absence of any intellectual property rights, the product can be freely appropriated by all. However, such liberty is not without its limits, especially where there is excessive usage to the detriment of commerce. Thus, the act of imitation can develop into a tortious act if the reproduction was for an unfair purpose or if the resulting confusion between products cannot be justified on other grounds.

The general principles governing imitation of products can be reduced to the following principles:

- copying an item in the public domain cannot amount to fault
- unfair competition law cannot be invoked as it is not a civil wrong to reproduce an unprotected object even if damage is caused – a further element is required
- the reproduction of products belonging to the public domain is wrong if this is done with a view to creating a confusion in the public concerning the origin of products sold
- the taking of fruits of another's industry and investment is unjust enrichment and parasitic competition *(concurrence parasitaire)*[147]

6 RECOMMENDATIONS AND OPTIONS

6.1 Justifying IPRs

Patents are tools for economic advancement that should contribute to the enrichment of society through (i) the widest possible availability of new and useful goods, services and technical information that derive from inventive activity, and (ii) the highest possible level of economic activity based on the production, circulation and further development of such goods, services and information. In pursuit of these aims, inventors are able to protect their inventions through a system of property rights – the patent system. One of the reasons that patents are so controversial is that the IP incentive, as far as it actually works, functions by restricting use by others of the protected invention for a certain period. Yet follow-on innovation by others is more likely to happen if use is not restricted. Thus a balance between private control over the use of technical information and its diffusion needs to be struck. Where the line should be drawn is very difficult to determine but its ideal location will vary widely from one country to another, and, one may argue from one business sector to another. In countries where little inventive activity takes place, free access to technical information may well do more to foster technological capacity building than providing strong private rights over such information.

We face two conflicting schools of thought. An economic classicist would argue that the main role of patent law is to prevent rewards from being dissipated by competing imitations and to preserve the incentive for continual innovation leading to economic growth. If we unconditionally accept this perspective, the rationale for increasing the scope of patent protection to encompass minor or incremental inventions is clear.

Nevertheless, we are also cautioned against broadening protection to such an extent that the excessive allocation of rights to an innovator will lead to a severe drop in the number of competitive substitutes or may completely prevent any other competitive substitute from appearing in that market.[148] From this perspective, we are reminded that, considering the heavy price that the society will have to pay in stifling competition in respect of innovations, patent law has been designed to only confer exclusive proprietary rights in certain types of inventions *viz.* those inventions which exhibit some technical character, and which manifest the necessary level of inventiveness and novelty. A more forceful objection to minor inventions is made by Kitch who states that "low-cost inventions" should not be patentable since the inventor is always rewarded by a head start, and these types of inventions would exist anyway in the absence of a patent system.[149]

How then do we justify lowering the thresholds of protection in order to extend protection to minor or incremental innovations? The argument that market failure will result if excessive protection is granted to inventions cannot be easily deflected by reasons of administrative or cost problems, or by the fact that some inventions are susceptible to unfair copying. Nonetheless, introducing a utility system could potentially stimulate further innovation. If so, in it would do so on the following bases:

(i) Less knowledge-based[150] industries would be able to seek protection for innovations which do not meet the necessary requirements or need the level of protection required for a standard patent.

(ii) High-knowledge industries like the semiconductors, ICT-related products and computer peripherals would be able to protect lower-end innovations with a more economical alternative to patents.

The following questions then arise:

1. Does the country in question require rapid, cheap protection for local industrial growth and promotion?
2. Is there an economic argument as to why such inventions should be protected?
3. Are the current patent and design regimes suited to industry's needs in terms of criteria of protection, costs and ease of use?
4. Is there a need to reconsider the economic and legal policy of granting patent protection to innovative activities; and if there is, whether these new policies are best served within a one tier or two tier patent regime in the developing country (or even a three tier system if one includes the design right regime)?
5. Is there massive copying of minor innovations?
6. Is there a need to maintain a large public domain to assist follow-on innovation?
7. Would the country be placed at a disadvantage if other countries use a utility model system in a major way?

6.2 Policy Options

European industries have complained that they are now vulnerable to unfair copying by competitors and that the unavailability of patent protection robs them of the vital lead-time required to recoup research and developmental costs. Nevertheless, industry has also opposed a European Community-wide utility model regime out of fear of restricting competition. If we look at the patterns of inventive activity in Europe, it is not at all clear that utility models are vital for innovative growth – witness Sweden's top position in the European innovation scoreboard and its lack of second tier patent system. Indeed, a more interesting development is the European attempt to broaden the scope of patent law to encompass more subject matter and offer wider scopes of protection – this may, following the United States, be the approach to adopt.

It might be that rather than follow the experiences of countries already having utility model systems, developing countries without utility models would be better off with a policy of "intellectual property leapfrogging". By this, we mean that they should consider eschewing the evolutionary approach adopted by these countries (and many of today's rich countries in the past) of opting for utility models as a means to accelerate their advance to developed country status, and instead learn from and emulate present day Japanese and United States innovation promotion regulation where the role of utility models is either diminishing or was never existent.

It is advisable to determine the long-term sustainability of the utility model system with a cost-benefit analysis, weighing carefully the pros and cons and their possible economic impact to which this study acts as a precursor. In implementing a utility model system, careful planning and effective dissemination of information, as well as developing the awareness of the target market would be of critical importance to the success of the new system.

