



# The Computerworld Honors Program

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## Final Copy of Case Study

**LOCATION:**  
*Horsham, PA, US*

**ORGANIZATION:**  
Reed Technology & Information Services Inc. (a division of LexisNexis)

**YEAR:**  
*2011*

**ORGANIZATION URL:**  
<http://www.ReedTech.com>

**STATUS:**  
*Laureate*

**PROJECT NAME:**  
Electronic Patent XML Conversion System "ePM"

**CATEGORY:**  
*Economic Opportunity*

### PROJECT OVERVIEW

Problem: In 2005, the process for submitting and (in part) producing a patent Grant in the United States was largely paper-based, in an environment of rapidly growing patent filing volumes and the increasing value of IP. In working to complete a transformation from paper to electronic patent processing, Reed Technology & Information Services Inc. (Reed Tech) needed to initiate a lengthy systems and process migration in parallel with an operation producing some 4,500+ granted patents per week, while continuously managing a pipeline of content for some 1,200,000+ in-process patent applications. This migration was intended to support the USPTO's parallel migration to electronic processing, and designed to help the USPTO in its mission to accelerate dissemination of the growing volume (Appendix 3) of Patents, while improving patent quality and turnaround in the United States. An example to highlight the growth in IP: "...In recent decades, the fraction of the total output of [the US] economy that is essentially conceptual rather than physical has been rising. The trend has, of necessity, shifted the emphasis in asset valuation from physical property to intellectual property and to the legal rights inherent in intellectual property."<sup>2</sup> US Federal Reserve Chairman Alan Greenspan, 27 February 2004<sup>\*\*</sup> \*International Chamber of Commerce study (Appendix 2, Diagram 2A):

[http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual\\_property/Statements/BASCAP\\_IP\\_pub.pdf](http://www.iccwbo.org/uploadedFiles/ICC/policy/intellectual_property/Statements/BASCAP_IP_pub.pdf) The RTIS ePM system facilitates the standardization of content for publication (under contract) with USPTO for all United States Pre-Publication and Granted Patents. Intellectual capital is now recognized as the most important asset of many of the world's largest and most prominent organizations; it forms the basis for market dominance and continuing profitability of leading corporations. It is often a primary objective in mergers and acquisitions and knowledgeable businesses are increasingly focusing their energy on the building and licensing of their IP portfolios. The development of an electronic process to ensure consistency in the conversion of all incoming applications to the United States Patent and Trademark Office is the focus of this submission. The movement to this modified electronic process for patents was designed to help the USPTO ensure comprehensive internal and global



access to complex content that ultimately drives the economic benefits of worldwide IP. Every day, the United States Patent and Trademark office (USPTO) ingests tremendous volumes (approximately 500,000 to 600,000 pages) of documentation related to new or previously-filed patent applications. Just a few short years ago, the majority of these documents were handled in paper form. Today, although more than 90% of incoming applications are e-filed in PDF with USPTO, there remains a necessary effort to standardize and structure the full range of incoming content to searchable XML format, with a very high degree of quality. Over the last several years, the USPTO has been able to make an initial transformation from an all paper environment, to an all-electronic, image-based environment. This transformation was supported in parallel by the early construction of the Reed Tech ePM system. Failure to make a transformation would certainly have made the very challenging task faced by the USPTO nearly impossible to manage.

## **SOCIETAL BENEFITS**

In an increasingly web-wired-world and with ongoing recognition for the importance and value of protecting intellectual property, the generation of patent information in a highly structured and fully searchable form is now fundamental. Migration to the ePM system at Reed Technology is helping to drive searchable U.S. Patent content into the global IP community.

