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Accountability, Information and Communications Systems (*AICS*): Washington's Approach to Accountability Reporting

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Abstract

This article describes AICS, a flexible, multi-purpose, Web-based Accountability, Information and Communications System developed by the College of Agriculture and Home Economics at Washington State University. Made up of more than 200 programs, the system collects, stores and retrieves information from faculty, regardless of appointment and specified staff. AICS's single, standardized, reporting format supersedes previous annual faculty activity reports, which varied from department to department. The searchable database provides information for a wide variety of reporting needs, including accountability. Developed between 1998 and 1999, the system was implemented at the end of 1999. Ohio State University, Purdue University, Kansas State University and the University of Missouri

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James Zuiches, Dean of Washington State University's College of Agriculture and Home Economics (CAHE), appointed a committee of 14 faculty and administrative professionals in April 1998 to "investigate, describe and document the needs, demands and uses for information in the CAHE; to assess the current situation and make recommendations; to design an integrated information/communication system" (personal communication, March 10, 1998).

While requirements of the Government Performance and Results Act (GPRA) of 1993 (CSREES, http://www.reeusda.gov/part/gpra/gprahome.htm) spurred the effort, increasing scrutiny of the university and the college by Washington's state government (Washington State University Accountability Plan, 1998), commodity groups and others played a role as well. Washington State University certainly has not been alone in the endeavor. An on-line survey conducted by Texas A&M University (Sept. 2000) found that at least 38 State Cooperative Extension Services have developed computerized evaluation and accountability reporting systems. Oregon State University, the University of Minnesota, Clemson University and other institutions have developed accountability databases of research projects. Their endeavors were presented at the Accountability System Workshop (Minneapolis, MN, October 2-4 ,1997) and the 21st Century Land Grant Universities Action on Issues (Clemson, SC, February 24-26, 1999).

Investigation

After reaching a common understanding of the task at hand, the committee met with various university and state officials to review accountability measures already employed to measure progress at the university. Included in the review were the following:

- University (graduation efficiency index, undergraduate student retention, five year graduation rate, faculty productivity and instructional technology)

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- GPRA (output and outcome, results, performance, management improvement.)
- Teaching (excellence in teaching and learning; program relevance and responsiveness to student, employer and public needs; increase student credit hours; faculty productivity)
- Research (productivity, extramural support, professional reputation - awards, recognition, editorial board, peer review panels, external reviews, economic benefits of research)
- Cooperative Extension (number of people reached, new intellectual properties and people adopting change, contributions to quality of life, sustaining the environment; increased extramural funding).

The committee examined information collected at the departmental and county levels, including faculty activity reports, Cooperative Extension briefing reports, Current Research Information System (CRIS) project reports, and numerous surveys and questionnaires designed to fill specific requests. CRIS is the United States Department of Agriculture's (USDA) documentation and reporting system for current and recently completed research projects. Finally, the committee reviewed departmental, county and administrative reports; and types of questions received from stakeholders and the legislature.

The AICS committee concluded that most reports could be compiled from information available in three major sources: annual activity reports, CRIS status reports and Cooperative Extension briefing reports.

No systematic way existed, however, to collect and sort the information. Administrators had to handle each report or request and manually extract the information from whatever documents were available, by conducting special purpose surveys or by personally contacting subject matter specialists. Nor did an easy way exist to answer questions crossing the three missions of the college. For example, if someone asked about food safety, no direct path determined which classes, research or Cooperative Extension programs focused on food safety issues. The committee evaluated accountability systems developed and under development elsewhere, particularly Oregon State University's pioneering Oregon Invests (Evans, 1997) and Clemson's South Carolina Growing! (Warner, M., 1997)

Several members of the committee saw demonstrations of these and other accountability databases at the ACE-sponsored Accountability Systems Workshop, October 2-4, 1997, in Minneapolis,

Minnesota. The AICS committee adopted some ideas, like the team reports, in Clemson's system. Committee members thought about using a keyword list developed by Ohio State University but in the end decided to let our faculty and staff create their own. The committee has since discovered that text searches work better than keywords for us. Although the committee admired the single-user system that Oregon State University had developed, committee members decided to develop a system that could be accessed more widely. Some university systems only reported positive accomplishments. The committee members wanted our system to reflect our shortcomings as well. The authors will not attempt to describe other systems in detail because like ours, they have evolved since we first looked at them.

