

# Informatics: Proposing a New Information Technology Discipline for Financial Planning

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## Executive Summary

- The financial planner's dependence on information technology is growing. To stay competitive, financial planners need to achieve a high level of efficiency in their use of information technology.
- Most technology tools used by financial planners were originally designed for applications in other fields and have been adopted by the financial planning profession, such as Monte Carlo simulation and sales management software. Financial planning informatics, a new research discipline, would address the specific technology needs of financial planners.
- Financial planning informatics is the application of information and communication technologies and information management techniques to financial planning. The objectives of financial planning informatics include the standardization of data formats, the development of knowledge bases with information needed by financial planners, the establishment of financial planning information networks, and the creation of a financial planning literature database.
- A significant deal of information technology is incorporated in financial planning software. Financial planning software can be considered a *financial planning information system* (FPIS). An FPIS needs to provide for controls and audits to ensure data security and integrity.
- The establishment of a research discipline that focuses on the technology needs of the financial planner will produce improved tools, which will translate into time savings, reduced operating costs, and better client service. These new tools will provide better support for a financial planner's work, including his or her fiduciary responsibilities. Improved technology also should benefit the client, who is ultimately the focus of financial planning.

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To effectively and efficiently serve clients in today's competitive industry, financial planners increasingly rely on information technology. The larger the financial planning firm, the more critical the use of information technology becomes as its applications extend to areas outside financial planning such as payroll, accounting, marketing, and operations. This article proposes the establishment of a new research discipline, *financial planning informatics*, which focuses on the development of technology tools to support the unique needs of financial planners.

We live in the information age. Information is the result of processing, manipulating, and organizing data in a way that creates new knowledge (Rahman 2006). Information is also defined as facts or conclusions that have meaning within a context (Oz 2006). Information technology facilitates information access and management to gain that new knowledge.

The Human Genome Sequencing Center at Baylor University's College of Medicine in Houston, Texas, defines informatics as "the study of the application of computer and statistical techniques to the management of information." Informatics applies information technology to business problems, designs and develops new uses for information technology, and intends to explain information technology's impact on people (Kay 2005).

Financial planning is a process that helps individuals accomplish specific goals. This process involves gathering and analyzing data, establishing goals, and developing a strategy. The planner gathers data from the client, financial markets, the tax code, legal documents, consultation with other professionals such as accountants or attorneys, and other sources. The data is processed, stored, retrieved, and disseminated using computing and information technology. The outcome is new knowledge that is transferred to the client. In doing so, the financial planning practitioner is using informatics (Table 1).

**Table 1: Activities of Financial Planning Informatics**

Informatics	Financial Planning Informatics
Data gathering	Client and market data gathering
Data analysis	Client and market data analysis
Data processing	Data processing
Data and information storage	Data and financial plan storage
Information technology applied to business problem	Financial planning software applied to client data
Design of uses of information	Design of financial plan and its implementation
Dissemination of information	Delivery of financial plan to client

## Informatics in Allied Professions

An informatics field is defined as the application of information and communication technologies and information

management techniques to that field (Kling 2005). For example, social informatics is the application of information technology and information management techniques to the social sciences.

Informatics is being used in many professional and scientific fields. Attorneys use legal informatics. Accountants use accounting information systems, the name given to informatics applied to accounting. Physicians use medical informatics and dentists dental informatics. These professions use informatics to process and manage information on specific subjects of their fields, and they have benefited from establishing informatics as a research discipline in their respective lines of work. Some of these benefits can be quantified, while others are qualitative. Examples of quantifiable benefits are the time and labor savings that result from the standardization of data formats. Qualitative benefits include wider and more efficient access to information.

Informatics, however, has not been formally adopted as a research discipline in financial planning. I propose that the formal establishment of financial planning informatics as a research discipline will benefit the financial planning profession, and more importantly, the client. The definition of an informatics field applied to financial planning would be stated as follows: *Financial planning informatics is the application of information and communication technologies and information management techniques to financial planning.*

One way to assess the potential benefits of financial planning informatics is looking at informatics in other allied professions. For example, accounting is closely related to financial planning. The informatics field in accounting is called accounting information systems (AIS), which dates back to the 1980s (Murthy 1999). An accounting information system collects and stores costs and revenues, processes them into information for decision-making, and provides controls to ensure that data is accurate, reliable, and secured. The fundamental function of an accounting information system is to document financial events and summarize the impact they have on the financial position of a business.

