

# Journal of Management

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**SUNY***IT*  
Institute of Technology

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# Journal of Management Research

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## From the Dean

### **Redefining Change Through Execution!**

Execution is the hallmark of the School of Management at SUNYIT, and I am pleased to report that we have executed successfully on every initiative that we embarked on in 2001-2002. With great pride, I share with you this third volume of *The Journal of Management Research*, which is testament to the diversity of scholarly contributions made by the School of Management faculty at SUNYIT. The *Journal of Management Research* is now listed in Cabell's Directory as a blind refereed journal, and I invite your submissions for the next volume that will be compiled in 2003.

The last year has witnessed a phenomenal change, both in our mission as well as in our execution strategy. With the construction of a new \$14 million facility to house the library, the School of Management is preparing to move into its new quarters in the renovated space being vacated. Our mission has been modified to include admission of freshmen with TIER 1 selectivity. Freshmen coming into the School of Management programs in fall 2003 will meet admissions criteria on a sliding scale with an average SAT score of 1200. This will allow SUNYIT to become a highly selective campus in the SUNY system. Other construction plans totaling \$35 million have been outlined for the next five-year capital plan to include a new field-house, a new auxiliary services building, and a center for lifelong learning.

The School of Management just completed launching its new Master of Business Administration in Technology Management degree program with resounding success and an overwhelming response. More than 120 students joined this new program, bringing our graduate enrollment to 257 students. The MBA in Technology Management prepares managers for successful careers in a high-tech business world. All three graduate programs – the MBA, the MS in Accountancy, and the MS in Health Services Administration are offered on campus as well as entirely online making us the only SUNY school to do so.

The School of Management has made giant strides in the area of international programming. The Bachelor of Business Administration (BBA) is being offered jointly at the Universidad APEC (UNAPEC), which is a private not-for-profit university in Santo Domingo in the Dominican Republic offering Business and Technology programs to its students. A similar program is being offered jointly at the University of Golden Mountain in Mainland China.

These are just some of the initiatives undertaken by the School of Management in its exciting journey through time. More excitement lies ahead, and we will certainly keep you informed!

Best Regards,

Sanjay B. Varshney, Ph.D., CFA  
Dean

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**Developing and Hiring for Critical Skills: A Faculty, Employer, and Career Services Initiative** by Lisa Calongne, Ph.D. and Thomas B. Matthews, Ph.D.

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**Abstract**

What are the critical skills required for our graduating students to be successful in today's workplace environment? What are the skills that recruiters seek in their new hires? What are some of the perceptions of employers about what skills our students possess and where are the skills gaps? Put simply: What skills are required in today's workplace? and How can we teach those skills?

A group of SUNYIT faculty, career service professionals, area recruiters and human resource professionals met on December 6, 2001 to discuss these questions. This report presents a summary of the ideas generated in this meeting. When asked "What are the emerging skills that students need to be successful in today's organization?" the group described a full set of basic skills (e.g., communication, problem solving) and personal characteristics (e.g., team player, flexible, leadership potential). In response to "What skills do our graduating students possess," the discussion indicated a high level of computer and technical skills. Suggestions for teaching innovations included bringing business people in as guest speakers and project reviewers, a direct dialogue between employers and students, internships and professional-for-a-day programs.

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**Background**

Recruitment in the 21<sup>st</sup> century (Rynes, Mullenix, & Trank, 2001), due to the changes in the business world of increased product complexity and workforce globalization, requires all business graduates, regardless of functional specialty, to have a solid base of behavioral knowledge and skills (e.g., team oriented, sensitive to other cultures, socially tactful, and knowledgeable of organizational change processes). Education institutions must form a working relationship with business and industry to create educated, competent workers for the 21<sup>st</sup> century workforce. A partnership between businesses and academic institutions is required to create learned and competent graduates (Paulson, 2001, p. 51).

A collaborative effort between a School of Management researcher and the Career Services Director has explored two questions: What skills do recruiters seek from our graduating students? and To what degree do our business students possess these critical skills? Three employer surveys collected information on these two questions. Beginning in 2000, recruiters attending the SUNYIT career fair were asked "What skills do recruiters seek?" and "What recruitment methods do you use?" Highlights from this survey focus on the importance of learning to learn and personal characteristics such as strong work ethic. In addition, in 2000 The First Destination Survey, designed to provide information on alumni success, included a survey to employers which presented a list of critical skills and asked "To what degree do you seek this skill?" and "To what degree did our alumni possess that skill?" Preliminary analysis indicated that, in general, the alumni possessed the skills that organizations sought.

Seeking to report this survey information to recruiters and seeking to engage them in a discussion of the research questions, "Developing and Hiring for Critical Skills: A Faculty, Employer, and Career Services Initiative" was created. This initiative is in line with assessment requirements to specify and provide evidence of program learning outcomes.

This Critical Skills Initiative, co-sponsored by the School of Management and Career Services at SUNYIT, brought together faculty, career services professionals, and area Human Resource (HR) professionals. Several faculty from the School of Management attended. Six questions were discussed: 1. What are the emerging skills that students need to be successful in today's organizations? 2. What are the skills that graduating students possess? 3. What are some innovations (e.g., possible collaborations) to add to the classroom and coursework? 4. What are the recruitment issues unique to this geographic area? 5. What can we do to help each other? 6. Where do we go from here. Data was also collected asking employers to identify in greater detail the kinds of skills their positions required (e.g., specifically, what kinds of technical/computer skills?)

## **Calongne, Matthews/Developing and Hiring for Critical Skills: A Faculty, Employer, and Career Services Initiative**

### **Preliminary Findings of the Critical Skills Initiative**

On December 6, 2001, SUNY Institute of Technology's Career Services and the School of Management hosted a breakfast for regional stakeholders in workforce development. The event was well attended with a variety of representatives from area organizations and several faculty from the School of Management. The purpose of this meeting was to increase interest, initiate dialogue, and foster collaboration around the issue of developing a quality workforce in the area. This section presents a summary to the questions discussed. To begin the discussion, each person offered a response to the first question. For the remaining questions, two smaller focus groups of approximately 12 people were formed for discussion of the issues.

#1: What are the emerging skills that students need to be successful?

- team players
- flexible
- not have to be hand held for everything
- technology
- writing, communication
- commitment
- respect differences among different types of people
- dependable, grow to be project leaders
- problem solving / decision making
- take on responsibility, interviewing skills
- networking skills, making presentations to customers
- ability to work under pressure and to work toward production goals
- work across functions

#2 What are the skills that our graduating students possess?

- Technical skills are fine
  - Programming
  - Internet search is easy
  - Web design
  - Run any application (e.g., create a brochure)
- Students are assertive
- Theoretical knowledge (e.g., marketing theory vs. practice)
- Adaptable

#3 What are some innovations (e.g., possible collaborations) to add to the classroom and coursework?

- The full range of increased involvement between students and organizations:
  - one day office visit (e.g., Professional for a Day Program)
  - on-site tour (e.g., factory tour)
  - Co-ops
  - Paid/unpaid internships
  - Part-time work
- Know the employers in the area (e.g., local case studies)
- Have employers come to the classroom
  - guest speakers
  - serve as evaluators and reviewers on presentations and assignments
- Mentoring relationships
- Resume contest

#4 What are the recruitment issues unique to this area?

## **Calongne, Matthews/Developing and Hiring for Critical Skills: A Faculty, Employer, and Career Services Initiative**

- Salary expectations sometimes not realistic. Cost of living is lower here. Not-for-profit salaries are lower while technical job salaries are competitive.
- Unrealistic expectations of graduating students about area jobs. Jobs not fancy, not “cutting edge”, not “glitzy.” Students need to see the “quality of life” of the area and be realistic about pay.
- Perception of jobs here as “dead end”
- Students from outside of our area don’t consider us
- Some like it here, grew up here, and want to stay, but employers may also need them to travel
- Perception that the area lacks entertainment, culture
- Local people are negative about the area; this needs to be changed
- Increase exposure to career opportunities in the area
- We need the media on our side
- Use people from the area to market --- getting people to come back to area

### **#5 Where do we go from here?**

- Bring together employers and students for discussion (e.g., guest speaker, student-employer panel discussion)
- Employers can have students at the workplace for a day (e.g., “Professional-for-a-Day”, job shadowing)
- Factory tours
- Internships
- Make internships part of the curriculum
- Collaborate with EDGE and Workforce Development (e.g., Call Mohawk Valley Home website, EDGE video to recruit to the area, MV Jobs site)
- Convince students to cultivate their interviewing skills
- Resumes should be started in beginning of college years and students should continue to build a pattern of projects and achievements during their college years
- Ask “What do students need?”

### **Preliminary Recommendations to Students, Faculty, Recruiters, and Career Services**

Based on this summary from the breakfast discussion, a few suggestions are offered to students, faculty, and Career Services. This list of recommendations was created as they reviewed the findings from the panel breakfast. Thus, this listing is offered only as a starting point for translating ideas into action.

#### **To Students:**

- Start your resume (now, where ever you are), let Career Services give you feedback, and have a mindset of adding achievements to your resume. Thus, update your resume at semester’s end and shift your thinking from “this is another class project” to “this is a line of achievement on my resume”.
- Ask yourself “What skill set am I trying to create?” and go after that set of skills. Strive to see a bigger picture than semester to semester. If you seek to build computer skills, consider taking a programming course as an elective.
- Begin now to interact with the area business community (e.g, attend campus speaker events, Professional-for-a-Day, internships).

#### **To Faculty:**

- Invite business people into the classroom (e.g., guest speakers, reviewers of presentations)
- Add portfolio assignments and projects that help build the student’s resume
- Build courses around the skills that are required in organizations
- Write case studies based on local organizations

#### **To Recruiters and organizations:**

- Offer internships
- Go to the classroom and take a role in evaluating student work

## **Calongne, Matthews/Developing and Hiring for Critical Skills: A Faculty, Employer, and Career Services Initiative**

- Be available to work with faculty in writing case studies based on problem-solving in your organization
- Continue to provide information to SUNYIT about the skills that recruiters seek and assist in identifying the skills gaps

To Career Services:

- Continue to bring together small groups for collaborative projects
- Help students practice their interviewing skills
- Continue to facilitate the interaction between students and employers
- Continue to take a leadership role in the Critical Skills Initiative

### **Future Research**

Developing and Hiring for Critical Skills: A Faculty, Employer, and Career Services Initiative will continue to explore these questions about how to prepare college students to be successful in today's workplace. For example, plans are in place to survey recruiters at the October 2002 Career Fair. That information will be reported back to HR professionals, faculty, and area career service professionals in a panel discussion breakfast meeting. This format of regional stakeholder focus groups is recommended by Kretovics and McCambridge (1998) based on findings that local employers do not always seek the same skills in new hires that national survey data suggest. Also, in those cases where the skills sought are similar, the prioritization of skills may be different. It is essential, therefore, that the current research initiative consider local and regional employer skill requirements as a primary source of information on the subject of critical skills.

Where is this Critical Skills Initiative leading? This research aligns with current state and national trends for assessment. This trend has the goal of educational programs clearly defining their learning goals and collecting evidence to the degree to which programs have met those desired learning outcomes. Future projects plan to compare the state general education requirements to the skills that recruiters rate as important. For example, both general education requirements and recruiters indicate that communication skills are essential. Recruiters report characteristics such as appearance, taking on increasing levels of responsibility, consistently showing up to work on time, which are not part of the general education requirements. A possible future direction is to compare the critical skills that regional recruiters seek to the state general education requirements. Proposed practical applications of this research center around the student portfolio concept and an improved definition of specific skills required by prospective employers.

### **Conclusions**

What do students need? At the conclusion of the December discussion meeting, an HR director from one of the area's largest corporations reminded us of our purpose and core mission by asking "What do the students need?" He explained that we talked most about what organizations seek. A message to communicate to students is that a full range of professionals stand ready to help students meet their learning, employment, and life goals.

In summary, the Critical Skills Initiative originally started with an idea of helping students, faculty, and employers to connect the dots between what is taught in the college classroom and the skills that organizations seek in their new hires. To date, three surveys have attempted to respond to the questions of "What skills do recruiters seek?" and "To what degree do our graduates possess these skills?" This information has been shared and discussed with faculty, recruiters, and career service professionals. Future research is planned.

