



## DELIVERING STRATEGIC SOLUTIONS ACCA'S 2000 ANNUAL MEETING

### UNITED STATES PATENT AND TRADEMARK OFFICE

#### USPTO White Paper

### AUTOMATED FINANCIAL OR MANAGEMENT DATA PROCESSING METHODS (BUSINESS METHODS)

#### EXECUTIVE SUMMARY

Recently there has been a marked increase in public attention to the operations of the United States Patent and Trademark Office (USPTO), and specifically, the workgroup responsible for examining patent applications in automated business data processing technologies, Class 705.

On March 29, 2000, the USPTO announced a plan to improve the quality of the examination process in technologies related to electronic commerce and business methods.

This white paper discusses the patent history of business data processing, the transition this technology is beginning, and the initiatives the USPTO is engaged in to keep pace with this transition and to improve quality in the examination of this technology.

**Origin and Evolution** - Business data processing has followed an unbroken evolutionary path from mechanical technology up to today's software controlled microprocessors. Automated business data processing itself dates back over a hundred years. The business method claim format has been used in various forms throughout that period. The increase in its use today is an inevitable end result of our progress over the last century.

**Class 705 (Modern Business Data Processing)** - This class contains numerous small groupings and four major groupings directed to specific and general business data processing machines and methods. These machines and methods still heavily reflect the electrical and computer engineering that underlay them. Class 705 saw about 1% of the total patent applications filed at the USPTO in FY 1999. Its 2658 applications did not even place it among the top five Communications and Information Processing technologies.

**Resources In Transition** - In 1998, the State Street decision triggered an awareness of the "business method claim" as a viable form of patent protection. We are at the beginning of a change in the approach to how inventors choose to describe their inventions. This change is in turn driving a shift in the required examiner knowledge base for the examination of Class 705 inventions. As it has for over a century, the USPTO is responding appropriately and is adapting its knowledge base as the needs of the business technologies evolve.

**Improving Quality** - It is universally agreed that high quality examination by USPTO Patent Examiners must be ensured. Quality initiatives are continuously updated. This white paper highlights initiatives in place prior to March 2000, as well as, quality initiatives announced in March by Q. Todd Dickinson, Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

**Customer Partnerships** - These are important to improving quality as the USPTO gauges the future needs of Class 705. Customers will know first the future evolution of business data processing technology. Customers' application filings will control the transition of patent application format towards the "business method form" and any future shift that will be required in the knowledge base of Class 705 examiners. They are also in a unique position to assist in providing training needed as part of adapting the knowledge base.

#### I. INTRODUCTION

On September 23, 1975, Ivan E. Sutherland of the Rand Corporation, 1975 Award for Outstanding Accomplishment of the Systems, Man, and Cybernetics Society. In his acceptance address entitled "Computerized Commerce" (*Footnote 1*), Mr. Sutherland states "What we should be building is a system of computerized commerce: a "smart" communications network which can remember, process, forward, remind and schedule as well as merely communicating". Mr. Sutherland continues "Computers will become the repositories of manufacturing know-how. Parts lists, purchasing specifications, lists of qualified vendors, design information, fabrication directions, and production history will all be stored in computers. Individuals will be free to take on new tasks more easily than ever before, because the instructions required for those tasks will be available through a variety of on-line computer terminals".

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In the mid-1990s, Mr. Sutherland's proposed "smart" communication network, now called "Electronic Commerce" or "e-commerce" began finding its niche in the business world. In recent years, the growth of the business technologies, especially the electronic commerce business industry has been phenomenal. This growth has resulted in an increase of business technology patent application filings. Concomitant with this increase in filings there has been a marked increase in public attention to the operations of Workgroup 2760 of the United States Patent and Trademark Office (USPTO) currently responsible for examining patent applications in business related data processing methods and technologies, Class 705.

One prominent portion of business method patents is the area of "Automated Financial/Management Business Data Processing Method Patents." Such automated business methods are found in U.S. Patent Class 705..

