

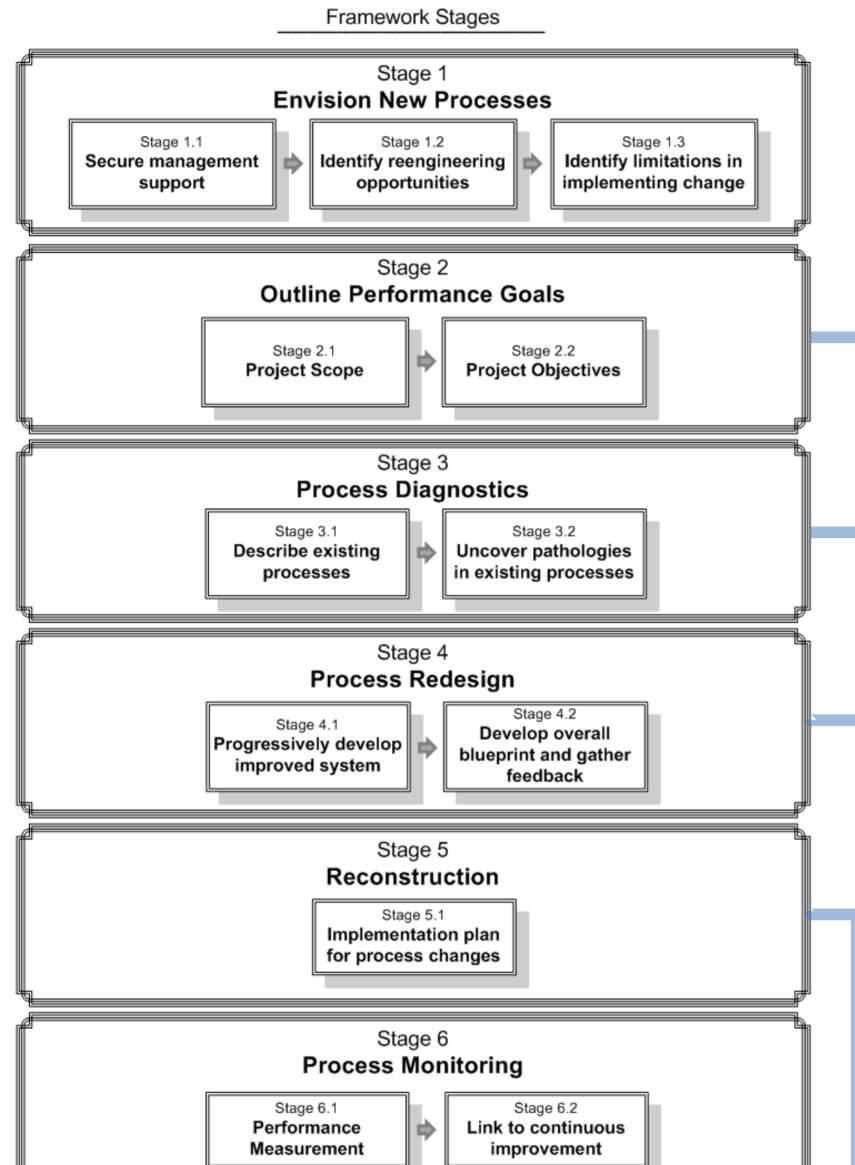
Department of Industrial & Systems Engineering

# Review & Redesign of Asset Management Processes at NUS Libraries

Team Members: Au Weihua, Fan Zongdeng, Soh Yangli, Wong Ming Guang, & Yee Zhong-li Kevin

Supervisors: Dr. Chai Kah Hin & Dr. Hung Hui-Chih

# Project Approach: A Business Process Re-Engineering Framework



# Project Objectives

### **Primary**

To reduce the cycle times for Core Processes

# **Secondary**

• To identify an optimal allocation of manpower among AM staff

# **Existing System**

### **Asset Management Processes**

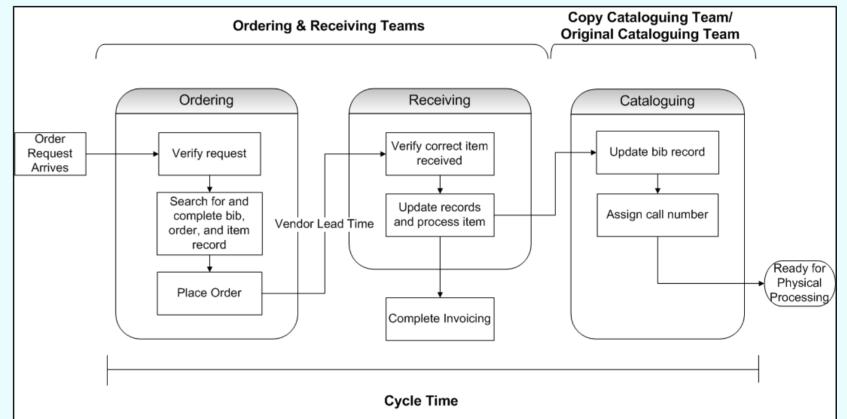
#### Core

- Books, Multimedia, Music Scores
- Ordering
- Receiving
- Cataloguing
- Journal Processing

