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## Serie Research Memoranda

### Assessment of an Information Systems Curriculum - a survey report -

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Research Memorandum 1993-48  
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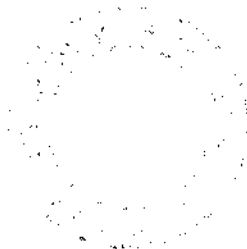
Faculteit der Economische Wetenschappen en Econometrie

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**ASSESSMENT OF AN  
INFORMATION SYSTEMS CURRICULUM  
- a survey report -**

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**ABSTRACT**

*This article reports the results of an inquiry into the opinions of alumni concerning the courses offered by the Department of Information Systems of the Vrije Universiteit Amsterdam. A questionnaire was sent to every ex-student who majored in IS. The aim was to assess the value of the IS curriculum from their point of view.*

*The findings suggest that ex-students did have their preferences for the various courses in the light of the working experience. Moreover, they clearly indicated that, when possible, they would have liked to follow a more extended course of IS. Courses, such as Cost Accounting or Finance were considered as the least important subjects of the curriculum. Ex-students also came up with useful suggestions for improving or enriching the IS curriculum.*

*Keywords: IS curriculum, elective courses*

**INTRODUCTION**

This is the report of a research conducted to assess the value of the Information Systems (IS) curriculum as seen from the eyes of the graduates who majored in Information Systems at the Faculty of Economics, Business Administration, and Econometrics of the Vrije Universiteit Amsterdam. The research should be

placed in the wider context of several other investigations on the particular subject, performed by members of the Department of Information Systems. A few years ago some IS students have been expressing their opinions (both praise and criticisms) of the IS courses and "compulsory" non-IS courses that are part of the curriculum. As a response to their opinions, the second authors and three other members of the teaching staff met on several occasions over the period 1990-1991 to discuss possible improvements in the teaching program. A recommendation of the discussion sessions was to give students more freedom to choose, which meant affecting the "compulsory subject" status of some non-IS subjects of their curriculum, such as cost accounting. Also, a comparative study of our curriculum with those of other Dutch universities was made. In response to the discussion on the IS curriculum the authors felt that a more pertinent issue need to be raised: how do our ex-students, i.e., our graduates who are now IS professionals, evaluate their IS courses? And, in what ways can the courses be improved in the light of their experience? To answer these questions questionnaires were sent out to all IS graduates still using their old addresses. The difference thus with investigations undertaken earlier was that more graduates were approached. A total of 70 questionnaires were mailed out with 23 returned, giving a response rate of 33%. They were sent out in December 1992 and by (the end of) February 1993 all the responses were received. It was intended to conduct a two-stage opinion: first a questionnaire, to be followed by an interview, either by telephone or face-to-face. However, due to lack of time, the interview was only partially carried out. For this reason, it was not reported here. The survey is intended for the teaching staff of our department and that of similar departments of other universities. An English translation of the questionnaires (originally in Dutch) is attached as appendix.

The following sections consist of a description of the IS curriculum, the results of the survey, and a short conclusion.

## **INFORMATION SYSTEMS TEACHING CURRICULUM**

The Information Systems teaching curriculum has been run by the Department of Information Systems since 1983 when it was established as part of the

faculty of Economics and Econometrics (now known as Faculty of Economics, Business Administration, and Econometrics). The study in the faculty can roughly be divided into an introductory three semester curriculum followed by a majoring curriculum of five semesters. Although programmed to be a four years route leading to a university degree at the Masters level, most students need about five to six years to reach this grade.

In the first three semesters all students in economics (about 600 in the first semester) receive the same basic subjects, i.e., they attend courses such as the history of economics, macro and micro economics, financing, cost-accounting, quantitative methods, international and development economics, business organizations and management, and computer science. The five semesters following this introductory program specialize on particular disciplines. Students may choose one of six majoring curricula, i.e., (1) economics, (2) financial economics, (3) business economics, (4) business administration, (5) management and organization, and (6) information systems.

The latter four of these six programs all focus on particular business processes. Students receive advanced lectures about the subjects financing, cost accounting, and management and a number of lectures that are typical for the majoring course they have chosen for.

