

Current Issues in Manufacturing Management: Intellectual Property Issues in a Global Environment

Anita L. Callahan, Ph.D., P.E. , Paul E. Givens, Ph.D., H.A. Montefusco
University of South Florida

Abstract

In this era of the shrinking global marketplace, engineers in the United States can no longer rely on traditional means to protect their intellectual property. While patents, copyrights, trademarks, and trade secrets have provided engineers with incentives to develop and pursue creative ideas, these legal entities do not guarantee protection outside the United States. For example, the United States, along with only two other countries (The Philippines and Jordan), subscribe to a first to invent policy for patent protection **while** the rest of the world follows a first to file policy. In other words, an engineer in the United States who develops a new process and patents it in the United States may find that someone else who did not invent the process but was aware of it filed for protection out side the United States and is now reaping the benefits of the original engineer's efforts. This may change but the engineer must be aware of the rules in effect at the time of filing. Another example that will **affect** many engineers is the issue of copyrights. Until recently, the United States required authors of intellectual property, including software developers, to register their works in order to obtain legal protection. Just recently the law changed with the United States agreeing to the Beme convention which states that any copyrightable material is protected from the time it is created whether or not it has been registered. Registration is still important, however, in order to obtain legal costs from the infringer.

Engineers play an important role in developing the intellectual property of the world. However, many are not aware of how their uninformed actions can affect the rewards they obtain from their endeavors. This paper provides an overview of the **legal** mazes encountered by engineers when attempting to protect their intellectual property in the global environment. While not a legal document, it also provides the engineer guidance with respect to what is the appropriate type of protection, when to obtain such protection, and where it is appropriate to file given the type and life of the intellectual property in question.

Introduction

The goal of many engineering students is to design a new product or develop a new process. While many engineering curriculums provide the foundations for such endeavors, one area of instruction that is lacking is in the arena of protection of ideas. In today's global environment, students can not rely on others to recognize and reward their efforts.



Students need to become aware of the issues of intellectual property protection and know where to find help to protect their contributions.

Intellectual Property

One example of where technology has proceeded faster than our ability to manage it is in the area of intellectual property.. primarily the question of who owns what. Before I talk about some of the frontiers that the global market place has put in front of us, let me take just a few moments to define the concept of intellectual property.

Property is a concept that most of us understand. It is something that can be owned by someone or groups of **someones**. Until recently, the term property referred to real property something you could touch or see.. **in** other words, something tangible. You could buy property, sell property, or in some cases even make property. Real estate, houses, even books are considered to be property.

Recently, however, the concept of intellectual property has come to the forefront of the ethical debate. Unlike the property we have been talking about you could somehow sense, intellectual property is really a product of the mind. It is knowledge. And students who plan on producing products of the mind need to be aware of the issues involved.

Traditional Means of Protection

Traditionally, intellectual property has been protected by one of four means: copyright, patent, trade secrets, and service marks. Although these are still the primary means of protection, protection in one country does not guarantee protection in **all** countries where one might do business. Each case must be analyzed separately.

Copyright is designed to protect the expression of the idea, not the idea itself. Traditionally, examples of expression have included written works, paintings, photographs, music, and other forms of art. Recently, the courts in the United States have held that certain aspects of **software** (i.e. the code itself) is also protected by copyright. Copyright protection exists in **138** countries as of this writing. If you have a work that is protected by copyright in one country has reciprocal protection in the other 137 countries. **Also**, unique to copyright protection is that fact that the author need not do anything to obtain protection. Creative expressions are protected without registration. However, if the author wishes to obtain court costs from a suit, the expression must be registered within a certain period of time. Therefore, copyright offers the most universal protection, but is limited strictly to the creative expression of the **idea**, not to the idea itself.

Patents protect the application of an idea. The primary purpose behind patents is to provide the inventor with compensation for **his/her** work **while** making the technology available for use by other organizations. Licensing is one of the primary goals of patents. Ideas, algorithms, heuristics, etc. are not protected. In addition, patents pertain only to the country in which they have been filed. With different conventions, such as first to file and first to register as well as when an invention becomes public property, it behooves a



student considering patent protection to seek qualified legal advice early in the process. One organization with much experience in the protection of intellectual property usually seeks a patent only in the United States. If other patents are sought, Japan and European protection is considered important. The reason...many times only first world countries have the technology required to exploit the invention. Protection in every country would be prohibitably expensive. Protection should be sought only where appropriate.

Trade secrets can also be used to protect intellectual property and unlike a patent or a copyright its protection saves any need to file, register, or engage in other legal formalities while providing protection without potentially disclosing the secret. This legal protection is afforded one under the provisions of the "Uniform Trade Secrets Act" (adopted by most states) and Section 757 of "The Restatement of Torts" which defines a trade secret as: A trade secret may consist of any formula, pattern, device or compilation of information that may be used in one's business that gives him an opportunity to obtain an advantage over competition who do not know or use it. The only test required to establish a trade secret is that some element of secrecy must exist and the information claimed must not be a matter of public knowledge or generally know in industry.

