

NEKLS Technology Database

Software Licensing and Equipment Purchasing Tracking

Heather Braum

Introduction

- ▶ **Organization:** Northeast Kansas Library System
- ▶ One of seven regional library systems in Kansas
- ▶ Serves academic, school, special, and public libraries
- ▶ Primary service is to public libraries -- about 45
- ▶ Provides consulting, technology support, consortial automation system (www.nexpresslibrary.org), continuing education for librarians
- ▶ As someone at NEKLS says, “We’re the librarians’ librarians.”



The Interview

Interview Contacts

- ▶ Business Consultant
- ▶ Billing Assistant
- ▶ Technology Consultant
- ▶ Network Administrator (never responded -- and a redundant contact)
- ▶ Technical Services Librarian
- ▶ Technology Support Specialist (Me)

Questions Asked

1. Goals of database.
2. What does the database need to accomplish?
3. What is your role in purchasing technology & software licensing?
4. At what stage are you involved in this process?
5. What would you like to see in a database?
6. Any reports?
7. What information do you need to keep track of this area of your job?
8. How can the process be streamlined?
9. How is the information currently organized?
10. What kind of paperwork do you generate?
11. How do you store this information?
12. What is the process for retrieving and analyzing this information?
13. Any gaps in the current system? How could the new database fill those?
14. Examples of forms, screenshots, file system indexes, organizational directories, photographs of display cabinets.

Helpful Interview Sections: Billing Assistant

- ▶ Would like to “search for a given library and what has been ordered for that library and what has/has not been billed.”
- ▶ Would like the database to be able to generate a report that automatically includes the library address, what was ordered and at what price to create the invoices.
- ▶ Be able to tell which multiple items were part of a reimbursement check and their breakdown
- ▶ Clarifying the billing so that NEKLS/library can identify the total amount of the bill, how many pieces of equipment/software it includes, and what those materials are.

Helpful Interview Section: Business Consultant

- ▶ What does it need to accomplish? “Need to be able to survive an audit of our softwares and all our software is licensed properly and all of our libraries have the proper records. Keeping duplicate documentation for the libraries. We need to be legal and also be able to see who needs upgrades and what are the libraries licensed for. Also preparing for future -- budgets, etc.
- ▶ Gaps? “Problem here is we don’t know when something gets ordered and added; one person is looking at it from a budget standpoint; one person ordering and installing; and another person tracking billing and paying for it; We need one place everyone goes; it’s always been the goal and starts out that way but never gets there.

Helpful Interview Section: Technical Services Librarian

- ▶ Goals? “Keep track of the licenses we’ve purchased and the licenses we’ve distributed to our member libraries and how much we’ve paid for the licenses and how much we’ve charged for the licenses and who’s paid us and who have we (NEKLS) paid.”
- ▶ See in database? “Realtime track how many licenses have on had and the total number purchased.”

Helpful Interview Section: Technology Consultant

- ▶ General comments: “a way to use the database and a mail merge Word document to generate renewal faxes or messages would be great”
- ▶ Information needed: “The basics such as what we bought, who we bought it from, when, how much we paid, who the licenses went to through the System, and how long the license lasts, so we know when to renew.”

Helpful Interview Section: Technology Support Specialist

- ▶ What does it need to accomplish? “Make tracking software licenses much, much easier.”
- ▶ What info do you need to keep track of? “Equipment to order; who to order it for; when to install it; keys for software; the actual software packages for these installations; media to put the software on to send to member libraries.”
- ▶ Generated paperwork? “Invoices from the orders I’ve made. Email notifications of equipment ordering. Emails to staff members and member libraries on scheduling and extra equipment ordering that I don’t do.”

Sample Materials Gathered

- ▶ Paper copies of software fax ordering
- ▶ Paper copies of checks and reimbursements
- ▶ Electronic and paper invoices (many of these)
- ▶ Current Spreadsheets used to manage information (many of these)
- ▶ Copies of Emails
- ▶ NEKLS Website -- member directory, <http://www.nekls.org/>