Recommendation

Whatever system the AICS committee designed had to be searchable. The committee knew that our system must be one that would enable administrators to compile statistics and generate reports. The system must also integrate overall college goals as well as the goals of teaching, research and extension. The committee also wanted the system to reduce rather than increase the number of information requests made of faculty. Faculty did not want any more reporting responsibilities.

The committee decided to design a system around the faculty activity reports, because chairpersons, administrators and others could obtain the bulk of the information from that source. The committee's hope was that such a system would minimize reporting because faculty already were submitting written activity reports. The new system would change only the media and format. That is, the system would provide a standardized reporting format. Information would be collected via the Web and saved to a database. The committee also believed this system could eliminate many special-purpose questionnaires and special-purpose surveys. Questionnaires and surveys were sent out to faculty periodically by administrators to collect data to respond to queries from the state and federal agencies and others.

Furthermore, the committee agreed the information should reside in a single database accessible via the Internet. The Internet would provide statewide access to the system from various computer platforms.

Process

To base the system on the faculty activity report format, the AICS committee had to create a universal activity report for the college. The college comprises 14 academic departments, 39 county Cooperative Extension offices, three branch campuses, six research and Cooperative Extension centers and 11 learning centers. Most units had their own activity report format. The first step in designing a system required reformulating a standard report. To do this, the committee constructed a spreadsheet providing an entry for every item of data on each of 15 different activity reports collected across the college. The spreadsheet allowed us to categorize the data reported currently. The committee then converted the 20 categories and associated data it had identified into computer programs.

The system

The core of the system is a Microsoft® Access97© database[1]. The committee chose Access©, in part, because of the ease with which Access© can interface it over the Web. Eventually, the AICS system programmer will convert to Microsoft® SQL©[2].

To date, the system consists of approximately 200 ASP (Active Server Pages) programs. It requires at least Microsoft® Internet Explorer© 3.0[3] or Netscape® 3.0.[4] User's browsers must accept cookies and enabled JavaScript™[5]

Features of *AICS*

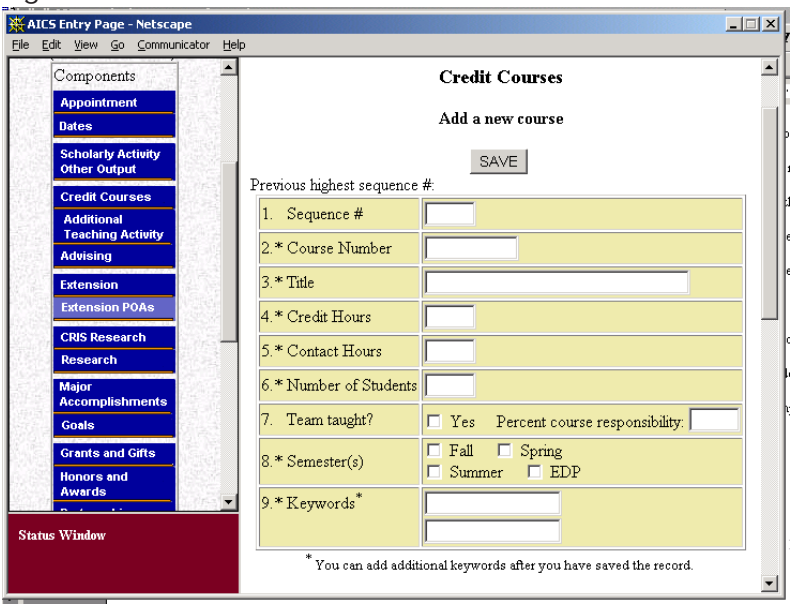
The AICS system uses frames to display the program Web pages. Frames, a feature available in Web browsers, enable us to split the browser into three sections and display program Web pages. Assigning a distinct function for each of the page's three frames helps make the system user-friendly. In the early stages of developing AICS, the committee found users could become lost in the myriad pages unless we provided a systematic way of displaying them. The component choices (activity report categories) appear in the left frame. The actual component input and data form are in the right frame (Figure 1).