There are three options which a developing country can consider.

Status quo approach - A developing country can accept the existing intellectual property regime, without introducing any new right.

This may be due to the fact that an analysis of the country's economic and industrial environment fails to demonstrate that the country stands significantly to benefit in terms

of innovation or economically from introducing a utility model system. Note that there is always some unhappiness from the local stakeholders' perspectives as to the cost, length of time before rights are granted, and about the complexity of the current intellectual property system. If incremental inventions are to be protected, there must be a valid reason as to why a utility model system is to be introduced, and why this proposed law will institute a more favourable regime as compared with the current patent or design laws.

> Accretion approach - A developing country can adjust the existing intellectual property regime without introducing a utility model right. This can be done by extending existing intellectual property rights to new subject matter (such as sub patentable or functional innovation) by re-defining an existing right to encompass the new material.

The accretion method involves a minor tinkering of the country's patent or design or unfair competition system.[151] In relation to the patent system, it is worthwhile to note the reasons suggested for the high patenting figures in the United States including a decreased invalidation rate and the commensurate pressure on the United States Patent Office to grant patents.

Another point worth considering is the ability of design law to encompass very wide subject matter – indeed, the TRIPS Agreement is incredibly flexible in relation to the criteria and scope of protection in relation to designs. Moreover, design law has been the historical basis of protection of minor innovation in both the United Kingdom and Germany. Nevertheless, it should be recalled that the design laws in Australia and Germany were considered too narrow to protect functional innovations and hence utility model laws were introduced. In the United Kingdom, an alternative solution was found to protect minor functional innovations – an unregistered design law was introduced. Finally, is there room for a misappropriation tort or a more extensive passing off or unfair competition law? This alternative has been adopted by Japan which has special 3-5 year unfair competition laws to protection minor innovation.

> **The emulation approach -** Emulation involves creating new hybrid rights. If a developing country does not have such a right, it would be the most expensive option in the short run. However, this expense is an immediate real cost which may be offset by long term benefits to the industrial environment such as increased international licensing opportunities.

6.3 The Ideal Utility Model Law?

Should it still be felt that policy considerations necessitate the introduction of a utility model system in a particular country, it is recommended that the following essential features be considered:

- **Subject matter of protection:** The utility model law should comprise a detailed list of excluded subject matter which must mirror the exclusions under the patent law. Moreover, it is worth considering excluding some types of invention as dictated by public policy such as chemicals or pharmaceuticals or biological material or substances or processes
- **A renewal based term of protection**: The term should be a minimum term of 3 years (as the absolute minimum) but not exceeding the patent term of 20 years. However, a more appropriate maximum term based on existing utility model laws in several jurisdictions is 10 years
- **A non-examination system:** At least for the first period of registration. This is one of the key ingredients of the utility model system

- **A compulsory examination/report for second stage:** This procedure could be introduced if the term of protection is linked to a renewal procedure.
- **A compulsory examination / report when invalidation/infringement proceedings:** This burden should be placed on the utility model rights holder to produce (and pay for) a detailed examination report as to the novelty and inventiveness of his invention prior to litigation
- **Renewal fees:** This is one suggested means to weed out the underutilised utility model
- **Tiered fees:** this is to enable the system to be friendly to small and medium sized enterprises or the individual inventor
- **Novelty** : most developed countries have introduced universal novelty. Moreover, enforcement problems develop if a lower level of novelty (such as domestic or regional novelty) is adopted.
- **Government action:** Introducing a completely new intellectual property system requires some effort on the part of all the relevant stakeholders (such as the relevant government agencies and patent attorneys/agents) to engender "a utility model culture" such as an awareness education training program, helpdesk services, web and print literature, innovation fairs, etc. to inform potential users of how the new system works, and how it differs from existing standard patent and designs systems.
- **Cross-licensing/compulsory licensing:** A final issue is whether compulsory licensing provisions should be included on the same basis as patent law. This is especially important in the case of two conflicting rights whereby a subsequent inventor cannot obtain or exploit a patent or utility model without infringing a prior patent or utility model. This is especially important if a no-examination system is adopted.

ANNEX A

Table of Utility Models Regimes in Central & Far Eastern Asia and Pacific Region

Australia	Patents Act 1990, amended by Patents Amendment (Innovation Patents) Act 2000. 2nd tier protection comes within the innovation patent regime, which has no substantive examination prior to grant. The requirements are universal novelty, and an innovative step - which is a lower standard of inventive step. Term of protection = 8 years.
China	Patent Law & its Implementing Regulations, April 1, 1985, revised January 1, 1993. Under Chinese law, utility models are defined as "any new technical solution relating to the shape, structure, or their combination, of a product, which is fit for practical use. There is no substantive examination. Term of protection = 10 years.
Hong Kong	Patents Ordinance 1997, Cap. 514, Part XV, s. 108 et seq. Short term patents protect a product or an industrial process which are new, inventive and have industrial application. No substantive examination. Term of protection = 8 years.
Indonesia	Patents Act 1989, amended in 1997. Petty patent system, whereby a short term patent can be obtained for simple inventions of an apparatus, piece of equipment, tool or product having practical value because of its form, configuration, construction or composition. The invention must be novel, have inventive step and be industrially applicable. Note that protection is limited to 3 dimensional products. Term of protection = 10 years.
Japan	Law No. 123, April 13, 1959, as last amended on June 12, 1996, w.e.f. April 1, 1997. Utility model protection granted to devices which are new and industrially applicable and which relate to the shape or construction of articles. Term of protection = 6 years.
Kazakhstan	Criminal Code, January 1, 1998, which is the basis of intellectual property protection. The Criminal Code establishes that the following are criminal acts: the illegal use a utility model; the unauthorised disclosure of the essence of a utility model before such information is officially made public; the misappropriation of authorship of an invention.
Korea	Utility Model Act, December 31, 1961, as amended July 1, 1999. The utility model must be novel, capable of industrial applicability, and possess an inventive step. Examination is only with respect to formalities. Term of protection = 7 years.