Sample Spreadsheet

MEMBER NAME:	# original install	# additional	date	# additional	date	Total per library			
NEKLS System Office	23					23			
Atchison Public Library	35	6	2/1/06			41			
Baldwin City Library	2					2			
Barnes Reading Room - Everest						0			
Basehor Community Library	12					12			
Barn Community Library						0			
Burlingame Community Library	4	1	11/15/06			5			
Bonner Springs Library	7	4	???			11			
Coming City Library	4					4			
Carbondale City Library	1					1			
Delaware Township Library (Valley Falls)	2					2			
Effingham Community Library	3					3			
Eudora Public Library	4					4			
Horton Public Library	0					0			
Lawrence Public Library	10					10			
Library District #1, Troy	22	8	2/1/06			30			
Linwood Community Library	5	5	2/1/06			10			
Louisburg Library	20					20			
Lyndon Carnegie Library	2					2			
McLouth Public Library	1					1			
Meriden Community Library	4					4			
Morill Public Library (Hiawatha)	9	7	7/19/06	1	2/1/07	17			
Nortonville Public Library	2					2			
Osage Public Library	140	10	2/1/06			150			
Osage City Public Library	5					5			
Oskaloosa Public Library	4					4			
Ottawa Library	24					24			
Overbrook Public Library	4					4			
Paola Free Library	14					14			
Richmond Community Library	3					3			
Mary Cotton Library (Sabetha)	5	6	3/16/06			11			
Seneca Free Library	7					7			
Silver Lake Library	3		6/30/08			3	two for Gates Grant		
Tonganoxie Public Library	11					11			
Valley Falls	2					2			
Williamsburg Library	10					10			
Winchester Public Library	3					3			
	407	47		1		455			
Total Licenses Installed	455								
Purchasing 7 more licenses 12/10/2007 - 5 for Osage County Libraries and two to equal those installed. djw									
10 licenses purchase for Williamsburg 12/10/2007 PO# BH-08012007WMBG; 2003 license key sent									
2 additional purchased for Hiawatha 10/07; 2003 license key sent									
Total Licenses purchased	452		12/10/2007 djw						

Sample Materials

Basically, the sample materials gathered showed how disorganized the process is. Too many people are involved at different stages, and information is constantly lost in the process.



*Mission Statement &
Objectives*

Mission Statement

This database will track all software licensing that NEKLS provides/buys, the libraries where the different software is installed, who was billed, how many licenses have been purchased for each piece of software, when software was purchased, where software was purchased from, when software was installed -- basically a software licensing tracking database. This database will also track equipment purchasing on behalf of the NEKLS libraries. Finally, this database will also track billing and reimbursements connected to the above purchasing.

Mission Objectives, Part 1

1. Track who ordered what equipment.
2. Track initial equipment payment method.
3. Track when equipment was ordered.
4. Track how much equipment ordered cost.
5. Track whether equipment ordered has been delivered and installed.
6. Track whether library has been billed for equipment.
7. Track date of billing.
8. Track whether NEKLS has been reimbursed for equipment.
9. Track date of billing
10. Track amount of payment

Mission Objectives, Part 2

11. Track special circumstances of purchasing (grant/special funds).
12. Track who ordered which extra software licenses.
13. Track when extra software licenses were ordered.
14. Track how the software was paid for on the NEKLS end.
15. Track where the software was ordered from.
16. Track how much the extra licenses cost.
17. Track whether the software media has been delivered to the library.
18. Track whether library has been billed for software.
19. Track whether the library has reimbursed NEKLS for software.
20. Track how many AVG licenses provided for free are installed at each library (x of 20).

Mission Objectives, Part 3

21. Track how many Microsoft Office 2003 licenses provided for free are installed (x of 5).
22. Track how many DeepFreeze license provided for free are installed (x of 20).
23. Track where NEKLS-provided licenses of DeepFreeze are installed.
24. Track where NEKLS-provided licenses of Microsoft Office 2003 are installed.
25. Track where NEKLS-provided licenses of Microsoft Office 2007 are installed.
26. Track where NEKLS-provided licenses of Windows XP are installed.
27. Track where NEKLS-provided licenses of DeepFreeze are installed.
28. Track where NEKLS-provided licenses of Windows Vista are installed.
29. Track where other NEKLS-provided licenses are installed.
30. Track the total number of AVG licenses installed at each library.

Mission Objectives, Part 4

31. Track the total number of Microsoft Office 2007 licenses installed at each library.
32. Track the total number of Windows XP licenses installed at each library.
33. Track the total number of Microsoft Office 2003 licenses installed at each library.
34. Track the total number of DeepFreeze licenses installed at each library.
35. Track the total number of Windows Vista licenses installed at each library.
36. Track the total number of other software licenses installed at each library.
37. Track software licensing renewal dates.
38. Track software versions.
39. Track software medium/location/download information.
40. Track who is responsible for ordering each type of software.

Mission Objections, Part 5

41. Track how many AVG licenses are left of total number ordered.
42. Track how many Microsoft Office 2007 licenses are left of total number ordered.
43. Track how many Windows XP licenses are left of total number ordered.
44. Track how many Windows Vista licenses are left of total number ordered.
45. Track how many Microsoft Office 2003 licenses are left of total number ordered.
46. Track how many DeepFreeze licenses are left of total number ordered.
47. Track how many other licenses are left of total number ordered.



*Current Database
Analysis*

Current Database Analysis

- ▶ The database currently in use at NEKLS consists of a collection of legacy, paper-based, and human-knowledge databases.
- ▶ Some staff members involved in this process create spreadsheets to track software licensing, but as other staff members actually install the software, the spreadsheets are woefully out-of-date.
- ▶ Folders in filing cabinets hold copies of the invoices, checks, and ordering information for the software and equipment.
- ▶ Different people receive information about the software and equipment by email.
- ▶ Staff have left in the past and human-knowledge has been lost in the process.
- ▶ The organization needs one place where all of this information can be stored.



