

A Methodology for Evaluating Recordkeeping Systems

The Indiana University Electronic Records Project

Draft - March 27, 1997

New version of "sample deliverables" have arrived! The sample deliverables found in Appendix D have been updated to reflect changes in 3.0 Evaluate Existing Systems in Terms of the "Functional Requirements for Evidence in Recordkeeping".

CONTENTS

Introduction

1.1 Functional Analysis

1.2 Identify Business Transactions

1.3 Identify Evidence of Transactions: Data, Context, Structure

2.0 Review Existing Systems

3.0 Evaluate Existing Systems in Terms of the "Functional Requirements for Evidence in Recordkeeping"

4.0 Recommendations

Appendix A: Glossary

Appendix B: References

Appendix C: Estimates

Appendix D: Sample Deliverables

INTRODUCTION

In June, 1995, IU began a two year project to establish archival requirements for IU's electronic records in the target areas of Financial Management Services and Student Services. As part of that project a methodology has been developed to evaluate information systems against the University of Pittsburgh Functional Requirements for Evidence in Recordkeeping in the context of business transactions. For an introduction and a short, but compelling, argument that serious attention be paid to issues of managing electronic records see the article "It's 10 O'Clock: Do You Know Where Your Data Are?", by Terry Cook.

With use of this methodology it is important to recognize the collaboration between archivists and the IT community, whose vocabularies at times do not quite match. The methodology is centered around archival and recordkeeping concepts, but facilitated by practices common to the IT community. Perhaps the language is most at odds with the term *record*. In the IT context a record might be thought of as a data structure representing an element of a file. However, in the context of this methodology, a record is evidence of a *business* transaction. A good understanding of this usage of record is essential for success with the methodology, as is an understanding of other terms (which can be found in the glossary and throughout the text) and the Functional Requirements (also in the appendix and discussed later in the text). In general, the focus here is on information as it satisfies requirements of accountability and evidence.

The Functional Requirements for Recordkeeping relate to a system which "is understood to be the totality of people, policies, hardware, software, and practices surrounding the creation or acquisition and the use of information within any organization". [Beraman, Electronic Evidence, 1994] Although the full Functional Requirements should be understood before using the methodology, a brief summary is included here for introductory purposes. Organizations

should be compliant. Accountable systems should be responsible, implemented, and reliable. The capture of functional records should be comprehensive, complete, identifiable and authentic. Their maintenance should be sound, auditable, exportable, and removable. And access to the records should be available, usable, understandable, and redactable. Supporting the Functional Requirements in the University of Pittsburgh model are other products including Warrants, Production Rules, and Metadata Specifications (part of the Business Acceptable Communications model). The BAC model is "concerned with establishing a body of metadata (i.e., data about data) that is capable of supporting the evidentiary value of electronic records." [<http://www.lis.pitt.edu/~nhprc/orient.html>].

Several phases and tasks for the methodology have been identified. These include 1) a description of the business through functional decomposition and identification of transactions and associated evidence, 2) a description of the associated information system in terms of the identified transactions, 3) evaluation of the information system against the Functional Requirements in the context of the identified transactions of the business, and 4) recommendations for intervention to satisfy the Functional Requirements.

Although represented in the text as distinct phases, the reality is that thought processes don't necessarily work in a step-by-step fashion. A methodology may portray a progression through specific steps, but a person using the methodology should be able to consider multiple factors at any point through that progression. So, while identifying functions, transactions, and associated attributes - the real business - the analyst should keep in mind the Functional Requirements. The real information system must then be evaluated against the Functional Requirements in the context of the real business to determine what should be.

The structure of the methodology uses the basic analysis concept of breaking the process into smaller, more manageable levels of detail. These levels have been identified as Phases, Tasks, and Work Steps and are presented next. The entire methodology document and supporting materials should be reviewed and understood before proceeding with its use. A glossary of terms and sample deliverables from the various tasks are included in the appendices. Links to and from the Contents are provided for ease of use.

[Return to Contents.](#)

1.1 FUNCTIONAL ANALYSIS

In the past the archival field has focused on the office of origin rather than the functional origin of records. With today's ever changing organizational structures, that focus is evolving. Provenance, the origin of records (see glossary for definition) may now be more directly related to the mission, function and transactions of an organization than to organizational units.

Functions relate to official actions pertaining to the business or mission of the enterprise. A business function should be differentiated from a business process by emphasizing that a function describes WHAT is done in the organization. This is in contrast to a business process with its emphasis on HOW work is done. Regardless of these distinctions, it is important to gain an understanding of what the business is about.

The functional analysis will provide a roadmap to the major activities and responsibilities of an entire business area. These activities and responsibilities will indicate where records of significance may be created, changed, or used. The business area is a starting point where research can begin. It may be discovered that there is shared responsibility for a function across business areas. This point should be noted in the deliverables. A functional decomposition may extend to several layers and touch upon more than one business area in order to provide sufficient detail for identification of transactions in the next task.

WORK STEPS:

1. Project staff selects a business area for analysis.
2. Analyst individually reviews existing functional analysis or other documentation, if available.
3. Analyst conducts interview(s) with one or more staff from the business area to gather information about major business functions performed. Use any existing functional analysis as a tool for gathering this information. Staff to be interviewed should understand the responsibilities of the entire business unit for identification of first-level functions. Other staff may be identified as appropriate resources for sub-function identification.
4. Analyst revises existing function list or prepares a new list of functions and sub-functions.

DELIVERABLES:

1. A list of functions and sub-functions (possibly to several levels) for the business area.
2. A broad narrative description of each function and sub-function, noting where function may cross the boundaries of business areas.

REQUIRED MATERIALS:

1. Existing list of business functions, if available.
2. Existing documentation for the business area or concern.

ROLES AND RESPONSIBILITIES:

Conducted by: project analyst

Reviewed by: project staff, business area staff

Approved by: project staff

Information resources: business area staff

TIPS:

Examine functions proposed at a particular level to see if they fit within a higher level function. Even a major business area typically has only six to twelve first-level functions. Second-level functions typically have between three and eight third-level functions. (Low numbers are very common.)

Be as comprehensive and complete as possible. Assure that the list adequately accounts for all major activities of the area. An outline form is appropriate for representing the relationships between functions and sub-functions. As with an outline, balance is expected but not symmetry. Functions at the same level should have roughly the same significance, complexity, etc. However, one second-level function may have two or three third-level functions while others may have eight or nine.

Without experience it is difficult to tell when the functional decomposition is complete. The function list should be reasonably complete, but will not be exhaustive. In general a third-level decomposition should be sufficient, but it may be necessary to go further to gain enough detail for the identification of transactions in the next task.

It may be difficult for business area staff to have discussion at the functional level, focusing instead on detail that is relevant to information systems that support related processes. Whatever information is obtained from the business area staff, the analyst should filter appropriately, glean function descriptions for this task and saving detail for later tasks or phases. The analyst should be sure to focus the discussion sufficiently to understand the functions of the business area. "How do you illustrate the vital aspects of your business?" is an example of the type of leading question that may draw useful information from the business area staff.

The use of jargon, of either the business area or technical should be avoided. Where impractical to avoid the use of jargon, it should be defined.

[Return to Contents.](#)

1.2 IDENTIFY BUSINESS TRANSACTIONS

A transaction is provisionally defined through the four points listed below. These four points are necessary, but not sufficient, to consistently identify transactions. Identification of transactions should take place from the perspective of accountability for institutional actions. Transactions are identified within each of the major functions of a business area (but may cross business area boundaries) and will provide a unit of comparison when evaluating the information system against the Functional Requirements.

WORK STEPS:

1. Project staff selects a major function for analysis.

2. Analyst reviews available material and interviews business area staff where appropriate.
3. Analyst identifies probable transactions in terms of the four-part definition listed below:
 - An official action, related to the business or mission of the university.
 - A public action, not private, involving more than one person.
 - An action undertaken, having a beginning.
 - An action completed, having a definite end-point.
4. Analyst writes preliminary transaction narrative statements which address the following questions:
 - What is the official action?
 - Who is taking or initiating the action?
 - What objects are being acted upon, if any?
 - What individuals are interacted with, if any?
5. Analyst reviews and regroupes the proposed transactions to achieve the optimal level of granularity and adjusts the descriptions accordingly.
6. Analyst reviews transaction narrative statements with project team members, including staff from the business area, and revises as necessary.

DELIVERABLES:

1. A list of business transactions associated with a business function, with narrative statement.

REQUIRED MATERIALS:

1. List and description of major functions and sub-functions in a business area.

ROLES AND RESPONSIBILITIES:

Conducted by: project analyst

Reviewed by: project staff, business area staff

Approved by: project staff

Information resources: business area staff

TIPS:

The first criteria for transaction identification uses the term "official". Frequently actions are simply "understood" to be official. The analyst may have to use his or her judgement in determining what is official. For example, the act of hiring staff is generally regarded as an official action. (As in many cases, it is possible to break this transaction into parts: recommendation and approval.) A general understanding of the business, what it is about and to some extent how it operates, are crucial to a satisfactory identification of transactions.

An understanding of the Functional Requirements should facilitate the identification of transactions. Past experiences of business area staff with requests for evidence may also help with the identification of transactions and appropriate scope for transactions. The use of forms in the business may play an important role in identifying transactions. And legal considerations for the business area are good indicators for transactions.

The concept of transactions is grounded in actual functions and activities of a business area. However, the size and boundaries of the transaction chosen to document and analyze is a product of choice and judgment. Generally, we will choose to incorporate a number of small related activities (transactions) into one larger transactional unit. In combining these smaller transactions, however, no function or activity ("official action") can go totally undocumented. It will likely be possible to combine smaller units into larger transactional units in a variety of patterns. Consider the consequences of the choice of one combination over another. The search should be for valuable, not necessarily ideal, transactions.