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## **Building Customer Value-oriented Companies: Defining the Correct Business**

**Direction** by Peter Duchessi, Ph.D.

“If you want to help me, figure out a way to add value to my customers.” – Thomas Morelli, Commercial Leader, GE Operations Services<sup>1</sup>

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### **Abstract**

This paper describes the Customer Value Framework (CVF) for building customer value-oriented companies. It also introduces an important element of the framework, the Business Integration (BI) model, which describes how managers should develop a hierarchy of integrated business goals, functional area objectives, and associated strategies and action plans that positively affect customer value. It describes the application of the model at Jet Aviation Business Jets AG, a leader in executive aircraft management and air taxi services. The paper should be of value to academicians and senior managers who want to understand the practical aspects of building customer value-oriented companies.

Key Words: Customer value and business strategy

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### **Introduction**

The key to success in today’s business world is customer value. Companies must add value to their customers or face the consequences, including declining market share, decaying profits, and the chaos that ensues. To be successful, companies must provide high quality products and services at fair prices, creating the impression of value in the minds of their customers. Anything less just won’t do. Consider online retailing. According to one survey, 67 percent of online purchases are never completed, because online retailers have failed to provide several important elements of customer service, including personalized service, detailed product specifications, and reliable delivery, which are highly valued by customers (Grant, 1999). Patently, the success of many online businesses will depend on their ability to deliver innovative products and services at prices that excite customers.

This paper will describe a practical framework for building a customer value-oriented company. It will focus on a model, the Business Integration (BI) model, for defining business direction, a critical element of the framework. It also describes how Jet Aviation Business Jets AG, an executive aircraft management company, successfully applied the BI model to develop a more value-centric company. The framework and associated examples are based on *Crafting Customer Value: The Art and Science* (Duchessi, 2002).

### **The Customer Value Framework**

The Customer Value Framework (CVF) organizes the steps required to build a customer value-oriented company. The CVF consists of seven related steps:

- Define business direction

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<sup>1</sup> This was the response the author received after proposing a project aimed at business improvement to GE Operations Services.

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- Identify target customers and assess their needs and expectations
- Define a value proposition
- Design (or redesign) business processes
- Manage people for positive results
- Institute quality assurance programs
- Deploy information technology (IT)

By following these steps, companies can set a clear path for the future; define innovative products and services that add value to their customers, and develop the business, quality, personnel, and information systems to deliver those products and services.

Strategic direction manifests itself as a vision and/or mission that emphasize(s) customer value; business goals and functional area objectives that specify targets (e.g., become a world leader in customer value); and associated business and functional strategies to accomplish those goals and objectives. Collectively, these elements provide focus and direction for a company's employees. Without a focus, even a laser-like focus, companies can lose their way as employees develop their own interpretations of what the business is and should be.

Customer identification and the formulation of a value proposition are the next two critical steps. A company must define a group of customers that it wants to pursue, assess their needs and expectations, and formulate an innovative value proposition, a strategy for how it expects to deliver superior value to customers and earn a profit. Here, value is defined as a collection of innovative product and service benefits at a reasonable price. Companies can impart value to their customers by emphasizing innovative product and service benefits, while leaving prices competitive; reducing prices, while offering competitive product and/or service benefits; or doing both – emphasizing innovative product and service benefits and lowering prices simultaneously. Companies can succeed with any one of these approaches as long as the customer perceives significant value. The truly exceptional companies choose the third option. They offer the best products and service combinations at the best prices via a superior operating model and, as a result, establish large customer bases and earn high profits (e.g., Wal-Mart, the most successful discount retailer in the world). Although this approach is clearly the best, it's the most difficult to implement because it requires a company to "think out of the box" as it formulates a value proposition and develop and maintain operational effectiveness across all of its core business processes. Neither of these activities is easy!

After a company decides on what it wants to be, what its customers need and expect, and which of those needs and expectations it wants to satisfy as defined by its value proposition, the issue becomes one of "out executing" the competition. Companies must implement the best business, personnel, quality, and information systems to get the job done. In some cases, a company may have to redesign existing business processes, including product and/or service design, order fulfillment, and customer service. IT is an enabling element for achieving significant breakthroughs in a process's performance (e.g., IT makes Dell's "direct" business model possible). Additionally, companies can institute quality assurance programs for discovering and eliminating product defects and service nonconformities during daily operation. With a clear understanding of the process, supporting IT, and quality assurance programs, a company can decide on the best staffing and management arrangements. In businesses where the interface with the customer is broad, the points where employees encounter customers (i.e., touch points) are extremely important. Every employee is a different "facet" of the business and every employee can potentially gain or lose customers – at Target, management expects employees to manage the brand at the store level (Hays, 2002).

In order for a company to be successful, it must address every aspect of the CVP. Failure in any one of the essential aspects can impede a company (e.g., an innovative value proposition will not suffice for poorly designed business processes.) But how does a company's managers change their company's tack, or direction, toward significant customer value? Developing a clear direction is the first step.

### **Defining Business Direction at Jet Aviation Business Jets AG**

Jet Aviation Business Jets AG is a global leader in executive aircraft management and air taxi services in Europe, the Pacific Rim, the Mideast, and Africa. Concerning aircraft management, Jet Aviation will help

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its clients buy, staff, and maintain their aircraft. Through air taxi services, clients can charter an executive jet rather than fly commercial aircraft.

The company uses the BI model to define its business direction (Duchessi, 2000). The BI model consists of the following seven steps:

- Define a vision and mission
- Determine strengths and weaknesses, opportunities, and threats (SWOT)
- Identify critical success factors (CSFs)
- Determine business goals
- Develop strategies via SWOT analysis
- Formulate underpinning business function and unit objectives
- Develop supporting business function strategies in the context of business processes

A company's mission, business goals, and strategies describe its overall direction and, as a result, guide the development of detailed business function objectives and strategies. Functional objectives and strategies describe how each functional area will move the company toward its intended direction.

Once a year senior management, key middle managers, and key staff meet off site to reevaluate the company's mission, define new (or redefine existing) business goals and strategies, and establish a set of functional objectives, strategies, and action plans, which everyone focuses on throughout the year. The company's mission is: "To be the world leader in the field of executive aircraft management."

At the meeting, the managers discuss Jet Aviation's strengths and weaknesses. Strengths include brand name, financial position, and organizational flexibility. The weaknesses include inefficiencies in operations, which managers earmark for corrective action. Additionally, the group devotes significant time to discussing the results of an environmental scan of opportunities and threats. Opportunities include expanding markets, new aircraft, and new customer service practices, while threats include competitors' actions. Finally, the managers dedicate considerable time to discussing customers' needs and expectations.

Management's deliberations result in a set of CSFs, for the immediate future, which will determine Jet Aviation's success (or conversely failure) in the aircraft management industry. With knowledge of the mission and a sense of what's truly important, as defined by the CSFs, management establishes a set of business goals (e.g., achieve a 100% customer retention). Strategy formulation is based on a straightforward definition of strategy: an approach that allows a company to use its strengths to pursue opportunities, overcome threats, and correct weaknesses. For each business goal, the managers articulate one or more business strategies (e.g., improve the customer service processes and aggressively follow up customer issues). The goals and strategies are for the current year and some are carried forward to succeeding years as necessary. From this point on the focus and issues change: now, managers from each of the functional areas of the business must propose specific objectives, strategies, and action plans for realizing Jet Aviation's business goals and strategies.

Functional managers set their objectives and strategies in the context of Jet Aviation's core business processes because there is broad recognition that the only way to improve the company is through the core processes that drive the business forward. Core processes include customer service, dispatching, and maintenance. All objectives must be SMART in nature: **S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime-bound. SMART objectives provide senior managers with significant control because they are measurable and time-bound. Each objective (e.g., achieve 90% customer satisfaction in one year for air taxi services) must map to a specific business goal (e.g., customer retention) and not conflict with other functional objectives. At this level, the strategies are simple statements for achieving an objective (e.g., to achieve 90% customer satisfaction, integrate electronic data processing systems to avoid redundant activities and operations). Each objective usually has multiple strategies for improving the business activities, staffing arrangements, quality assurance procedures, and supporting information technologies that collectively constitute the business process and lead to the accomplishment of the pertinent objective. Consequently, the strategies suggest the implementation of specific action plans (e.g., purchasing and installing a state-of-the-art aircraft routing system). The objectives, strategies, and action plans serve as a

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basis for subsequent development of annual budgets for each functional area. By applying the above BI model, Jet Aviation has created a company that emphasizes exceptional customer value and is continually improving the business, personnel, quality, and information systems for delivering its value proposition.

With the BI model, senior managers can create a hierarchy of tightly integrated business goals, objectives, and associated strategies and action plans that are all focused on building a customer value-oriented company. The process can lead to significant conflict, especially when the participating managers have strong personalities, have multiple perspectives, and are reluctant to state measurable objectives. Not surprisingly, there are opposing views, heated debates, and open disagreements. Yet, a unified set of objectives, strategies, and action plans is a necessity for transforming high-level business goals and strategies that emphasis customer value into a coordinated game plan for all areas of the business.

### **Conclusion**

The relentless drive of competitors and ever increasing expectations of customers suggest that all companies need to focus on customer value. All companies should be building customer value-oriented businesses, now, or face the adverse consequences. There are a number of frameworks, models, and techniques and tools, such as the CVF and BI model discussed above, that a company can use to develop a customer value focus and build the relevant business, personnel, quality, and information systems that affect customer value. Without a serious commit to customer value and to changing the organization, a company will not achieve its full potential.

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## **Management and the Movies: Using Films as Case Studies in Management Classes**

by James A. Hall

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### **Abstract**

The use of films as cases in management classes can provide a valuable teaching tool. Films offer a chance to apply principles in a different situation from that in which the principle was learned, thus aiding in transfer of learning. The disadvantages of film are no greater than those of other alternative learning situations and can be overcome with planning.

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Case studies have long been a vital part of management courses. Most management textbooks include written case studies of various lengths and complexity. Some business courses and some entire schools, such as the Harvard Business School, rely almost entirely on the case study method. The purpose of the case study is to assist the student in bridging the gap between abstract theory and practical application. While case studies may be primarily associated with business or other professional curricula, Bloom says the importance of application is present throughout the educational process:

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The fact that most of what we learn is intended for application to problem situations in real life is indicative of the importance of application objectives in the general curriculum....Research studies have shown that comprehending an abstraction does not certify that the individual will be able to apply it correctly. Students apparently also need practice in restructuring and classifying situations so that the correct abstraction applies. (1956, p. 122)

Written cases, whether one page or a hundred pages, can provide only a limited exercise in application of theory. The print medium itself is abstract, and even detailed cases cannot approach the experience of being in an organization and interacting with other people face to face. A film, while certainly not reality, is less abstract than print.

Film offers a visualization of concepts that often are abstract in textbooks and lectures. One can read about the concept of ethical dilemmas. A visualization of an ethical dilemma, however, with a carefully selected film can reinforce it dramatically. (Champous, 2001, p. v)

An example of such a visualization can be found in the film "Glengarry, Glen Ross." A early scene in the film depicts the salesman Shelley Levine, played by Jack Lemmon, trying to bribe his boss to get some of the better leads. If students are simply asked, "Is it ethical for a person to offer a bribe," they quickly answer no. But when confronted with a realistic portrayal of a man under pressure to pay the hospital bill of his daughter, they see a more complex problem. Even if they conclude that he was wrong to offer the bribe, they understand how he could have taken the action he did. Instead of a simple rule to be memorized, the prohibition against bribery is seen as an ethical principle that may involve painful sacrifices to be attained.

A film is not, of course, reality. It is abstract in its own way. Stories based on fact, or even documentaries, usually compress time, depicting the events of months or years in less than two hours. Even those films that do not compress time use camera angles or motion in a way that would be confusing to those not familiar with the medium.

Like the print and the photo, movies assume a high level of literacy in their users and prove baffling to the nonliterate. Our literate acceptance of the mere movement of the camera eye as it follows or drops a figure from view is not acceptable to an African film audience. If somebody disappears off the side of the film, the African wants to know what happened to him. A literate audience, however, accustomed to following printed imagery line by line without questioning the logic of lineality, will accept film sequence without protest. (McLuhan, 1964, p. 284)

### Transfer of Learning

It is the variety of the medium rather than the realism that is the principal benefit of film in teaching. Anyone using a written text as the basis for a course runs the risk of having students simply memorize portions of the text and recite them or paraphrase them. This level of learning has no value outside the classroom and does not accomplish the goals of most courses. Application requires "transfer of learning," as expressed by Gagne and Briggs, and introduction of a different medium into the classroom can help achieve this goal.

