Objective:

Develop a Web EDB update front end to the mainframe EDB for the New Hire Process.

Project Type:

New Web EDB application.

Requested by:

Management Steering Committee comprised of participating Campuses and Office of the President

Analyst:

Pixie Ogren and Requirements Workgroup Members

Urgency:

Urgent

Implementation Deadline:

Introduction

The Web EDB Update project is being sponsored by six campuses and Office of the President. Participating campuses include Davis, Los Angeles, Riverside, San Diego, Santa Barbara, and Irvine. This is a Proof of Concept project with the initial phase limited to New Hire processing, with the intent that the system will be expanded to include other EDB update processes following the successful implementation of New Hire processing.

Management and Requirements Groups were created with members representing Business & Financial Services; Controllers; Payroll; Human Resources, Academic Personnel; Information Technology; and academic departments and deans' offices. (See attachment A for a list of group members.) With guidance from the Management Group, the Requirements Group has undertaken the task of gathering input from all constituencies and defining detailed requirements for a Web EDB Update system for New Hires. Meetings have been held at each of the six campuses with representatives from academic departments, deans' offices, Human Resources, Academic Personnel, Payroll, Information Technology services, and central administrative departments.

Background

In 1994, the University of California implemented a distributed online EDB update system. The online system was a significant improvement over the paper forms that departments had needed to process to effect changes to employee records and it allowed campus department users to enter employment data directly into the EDB, thereby eliminating many delays associated with paper processing. The Online EDB Update system was modern for its time and introduced and relied upon a post-authorization model of approvals, a revolutionary concept when implemented.

Since 1994 the EDB Update system has undergone many changes and improvements, primarily to improve system performance and to add new data elements to meet changing regulations and requirements. And while the system continues to function well, little has been done to modernize the appearance or the ways in which users interface with the system. As technology advances, the mainframe system seems more awkward and less intuitive, especially to new and younger users who are very familiar with web systems.

Although campuses have had the opportunity to customize portions of PPS (Payroll Personnel System) of which EDB is a part, virtually all EDB update screens are consistent across campuses with the exception of the fields which make up the FAU or Full Accounting Unit and the campus-specific banner information. EDB provides the
ability to “bundle” various screens together to lead a user through entry of required data for a particular type of action. For example, a campus may have bundles for Staff New Hires, Academic New Hires, Separations, Reclassifications, etc.. Campuses can create their own bundles to reflect their specific campus preferences.

**Campus Input**
A critical part of any successful system development project is gathering user input. User input defines the audience who will use the system and describes their views of the existing system and their expectations for a new system. User input guides the system design, prevents missteps, and is invaluable if the new system is to be accepted by the population for which it is developed. Three primary methods were used to gather input from users for this project:

**Campus Questionnaire** – More than 700 users from six campuses responded to the questionnaire—representing approximately a 15-20% response rate of surveyed users. In addition to identifying issues and desired features the campus questionnaire helped to define our user population which is largely experienced and well-trained. It also told us how long it normally takes to process transactions and defined the most common issues with the current system. Users also provided many suggestions for new features and improvements.

Of the 713 respondents, 223 volunteered to participate on campus workgroups.

- 57% of respondents have been EDB preparers for more than 5 years.
- 35% of those have been EDB preparers for more than 10 years.
- 38% of respondents supervise others who are EDB preparers.

- 55% describe themselves as competent EDB preparers.
- 35% describe themselves as expert EDB preparers.

- 69% process EDB update transactions at least weekly
- 51% process New Hires in less than 15 minutes
- 33% process New Hires in between 15 and 30 minutes
- 82% process changes in under 15 minutes
- 71% process separations in under 15 minutes

- 67% believe that they received adequate training to become an EDB preparer
- 43% believe it might be possible to reduce training time for Web users

**Recurring Themes**
- 63% see problems with edits, either unclear or not enough
- 51% believe that help is inadequate
- 39% have difficulty knowing what to enter
- 26% cited problems with system navigation
**Campus User Group Meetings** – User group meetings were held at each of the six campuses with work groups including between 12 and 40 participants. The discussions at the workgroups confirmed the results of the questionnaire. Users felt that there was a great opportunity to improve processing of New Hire transactions with a Web EDB update system. Specifically, users asked for improved edits and navigation, more intuitive screens, and better help. They also asked that the system be able to automatically provide some data based on criteria such as title code. Many of their suggestions are reflected in this Requirements Document.