Because accounting information systems are used to report information about businesses to stakeholders and government agencies, they have been subject to substantial scrutiny. The reports produced by accounting information systems are required to be “certifiably free of certain specific errors” (Kaplan 1998). This scrutiny has led to the development of standards and the creation of organizations and programs that stipulate the foundation on which such systems must perform.

As a result, major accounting professional organizations such as the American Accounting Association (AAA), the Information Systems Audit and Control Association (ISACA), and state CPA societies have endorsed the creation of accounting information systems standards and formed divisions or chapters dedicated to the study of this field. In addition, the Accounting Information Systems Educator’s Association (AISE) was created in 1999 to develop the practical skills of AIS educators. Furthermore, a number of universities have created undergraduate and graduate programs in accounting information systems. The *International Journal of Accounting Information Systems* has been published since 2000 and the *Journal of Information Systems of the American Accounting Association* since 1987.

## Legal Informatics Well Established

A similar scenario exists in the law profession. The concept of legal informatics was introduced in 1949 by Lee Loevinger in his essay “Jurimetrics: The Next Step Forward.” Legal informatics is the application of information and communication technologies and information management techniques to the practice of law. It involves the storage and the automatic retrieval of sources of law, the automation in law offices and judicial administrations, and all the other uses of computers in the practice of law (legal databases, law educational programs, and computer-aided legal drafting).

Like accounting information systems, legal informatics is well established as a research discipline. Attorney associations and schools of law have formed departments, programs, chapters, and divisions that specialize in legal informatics. The International Association of Law Libraries (IALL), founded in 1959, has published the *International Journal of Legal Information* since 1973. *Legal Information Management*, published since 2000, is a topical journal that provides information for those involved in the provision of legal information in the academic and professional environments.

Other professional fields also have adopted the use of informatics, including those of medicine, finance, management, nursing, health, museums, and the environment. The emerging field of financial informatics is of special interest to the financial planning profession. Financial informatics involves the development of mathematical and statistical models to tackle financial data processing, the management of large quantities of data and information, as well as data mining. A handful of European universities have established programs in financial informatics, and the Budapest University of Technology and Economics organizes the Annual National Conference on Financial Informatics.

## Technology in Financial Planning

Financial planners use technology to access real-time information on specific subjects such as tax rates, tax legislation, and market data. Like accountants, financial planners use computers and specialized software to produce reports. Like attorneys, financial planners access online databases to review tax laws and regulations.

Yet the financial planning profession lacks a research discipline dedicated to the study and development of technological tools for financial planners. Financial planning software vendors use a wide variety of strategies to develop financial plans. Different software systems use different sets of data and different analytical tools. This results in potentially very different recommendations for the same client. The planner obtains client data from a range of sources and, in most cases,

must manually enter the data into the financial planning software. Standardization of the format used to manipulate financial data would be extremely helpful. Banks are already using standards such as XML<sup>1</sup> and FIX<sup>2</sup> to transfer data, saving significant amounts of time and labor. Most client data is already stored in different locations when the financial planner initiates the data-gathering process. Client data is saved in tax software, bank databases, employer's databases, and medical records. Standardization of data formats and communication protocols used in financial planning would facilitate data gathering, increasing efficiency, and reduce (though not eliminate) the potential of very different recommendations. The planner then could focus on processing qualitative and unstructured data.