As for the assurance of transfer of learning, it appears that this can be done by setting some variety of new tasks for the learner--tasks which require the application of what has been learned in situations that differ substantially from those used for the learning itself. (1974 p. 132)

Films offer an opportunity to present the student not only with differences in both medium and context. Most management texts include cases based on businesses. To vary the context, a completely different

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situation may be presented. "Twelve O'clock High" is often used to portray different leadership styles in the context of a WWII bomber squadron. "Cool Hand Luke" offers examples of power and leadership in a 1940's chain gang. Identifying these concepts in different settings can further assure transference of learning.

Films are not, of course, the only alternative to print for providing alternatives to the written word. Simulations and role playing, in the classroom and on computers, are often employed to teach management principles. Field trips to local offices and factories are sometimes included in the curriculum, and internships usually encouraged or required. Students are often asked to draw on their own experiences in previous work or extracurricular activities in discussing principles of organization and leadership. These alternatives are, however, usually more time-consuming than films and often have unpredictable outcomes. Exercises that involve role playing may be spoiled if some students do not play their parts well, and real life experiences vary with each student and cannot provide a common ground for discussion.

Use of commercial films in a course can, however, present its own problems. Some of the films most often used in management courses, such as "Glengarry, Glen Ross" and "Wall Street," contain language and scenes that some students find offensive. This problem can be lessened by warning students in advance of the scenes and explaining their relevance to the lesson being taught. If a student objects to being required to see an "R" rated film, a PG film can usually be found as an alternative assignment for that student.

Another problem may be time required. One film will usually consume all the useful time of a two-hour class. If a class is shorter than two hours, the film may have to be shown in two parts. One way around this problem is to require that the film be viewed as a homework assignment. Almost all students have access to VCR's in their homes or dormitories. A few students may not have such access, however, and alternative arrangements would have to be made for them.

### **Choices of Technique**

Once the decision to incorporate films into a course is made, the instructor must decide the technique to be used. The two basic choices are to (a) show an entire film and analyze what parts of it are relevant to the course, or (b) show short segments of a few minutes from various films to illustrate specific points. While the latter strategy is less time consuming, it has the drawbacks of offering less context for the scene and of not allowing the students to separate the relevant from the irrelevant, a vital skill in application of a principle.

Perhaps the easiest part of using films in a course is selection of the actual films to be used. There are resource books suggesting films for particular topics as well as textbook supplements that suggest films that relate to specific chapters. Usually, however, the instructors will have films that they consider especially meaningful and will welcome the opportunity to share these with their students.

The discussion questions suggested by resource books may be useful in stimulating thought, but the instructor and students will usually have ideas of their own. To aid in discussion, topics for analysis may be given to the students before they view the film. To encourage independent thought, the questions may be incorporated into an exam and discussion of the film scheduled after the exam.

The effectiveness of films as a teaching tools would be difficult to measure. Because the goal is to assist transfer of learning from printed text to real life, printed tests would not measure attainment of the goal. In fact, a class in which films were not used and more time was devoted to study of printed cases would probably score better on printed tests. The only valid test would be one that compared students' ability to apply concepts learned in management classes to their experiences in their internships and later in their careers. Because there are more important variables than a single teaching technique, the influence of film would probably be impossible to isolate. Informal feedback from students has been generally positive; however, popularity does not equal effectiveness. At present, the principal evidence supporting use of films as case studies is the fact that this technique conforms to basic accepted principles of application and transfer of learning.

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Films, like any other teaching technique, may not work every time for every student. Some students may be distracted by the entertainment elements and fail to see the connection to the course. Others may dislike a particular film so much that cannot get beyond their aesthetic judgement to analyze the characters in terms of the principles being taught. For many, however, the film can be a vital link in attaining the transference of learning from textbook to real life.

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## Examining the Predictive Validity of a Markov Model of Functional Status

by Sarah B. Laditka, Ph.D.

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### Abstract

Estimates of health and disability based on Markov models are increasingly being used to project demand and costs for long-term care services. Markov models are also used to estimate active life expectancy, which represents the amount of time an average individual can expect to live free from severe disability. This study examines the reasonableness of estimates produced by a Markov model used to forecast older persons' functional status histories. The Markov model was developed using data from the 1984-1990 Longitudinal Study of Aging (LSOA). Results of two internal validity tests are reported. The between interval validity test examines the validity when the model is used to forecast an individual's functional status between two known functional status values. The forward prediction validity test examines the predictive ability when the model is used for forecasting, when no knowledge of functional status is taken into account. In these internal validity tests, the model performed reasonably well in a qualitative sense; however, the predicted values differed significantly from the actual values. An external validity test compared the prevalence and duration of disability in the LSOA sample that was predicted by the model with that reported by respondents to the 1982 National Long Term Care Survey. Results of the external validity test indicate that the prevalence and duration of disability predicted for the LSOA sample were similar to that reported by NLTCS respondents. Collectively, these findings support the popular use of this model, and lend credibility to forecasts of active life expectancy and estimates of health service demand produced by this model. The results also highlight the need to collect information about functional status in more finely defined time periods in large longitudinal surveys of older people.

I thank Douglas Wolf for guidance with the methods used in this analysis.

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A growing body of research in health and aging uses Markov models. These models are used to calculate functional status changes, and to estimate both active life expectancy and use of long-term health services (Crimmins et al., 1994, 1996; Gillen et al., 1996; Guralnik et al., 1993; Laditka, 1998; Laditka & Laditka, 2001; Land et al., 1994; Norton, 1992a; Wolf, Laditka, & Laditka, In Press). Few studies, however, have examined the appropriateness of using a Markov model to estimate functional status transitions. Several assumptions are associated with Markov models. A simple Markov model assumes that the functional status to which an individual will transition depends only on that individual's current status, and not on her or his functional status history. Also, in such models, an individual's probability of recovery is independent of the length of time she or he has been disabled. Prior research has shown that these assumptions are not realistic (Norton, 1992b).

To-date, no large longitudinal survey of older persons has collected functional status information in finely defined time intervals. Although Markov models have been used to estimate functional status transition probabilities in finely defined time periods (e.g., monthly), in surveys actual functional status information is usually separated by two or more years. So it is not possible to examine the reasonableness of more frequent transition estimates produced by Markov models by comparing these results with actual data. Thus, it is useful to develop other methods to examine the predictive validity of these models. This study examines the reasonableness of a Markov model's forecast of older individuals' functional status histories. Several new tests of predictive validity are reported. The results shed additional light on the accuracy of using a Markov model to forecast health status.

### Methods

Data from the 1984, 1986, 1988 and 1990 waves of the Longitudinal Study of Aging (LSOA) were used to estimate a Markov model of functional status. One of the primary objectives of the LSOA was to evaluate changes in functional ability among older people in the United States over time. The design of the LSOA survey is described by Kovar, Fitti, and Chyba (1992). Laditka and Wolf (1998) provide details of how the LSOA sample was developed for this analysis. The Markov model of functional status used in this study is identical to that developed by Laditka and Wolf (1998), and is described in detail elsewhere (Laditka & Laditka, 2001; Laditka & Wolf, 1998). The two stage estimation procedure uses LSOA data and multinomial logistic regression. Consistent with previous research, individuals' functional status reflects the presence or absence of impairments in the following activities of daily living (ADLs): bathing, eating, dressing, transferring, and using the toilet (Katz, Ford, Moskowitz, Jackson, & Jaffee, 1963). The dependent variable in the multinomial model is multichotomous, and represents four functional status values: unimpaired (having no ADL limitations), moderately impaired (having one or two ADL limitations), severely impaired (three to five ADL limitations), and dead. Covariates in the model are age, race, and education. Separate models were estimated for women and men. In the first stage, the multinomial logistic regression procedure produced parameters of functional status transitions.

In the second stage, microsimulation techniques were used with the parameters of functional status transitions to generate a data set of functional status histories for older women and men. Individual monthly functional status histories were created for a simulated population of 100,000 women and 100,000 men. In the microsimulation procedure, racial and educational characteristics of the population were selected to match actual population proportions of older Americans. The starting population is described in Laditka and Wolf (1998). Microsimulation techniques were used to simulate each individual's functional status and survivorship, month by month, from exactly age 70 until death. For example, for a woman with ADL code  $i$  and covariate values  $X_i$  in month  $t$ , the model generates the four transition probabilities  $p_{i1}(t+1)$ ,  $p_{i2}(t+1)$ ,  $p_{i3}(t+1)$ , and  $p_{i4}(t+1)$  corresponding to the possible functional status states occupied the next month. These four probabilities are then mapped onto corresponding subregions of the 0,1 interval: subregion 1 is the interval from 0 to  $p_{i1}(t+1)$ , while subregion 2 is the interval from  $p_{i1}(t+1)$  to  $[p_{i1}(t+1) + p_{i2}(t+1)]$ , and so on. Next a computer generated random number from the uniform (0,1) distribution is drawn. Finally, a particular value (1, 2, 3, or 4) for the next month's functional status is assigned, depending on the subregion into which the random number falls.

### Predictive Validity Tests

Two internal (or within sample) validity tests were developed. In the first internal validity test, called "between internal validity," the predictive validity of the model is examined when it is used to forecast an individual's functional status at some point between two *known* functional status values. To control for the substantial variation in the length of time between interviews in the LSOA (about 30% of the sample was not interviewed in 1986, but interviews were attempted with this subgroup in 1988 and 1990), the sample is restricted for this test to people who were interviewed and alive in each of the first three waves of the LSOA. Thus individuals in the sample completed three interviews, spaced about 24 months apart.

Microsimulation techniques (described above) were used to predict the value of functional status for each month between the first (1984) and third (1988) interview dates. The simulation procedure *required* that the predicted functional status value in the month of the third interview be the same as the actual value at this date. To examine between interval validity, I compare the value of individuals' actual and predicted functional status on the second (1986) interview date.

Table 1 reports the results of the between interval analysis for women only. The actual functional status values are shown in the rows; the values in the columns are the predicted values. Examining the marginal probabilities in the total rows and columns, it is clear that the modal functional status category is unimpaired. This is true for the actual (74.44%) and predicted (82.66%) values. The diagonal (shaded) elements of Table 1 show the percentage of cases in which functional status is correctly predicted for each functional status category. Summing the diagonal elements, about 75% of all values are correctly predicted. The marginal probabilities show that the predicted functional status values are correctly ordered in relationship to the actual values. However, the actual values differ significantly from the predicted values ( $p < .001$ ). The results for men (not shown) are similar to those displayed for women.

The second within sample test is called "forward prediction validity." This test examines the predictive validity when the model is used for forecasting, when *no* future knowledge about individuals' functional status is taken into account. Included in the sample for this test are all individuals in the LSOA who had at least two valid interview dates and functional status values. The microsimulation of functional status begins on an individual's first interview date; functional status is then simulated on a monthly basis until the last (1990) wave of the LSOA. Predicted and actual functional status values were not required to be in agreement at any point. The actual and predicted functional status values are compared at three points in time:  $t+1$  or 1986,  $t+2$  or 1988, and  $t+3$  or 1990.

Table 2 displays the results of the forward test of predictive validity for women only. The upper panel shows the results at  $t+1$ , the middle panel at  $t+2$ , the lower panel at  $t+3$ . The predicted marginal probabilities are correctly ordered with the actual probabilities. But the model tends to notably over-predict the modal (or unimpaired) category. Also, the percentage of functional status values correctly predicted, shown on the diagonal (shaded) elements, decreases as the forecasting period increases. Further, the actual values differ significantly from the predicted values ( $p < .001$ ) in each time period. The findings for men (not shown) are similar to those reported for women.

An external validity test was performed to compare the prevalence and duration of disability in the 1984 LSOA sample, as predicted by the Markov model, with disability prevalence and duration reported by respondents to the 1982 National Long Term Care Survey (NLTCS). The NLTCS is a longitudinal study of Medicare enrollees. A screening questionnaire was administered to about 36,000 Medicare beneficiaries in 1982 (Manton, 1988). A comparison of ADL impairment between 1982 NLTCS and 1984 LSOA respondents reveals similar patterns of ADL disability, with a somewhat lower prevalence of disability among LSOA respondents than NLTCS respondents (Wiener et al., 1990). Three disability prevalence and duration questions were asked of 1982 NLTCS respondents: (1) if they were disabled (or had a problem performing an ADL); (2) if disabled, if they had been disabled for a period of three months or more; (3) persons who responded yes to question one and no to question two were asked if they expected this disability to last for the next three months or longer. The external validity test was performed by examining how individuals in the LSOA would respond to the questions administered to the NLTCS sample. The simulation began with LSOA respondents' *actual* functional status values in the month the 1984 survey was administered. Microsimulation was used to simulate individuals' *predicted* functional status values for six months. The three questions just reviewed were administered to the LSOA sample in month six of the simulation. Individuals in the LSOA sample are considered disabled if they were moderately or severely impaired.