#### Supporting

- Collection Development
- Claiming, Invoicing
- IVLE e-reserves, Exam Papers
- Document Delivery Service
- Books-On-Approval

#### **Book Processing Flowchart**



### **Areas for Improvement**

#### **Sub-optimal Processes**

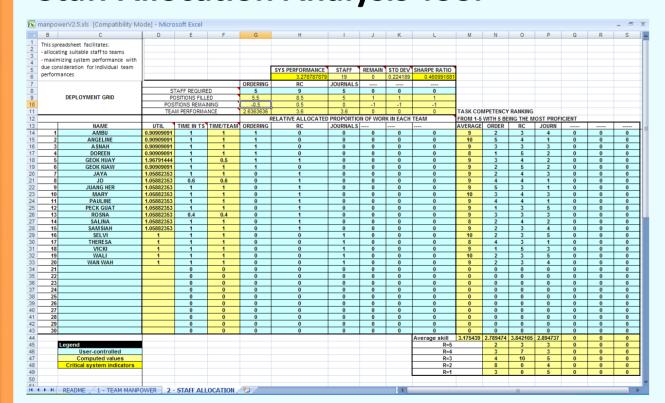
- Cataloguing is completed but items stay in TS until L&M collects them
- Dupe check tedious and repetitive
- Urgent books getting buried in Cataloguing/Receiving

#### Sub-optimal Interactions

- Non-optimal teaming of staff
- Imbalanced staff strength in each teamFluctuating arrival of jobs

# Implementation

# **Staff Allocation Analysis Tool**



Based on data gathered from historical data and thorough investigation by the team, a user-friendly spreadsheet is created for the client to facilitate the calculation of optimal staff allocation. User input of staff strength and individual capabilities ensures a robust model that can be used through changes in the organization.

# **Process Enhancement Recommendations**

- 1) Alert system to inform L&M
- Reduce duplication of sub-processes between Receiving and Cataloguing
- 3) Increase visibility of urgent items

# **Policy Recommendations**

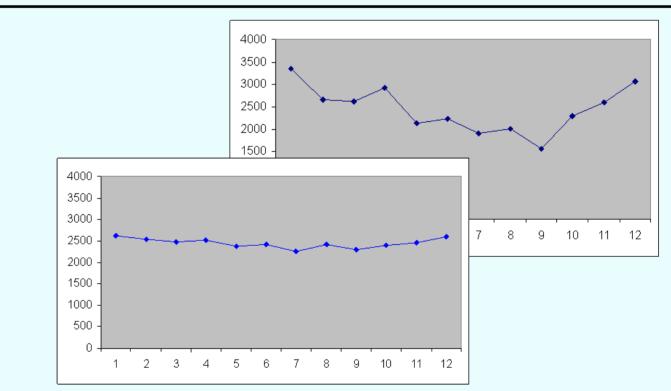
- 1) Collection development smoothing
- 2) Vendor collaboration
- 3) Library CCA

# **Developing Improved System**

#### **5-Step Methodology**

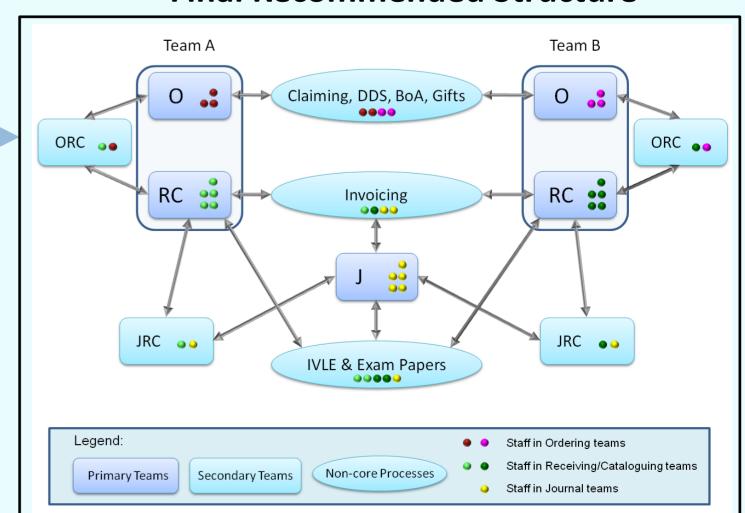
- 1. Theoretical Ideal System
  - Smooth demand
  - Workers can do all jobs
- 2. Relax Imposed Assumption #1
  - Job arrival rate for all processes becomes cyclical
- 3. Relax Imposed Assumption #2
- Workers are capable of performing only 2 tasks
- 4. Integrate Process Enhancement Recommendations
  - 5. Integrate Policy Recommendations

#### Variability in Job Arrivals



The arrival of items to be processed by the Asset Management department varied throughout the year, putting undue stress on the staff during peak periods and causing lengthy waiting times for some of the items.

### **Final Recommended Structure**



Through simulation of various alternative models, we obtain this final recommended structure as the best practically possible.