How the client benefits from the planner's use of financial planning software needs to be the focus of further research. Most financial planning software is designed for financial planners. But it is clients who ultimately will or will not benefit from the plan produced by the software. The following questions need to be researched:

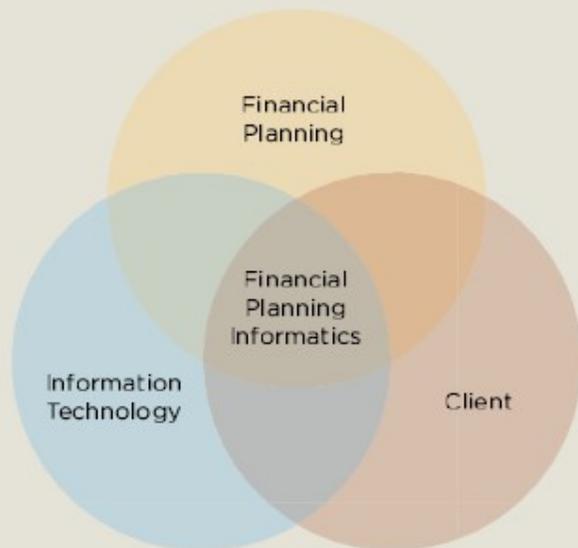
- What is the best method and media to present a financial plan to the client?
- What is the best approach to monitor the plan's progress?
- How likely are clients to use technology to implement a financial plan?
- What are the best methods to update the plan?

Addressing and finding the best answers to these questions will benefit the financial planning profession. The financial planner's dependence on computer and information technology has reached the point where it is necessary to institute a set of norms and standards that will make it easier for planners to adopt computing technology. Furthermore, additional research needs to be done to address the challenges that result from the use of technology in the interaction between client and planner.

## Financial Planning Information Systems

Financial planning informatics results from the intersection of two fields: financial planning and information technology. Financial planning informatics also needs to take into account the client. Figure 1 illustrates the relationships among client, financial planning, and technology. The purpose of the financial planning process is to gather data, process the data using both quantitative and qualitative methods, and deliver a plan to the client.

**Figure 1: Financial Planning Informatics**



Both financial planning and information technology focus on information. The objective of financial planning is to deliver advice based on information. Advice itself is information. Information technology is used to convert data into information. The client, who is the center of attention of financial planning, expects to receive information.

Financial planning software is a financial planning information system. The system collects data from the client and the financial markets (inflation, interest rates, historical mutual fund returns, higher education tuition costs, long-term care costs, and so on). After acquisition, the data is processed using statistical techniques and financial analysis. The outcome is information: a financial plan. Since data entry and processing can produce errors, an important function of financial planning informatics should be to provide for error detection and correction. This is accomplished through controls and audit.

Figure 2 depicts a simplified financial planning information system (FPIS). A significant deal of information technology is

involved. The system includes input interfaces to retrieve data from multiple financial databases (such as Reuters, Bloomberg, Morningstar, the U.S. Bureau of Economic Analysis, and stock exchanges). A graphical user interface enables and facilitates client-planner-system interaction and client data entry. Data is stored in a database management system.<sup>3</sup> A decision support system retrieves and processes data with the support of a knowledge base or an expert system. Interaction between the planner and the decision support system provides the input to the report generator. The report generator produces the recommendations in hard or soft copy and stores them in the database for future reference.