The lectures typical for the information systems majoring course consist of five courses. The courses are called Information Systems (IS), Databases (DB), Computer and Communication Systems (CCS), Decision Support Systems (DSS), and System Application Development (SAD). Except for SAD, they consist of a four-hour lecture each week during the thirteen weeks of a semester. The semester following the treatment of a subject offers a practical class about that subject, consisting of two-hour of lecture weekly. SAD forms an exception to this rule. It is conducted four-hour each week in one semester in a mixed form, i.e., as a lecture and as a practical class.

IS focuses on information management, information planning, analysis of information needs, and the design of global object and functional structures. DB

highlights the underlying models for data registration, the use of query languages (i.e., SQL), the process of creating a database schema out of some part of an organization, and the management of data. CCS concentrates on design, building, use, and maintenance of stable and long-lasting computer network systems. The main topics of DSS are organizational decision-making, the use of techniques and tools for decision support, operational analysis and simulation, and expert systems in business environments. Finally, SAD teaches subjects of logical and physical systems design with intensive use of fourth generation languages.

The practical classes not only consist of writing, presenting, and defending a paper, often a thorough training in the use of modern hardware and software is included as well. To this purpose we employ the hardware of the faculty, i.e., an IBM 3090-600 mainframe, several IBM mini's, and about a hundred IBM personal computers linked together into several local area networks.

The software we use includes SQL/DS (a mainframe DBMS from IBM), CSP (a mainframe 4GL from IBM), FCS (a mainframe DSS tool from Thorn EMI), ADS (a mainframe expert system building tool from AION), several language compilers and interpreters and much PC software.

The final stage of the study in information systems consists of a graduation exercise, which lasts about five months. Most of the students (about 90%) undertake this exercise in some business or governmental organization in the form of a fulltime project under close supervision of a member of the department of Information Systems and a member of the host organization. This period is meant to act as a bridge between the study and the organizational practice. The project concludes with the writing of a Master level dissertation. The remaining 10% of students fulfil the requirements by participating in the research program of the department.

The purpose of the IS curriculum is sought to be the *integration* of Business Administration, Organization & Management, and knowledge on Information Systems.

In the next section the results of the questionnaire are presented.

### SURVEY FINDINGS<sup>1</sup>

Firstly, the former students were presented the IS curriculum as presented at the university. Each course had to be rated with an integer number between 1 and 10. The more important a subject appeared to be in the profession after graduating, the higher rates should be given to it. The rating (and ranking) appeared the following:

|    |                                                                                                                    | score | sd <sup>2</sup> |
|----|--------------------------------------------------------------------------------------------------------------------|-------|-----------------|
| 1  | Information Systems and IS Workshops                                                                               | 9.1   | 0.78            |
| 2  | Paper about Computer/Communication Systems, Decision Support Systems and Expert Systems, or Data Systems/Databases | 8.5   | 1.0             |
| 3  | Data Systems/Databases                                                                                             | 8.5   | 1.1             |
| 4  | Computer/Communication Systems                                                                                     | 8.2   | 1.2             |
| 5  | Organization and Management                                                                                        | 8.1   | 1.0             |
| 6  | Computer/Communication Systems                                                                                     | 7.8   | 1.3             |
| 7  | Decision Support Systems and Expert Systems                                                                        | 7.7   | 1.1             |
| 8  | Paper about Finance, Cost Accounting, or Organization and Management                                               | 6.8   | 1.9             |
| 9  | Operations Research                                                                                                | 6.7   | 1.1             |
| 10 | Financial Cases (practices)                                                                                        | 6.3   | 1.9             |
| 11 | Cost Accounting                                                                                                    | 5.7   | 2.0             |
| 12 | Advanced Study in Accounting and Computer Accounting                                                               | 5.1   | 2.3             |
| 13 | Finance                                                                                                            | 4.9   | 2.0             |

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<sup>1</sup> Appendix I contains the exact interview questions.

<sup>2</sup> sd = standard deviation.

