A 4GL Based Executive Search System

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Information systems for executive search firms combine the need for relational database applications with the necessity to perform text searches on often large databases of candidate resumes. In addition mechanisms for efficient addition of resumes received by mail or fax to the existing database, transmission of selected resumes to client companies, usually via fax, and editing capabilities to update or improve resumes, have to be provided. A system with these capabilities has been developed, as an exhaustive evaluation of commercially available software failed to identify a package with all required capabilities.

The executive search business is a widely diverse service industry which includes businesses ranging in size from 1-2 person offices to national and even international corporations and concerning itself with the identification and placement of personnel ranging from skilled clerical to CEO’s of major corporations. About half of the search and placement companies work on a retainer and the other half on contingency fee basis. Search companies working on contingency basis sometimes get exclusive contracts, more often, however, have to compete with other placement companies for the same job. All placement companies, have one requirement in common, the need to identify suitable candidates for a position fast and efficiently. Experienced executive search professionals use a combination of direct search and database access to identify candidates.

Direct search resembles detective work. It involves identifying suitable companies and then through a series of telephone calls or established contacts finding within those companies people that might satisfy the client’s search profile. Those people will then be contacted and asked whether they are interested in applying for the client’s position. In addition, executive searches maintain a usually sizeable inhouse database of candidates. It is not uncommon to find in even the smallest operations data bases of 5,000 to 10,000 potential applicants. Candidates identified for previous searches who were not chosen by the clients as well as people sending unsolicited resumes will all be entered into the database which is one of the search firm’s most valuable resources. Candidate databases can be efficiently maintained only through a computer. In addition, a search company needs to keep track of employers which are both a source for potential contracts and potential applicants. Especially in larger placement companies there is also the need to keep track of job orders and placements to control productivity and cash flow and to avoid raiding recent clients. Telephone and fax are the most important instruments to communicate with both clients and candidates.
An ideal system to support the executives placement company would keep track of candidates and employers, job orders and placement (for billing purposes) and minimize the flow of paper by receiving faxed resumes and placing them into a database where they can be regularly accessed. Outgoing resumes, those that are being presented to clients, should not be converted to paper but rather be faxed directly from the database to the client company possibly after being edited by a search consultant or a secretary. Unsolicited resumes received by the company should also be entered into the candidate database as efficiently as possible.

A Milwaukee-based national executive search company specializing in the food industry was not able to identify any commercial program satisfying all these requirements. After an extensive search of commercial software did not lead to any acceptable solution, the decision was made to develop a new system to satisfy its requirements. The list of requirements for the system to be developed included:

1. **Candidate system**: A database enabling the search consultant to identify candidates for a position according to one or more established criteria such as skill codes, education, location, position, etc. Given the rapidly changing job market, the system should also be able to perform keyword searches on resumes, i.e. identify candidates based on one or more key words in their resumes. This part of the system should be able to consider synonyms and accept weights for key words which are used to mark candidates whose resumes contain some but not all of the key words in a search.

2. **OCR (Optical Character Recognition)**: To perform the text searches on resumes, they must be available in the database. Given that at the time of conversion approximately 16,000 candidates existed in paper files, manual entry of resumes into the new database was considered to be operationally infeasible. Also large numbers of resumes arriving daily by mail or fax cannot be entered into the system manually. Scanning of the resumes and conversion into text files via OCR is a must, with the OCR system required to be capable of handling:
   - Faxed documents
   - Dot matrix type
   - Mixed fonts on same page
   - Proportionally spaced documents These are characteristics commonly encountered in resumes, and therefore must be handled by the OCR.

3. **Employer System**: This system serves several purposes. It supports marketing activities as the database used for prospecting. It is the basis for billing. In conjunction with the candidate system it assists in the search activities.

4. **Placement System**: A subsystem designed to keep track of placements made and effort expended, i.e. time between order and placement and number of candidates presented. It also helps to identify candidates who are “off-limits” because they belong to a company where a placement has been made within the last 12 months.

5. **Job Order System**: A subsystem designed to keep track of current orders and their status. Also serves to enhance synergy between consultants, as it informs every consultant about current searches and therefore encourages sharing candidates for similar contracts.

6. **Communications**: A subsystem designed to enhance operational efficiency by enabling the system to send and receive faxes without use of a separate -stand alone - fax machine.

### The Candidate System

Commercially available systems commonly use structured databases to keep track of candidates. Such databases typically contain name, address, telephone number, employer, and some information about the individual’s background. Usually codes are used to identify level of education, major (field of study), skills, industry, current management level, and, if applicable, country of origin. This approach is very efficient as it permits very fast searches for candidates. If the fields of the database which are most commonly addressed in a search, such as skill codes, managerial position, major (field of study), industry, and maybe geographical region, are indexed, the user can call up suitable candidates very fast often while on the phone with the client. This approach is far from perfect, however, as no database in existence can capture all the aspects of an individual’s career and experience. Thus, while a number of suitable candidates are typically identified through a structured database search, the consultant has to do follow-up work by screening the resumes.

In commercial systems resumes are typically handled in one of two ways. Some systems contain the resumes themselves in the database and further have been entered manually by a typist or through scanning and some optical character recognition software. Others simply contain the reference number to some sort of paper file that exists in the search firm’s office. Search
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