



US Bureau of Land Management

BUREAU ARCHITECTURE

FOR DUMMIES

Part 1: The Basics

Currently, there are several interrelated efforts occurring under the umbrella of the “Bureau Architecture” (BA). While these projects are being carried out by different groups of people and on different schedules, they seem to have one thing in common - they are all shrouded in technical jargon and acronyms. In addition, it is often not apparent to those of us on the sidelines how or whether the parts fit together in a rational way. This paper attempts to provide a plain English perspective of the BA, introducing some basic terminology and concepts, and directing readers to additional sources of information.

Bureau Architecture

Description: The Bureau Architecture (BA) encompasses an effort to systematically describe the work we do in the BLM and relate it to the data, software, and hardware needed to do it. The focus is on **what** the work is rather than **who** does it or **how** it gets done. The BA will provide so-called “corporate” or “enterprise” information technology (IT) solutions to the BLM’s business needs. In other words, it aims to provide common software and hardware systems to accomplish common work functions across the Bureau and thereby reduce or eliminate wasteful duplication of effort. The BA is structured around four building blocks:

BLM mission defines business **Processes**
Processes define **Data**
Processes and Data define **Applications** (software)
Processes, Data, and Applications define **Technology Infrastructure** (hardware).

These four components are collectively referred to as PDAT (pee’dat). Simple logic suggests that “process definition” should precede “data definition” which in turn should come before “applications” and so on. In practice, however, the situation is not so straight forward giving the appearance of something less than a systematic approach. This is largely because development and implementation of enterprise solutions to BLM’s business needs will take several years. In the meantime, BLM must continue to operate. Therefore, we see work on all four components occurring simultaneously and a mixture of efforts between long-term (enterprise) solutions and short-term (transitional) solutions designed to bridge the gap between where we are and where we want to be. It’s a little like trying to change a tire on a car that is still moving. This probably accounts for much of the confusion among those of us on the periphery.

Processes: The BA started with the nine high-level business processes that emerged from an earlier cost management exercise. Note that these processes are **not** based on traditional Bureau programs or organizational structure, but rather on common Bureau functions (i.e. processes). This represents a significant change in the way we do business. Each high level process is broken into sub-processes and the associated flow of information between processes. This so-called process modeling has now been completed through 3 levels (of a possible 4 or 5) for each high level process. “Authorize Use” has been broken down to level 4; similar refinement for both “Perform Planning” and “Assess Condition/Status” is just beginning. Process modeling is carried out by teams of subject matter experts (SMEs) from field offices.

High Level Processes
Provide Customer Service
Assess Condition/Status
Perform Planning
Authorize Use
Implement Actions
Monitor Actions
Manage Compliance
Manage Work
Sustain The Organization

Data: “Data modeling” is the next step in the logical progression. Based on the flow of information identified during process modeling, it identifies the specific data required to fuel the various sub-processes identified. Data modeling for “Authorize Use” is currently underway. A related project is intended to implement the Data Management Plan 2001 (Project Manager: Gary Stuckey). This project focuses on “how” to manage data rather than “what” data are needed. Implementation will occur through a series of Data Management Handbook chapters. The project, scheduled over approximately 1½ years, is organized around four major tasks:

- (1) **Roles/Responsibilities/Competencies:** Identify who does what and the skills required to do it.
- (2) **Data Standards:** Establish a process to develop/implement/maintain data standards.
- (3) **Business Data Requirements:** Establish a process to determine needs and effectively manage data.
- (4) **Tools:** Develop a process to identify tools needed in support of data management.

A further task in the Data Management Project was added in response to the growing emphasis on land use planning. This additional task addresses each of the four major tasks (above), but is limited to the planning activity and is being done on a much accelerated schedule. Interim data management guidance in support of planning activities will be completed by mid-April, 2001.

Applications and **Technology:** In the logical flow established by P-DAT, one would have to conclude that we are not yet ready to define enterprise applications and technology. However, we already have many software and hardware systems in place and must make decisions as to how they might fit with ultimate enterprise solutions and their fate during the transition period. Some existing software systems will simply be maintained during transition (example - the legacy system for case recordation). In other instances, short-term or “throwaway” solutions will be developed to get us through the transition period (example - Rangeland Administration System). Decisions about what systems to maintain and when or whether to develop throwaway systems are made by the Information Technology Investment Board (ITIB). A two-volume document entitled the “Technical Reference Model” (TRM) has been prepared to provide a consistent Information Technology (IT) framework within which to evaluate project proposals and options.