The results of the external predictive validity test for women and men are shown in Table 3. For women, the prevalence of disability was similar for people in the LSOA and NLTCS: 18.5% of the LSOA sample and 17.4% of NLTCS respondents were disabled. For men, a notably smaller percentage of the LSOA sample (12.3%) was disabled compared with the NLTCS (21.5%). The results for the duration of disability (question two) are reasonably similar for the LSOA sample and NLTCS respondents. For question three, for women, the results are almost identical: 70.3% of LSOA and 70.0% of NLTCS respondents expected the disability to last for three months or longer.

### Conclusions

The within sample tests of predictive validity show that the Markov model performed reasonably well in a qualitative sense: the marginal predicted probabilities were correctly ordered with the actual probabilities. From the perspective of correctly predicting functional status, especially for the non-modal categories, the model did a less satisfactory job. The forward prediction validity test shows that the predictive accuracy of the model diminished as the forecasting period increased; this finding is generally true of forecasting models. The model did not perform well in a quantitative sense in both within sample tests: the predicted values differed significantly from the actual values.

The prevalence and duration of disability predicted by the Markov model for the LSOA sample were similar to disability prevalence and duration reported by NLTCS respondents, which lends additional credibility to the model's predictive validity. Collectively, the findings indicate that a Markov model is a reasonable, albeit imperfect, way to estimate functional status transitions. This conclusion echoes one reached in a previous study of Markov model specification tests by Norton (1992b), though the set of tests used here differ from those used by Norton.

It is important to acknowledge that the conclusions of this analysis cannot be generalized to all Markov models. Nonetheless, virtually all prior studies of active life expectancy impose Markovian assumptions about the dynamics of functional status that are similar to those imposed in this analysis. So the results reported here may be suggestive of the performance of Markov models used in other health and aging research. The findings of this study also highlight the need to collect information about functional status in more finely defined time periods in large surveys of older people. As baby boomers age and the percentage and number of older Americans grow, policy makers will increasingly rely on forecasts of health and functional status to make health care allocation and financing decisions. More detailed information about changes in health status among older people would allow researchers to develop more sophisticated models, in which some Markovian assumptions could be relaxed. Improved data and modeling approaches would help to improve the accuracy of disability projections for older populations.

Table 1. Between Interval Predictive Validity Test: Women. Percentage of actual and predicted functional status values, and statistical significance of differences ( $\chi^2$  test) between actual and predicted functional status values.<sup>a</sup>

Actual Status	Predicted Status			Total
	U	M	S	
U	68.28	5.20	1.04	74.44
M	11.74	4.85	1.63	18.23
S	2.72	2.33	2.28	7.33
Total	82.66	12.38	4.95	100.00

$\chi^2(4) = 461.4; p < .001; n = 2019.$

Note: U = unimpaired; M = moderately impaired; S = severely impaired.

<sup>a</sup>Totals in columns and rows may not sum due to rounding.

Table 2. Forward Prediction Validity Test: Women: Percentage of actual and predicted functional status values, and statistical significance of differences ( $\chi^2$  test) between actual and predicted functional status values.<sup>a</sup>

time *t*+1

Actual Status	Predicted Status				Total
	U	M	S	D	
U	53.02	3.97	0.49	4.58	62.06
M	9.72	3.30	0.91	2.02	15.95
S	3.53	2.16	1.72	1.95	9.37
D	6.90	2.23	1.14	2.35	12.62
Total	73.18	11.67	4.25	10.90	100.00

$\chi^2(9) = 731.4; p < .001; n = 4302.$

time *t*+2

Actual Status	Predicted Status				Total
	U	M	S	D	
U	44.50	3.47	0.68	7.07	55.72
M	9.28	2.24	0.49	2.92	14.92
S	4.37	1.75	0.93	2.95	9.99
D	9.52	3.11	1.36	5.38	19.37
Total	67.67	10.56	3.47	18.31	100.00

$\chi^2(9) = 385.0; p < .001; n = 3665.$

time *t*+3

Actual Status	Predicted Status				Total
	U	M	S	D	
U	37.46	3.31	0.44	9.11	50.32
M	9.11	1.41	0.34	4.19	15.05
S	4.97	1.75	0.58	3.90	11.20
D	10.81	3.07	1.22	8.33	23.43
Total	62.35	9.55	2.58	25.52	100.00

$\chi^2(9) = 161.8; p < .001; n = 2053.$

Note: U = unimpaired; M = moderately impaired; S = severely impaired; D = dead.

<sup>a</sup>Totals in columns and rows may not sum due to rounding.

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Table 3. External Predictive Validity Test: Comparison of prevalence and duration of disability predicted by the Markov model in the 1984 LSOA with prevalence and duration of disability reported by 1982 NLTCs respondents.

Prevalence/ Duration Questions	LSOA: Men <sup>a</sup>	NLTCS: Men <sup>b</sup>	LSOA: Women <sup>c</sup>	NLTCS: Women <sup>d</sup>
1. Disabled (%)	12.3	21.5	18.5	17.4
2. Disabled for 3 or more months (%)	79.8	95.1	87.1	96.3
3. Disability lasting or next 3 or more months (%)	51.4	80.3	70.3	70.9

<sup>a</sup>n = 2860; <sup>b</sup>n = 7107; <sup>c</sup>n = 4666; <sup>d</sup>n = 10898.

Note: LSOA = Longitudinal Study of Aging; NLTCS = National Long Term Care Survey.

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## **Audit Process Structure and External Audit Fees – Impact on Continuing and Initial Audits**

by Hema Rao, CPA, DBA

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### **Abstract**

This study contributes additional evidence to the existing literature on initial and continuing audit pricing determinants by using audit firm structure of the Big 5 and non Big 5 audit firms. Maher, et al., (1992) and Gist (1994) presented their findings for Big 5 firms. The current study extends it to non Big 5 firms. Fee data was collected from firms changing auditors along with a matched sample of firms not changing auditors. Audit firms with audit structures not classified by the Kinney (1986) study were sent questionnaires and requested to classify themselves as per criteria described in the questionnaire. Like other studies in the area, initial audits resulted in significant discounts. Audit structure was a significant variable and the unstructured approach resulted in larger discounts than the other approaches. The results were consistent with the Gist (1994) study for Big 5 firms. Clients of Non Big 5 firms using an unstructured approach also obtained significant discounts. This study contributes to this neglected area of research. Management may be able to use this information in hiring auditors.

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### **Introduction**

Many studies have examined the variables that affected audit fees of Big 5<sup>2</sup> audit firms. Most studies done over a decade on cross sectional data found that the Big 5 firms grant significant discounts on initial audits. Only two studies have dealt with audit structure in this context. Maher et al., (1992) and Gist (1994) included audit structure as variables in their studies. Their work on audit fees dealt with fees charged by the Big 5 firms.

Audit practitioners like Sullivan (1984) advocated an unstructured audit approach. He posits that this approach leads to more cost effective and efficient audits as compared to the structured approach espoused by other practitioners like Elliott (1983), Mullarkey (1984) and Biggs (1986). This input from practitioners may add credibility to the existence of “real world” differences in audit approaches. Audit clients may be able to obtain more cost effective audits if they learn about the impact of different audit process technologies on audit fees.

The objective of the current study is to study the non Big 5 audit firms and examine the impact of their audit technologies on audit fees. No study has been done in the area and the current study hopes to fill this void.

With mergers and possible bankruptcy of Andersen, there may soon be limited choices for auditors. The Big 5 are an oligopoly and may become pickier about clients. With decreased competition, Big 5 audit fees may increase significantly. Technologies of non Big 5 firms may be of interest to company managers looking for cost effective audits. So it may be time for revisiting the audit technology issue at this time.

### **Literature Review**

The studies examining audit technology and its impact on audit pricing relevant to the current study are Maher et al., (1992) and Gist (1992). Simunic (1980) initially identified the variables in the audit pricing empirical model. Many studies followed and they mostly used these variables and either added a few or left out a few used in the Simunic (1980) model. These are not reviewed in this study.

Maher et al., (1992) considered audit firm technology using the Kinney (1986) classification while considering audit fee decreases from 1977 to 1981 for a non-random sample of firms with well established internal controls audited by the Big 5 audit firms classified as structured, intermediate and unstructured. Fee decreases were greater for unstructured firms as compared to the other two types of firms. They did

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<sup>2</sup> The firms were Big 8 at the time of these studies.

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not choose to present their test results dealing with audit technology or offer any interpretation of their results.

Gist (1994) added Big 5 audit firm structure to the audit fee model as a variable. He reported that the Big 5 firms that used a structured approach to audits charged lower audit fee than firms with intermediate or unstructured approaches. At this juncture, a discussion of audit structure seems appropriate to provide some insight into the nature of this variable.

### **Audit structure**

Dirsmith and McAllister (1982a, 1982b) identified two ideologies for the conduct of the independent audit. The first approach was identified as structured or mechanistic and implied the use of more documentation of audit steps and formalized channels of communication. The second approach referred to as unstructured, suggested a more decentralized and judgmental approach to an audit.

Cushing and Loebbecke (CL) (1986) studied general audit manuals, monographs on computer environment, training materials, and copies of forms, questionnaires and checklists used by twelve participating accounting firms<sup>3</sup>. They came up with a normative model of the audit process based on Generally Accepted Auditing Standards. They compared the audit processes of these twelve firms with their normative model. They classified some audit approaches as structured if the audit firm had consciously developed a systematic method to their audit process. This audit methodology included a detailed description of the conceptual logic of the process and a set of audit tools providing detailed guidance to the auditor for accomplishing specific audit steps.

Firms in the study that did not have the same level of integration or comprehensive approaches to their audit methodologies were classified as unstructured. This audit approach calls for more judgments from the field auditor to tailor the audit process to individual audits and also provides excellent guidance on all aspects of an audit.

Kinney (1986) in his empirical study analyzed the voting patterns of the Auditing Standards Board. He asked the Board members to classify the firms that they represented with regard to how structured or unstructured their audit approaches were. The CL (1989) study corroborated this classification.

The Kinney classification was used in many empirical studies researching the relevance of audit technology to many auditing issues. Morris and Nichols (1988) find that there was more audit judgment consensus among auditors who used the structured audit approach in dealing with consistency exceptions in audit client GAAP applications. Newton and Ashton (1989) studied the relation between audit firm structure and audit report lags (ARL). Audit structure was a significant determinant of ARLs.

Kaplan et al. (1990) find that audit structures affect the relative competitiveness of auditors in different client market segments. They report that trends in intra-Big 8 market shares over the 1976-1986 period show that clients operating in stable environments chose structured auditors while clients in unstructured environments preferred unstructured auditors.

Tuntiwongpiboon and Dugan (1994) empirically examine the relationship between the degree of audit structure in audit methodologies and client characteristics such as risk, business environment, agency factors and size. They found no significant relationships and they suggest that the selection of auditors may be independent of their audit structure technologies.

Gist (1994) examined the impact of audit technology on audit pricing by the Big 5 firms. Based on a review of prior research cited in his study, he assumes that degree of structure in audit technology influences auditor behavior and has certain cost-benefit implications. The Big 5 firms audited all firms in his sample and audit quality is held constant in his study. He finds that structured firm audit fees are lower than

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<sup>3</sup> These firms were: Arthur Andersen, Coopers & Lybrand, Haskins & Sells, Ernst & Whinney, Fox & Company, Alexander Grant, Main Hurdman, Peat Marwick and Mitchell, Price Waterhouse, Seidman & Seidman, Touche Ross and Arthur Young.

## **Rao/Audit Process Structure and External Audit Fees – Impact on Continuing and Initial Audits**

unstructured and intermediate structures. This result contradicts the results obtained by Maher who found (1992) unstructured firms had lower fees than structured and intermediate ones.

While the complexities of audit technology and its impact on audit production functions have been studied they do not seem to be very well understood. Many changes have taken place in the audit market since the publication of these Big 8 firm audit technologies. The mergers of the Big 8 have resulted in the Big 5. However, these mergers have been on the lines of their audit structures<sup>4</sup>.

Post Enron, audit structure of smaller firms may be of interest to determine fee charged by them. The Big 5 audit firms have spun off many of their consulting services. This may have diminished product differentiation among them. A financial statement audit may end up being more of a generic service with many players providing the service. It may also become necessary for some companies to look for audit services from smaller firms since the Big 5 may have an over abundance of audit clients, with many of the Andersen clients having jumped ship.