**Requirements Group Meetings** – All six campuses and Office of the President have representatives participating on the Requirements Workgroup which is made up of systemwide and campus experts who understand the details of how the update process currently works as well as its strengths and weaknesses. The group meets on a regular basis to review features, work through issues, and recommend overall system design.

**Project Description**

Developing a Web EDB Update front end to the mainframe EDB system provides the opportunity to modernize and enhance the view or interface between users and the system by developing a new look while leveraging the existing technically-complex EDB mainframe system.

The development team plans to take a Service Oriented Architecture (SOA) approach to this project; creating a number of web services on the mainframe system that will expose the existing PPS architecture to the web. The goal is to leave existing system logic as is, and to create an external web application that will use the web services pass information to and receive information from PPS.
System Design Guidelines

The development of a Web EDB update system requires an ongoing and consultative process, and at this stage of the project, the system design and structure is only loosely defined. The following system design guidelines are intended to provide a touchstone to guide decisions and contain the project scope, with the expectation that all design decisions will be evaluated against these guidelines.

1. Design must be consistent with and support policies and controls.
2. Web EDB system will make use of existing tables and data fields. New tables may be required to provide Help. Anything requiring new data gathering must be carefully evaluated.
3. New data will be added only if there is a system for it to reside in.
4. No employee data will be stored long term in EDB web system. Data required to enable new functionality such as a list of favorite FAU’s may be stored in the Web EDB system.
5. Labels and Help will provide English translations rather than codes.
6. If current EDB has edits in place Web EDB update will not enforce different severity level for the same online edits.
7. Web EDB should not be slower and should allow users to enter actions in no more time than it takes in the current system.
8. User input should drive the design of the system in terms of features and functionality.
9. Technical considerations and project scope may override desired features and functions.
10. System design should emphasize ease of use with fields presented in the most logical arrangement. Any inconsistency between web EDB screens and current mainframe screen layout can be documented so that users can move between the current and the web screens without confusion.
11. Web EDB must interface with current EDB update process in real time and will be available only when the mainframe system is available. There will be no batch interface.
12. Current EDB update system will continue to function and will not be replaced by the web system. The current EDB update system will not require any significant modifications in order to interface with Web EDB.
13. Printer friendly versions of transactions will be made available.
14. Web EDB must provide for both keyboard entry and mouse entry. Users will not be required to use mouse if they prefer entering data and navigating with keyboard only.
15. Help will be provided in layers to accommodate all levels of users.
16. Help should be extensive but not intrusive.
17. Design decisions will rely on general agreement of participating campuses.
18. System design will allow for links to campus specific references, help, terminology, and campus materials, and each campus is responsible for maintaining their materials.
19. Although this project will address New Hire processing only, the system design will be applicable to all EDB update processes.
20. It is assumed that the New Hire processing is a Proof of Concept project and that system design of other EDB update processing functions will be undertaken shortly after successful completion and implementation of the New Hire process.

21. System design assumes that campuses will maintain standard tables and that PPS system releases will be implemented in a timely fashion.

System Requirements

“Smart Processing” – The Web EDB system must be able to handle all existing functions such as the current bundles and do it automatically based on specific entered data. For example, the title code controls many aspects of a New Hire and the system needs to make decisions about which fields are presented to the user based on the entered title code. If an academic title code is entered, subsequent screens should not display fields that are required only for staff titles. In addition, the system needs to automatically fill certain fields based on other entered data. Detailed specifications will be provided for all of these conditions.

Navigation – Navigation through the system should be accomplished by accessing fields through tabs. This will improve upon the existing system, which only allows users to progress sequentially through the application via PF keys on the keyboard. Additionally, the system should automatically navigate to fields identified in edit messages.

