High level Requirements for
Inventory Management System for ReCAP

This document, developed by HTC Global Services and ReCAP, describes high level requirements for an **Inventory Management System (IMS)** that will meet the current requirements for a Harvard Depository type facility and offer significant improvements by adding real-time processing, robust reporting and improved stock management.

This solution is intended to be based on open-source ERP or WMS, and to be easily configurable and maintainable in terms of cost and effort. Odoo (https://www.odoo.com/) was used as a benchmark for this planning document.

This proposal also assumes connectivity through the Shared Collections Service Bus that is currently in development by HTC, to provide the transactional layer between the partner Integrated Library System and the IMS.

The **Inventory Management System (IMS)** system will include the following features:

1. The ability to manage multiple storage facilities or storage systems in a particular facility, but with options for either consolidated or individual administrative views and reporting
2. The provision to identify, create and maintain various storage locations such as trays, shelves, ladders, and aisles.
3. Ability to maintain information about items, including
   a. Media Type
   b. Container Type (eg Book Tray, Document Cartons)
   c. Owner/Customer Code
   d. Size class (eg B Low, C High, etc)
   e. Barcode
4. Ability to maintain information about trays/bins, including
   a. Different size classes
   b. Different Media types (eg. Books, Magnetic Tape, etc.)
   c. Unique ID number
   d. Item count
   e. Accession date
   f. Location in facility
   g. Location on shelf/or in the storage unit (e.g. a "clock-face" style position indicator 1 – n, or similar).
   h. Maximum trays/bins per shelf
5. The ability to set policies for accessioning and deaccessioning items in the facility and support for various practices, and to do these functions either item-by-item or via batch data load.

6. Provision to configure removal strategies (FIFO, LIFO, FEFO)
7. Provision to configure putaway strategies (Fixed Location)
8. Provision to track the movement of items in real time.
9. Provision to configure putaway strategies
    a. Fixed Location
    b. By customer (eg, refile a specific customer's items) or media type (eg refile Document boxes)
    c. Dynamic refiling
    d. Empty-space recovery
10. Provision to track the movement of items and keep item request history
    11. Ability to capture barcode of an item, using multiple barcode systems (e.g. https://en.wikipedia.org/wiki/Barcode#Types_of_barcodes – many libraries use Codabar, but a variety of formats are in use across the partners)
12. Ability to capture or link to bibliographic information on an item and provide searchable parameters like title, author, etc.
13. Ability to maintain a Collection Group Designation and map items to it
14. Ability to manage the location and storage details of items in the facility not stored in trays or otherwise having special locations.
15. Ability to validate the items during accession process with two step verification. The system will report errors such as item already recorded, item is in another tray, barcode invalid, etc.
16. Ability to locate an item in the ReCAP facility along with the status
17. Ability to permission various information, such as restricting barcode access to only certain staff logins, in conjunction with CAS or similar enterprise identity management systems.
18. Store and provide real-time information on the location and status of each item. Primary status is IN or OUT.
19. Ability to categorize the requests
    a. request for physical item delivery
    b. request to scan a portion of an item and deliver electronically
20. Provision to generate reports, including
    a. on the usage of a particular item
    b. history of requests made for an item
    c. same by customer or collection group
    d. open and filled space within the storage system(s)
21. Provision to search and retrieve items based on parameters like aisle or collection code
22. Provision to print the retrieval requests as a sorted picklist
23. Provide and maintain circulation rules based on a matrix of ownership and designation of each item, derived from current Customer Codes and Stop codes.

Other design notes

24. Ability to capture the third size dimension ("depth") of the item, in addition to the height and width code (e.g. B Low Thin), is desirable. (We may be able to automate depth classes based on MARC 300 via SCSB)
25. ReCAP currently uses a telnet character based interface; a similar interface (keyboard-driven, rather than mouse/GUI) may be desirable
26. ReCAP uses a portable data terminal (PDT) to batch load data from operations in the storage modules (which have no network connectivity). Current model is a Motorola MC9190. The new IMS should support data transfer from this device, but support for alternate PDT systems is also welcome. ReCAP is considering the Motorola RS 409 or similar fingers-free system as its next generation PDT.
27. Scheduling items based on incoming requests (from SCSB) and other picklists (eg large scale digitization shipments or other projects that may "in-fill" around daily requests), given various parameters including holidays and work schedules.