There has been almost no research interest in smaller audit firms and their pricing structures. This study tries to fill this void in view of the current adverse developments in the Big 5 audit firm audit market.

### **Objectives**

Based on discussion with some practitioners, and on intuitive evaluation of the importance of judgment in any kind of audit approach, this study hypothesizes that unstructured approach will lead to a “tailor made” audit approach which may lower audit fees. The unstructured audit approach leads to lower audit fees both in initial and continuing audits.

Data used in the study range from 1984 to 1986 and a “matching” sample technique is employed as in the original studies<sup>5</sup> that started the use of this methodology. Similar to other published studies, a mail survey was used to collect audit fees and the COMPUSTAT database for other variables. The Kinney (1986) classification of audit firms was the basis for the Big 5 audit technology. Firms not classified provided their classification in a mail survey used for the purpose. The Model used for the analysis is in Table 1.

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<sup>4</sup> PriceWaterhouseCoopers (formerly Coopers & Lybrand and Price Waterhouse were unstructured firms) and Deloitte and Touche (formerly Deloitte Haskins and Sells and Touche Ross were structured firms) and Ernst & Young (formerly Arthur Young and Ernst & Whinney were intermediate firms)

<sup>5</sup> (Simon and Francis 1988 and Turpen 1990)

**Table 1**  
**Model and variables used in the Regression Analysis**  
 (with expected signs and coefficients)

$$\begin{aligned}
 \text{LAUD} = & \alpha + \beta_1 \text{LTASET} + \beta_2 \text{FAUD} + \beta_3 \text{LMASTAX} + \beta_4 \text{REG} + \beta_5 \text{BIG} + \beta_6 \text{LCRTASET} \\
 & (+) \quad (-) \quad (+/-) \quad (+/-) \quad (+/-) \quad (+) \\
 & + \beta_7 \text{LFA} + \beta_8 \text{SUB} + \beta_9 \text{INTA} + \beta_{10} \text{OP} + \beta_{11} \text{UNSTRUC} + \beta_{12} \text{STRUC} + \beta_{13} \text{AUTYP} \\
 & (+) \quad (+) \quad (-) \quad (+) \quad (-) \quad (+) \quad (+/-) \\
 & + \varepsilon
 \end{aligned}$$

Variables being defined as under:

- LAUD = Log of total fees paid to external auditor.
- LTASET = log of the total assets of client firm.
- FAUD = type of audit: (1) initial, or (0) continuing engagement.(\*)
- LMASTAX = log of non-audit service fees paid to incumbent external auditor.
- REG = if client belongs to a (1) regulated industry, or (0) non-regulated industry by reference to SIC codes.
- BIG = (1) if Big 8(5), (0) if non Big 8 (5).
- LCRTASET = log of total current assets as a ratio of total assets of client firm.
- LFA = log of foreign assets of client firm.
- SUB = number of subsidiaries of client firm.
- INTA = internal audit costs.
- OP = type of audit opinion (1) qualified or adverse, (0) unqualified.
- UNSTRUC = unstructured audit technology (1).(\*)
- STRUC = structured audit technology (2).(\*)
- INTER = intermediate audit technology (0). (\*)
- AUTYP = interaction term for type of audit and type of audit structure.(\*)
- \_ = error term.

\* = variables of interest to this study.

The variables in the model have been used by other studies in the area and a discussion of those is omitted and interested readers may refer to the studies for further explanations. The audit structure variable has three levels: structured, intermediate and unstructured (as suggested by Kinney (1986) and employed by Maher et al (1992) and Gist (1992)). Research findings of Maher et al (1992) and Gist (1992) indicate that audit firms operated on a structured – unstructured continuum during 1984-1986.

## Rao/Audit Process Structure and External Audit Fees – Impact on Continuing and Initial Audits

### Data Analysis

Regression analysis was performed on the pooled sample <sup>6</sup>. Table 2 has the descriptive statistics. The variable for used for types of audits (FAUD) was significant and negative and may indicate price cutting on initial audits. This finding is consistent with all other studies done in the area.

**Table 2**  
**Descriptive Statistics for Initial and Continuing Audits**

	Initial Audits Mean. n = 109*	Continuing Audits Mean. n = 105*
Unstructured	40 (36.4%)	32 (30.2%)
Structured	31 (28.2%)	27 (25.7%)
Intermediate	38 (35.5%)	46 (43.8%)
Opinion	Unqualified: 93 (85.63) Qualified: 16 (14.7%)	Unqualified: 98 (93.3%) Qualified: 7 (6.7%)
Current Assets (\$)	\$79.40 (millions of \$)	\$181.39 (millions of \$)
Foreign Assets (\$)	\$6.31 (millions of \$)	\$40.43 (millions of \$)
Subsidiaries **	With Subs: 25 (25%) No Subs: 75 (75%)	With Subs: 92 (87.6%) No Subs: 13 (12.4%)
Regulated Firms	Non Reg: 75 (68.8%) Reg: 34 (31.2%)	Non Reg: 91 (86.7%) Reg: 14 (13.3%)
Total Assets (\$)	\$451.28 (millions of \$)	\$ 1511.57 (millions of \$)
Internal Audit (\$)	\$12155.73	\$22782.45
Big 8(5)	24 (22%)	8 (7.6%)
Non Big 8 (5)	85 (78%)	97 (92.4%)
Audit Fee (\$)	\$97409.25	\$262563.79
Non Audit Fee (\$)	\$8879.51	\$10605.68

\* outliers dropped from analysis

\*\* missing values

The variables UNSTRUC and STRUC were both significant. UNSTRUC had a negative sign for the parameter coefficient estimate implying a lower audit fee than STRUC, which had a positive sign for the parameter coefficient estimate. The difference between the two beta values for UNSTRUC and STRUC indicates the relationship for the intermediate approach.<sup>7</sup> An examination of the partial correlation coefficients for UNSTRUC and STRUC (while holding type of audit constant) indicates that UNSTRUC has a negative relationship with audit fees and STRUC a positive relationship. One can conclude that the unstructured audit approach has a lower audit fees than either the intermediate or structured approaches.

These findings are also consistent with the theory espoused by CL (1989) who suggest that the structured approach is likely to cause auditors to perform procedures or create extensive documentation in some situations even though such steps may not be necessary, but are required to comply with the requirements of the structured approach. Bamber et al., (1993) suggest that the elaborate and time-consuming documentation required by the structured approach frustrated auditors. It is suggested here that such factors result in greater billable audit hours and higher fees. Anecdotal evidence on audit billings suggests a positive link between audit hours and audit fees.

<sup>6</sup> A response rate of 19% resulted for the mail survey and there were no statistically significant differences between the two sets firms – initial and continuing audits.

<sup>7</sup> These results are consistent with the ANACOVA where type of opinion, type of audit technology and type of audit were independent variables and other variables were introduced as covariates into the model.

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The unstructured approach allows field auditors to spend the optimal time on audit issues on a case-by-case basis, using judgment on adapting audit resources to only the requisite steps needed for a particular audit. Such adaptability of audit procedures to client characteristics may require a more judgmental approach. A study on adaptability of evidential planning by audit firms states “required procedures and those included by the firms in standard audit programs might serve to inhibit the level of adaptability of evidential plans ” (DiPietro et al., 1994, p. 25). These authors suggest that limited adaptability in evidential planning has implications for audit practice. At the intuitive level one can argue that less structured audit approaches make adaptability more viable and result in optimal audit time and fees.

The interaction term AUTYP used to evaluate the relationship between audit fees and the types of audits (initial and continuing) was positive but not statistically significant. It is possible to conclude that audit technology used by audit firms do not drive auditor changes made by firms. This result was also found by Tuntiwongpiboon et al. (1994)

### Conclusion, limitations and implications for future research

The findings of the study regarding discounts on initial audit fees were consistent with other studies. Many of the variables used in the research dealing with model specifications, were also consistent. The audit structure variables of interest and their implications for types of audits were original to the current study.

The controversial use of audit technology as an audit input proxy for the audit production function may not still be resolved in this study. The key contribution of this paper is to examine non Big 5 firms and thus add another dimension to the issue. With levels of computer involvement increasing and accounting firm mergers occurring (sometimes consistent with audit technologies) future research may well focus on this variable as an audit fee determinant.

With the recent SEC requirement for publication of audit and non-audit fees a replication of the study using “public domain” audit fee and non audit fee may enhance the credibility of earlier evidence (by eliminating mail survey non response bias) regarding audit fee discounts.

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**Enhancing Analytical Procedures in High-Tech Environments** by T.J. Tribunella, PhD, CPA and H.R. Tribunella, CPA

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### **Abstract**

The recent stock market contraction that reduced the value of high-tech companies by billions of dollars calls into question the effectiveness of investments made by new economy enterprises. The certified public accountants that are charged with the responsibility of auditing the financial statements of high-tech companies must be able to access the effectiveness of major investments in nontraditional assets such as information systems, Internet sites, and new product innovation. This paper identifies a set of new analytical procedures and metrics that auditors and managers can employ. These new procedures should be added to traditional measures to increase auditor understanding of high-tech investments.

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### **Introduction**

High-tech organizations, such as E-commerce entities, have many distinctive attributes that justify an enhanced approach to analytical procedures. For example, Internet ventures are free of time and place restrictions that inhibit the market penetration of traditional businesses. Since digital products may be costly to create but inexpensive to reproduce, a high-tech firm may have large upfront fixed costs but can deliver services and digital products at a low variable cost per unit. In addition, traditional companies are making larger investments in market branding, networking, Web site construction, and database systems. Traditional analytical procedures fail to measure these intangible, knowledge-based value drivers. As a result, a special set of financial and operational measurement tools are required to properly analyze high-tech investments.

### **Analytical Procedures**

According to the American Institute of Certified Public Accountant's (AICPA) Statements on Auditing Standards 56, analytical procedures involve using both financial and non-financial data to distinguish relationships within financial statements. Auditors can use these relationships to obtain evidence and:

- Gain an understanding of a client's business and industry during audit planning.
- Identify inherent and detection risks during audit planning.
- Develop analytical expectations during substantive testing of account balances.
- Indicate possible misstatements and fluctuations in the financial statements.
- Facilitate an overall final review of financial statements.
- Assess going concern issues.

Analytical techniques range in sophistication from simple trend analysis to complex mathematical models. The process for performing analytical procedures consists of developing an expectation and comparing it to the reported financial statement amount. Any significant differences must be evaluated and investigated. The following are different benchmarks that can be used:

- Industry Data with Client Data
- Year to Year Trend Analysis of Client Data
- Client Data with Client Strategic and Tactical Expectations
- Client Data with Non-financial Operational Data such as Web Metrics

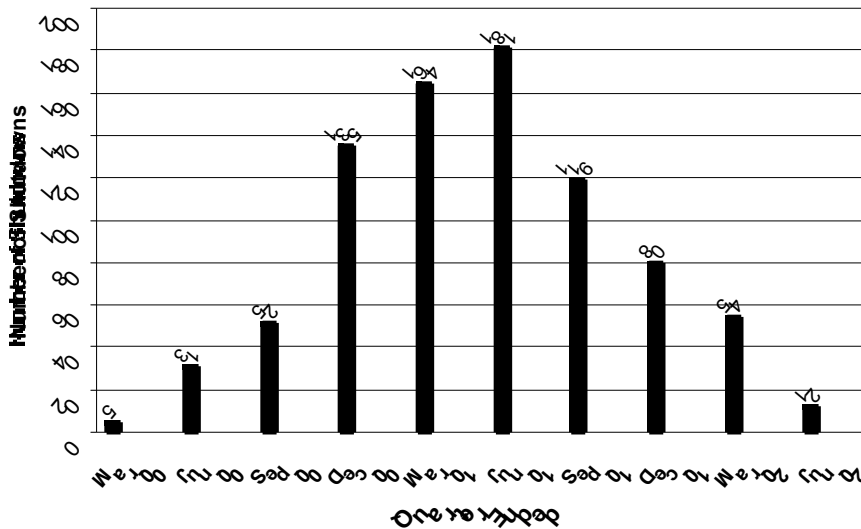
In addition, analytical procedures can play a key role in assessing certain business and audit risks if the auditor is faced with volatile economic conditions. Business risk is the risk that the business will fail to continue as a going concern due to lack of profits and cash flow. Audit risk is the risk that the auditor will issue an incorrect opinion on the financial statements.