Kyrgyz Republic	Law on Temporary Provisions Concerning Industrial Property of the Kyrgyz Republic, August 2, 1993. "Utility models" are defined as new and industrially applicable features used in the production of consumer products or components of such products. The conditions for registration are novelty, and industrial applicability; the utility model must also possess a functional and inventive character. Domestic novelty is required. The application is examined *ex officio* for formalities only Term of protection = 8 years.
Macao	Macanese Industrial Property Act 1999. Utility models are models of objects or parts of objects (appliances, instruments, tools, containers, etc.) made for practical use, which, by means of a new shape or configuration or a new mechanism, increase or improve the handling of such objects. Utility models must be three-dimensional. Novelty, inventiveness and practical applicability are also required in the case of utility models, though the level of inventiveness is low. Term of protection = 15 years
Malaysia	Patents Act 1983, amended several times to 2004. Protection is accorded to utility innovation. The statutory definition of utility innovation is any innovation which creates a new product or process, or any new improvement of a known product or process which can be made or used in any kind of industry, and includes an invention. Term of protection = 15 years.
Philippines	Intellectual Property Code, Republic Act No. 8293, January 1, 1998; Implementing Regulations 1998. Any technical solution of a problem in any field of human activity which is new and industrially applicable shall qualify for registration as a utility model. In particular, a utility model may be, or may relate to a useful machine; an implement or tool; a product or composition; or an improvement of any of the foregoing. An invention qualifies for registration as a utility model if it is new and industrially applicable. Local novelty is required. The utility model application is examined only as to formalities. Term of protection = 15 years
Taiwan, Province of China	Patent Law (Chapter III: New Utility Model Patent), May 29, 1944; January 21, 1994. A "new utility model" is defined as a creation or an improvement which has been made in respect of the form, construction or fitting of an object. The utility model must be novel, capable of industrial applicability, and involve an inventive step. Examination is substantial. Term of protection = 12 years
Thailand	Petty patent protection, January 6, 1999. To be eligible, an invention must be new and industrially applicable, though it will not need to possess an inventive step. Petty patent owners will be accorded an exclusive right to exploit their inventions. Term of protection = 10 years.

Turkey	Decree Law No 551 on the Protection of Patent Rights, June 27, 1995, amended by Law No 4128 of November 7, 1995. The law provides that inventions which are novel and applicable in industry may be protected by utility model certificates. The two conditions for registration are novelty and industrial applicability. Local novelty is required. Examination is for formalities only. A report as to the state of art, available under the patent system, will be drawn in respect of a utility model only on request of the applicant. Term of protection = 10 years
Uzbekistan	Rules of Preparing and Filing Applications for Inventions and Utility Models, effective September 22, 1992. "Utility models" are defined as new and industrially applicable features used in the production of consumer products or components of such products. In order to be registered the utility model must be new and capable of industrial applicability. Novelty is determined at a universal level. The application is examined ex officio. The examination is cursory. The result of the examination is taken into account in determining questions of validity in the event of opposition, invalidation, or infringement proceedings. Term of protection = 8 years
Vietnam	Civil Code, effective July 1, 1996. According to the Civil Code there is also provision for utility models which are defined as incorporating technical solutions applicable in various social and economic fields. The emphasis in distinguishing between utility models and registered designs is the fact that utility models are technical in nature. The technical solution must be novel. Novelty is judged on a universal basis. Term of protection = 15 years

ENDNOTES

1 Licensing opportunities can be an important factor as indicated in the 2004 OECD study by Park & Lippoldt on international licensing and intellectual property rights. The report indicates that the strengthening of intellectual property rights has had a net positive effect on technology transfer via licensing during the 1990s in developed countries. The study also indicted that among the emerging market economies, the leading participant licensee nations are the Asian countries i.e. Korea, Taiwan, Province of China, Singapore, Hong Kong and China. However, two factors should be mentioned. Technology transfer comes at a price: the recipient country pays for such transfers, and the recipient country must have a dedicated and efficient intellectual property rights structure. See Walter Park and Douglas Lippoldt, International Licensing and the *Strengthening of Intellectual Property Rights in Developing Countries*, OECD Trade Policy Working Paper No. 10, December 2004.

2 See Dernis, H., Guellec, D., and. Van Pottelsberghe, B., (2001), "*Using patent counts for cross-country comparisons of technology output*", STI Review, 27, OECD, Paris, pp. 129-146.

3 Suthersanen, U. (2001), "Incremental Inventions in Europe: A Legal and Economic Appraisal of Second Tier Patents", *Journal of Business Law*, July, pp 319-343.