Some activities identified in preceding steps (and documented in the lists and descriptions of functions and sub-functions) may be determined not to be "official actions" of the institution, or they may be determined to be fragments of a transaction or one step on the way to completion of a transaction (e.g., a work-step in a procedure).

When an identified function spans several business areas there may be limits to the incorporation of smaller transactions into larger units. Decisions whether or not to incorporate may be facilitated by focusing on who is taking the action. Is staff in one business area initiating the transaction while staff in another area is completing the transaction? If so, then there might be two transactions to document.

Three types of abstraction can be kept in mind while identifying useful transactions: generalization/specialization (one transaction may be a special type of another); collaboration (one transaction might rely on the services of another); and composition (several transactions may be required to complete a larger transaction).

Ideally, the transaction narrative statement will be a single sentence which identifies the individual or agency who is acting (subject-phrase); the official action (verb-phrase); the individuals or objects who are acted on or interacted with (object-phrases); and any clarification or further specification of the action, actor, or objects of action.

[Return to Contents.](#)

1.3 IDENTIFY EVIDENCE OF TRANSACTIONS: DATA, CONTEXT, STRUCTURE

The goal in this task is to find evidence of the transaction which constitutes a record and to describe its nature. This task seeks to specify such information about the transaction in the context of the business, not the associated information system. The nature of the business-relevant facts of the transaction must be uncovered. Bearman defines evidence as residing in the conjunction of data ("the record of the words, numbers, images and sounds actually made by the creator"), structure ("the relationships among these data as employed by the record creator to convey meaning"), and context ("the relationship between the record and the activity out of which it arose"). [Bearman, Electronic Evidence, 1994]

WORK STEPS:

1. Analyst reviews available material.
2. Analyst conducts interviews with business area staff when appropriate.
3. Based on material review and interviews, analyst identifies the evidence of a transaction by addressing questions such as the following:
 - What is the domain from which provenance derives: the reporting structure responsible for creating the record and under whose or what authorization they are operating. (context)
 - What are the critical organizing principles of daily work: time, responsibility, client, intellectual context? (context)
 - What should be considered acceptable use of the information associated with the transaction? (context)
 - What measures should control the potential use of the information associated with the transaction? (context)
 - Who took the action? (context)
 - Timing of the action taken? (context)
 - What are the relationships of the data associated with the transaction, including stylistic formalisms? (structure)
 - How long should the information associated with the transaction remain valid as evidence? (structure)
 - What action was taken? (data)
 - To what effect was the action taken? (data)

DELIVERABLES:

1. A conceptual model (text, diagrams, lists, other) of the information items needed to document each transaction. The following is a guideline for format.

CONTEXT

- Provenance
- Organizing principles
- Acceptable use of information associated with the transaction
- Measures for controlling potential use of information associated with the transaction
- Other governing standards and practices related to the transaction

DATA

- Action taken
- Effect of action

STRUCTURE

- Relationships of the data associated with the transaction
- Stylistic formalisms
- Valid life of evidence

REQUIRED MATERIALS:

1. Transaction narrative statements.
2. Other documentation of systems and procedures (data models, data dictionaries, file definitions, etc.), as available.

ROLES AND RESPONSIBILITIES:

Conducted by: project analyst

Reviewed by: project staff and business area staff

Approved by: project staff

Information resources: business area staff

TIPS:

An initial response to this task might be to begin the process by looking for data within the existing information systems and comparing it to the transactions identified. But instead, the focus of this process is the conceptual layouts of the transactions (the description of the business); not the existing file layouts (description of the information system). The conceptual business, rather than existing information systems, should be stressed. Describe information categories, not specific pieces of data. For instance, it is not necessary to specify how an entity is identified; that it exists is sufficient.

A well-written transaction narrative statement (from the previous task) will help identify all or most of the major information items (entities) and many of their attributes. Additional entities and attributes will be identified in two ways: 1) evaluating if every actor, action and object is uniquely identified and completely described, with respect to this transaction; 2) evaluating documentation of existing systems and manual procedures for related information items that were overlooked or mis-identified.

Refer to the BAC model [<http://www.phila.gov/city/departments/erms/xhibit4.html>] for an interpretation of information regarding context, structure, and content.

[Return to Contents.](#)

2.0 REVIEW EXISTING SYSTEMS

The goal of this phase is to describe what existing systems, if any, currently manage the information associated with previously identified transactions. Policy, procedures, system design, and standards are all tactics which can be

employed to achieve recordkeeping systems which meet the specifications of the Functional Requirements and the Business Acceptable Communications model. Therefore, in addition to review of the electronic information systems associated with each business transaction, other aspects of existing systems (the policies, procedures, and standards) should be reviewed. Since the ensuing evaluation will be based on units of the previously identified transactions, it is important that the transactions be mapped specifically to identified policy, procedures, standards, automated business applications, etc. It is important to note how existing systems support the structure and context of evidence, as well as the data.

WORK STEPS:

1. Analyst gathers available documentation on systems, standards, procedures, retention schedules, etc.
2. Analyst determines the information systems that support each business transaction through interviews with business area staff and analysis of documentation, as well as through other research (system repository, libraries, etc.).
3. Analyst prepares deliverables supporting each transaction. Structure of deliverable should reflect possible many-to-many relationship between transactions and systems.

DELIVERABLES:

1. Documentation (or summaries with references) for categories such as the following:
 - Available documentation, how it is used, maintained, and distributed.
 - Processing descriptions with models if available.
 - Standards, practices, and policies (with references to specific documentation). How are standards and practices put to use, how are laws of jurisdiction observed, and so on?
 - Files and/or tables, data elements with models if available. Identifiers, associations, possible views should be noted. Document information regarding journal, backup, restore, recovery, purge, archive, extraction, copy, transfer, export processes. Document retention schedules.
 - Security and authorization mechanisms.
 - Predefined reports and inquiries.
 - Specific applications that are part of the system, including on-line processing transactions and batch jobs.
 - System specifications with sufficient detail to address migration issues.

REQUIRED MATERIALS:

1. Functional analyses and transaction information from preceding steps
2. System documentation
3. Other documentation (e.g., procedure manuals, policies, retention schedules)
4. Data and other models, if available

ROLES AND RESPONSIBILITIES:

Conducted by: project analyst

Reviewed by: project staff, business area staff, computing services staff

Approved by: project staff

Information Resources: business area staff, computing services staff

TIPS:

When documenting the existing systems, the analyst should keep in mind that the evaluators will have to become familiar with the information in the next step. It will be important to organize the information in such a way to

minimize that effort, while being as complete as possible. There will likely be cases when existing documentation may simply be referenced and other situations where the analyst will need to extract or summarize information. In any case, references should always be specific: where can the documentation be found, what cite is associated with what page numbers, etc.

It has been recognized that whether designed as recordkeeping systems or not, existing information systems are the sole source for a growing set of institutional records for which there is no alternate source of information. Records in an existing information system are more likely to exist as a "virtual document" assembled from multiple information items dispersed across multiple databases and computer files than as discrete logical entities that can be easily located or named. A system may contain all the information elements necessary to assemble a record, but lack the software capability of bringing those information items together to actually display or present the record. Information systems may capture all the information items associated with a transaction but may not preserve all the items equally, such that a record that exists at one point in time may decay over time. This may result from different retention or disposition schedules for different computer files, or from information items that are stored only in the form for which no history of prior values is maintained. These issues should be kept in mind during this phase of the methodology.

The categories included above (in the deliverables section) are suggestive of the type of information that will be helpful for the evaluation.

With the list of available documentation, it makes sense to repeat the information only to the extent that the repetition (and its organization) facilitates the evaluation process in the next phase.

There may be a many to many relationship among systems and transactions and format of deliverables for this section should illustrate the relationships. Generally, the analyst will review systems that pertain to a group of related transactions, resulting in a more complete picture.

It would be reasonable to include samples of forms that represent the "stylistic formalisms" (font, color, highlighting, labeling, placement, order, etc.) of 1.3 Evidence of Transactions.

The equivalent of log books and finding aids should be noted during this phase.

[Return to Contents.](#)

3.0 EVALUATE EXISTING SYSTEMS IN TERMS OF THE "FUNCTIONAL REQUIREMENTS FOR EVIDENCE IN RECORDKEEPING"

① How effectively can existing systems satisfy the requirements of a recordkeeping system? ② Can records (as well as data and non-records) be captured and preserved inviolate by existing systems? The existing systems, documented via the transactions of the business, are now evaluated against the Functional Requirements and supporting products.

① The first question may be answered through a set of Functional Requirements, proposed by David Bearman, against which existing systems can be measured to determine their appropriateness as recordkeeping systems. The spring 1993 version is included here. [Bearman, Electronic Evidence, 1994]

Pittsburgh Functional Requirements

I. Compliant

Recordkeeping systems comply with the legal and administrative requirements for recordkeeping within the jurisdictions in which they operate, including specific requirements not referenced below.

II. Accountable

Responsible: The organization must have policies, assigned responsibilities, and formal methodologies for management of its recordkeeping systems.

Implemented: Records must have been created and maintained in the normal course of business and documented procedures which were followed should conform to common practices in the industry.

Credible: The system must control quality characteristics of information being input and process information in a fashion that is consistent and accurate.

III. Functional

Recordkeeping systems must capture, maintain and access evidence over time. If they do, records will be:

Complete: Records accurately capture all information recorded or generated by their creators. Records incorporate or link to a representation of the software functionality that created them, other versions or views, a data model of relations between elements of information within a record, eye-readable conventions such as placement or font, and other structural information that adds to their meaning. Records incorporate or link to information about the context of their creation.

Identifiable: A distinctive and bounded record exists for every business transaction.

Authentic: The system must validate records creators and/or authorizers.

Communicated: The systems must capture a record of all communication in the conduct of business between two people, between a person and a store of information available to others, or between a source of information and a person.