**The Technology Shakeout and Going Concern**

The dot-com bear market may indicate the end of the gold rush stage for technology firms. Down 39.3% in 2000, NASDAQ suffered the largest one-year loss in its 30-year history. In 2001, the NASDAQ continued its downward trend with a 21.1% loss. The statistics in Exhibit 1, compiled by Webmergers.com, report the shutdowns and bankruptcies of substantial Internet companies that have received significant funding from shareholders or lending institutions.

**Exhibit 1: Dot-Com Shutdowns of Substantial Internet Companies by Quarter**

Source: Webmergers.com

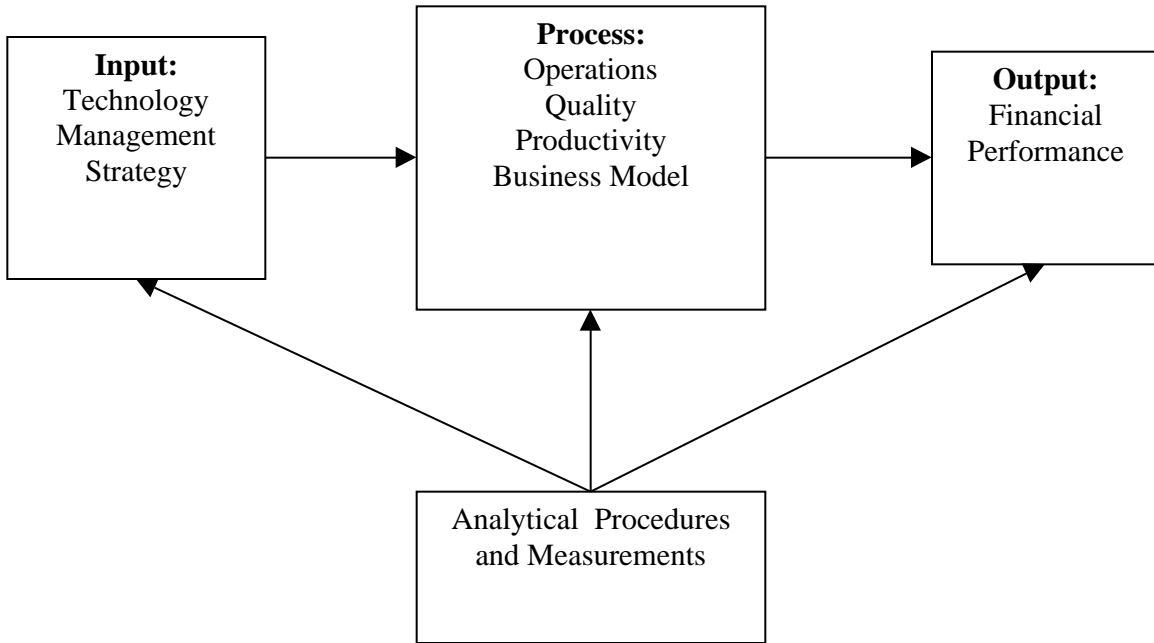


Disgruntled investors who lost money during the Internet shakeout are taking legal actions against Wall Street investment firms. In the wake of major bankruptcies such as Enron, World Com, Adelphia Communications, and Global Crossing, lawsuits will surely effect the CPA profession if auditors fail to understand a firm’s technology investments before they accept audit engagements. Auditors must consider the high failure rate of innovation and technology applications when they assess going concern issues and business risk. Non-traditional measures can help auditors assess going concern issues and reduce potential liability exposure.

**A Framework for Analyzing High-Tech Investments**

Before reviewing specific measures, it is useful to place high-tech investment into perspective. Accordingly, the high-tech investment cycle is put into the framework displayed in Exhibit 2.

**Exhibit 2: Framework for Analyzing High-Tech Investments**



Investments go through three stages - input, process and output. Auditors should apply analytical procedures at every stage. Exhibit 3 gives example of measurements that can help auditors analyze high-tech investments by each stage.

**Exhibit 3: Measurements by Framework Stage**

	<b>Input Measures</b>	<b>Process Measures</b>	<b>Output Measures</b>
<b>Analytical Procedures and Measures</b>	<ul style="list-style-type: none"> <li>• R &amp; D as a Percent of Sales</li> <li>• Advertising as a Percent of Sales</li> <li>• Total Cost of Ownership (TCO)</li> <li>• System or Project TCO as a Percent of Sales</li> </ul>	<ul style="list-style-type: none"> <li>• Unique Audience</li> <li>• Reach Percent</li> <li>• Stickiness</li> <li>• Customer Loyalty</li> <li>• Page Views</li> <li>• Download Time</li> <li>• Transaction Abandonment Rate</li> <li>• Transaction Processing Cost</li> </ul>	<ul style="list-style-type: none"> <li>• Cash Burn Rate</li> <li>• Cash Burn Time Left</li> <li>• Gross Profit Rate</li> <li>• Price to Sales Ratio</li> <li>• Sales Returns and Allowances</li> <li>• Project or System Return On Investment (ROI)</li> </ul>

**Input Identification and Measurements**

The first task for an auditor is to identify a material high-tech investment that affects audit risk and business risk. Examples of major project or system implementations are listed below:

- Enterprise Resource Planning (ERP) System
- Customer Relationship Management (CRM) System
- Accounting Information System (AIS)
- eCommerce Site Implementation
- Supply Chain Management System
- New Product Innovation and Development
- New Product Advertising Campaign

Measures that will help identify the timing and extent of high-tech inputs and investments are listed in Exhibit 4.

**Exhibit 4: Input Measures**

<b>Name of Measurement</b>	<b>Calculation or Definition</b>
R & D as a Percent of Sales	$R \& D \text{ Expenses} / \text{Sales}$
Advertising as a Percent of Sales	$\text{Advertising Expenses} / \text{Sales}$
Total Cost of Ownership (TCO)	Total cost of ownership includes all expenses related to owning and maintaining a workstation in an organization.
System or Project TCO for all Workstations as a Percent of Sales	$\text{TCO for System Work Stations} / \text{Sales}$

Research and Development (R & D) measures are commonly examined in technology-based industries that require constant innovation to stay competitive. In a study by the Goldense Group, 78% of companies that measured innovation used R & D as a percent of sales. Since many e-commerce companies have no physical business location, market branding is critical. A clearly branded Web site will draw many potential customers and increase Web site advertising rates. Advertising expense as a percent of sales indicates the extent to which a firm is branding its Web address. In addition, Total Cost of Ownership (TCO) is a commonly used metric to measure the cost of a network or computer system. TCO divided by sales will indicate the extent to which an organization is allocating available resources on computer systems and technology. The previously discussed technology investments should lead to process improvements.

**Process Measurements and Web Metrics**

Process measurements such as Web metrics are operational measurements of the amount and timing of Internet transactions and traffic. Customer behavior on a company's Internet site is recorded, stored, and summarized for operational analysis to measure the speed, reliability, and consistency. Web metrics have become industry standards, are frequently reported in the financial press, and are used as valuation parameters by business analysts on Wall Street.

For auditors to stay current in a business environment that is rapidly moving into e-commerce applications, they must learn how to use Web metrics for analytical procedures to enhance audit efficiency. Web metrics can be used to analyze revenues. For example, one would expect an inverse relationship between transaction abandonment rate and revenues. Some of the most widely used Web metrics are listed in Exhibit 5.

**Exhibit 5: Process Measures and Web Metrics**

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Name of Measurement	Calculation or Definition
Unique Audience (eyeballs)	The number of unduplicated people or homes that visit a Web site over a specified period of time.
Reach Percent	The percent of the total digital media audience that visit a site over a period of time. This is an indicator of Internet market share.
Stickiness	The average time spent at the site per person per period.
Customer Loyalty	The number of visits to the site per unique visitor per period. This is a measure of repeat visitors.
Page Views (traffic)	The total number of times a particular Web page has been presented to viewers.
Download Time	The length of time a user must wait to view a Web page. A study conducted at Yale found the threshold of user patience is 10 seconds. The average visitor will usually cancel a Web page down load after 10 seconds.
Transaction Abandonment Rate	The percent of transactions canceled by customers before a purchase is made. Customers typically abandon transactions due to security concerns. Assurance services, such as WebTrust by the AICPA, may mitigate a high transaction abandonment rate.
Transaction Processing Cost	The average expense of processing a transaction through a system can be estimated as: $\text{Administrative Expenses} / \text{Number of Transaction}$ A more detailed estimate of transaction processing costs can be obtained through an activity based costing (ABC) study.

A study of 84 publicly traded B2C (Business To Customer) Internet companies conducted at New York University disclosed that Reach Percent, Unique Audience, and Page Views were positively correlated with monthly stock returns in 1999 and 2000.

Web metrics related to customer traffic can be used to develop expectations of specific account balances. Accordingly, one might expect a high correlation between Web site traffic, revenues, and advertising expenses. Such analytical procedures can be used to substantiate revenue and expense account balances and thereby reduce detection risk, which is the risk that an auditor will not detect a material misstatement in the financial statements.

### Output and Financial Measures

Since many start-up companies do not have positive cash flow or net income in the early stages of development, they are difficult to analyze. As the losses continue, companies may be under pressure to “manage” earnings. The cash burn rate and cash burn time left ratios indicate the ability of a firm to sustain negative cash flows. These measures will play a key role in assessing the entity’s ability to remain a going concern. When there are going concern issues inherent risk increases, which is the risk that a material misstatement exists in the financial statements.

The gross profit rate and price to sales ratios are used to assess potential earning ability during the absence of net income. More specifically, the price to sales ratio is used in place of the price-earnings ratio when there is no net income to calculate earnings per share. Calculations of financial performance measures are listed in Exhibit 6.

### Exhibit 6: Nontraditional Output and Financial Measures

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Name of Measurement	Calculation or Definition
Cash Burn Rate *	Cash Flow from Operations / Cash on Hand
Cash Burn Time Left *	Cash on Hand / Cash Flow from Operations
Gross Profit Rate	Gross Profit / Sales
Price to Sales Ratio	Stock Price / Sales Per Share
Sales Returns and Allowances (SRA)	The amount of SRA can indicate how well a total quality management system is working.
Project or System Return On Investment (ROI)	Cost Savings / TCO for System Work Stations

\*Use when cash flow from operations is negative

Output and financial measures are important, but they are only one piece to the puzzle. The measures and metrics must be put into context by being benchmarked with industry data.

### Sources of Industry Data

Many of the measurements discussed in this paper can be compared with industry relevant standards and best practices. The following companies have collected extensive high-tech industry data and have conducted much research in the area of Web metrics:

- Nielsen Net Ratings: [www.nielsen-netratings.com](http://www.nielsen-netratings.com)
- Jupiter Media Metrix: [www.mediametrix.com](http://www.mediametrix.com)
- Site Meter: [www.sitemeter.com](http://www.sitemeter.com)

As an example, Exhibit 7 displays Nielsen Net Ratings top 10 US Web and digital media properties. The properties are ranked by the percent of reach to at-home Internet users.

### Exhibit 7: Top 10 US Web Properties

Week Ended February 10, 2002

Rank	Name	Unique Visitors (000)	Digital Media Reach %	Time Per Person (Stickiness)
1	AOL Time Warner Network	39,447	49.25	16:04
2	Yahoo!	34,860	43.53	32:27
3	MSN	31,770	39.67	28:26
4	Microsoft	14,239	17.78	07:15
5	Google	9,317	11.63	07:38
6	About-Primedia	8,809	11.00	09:14
7	eBay	8,664	10.82	59:27
8	Lycos Network	7,579	10.71	07:42
9	Amazon	7,744	9.67	08:50
10	Walt Disney Internet Group	6,473	8.08	15:24
NA	Averages	16,890	21.21	19:15
NA	Estimated US Total Per Week	79,632	100.00	NA

Source: Nielsen Net Ratings

In Exhibit 7, unique audience is measured on a weekly basis. Time per person is the amount of time, per week, that each unique visitor spends at the related Web site. The bottom of the table lists the averages for the top 10 US Web properties and the estimated total number of unique Internet users during the week.

### Summary

For auditors to make informed decisions that maximize audit efficiency and minimize risk, they must have industry relevant information. High-tech organizations create a unique environment that requires

## **Tribunella, Tribunella/Enhancing Analytical Procedures in High-Tech Environments**

specialized measurement instruments to augment analytical procedures. They do not have large amounts of capital invested in land and buildings, but spend their resources on technology. Internet companies compete by making a strong commitment to the design of their Web site and by having adequate file server capacity. The systematic use of measurement tools will provide useful information during the audit and review engagements of these nontraditional companies.