A status window below the menu frame reports the success or failure of a database request. The use of frames allows us to keep most components to a depth of two: one page for displaying and modifying records; and one page for adding new records. Cooperative Extension components are three pages deep. If users click the help button, a help window pops up in a separate browser (Figure 2).

The AICS system imports information from other databases to save entry time on the part of users and maintain the integrity of the data. For instance, the system downloads information from a university database on faculty and staff appointments. CRIS project data—title, project numbers, termination data and names of principal investigators—also are downloaded.

CRIS and most departments and units want lists of scholarly works associated with each research project as part of the activity report. In AICS, users enter all scholarly works in the scholarship component. Buttons on the CRIS and research components display the entire list of scholarly works. To add scholarly works, users simply click a button next to the works they want to attach to the report. This eliminates the need to manually enter publication citations more than once (Figure 3).

Figure 1.



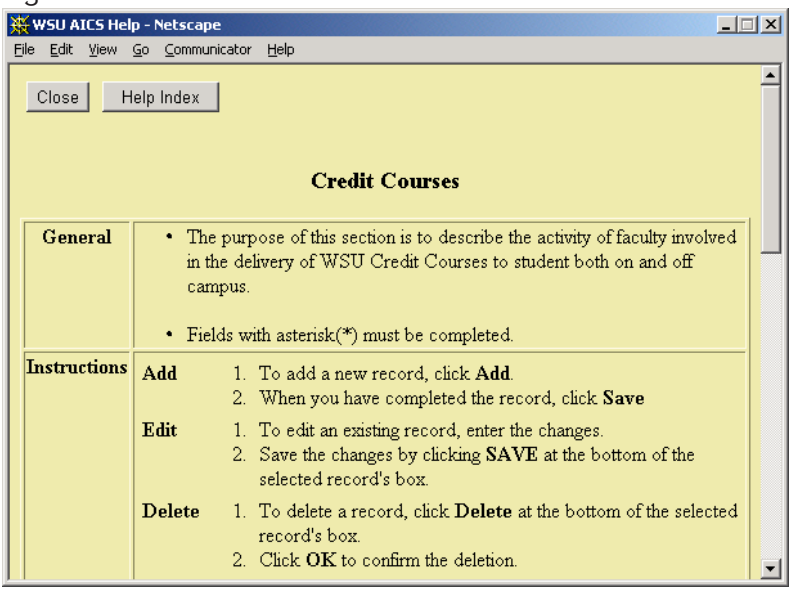
1 Microsoft, Inc. (1996). Access97©. [computer database]. Redmond, WA.
2 Microsoft, Inc. (2000). Microsoft SQL©. [computer database]. Redmond, WA.
3 Microsoft, Inc. (1999). Internet Explorer©. [web browser software]. Redmond, WA.
4 Microsoft, Inc. (1999). Internet Explorer©. [web browser software]. Redmond, WA.
5 Sun Microsystems, Inc (1999). JavaScripts©. [programming language]. Palo Alto, CA.

The CRIS component of AICS displays a project entry for each project for which a person is listed as an investigator. Only the principal investigator must report. However, other investigators on the same project must enter relevant publications and are encouraged to fill out the report. The CRIS component allows one user to review reports and publications entered by other investigators working on the same project. It also has a button to notify the Agricultural Research Center when the report is complete.

