

# **PROGRAMMING AND SOFTWARE DEVELOPMENT TRENDS**

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## **ABSTRACT**

There has been a significant evolution of the business and technological environments over the past few decades. Along with this evolution has also come an evolution of the information technology (IT) function in most organizations, including applications systems development, which involves the use of programming languages and systems development methodologies. This study uses a questionnaire to help determine the general direction of programming languages and systems development methodologies in the IT industry today. The results should help identify the dominant programming paradigms of the future, as well as areas where programming and systems development in academic curricula ought to focus.

## **METHODOLOGY**

A questionnaire was used to collect data for this research. The questionnaire was first validated and pilot tested, after which it was mailed to IT executives in various U.S. organizations which create software for resale, for specific clients, or for in-house use. The selection of companies was random. The questionnaire was designed to collect company background information as well as the type(s) of application software that they create and on what operating system platform. Additionally, respondents were asked to identify all the programming languages and computer aided software engineering (CASE) tools that they (a) currently use (b) used previously but no longer use, and (c) don't use but wish to use. Respondents were also asked to identify the systems development methodologies that they use for their development activities. Finally, they were asked to list the top three programming and systems development skills, as well as the top three *non*-programming and systems development skills they would most like to see in information systems graduates.

## **ANALYSIS**

The data obtained were analyzed qualitatively based on company characteristics, as well as quantitatively in terms of correlations among several selected variables. (At this time, data analysis is still on-going.)

## **FINDINGS**

Preliminary findings indicate, among other things, that IT departments are showing a *general* trend toward dropping "traditional" programming languages (typically third generation languages) in favor of the newer languages and methodologies, particularly the object-oriented and Web-based ones.

References are available upon request.