Do CIO 100 Organizations Outperform the Market?

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Abstract

Each year since 1988, CIO Magazine has honored one hundred organizations that are using information technology in innovative ways to deliver competitive advantage to their organizations. Organizations may apply for the award, and the magazine also nominates organizations that demonstrate IT innovation. Teams of CIO judges review the applications, and each year, 100 organizations are recognized.

This raises the question: does IT innovation which delivers competitive advantage lead to improved financial performance? This paper reviews classic IT innovations, themes of annual innovation awards given by CIO and other groups, and compares the annual performance of some publicly-held CIO 100 honorees with the performance of the stock market in general, as measured by the Dow Jones Industrial Average.

Introduction

In 1998, Brynjolfsson et al published research that demonstrated how organizational factors contribute to the success of information technology (E Brynjolfsson, 1998). They collected data from over 1,000 firms that included the stock market value, computer capital, and metrics of organizational structure, among other factors. They concluded that a one dollar increase in a firm's computer capital associated with a five dollar increase in the stock market valuation of the firm. This would imply that an additional four dollars of complementary intangible assets accompanies the one dollar of computer capital. It makes sense that when new computer capital is acquired, concomitant intellectual capital is also acquired, such as new skills, work practices, decision authority and organizational structures.

Although their study did not consider the degree of IT innovation per se, it is likely that the organizations with high computer capital and organizational characteristics that involve teams, broader jobs, and greater decentralization of decision making are, in general, IT innovators, not using legacy systems exclusively. This paper focuses on the performance of organizations that are honored for their IT excellence and innovation, to compare their performance as valued by the stock valuation with the DJIA average change, year on year.

The CIO 100 Award

The CIO 100 award has been given for twenty five years, from 1988 to 2012. Organizations may self-nominate, and applications are solicited by CIO. The award is project-focused in that applicants must demonstrate that they not only executed their project well, but that the project demonstrates an innovative application of either a new or existing technology.

The longevity of the award provides a rich database of organizations that are recognized for their IT innovation, from public, private and government sectors. An analysis of the entire database isn't feasible, because of the nature of the organizations, performance data is neither available nor consistent. We can, however, analyze the performance of publicly-held companies and compare it to a standard index such as the Dow Jones Industrial Average.

In the period from 1988 to 2011, there were 2463 honorees and 1478 unique organizations, 430 of which were winners at least twice. FedEx led the group with nineteen awards.

Cases of IT Innovation

There are many classic cases of innovation that are studied by management students worldwide. While famous, they did not necessarily provide sustained competitive advantage:

- FedEx was the first shipping company to offer internet-based package tracking in 1994. The application was quickly adopted by UPS, the USPS and others, so it did not give sustained competitive advantage.
- Pierre Omidyar launched eBay in 1995. It became the benchmark for online customer-to-customer ecommerce. Numerous online auction sites have since launched including webstore.com, ebid.com, and overstock.com.
- Amazon.com was founded in 1994, and it went online in 1995. The big traditional "brick-and-mortar" bookstore chains such as Barnes and Noble and Borders followed suit.
- In 2003, Wal-Mart introduced RFID technology as a way to further enhance its legendary inventory management process. While business media picked up RFID-tagged inventory as "the next big thing in IT," it failed to materialize. Competing with printed barcodes proved to be too expensive. (Malone, 2012)

Less spectacular, but still successful, IT innovations abound. A sampling of the most recent CIO 100 awards highlight the focus on IT Innovation:

- Creating business value with technology innovation (2007, 2008)

The honorees in 2007 exemplified cross-functional teams that business and IT leadership to collaborate in technology-enabled change that created new business value. "At law firm Foley & Lardner, CIO Doug Caddell worked around the inbred IT skepticism of the firm's lawyers by building a system on spec that he believed would increase revenue. The lawyers were sufficiently impressed that when they sat down to develop new ideas for cross-selling to clients, they invited IT to the very first brainstorming meeting." (Varon, 2007)

- Driving future business growth with technology innovation (2009, 2010)

These winners addressed customer needs, internal collaboration, or cost containment with information technology solutions that created new value for the organization Cross-Country Automotive, "a provider of roadside assistance, accident management and connected vehicle solutions deployed a business intelligence system that enables real-time work assignments, performance reporting and claims submission for its network of service providers delivering greater satisfaction for their customers." (CIO Staff, 2009)

- Showcasing the transformative power of IT-Business innovation (2011, 2012)

Many of these winners integrated multiple IT projects to evolve a business strategy where IT was an integral force for growth. "During the recent rise in personal bankruptcies, credit card issuer Discover Financial Services deployed analytics technology that helped it hold the line on bad-debt write-offs. Baker Hughes (BHI), a $14.4 billion oil and gas services firm, created video and collaboration applications to support its reservoir and rig consulting and services business and bring in extra revenue." (Nash, 2011)

Analysis of Honorees

The question arises whether or not a commercially-driven annual awards activity is a true reflection of performance, or whether it is a popularity contest driven by advertising revenue. There is no single metric for judging IT innovation or good management of IT in an organization, so can an award by an industry magazine serve as a surrogate for a true measure of innovation?.