4 Table in Digest of National Laws/3 in Macdonald, M. & Suthersanen, U. [1997-2005] *Design and Copyright Protection of Products: World Law & Practice*, Sweet & Maxwell, p JAPAN-9.

5 Arts 4(E)(1) and 4(E)(2), Paris Convention.

6 It is noteworthy that national utility model systems tend to adopt the International Patent Classification (IPC) as provided by the 1971 Strasbourg Agreement for the International Patent Classification, which facilitates the retrieval of patent documents in order to conduct effective novelty searches and determine the state of the art.

7 Para. 3.7.4, Resource Book

8 Title III, Andean Community Decision 486 of 2000.

9 Adopted on December 10, 1982, at Harare (Zimbabwe), and amended by the Administrative Council of ARIPO on December 11, 1987, April 27, 1994, November 28, 1997, May 26, 1998, November 26, 1999 and November 30, 2001).

10 Articles 2(1) and 4(C)(1), Paris Convention for the Protection of Industrial Property of March 20,1883 (Stockholm revision). The period of priority for applications for utility model is twelve months.

11 Article 1(2), Paris Convention.

12 Articles 4(E)(1) and 4(E)(2), Paris Convention.

13 Agreement on Trade-related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods, Annex 1C of the WTO Agreement, April 15, 1994.

14 Para. 3.74, UNCTAD-ICTSD (2005), Resource Book on TRIPS and Development,

15 Early examples of codified patent customs are the 1474 Venetian Decree (the decree broadly granted exclusive rights to an inventor of a machine or process, including the right to request damages and the destruction of infringing devices); and the 1623 British Statute of Monopolies 1623, 21 Jac. I c.3 (whereby an inventor of any "manner of new manufacture" would be accorded a 14-year term of protection. The notion of inventor did not merely encompass the creator of the invention, but any person who imported the invention from abroad). See, E. Penrose (1951), *The Economics of the International Patent System*, at 1-12, 88-90.

16 F. Machlup and E. Penrose (1950), "The Patent Controversy in the 19th Century", *Journal of Economic History,* at p. 1.

17 Adam Smith, a firm supporter of granting a temporary monopoly to inventors, viewed it as a justifiable exception to free trade principles, A. Smith (1904), *Wealth of Nations*, 1904, Book V, chap. 1, Part III, 388; also see J. Bentham, "A Manual of Political Economy", in *The Works of Jeremy Bentham* 31, 1962, 71.

18 J. S. Mill, *Principles of Political Economy*, 1985, Book V, Chapter X, § 5, 295-296.

19 P. Geroski, (1995) "Markets for technology: knowledge, innovation and appropriability. *In*: P. Stoneman (ed.) *Handbook of the economics of innovation and technological change*. Oxford and Malden, Blackwell. p. 90-131, at 97; also Kenneth J. Arrow, (1962) Economic welfare and the allocation of resources in invention. *In*: NBER, *The rate and direction of innovative activity*. Princeton, Princeton University Press.

20 This point applies to those developing countries that have attained a reasonable capacity to adopt and benefit from such technologies. Countries with very limited capacity have far less to gain from free access to technologies.

21 Juma, C. *The Gene Hunters: Biotechnology and the Scramble for Seeds*, Princeton University Press, Princeton, 1989, at 231-2.

22 Kumar, N, *Technology and Economic Development: Experiences of Asian Countries*, Commission on Intellectual Property Rights Intellectual Property Rights, 2002, London.

23 By introducing parallel regimes of protection, we erode established doctrines in copyright and trade mark laws such as the "functionality", "separability" and the "idea-expression" - U. Suthersanen, "The European Court of Justice in Philips v Remington - Trade Marks and Market Freedom", *Intellectual Property Quarterly,* 3 (2003) 3, 257; M. Rushton, "An Economic Approach To Copyright In Works Of Artistic Craftsmanship", *Intellectual Property Quarterly,* 3 (2001), 255.

24 Kenneth W. Dam, "Some Economic Considerations in the Intellectual Property Protection of Software", *Journal of Legal Studies,* 24 (1995), 321.

25 G. Dutfield and U. Suthersanen, "Harmonisation or differentiation in intellectual property protection? The lessons of history". *Prometheus* 23(2), 2005, 131-47.

26 A Pocketbook of Enterprise Policy 2004: How Member States and Candidate Countries rank in the 2004 enterprise policy scoreboard, available at http://europa.eu.int/comm/enterprise/enterprise_policy/competitiveness/doc/pocketbook_2004.pdf

27 Finnish Law No. 800 of May 10, 1991; Danish Act no. 130 of 26 February 1992.

28 Italian Law on Industrial Model Patents (Royal Decree No. 1411 of 25 August 1940); Industrial Property Statute of 1929.

29 European Innovation Scoreboard 2004. Comparative Analysis of Innovation Performance. Commission Staff Working Paper [Sec(2004) 1475], available at http://register.consilium.eu.int/pdf/en/04/st15/st15189.en04.pdf

30 Annual Reports by the Commission, 1991-2003.

31 Article L 611-2 of the Intellectual Property Code, Law No. 92-597 of July 1, 1992, last amended in 1994, which states that that inventions can seek protection under three types of industrial property titles: a) Patents, for a term of 20 years; b) Utility certificates, for a term of six years; and c) Supplementary protection certificates in respect of pharmaceutical inventions.

