Getting Managers to be InfoSec Aware: The Need for Information Security Education in Core MBA Programs

By

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Abstract:

The author has reviewed the MBA online course descriptions for core and elective MIS courses at institutions with Centers of Academic Excellence in Information Assurance Education. The review shows that core MIS course descriptions have no reference to Information Assurance or information security. Few elective MIS courses mention such education. The paper makes recommendations for improving this situation.

GENERAL Track

At least 155 federal computer systems were temporarily taken over by hackers last year, according to a review that found widespread lax computer security.
Washington Post, April 5, 2001

I. Introduction

There is supposed to be a great concern for increased computer security in our country. Security incidents have occurred in Los Alamos about missing computer files and disk drives [1]. Computer fraud stories appear in the business news frequently [2]. Even Microsoft was hacked by not updating the security patches on a server [3].

There are a number of recent laws on the books, such as the Computer Fraud and Security Act, to help protect our critical infrastructure. The President promulgated Presidential Decision Directive 63 to seek the voluntary participation of private industry to meet common goals for protecting critical systems through public-private partnerships and sets a goal of reliable, interconnected, and secure information system infrastructure by 2003 [4]. There are also calls to increase the awareness of youngsters about computer ethics to minimize computer crime[5].

The National Security Agency (NSA) established the Centers of Academic Excellence in Information Assurance Education (COEIAE) Program in an effort to promote higher education in information assurance and increase the number of individuals with this expertise in various disciplines. A Department of Commerce report, The Digital Workforce, estimates that the U.S. will require more than 1.3 million new highly skilled information technology workers between 1996 and 2006. The National Plan for Information Systems Protection recognizes training and education as key solutions in defending America s cyberspace [6].

Information Assurance (IA) is defined as information operations that protect and defend information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation [7, page GL-7]. Thus, IA would incorporate intrusion detection and other active systems defenses and, by definition, Information Security (InfoSec) is a subset of IA.

In the two years since the COEIAE program started, 23 colleges and universities have attained this designation [6, 8]. Due to the criteria established by NSA for acceptance into the program, we can expect much effort will be made in improving Information Assurance (IA) education. For example, the criteria require that the Academic program has declared concentrations or certificates in IA. and The university has a declared center for IA [9].

Our focus on developing what I call hacker trackers may mean we have overlooked an obvious need to make future managers (marketing, financial, and other management disciplines) aware of the need for IA. We need to produce graduates of Masters of Business Administration (MBA) and Masters of Science in Management (MSM) programs, the future line and staff managers that have knowledge and awareness of

information security (InfoSec) and the risk of a lack of due diligence. This paper will provide evidence that this will be a difficult problem and offer possible solutions.

II. Examples of the Problem

Last February, the National Institutes of Standards and Technology held a one-day educational event titled, Pitching IT Security to Your Federal Manager. It offered to present an easy approach to selling and gaining support for IT security. The topics covered were requirements, customers, resources, timing and strategy. The target audience was government IT security managers and professionals [10].

At a recent meeting I attended with a major government electronics firm, a senior IT executive said that hacker intrusion was not part of the corporate disaster recovery plan. In fact, he said that his primary concern was hurricanes and airplanes.

A deputy CIO of a major Federal government agency stated that IT security was the primary goal of the agency CIO. When asked to identify three IT security issues, none were named. It was also disclosed that a major organizational system did not require users to logon and logoff.

Each of these examples is a symptom of the lack of InfoSec awareness by line and staff management. In this day of computer security violations being front-page news, why should any security manager have to sell security?

III. Analysis

One of the COEIAE criteria states, The academic program demonstrates that IA is not treated as a separate discipline, but as a multidisciplinary science with the body of IA knowledge incorporated into various disciplines [9]. Thus, we would expect that IA education could appear in Management Information Systems (MIS) courses in MBA and MSM programs. We would also expect that if this occurred, it may happen first with the institutions comprising the COEIAE due to the above criteria.

We reviewed the MBA programs and the online course descriptions at 20 of the 23 institutions comprising the COEIAE for mention of IA or InfoSec in the core and elective programs. We did not include the COEIAE institutions affiliated with the Department of Defense since there is on-going InfoSec education as part of their Joint Professional Military Education programs and these institutions do not offer MBA degrees.

The following table shows that of the 23 institutions, two do not offer an MBA program. Of the 18 with MBA/MSM programs, three do not include an MIS course in the MBA core program. There are 15 institutions that include an MIS course in the MBA core, however, none mention InfoSec in their course descriptions.

Table 1. Non-Department of Defense Centers of Academic Excellence in Information Assurance Education Institutions with MBA or MS in Management Programs

University or College	No. of Core Courses	MIS Courses in Core	InfoSec in Course Description?	MIS Electives in Program	InfoSec in Course Description?
Carnegie-Mellon [11]	10	0	NA	2	Yes, 2
Florida State [12]	12	1	No	1	No
George Mason [13]	11	0	NA	8	No
Idaho State [14]	7	1	No	14	Yes, 1
Iowa State [15]	12	1	No	7	No
James Madison [16]	10	1	No	6*	Yes, 3
Purdue [17]	19	1	No	5	Yes, 1
Stanford [18]	16	1	No	5	Yes, 1
UC Davis [19]	13	1	No	5	No
Idaho** [20]	NA	NA	NA	NA	NA
Illinois-UC [21]	18	1	No	--	--
Tulsa [22]	10	1	No	0	NA
Drexel [23]	5	1	No	1	No
Georgia Tech [24]	10	1	No	1	No
UMBC** [25]	NA	NA	NA	NA	NA
Mississippi State [26]	14	1	--	--	--
UNC Charlotte [27]	8	1	No	5	No
Norwich [28]	6	2	No	--	--
West Virginia [29]	19	1	No	--	--
Syracuse [30]	11	0	NA	2	No

* MBA with Information Security concentration
** No MBA or MS in Management program
NA Not Applicable
-- Could not determine from online catalog

Five of the 15 institutions offering MIS electives mention InfoSec in the course descriptions. One of five institutions offers an MBA with an Information Security concentration.

IV. Summary

If computer ethics training should start with youngsters, then why should not IA education be built-in to the core education of future managers? This review shows that in the MBA/MSM course descriptions at institutions designated as COEIAE, information security is not included in core MBA MIS courses. Such inclusion would be important; given the role these future managers will play in approving funding for corporate IA improvements and enforcing security policies.

To improve this quick study, a more thorough analysis could be conducted by reviewing the syllabi for the core and elective MBA MIS courses to determine the actual IA lessons incorporated into them.

V. Recommendations

This review points to the need to develop material for each COEIAE institution to use to make their graduate school or college of business aware of the need for incorporating IA awareness and course material into the core and elective MBA/MSM programs. In addition, incentives should be developed to encourage faculty in such programs to add IA course material in these fields. Institutions should make an effort to update their online catalogs to reflect this new course material as soon as it is adopted.

NCISSE should consider clearing up the ambiguity of the various disciplines mentioned in the NSA COEIAE criteria and specifically target disciplines into which IA education and awareness could be included.

In closing, this type of course review should be conducted on an annual basis to measure the progress of including IA material in higher education disciplines.

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