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**Bacon's**

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### Modern Math Counts on Ancient Law to Catch Fraud

In a tale of mathematical theory meets practical applicability, century-old Benford's Law is finding modern applications as a digital fraud-buster.

According to an article in Georgia Institute of Technology's *Research Horizons*, the "probability distribution" law is winning new respect in such areas as mathematical modeling, computer design, financial management and, perhaps most importantly, fraud detection.

First noticed in 1881 by astronomer and mathematician Simon Newcomb, Benford's Law states that certain digits will appear more often than others in certain sets of data. In 1996, Dr. Ted Hill, a Georgia Tech mathematics professor, constructed a proof - demonstrating that random samples from randomly selected data sets will always converge to Benford's Law - that gave the Law full credibility. As a result, the rule is experi-

encing new exposure due to its potential real-world applications.

Southern Methodist University accounting professor Mark Nigrini posed the usefulness of Benford's Law in fraud detection given the small number of statistical tests used to expose "inconsistencies."

"When people fabricate data - either for fraudulent purposes or just to fill in the blanks - their conception of random numbers doesn't match reality," Hill states in the article.

The article reports that the U.S. Institute of Internal Auditors is conducting classes on how to apply Benford's Law, and the International Institute for Drug Development in Brussels wants to use the law to reveal fabricated data in clinical trials.

Hill is now traveling throughout the United States, educating commercial, academic and consumer groups about Benford's Law as part of a \$500,000 grant from the National Science Foundation. He holds a master's degree in

operation research from Stanford and a Ph.D. in mathematics from the University of California at Berkeley.

### Net Markets Ready to 'Explode'

Independent net markets will experience explosive growth over the next two years in terms of size, geography and industry depth, according to a report by Jupiter Research. The company predicts the number of net markets will jump from 1,200 now in place to more than 5,000 by 2002. Net markets are becoming the standard by which business supply chains interoperate. Businesses that fail to dive into the mix risk losing their competitive edge.

Net Markets - defined as online digital marketplaces electronically linking buyers, sellers and business partners - are experiencing more comers than goers, a sign that independent net markets are in investment mode for the foreseeable future. Jupiter projects that net markets will account for 35 percent

### Bullish on the Networked Economy

At a time when one-time Wall Street darlings dot-coms have fallen into investor disfavor and market fluctuations are driving financial advisors crazy, Gartner Group analysts advise bullish strategies and execution toward the networked economy. The period of sustained economic growth, full employment and low inflation that has settled upon the United States has created opportunities for heavy investment and deployment of network technology.

Gartner's forecast for the application service provider (ASP) industry, which is poised to grow 2,400 percent - from \$1 billion in 1999 to \$25.3 billion by 2004 - is a main reason for the company's "go-for-it" attitude. They believe the ASP market has the power to dramatically redraw today's IT ecosystem based on the delivery of application services over a network.

"There has never been a better environment to make bold moves toward the networked economy," says Gartner Research Fellow Kenneth McGee. "We



have perfect conditions for technology breakthroughs; the only variable is the guts and conviction of business leaders in the wake of dot-com hysteria."

One example of how the networked economy will deliver business opportunity is the way in which companies can track and report earnings to Wall Street, according to Gartner's "The Perfect Economy Report." Income statements will be used to predict fortunes, not just report them. Gartner envisions that:

- By 2005, the first company will report its quarterly earnings BEFORE the end of the quarter.
- During the next five years, companies reporting earnings

before the end of the quarter will use the earlier-than-expected increase in market capitalization of their stock to buy competitors and other companies that must wait to report quarterly earnings weeks after the end of the quarter.

- By 2010, stock trading will not be based on the likelihood of a company attaining its quarterly earnings estimate, but rather by its ability to close its books and announce its earnings per share on a daily basis.



of U.S. B2B online commerce by 2005, totaling \$2.2 trillion. This projection is a dramatic rise from spending estimates for 2000, where net markets online commerce will reach \$25 billion.