## II. ORIGINS OF FINANCIAL/MANAGEMENT BUSINESS PATENTS - PRODUCT, APPARATUS AND METHOD

The creation of a patent system was one of the acts performed by the First Congress of the United States. The first patent statute was passed on April 5, 1790, by the Congress of the twelve United States and signed into law on April 10 by President Washington. Rhode Island ratified the Constitution and joined the Union 49 days later on May 29, 1790. The "Commissioners for the Promotion of the Useful Arts" granted the first United States patent on July 31, 1790. The Commission consisted of Secretary of State Thomas Jefferson, Secretary of War Henry Knox, and Attorney General Edmund Randolph. This first patent was to a chemical method for making potash and pearl ash. *(Footnote 2)*

Financial apparatus and method patents date back to this period. These early financial patents were largely paper-related products and methods. The first financial patent was granted on March 19, 1799, to Jacob Perkins of Massachusetts for an invention for "Detecting Counterfeit Notes." All details of Mr. Perkins invention, which we presume was a device or process in the printing art, were lost in the great Patent Office fire of 1836. We only know of its existence from other sources. Mr. Perkins was perhaps our young nation's most prolific early inventor with nearly 1% of all patents from our first quarter century. Upon his death in 1849, his obituary filled three pages of the Commissioner of Patents annual report to Congress. *(Footnote 3)* The first financial patent for which any detailed written description survives was to a printing method entitled "A Mode of Preventing Counterfeiting" granted to John Kneass on April 28, 1815. The first fifty years of the U.S. Patent Office saw the granting of forty-one financial patents in the arts of bank notes (2 patents), bills of credit (1), bills of exchange (1), check blanks (4); detecting and preventing counterfeiting (10), coin counting (1), interest calculation tables (5), and lotteries (17). *(Footnote 4)* Financial patents in the paper-based technologies have been granted continuously for over two-hundred years. See [Appendix A](#) for sample Patents.

Automated financial/management business data processing method patents cannot trace their origins back to the founding of our nation. However, contrary to popular view, they did not suddenly spring into being in the late 1990's. On January 8, 1889, the era of automated financial/management business data processing method patents was born. United States patents 395,781; 395,782; and 395,783 were granted to inventor-entrepreneur Herman Hollerith on that date. *(Footnote 5)* See [Appendix B](#) for Mr. Hollerith's Patents. Mr. Hollerith's method and apparatus patents automated the tabulating and compiling of statistical information for businesses and enterprises. They were acclaimed nationally and viewed as revolutionizing business data processing. The protection of his patents allowed his fledgling Tabulating Machine Company to succeed and thrive. In 1924, Thomas J. Watson, Sr. changed the company name to International Business Machine Corporation. Hollerith manual punch cards (IBM punch cards) and his methods for processing business data were still being used up until the birth of the personal computer era. *(Footnote 6)*

The financial/management business data processing method patents of today are more numerous and more sophisticated than those of 1889. However, this is not a function of the business method ingenuity of our forebears. Rather, this is directly a function of high cost, low speed, and limited availability of automated data processing machines in the 1890's versus the low cost, high speed, and wide spread use of today's computers. Put another way, we invented some automated business data processing methods over the last one hundred years, but we spent the bulk of that time perfecting the automated business data processing machines upon which we will run the methods. It is only recently that data processing systems have become sufficiently developed to begin to allow us to fully tap our ingenuity in the business method arts.

The development of today's business data processing systems follows an unbroken evolutionary path back to simple manually operated mechanical registering devices that predate electrically controlled Hollerith type machines. See [Appendix C](#) - 1870 to 1905. Purely mechanical business data processing reached its zenith in the early 20th century. For about \$100 (\$2000 today), a 1909 merchant could purchase a cash register system that even now is one of the most sophisticated mechanical devices ever constructed. See [Appendix D](#) - 1906 to 1920. Unfortunately, business data processing was simplistic in even the most powerful of these totally mechanical registering systems. None were able to match the data processing power of the electrical-mechanical systems such as the Hollerith tabulator. However, manufacturing cost was a key issue and it was not until the 1930s that electrical-mechanical superseded purely mechanical in day-to-day business data processing systems. See [Appendix E](#) - 1921 to 1940.

The full arrival of electricity as a component in business data processing system was a watershed event. Electrical-mechanical devices provided far more business data processing power than their mechanical predecessors did. By the 1930s it was cost effective to build far more complex data processing systems. A pattern was set that has repeated itself in successive evolutionary steps since the 1930s. Electrical-mechanical switches were replaced by individual transistors. Individual transistors were replaced in turn by small-scale integrated circuits which were replaced by large-scale integrated circuits. Each new generation resulted in increased business data processing power and new inventions. However, one key thing was not significantly improved by each of these generations. Even with the arrival of larger-scale integrated circuits, each data processing system had to be individually designed at the transistor level and hard-wired to perform the correct business data processing functions. The time from innovation

through design and manufacturing to market was too long and needed to be improved. The replacement of specific function large-scale integrated circuits by software controlled microprocessors allowed this to occur and was the latest evolutionary step to bring us to the business data processing systems of today. See Appendix F - 1941-1995.

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