32 Despite the high protection thresholds, there is only an examination as to formalities. A similar nature of protection is also available under the Belgian Patent Law of 28 March 1984.

33 Technically, absolute novelty is required under Italian patent law. However, the Italian courts have set novelty at a low standard and have granted patents to inventions which merely show simple modifications or adaptations.

34 Spanish Patent Act of 20th March 1986.

35 Danish Act No 130 of February 26, 1992.

36 Finnish Utility model Act (Act 800/91) of 1 January 1992.

37 Greek Utility model Law 1733/87, 1 January 1988.

38 Italian Law on Industrial Model Patents (Royal Decree No. 1411 of 25 August 1940).

39 Portuguese Industrial Property Code (Law No 16/95), 1 June 1995

40 Art. 1(2), Austrian Utility Model Law, 1 April 1994.

41 European Patent Office, Epidos/Inpadoc, position at 9.7.1993; IFO patent statistics; and IFO Institute Calculations.

42 Source: Deutsche Bank Research Report on Innovation, Oct. 10, 2003.

43 M. D. Janis, Second Tier Patent Protection, 40 *Harvard International Law Journal* 151 (1999).

44 Mark D. Janis, Second Tier Patent Protection, 40 *Harvard International Law Journal* 151 (1999), at 159.

45 Krasser, at 953; Stephen P. Ladas, Volume *2 Patents, Trademarks, and Related Rights: National and International Protection* § 551 (1975) at 952; Mark D. Janis (1999), at 159.

46 Article 1(1), German Utility Model Act of August 28, 1986, as amended in 21 January 2005, (Federal Law Gazette I, p. 146).

47 The provisions on excluded subject matter under the German utility model and patent laws are based on Articles 52(2), (4) and 53, European Patent Convention.

48 German Utility Model Act, Art. 1(2), and 3(1). The terminology can be confusing. German patent law requires *erfiinderische Tatigkeit* whereas a utility model requires only *erfinderischer Schritt* - the normal English translation of the former is inventive activity and of the latter is inventive step. This is confusing as French and English wordings of patent law tend to use the phrase "inventive step" as the equivalent to the first of these German terms!

49 Article 1 of the German Utility Model Act of August 28, 1986, as amended in 1994.

50 Erich Kaufer, The Economics of the Patent System, Routledge:1989, at 12.

51 European Innovation Scoreboard 2004. Comparative Analysis of Innovation Performance. Commission Staff Working Paper [Sec(2004) 1475]

52 *German Innovation*, The OECD Observer, September 2005, summarising the results of an indepth report on innovation in Germany in Kerstin Röhling and Thomas Multhaup (2005), "Innovative SMEs in Germany", in *OECD SME and Entrepreneurship Outlook*, Paris.

53 M Sakakibara & L Branstetter, MP Page, *Do stronger patents induce more innovation? Evidence from the 1988 Japanese patent law reforms*, Rand Journal of Economics, 2001, available at http://www2.gsb.columbia.edu/faculty/lbranstetter/PDFpapers/Do_stronger_patents_induce_more.pdf

54 World Competitiveness Yearbook 2004, IMD.

55 Development Bank of Japan Research Report No. 53 – Japan's Innovative Capacity and Policies for Commercialising New Technologies, May 2005.

56 Christopher Heath, Japan, in *Intellectual Property Law in Asia* (ed. C. Heath), Kluwer Law International (London:The Hague, 2003.

57 Sources: WIPO Annual Statistics & Annual Report 2000, Japan Patent Office.

58 Out of the total of 467,892 patent applications filed between 1998 and 2002, 138,222, or just under 30 percent, came from foreigners. The percentage of foreign patents granted was only slightly higher, with 76,298, or 33 percent of the total of 230,456.

59 Mansfield, "Industrial R&D in Japan and the United States: A Comparative Study", 1988, p. 326.

60 Heath, C., Utility Model Law, in *Encyclopaedia of Japanese Law from 1868*, Brill Publishing, Netherlands, 2002 (copy on file with author).

61 Cong Cao, "*Corporate R&D and innovation in China*", East Asia Institute, National University of Singapore.

62 Dahlman, C., Aubert, J-E., (2000), China's Development Strategy, The Knowledge and Innovation Perspective, World Bank Institute.

63 http://www.chinasinda.com/ncat.2.php?id=132.

64 Spurgeon, B.(2004), "The New Chinese Counterfeit Game", *International Herald Tribune*, 14 November.

65 G. Shoukang, The Development And Perspective Of Intellectual Property In The People's Republic of China, [1997] Intellectual Property Quarterly; also C. Heath, Utility Models in East and West, in *Current Problems of Intellectual Property Law - Writings in honour of Nobuo Monya*, Tokyo, 1998, pp.47-72, discussing the salient aspect of the Chinese utility model system.

66 Yin Xin-Tian, "A Patent Invalidation Case in China?", [1991] 21 IIC 513, at 514; Li Zhen, "Patent Appeal System in China", in *International Patent Appeal Examination Symposium*, organized by the Japanese Patent Office, November 19 - 20, 1998, Tokyo, available at http://www.jpo.go.jp/shiryou_e/toushin_e/kenkyukai_e/21stcen.htm

67 Mark Ye, "Patents for Utility Model and Design Be Renamed Patent Registration", [2004] 4 China Patents & Trademarks 34.