Sound: Record integrity is protected from accidental or purposive damage or destruction and from any modification after they have been received by anyone other than the creator.

Auditable: Record documentation traces the processes in which records participated, including indexing, classification, filing, viewing, copying, distribution, disposition, use and destruction throughout the record life. Management controls preserve auditability of interactions external to the system (such as during media migration or transfer).

Understandable: Records documentation should permit stored business records to be logically reconstructed. Information content, plus any structure and context must be preserved in meaningful and documented relations. For records with functionality, business application procedures must be documented so that they can be correctly associated with the status of the system at the time of record creation and later.

Removable: It must be possible with appropriate authority to remove records from the system leaving only audit trails to document their prior existence.

Exportable: Record content, structural representation and representation of context must be exportable, in standard protocols if such protocols exist.

Available: The system must document all logical archival records it contains, indicate the terms under which they are available for research, and retrieve them for authorized users.

Renderable: The system must render records by display or otherwise as they appeared to creators with views in effect at time any record was used or retain structural data necessary to determine such views.

Redactable: The system must support delivery of redacted, summarized, or censored copies and keep records of the version released.

The University of Pittsburgh Functional Requirements for Evidence in Recordkeeping are supported by warrants, production rules, and metadata specifications, and have been revised to accommodate the concepts of Business Acceptable Communications [<http://www.lis.pitt.edu/~nhprc/orient.html>]. This hyperlinked version can be found at <http://www.lis.pitt.edu/~nhprc/prog1.html>.

(2) The second question (can records be captured and preserved inviolate by existing systems) can, in part, be addressed through the metadata specifications that support the Functional Requirements. The metadata can be thought of as the contextual and structural information that, added to the data, provides evidence of a transaction. The evidence, taken as a whole (some assembly may be required), provides a "virtual" record of the transaction. The Pittsburgh Business Acceptable Communications model and its Metadata Specifications provides a framework for a parallel automated system that can capture and preserve records for transactions that are defined for a point in time. Records in this sense are not virtual. They do not require assembly. A brief description of the metadata specifications is included here [<http://www.lis.pitt.edu/~nhprc/meta96.html>]

The following reference model proposes a six layer structure of metadata: Handle Layer; Terms & Conditions Layer; Structural Layer; Contextual Layer; Content Layer; Use History Layer. This structure is designed to satisfy the functional requirement for evidence and the requirements of business acceptable communication and support the effective management of any record over long periods of time.

The six layers of the model developed by David Bearman are [<http://www.phila.gov/city/departments/erms/xhibit4.html>]:

Pittsburgh Metadata Specifications:

Handle Layer: Flags the following data as a record and assigns distinguishing identifiers indicating the record's domain, from which the provenance derives. In addition, descriptors are identified in this layer to enable retrieval.

Terms and Conditions Layer: Invokes security measures controlling the potential use of a record. Recognizes and acknowledges the level of permission given a user, identifies if payment is necessary in order to use the record and then arranges for the transfer of payment, redacts records based on the level of privacy, confidentiality, or secrecy outlined in tables set by the system. These tables are subsequently referred to as "resolvers".

Structural Layer: Enables the record's ability to be utilized over time, as opposed to becoming unusable due to hardware/software obsolescence. Allows for the ability to indicate when migration of the data is necessary.

Contextual Layer: Identifies the provenance (i.e. the person, system, or instrument that is responsible for generating the record) of the record/data to maintain its use as evidence of a transaction and verify the record's accountability.

Content Layer: Describes the actual data engaged in the transaction of which the record is evidence. The form of the data cannot be defined because it may take any form.

Use History Layer: Establishes when and how the record was used previously - for example: what redacted versions have been released and when, if the record was destroyed, under whose or what authority it was destroyed and when, how was the record indexed (identifies anything that was done to the record since its creation). This layer is reserved for the end because it is the only layer that will be continuously added to without having to open the record.

Due to a variety of factors, the IU project staff has extracted points from the Pittsburgh Functional Requirements and Metadata Specifications for use in the evaluation phase of this methodology. The fact that the Pittsburgh Metadata Specifications relate specifically to the Metadata Encapsulated Objects of the Business Acceptable Communication model is the primary reason for using an interpretation of the Requirements and Metadata. The IU version of the Functional Requirements differs very little from the Pittsburgh version and the IU modifications are noted. The IU Metadata Specifications differ from the Pittsburgh version more dramatically, and are therefore correlated with the Pittsburgh version. A reference between the IU Functional Requirements and the IU Metadata Specifications has also been provided. The IU Requirements and Specifications are as follows:

IU Functional Requirements:

(References to IU Metadata Specifications are listed in italics following an IU Functional Requirement.)

I. Compliant

Recordkeeping systems [, and the organizations that use them,] comply with the legal and administrative requirements for recordkeeping within the jurisdictions in which they operate, including specific requirements not referenced below. [I.e. Laws, regulations, and statements of best practice with requirements for recordkeeping are tracked so that changes to them are reflected in updated internal recordkeeping instructions.] *C.1., D.2., E.4.*

1. Do recordkeeping systems for this transaction type comply with current laws, regulation, and statements of best practice?
2. Are references to these laws, regulations, and statements of best practice appropriately cited and readily available?
3. Are references to these laws, regulations, and statements of best practice kept current?

II. Accountable

Responsible: The organization must have policies, assigned responsibilities, and formal methodologies for management of its recordkeeping systems. *E.4.*

1. Does the organization have and utilize policies, assigned responsibilities, and formal methodologies for management of recordkeeping systems for this transaction type?

Implemented: Records must have been created and maintained in the normal course of business and documented procedures which were followed should conform to common practices in the industry. *E.4.*

1. Are records representing this transaction type created in the normal course of business (rather than through other non-standard procedures)?

2. Do the procedures for the normal course of business conform to common practices in the industry for this transaction type?

Credible: The system must control quality characteristics of information being input and process information in a fashion that is consistent and accurate. *E.4.*

1. Are quality control mechanisms used to ensure that consistent and accurate records are created for this transaction type?

III. Functional

Recordkeeping systems must capture, maintain and access evidence over time. If they do, records will be:

Complete: Records accurately capture all information recorded or generated by their creators. Records incorporate or link to a representation of the software functionality that created them, other versions or views, a data model of relations between elements of information within a record, eye-readable conventions such as placement or font, and other structural information that adds to their meaning. Records incorporate or link to information about the context of their creation. *All IU Metadata Specifications*

1. Do the virtual records representing this transaction type accurately incorporate context, content, and structure?

Identifiable: A distinctive and bounded record exists for every business transaction. [6.a. There exists a virtual record representing the sum of all data associated with a business transaction.] *B.1., G.1, G.2, G.3.*

1. Are all virtual records representing this transaction type uniquely identifiable?

2. Do virtual records representing this transaction type include all data associated with it?

Authentic: [8. An authorized records creator must have originated all records.] *A.1., A.3., B.3.*

1. Was each virtual record for this transaction type originated by an authorized records creator?

Communicated: The systems must capture a record of all communication in the conduct of business between two people, between a person and a store of information available to others, or between a source of information and a person. *E.4.*

1. Is a virtual record created for every business transaction of this type?

Sound: Record integrity is protected from accidental or purposive damage or destruction and from any modification after they have been received by anyone other than the creator. [9. Preserved: Records must continue to reflect content, structure, and context within any systems by which the records are retained over time.] *D.1, E.4.*

1. Do virtual records representing the transaction type continue to reflect the same content, structure, and context over time?

Auditable: Record documentation traces the process in which records participated, including indexing, classification, filing, viewing, copying, distribution, disposition, use and destruction throughout the record life. Management controls preserve auditability of interactions external to the system (such as during media migration or transfer). *D.1., D.2., D.3., F.1., F.2., F.3., F.4., F.5*

1. Are all uses of the virtual records for this transaction type documented?

2. Is the disposition history (migration or destruction) of the virtual records for this transaction type documented?

Understandable: Records documentation should permit stored business records to be logically reconstructed. Information content, plus any structure and context must be preserved in meaningful and documented relations. For records with functionality, business application procedures must be documented so that they can be correctly associated with the status of the system at the time of record creation and later. *A.1., A.2., A.3., A.4., G.1., G.2., G.3., G.4., G.5.*

1. Can the virtual records representing this transaction type be reassembled such that the content, structure, and context are understandable?
2. Does the context information for the virtual records representing this transaction type include a representation of the status of the system at the time of record creation?

Removable: It must be possible with appropriate authority to remove records from the system leaving only audit trails to document their prior existence. *D.1., D.2., D.3., E.4.*

1. Can virtual records of this transaction type be removed while leaving in tact the use and disposition histories?
2. Are virtual records for this transaction type removed only with appropriate authority?

Exportable: Record content, structural representation and representation of context must be exportable, in standard protocols if such protocols exist. *G.4.*

1. Is it possible to export portions of the virtual records representing this transaction type that are stored via electronic means, while continuing to reflect content, structure, and context?

Available: The system must document all logical archival records it contains, indicate the terms under which they are available for research, and retrieve them for authorized users. *C.2., E.4.*

1. Is the existence of all virtual records for this transaction type documented?
2. Are terms indicated under which records for this transaction type are made available?
3. Is it possible to retrieve records of this transaction type for authorized users?

Renderable: The system must render records by display or otherwise as they appeared to creators with views in effect at time any record was used or retain structural data necessary to determine such views. *G.1., G.2., G.3., G.4., G.5.*

1. Is it possible to render or display records of this transaction type as they appeared to creators?

Redactable: The system must support delivery of redacted, summarized, or censored copies and keep records of the version released. *F.5., E.4.*

1. Is it possible to deliver redacted, summarized, or censored copies of the records of this transaction type in accordance with applicable laws, regulations, and best practices?
2. Is use history reflecting the released version of the records of this transaction type recorded?