Additional Information:

<http://web.wo.blm.gov/blma/> - homepage for the Bureau Architecture

- BA External Homepage: a good place to start (look under “related BLM sites” on the left side near the bottom of the page)
- BA Summary Report - everything you ever wanted to know and then some (80 pages); Section 1 (pages 1-7) will likely be the most useful at this point.
- Process Diagrams: worth a visit to simply see what one looks like.
- Technical Reference Model - Vol. I & II: (**Warning:** technically mature themes and strong technical language - reader discretion advised.) Stick to the introduction.

http://web.blm.gov/internal/wo-500/Data_Mgt.html - homepage for Data Management; provides link to the Data Management Plan 2001.

<http://web.blm.gov/internal/wo-500/itib/itib.htm> - provides a list of projects approved by the Information Technology Investment Board (under systems tracked) and minutes of meetings.

The following projects are presented as examples of the type of work that is occurring in conjunction with the Bureau Architecture effort.

Enterprise GIS

Project Manager: Jim Turner (NSTC)

Initial work on the BA revealed that nearly 75 percent of the Bureau's business processes require spatial data. Therefore, the need for automated spatial display and analysis is critical, as is the need to update the spatial data as actions occur on the ground. Enterprise GIS is essentially a concept manifested in many different applications that together provide for this capability across processes. The overall BA vision includes this capability, but there are transitional issues that must be dealt with along the way. Accordingly, the Enterprise GIS effort was launched in December, 2000 with a strategy paper by Dr. Duane Dippon. In this paper, he lays out the rationale for Enterprise GIS and presents several recommendations to make it happen. In response to one recommendation, two related positions have been approved.

Senior GIS Specialist: This is essentially Pat Green's position in WO-210.

Resources Information Architect: This is vice-Renee Duval in WO-200. Bill Yeager is currently serving a 2-month detail in this position until it can be filled permanently.

One of the main purposes of this project is to integrate (or at least better coordinate) several existing efforts. Similar to what is occurring in the Data Management Project, the Enterprise GIS effort envisions both a short-term component with a planning focus and a longer-term component which addresses transitional needs across all processes. Jim Turner and Pat Green are currently preparing project proposals (called a "business case") for each of these components. These proposals will be presented to the Information Technology Investment Board at their May, 2001 meeting.

Additional Information:

Dippon, Duane. An Enterprise Geographic Information System: A Geospatial Information Strategy Paper for the Bureau of Land Management. December 7, 2000.

Land and Resource Information Systems (LRIS)

Project Manager: Leslie Cone (WO-330)

The LRIS Project includes six modules.

(1) **LR2000** has already accomplished the conversion of so-called legacy systems (Case Recordation, Mining Claims, Status, Legal Land Description) from the Honeywell mainframe computers to the IBM modernization platform. In the process, year 2000 (Y2K) compliancy was achieved. LR2000 is now in operation/maintenance mode until replaced by enterprise solutions.

(2) **National Integrated Land System (NILS)** is a joint project between the BLM, USFS, and various other partners. It's goal is to provide a process to collect, maintain and store cadastral information (such as land survey data, legal land descriptions, historical land documents, land parcel information) in a integrated GIS environment that can be widely shared. NILS establishes the foundation for enterprise GIS applications.

(3) **Geographic Coordinate Data Base (GCDB)** is a geographic grid which ties official land descriptions to the geographic positions of cadastral survey corners. The current GCDB Project maintains software tools for preparing standardized products which will be incorporated into NILS (see above).

(4) **Reference Theme Serving System (RTSS)** was originally intended to develop a quick and easy way to provide common reference themes such as roads, waterways, administrative boundaries, etc. to the user's desktop. The focus has subsequently since shifted to an investigation of commercially available options to provide the same capability.

(5) **Immediate Spatial Capability** encompasses an effort to evaluate existing software products from two private companies - Premier Data Services (PDS) and Nobility Environmental Systems Software, Inc. Six states have been involved in the PDS evaluation. For example, Wyoming evaluated whether a PDS product could replace an existing "legacy system" dealing with oil and gas reservoir management. The Carson City Field Office (NV) is evaluating Nobility EM, a decision-support system for planning and environmental analysis.

(6) **Rangeland Administration System (RAS)** is an internet-based system to replace the existing Grazing Authorization and Billing System (GABS). However, RAS itself is a throwaway system that will eventually be replaced by enterprise solutions from the Bureau Architecture.

Additional Information:

<http://web.blm.gov/lris/index.html> - homepage for the Land and Resource Information Systems (LRIS) project; provides further information on each component module.