



KeyMail

Select Dissemination of Information on Research Funding Opportunities to University Scientists

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Bar-Ilan University Research Authority

Preface

The Research Authority serves as the university's unit responsible for the administration of securing and managing external and internal research grants. Among its functions, the Research Authority locates funding sources, develops proposals, approves proposals for submission, negotiates contracts, and ensures financial and scientific compliance of grants awarded. It is imperative that the Research Authority staff must be able to notify faculty members from all disciplines in the sciences and the humanities in a timely and accurate fashion of funding opportunities, conferences, and research-related matters.

1 Statement of the Problem

During the past five years, the Research Authority designed and implemented an electronic message system to communicate with the Bar-Ilan faculty. In 1995, we introduced a mainframe-based system (Listserv), drawn from the university payroll database. This system enabled us to communicate with the entire 1,200-member faculty. While the majority of faculty members welcomed this "technological advance" during this period, some researchers objected to receiving unwanted or irrelevant messages (too much "noise"). In response, one year later, we refined this system, by dividing our researcher community into three faculty distribution lists: 1) Natural, Exact and Life Sciences, 2) Social Sciences and Law, and 3) Humanities (including Judaic Studies).

This policy change helped reduce the amount of information overload. In concrete terms, this change meant that our physicists were no longer receiving funding opportunity notices about research programs in philosophy. However, after conducting a faculty survey and an internal Research Authority review, the Research Authority realized that we needed to further improve our message communication system. We found that some faculty members filtered or deleted unwanted Research Authority mail, and a few others asked to be removed from the list(s) altogether.

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2 Proposed Resolution of the Problem

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To ensure more precise targeting of emails - to make sure the researcher received postings that are the most relevant to their field of interest - we decided to design a messaging system based on pre-defined discipline-oriented keywords.

Our objective was to create a system that would address the dilemma of noise reduction on the one hand, while on the other to ensure that the researcher would not miss golden opportunities of applying for funding. The goal was to attract more researchers to read these opportunities with the hope that more researchers would apply for funding from sources outside the university.

To accomplish this goal, our specific objectives were:

- Developing the size and scope of the controlled vocabulary. Within this parameter, we identified the following issues:
 - The vocabulary must be manageable by the Research Authority administrative staff (not information specialists), yet accurately reflect the faculty members' research areas. For example, we needed to distinguish between "Disease Entities and Medical Problems" and "Neuroscience and Mental Disorders."
 - The vocabulary must not be too general. If the vocabulary is too general, there is the risk of a loss of relevance (lower precision).
 - The vocabulary must not be too specific. If the vocabulary is too specific, there is the risk of mis-classifying of a message.
- Ensuring that messages reached their targeted recipients.
- Equipping the Research Authority administrators who create the e-mail messages with the requisite minimal knowledge to effectively manage the system. Such knowledge includes learning the following skills: searching, retrieving, judging pertinence and applicability, abstracting, classifying, and creative writing.

With these considerations accounted for, in September 2000, we launched our *KeyMail* system. As a test case we chose the Faculties of Life and Exact Sciences as our initial target audience. Under this new system, a researcher in this group will today receive only those messages that have been classified with these keywords chosen by the researcher from the classification list supplied by the Research Authority.

The Research Authority has begun the process of integrating the remaining faculties into the *KeyMail* system, and we expect to complete this integration during the first quarter of 2001.

2.1 Project Description

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2.2 Technical Implementation: User Survey, System Analysis, Design, Programming, Testing

In moving to this keyword-based message system, the Research Authority performed several multidisciplinary activities. The Research Authority Director provided overall administrative management; The Research Authority professionals were involved in user interface design, conducted a needs analysis, and performed testing; programmers designed and implemented the system; a Unix administrator established the archive mechanism; and the IS professional conducted the faculty survey and designed the classification scheme.

2.3 A summary of key activities follows:

- *A review of international standards.* The Research Authority analyzed current international keyword lists (CERIF, Community of Science, InfoEd, Ortelius, UNESCO, and ScienceWise), and created a preliminary classification system of 100 university-specific keywords.
- *A faculty survey.* The Research Authority recruited an information professional from Bar-Ilan's Department of Information Sciences. This specialist conducted interviews of a sampling of 31 faculty from all disciplines at Bar-Ilan. Although the survey was limited in the scope of the faculty sampling, we confirmed our assumptions that researchers deleted and ignored unwanted emails. They were still interested in receiving no more than three or four messages per week. In addition, many researchers wished to receive messages in batches, not individually. Researchers were also introduced to the proposed keyword classification system and were asked to comment.
- *Design of Computer Application.* The implementation and testing of the system led to a staged introduction to the research community. The Research Authority designed a criteria set to expand dissemination options. With this feature, although keyword terms form the main "engine" of the *KeyMail* system, the Research Authority can target its email postings as follows: all researchers, researchers by faculty, by gender, by academic degree, and by age.