Several components of the AICS system reflect the "team" nature of much of our work. In the Cooperative Extension team projects, research and gifts and grants components, the leader or co-leader enters the project and selects the names of all those who collaborated on the project. Unlike CRIS components, one entry serves for the entire project or grant. This single entry is available for editing by anyone working on the project. The AICS committee did this for several reasons. Team entry:

- Eliminates duplicate reporting by multiple individuals
- Eliminated duplicate entries for research, grant and gift monies
- Automatically enters the project on each collaborator's activity report

Figure 2.



- May reduce the amount of data entry for the collaborators because the reports automatically display for them

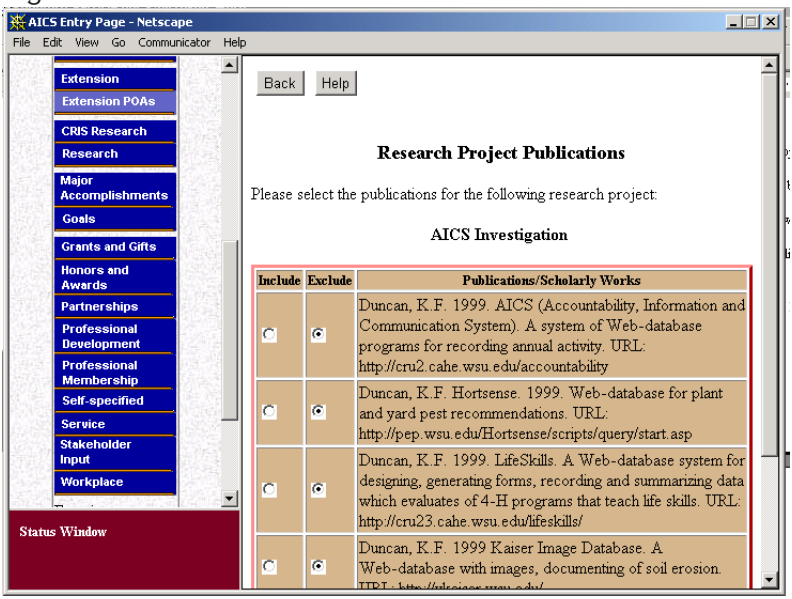
Wherever possible, the committee used pick-lists, check boxes and buttons on the Web pages. This not only simplifies data entry for our faculty, but also allows queries to the database with very specific criteria (Figure 4).

Most component entries require keywords. The committee debated using keyword pick-lists versus text entry. We concluded that pick-lists would be too restrictive. Keywords are used for Web searches. The Cooperative Extension projects and programs and research components currently are searchable by keyword by all faculty and administrative professionals. Administrators have an additional series of reports through which they can search Cooperative Extension projects and programs, research and grants and gifts by keyword.

One of the menu selections displays a summary of all the components and the number of entries in each component. This allows users to quickly see if they have entries in the components required by their department (Figure 5).

Users may view their activity report as Web pages or as rich text format (RTF) files. Most common word processing programs pro-

Figure 3



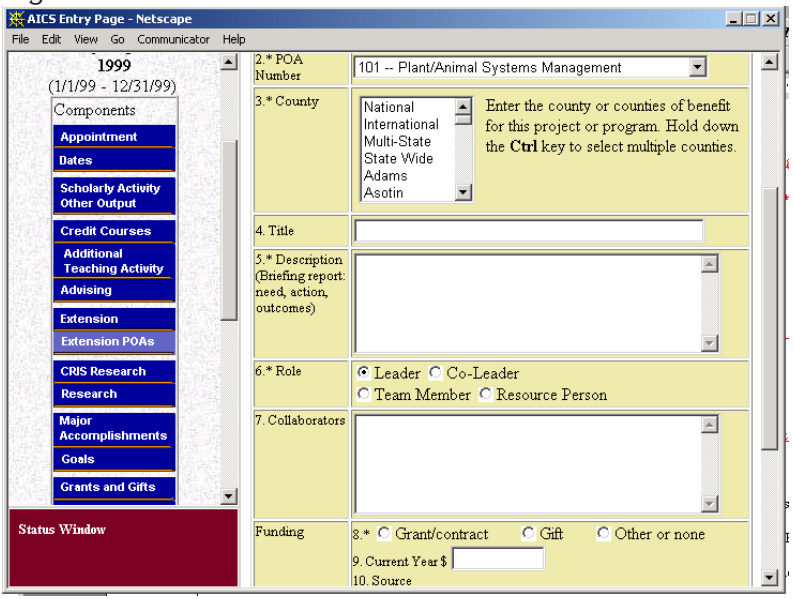
cess RTF documents. When a user saves the RTF file to a personal computer hard disk, the individual can edit the file, then E-mail or print and submit it as part of annual review materials.