**Figure 2: Financial Planning Information Block Diagram**

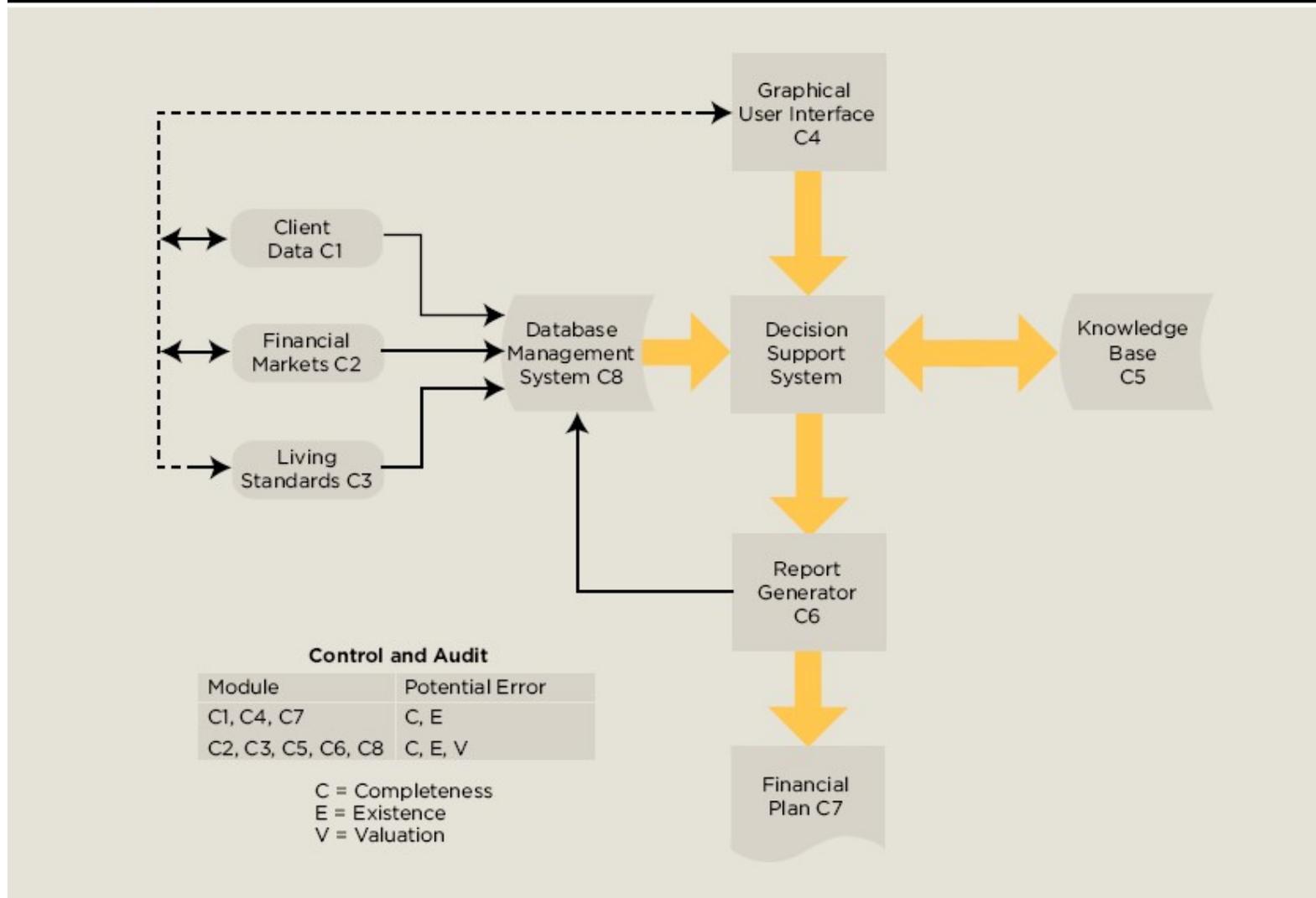


Figure 2 includes a table listing the types of controls and audits that need to be built into an FPIS. Controls are intended to ensure that all relevant data have been entered and are up to date. Financial data change every second. The FPIS output would be inaccurate if the data are incomplete or outdated. To minimize errors, controls need to be implemented. Additional controls include the presentation of disclosures, warnings, and notices that the report must display to be in compliance with current laws and regulations.

Figure 2 displays a simplified diagram. Supplementary modules in a comprehensive FPIS would consist of a Monte Carlo simulation module; a financial analytics engine; interfaces to accounting, tax filing, asset management, and legal information systems; a customer relationship manager; and a training module.

### Establishing a Financial Planning Informatics Research Discipline

Establishing financial planning informatics as a research discipline implies scientific methods would be used to conduct research and advance knowledge in this new field. As a research discipline, financial planning informatics should intend to uncover uses of information technology to solve financial planning problems.

The purpose of financial planning informatics must be to improve the financial plan design, delivery, and implementation. This new discipline needs to identify new uses of information technology or create new technology to support these areas of service to the client. Other purposes include improving the efficiency of the client/planner communication and supporting

the planner's day-to-day operations. In addition, financial planning informatics should

- Develop knowledge bases targeted to the information needs of the financial planner
- Integrate such knowledge with decision-support systems
- Establish electronic communication networks for rapid dissemination and collaboration
- Create a financial planning literature database
- Create a database of laws and regulations applicable in financial planning
- Develop improved methods of delivery of educational programs in financial planning
- Improve data quality

Financial planning informatics also should help standardize communication protocols and formats of data to allow for compatibility among systems from different vendors. Standardization also should extend to the content of the financial plan report delivered to the client.