## **PROJECT BENEFIT EXAMPLE**

While ePM is only a subset of the total Patent process, the USPTO derives material benefits in the implementation through the close integration of processes. Most notably, the construction of the ePM platform occurred at a critical point in time and in lockstep with the USPTO's migration of their systems to the electronic environment. The overall migration to the electronic platform enhanced information exchange, and materially improved the construct of patents through the process. The ePM system has enabled Reed Tech to ensure higher levels of support to the USPTO Examiners in conducting quality reviews of document formats and basic content, while materially reducing risks associated with human interactions. There are literally millions of errors and violations of USPTO business rules in documents submitted to the USPTO each year by patent applicants. Reed Tech estimates that in 2010, the total number of such errors approached three million (3,000,000). Reed Tech's ePM platform brings many of these errors to the surface so that they can be reviewed by an expert either at Reed Tech or at the USPTO. In some cases errors can be corrected directly through automation. The result is a cleaner product for Patent Examiners to work with and a more accurate product set published by the USPTO for use by the Intellectual Property community worldwide. Indirectly, the ePM system is a subset of and supports the third of three central components of the USPTO's broader mission (see [http://www.uspto.gov/web/offices/com/annual/2008/mda\\_01.html](http://www.uspto.gov/web/offices/com/annual/2008/mda_01.html)), namely: "Delivering intellectual property information and education worldwide". Finally, the development of the electronic processes in ePM is helping the USPTO to keep pace with the tremendous upsurge in incoming patent filings (see Appendix 3, Diagram 3A). In broader terms, the development of the ePM platform as a subset of the total system for producing Patents in the US relates to the economic benefits of Intellectual Property (IP). "The continued demand for patents and trademarks underscores the ingenuity of American inventors and entrepreneurs. In fulfilling the mandate of Article 1, Section 8, of the Constitution, "to promote the progress of science and the useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries," the USPTO is on the cutting edge of our nation's technological progress and achievement." (from [http://www.uspto.gov/web/offices/com/annual/2008/mda\\_01.html](http://www.uspto.gov/web/offices/com/annual/2008/mda_01.html)). In a recent study (12/29/10), by Ocean Tomo LLC (Appendix 2, Diagram 2B, 2C) (<http://www.oceantomo.com/productsandservices/investments/intangible->



market-value), the organization provides a clear indication of the growing importance and value of IP, not only in the US, but also in the EU, Japan and China. A notable outcome of the 2009 study demonstrates that some 81% of market value of the S&P 500 comes from Intangible Assets (IP). Also from the Ocean Tomo study: "Our further research shows that a significant portion of this intangible value is represented by patented technology." Finally, the development of the electronic processes in ePM is helping the USPTO to keep pace with the tremendous upsurge in incoming patent filings.

## **IS THIS PROJECT AN INNOVATION, BEST PRACTICE?** Yes

### **ADDITIONAL PROJECT INFORMATION**

Reed Tech has been a partner to the USPTO under contract for more than 40 years, preparing for publication more than 50% of all patents granted in U.S. history. The evolution and growth of IP in the US over this time, and particularly in the last decade, has expanded the critical need for systems and processes capable of pacing this progression. Reed Tech leverages an ISO-9001:2008 certified and FISMA-compliant network infrastructure and data production environment, and a population of more than 1,600 highly trained production experts with extensive patent content experience in the execution of conversion work for the USPTO. In supporting the Production operation, Reed Tech has deployed hundreds of physical and virtual servers and some 300+ COTs and custom-built software applications running in parallel. The migration to the electronic environment of course represented a paradigm change in methodology for Reed Tech, and also for the USPTO as the concepts introduced during the design phases of the Reed Tech processes were also shared with USPTO, and as the USPTO wrestled with the complexities of its migration. Most notably, the migration introduced one of the first and most complex electronic patent data conversion systems in the world, leading all other world intellectual property offices in this arena. As the single data capture contractor responsible for converting all incoming patent applications and downstream documents into a highly-accurate, text searchable database, Reed Tech recognized early on the need to replace an internal legacy process with an electronic image-enabled process. This multi-year initiative, built between 2006 and 2009 was no small undertaking. Each week, Reed Technology processes and transforms more than 3 million pages of incoming application content, including complex content as varied as equations, tables, genetic sequences, math elements, artwork and of course text, drawings and more. Each of these component parts is dissected and processed into fully XML-compliant and searchable databases which the USPTO utilizes to populate Examiner search systems, and ultimately to provide publication deliverables on the web and to the worldwide intellectual property community. At the back end, Reed Tech is producing searchable content databases for the USPTO at the rate of more than 500 million characters in more than 180,000 publication ready pages each week. Each of the component parts of a patent application is dissected and processed into fully compliant and searchable databases for publication by the USPTO to the worldwide IP community of interest. This "dissection and processing" requires a careful deployment of a broad range of technologies and human interaction necessary to deliver a level of quality measured with a standard of 5 errors per 100,000 keystrokes (99.995% accuracy). The actual quality of output as measured by the USPTO is nearly 99.999% accuracy. The process also requires a sophisticated platform capable of tracking the movement of millions of pages throughout the patent processing lifecycle. In building the ePM platform, the deployment phase also required the retraining of more than 1,600 company and contractor employees previously working with a suite of tools designed around paper processing.