IU Metadata Specifications:

(Entries in parenthesis following IU Metadata Specifications refer to the associated Pittsburgh Metadata Specification.)

A. Context:

1. Actors involved: originator/initiator, organization, system, recipient, etc. (IV.A.1.)
2. Time/instance associated with the represented transaction. (I.A.3.)
3. Source of authorization for engaging in activity. (IV.B.2.)
4. Process activities represented by records, including transaction sequence. (IV.A.6.)
5. Handle, terms and conditions, disposition, accountability, use history.

B. Handle:

1. Unique identifier for the record/transaction. (I.A.3. and I.B.)

2. Transaction type represented by the record. (I.A.2.)

3. Responsible party for the record/transaction. (I.B.)

C. Terms and Conditions:

1. Citation to laws, policies, best practices which impose restrictions. (II.A.)

2. Conditions for access (appropriate population) and use (purpose) for redacted records or record sets, as well as whole records and record sets: payments, permissions, proof of identity. (II.B. and II.C.)

D. Disposition:

1. Removal authority. (II.D.1)

2. Retention policy citation. (II.D.2.)

3. Retention period end time. (II.D.5.)

E. Accountability:

4. Citation to system audits. (IV.C.)

F. Use history:

1. How was data used: viewed, copied, edited, filed, indexed, classified, sent, disposed, etc.? (VI.A.1.)

2. When was the data used? (VI.A.3.)

3. Who or what used the data? (VI.A.4.)

4. What is the impact of the particular use? (VI.A.5.)

5. What was the view of the data?

G. Structure:

1. Identity of files and/or other structures used to represent the record, including structures that represent standard meanings, interpretations, or values. (III.A., III.E.3.)

2. Relationships of various pieces that represent the record (set relationships). (III.E.8.)

3. Other dynamic relationships that represent business uses for the information, that is other sets of records to which this record may belong. (III.E.9.)

4. "Stylistic formalisms" that add meaning to the information, such as placement, labeling, fonts, electronic data interchange formats. (III.C. and III.D.)

5. Source: record keeping system or other mechanism used to capture the content (predefined computer application, ad hoc query for aggregate or summary information, camera or other recording device, etc.). (III.F.)

WORK STEPS:

1. Project staff review documentation produced by analyst in previous tasks.

2. Project staff interview analyst if necessary.

3. For each transaction the project staff evaluates the systems according to the following two criteria:

How effectively does the system satisfy the requirements of a recordkeeping system? For each of the Indiana University Functional Requirements, what evidence is there that the system satisfies that Requirement? Do not respond with simple yes or no; generate a narrative statement with *specific examples of evidence* that the requirement is addressed. Categories of fulfillment include: 1) satisfied, 2) partially satisfied, and 3) not satisfied. Respond to each numbered question.

Can documentation (context, structure, and content) be captured and preserved inviolate by existing systems? For each of the Indiana University Metadata Specifications, what evidence is there that the system satisfies the Specification? There are four categories of responses: 1) metadata is available electronically with use of record; 2) citation to metadata is available electronically with use of record; 3) metadata is available; 4) metadata is not

available. The appropriate response should be stated, followed by a specific rationale, and finally an indication of where the metadata can be found.

DELIVERABLES:

1. A document that for each transaction addresses each of the IU Functional Requirements and the IU Metadata Specifications in terms of the questions identified in the Work Steps.

REQUIRED MATERIALS:

1. Documentation from first phase describing the business: functions and sub-function lists and descriptions; transactions lists and descriptions (including content, etc.)
2. Documentation from previous phase describing existing recordkeeping systems in terms of transactions
3. Other supporting documentation accumulated in previous phases.
4. The University of Pittsburgh Functional Requirements for Evidence in Recordkeeping, warrants, production rules, and metadata specifications. [<http://www.lis.pitt.edu/~nhprc/evidence.html>]
5. Indiana University versions of Functional Requirements and Metadata Specifications.

ROLES AND RESPONSIBILITIES:

Conducted by: project staff

Reviewed by: archivist

Approved by: archivist

Information resources: project analyst

TIPS:

Neither the Functional Requirements nor the Metadata Specifications provide independent proof that existing systems satisfy the requirements of recordkeeping systems or that records are captured and preserved inviolate. However, taken together, the Functional Requirements and Metadata Specifications provide guidelines for making observations about existing systems regarding their ability to provide these desired qualities. The analyst must investigate the nature of the existing systems and their use and evaluators must use good judgement in their determinations and recommendations.

Even with the best efforts of the analyst in preparing documentation for the evaluation, the evaluator(s) may require additional information or interpretation in order to respond correctly to the points of the Functional and Metadata Requirements. It may be necessary to conduct additional interviews or research when dealing with some of the specifics. The trade-offs between the Functional Requirement expertise of the evaluators and the business area expertise of the analyst will likely be apparent here.

A critical point to keep in mind in this activity is that what one is examining and evaluating are record systems, not records themselves. In fact, this is an important point to make about the entire process. From beginning to end, the IU project is not focusing on the record itself; the emphasis is on evaluating the processes that create the record and the systems which maintain it.

When metadata might be part of another system that fact should be noted, but further investigation to determine if, how, and where the metadata is available should be left for the recommendations.

The recordkeeping system is defined both as the computerized information system(s) in which the transaction and any or all of the information content items specified in an earlier stage are captured, maintained and retrieved, and as the manual systems and procedures used to achieve these same objectives.

[Return to Contents.](#)

4.0 RECOMMENDATIONS

At this point recommendations can be made for intervention to satisfy the Functional Requirements where appropriate. Institutions will not likely implement everything in the Functional Requirements. The decision to implement Requirements will be based on a variety of factors, including an appraisal of the value of records, costs and benefits, risk of retaining or disposing of documentation, and organizational needs and priorities.

WORK STEPS:

1. Project staff reviews the evaluation document for low ratings.
2. Project staff lists recommendations for improvements to low ratings
3. Project staff lists other deficiencies for which there is no recommendation
4. Project staff prepares report and presents the recommendations to appropriate parties.

DELIVERABLES:

1. Report of recommendations in the following format:
 - Introductory statements describing scope and objectives of evaluation
 - An opinion regarding the outcome of the evaluation
 - Specific recommendations with comments
2. List of other deficiencies for which there are no recommendations.

REQUIRED MATERIALS:

1. The evaluation document from Phase 3
2. Documents from other phases if necessary

ROLES AND RESPONSIBILITIES:

Conducted by: project staff, project analyst

Reviewed by: archivist, business area staff

Approved by: archivist

Accepted or Rejected by: business area staff

Information resources: project analyst

TIPS:

Archival appraisal is not an "exact" science; it can more accurately be called a methodology which employs some widely accepted criteria to determine the "value" of records. Typically archivists think of record values in terms of 2 broad categories: 1) Primary values, which consist of three types - a) Administrative value or the value of the record in documenting the ongoing, day-to-day administrative affairs of the creator; b) Legal value or the value of the record in documenting legal obligations and protecting legal rights; and c) Fiscal value or the value of the record documenting fiscal responsibility and accountability. 2) Secondary values, sometimes called research values, which reflect uses of the records for purposes other than those for which the records were created. Secondary values are also divided into 2 categories: a) Evidential values or evidence the record provides on the functions and activities of the creating body over time; and b) Informational values or what the record tells one about persons, places and things with which the institution dealt. In addition to these values the appraisal process also takes into account the costs of retention. Considerations here include the costs of records acquisition, processing, preservation, storage and reference.

A variety of shortcomings may be identified through use of the Functional Requirements as a checklist. It may be more appropriate to consider the Requirements as a guideline that will likely be revised over time. When making

recommendations for changes to recordkeeping systems keep in mind the costs/risks and benefits associated with providing or not providing evidence of business activity.

Some typical shortcomings may include: transactions that are recorded incompletely or not at all; records that are not recorded as discrete logical entities; decay of information over time; metadata that is not retained for a sufficient amount of time; data kept only as current values; no history of use for access to records.

When it has been noted in 3.0 that metadata might be part of another system, a determination must be made as to the need for further investigation to determine if, how, and where the metadata is available.

Although it would be possible for the project staff to identify alternative strategies for improving low ratings, establish criteria for choosing among the alternatives, and recommend a specific course of corrective action to those responsible for the recordkeeping system under consideration, those tasks are best left to the business area staff. A recommendation from the project staff for the business area staff to address an area of deficiency would be appropriate. Resolution to a recommendation is up to the business area staff.

[Return to Contents.](#)

APPENDIX A

GLOSSARY

Archives

"The noncurrent records of an organization or institution preserved because of their continuing value." ["A Basic Glossary for Archivists, Manuscript Curators, and Records Managers", Frank B. Evans, Donald F. Harrison, and Edwin A. Thompson, compilers; William L. Rofes, editor]

Attribute

A piece of information describing a particular entity.

Conceptual model

A beginning, abstract representation.

Context

"The relationships between the record and the activity out of which it arose." [Bearman, [Electronic Evidence](#), 1994]

Data

"The record of the words, numbers, images and sounds actually made by the creator." [Bearman, [Electronic Evidence](#), 1994]

Domain

Sphere of concern or function; the set of all possible values for the sphere of concern or function.

Entity

A collection of related data elements typically describing a single person, place, thing, or event.

Evidence

Proof; consequences of business transactions represented through data, context, and structure.

Finding aid

"The descriptive media, published and unpublished, created by an originating office, an archival agency, or manuscript repository, to establish physical or administrative and intellectual control over records and other holdings. Basic finding aids include guides (general repository and subject or topical), inventories or registers, card catalogs, special lists, shelf and box lists, indexes, calendars, and for machine-readable records, software documentation." ["A Basic Glossary for Archivists, Manuscript Curators, and Records Managers", Frank B. Evans, Donald F. Harrison, and Edwin A. Thompson, compilers; William L. Rofes, editor]

Functional decomposition

An analysis of the actions and activities assigned to, required of, or expected of a business unit, focusing on a separation into constituent parts; a method for identifying the active behavior of a system, rather than the passive information which is affected by functions.

