Acquisition and Processing Phase
The basic tools for the acquisition phase of digitization are cameras, scanners and desktop computers. Projects will also need media or disk space on which to store their acquisitions during this phase.
Some metadata will be captured at this point - especially data directly related to the capturing process and descriptive metadata for each object. Processing tools may also be required in order to modify or correct captured objects.
This phase will be the client's responsibility with advice and consultation from TAL.

Hardware
- Cameras
- Scanners
- Desktop Computers
- CD/DVD burners + media
- External Hardrives

Software
- Image Processing software
- Optical Character Recognition Software
- Scanning Software
- Data entry Software

Metadata Aggregation and Sharing
Metadata which has been verified and entered into the system will be used to create an index of objects which will be sent to partner sites like Canadiana.org. This will allow these objects to be included in national and international federated searches. TAL will also receive Alberta related metadata from its partners for our Alberta federated searches.

Display and User Interface Phase
These are the most varied and potentially time consuming tools. It is possible to have very minimal display tools which simply search and display data. On the other hand user interface tools can be incredibly complex and interactive. Most display and user interfaces are custom built for digital projects although it is sometimes possible to reuse user interfaces and a basic federated search interface will need to be created for all projects.

Software
- Image viewers (i.e.. Zoomify)
- GIS software (possibly integration with Google Maps)
- Search tools
- Interactive displays (timelines, games, flash modules)
- Data streaming for video and audio display

Object Repository/Digital Library Software
- Fedora Commons
- Greenstone
- DOOR
- D-space
- EPrints

Hardware
- Web servers / servlet containers

Ingest Metadata (XML) creation and organizational Phase
Ingest tools allow clients to add their digital objects into the repository. There will need to be a few different methods available to clients. In some cases an online upload tool may be acceptable - in others we will need ways for projects to upload a large number of files at once (possibly through sftp). At this point we will also need tools that create a well formed xml metadata file for each object (according to whatever standards we decide to use). This metadata file would contain *descriptive*, *structural* and *administrative* information about each object and set of objects.

Software
- Authentication and identity management
- Custom ingest tools programmed in Java or Ruby
- Open source ingest tools created for Fedora, Greenstone or other Repository software.

Staging / Quality Control Phase
Once the objects and associated metadata have been given to TAL we will need to verify the integrity and completeness of the data. Initial indexing of object and metadata will also be done at this stage.

Hardware
- disk space

Software
- Data checking and scrubbing software / scripts
- Indexing software

Storage and Preservation Phase
Storage tools are the foundation of a good Digital Object Repository. One might think of this layer of digitization as the building which houses your digital library. Once it is built it will only need basic maintenance, however the building must be done correctly or the library holdings (in this case the digital records) will be damaged or lost. The correct planning and implementation of these aspects of the TAL Repository are absolutely essential. This phase not only requires the most expensive equipment it also requires the concentrated effort of 2 or 3 staff members over 3 or 4 months.

Architecture Decisions
- Backup Strategies
- Clustering (Load Balancing, Resiliency, Availability)
- Indexing and search algorithms

Hardware
- Disk Arrays
- Tape Backup
- Networking Infrastructure (security, distribution)
- Server system clusters

Relational Databases
- Oracle
- MySQL
- PostGreSQL

Tape Backup

the alberta library
alberta public library electronic network
lois hole campus alberta digital library