AICS does not allow users to create more than one report for any given year; however, a user may edit the report at any time. Some components carry over from one year to the next in the database, recognizing that projects may span more than one reporting period. Components carried forward include courses taught for credit, grants, research and scholarly activity when such work is designated as a work in progress. Goals also carry forward, but in a slightly different fashion. Goals entered one year appear as the next year's accomplishments, providing an area to enter an accomplishment narrative.

Reports

The system currently provides three categories of reports: general, department chair and administrative. Reports build on queries to the database and display in a Web format. Some also are available as downloadable delimited text files. Users can save these files to disk or import them into Excel©6 spreadsheets for additional manipulation.

Figure 4



General reports

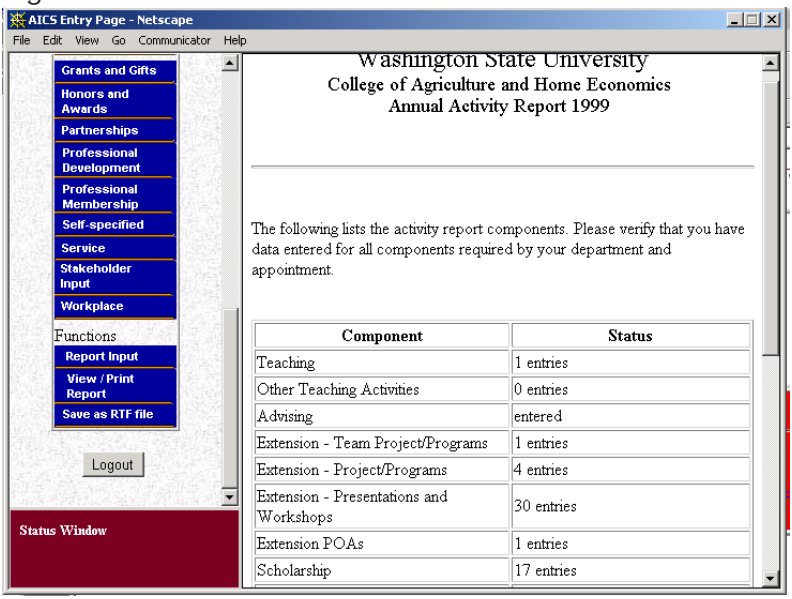
Anyone with a valid system ID has access to the following general reports. .

- Individual and team Cooperative Extension
- Program and project report. They are searchable by project number, text or keyword.
- Agricultural Research Center. This report tallies projects and monies for the research component entries and entries for grants and gifts by department or location. Also tallied are peer and non-peer-reviewed scholarly activity by type of activity, department and location.
- Research searches. Users can search research entries by keyword or text, if originators make their reports available for searching. These reports enable faculty to search for potential collaborators.

Department chair reports

Department chair reports tally and display data submitted by the faculty in a chair's department. Reports in this category:

Figure 5



- Scholarly activity reports by individuals, type of scholarly activity and select categories.
- Cooperative Extension partner and stakeholder reports. These reports can provide finer detail than similar reports in the general category, including selection by person, county, legislative district, indicator totals, grants and multi-state programming.
- A report lists personnel who have not entered activity reports into AICS.