2.4 Work Process

The work process in distributing messages follows these seven steps:

- Step one: Searching and the retrieval of funding sources through digital and print media.
- Step two: Decision as to which material to post and disseminate.

- Step three: Abstracting (information reduction) of this material into clear, concise, and straightforward English (Our audience is composed primarily native Hebrew-speaking faculty.).
- Step four: Assigning keywords (classification).
- Step five: Updating the funding opportunity database.
- Step six: Creating and sending the message (dissemination of information).
- Step seven: Posting of the message to our web-based archive,¹ to enable the researcher, and other interested parties, to access it from our web site at any time and from any desktop worldwide.

The *KeyMail* system contains numerous safeguards, among the following:

- Keyword Merging. Let's assume a researcher supplied three key words: botany, zoology, and marine ecology. If the Research Authority sends a funding opportunity notice that contains all of these terms, the researcher will receive one notice, not three.
- Message Batching. Messages are sent in batches of twenty to reduce overloading the email distribution system, and to conserve university bandwidth.
- Audit trail. The trail contains a file of what was sent, by whom (Research Authority personnel), to whom (researchers), and when.

3 Intermediate Results

While it is too early to gauge fully the success of the *KeyMail* system, it seems that we are approaching our objective: targeting messages (increasing precision) and reducing "noise." During the first months of operation, the amount of messages received by researchers who provided keywords has been dramatically reduced by 50% on average. The more precise the key- word(s) chosen by the researcher, the fewer messages they receive. Based on our early experience, we are reexamining which terms need to be moved to a higher or lower level of specificity. The Research Authority is preparing to conduct a second survey at the end of the first year of operation. The data from this second survey would include a comparison between the amount of email a researcher would have received under the three former distribution lists and under the new *KeyMail* system. To gauge user satisfaction with the new system, we will also generate reports that analyze which keywords are chosen by researchers and which researchers selected given keywords. Finally, we will analyze the correlation between messages received and the number of funding proposals submitted.

The Research Authority has found that technically the *KeyMail* system is not as stable as the former Listserv system. The Research Authority notes server errors pointing to messages being sent redundantly, server shutdowns, and text deletions.

4 Importance to other Institutions

4.1 Technological Innovations

There are NO technological innovations in the *KeyMail* system. And, this is the simplicity of the system, because the system employs readily available, inexpensive technology.

¹ <http://listserv.biu.ac.il/archives/ra-notices.html>

KeyMail uses an MS Access database, and operates on an MS NT network. The archive is accomplished using Listserv software on a Web-accessed Unix server.

By implementing the *KeyMail* system, we anticipate the following benefits for both the Research Authority staff and the Bar-Ilan research community. The Research Authority believes that other universities will also be able to gain the following advantages:

- **Timely, accurate** (low noise level), and **targeted** electronic communication.
- **Standard** information-access for all recipients.
- **Seamless** access from anywhere in the world at anytime.
- Reduced overhead in comparison to the three previous distribution lists.
- Recipients **control** messages returned.

The project is designed so that other university units can adapt the flexible model to their specific needs. A defined audience is a prerequisite for the inclusion of names and corresponding e-mail addresses. The system designer must also decide on those criteria that will be employed to determine the targeted audience (i.e. gender, age group, academic rank, interests, administrative unit). To enhance the success of the project, the target audience should have direct input in assigning these criteria.

4.2 Future Enhancements

The Research Authority is planning to implement enhancements that will enable researchers to determine when and how they wish to receive messages. With these enhancements researchers will determine if they wish to receive messages at a given period during the day, such as the beginning/end of the workday. They may also desire to receive a group of messages (digest) at a given time, such as once a day/week. We expect to integrate our messaging system into a comprehensive SDI system, whereby messages may be delivered via fax or hard copy to researchers via regular mail.

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1. Faculty Survey Questionnaire
2. Summary of Faculty Survey Findings
3. Message Template



4. Keywords
5. Charts and Diagrams

Please note that these materials will be presented at the presentation if we are selected.

References

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