The aforementioned nontraditional metrics and measures are not intended to replace traditional analytical procedures. However, they should be used to enhance traditional analysis and help auditors obtain a better understanding and a more balanced scorecard of high-tech ventures and investments.

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**Organizational and Ethical Conflict in the Breakup of a Physician Group: A New Institutional Approach** by Henry Vandenburgh Ph.D.

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**Abstract**

The organizational effect of institutional change on the micro-level in medical care has been understudied. This paper uses a series of interviews to explore the breakup of a physician practice following the realization by different groups of physicians that their values and practices are quite different. In addition, it explores the ways in which the specific ethical values differ. New institutionalist theory is used to shed light on this situation. In doing so, it identifies the phenomenon of variegated groups adhering to different versions of the same institution.

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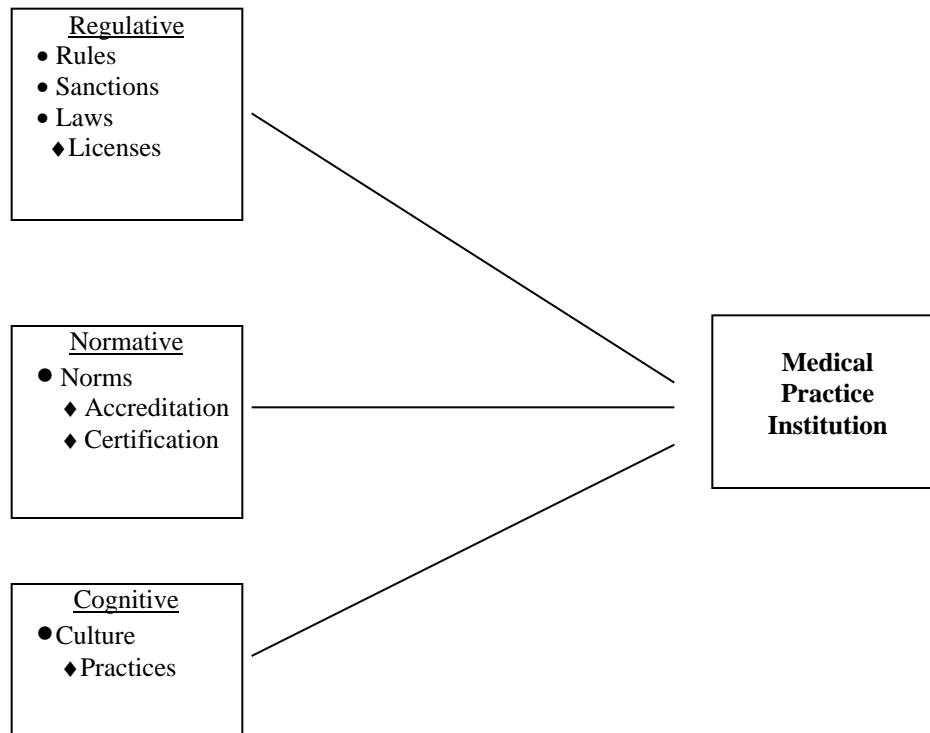
**Introduction**

Although medicine is a key social institution, there have been relatively few studies examining physician group practices as organizations. Freidson (1985) identifies the tendency for physicians to organize themselves professionally to serve their own interests. As they do so, certain physicians come forward as managers to coordinate the efforts of their fellow doctors. These leaders are frequently rewarded by greater remuneration, and in terms of enhanced autonomy and control resulting from their new administrative roles (Hoff 1998). This is compatible with the rational choice management literature (Barney and Hesterly 1999), in which “administration” and “management” are seen as resulting from the need for coordination of increasingly diverse functions, thus lowering the potential transaction costs that would have been incurred had organization not existed.

The purpose of organization into physician group practices is to provide successful business settings in which physicians can practice. Some of the advantages in forming these practices include “...coordinat[ing] and control[ing] activities by direct interaction, curbside consulting, shared medical records, and mutual adjustment” (Freidson 1975 in Wholey and Burns 2000) This formation of group practices also gives rise to an administrative elite of physician managers, who “satisfy the demands of consumers, politicians, and third party payers without sacrificing professional control” (Freidson 1985, p. 23). As in other organizations where managers are rewarded by appropriating portions of the surplus resulting from savings on internal transaction costs (Coase 1984), managers sometimes stand to gain personally by occupying these positions; thus their interests become somewhat separate from those of the other physicians, but may be congruent with the fortunes of the organization as a whole (Hoff 1997; Hoff 1998).

But an institutional level of organization of medicine (i.e., a societal-cultural one) has also existed, in part to insure as much autonomy as possible for physicians in general (Freidson 1985), and in part as contested terrain where the interests of physicians and other stakeholders contend to construct healthcare (Light 2000). As with physician groups, leaders come forward to advance the interests of medicine as a whole, even if this detracts from the interests of specific physicians or physician businesses. In the *regulative* sense (Scott 1995), this institution uses rules, laws, and sanctions to enforce institutional interests (Figure 1). Because this institution is only partially private, with some recourse to state machinery (Light 2000), it can sometimes use coercive mechanisms to exercise control. Thus state medical licensing boards have the power to revoke the licenses to practice of wayward physicians, even if this power is only rarely invoked (Rodwin 1993). Societal legitimacy is thus preserved by the use or potential use of state sanctions. Similarly, physicians may occasionally be discharged from a medical society or the medical staff of a hospital, actions likely to have significant economic consequences for them. Here a similar type of authority is used, but the body of physicians invoking it is not playing an official “state” role. Instead it is acting as the agent of an association or organization with monopsony or oligopsony (McConnell and Brue 1990) powers over physician employment.

**Figure 1. Scott's Three Pillar Model of Institutions Applied to Medical Practice**



But the organization of the institution of medicine as a formal set of linkages is only one side of the story. Part of institutional structure rests on a *normative* basis (Scott 1995). Here the foundation is moral, as opposed to largely coercive. Such devices as certification or accreditation procedures may be used, rather than rules or laws. For example, a hospital might fail to obtain accreditation because it made too many surgical errors in a period of time. The hospital might then not be required to close by law, but it might lose significant business because it could no longer identify itself as an accredited facility. Because of the professional character of medicine, such accreditations are important for physicians as well as organizations. In most states, it is therefore technically legal for any physician to practice cosmetic surgery, but prestige, peer acceptance, and high incomes accrue only to those few who have served appropriate residencies and been certified as plastic surgeons.

The last pillar upon which the institution of medicine rests is a *cognitive* one (Scott 1995). Here culture plays a role by supporting those practices already prevalent in society. These behaviors seem to be correct because they already exist. A physician may talk to patients in various ways, dress in a certain manner, and so forth, as means by which to reproduce his/her role as a medical practitioner. The physician may call each of his or her patients by their given names, while expecting that the patients address him or her as "doctor". He or she may think nothing of taking a group of medical students into a patient room, whisking away the bedcurtains, and displaying the patient's surgical wound for the group while treating the patient as though he or she were merely a "case", rather than a person with independent thoughts and feelings. The expediency with which the patient is treated can be explained as necessary to considerations of efficiency, but it has the probable latent function of reinforcing the doctor's superordinate position in the relationship. Culture is thus likely to be the most pervasive sense in which medicine is an institution, since the bulk of medical behavior falls into the category of the vast number of mundane actions that take place in order to produce and reproduce the practice of caring for the sick.

### **Ethical Implications**

Clearly aspects of medical ethics interact with each of these three pillars (not solely the normative one). In the sense that medicine is a coercive institution, actors are constrained not to break the law in its practice.

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Thus if a doctor is discovered to have practiced infanticide (even though by anecdote some physicians occasionally do practice infanticide for reasons they typically believe to be compassionate), he or she is at least theoretically subject to legal sanctions for doing so.

In the normative system, the same holds true. Practitioners and organizations frequently expect of each other that each practitioner or organization fulfill certain professionally expressed ethical expectations, even if these are not always attested in law. Thus in certain states, it is normative for physicians not to advertise on television, even though it is within their legal rights to do so. If doctors choose to advertise, they may find themselves sanctioned by not being admitted to medical staffs at given hospitals in consequence.

Finally, physicians must observe current cultural practices in reproducing the institution of medicine. Should they fail to do so, they are likely to receive less support from both their peers and their patients. If a doctor, for example, acts in an extremely unorthodox way as he or she practices, he or she is likely to lose his or her patients and referrals from other physicians and medical organizations. State hospital lore (see for example Goffman 1961) is full of examples of extremely marginal physicians who must practice as mental ward attendings due to previous unacceptable behavior resulting from alcoholism, senility, and the like.

Given these theories of institutional practice, it is interesting to note that patterns of institutional change have, as yet, been understudied. To be sure, some have done so on a macrosocial level for medicine (Alexander and D'Aunno 1990; Scott and Backman 1990), but few have investigated the specific micro-organizational sense in which institutional change is experienced. In this paper, I study the breakup of a physician group in the sense that it represents the change from one institution of medicine to another, as much as the separation of individuals with divergent interests from one another.

### **Methods**

This study is based upon structured interviews with four physicians and two office staff, and utilizes elite interviews (Elliston et al. 1985), where open ended sessions are used to get a great deal of information from a limited number of expert informants. The interviews were then subjected to a grounded theory analysis (Strauss and Corbin 1990). Following Strauss and Corbin (1990), the data were carefully examined for patterns suggesting common themes ("open coding"). They were then examined in more detail to delineate relationships. This generated linkages categories seemed to possess in regard to each other ("axial coding"). The researcher subsequently attempted to establish actual causal connections the phenomena under study seemed to possess in regard to each other, as well as the contexts into which these phenomena seemed to be inserted. Strauss and Corbin refer to this process as "formulating a paradigm," in which the following issues are to be considered (in order).

1. Causal Conditions. The events or incidents leading to the observations
2. Context. The specific set of properties pertaining to a phenomenon
3. Intervening conditions. The broader structural context in which the phenomenon is inserted
4. Action/Interactional Strategies. Purposeful, goal oriented, procedural behavior designed to affect events pertaining to the phenomenon
5. Consequences. The resultant set of phenomena, once action/interaction has taken place

As the analysis developed, it followed the stages suggested by Turner (1981) in interpreting Glasser and Strauss (1968). It first developed categories that used available data to suggest nominal classifications fitting these data closely. It then saturated these categories by accumulating all of the examples that could be found from interview data that fit each category. Next, it abstracted a definition for each category by stating the criteria for putting further instances of this specific type of phenomena into the category. It continued to use the categories by making follow-up calls based upon some of the questions raised when seeing the data in the light of the categories. It then further exploited the categories by inspecting them to see if they suggested additional categories, suggested more general or specific instances, or suggested their opposites. It noted and developed links between categories by becoming aware of the patterned relationships between them, and by developing hypothesis about these links. Finally, it considered the

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conditions under which the links held by theorizing about these relationships and the contexts that conditioned them. It then made conditions to existing theory.

### **Case**

Located in a medium size city on the Eastern Seaboard, the Clamshell Family Physicians is a medical group practice with 14 practicing physicians and a smaller number of nurse practitioners and physician assistants. A small subset of the group's physicians are partners or on track to be partners. Several physicians are merely employees of the group. All of the doctors receive similar monthly compensation, but those on the "partner" track are required to make a monthly payment back to the group in order to effect an ultimate "buy-in" for shares of the equity in the business. Thus the pre-partners are likely to receive lower amounts of compensation than either the full partners or the physician employees. The practice is a member of several managed care plans and does a thriving business which confers a relatively high income upon each of its physicians.

Recently, four partner-tracked physicians separated themselves from the group, establishing their own new practice about five miles from the original site. The departure of the four doctors was acrimonious, and the senior partners from the original group initiated a lawsuit in which they cited the new practice for "stealing" an employee--in this case a nurse practitioner who had taken three months off and gone to work for the new group--a practice that had been forbidden by contract. The nurse's belief was that the break in employment would obviate any legal action that might be taken against her or her "new" employers. The lawsuit, which was later dismissed by a judge, was similar to a lawsuit the partners had brought against an earlier group of physicians who departed. This earlier suit was predicated upon the departees having broken a non-compete clause in their respective contracts. It, too, had been dismissed.

### **Managed Care as an Issue with Older Physicians**

Managed care, which started as a movement to retrospectively analyze utilization of hospital services in the early 1980s, had, by the end of the 1990s, turned into a system of prospective and concurrent review where both hospital and physician clinical behavior was routinely scrutinized while care was underway. Practitioners were frequently required to make phone calls or write letters justifying further care for a patient's condition (Gray 1993). If procedures deviated from norms established by the managed care company, payment was frequently not forthcoming. Thus the culture of managed care had the overarching effect of rationalizing care and making it generally uniform over a number of conditions (Alford 1975).