Administrator reports

These reports are similar to department chair reports except they can capture data selectively across all departments, units and counties. Examples:

- Tallies of master's, doctoral and postdoctoral students by department and by the supporting faculty member's appointment (teaching, research and Cooperative Extension)
- A report that allows searches by text, keyword and person for the components in which monetary amounts are entered (research, grants and gifts and Cooperative Extension team projects and programs.)

The first year

The committee hoped the system would be user friendly. The committee spent considerable time deciding how to provide instructions and training. Ultimately, the committee decided to offer training only if requested. While numerous calls came to the system programmer and some of the committee members when the deadline for submissions loomed, no requests for training arose.

AICS went on-line in November of 1999. A total of 509 faculty and administrative professionals entered activity reports for the 1999 calendar year. Overall, the system has functioned very smoothly. The most common problem: users did not remember to save work before selecting new components.

Value to Washington State

College administrators have found numerous uses for the system. Cooperative Extension administrators employed the extension project

[6] Microsoft, Inc. Excel©. [Computer database]. Redmond WA.

indicator totals when filing CSREES reports, saving days of work. The director of WSU Cooperative Extension has used the partnership data to demonstrate linkages with governmental, non-profit and other partners. The system also has provided data on scholarly activity for the Washington Higher Education Coordinating Board and has helped college administrators select people and programs for recognition. The system also has been used to update impact statements, develop story ideas and find resources for reporters, and gather background information to college fund-raising. New uses seem to crop up almost every day.

AICS has excelled as a time-saver for generating reports. For instance, when in 1998 the director of WSU Cooperative Extension needed a report on partnerships developed by his faculty, several weeks were spent generating a survey and compiling the results. This report can now be generated by AICS almost instantaneously.

User comments from the first two years

During the first year, many faculty and staff complained that it took longer to enter data into AICS than prepare traditional faculty activity reports. Clearly there was a learning curve. Those complaints have receded as users have become more familiar with the system. The question of security was also an issue with a few of our faculty. That was resolved by installing a firewall after the end of the first year. A firewall is hardware and software that prohibits people on the Web from accessing data without authorization.

Here are a few recent user comments:

- "I'm puzzled by the reticence of some faculty to go to AICS. It isn't perfect, but I've found it a big boon in preparing my annual review statements, especially the encouragement it gives me to do it on the run throughout the year. In fact, I was mildly complaining to ... just this week because I can't have access to 2001 right NOW! I don't like having to wait." (News writer)
- "I just spent some time updating my 2001 AICS report and wanted to let you know that the system is getting better and better. I really appreciate copying information from 2000 to 2001. That helps a BUNCH! Thanks!" (Extension specialist)
- "I realize that no one can think of all possible ways to construct a system like AICS, but you and your team have done a good job." (Research faculty)

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- "Despite initial glitches, the on-line AICS system is a huge improvement over past practices and I appreciate the openness for future improvement. (Extension County Chair)

Refinements

The AICS system programmer has programmed several refinements into the system since it went on-line. The programmer also moved database to a secure server with a firewall to protect confidentiality of records. The programmer added a Cooperative Extension team project component to the system. Modifying both the research and the grants and gifts components in a similar fashion reflects the frequent team nature of those entries. Finally, Cooperative Extension Plan of Action reports have been added and will be entered electronically on AICS by users in 2001.

Some final thoughts

AICS is a work in progress. Flexibility may be the system's most outstanding feature. Because it is flexible, the AICS system programmer has been able to modify components and even the underlying database to meet changing needs. Overall, it has been well received by users here and it has attracted interest from other land-grant institutions. In fact, four (Ohio State University, Purdue University, Kansas State University and the University of Missouri) have purchased the software, documentation and a workshop from us to help them adapt AICS to their institutions.

One can obtain a guest ID to try the system by contacting the system administrator at (AICS@cahe.wsu.edu).

Key words

Accountability, activity reports, database, searchable

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