Information system

A software system used to support the activities in a business.

Metadata

Data about data.

Methodology

The principles and practices of orderly thought or procedure applied to a particular discipline; a set of working methods.

Provenance

"In archival theory, the principle that archives of a given records creator must not be intermingled with those of other records creators. The principle is frequently referred to by the French expression, *respect des fonds*." ["A Basic Glossary for Archivists, Manuscript Curators, and Records Managers", Frank B. Evans, Donald F. Harrison, and Edwin A. Thompson, compilers; William L. Rofes, editor]

Record

Evidence of a business transaction composed of data, context, and structure.

Stylistic Formalism

A customary manner of presentation, outward appearance, shape or structure (e.g. font, color, highlighting, labeling, placement, order, etc.).

Recordkeeping system

Systems which capture, maintain, and support retrieval of records, where records are considered evidence of business transactions. Policy, procedures, system design, and standards are all tactics which can be employed to achieve recordkeeping keeping.

Redact

Edit, revise.

Structure

"The relationships among these data as employed by the record creator to convey meaning." [Bearman, Electronic Evidence, 1994]

Transaction

An official, public action related to the business or mission of the organization involving more than one person, having a beginning and a definite end-point.

Virtual Record

Records of evidence (data, context, and structure) in an existing information system are more likely to exist as a "virtual record" assembled from multiple information items dispersed across multiple databases and computer files than as discrete logical entities that can be easily located or named.

[Return to Contents.](#)

APPENDIX B

[Business Acceptable Communications](#)

[The Pittsburgh Project: Functional Requirements, Warrants, Production Rules, Metadata Specifications](#)

[Return to Contents.](#)

APPENDIX C

HOURS ESTIMATE RANGES FOR TASKS

The following are really guesstimates, having no basis in actual practice to date. They are intended only as guidelines and have been arrived at by comparison with estimating practices for system analysis and development. Time contributed by business area staff is not included here.

1.1 Functional Analysis

24-56 hours per business area *[typically x functions per business area]*

- Business area reading: 8-24 hours
- Business area interviews: 2-8 hours
- Function identification and description for business area: 8-24 hours

1.2 IDENTIFY BUSINESS TRANSACTIONS

8-24 hours per function *[typically x transactions per function]*

- Identification: 4-18 hours
- Description: 4-6 hours

1.3 IDENTIFY EVIDENCE OF TRANSACTIONS: DATA, CONTEXT, STRUCTURE

4-12 hours per transaction

2.0 REVIEW EXISTING SYSTEMS

14-160 hours per system *[there may be a many to many relationship among transactions and systems]*

- Read documentation: 4-40 hours
- Interview users: 2-40 hours
- Research or verify data and process models; file maintenance job streams; extraction, copy, replication, ftp jobs and scripts; user and other interfaces; reports; process and retention schedules; policies, standards, and practices; and so on: 8-80 hours

3.0 EVALUATE EXISTING SYSTEMS IN TERMS OF THE "FUNCTIONAL REQUIREMENTS FOR EVIDENCE IN RECORDKEEPING

8-48 hours + 4-32 hours per transaction

Review deliverables from previous tasks: 8-24 hours

May require additional research: 0-24 hours

Draw conclusion and explain for each functional requirement: 2-16 hours

Draw conclusion and explain for each metadata requirement: 2-16 hours

4.0 RECOMMENDATIONS

8-40 hours per transaction

[Return to Contents.](#)

APPENDIX D

[Return to Contents.](#)

03/27/97, METHOD.HTM

APPENDIX D

(For A Methodology for Evaluating Recordkeeping Systems)

Draft - February 28, 1997

SAMPLE DELIVERABLES

[The example is incomplete, but hopefully shows enough detail to illustrate the methodology. The general approach used for the example is to drill down with detail. Under normal circumstances, the detail would be completed at all points for the business area (or for the scope determined by the project staff or archivist.)

For business area: Office of the Registrar, Bloomington

Academic department and faculty member are frequently the source of authority for information relating to functions described below. The Office of the Registrar maintains records pertaining to the functions. This is similar to the division of labor where an accounting office maintains a general ledger to chronicle the financial activities of other units.

CONTENTS

1.1 Functional Analysis

1.2 Identify Business Transactions

1.3 Identify Evidence of Transactions: Data, Context, and Structure

2.0 Review Existing Systems

3.0 Evaluate Existing Systems in Terms of the "Functional Requirement for Evidence in Recordkeeping"

4.0 Recommendations

1.1 FUNCTIONAL ANALYSIS

1. Maintain current (and future) semester information

Coursework, both availability and enrollment, are organized by semester. Although faculty provide coursework, the Office of the Registrar maintains information about it and records registration activity.

1.1. Maintain Course Inventory

The course inventory describes coursework offered. Descriptions are developed by the academic units.

1.2 Maintain the Schedule of Classes

The Schedule of Classes provides specific section information about faculty assignment, meeting times and places, credit potential, corequisite coursework, seat availability, enrollment restrictions, etc.

1.3. Register students in courses

In order to attend class and receive credit and an evaluation of accomplishment for coursework students must register for specific sections of courses. Students register in sections for specific credit amounts. The registration activity will also assess student fees and check eligibility for financial aid.

1.4. Adjust student schedules

During specified time frames students may drop, add, or exchange course sections in which they are registered. The Office of the Registrar maintains information about this activity.

1.5. Maintain student checklist

There are a variety of reasons, from many departments, for which a student may be prevented from registering for coursework. The Office of the Registrar maintains such checklist information.

2. Maintain permanent student record

In addition to current semester enrollment information, the Office of the Registrar maintains a history of student accomplishments normally associated with a transcript report. Departmental staff or faculty may perform the actual evaluation, but results are recorded by the Office of the Registrar.

2.1. Post grades and credit

In most cases faculty determine grades that students receive as an evaluation of accomplishment for completed coursework. Grades are posted by the Office of the Registrar. Credit is usually based on characteristics of the course work which the student has taken.

2.1.1. For withdrawal from course

Some grades are assigned through the withdrawal activities. Credit received in such a situation is determined by timing and other rules.

2.1.2. Upon completion of semester course work

Faculty and the Office of the Registrar interact through the grade roster for assignment of grades (faculty) and posting of grades and credit (Office of the Registrar). The roster represents all student enrollments for an entire section of a course. Assignment of credit takes place through the registration system.

2.1.3. With acceptance of transfer work

Transfer work from another academic institution may be evaluated with admittance to the University or throughout a student's career. The evaluation of transfer work (and posting of grades and credit) should be considered when analyzing the Admissions business area. The process of evaluation is commonly referred to as credit articulation. The results of the evaluation are posted by the Office of the Registrar per student based on the "transfer credit evaluation form".

2.1.4. For changes

Grades may be changed after they are initially posted for a variety of reasons, perhaps because the grade was initially reported as incomplete or perhaps because an error was made. Grade changes are initiated by faculty. The Office of the Registrar posts grade changes based on the "Notification of Grade Change" form.

2.1.5. For other credit

Students may receive other types of credit that may be based on examinations, independent study, overseas study, etc. Evaluations are made by other units and posting is accomplished through the Office of the Registrar.

2.4. Record degrees

Students are expected to specify their academic objectives upon admission. Generally, but not always, the objective includes a degree in a particular major and school. In addition to certification to the degree granting school and accomplishment of degree program requirements, students must also apply and be certified for a degree before receiving it.

2.4.1. Maintain academic objective information

A student's initial academic objective is specified through the Application for Admission. Although the academic objective information is maintained by the Office of the Registrar, requests for changes are made by students and school recorders.

2.4.2. Certify enrollment

Bloomington undergraduate students are admitted to the University Division or School of Continuing Studies and must be certified to other schools to earn degrees (other than a general studies degree). The certification is granted by the recorder of the certifying school and posted by the Office of the Registrar. In some cases the certification process is facilitated by the use of the "IUCARE" system which is capable of comparing a student's accomplishments with requirements for certification to the specific school. The level of involvement by the Office of the Registrar varies depending on the school.

2.4.3. Certify and record completed degrees

School recorders certify degrees based on degree program requirement for populations of students identified by the Office of the Registrar. Final degrees are posted by the Office of the Registrar based on certification by the schools. The "IUCARE" application may be used to assist with the certification process (matching degree program requirements against student accomplishments).

3. Produce reports

The Office of the Registrar produces a variety of reports, both printed and electronic, that are based on the current semester and permanent history information that it maintains.

3.1. Produce grade report

With the completion of grade processing for a given semester, grade reports are sent to students who were enrolled in coursework for that semester. In addition to grades received for coursework that semester, the report also reflects grade point average and other information.

3.2. Produce transcript

Transcripts are produced by the Office of the Registrar for a variety of purposes with individual requests and at regular intervals for predetermined populations of students. Transcripts display semester coursework with associated grades and credit, transfer work, other work for which credit is received, grade point averages, degrees, and honors.

3.3. Produce diploma

Diplomas are produced for students who have been certified for a degree. The diplomas may be produced when the degree is earned for a graduating class or based on individual requests (diploma lost, name changed, etc.).

3.4. Produce student enrollment report

The printed version of this report is commonly referred to as a registration confirmation and reflects one student's current or future semester enrollment.

3.5. Produce class roster

Class rosters are produced by the Office of the Registrar for faculty and academic unit use at the beginning of the semester and again for grade processing as a form for entry of grades.

4.0. Maintain automated degree program requirements

The Office of the Registrar assists with use of the automated system through which degree program requirements may be recorded for use in advising, certification, etc. Determination of degree program requirements is primarily the responsibility of academic units. This association should be noted when analyzing functions and transactions related to degree program requirements and advising.