The remedy afforded an entity by the courts for improper use of an established trade secret is both injunctive **relief**, actual damages and punitive damages. Moreover, as with remedies **afforded** both patent and copyright **infringements**, the damages entail the plaintiffs actual losses, the defendant's profits, reasonable royalties, and possible punitive damages.

Trade and Service Marks

An additional type of intellectual property to be addressed is that of trade and **service** marks which are considered protectable subject under Article 6bis of the 1967 Paris Convention. The definition of which is essentially any sign or combination of sires capable of distiguishing the goods or services of one undertaking from those of other undertakings.

The signs included personal names, letters, numerals, figurative elements, combinations of colors or any combinations thereof are eligible for registration as a trade or service mark. These marks are **further** identified even in the case when such signs are not inherently capable of distinguishing goods or services but may still be **registrable** is their "distinctiveness is acquired through use." The life of a registered trade or service mark is no less than seven (7) years and my be renewable indefinitely.

The **afforded** protection to the owner of a registered **trade/service** mark is the exclusive right to present all third parties not having his consent from using in the course of trade identical or similar sires for goods or services which are identical or similar to those in respect to which the trademark is registered where such use would result in a likelihood of confusion.



The Future

“Engineers must be aware of the impact of the global market on intellectual property. Protection is usually sought by individuals who have something to protect while protection is not made available by countries who have little intellectual property to protect and want to obtain intellectual property from others. While there is a move among industrialized nations to provide relief for the developers, individuals must be cognizant of the fact that not every one sees the world in the same light. For example, China and Russia are two of the biggest offenders. It will be interesting to see how these issues are resolved.

Students need to know what the future holds for them. The most valuable item that they have to offer an employer or a customer is their knowledge. Whether they ever file for a copyright or a patent, they must understand the consequences of being an intellectual property provider in an ever changing global market place.



Dr. Anita L. Callahan has a B. S. in Industrial Engineering and Operations Research from Virginia Tech an M. S. in Industrial Engineering, and a Ph.D in Industrial Engineering (Organizational Behavior and Engineering Ethics), both from Stanford. Before returning to academia, she held positions in various industries including light manufacturing, material handling, and chemical processing. She was also co-founder of an Industrial Engineering consulting firm. She is currently an Associate Professor in the Industrial and Management Systems Engineering Department at the University of South Florida. Her teaching interests included professional ethics, management of technical firms and **multi-cultural** awareness in engineering. Dr. Callahan has served as **secretary/treasurer** for the Society for Engineering and Management Systems, as President of SEMS and is currently vice-president of Continuing Education for HE. She also has been a track coordinator for both the **IE** Conference and the **IE Research Conference**. She is a registered Professional Engineer in the state of South Carolina. She teaches several **courses** in the **MS Engineering Management** program on the **Florida Engineering Education Delivery System**.

Mr. H.A. Montefusco graduated with a BS in Economics and Sociology from Seton Hall University and a J.D. from Boston College as well as completing graduate work in **statistics** and advanced corporate accounting and finance from Catholic University. Currently Mr. **Montefusco** is a visiting Scholar at the University of South Florida in the department of Industrial and Management Systems Engineering. While at USF, he has been responsible for courses in Total Quality Management, Technology and Law, and Global Management of Technology.

Dr. Givens has a B. S. in Industrial Engineering, an MBA in Business and a Ph.D. in Industrial Engineering (Human Factors and Management) from the University of Texas@ Arlington. Dr. Givens has 20 years experience in industry before pursuing an academic appointment. This experience includes everything from engineering design to executive management. Dr. Givens has experience in consulting with small and medium size businesses from entrepreneurial considerations to operations evaluations. Dr. Givens has experience in establishing a Center for Technology Transfer (as pertains to small and medium size businesses) and in its **successful** operation. Dr. Givens has expertise in Technology and Engineering Management and is currently teaching courses in these specialty areas. Dr. **Givens** been the Department Head and Professor of the Industrial & Management Systems Engineering Department at the University of South Florida for the past 8 1/2 years. Dr. **Givens** is active in several Professional Societies and his most recent tour was a the Senior Vice President of Professional Enhancement and a member of the Board of Trustees for the Institute of Industrial Engineers. Dr. **Givens** has been awarded numerous awards for his research and engineering work. Dr. **Givens** was nominated and elected to Alpha Pi Mu society March 1971, and was nominated and elected Vice President of region 1111992 to present. He was elected as an Eminent Engineer of Tau Beta Pi in 1973, was elected Fellow of the Institute of Industrial Engineers in May 1992, and was inducted into the University of Arkansas Industrial Engineering Hall of Fame in 1995. In addition to his leadership in managing the Industrial& Management Engineering