For financial planning informatics to become a discipline, it must fulfill some requisites (Schleyer 2001):

- A core of people who conduct research and publish in the discipline
- An identifiable body of literature: books, journals, and other publications
- Professional societies and related activities, such as meetings and conferences
- Educational programs leading to a certificate or advanced degree in financial planning informatics
- Funded research programs

Currently, none of the above requirements is met. I propose that we start a discussion about the need of such a discipline. Financial planning is an information-based practice. Computer and information technologies have significantly improved the efficiency with which we collect, store, and manipulate data. The increasing use of information technology will bring tremendous benefits and challenges, for both the professional and the client. These are some of the changes technology will bring to the practice:

- Improved and more secure document storage and retrieval
- Universally accessible client records and plans that can be transferred from one platform to another, such as when the client switches to a new planner
- Reduction in administrative overhead
- Virtual client meetings—less need for the planner to travel to the client site or vice versa
- Marketing of services in virtual communities and online social spaces
- Delivery of services through virtual worlds

To list here all the possible areas of research within financial planning informatics is impractical, but here are a few more worth adding. The accounting profession is developing an international financial reporting standard. Once the standard is established, accounting information systems need to be in compliance with the standard. It may be appropriate to develop a financial planning reporting standard. The arguments in favor of such a standard could be similar to those that favor the international financial reporting standard (Sunder 2007):

- Time and effort savings
- More clear outcomes are presented to the client
- Auditing becomes easier

Standardizing financial planning reporting would improve the way clients compare financial data. Comparing the performance of a client's portfolio to a benchmark is challenging to the client. Additional work needs to be done to develop formats that make it easier for the client to understand the performance of their investment portfolio and to compare it with the appropriate benchmarks. Any new format needs to be incorporated in the financial planning software.

Financial planning informatics also should help develop software that supports the fiduciary responsibility of the financial planner. Financial planning software needs to securely archive and organize documents; ensure compliance with regulations such as the Sarbanes-Oxley Act, the Health Insurance Portability and Accountability Act, and the USA PATRIOT Act; guarantee privacy protection; and alert the planner of market or client changes that require immediate action.

## Final Remarks

Financial planning practitioners add value to the financial planning process in employing a holistic approach. Successful application of this process depends on the practitioner's experience, knowledge, and ability to select the most appropriate resources. Information technology is an essential resource and the profession's reliance on this resource is escalating. With the exception of financial planning software, the technology used by financial planners generally has been developed for other applications and adapted to the needs of the financial planning environment. The establishment of financial planning informatics as a research discipline will help bring the best of technology to support the specific needs of financial planners. The objective of this article has been to create awareness and motivate a discussion about the need and the value of this potential new discipline.

## Endnotes

1. Extensible Markup Language. Specification to mark up documents that contain data.
2. The Financial Information eXchange (FIX) protocol is a series of messaging specifications for the electronic communication of trade-related messages.
3. Collection of programs that enables the storage, modification, and extraction of information from a database.

## References

- Kaplan, D., R. Krishnan, R. Padman, and J. Peters. 1998. "Assessing Data Quality in Information." *Communications of the ACM* 41, 2.
- Kay, D. G., A. van der Hoek, and D. J. Richardson. 2005. "Informatics: A Focus on Computer Science in Context." SIGCSE '05, February 23–27, St. Louis, Missouri.
- Kling, R., N. Hara. 2005. "Informatics and Distributed Learning." [\*Encyclopedia of Distributed Learning\*](#). Sage Publications.
- Murthy, U. S., C. E. Wiggins, Jr. 1999. "A Perspective on Accounting Information Systems Research." *Journal of Information Systems* 13, 1.
- Oz, Effy. 2006. "Management Information Systems." Thomson Course Technology.
- Rahman, H. 2006. [\*Empowering Marginal Communities with Information Networking\*](#). IGI Publishing.
- Schleyer, Titus, D.M.D., Ph.D.; Heiko Spallek, D.M.D., Ph.D. 2001. "Dental Informatics A Cornerstone of Dental Practice." *JADA* 132 (May).
- Sunder, Shyam. 2007. "Uniform Financial Reporting Standards." *The CPA Journal* April.