Return to [Contents](#) for Appendix D.

1.2 IDENTIFY BUSINESS TRANSACTIONS

For Function: 2. Maintain permanent student record

1. University awards credit with grade to student for coursework or coursework equivalents.

1.1. Withdrawal from course.

A student may withdraw from a course prior to completion through the Office of the Registrar. Grade and credit will be assigned according to business rules and may or may not involve faculty input. The official action is a withdrawal from a course. A student initiates the withdrawal. The student's academic record is acted upon. The student must interact with the Office of the Registrar. Staff from the Office of the Registrar post the transaction. A faculty member may be involved in the transaction.

1.2. Recognition of course completion.

Upon completion of regular semester coursework the Office of the Registrar produces a grade roster to be used by faculty members for the assignment of grades. Grades (and credit which was determined through a combination of grade and credit hours for which student registered) are posted by the Office of the Registrar. The official action is recognition of a student's completed coursework. The student's academic record is acted upon. The action is initiated by the Office of the Registrar.

1.3. Recognition of coursework equivalent.

Transfer coursework, examinations, independent study, overseas study, and other forms of student accomplishment may be recognized by the University as coursework equivalents. The action is recognition of coursework equivalent. The action is initiated by the student. The student's academic record is acted upon. Equivalency may be evaluated by the School Recorder, Admissions, the Office of the Registrar, or other units. The action is posted by the Office of the Registrar.

1.4. Grade change.

A student's original grade assignment may be changed from an "incomplete" or to correct an error. The official action is a grade change. The action is initiated by faculty. The student's academic record is acted upon. The grade change is posted by the Office of the Registrar. The grade change may result in a change of credit.

2. Certification to an undergraduate school

Based on an undergraduate student's expressed academic objective, his accomplishments are evaluated against certification requirements for the specified school. Timing of the evaluation is based on policies of the certifying school. The official action is certification of a student to an undergraduate school other than University Division or Continuing Studies. Depending on the school the action may be initiated by the Office or the Registrar, the certifying school, or the University Division. The student's academic record is acted upon.

3. Recognition of successful degree program completion

3.1. Awarding of degree

Based on a student's expressed academic objective, his accomplishments are evaluated against degree requirements for a particular degree program. Timing of the evaluation is based on policies of the degree granting school and the request of the student. The official action is granting of a degree to a student. The student's academic record is acted upon. The action is initiated by a student. The evaluation is performed by the School Recorder. The action is posted by the Office of the Registrar. The student receives a diploma from the University.

3.2. Awarding of honors

Degrees awarded by schools may be accompanied by honors based on a variety of factors, in some cases comparison with a grade point average specific to a major. Honors may also be awarded in other circumstances. The action is the awarding of honors to an individual. The action is initiated by the School Recorder and posted by the Office of the Registrar. Honors are received by the individual.

Return to [Contents](#) for Appendix D.

1.3 IDENTIFY EVIDENCE OF TRANSACTIONS: DATA, CONTEXT, STRUCTURE

For transaction: 1.2 Recognition of course completion

Upon completion of regular semester coursework, the Office of the Registrar produces a set of grade rosters to be used by faculty members for the assignment of grades. Grades (and credit which was determined through a combination of grade and credit hours for which student registered) are posted by the Office of the Registrar. The official action is recognition of a student's completed coursework. The student's academic record is acted upon. The action is initiated by the Office of the Registrar.

CONTEXT

Provenance: Creation of the record is under the authority of the instructor(s) assigned to the section of the course which the student completed. Creation of the record is the responsibility of the Office of the Registrar.

Organizing principles: Credit hours for the course are designated by the student during the registration process. Credits earned for the course are based on a combination of the designated credit hours and the assigned grade. Section enrollment rosters facilitate the assignment of grades to students by faculty in a timely manner after the end of the semester. Rosters with assigned grades are used by the Office of the Registrar to post and verify correct entry of grades. Grade reports, which include credit and grade point average information, are then sent to the students.

Acceptable use of information associated with the transaction: Course completion information may appropriately be used in certifying the student for a variety of purposes including certification to degree granting school, certification for honors programs, certification for athletic programs, certification for academic degree. The information may be

used for academic advising purposes. Recognition of course completion information (grade report) should be distributed to the student at the end of the semester, with granting of degrees, and upon request for a transcript of his academic record.

Measures for controlling potential use of information associated with the transaction: Use of the student's academic record is controlled by FERPA (The Family Educational, Rights to Privacy Act).

Other governing standards and practices related to the transaction: AACRO guidelines, procedure manual, calendar.

DATA

Action taken: recognition of student completion of course for a specific section and semester offering.

Effect of action: student earns credit for the course based on a combination of assigned grade and designated credit hours.

STRUCTURE

Relationships of the data associated with the transaction: Course data is organized by semester (Fall, Spring, Summer I, Summer II), year, and section within course and department. Faculty are assigned to specific sections for a given semester. Students register for coursework by semester. Grades are assigned by class roster (enrollment for a specific section) and reported by semester for a student.

Stylistic formalisms: There are specific formats for the class roster, the grade reports, the grade ledger, and transcripts, all of which may be used to access the information associated with recognition of course completion.

Valid life of evidence: indefinite.

Return to [Contents](#) for Appendix D.

2.0 REVIEW EXISTING SYSTEMS

For transaction: 1.2 Recognition of course completion

[The following information is incomplete and may be inaccurate since much of it is based on limited and out of date documentation. However, the purpose of illustration should still be served while minimizing the use of valuable resources. The categories included here are suggestive of the type of information that will be helpful for the evaluation. With the list of available documentation, it makes sense to repeat the information only to the extent that the repetition (and its organization) facilitates the evaluation process in the next phase

There may be a many to many relationship among systems and transactions (not illustrated here) and format of deliverables for this section should illustrate the relationships. Generally, the analyst will review systems that pertain to a group of related transactions, unlike this example, resulting in a more complete picture of the systems.

It would be reasonable to include samples of forms that represent the "stylistic formalisms" of 1.3 Evidence of Transactions.]

AVAILABLE DOCUMENTATION: How it is used, maintained, and distributed.

FOCUS Users Manual for the Student Information System, Office of the Registrar, Bloomington: Historical Course File, Student Demographic File

Enrollment Information Systems (EIS) Manual, Office of the Registrar, Bloomington: Student Semester Grades, Student Transcript

Inquiry Manual, Office of the Registrar, Bloomington: Patterns of Updating the Files, Screen Descriptions for GR11 (Final Roster Inquiry), GR12 (Student Grade Inquiry), GR15 (Section Enrollment Roster with Grade Processing Status), Index of Data Elements

Spectrum 2.2 Detail Design Study for New Grade System, Project # 6789, 1988, Information Services

FERPA (In what way is this document made available?)

Procedure Manual *[description needed]*

Calendar *[description needed]*

PROCESSING DESCRIPTION: (models if available)

Grade processing begins with student registration. All registration activity entered via the on-line registration system will generate Roster and Audit records for the grade system and Historical Course records. In all cases, associated credit hours will be noted and in some cases grades will be assigned through registration (i.e. for some types of withdrawal). The registration/grades interface will note enrollment status and pass/fail and audit options (specific grade assignment rules for these) for the Roster file.

Near the end of the semester paper rosters are produced and distributed to assigned faculty. Faculty assign grades by recording them on the paper roster and then returning to the Registrar. Grades are posted from the paper rosters through on-line transactions used by the staff of the Office of the Registrar. Posting with update records on the Roster file and Historical Course file, and well as the Roster Audit file. For verification paper roster are again produced after completion of data entry for comparison with those submitted by faculty.

Records on the historical course file are not considered official until they have passed the "transcript effective date" which is stored on the System Controller File. A GPA calculation job is run before the transcript effective date is reached. GPAs are stored on the Historical Course File and the Demographic File. Once grades are official, grade mailers are printed and sent to students.

Major sub-systems include: 1) the registration interface where Roster File records are created and deleted and some grades assigned, 2) roster production for support of grade assignment, 3) grade update and edit processing for posting of final grades, and 4) grade support for production of reports, maintenance of transcript effective date, etc.

STANDARDS, PRACTICES, POLICIES: How are standards and practices put to use, how are laws of jurisdiction observed, and so on? Include references to specific documentation.

FERPA - Family Educational Rights to Privacy Act [*Be more specific. What is the nature of this act?*]

AACRO guidelines [*Need to be more specific here. What is AACRO? What type of guidelines do they offer?*]

Procedures Manual, Calendar

FILES AND/OR TABLES, DATA ELEMENTS: Include identifiers, associations, possible views, and models when available. Document information regarding journal, backup, restore, recovery, purge, archive, extraction, copy, transfer, export, and other pertinent processes. Document retention schedules.

[*Again, information shown here is very incomplete.*]

Historical Course File consists of courses and grades for all prior semesters, transfer credit processed by Admissions offices, special credit, and other completed coursework for active students. Records are not official until they have "passed the transcript effective data". The Information Center version of the Historical Course File is refreshed each weekend from the production version. The Historical Course File is organized in a hierarchical manner. A student may have several records in the Historical Course File. Typically a single record represents one semester or session or course work. It may also represent a grouping of transfer work from a single institution, credit earned through the Overseas Study Program, special credit earned by examination, or correspondence coursework taken through the Independent Study Division.

Student records are deactivated after two year non-enrollment (rules are very specific). Deactivation is generally run in October and February. Deactivated records are kept indefinitely.

Primary key: comprised of the Student Identification Number, Record Identification, Semester End Date, Credit Type, and Campus (all listed below).

Student Identification Number: the student's social security number or a number assigned by the Registrar.

Record Identification: defines the record type, always "H".

Semester End Date: identifies the ending date (YYMMDD) used for semester/session sequencing and identification purposes.