68 Section 17 of the Malaysian Patent Act (as amended).

69 Section 17A(2) of the Malaysian Patent Act. However, section 14(3) provides a "period of grace" enabling an application to be filed after the utility innovation has been disclosed to the public as a result of acts by the applicant or his predecessor in title, without such disclosure being considered prior art against the application.

70 Section 29A, Malaysian Patent Act.

71 Section 17C, which was added to the Malaysian Patent Act by section 9 of the Patents (Amendment) Act 1993.

72 Section 17B(1) and (2), Malaysian Patent Act.

73 Section 35, as modified by the Second Schedule, of the Act.

74 Section 35(1) as modified by the Second Schedule.

75 The law was revised in 1959, 1969, 1979 and 1986. In 1994, the law was restructured, revised again in 1997 and 2001. The latest revision was in 2003. Shieh M.Y., Chapter 1: Introduction, in *Intellectual Property Law in Taiwan, Province of China* , Max Plank Series on Asian Intellectual Property Law (Hague: Kluwer International 2003)

76 This lower level inventive step approach is supported by the Court. See Administrative Supreme Court Decisions: No.83 Pan Tzu 2875, 30 December 1994 and 79 Pan Tzu 2087, 28 December 1990.

77 Sec. 21, 93 of the Taiwan, Province of China Patent Act.

78 Sec.50 (3), 101 of the Taiwan, Province of China Patent Act.

79 Sec. 37, Taiwan, Province of China Patent Act. See also Hsu H. 'Chapter 3: Utility Model' in Heath C.(Ed.) , *Intellectual Property Law in Taiwan, Province of China*, Max Plank Series on Asian Intellectual Property Law (Hague: Kluwer Law Init' 2003)

80 Sec. 93, Taiwan, Province of China Patent Act.

81 Intellectual property Office: Guidelines for Patent Examination. Items excluded from patentability are: (i) an invention which is contrary to public order, good custom or hygiene; (ii) a shape identical with or similar to that of the flag of a political party, national flag, military flag, a national emblem or a government medal. Taiwan, Province of China Patent Act Sec.96

82 According to Article 95, "where the contents of a new utility model claimed in a patent application are identical with the contents described in the specification and drawings submitted along with an application for invention or a new utility model patent that is filed prior to but laid-open or published after the filing of the present patent application, no new utility model patent may be granted to the new utility model, except when the applicant(s) of the present application is (are) the same applicant(s) of such prior invention or new utility model patent application."

83 On 8 April 2005, the first technical evaluation report was issued.

84 'Discussing the importance of establishing a research and development alliance for Taiwan, Province of China's industries' Interview with Director Huang Chong-Qiu, Department of Industrial Technology, Ministry of Economics. Available on line: http://www.stpioneer.org.tw/modules.php?name=magazine&pa=showpage&tid=2250/>

85 For example, Taiwan, Province of China has a very mature semiconductor device technology industry, LCD technology industry and computer technology which has a relatively short product life span. Kung M.H. and Lin H.Y. 'The Dynamic of Innovation in Taiwan, Province of China-The Patent Analysis Respective' Conference paper presented to the International Conference on "2003 Industrial Science & Technology Innovation-Policy Issues and Challenges in a Critical Era" October 30-312003 Taipei, Taiwan, Province of China.

86 Source: Annual Statistics Taiwan, Province of China Intellectual Property Office.

87 Source: Annual Statistics Taiwan, Province of China Intellectual Property Office.

88 Prior Commercial Use and Patent Infringement: Hearings Before the House Committee on the Judiciary, Subcommittee on Courts, and Intellectual Property, 104th Cong. 21 (1995) (statement of Professor Karl F. Jorda), cited in Mark D. Janis, *Second Tier Patent Protection*, 40 Harvard International Law Journal 151 (1999) at 155. Interestingly, in North America, Mexico is the only country to have introduced a second tier regime in the early 1990s. See G. A. Pemberton & M.S., Jr., "Mexico's 1991 Industrial Property Law" (1992) 25 *Cornell International Law Journal* 103, 123.

89 Samuel Kortum and Joshua Lerner, "*Stronger Protection or Technological Revolution: What Is Behind The Recent Surge In Patenting*", National Bureau of Economic Research, Working Paper 6204, September 1997.

90 Adam B. Jaffe & Josh Lerner, *Innovation and its Discontents: How our Broken Patent System is Endangering Innovation and Progress, and What to do About it*, Princeton University Press, 2004; and M.L. Katz and J.A. Ordover (1990).. "R&D Competition and Cooperation". *Brookings Papers on Economic Activity: Microeconomics 1990*, 137-92.

91 David C. Mowery & Nathan Rosenberg, The U.S. National Innovation System, in *National Innovation Systems: A Comparative Analysis* (ed. Richard R. Nelson) (OUP:1993), at 59.