Secondly, the former students were asked whether they were "satisfied" or "not satisfied" with, or "indifferent" about the knowledge of management and financial management, informatics, and information management when they left the university.

**On management and financial management**

- 92% was "satisfied",
- 4% was "not satisfied",
- 4% was "indifferent".

**On informatics**

- 70% was "satisfied",
- 13% was "not satisfied",
- 17% was "indifferent".

**On information management**

- 52% was "satisfied",
- 35% was "not satisfied",
- 13% was "indifferent".

Thirdly, the former students were presented some new subjects. Using integers ranging from 1 to 10 they had to indicate whether it would be useful or not to teach these subjects at the university. The result was:

|   |                                       | score | sd  |
|---|---------------------------------------|-------|-----|
| 1 | Information Systems in Organizations  | 8.4   | 1.0 |
| 2 | Advanced Study in Information Systems | 7.8   | 1.2 |
| 3 | Technological Innovation              | 7.1   | 1.2 |

|   |                                        |     |     |
|---|----------------------------------------|-----|-----|
| 4 | Philosophy, History and Politics of IS | 5.4 | 1.8 |
|---|----------------------------------------|-----|-----|

Finally, room was given for the student's own ideas on subjects. The students came up with the following ideas:

- communicative skills,
- practices aimed at the specific IS problems,
- more external practices (also in early stages of the study),
- psychology (especially conflict-handling),
- sociology,
- organization-ethics,
- information and law,
- economics in relation to IT,
- standardisation,
- information supply of the government,
- translating information management to organization theory,
- IT opportunities,
- change management,
- project management,
- quality management,
- administrative organization,
- cost/benefit-analyses of IT,
- information planning,
- data management,
- systems design,
- Advanced study in DSS,
- CASE-tools,
- 4GL,
- programming in C,
- operating systems.

Especially, the communicative skills, project management, and systems development were mentioned more than once.

### **CONCLUDING REMARKS**

The aim of the research conducted was to assess the value of the IS curriculum as seen from the eyes of students who majored in IS at the Vrije Universiteit. In this article the results of the investigation as well as the description of the IS curriculum were presented. As a consequence, this article may serve as a relevant document in the further discussion on the IS curriculum.

## APPENDIX I

In table 1, which can be found below, you will find the subjects of the Information Systems (IS) Curriculum of the Free University Amsterdam.

Please use an integer number between 1 and 10 to appreciate each subject. A low rating means that the subject appeared not very helpful in your job as an IS manager and a high rating indicates the opposite.

For instance,

■ Tax and Law are

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

Table 1:

■ Advanced Study in Accounting is

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Cost Accounting is

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Financing is

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Financial Practices are

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Organization and Management is

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

- A Financing, Cost Accounting, or Organization and Management Workshop is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Computersystems and Programming is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Operations Research is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Computer/Communication Systems is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Decision Support Systems and Expert Systems is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Databases/Data Systems is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- A Computer/Communication Systems, Decision Support Systems and Expert Systems, or Databases/Data Systems Workshop is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Information Systems and an Information Systems Workshop is

|             |   |   |   |   |   |   |   |   |   |    |           |
|-------------|---|---|---|---|---|---|---|---|---|----|-----------|
| Unimportant |   |   |   |   |   |   |   |   |   |    | Important |
|             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |           |

- Were you satisfied with your knowledge on (please explain your answer):

- Management and Financial Management?
- Informatics?

- Information management?

In table 2, which can be found below, some possible subjects for the Information management curriculum are given. We are curious about your meaning on them. Please rate the items with an integer number. The higher the rating, the more you appreciate the subject being taught at the university.

For instance,

■ 4 GL Programming

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

Table 2:

■ Advanced Study in Information Systems

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Technological Innovation

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Information Systems in Organizations

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

■ Philosophy, History, and Politics of Information Systems

|             |   |   |   |   |   |   |   |   |    |  |           |
|-------------|---|---|---|---|---|---|---|---|----|--|-----------|
| Unimportant |   |   |   |   |   |   |   |   |    |  | Important |
| 1           | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |           |

- Do you have any ideas about possible lectures? (please write them down below)

Thank you for your time.