Credit Type: an alpha code specifying the type of credit awarded for the semester group of work (D = Purdue University work taken at Fort Wayne; e = Earlham College; F and G = Overseas Study; I = Regular I.U.; M = State-Wide Medical Program; N = Independent Study; P = Purdue University work transferred by Indianapolis or Fort Wayne campuses; S = Special Credit; T = Transfer; X = Pre-1965 work on Combined Record).

Semester Campus: the two-character Campus code for the designated semester/session (BL = Bloomington, CO = Columbus; EA = East [Richmond]; FW = Fort Wayne; IN = Indianapolis; KO = Kokomo; NW = Northwest [Gary]; SB = South Bend; SE = Southeast [New Albany]).

Academic Status: The academic probation code, not currently in use.

Last Activity Date: contains the last date (MMDDYY) this student record was updated.

Status Grade Change Policy: a code to indicate whether the Automatic W period was in effect at the time of the status change (not currently in use).

Student Termination Code: If the student's registration was terminated while the semester was in progress, the termination status will be indicated in this field. The valid codes include the following: h = no termination; c = cancellation; n = deceased; r = reinstatement; w = student initiated withdrawal.

...

Semester/Year: The semester/Year is a three character code (YYS) in which the designated semester is indicated by a single digit, the year by two.

...

Hours Passed: indicates the total number of credit hours passed by the student for the designated semester/session.

Semester Grade Point Average: For I.U. coursework, the student's grade point average for the designated semester is contained in this field.

...

Segment Counter: specifies the number of title, note, and course segments associated with this record.

Segment Key (Segment Type): the key field of the lower segment of the Historical Course file. The type of segment is either C = course segment, N = note segment, or T = semester title.

...

Academic Subject: the academic unit offering the course (e.g. CSCI = Computer Science).

Credit Hours: credit hours attempted for the designated course section.

Exclusion Code: for exclusion of this course from GPA calculation.

Course Number: normally one letter followed by three numbers (e.g. W131, M118)

...

Grade: the grade the student was awarded in the course, including a "+" for "plus" or a "-" for "minus", as applicable.

Section number: a unique, four digit value assigned to all Credit Type "I" course sections.

Course Suffix: this special enrollment type field where blank = not special enrollment; a = audit; f = grade not removable due to academic dishonesty; p = pass/fail.

Course Activity Date: indicates the last date (MMDDYY) an update was made to any element for the designated course-segment; either as an original grade posting or as a later modification.

Journal File records a variety of activity against student academic records, including updates to the Historical Course File and requests for transcripts.

Roster File, showing enrollments in a specific course section, is created or updated interactively as student registrations are processed or changed. The file is used to generate final grade rosters, and grades are posted back to this file from the grade rosters and simultaneously posted to the Historical Course File. Student enrollment and grade information is organized alphabetically within section.

Primary key: year, semester, campus, section, position (alphabetical listing prior to freeze date, subsequent chronological listing)

Student last name, first name

Student identification number
Registration add date
Registration add time
Student registration status
Course credit hours
Grade type
Student grade
Student error status
Special student exclude tag
Operator ID
Activity date (grade update)
Roster processing status
Roster processing date
Roster Input Source
Roster Text Line
Total section enrollment count
Total section withdrawal count

Roster Audit File reflects all activity against the Roster File.

Demographic File contains student information such as name, address, marital status, residency, expected graduation date, academic objective, and so on. The file also contains student GPA. Audit records are kept for approximately seven days.

System Controller File stores, among other information primarily relating to registration, the transcript effective data which determines which Historical Course File records are official.

Inactive Files store records (demographic, degree, historical course) for students who are no longer active (generally, no enrollment for two years).

SECURITY AND AUTHORIZATION MECHANISMS

TopSecret is used to implement security for CICS transactions and use of Focus. Production jobs are submitted through CA7, which also requires authorization. What about parms entry for jobstreams?

PREDEFINED REPORTS/QUERIES: Include sample forms.

Production Focus queries for grade mailer and roster production.

Jobstreams for production of transcripts and diplomas.

SYSTEM APPLICATIONS - OLTP (On-Line Transaction Processing)

GR01 - Roster Update Screen allows the entry and update of final grades for each student in a particular section.

GR02 - The Mass Grade Entry screen will facilitate the entry of grades in an efficient and accurate manner. Grades are entered in the order the students appear on a pre-printed roster. Grades cannot be entered through this screen for students who enroll in the section after the "freeze data".

GR03 - The Electronic Grade Roster screen mirrors the GR01 screen except in terms of access. Since the screen is intended for use by the academic unit personnel, a section associated password is required. Grade updates may be performed only during a window of time specified by the Office of the Registrar.

GR11 - The Roster Inquiry screen is an inquiry version of the GR01 screen, to be used primarily by Registrar personnel.

GR12 - The Student Grade Inquiry screen will display current student enrollment information with grades.

GR13 - Electronic Roster Inquiry screen in the inquiry version of GR03, to be used primarily by academic units.

GR15 - The Section Enrollment Roster screen displays section roster information for individual course sections specified by the user. The screen displays for each student academic objective information, status as an auditor, automatically assigned grades, enrollment status, and so on.

GR21 - Roster Status Summary screen will be utilized by the Registrar System Administrator to effectively manage and control the processing of grades. All roster information will be displayed real-time. This screen will display roster status information, the "freeze date", and the "transcript effective data".

SYRG - The System Controller screen, in addition to other functions, will be used to maintain the "freeze data" and the "transcript effective date".

RI05, RI08, RI09, RI15, RI25, RI28, RI35 - All of these screens access both the Historical Course File and the statistical data files, displaying course related data for all semesters completed by the student. With the exception of RI09, they do not display data for current or future semesters of enrollment.

RM05 - The Transcript Request screen may be used to request printed or on-line student transcripts, official and otherwise. If the student's academic records have been "deactivated" the transaction may transfer control to the inactive system in order to produce a transcript.

SYSTEM APPLICATIONS - BATCH SCHEDULED PROCESSES (Jobstreams)

[Specific jobstreams should be identified with information about scheduling.]

Printing of rosters and grade mailers is accomplished through FOCUS queries against Information Center files. Timing for production is crucial. Grade mailer preparation is handled by another department.

General Ledger production - Microfiche and hardcopy reports are produced for all grade assignment activity for a semester.

SYSTEM SPECIFICATIONS

[Since the evaluation will be concerned, in part, with the potential for upgrades or conversions of application software, platform, etc. it may be reasonable to be fairly specific with this information, including versions, vendors, licensing agreements, and so on.]

Records created through applications running under MVS/ESA/390, TSO, JES2, CICS, COBOL-II, FastVSAM.

Return to [Contents](#) for Appendix D.

3.0 EVALUATE EXISTING SYSTEMS IN TERMS OF THE "FUNCTIONAL REQUIREMENTS FOR EVIDENCE IN RECORDKEEPING"

IU FUNCTIONAL REQUIREMENTS

For transaction: 1.2 Recognition of course completion

I. Compliant

Recordkeeping systems [, and the organizations that use them,] comply with the legal and administrative requirements for recordkeeping within the jurisdictions in which they operate, including specific requirements not referenced below. [I.e. Laws, regulations, and statements of best practice with requirements for recordkeeping are tracked so that changes to them are reflected in updated internal recordkeeping instructions.] *C.1., D.2., E.4.*

1. Do recordkeeping systems for this transaction type comply with current laws, regulation, and statements of best practice?

Partially satisfied. Staff is knowledgeable about the primary source of authority, FERPA, and AACRO guidelines. Use history is not kept in accordance with FERPA guidelines. System audit may be referenced.

2. Are references to these laws, regulations, and statements of best practice appropriately cited and readily available?

Satisfied. This responsibility is assigned to staff in the Office of the Registrar. Related information is distributed through this office.

3. Are references to these laws, regulations, and statements of best practice kept current?

Satisfied. This responsibility is assigned.

II. Accountable

Responsible: The organization must have policies, assigned responsibilities, and formal methodologies for management of its recordkeeping systems. *E.4.*

1. Does the organization have and utilize policies, assigned responsibilities, and formal methodologies for management of recordkeeping systems for this transaction type?

Satisfied. There is a procedure manual and a calendar which are kept current and responsibilities are assigned. The Registrar is the responsible for satisfying recordkeeping requirements.

Implemented: Records must have been created and maintained in the normal course of business and documented procedures which were followed should conform to common practices in the industry. *E.4.*

1. Are records representing this transaction type created in the normal course of business (rather than through other non-standard procedures)?

Satisfied. Policy and system design ensure that records are created through normal business procedures.

2. Do the procedures for the normal course of business conform to common practices in the industry for this transaction type?

Satisfied. Yes, there is conformance to common practices.

Credible: The system must control quality characteristics of information being input and process information in a fashion that is consistent and accurate. *E.4.*

1. Are quality control mechanisms used to ensure that consistent and accurate records are created for this transaction type?

Satisfied. The system is retested with every change, production data (on-line transactions and jobstreams) can be compared with reporting data (Information Center), backup and recovery mechanisms are in place, error messages are written or displayed and audit records (records in the sense of database files) are written.

III. Functional

Recordkeeping systems must capture, maintain and access evidence over time. If they do, records will be:

Complete: Records accurately capture all information recorded or generated by their creators. Records incorporate or link to a representation of the software functionality that created them, other versions or views, a data model of relations between elements of information within a record, eye-readable conventions such as placement or font, and other structural information that adds to their meaning. Records incorporate or link to information about the context of their creation. *All IU Metadata Specifications*

1. Do the virtual records representing this transaction type accurately incorporate context, content, and structure?

Partially satisfied. Records are captured accurately, but not all pertinent context information is available over time, use history information in particular. Some context information is available electronically with specific instances of records. Some context information is available through procedure manuals. Documentation exists to provide structural information for this transaction type. Content, context, and structural information is not conveniently tied together.