One example is popularity as a surrogate for quality as studied by Law and Van der Veen (Law, 2008). Analysis of the frequency of citations of journals serves as a quantitative indicator of their quality, and ratings by senior researchers can serve as a qualitative indicator of quality. By extension, judgment by a panel of IT experts serves as an indicator of the quality of IT within an organization.

According to the CIO website, CEOs told a PR Week survey that the CIO 100 awards are "among the top 10 most influential corporate scorecards compiled by any publication or organization." (CIO, 2012)

Figure 1 shows the top ten most-awarded CIO 100 organizations between 1988 and 2012. They are all listed on the New York Stock Exchange, so historical data was retrieved from Charles Schwab research (Charles Schwab) to compare their performance with the DJIA. The ratio of their performance to that of DJIA is shown below (note: Marriott International was listed in

1998; all others were listed on or before 1988). Three companies (AT&T, Hewlett-Packard, and Motorola) underperformed the DJIA, while the remaining seven of them out-performed. The numbers in parentheses (e.g. FDX (19)) indicate how many years the organization appeared on the CIO 100 list.

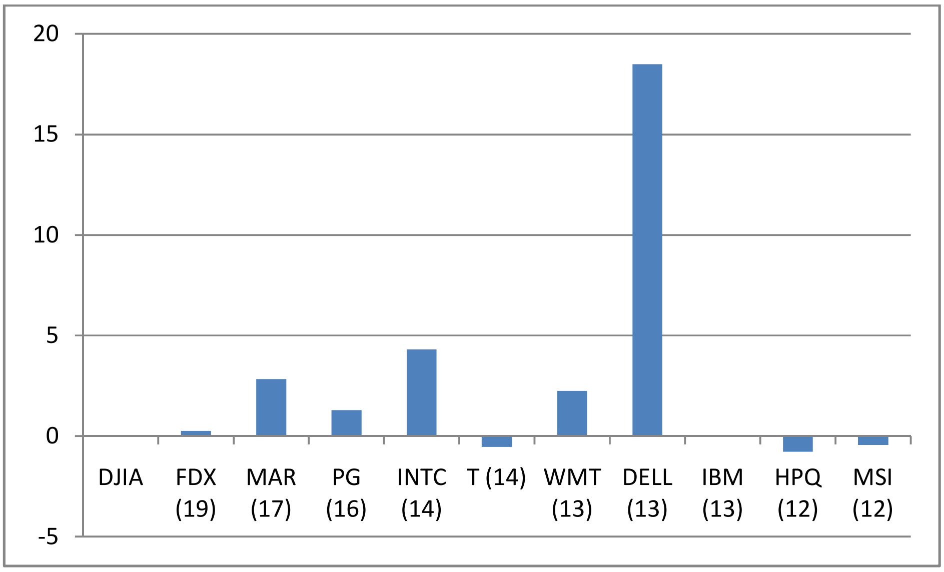

Figure 1: Comparison of top ten awardees vs. Dow Jones Industrial Average

Conclusion

Research has shown that information technology innovations do not provide sustained competitive advantage, while well-managed IT in an organization increases a company's stock valuation. In addition, IT innovation can be risky and prone to failure, so it isn't certain that IT innovation will yield competitive advantage or financial success. An exploratory analysis of organizations that are honored in CIO Magazine's annual CIO 100 award shows that seven out of ten honorees outperformed the DJIA during the period the awards have been given.

Other publications also give annual IT awards. For the past 23 years, *Computerworld* magazine has recognized organizations that "use information technology to promote and advance the public welfare, benefit society and change the world for the better." (Computerworld) The emphasis is on IT that serves society rather than on the success of the organization itself.

Of note, a similar study of the CIO 100 from 1988 to 2007 looked at the performance of CIO honorees following the award, on the assumption that the award itself confers value (A. Masli, 2011). They found that prior to 1999, the year of the dot.com bust, CIO 100 honorees tended to outperform their industry. Post-2000, they did not perform better than their peers, on average. However, multi-year honorees did perform better than other honorees after 1999, suggesting that

IT excellence must be part of the organization's culture rather than be dependent on one or two innovative projects.

Directions for Future Research

A thorough analysis of the CIO 100 companies' performance during the period of their recognition would provide more insight on the relationship of IT innovation to financial performance. Data is available for all publicly-held organizations among the 1478 honorees. Stock performance data should be analyzed for these public organizations for a window of time around the award, rather than for the entire 25-year award period. Performance comparisons within industries would also be informative.

As the leader of IT in an organization and the representative of IT in organizational strategic planning, the CIO is viewed to have responsibility for overall IT excellence. According to a 2012 Ernst & Young survey of 301 CEO's worldwide, they found the average tenure of a CIO is seven years. CEO's are frequently hired to turn around a troubled company. Can a CIO bring innovation and excellence when they move to another organization?

Useful insight may be gleaned from statistics such as correlation between the number of times honored and stock valuation and the relationship between a CIO and IT excellence. Such information would be useful to students and researchers of information technology innovation and management. It can also provide guidance for CIO's in preparing to make IT investment decisions.

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