

## **Information Security Skills & Employers: A Study**

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The purpose of this study was to determine what specific skills employers wanted in graduates from Computer Science/Computer Information Systems/Information Technology graduates in a select group of firms in the greater Washington, DC area..

### **Target Population**

The target population were technical managers at several firms in the greater Washington, DC area. This area was selected since the study author was familiar with this employment landscape.

### **Sample**

The author of the study researcher sent the survey to 100% of the technical managers destined to receive the questionnaire. These were all technical managers who frequently are involved in hiring new college graduates. The sample is 24 (24 out of a total of 39) since that is the number of technical managers who responded to the survey. This is therefore a nonrandom sample.

### **Research Design**

The research design used in this study was survey research, according to Leedy (1989). The advantage of this method is that it is a commonplace method for obtaining data beyond the physical reach of the observer. Since the author of this study resides now in Georgia, whereas the subjects live in the states of Virginia, Maryland and the District of Columbia, the survey method was the appropriate choice. Also, surveys can be reproduced and distributed simultaneously to many people relatively rapidly and inexpensively. This was excellent for this research in that it was simply too costly for the researcher to travel to all the subjects. Also, as Leedy (1985) states, surveys are sent to human beings...whom the researcher may never see@ (p. 135). Surveys also permit the subjects to answer around their work schedules. This fits in well in that the work hours of many technical staff are varied and unpredictable due a myriad of reasons.

Also, the survey is excellent in this case in that surveys are applicable when the author of the study does not see the source from which the data originate (Huberman & Miles, 1994). Since the author of the study was several hundred miles away from the subjects, relevancy was shown in this arena as well. In addition, the survey method was selected since it was impossible for the author of the study to control the interpretation of survey items, due to the long distances involved. A disadvantage of selecting the survey approach is that the descriptive survey method relies upon data that must be very carefully organized and presented to the subjects systematically; otherwise, it is difficult to draw accurate and valid conclusions. Also, too often surveys are

designed by well-meaning but nonscientific personnel; thus the surveys are weak in capability (Oppenheim, 1966, p. vii). Extreme care has been exercised in *this* study to address this issue by having multiple experts from differing backgrounds providing guidance in the design of the survey.

### **Data Gathering Procedures**

In the period of October to November, 2002, a search was conducted to locate technical managers in the greater Washington, DC area who also are involved, in some manner, in hiring new college graduates in the CS/CIS/IT arena. Next, phone calls were placed to these points of contact to determine their willingness to participate in the study. The next step was the mailing of a survey package to these representatives. This survey package contained a cover letter, the survey, and a diskette containing an electronic copy (in ASCII format) of the survey. These surveys were mailed to survey participants in January, 2003. Phone calls were placed to assure delivery of the surveys, and periodic phone calls made until at least 60% of the surveys were returned. The subjects either returned the survey via the self-addressed stamped envelope provided (9 technical managers), provided survey information over the telephone person (7 program chairs) or e-mailed it back to the researcher (8 program chairs). It should be noted that at least 4 telephone calls were made to each subject not returning their respective survey. All surveys were then analyzed, and the results reported as per this document.

### **Instrumentation**

The measurement instrument used for this study was a Security Skills Assessment Form as seen below:

#### **SECURITY ASSESSMENT FORM**

Please indicate *information security skills* you believe are desirable for recent CS/CIS/IT college graduates to possess. Please indicate as many as necessary:

Physical Security factors

Network Security

Design methodologies

Spoofing techniques

Firewall analysis

Firewall design

Firewall testing

Virus design

Virus prevention

Trojan design

Trojan prevention

Backdoors

Others: please list

Data security (databases, etc.)

Social Engineering

    Dumpster Diving

    Password Protection

    Others: please list

Computer Forensics

Intrusion Detection Systems

Operating Systems:

    Windows 9x

    Windows 2000/XP

    Unix/Linux

    Others: please list

Information Security Costs

Information Security Planning

Cryptography

Shell Programming

Any other issues you may want to provide:

### **Related Items**

Several survey participants provided detailed information on the skills they wanted, in some cases even delineating tool sets and learning strategies. These will be presented at the conference as well as the detailed results of this study.