Identifiable: A distinctive and bounded record exists for every business transaction. [6.a. There exists a virtual record representing the sum of all data associated with a business transaction.] *B.1., G.1, G.2, G.3.*

1. Are all virtual records representing this transaction type uniquely identifiable?

Satisfied. Each piece of a virtual record representing an instance of this record type can be uniquely identified. And pieces of the virtual record can be pulled together, retaining uniqueness.

2. Do virtual records representing this transaction type include all data associated with it?

Partially satisfied. Virtual records representing this transaction type do not contain use history or disposition information. Audit information isn't retained as long as content information.

Authentic: [8. An authorized records creator must have originated all records.] *A.1., A.3., B.3.*

1. Was each virtual record for this transaction type originated by an authorized records creator?

Satisfied. Faculty are authorized to assign grades. The system verifies authorization for posting of grades, however this piece of context information may be lost over time.

Communicated: The systems must capture a record of all communication in the conduct of business between two people, between a person and a store of information available to others, or between a source of information and a person. *E.4.*

1. Is a virtual record created for every business transaction of this type?

Satisfied. Every instance of recognizing course completion will create a virtual record.

Sound: Record integrity is protected from accidental or purposive damage or destruction and from any modification after they have been received by anyone other than the creator. [9. Preserved: Records must continue to reflect content, structure, and context within any systems by which the records are retained over time.] *D.1., E.4.*

1. Do virtual records representing the transaction type continue to reflect the same content, structure, and context over time?

Partially satisfied. Content is retained inviolate indefinitely, however some context information is lost or not recorded. Structure information has been maintained over time.

Auditable: Record documentation traces the processes in which records participated, including indexing, classification, filing, viewing, copying, distribution, disposition, use and destruction throughout the record life. Management controls preserve auditability of interactions external to the system (such as during media migration or transfer). *D.1., D.2., D.3., F.1., F.2., F.3., F.4., F.5.*

1. Are all uses of the virtual records for this transaction type documented?

Not satisfied. Use history is not collected, however some information regarding disposition (inact/deact) is gathered and retained.

Understandable: Records documentation should permit stored business records to be logically reconstructed. Information content, plus any structure and context must be preserved in meaningful and documented relations. For records with functionality, business application procedures must be documented so that they can be correctly associated with the status of the system at the time of record creation and later. *A.1., A.2., A.3., A.4., G.1., G.2., G.3., G.4., G.5.*

1. Can the virtual records representing this transaction type be reassembled such that the content, structure, and context are understandable?

Partially satisfied. Virtual records can be reassembled to produce rosters and grade reports for a limited amount of time. Transcripts can be produced at any time.

2. Does the context information for the virtual records representing this transaction type include a representation of the status of the system at the time of record creation?

Not satisfied. The status of the system at the time of record creation would not be known through available context information.

Removable: It must be possible with appropriate authority to remove records from the system leaving only audit trails to document their prior existence. *D.1., D.2., D.3., E.4.*

1. Can virtual records of this transaction type be removed while leaving in tact the use history?

Not satisfied. Use history is not collected.

2. Are virtual records for this transaction type removed only with appropriate authority?

Satisfied. Removal of virtual records occurs only with proper authority (through the regular disposition of the roster file or through deactivation/reactivation of transcript records).

Exportable: Record content, structural representation and representation of context must be exportable, in standard protocols if such protocols exist. G.4.

1. Is it possible to export portions of the virtual records representing this transaction type that are stored via electronic means, while continuing to reflect content, structure, and context?

Satisfied. Transcript records are regularly "exported" and "imported" to and from the inactive system and the Information Center files and could be formatted for export through SPEEDE. However, this includes only content and some context information.

Available: The system must document all logical archival records it contains, indicate the terms under which they are available for research, and retrieve them for authorized users. C.2., E.4.

1. Is the existence of all virtual records for this transaction type documented?

Partially satisfied. Existence of virtual records is not documented independently.

2. Are terms indicated under which records for this transaction type are made available?

Satisfied. Terms are supported through manual procedures and system features. The terms are indicated by FERPA and the University Policy on Access to Institutional Data.

3. Is it possible to retrieve records of this transaction type for authorized users?

Satisfied. Records of this transaction type may be retrieved through a variety of documented mechanisms.

Renderable: The system must render records by display or otherwise as they appeared to creators with views in effect at time any record was used or retain structural data necessary to determine such views. G.1., G.2., G.3., G.4., G.5.

1. Is it possible to render or display records of this transaction type as they appeared to creators?

Partially satisfied. For some period of time grade rosters (appearance for creators) can be displayed as during creation. After that point it would be very difficult to display in that format. However, the content and some context information continues to be available over time for retrieval in other formats, primarily as part of a transcript.

Redactable: The system must support delivery of redacted, summarized, or censored copies and keep records of the version released. F.5., E.4.

1. Is it possible to deliver redacted, summarized, or censored copies of the records of this transaction type in accordance with applicable laws, regulations, and best practices?

Satisfied. It is possible to produce redacted records (this pertains to the transcript).

2. Is use history reflecting the released version of the records of this transaction type recorded?

Not satisfied. There is no use history collected, for redacted records or otherwise.

IU METADATA SPECIFICATIONS

For transaction: 1.2 Recognition of course completion

A. Context:

1. Actors involved: originator/initiator, organization, system, recipient, etc. (V.A.1.)

Metadata is available. The recipient of the grade is always retained. Over time it may be difficult to determine the faculty member who assigned the grade.

2. Time/instance associated with the represented transaction. (I.A.3.)

Metadata is available. While the content is stored in the roster file it is known in terms of completion of the transaction. While the content is stored in the transcript file, time is represented in terms of semester/year and is displayed with the record.

3. Source of authorization for engaging in activity. (IV.B.2.)

Metadata is available. Metadata for authorization in terms of assigning of grades is available through the employment information for the faculty member who assigned the grade. Authorization metadata for posting of grades is available with use of the transcript record.

4. Process activities represented by records, including transaction sequence. (IV.A.6.)

Metadata is available. These are documented in the procedures manual of the Office of the Registrar.

5. Handle, terms and conditions, disposition, accountability, use history.

See responses in sections below.

B. Handle:

1. Unique identifier for the record/transaction. (I.A.3. and I.B.)

Metadata is available with use of the record. Records and transactions can uniquely be identified through the student's id and course identification (which includes year and semester).

2. Transaction type represented by the record. (I.A.2.)

Metadata is available with use of the record. Information about the transaction type is inherent in the files in which content is stored. Transaction type information is also available through the procedures manual.

3. Responsible party for the record/transaction. (I.B.)

Metadata is available. The Registrar is the responsible party for posting and is always known. The faculty member responsible for assigning the grade may be determined conveniently, through the transaction, for some period of time. Therefore the metadata may be available with use of the record.

C. Terms and Conditions:

1. Citation to laws, policies, best practices which impose restrictions. (II.A.)

Metadata is available. Restrictions are imposed by FERPA and the IU Policy on Access to Institutional Data which can be obtained through the Office of the Registrar and UCS Data Administration, respectively.

2. Conditions for access (appropriate population) and use (purpose) for redacted records or record sets, as well as whole records and record sets: payments, permissions, proof of identity. (II.B. and II.C.)

Metadata is not available. Although restrictions for access are governed by FERPA, there is no statement of appropriate use for redacted records that do not include student identification.

D. Disposition:

1. Removal authority. (II.D.1)

Metadata is available. Removal authority is documented in the procedures manual (Office of the Registrar), as well as through system facilities (TopSecret) (user may have access to transaction which deactivates/reactivates records).

2. Retention policy citation. (II.D.2.)

Metadata is available. The procedures manual (Office of the Registrar) documents retention policy for context information specific to grade rosters. Transcript information is retained indefinitely, although that may be in either the active or inactive system.

3. Retention period end time. (II.D.5.)

Metadata is available. Retention period for transcripts is indefinite. Grade roster retention period is incorporated in the automated system.

E. Accountability:

4. Citation to system audits. (IV.C.)

Metadata is available. System audits have been performed: conducted in 1989 by IU Internal Auditing, follow-up report dated January 16, 1991.

F. Use history:

Metadata is not available. Use history is not collected.

1. How was data used: viewed, copied, edited, filed, indexed, classified, sent, disposed, etc.? (VI.A.1.)
2. When was the data used? (VI.A.3.)
3. Who or what used the data? (VI.A.4.)
4. What is the impact of the particular use? (VI.A.5.)
5. What was the view of the data?

G. Structure:

1. Identity of files and/or other structures used to represent the record, including structures that represent standard meanings, interpretations, or values. (III.A., III.E.3.)

Metadata is available. These are cited in section 2.0 Review Existing Systems, Available Documentation.

2. Relationships of various pieces that represent the record (set relationships). (III.E.8.)

Metadata is available. 1.3 Identify Evidence of Transaction: Data, Context, Structure (Structure section) identifies the logical relationship of content involved. Documentation referenced in 2.0 Review Existing Systems, Available Documentation identifies relationships among files.

3. Other dynamic relationships that represent business uses for the information, that is other sets of records to which this record may belong. (III.E.9.)

Metadata is not available. Documentation of this sort was not researched. The Advising System (including certifications processes) makes use of this information.

4. "Stylistic formalisms" that add meaning to the information, such as placement, labeling, fonts, electronic data interchange formats. (III.C. and III.D.)

Metadata is available. These exist. Refer to 1.3 Identify Evidence of Transaction: Data, Context, Structure (Structure section)

5. Source: record keeping system or other mechanism used to capture the content (predefined computer application, ad hoc query for aggregate or summary information, camera or other recording device, etc.). (III.F.)

Metadata is not available. The source can be deduced from file identification, but is not documented.

Return to [Contents](#) for Appendix D.

4.0 RECOMMENDATIONS

Return to [Contents](#) for Appendix D.