"Despite many industry indicators, dot-com performance is not a good barometer of the growth of net markets," says John Katsaros, vice president of Jupiter Research. "Independent net markets are emerging in response to real business needs, and companies that don't participate in them over the next few years will lose the ability to compete."

Katsaros identifies three phases of growth over the next 24 months – emergence, growth and consolidation. In the final phase, transactions in net markets will account for more than 10 percent of an industry's total volume.

Most industries are already in the emergence phase and many are heading into the growth phase, according to Jupiter. Factors that will affect continued growth include financing, technological advances, consolidation of coalitions and private net markets.

For more information on B2B Net Markets, see page 10.

## B2B Simulator Teaches e-Marketplace Lessons

Everyone knows that the advent of the e-marketplace is changing the way companies do business. Efficiencies inherent in Web-based B2B activities allow suppliers and buyers to lower procurement costs, improve supply chain management and tighten inventory control. Managing the marketplace, however, is a complex process that is generally not well understood. If companies want to cash in on e-commerce, they have to learn before they can earn.

At least that's what Strategic Management Group Inc. (SMG) hopes. The global management and executive training company offers customers hands-on practice in this emerging business model through a B2B computer-based learning simulation. Users manage a fictional B2B company whose main component is a Web-based marketplace for buying and selling industry products.

Once a business strategy is developed,

users begin its implementation through general policies in sales, marketing, finance, operations and technology as well as strategic and operational decisions. Users set up a sales force, partner with buyers and suppliers, establish brand equity, research and develop products, and staff their burgeoning business.

Reports provide analyses of the company's progress and department managers can share industry information over email. The ultimate goal is to capture a substantial portion of business transactions in the e-marketplace.

The simulation is designed for one- to two-day workshops facilitated by industry experts. It can be downloaded from the Internet. The simulation is supported by case studies that provide real examples of B2B successes or failures. SMG can customize the business model and value propositions of the simulation to almost any industry.

## Cybercrime on the Rise

According to a recent survey published in *Information Security* magazine ([www.infosecuritymag.com](http://www.infosecuritymag.com)), the number of companies spending more than \$1 million annually on computer security nearly doubled in the past year. Nevertheless, system security breaches

continue to grow as the threat of hackers and careless employees increases.

"The 2000 Information Security Industry Survey" queried 1,897 high-tech and infosecurity professionals. The survey analyzed statistics on the relationship between e-commerce and security risk, security software use, and the effectiveness of information security policies in mitigating threats and cyberattacks.

The results "prove that spending millions of dollars adopting security practices doesn't guarantee effectiveness," says Andy Briney, editor-in-chief of *Information Security*. "CEOs and CIOs need to focus on security solutions that fit their specific network needs. A large dollar amount alone will never guarantee network safety."

The survey confirms that viruses and malware attacks are on the rise. Eight out of 10 companies were hit with a destructive virus this year. Cybersabotage is also a concern. Compared to 1999, nearly twice as many companies experienced insider attacks related to the theft, sabotage or intentional destruction of computing equipment this year. The number of organizations in which employees intentionally disclosed or destroyed proprietary corporate information increased by 41 percent.

## Get Smart: Buildings that Think

Most buildings just stand there. Some look pretty. Can they also be smart? Yes, say researchers at AT&T Labs in Cambridge, England.

According to *PC Magazine*, AT&T's Sentinent Computing System includes applications that use ultrasound receivers installed in the building's ceilings together with pager-size ultrasound transmitters (known as bats) to track users as they move throughout the building. Signals emitted by the bats are used by the system to determine their location – within three centimeters.

When a bat nears a computer workstation, the magazine reports, the Sentinent system can forward calls to



the telephone nearest the workstation, or move the user's desktop to the workstation using AT&T's Virtual Network Computing (VNC). The VNC makes a virtual display of your desktop accessible from anywhere on the Web.

Smart buildings are a smart idea. Now if we could only teach them to spring for donuts. ●