92 Abbot, Frederick (2005), Intellectual Property Provisions of Bilateral and Regional Trade Agreements of the United States in Light of U.S. Federal Law, Draft ICTSD Paper

93 However, there are limitations as the courts are not particularly keen to extend unfair

competition protection to highly utilitarian, functional or technical designs and products, and never processes. *Sears, Roebuck & Co* v. *Stiffel Co*, 376 US 225 (S. Ct., 1964); *Compco Corp* v. *Day-Brite Lighting, Inc*, 376 US 234 (S. Ct., 1964); and *Bonito Boats* v. *Thunder Craft Boats, Inc*, 9 USPQ 2d 1847 (S. Ct., 1989); R. Horta, "Without secondary meaning, do product design trade dress protections function as infinite patents?" (1993) *Suffolk University Law Review* 113; *Ferrari s.p.a. Esercizio Fabriche Automobili* v. *Roberts* 20 USPQ2d 1001 (6th Cir. 1991); but *cf. Traffix Devices, Inc.* v. *Mktg Displays, Inc.*, No 99-1571 (S. Ct., March 20, 2001).

94 See for example the balance between free speech, as ensured under the First Amendment, and copyright law, as ensured under Article 1, Clause 8, U.S. Constitution as discussed in *SunTrust Bank* v. Houghton Mifflin Co., 252 F.3d 1165 (11th Cir. 2001)

95 See United States Federal Trade Commission (FTC) Report 2003, at pp. 9-12.

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98 Cornish, W.R. (1993) 'The international relations of intellectual property', 52 (1) *Cambridge Law Journal* 46, at 54-5.

99 Australian Law Reform Commission Report, *Designs,* Discussion Paper No 58 (1994) and Report No 74 (1995).

100 §§ 102, 103, 171-173, 289, U.S. Patents Act.

101 *Schwinn Bicycle Co*. v. *Goodyear Tire & Rubber Co.*, 444 F.2d 295, 298 (9th Cir., 1970) (stating design criteria for obviousness covered by same language as utility patent per 35 USC 171).

102 R. Denicola, "Applied Art and Industrial Design: A Suggested Approach to Copyright in Useful Articles" (1983) 67 *Minnesota Law Review* 707; T. Lindgren, "The sanctity of the design patent: illusion or reality?" (1985) 10 *Oaklahoma City University Law Review* 195 at 207, 209.

103 35 USC Sec. 171 (1976). The novelty requirement of patentability is expressed in 35 USC Sec. 102(a) and (b).

104 *Bliss* v. *Gotham Indus., Inc.*, 137 USPQ 189 (9th Cir., 1963); and generally D. Chisum, *Patent Law*, 1997, Sec. 1.04[2][c].

105 35 U.S.C. § 103 (1976).

106 *In re Nalbandian* 211 U.S.P.Q. 782 (CCPA. 1981), at p. 784. The CCPA re-affirmed itself in *In re Carter*, 213 U.S.P.Q. 625 (CCPA. 1982), and *In re Rosen*, 213 U.S.P.Q. 347 (CCPA 1982). See also *Graham v John Deere Co*. 383 U.S. 1 (S. Ct., 1966).

107 See, for example, *L.A. Gear Inc. v Thom McAn Shoe Co.*, 12 U.S.P.Q.2d 1001, 1007 (S.D.N.Y. 1989) ("The existence of…..competing shoes indicates that the design configuration is ornamental, not functional").

108 *Petersen Manufacturing Co. v Central Purchasing Inc*, 740 F.2d 1541 (Fed. Cir., 1984) (the court held the design of the hand-tool to be functionally dictated, but finally invalidated the design on the ground of obviousness)

109 *Power Controls Corp. v Hybrinetics, Inc.* 231 U.S.P.Q. 774, 777-78 (Fed. Cir., 1986);*Bentley v Sunset House Distrib. Corp.,*149 U.S.P.Q. 152 (9th Cir., 1966) ("Where the "design" of a design patent is dictated primarily by functional or mechanical requirements and any pleasing aesthetic effect is only an inadvertent by-product, the design patent is invalid.")

110 7 U.S.P.Q.2d 1548 at 1553 (Fed. Cir., 1988).

111 Lanham Act, Ch. 540, 43(a), 60 Stat. 441 (1946), current version at 15 U.S.C. 1125(a) (1988).

112 *Vaughan Mfg. Co. v Brikam Int'l, Inc.*, 814 F.2d 346 at 348, note 2 (7th Cir., 1987).

113 *Stormy Clime Ltd. v Progroup, Inc.,* 809 F.2d 971, 974 (2nd Cir., 1987) (secondary meaning is a prerequisite to successful infringement suit for raincoat designs); *American Greetings Corp. v Dan-Dee Imports, Inc.*, 807 F.2d 1136, 1141 (3rd Cir., 1986) (requiring secondary meaning prior to protection of trade dress for stuffed animals).

114 *Stormy Clime Ltd. v Progroup, Inc.,* 809 F.2d 971, 974 (2nd Cir., 1987); *First Brands Corp. v Fred Meyer, Inc.,* 809 F.2d 1378, at 1381 (9th Cir.,

1987).

115 *Chevron Chem. Co. v Voluntary Purchasing Groups*, 659 F.2d 695, 702-03 (5th Cir., 1981); *AmBrit, Inc. v Kraft, Inc.* 812 F.2d 1531 at 1535-37 (11th Cir., 1986).

116 112 S. Ct. 2753 at 2761 (S. Ct., 1992).

117 *Two Pesos, Inc. v Taco Cabana, Inc* , 112 S. Ct. 2753 at 2761 (S. Ct., 1992).

118 R. Horta, "Without secondary meaning, do product design trade dress protections function as infinite patents?" (1993) Suff. U. L. Rev. 113 at 129.