Display – The system must provide user aids in the form of colors and highlighting of designated fields. For example, required fields should have a visual distinction. Edits need to be displayed in an effective way.

Saving of Partially Completed Transactions – For most users it takes between 15 and 30 minutes to process a New Hire transaction, and because users experience frequent interruptions it is often difficult to complete transactions. Web EDB must allow partially completed transactions to be suspended and completed at a later time. Transactions must be saved for a period of 36 hours during the normal workweek, 60 hours during a workweek that contains a holiday, 84 hours if any of the 36 hour period occurs on a weekend, and 108 hours if a weekend and a holiday are included. The count of how many hours to save the transaction begins when the transaction is originally suspended. If a user later accesses the transaction and suspends it again the count does not restart. Only the user who initiated the transaction should be able to access and complete the suspended transaction. It is understood that when a New Hire transaction is suspended the original employee number assigned at the beginning of the transaction will be cancelled and a different employee number will be assigned once the transaction is resumed.

Copy/Template Capability – Users must be able to create a list of favorites or templates for fields such as department address information and appointment/distribution and FAU information.

Security Access and Authorizations - Web EDB update must apply the same security access controls and authorizations as are currently employed by the mainframe EDB
update system. The system must interface with or accept logon/password authorization or authentication from existing campus systems and should allow for multiple sources of authorization identification information. For example a campus might choose to allow access to anyone who currently has access to mainframe systems, campus mail systems, or data warehouse systems.

**User Guidance** - Help function must be extensive but not intrusive, and should use a layered approach so that users can access only the amount of information they need to accurately enter transactions. Ideally, the first level of help will be drop down menus from which users can select appropriate values. Drop down menus should contain understandable translations rather than the actual codes that are stored in the system. It is assumed that the existing mainframe help function and data element tables will be employed to provide the much of the drop down menu data. The system will also need to provide links to campus manuals and training materials and so must easily allow for campus-specific links. It is also likely that additional help tables will need to be developed and stored in Web EDB to provide additional help drilldown information.

**Edits** – Since the Web EDB update system will interface with the current mainframe EDB, all existing online mainframe edits will be applied to transactions being entered through Web EDB. Although the appearance and presentation of the existing edits may differ between Web EDB and mainframe screens, the actual edits and severity levels will be the same. Additional edits will also be defined and will be applied only in the Web EDB system. For example, salary rates should be edited based on the title code.

**System Performance** – Because of obvious technology differences and factors affecting system performance, it is difficult to set meaningful standards for transaction processing times. It is, however, essential that it not take longer for users to process transactions in Web EDB than it currently takes in the mainframe system, and it is the hope that it will take less time using Web EDB, given the additional help features, automatic filling of data, templates and favorites, and more informative edits.

**Organization of Fields** – Field layout should be designed with the specific goal of making input of data easier and more logical. There is no requirement to consider or be consistent with current grouping of fields on mainframe screens. A table listing fields and their location on Web EDB screens and mainframe screens should be provided as part of the Help function, so that users can easily locate fields in both systems.

**Print Capability** – The current mainframe systems allows for printing only on networked printers that have been defined to the system. This oftentimes makes it difficult for users to print various documents. Web EDB must provide printing capability so that users can print directly from their web browser, eliminating the need to configure network printers for the application.

**Entry of Data** – While many users will prefer to select translations from drop down menus, other “power users” may prefer to enter codes. The system must allow for either selection from drop down menus or entry of codes. Fields must be a combination of drop
down menus and data entry fields. In the case of drop down menus—especially for long lists—the system should provide predictive selection so that a user can begin entering data and the system will select the appropriate entry from the list or take the user to that place in the list.

**Applicability of Design Decisions to Future Developments** - Although the EDB update project will be completed in phases, it is important that design decisions are consistent with future developments efforts. For example, while Phase I of the project will address only New Hire processing, system architecture and design should also apply to other types of actions such as Change and Separation processing as well. This approach will ensure that system design can easily be applied to all subsequent phases of development.

**Review of Entered Data** – A review page should be provided to allow review BY THE PREPARER of all entered data before update. A confirmation page should also be provided to document all entered data.
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