In light of this, the real issue in the breakup of the physician group was conflict between two separate organizational and ethical sets of practices. The culture of the older physicians focused upon the relationships between individual practitioners and their patients. For these doctors, medicine was an art, a physician being a uniquely gifted professional with his or her own style of practice and unique ability to interact with patients in a healing manner. The new culture of external accountability, which had been introduced by managed care, was anathema because it subjected physicians to oversight by others, including, in some cases, non-physicians.

The older partners at the Clamshell group thus were resistant to the rationalizing culture of managed care. Believing medicine to be an art, they did not like external controls placed upon practice. They also resented the time that they were required to devote to accountability, even if such efforts led to higher levels of remuneration. A key aggravating issue was that many of the monitors of care were registered nurses, who, although working under the ultimate direction of physician medical directors, were sometimes in a quasi-superior role to physician-payees, since they initially approved or disapproved requests to render further care. One physician partner at the group remarked, "I'm not going to take the time to write a letter to a managed care company, just to get a \$65 payment." The older doctors believed their stance to be an ethical one as well, since managed care was likely to frequently deny patients necessary care in their eyes. Resistance to the new system was resistance to a bad new order of things.

### **Compensation and Best Practices as Issues with the Younger Physicians**

The younger physicians had a different point of view than the original partners. As more recent medical school graduates, they were accustomed to seeing managed care as a key player in health care. Because medicine, in their more modern view, was as much a technology as an art, they felt less resistance to

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standardizing their practices in accordance with suggestions made by managed care companies. They felt little resistance to making phone calls and writing letters to managed care companies to keep the monitors of care updated on the progress of given patients. Cooperation with a number of stakeholders had always been part of the equation in their experience. Implicit also in this perspective was a belief in a more objective clinical science, as opposed to a more strict construction of medicine as an art. If objective clinical data could be shared among practitioners, patients would benefit, even if the agencies requiring such objectivity were motivated by a desire to reduce utilization, and hence the amount they had to pay to practitioners. In consonance with this idea, the Clamshell Group even had a few new capitated contracts, where portions of a patient's medical care were taken on at-risk by the group. Here, the group received a monthly payment to treat any and all of certain types of disorders for a number of patients on a given insurance plan. If no patients presented themselves, the entire payment would be profit. On the other hand, if a large number fell ill, the group could lose money. Under these circumstances, it was in the group's interest to reduce utilization as well.

The younger physicians resented the way in which the older physicians failed to cooperate with managed care and other external reviewers. The older physicians did so by charting (keeping records) in overly general ways that made diseases and their interventions hard to justify to managed care. These overly general or scanty progress note entries also made it hard for the coders who worked for the group to present data to insurance companies in such a way that the group always received reimbursement for its work. Frequently, the older physicians also failed to chart on patients in a timely way, making reimbursement problematic for this reason as well. The younger physicians disapproved of all this behavior, because they saw it as directly taking away reimbursement that the group should have been able to capture-- had the documentation been correctly done. Especially galling to the younger physicians was a cavalier attitude toward documentation for reimbursement for big-ticket items. Poor documentation had led to managed care denials and increased scrutiny for later requests to perform these procedures. Each denial represented a large economic loss for the group. It seemed incomprehensible to the young physicians that the older physicians would pass up the chance to secure this reimbursement.

For the younger physicians, Clamshell's joint remuneration had been inappropriately reduced, even though they themselves had been documenting correctly and in a timely manner on their own assigned patients. In addition, they believed that modern externally reviewed treatment was likely to be of high quality and do the most efficient job of conserving patient resources. Thus, for them, the modern approach was also likely to be the most ethical one.

As another global factor, there was a separate issue relative to compensation of retired and semi-retired members of the original group. Older members of the original group were given "golden parachutes" in the form of do little or nothing jobs designed to bring in nearly as much income as when these physicians were active. Since these non-productive shares of group income cut into the shares of the younger physicians, these younger doctors resented the situation. Some older doctors had their "equity" brought out by the group. The younger physicians saw this as inappropriate because they believed the true equity to be the ongoing ability to serve patients, not the original efforts made to found and build up the group.

### **Analysis**

In the case featured here, the two physician groups can be seen as participating in two separate institutions. The original group belongs to an institution that characterizes "medicine" as it was usually practiced during the period prior to 1990. The second belongs to the period that occurred after 1990. In the first paradigm, physicians emphasize professional autonomy and the unique abilities physicians possess to work with individual patients. They take it as an article of faith that incursions by managed care or other organizations that attempt to limit or channel medical practice are wrong because these organizations are self-seeking and have the project of subtracting resources from patient care in the interests of cost-savings. Because of this, resistance is legitimate and ethical, even though it also preserves additional autonomy for the physician. This resistance can sometimes take the forms of refusing to communicate with managed care organizations, refusing to follow the suggestions proffered by managed care, or misreporting patient symptoms or patient progress. Under some circumstances, it can also take the form of upcoding to secure resources for patient treatments that managed care might not approve of, but are considered necessary by the physician (see Vandenburgh 1999).

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Ethically the two institutions are organized somewhat differently as well. The older institution of medicine largely uses deontological ethics (see Kuhse 1997). Here it is the physician's intentions toward his or her patients that are paramount. Practice is individual, artful. Therefore the particular attitude of care is key. Each physician owes a devotional attitude to each of his or her patients, and is obliged to render it in a manner tailored to each (even if such attitudes are not always in evidence in the physician's demeanor, they should be in his or her practice). By implication, however, he or she is removed from being responsible for unexpected consequences of intervention, if he or she delivered care in a reasonable and customary manner according to the lights of other local practitioners, who are the only possible judges of his or her performance. Thus the physician is likely to be forgiven poor results, even if they have devastating consequences for patients, if other, similar practitioners are convinced that his or her intentions were sound, and his or her practice was within customary bounds. Because of the devotional advocacy role taken by the practitioner, it may even be legitimate to bend rules for reimbursement (by, for example, upcoding the patient's condition to managed care companies), if this means that the patient has access to increased amounts of care the physician believes necessary. Here, of course, the interests of the patient and the practitioner may converge, because such upcoding means increased reimbursement for the physician as well as more treatment for the patient. Because of this, the stance taken by physicians in the older institution of medicine is like that of Becker's (1999) moral entrepreneurs, who stand to benefit themselves from advocacy of programs thought to be, but not always proved to be, beneficial to society.

The new institution of medicine prefers teleological or consequentialist ethics (Kuhse 1997). Here, the stance is one of using one's clinical science in concert with others to objectively benefit patients. Desirable outcomes of care are more likely to be derived from national standards. Protocols or regimens are borrowed from federal or specialty organization recommendations rather than from one's own experience. Rather than emphasizing an individualized art of medicine, physicians stand ready to consult with others in delivering care. These consultations can involve the supervising managed care company, and, significantly, cost-benefit considerations can play a role in determining the efficacy of providing further treatment. Because of the implicit weighing of devoting resources to one patient as opposed to saving some of them for use by other patients, practitioner consequentialism has a distinctly utilitarian flavor (the greatest good for the greatest number) (cf. Kuhse 1997). In spite of the notorious problems noted by critics of managed care (Wholey and Burns 2000)--hence, of the new institutional form of medical practice, as well-- it is important to note that the younger physicians do not complain about them. For them currently, the rigor, the tightening, due to managed care is desirable. They believe that this objectivization of medical care, with its commensurate accountability, has been long overdue, and, in the long run, is better for patients. Admittedly, however, this opinion is being given before the new group has experienced any future tightening for managed care cost savings, with which it might not agree.

This vision, that of the rationalization of care through science and accountability, is essentially the same as that promoted by Ellwood (1988). For him, as well, managed care is not just an opportunity to save money by making more intricate hard choices about where to place medical resources. It is an opportunity to further rationalize care in the best sense. Managed care, and a medical delivery system based upon it, will lead to "best" medical practices because of the amounts of data gathered, studied, and compared. Cost savings are almost incidental in his model. The most effective, ethical care is that which has been rendered in an atmosphere of rigorous external accountability. In spite of findings that managed care frequently accomplishes its purposes by cream skimming and paying attention to considerations of costs as opposed to quality (Wholey and Burns 2000), the young physicians in this study believe in its efficacy and have used it as their standard in making the break with the Clamshell Group.

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**Table 1. Contrast between Old and New Medical Practice Institutions**

	<b>Regulative</b>	<b>Normative</b>	<b>Cognitive</b>
<b>Old</b>	Legal deemphasized	Credentials Deontological ethics	Informal culture Autonomy
<b>New</b>	Legal emphasized	Outcomes Teleological ethics	Formal culture Directiveness

In terms of Scott's (1995) three pillars, the implications of the old versus the new are interesting as well (Table 1). In the regulative pillar, the older physicians have less investment in conceiving medicine as a legalistic endeavor, hence their practice allows for more bending of laws, as well as of other rules (attested or unattested). The paramount goal of pre-1990 medicine is autonomy (Freidson 1985), whether or not such autonomy has truly been realized (see Light 2000). Therefore laws and regulations are seen as secondary to the artful practice of medicine as the physician sees it. The practitioner ideal typically does what he or she thinks is "best" in a given situation, especially as concerns distant laws not directly pertinent to what he or she believes the situation to be. The new physicians, by contrast, are legalistic. They expect to abide by the letter of laws and regulations, and to work out any differences in an above-board way. Because they have a record of dealing forthrightly with those to who they are externally accountable, they expect that they will be listened to.

In terms of Scott's normative pillar, medical practice appears unchanged on its surface. Physicians continue to seek privileges at hospitals. They also serve residencies and take boards in order to become specialists, including in family practice as in this study. The long run implications of the change in medical cultures noted here, however, are probably undermining of accreditation as a means of insuring quality. Accreditation is still primarily structural, in spite of halting attempts toward building in outcomes measures in such areas as hospital accreditation. This means that credentialing and documentation remain the mainstays of quality from the old perspective. The new perspective, however, relies on outcomes measures. When organizational structures or credentials no longer serve to maximize efficacy in health care, the tendency is to replace these items with ones that work better, even if the new ones offend long-standing medical traditions. If nurse practitioners work equally as well as physicians, use them. If new practice guidelines offer the distilled wisdom of practitioners across the country, use them as well, even if they reduce local physician autonomy. If non-specialists can be trained to do a procedure correctly every time at a "center for excellence", use them in preference to specialists. The upshot is that consequentialism, again, replaces deontology in the normative pillar.

In the cognitive pillar, the culture of medicine changes as well. The long trajectory away from the personal family doctor continues. Rational organization with objective outcomes makes it possible for physicians to fill in for one another with no ill effects on the patient, at least from the point of view of "objective" clinical indicators. This leads to more rationalized medicine which may have a more brusque, more rapid character than that of the past. Patients may feel more objectivized than before, and their subjective feelings of comfort with the new system may decline, even as the system becomes more efficient, and possibly more effective. Thus, patients are likely to spend even less time with physicians in the new institution of medicine, and are likely to believe that they are being treated less personally, even if care is more rational in a scientific sense.

### **Conclusion**

Because the perspective used here, new institutionalism, is holistic, it is tempting to regard the transactions originating in medicine's external environment as less important than practices obtaining within the institution. Similarly, the arbitrary nature of institutions may tempt one to believe that they have few specific effects on their environments, only holistic, general ones. In this spirit, we may be tempted to regard medical ethics and behavior as mere reflexes of medical culture, similar in many ways to Black's (1998) idea that social control is a dependent variable. This is too simple, however. In spite of the inertia with which institutions persist in given forms, they can be modified by changes in their environments

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(Alexander and D'Annunzio 1990). (The case here is evidence that two or more versions of an institution may exist at a given time.) There are external reasons why managed care emerged with the force it did. These include the less auspicious economy of the period 1970-1993, and the recurrent desire to wrest control away from an exclusive physician basis in healthcare. Managed care, for economic reasons, is a two-edged sword, in which the cost saving component has frequently proven to be more important than the rationalization of care one. Likewise, the way in which medicine is practiced affects society in ways evidenced by its reactions to medicine. This is shown by movements in the polity and in Congress to increase the liability of managed care organizations. Thus a simple new institutionalist perspective is far too basic for comprehensively evaluating medical care. In can, however, provide some insights into the persistence of practitioner cultures. Among these are differences among sets of practitioners around issues of the legal, normative, and cognitive components of their activities.

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