119 Inwood Law. Inc. v Ives Lab. Inc 456 US 844 (S. Ct., 1982).

120 *First Brands Corp. v Fred Meyer, Inc.,* 809 F.2d 1378, 1381 (9th Cir. 1987) (trade dress viewed as whole when determining whether dress is functional); *LeSportsac, Inc. v K Mart Corp.,* 754 F.2d 71, 76 (2nd Cir., 1985) (features of trade dress must be taken together when determining functionality)

121 *Inwood Law. Inc. v Ives Lab. Inc* 456 US 844 (S. Ct., 1982), page 850.

122 671 F.2d 1332 (CCPA, 1982).

123 *Ibid* at 1341-1342.

124 289 F.2d 496 (CCPA, 1961).

125 European Parliament and Council Directive 98/71/EC of 13 October 1998 on the legal protection of design, O.J. L289, 28.10.1998; Council Regulation (EC) No. 6/2002 of 12 December 2001 on Community designs. The 1998 Design Directive serves to harmonise the substantive aspects of Member States' national laws, although no attempt has been made to harmonise the procedural aspects of the law. A major reason for the adoption of the Directive is to maintain the current national design registration system, especially for the benefit of enterprises with local market concerns, in co-existence with the Community Design law. The Design Regulation, on the other hand, creates a unitary Community Design Right (CDR).

126 Articles 7-8, Design Directive; Articles 8-9, Design Regulation.

127 There is an exception in respect of "interconnection" features: designs which serve the purpose of allowing multiple assembly or connection of mutually interchangeable products within a modular system will be protected. This has been taken to refer to designs destined for modular systems, and which by their nature must fit or assemble with each other. Examples of this include modular toy systems such as LEGO bricks or modular furniture systems. Article 7(3), Directive; Art. 8(3), Regulation.

128 Philips Electronics NV v Remington Consumer Products [2002] C.M.L.R. 1329 (AGO and ECJ), para.[A34].

129 Articles 4-8, Directive; Articles 4-7, Regulation.

130 Article 6, Directive. The terminology used in Article 7,Regulation is almost identical.

131 Article 12, Directive; Article 19, Regulation. "Use" is defined to cover, in particular, the making, offering, putting on the market, importing, exporting or using of a product in which the design is incorporated or to which it is applied, or stocking such a product for those purposes.

132 Article 19(2), Regulation.

133 Article 11, Regulation.

134 Article 9 Directive; Article 10, Regulation.

135 For an example of such acts, see Article 10bis of the Paris Convention.

136 P. Kaufmann, *Passing Off and Misappropriation*, IIC Studies, Volume 9, VCH:Munich, 1986, at p. 15.

137 P. Kaufmann, *ibid*.

138 *Massey-Ferguson v Bence Equipment & Bepco France*, TGI Versailles, 10 March 1982; (1983) FSR 117.

139 WIPO, *Protection Against Unfair Competition*, WIPO:Geneva, 1994, paragraph 61.

140 See generally, U. Suthersanen, *Design Law in Europe,* (Sweet & Maxwell, 2000), chapter 23.

141 *Machinefabriek Thole NV v Hyster Company*, H.R., June 26 1953, NJ 1954, 90 at 180, in Kaufmann, p. 75.

142 Law on Unfair Competition, BGBl. I 2004, 1414 of July 3, 2004. (Gesetz gegen unlauteren Wettbewerb - UWG).

143 C. Rohnke, Protection of External Product Features in West Germany (1990) 2 EIPR 41.

144 However, on the other hand, if products are functional, and fail to qualify for patent and utility model protection, courts are more likely to condone copying - it has always been the view that such features should be available for copying, even where there is a danger of deception since a manufacturer should not be allowed to secure a monopoly of his product, absent any intellectual property right. See Suthersanen, *Design Law in Europe*, *op* . chapter 23.

145 See *Lego Bricks*, GRUR, 1964, p. 621; and *Tchibo/ Rolex*, BGH, GRUR 1985, p. 876.

146 The law of unfair competition is not governed by special texts but is part of the civil law as governed by Article 1382 of the French Civil Code. Some actions are also based on Article 1383 Civil Code which covers acts of negligence. In general, there are two main areas of unfair competition which concern intellectual property rights: *concurrence déloyale* (which addresses issues of interference with and obstruction of competition) and *concurrence parasitaire* (which deals with the usurpation of the plaintiff's distinctive achievement to the defendant's benefit). See Suthersanen, *Design*

Law in Europe, *op* . chapter 23.

147 Suthersanen, *Design Law in Europe*, *op.cit*. chapter 23; A.Kamperman Sanders, *Unfair Competition Law - The Protection of Intellectual and Industrial Creativity*, Clarendon Press: Oxford, 1997, p. 29.

148 F.M. Scherer and D. Ross, *op. cit.*, pp. 577 to 578.

149 E. Kitch, "The Nature and Function of the Patent System", (1977) 20 *Journal of Law & Economics* 265, at p. 281.

150 Apparently, the major users of the Australian innovation patent system are from the less knowledge-based industries as opposed to the knowledge intensive users

151 Cornish, W.R. (1993) 'The international relations of intellectual property', 52 (1) *Cambridge Law Journal* 46, at 54-5. Abbot, Frederick (2005), Intellectual Property Provisions of Bilateral and Regional Trade Agreements of the United States in Light of U.S. Federal Law

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