*Preliminary Tables &
Fields*

Tables

- ▶ Equipment Orders
- ▶ Software Orders
- ▶ Software
- ▶ Software Location
- ▶ Library
- ▶ NEKLS Staff
- ▶ Special Comments
- ▶ Windows XP Licensing
- ▶ Windows Vista Licensing
- ▶ Vendors
- ▶ DeepFreeze Licensing
- ▶ Other Software Licensing
- ▶ Microsoft Office 2003 Licensing
- ▶ Microsoft Office 2007 Licensing
- ▶ Billing
- ▶ Reimbursements
- ▶ AVG Licensing

Preliminary Fields, Part One

- ▶ AVG ID
- ▶ AVG Install Type (NEKLS-provided or Library Purchase)
- ▶ Check Amount
- ▶ Computer Brand
- ▶ Computer Model
- ▶ Computer Name
- ▶ Computer Serial No.
- ▶ Date Check Received
- ▶ Date of Invoice
- ▶ Date of Ordering Software
- ▶ DeepFreeze ID
- ▶ DeepFreeze Install Type (NEKLS-provided or Library Purchase)
- ▶ Delivered to
- ▶ Delivered?
- ▶ Equipment Date of Purchase
- ▶ Equipment Order ID
- ▶ Equipment Purchased Description
- ▶ Fund Active?
- ▶ Fund Description
- ▶ Fund ID
- ▶ Fund Members
- ▶ Fund Name
- ▶ Installed Date
- ▶ Installed?
- ▶ Invoice ID
- ▶ Invoice Total Cost
- ▶ Length of License
- ▶ Library Billing Contact Email
- ▶ Library Billing Contact First Name
- ▶ Library Billing Contact Last Name
- ▶ Library City
- ▶ Library Director Email
- ▶ Library Director First Name
- ▶ Library Director Last Name
- ▶ Library Fax
- ▶ Library ID
- ▶ Library Mailing Address 1
- ▶ Library Mailing Address 2
- ▶ Library Phone
- ▶ Library State
- ▶ Library Tech Contact Email
- ▶ Library Tech Contact First Name
- ▶ Library Tech Contact Last Name

Preliminary Fields, Part Two

▶ Library Zip	▶ Number of Purchased Licenses	▶ Software	▶ Vendor Mailing Address 1
▶ License Expiration Date	▶ Office 2003 Install Type (NEKLS-provided or Library Purchase)	▶ Software Download Link	▶ Vendor Mailing Address 2
▶ License Code	▶ Office 2007 Install Type (NEKLS-provided or Library Purchase)	▶ Software Location ID	▶ Vendor Phone
▶ Media Sent to Library	▶ Office 2003 ID	▶ Software Order ID	▶ Vendor State
▶ Method of Ordering	▶ Office07 ID	▶ Software Password	▶ Vendor Zip
▶ Method of Payment	▶ Other SW Install Type (NEKLS-provided or Library Purchase)	▶ Software Title	▶ Windows Vista ID
▶ NEKLS Staff Email	▶ OtherSW ID	▶ Software Total Price	▶ Windows Vista Install Type (NEKLS-provided or Library Purchase)
▶ NEKLS Staff First Name	▶ Price (include shipping)	▶ Software Username	▶ Windows XP ID
▶ NEKLS Staff ID	▶ Reimbursement ID	▶ Type of Computer (Staff/Patron)	▶ Windows XP Install Type (NEKLS-provided or Library Purchase)
▶ NEKLS Staff Last Name		▶ Vendor City	
▶ Number of Licenses Used		▶ Vendor Email	
▶ Number of Licenses Ordered		▶ Vendor Fax	
		▶ Vendor ID	



Business Rules

Business Rules, Part One

1. Software Table: Software Title, NEKLS Staff ID, Vendor ID are required.
2. Software Ordering Table: Required fields: NEKLS Staff ID, Library ID, Vendor ID, Software ID, and Date of Order.
3. Equipment Ordering Table: Required fields: NEKLS Staff ID, Date of Order, Vendor ID, Software ID, Library ID, and Date of Order.
4. Software Location Table: Required fields: All.
5. Library Table: Required fields: Library Name, Director First Name, Director Last Name, Director Email.
6. Library Table: Library State can only be KS.
7. AVG Licensing Table: Software Install Type required: options: NEKLS-provided OR Library purchased

Business Rules, Part Two

8. Office 2003 Licensing: Software Install Type required: options: NEKLS-provided OR Library purchased
9. Office 2007 Licensing: Software Install Type required: options: NEKLS-provided OR Library purchased
10. Windows Vista Licensing: Software Install Type required: options: NEKLS-provided OR Library purchased
11. DeepFreeze Licensing: Software Install Type required: options: NEKLS-provided OR Library purchased
12. Windows XP Licensing: Software Install Type required: options: NEKLS-provided OR Library purchased
13. Other Software Licensing: Software Install Type required: options: NEKLS-provided OR Library purchased
14. Billing Table: Required total cost, Date of Invoice, Library ID

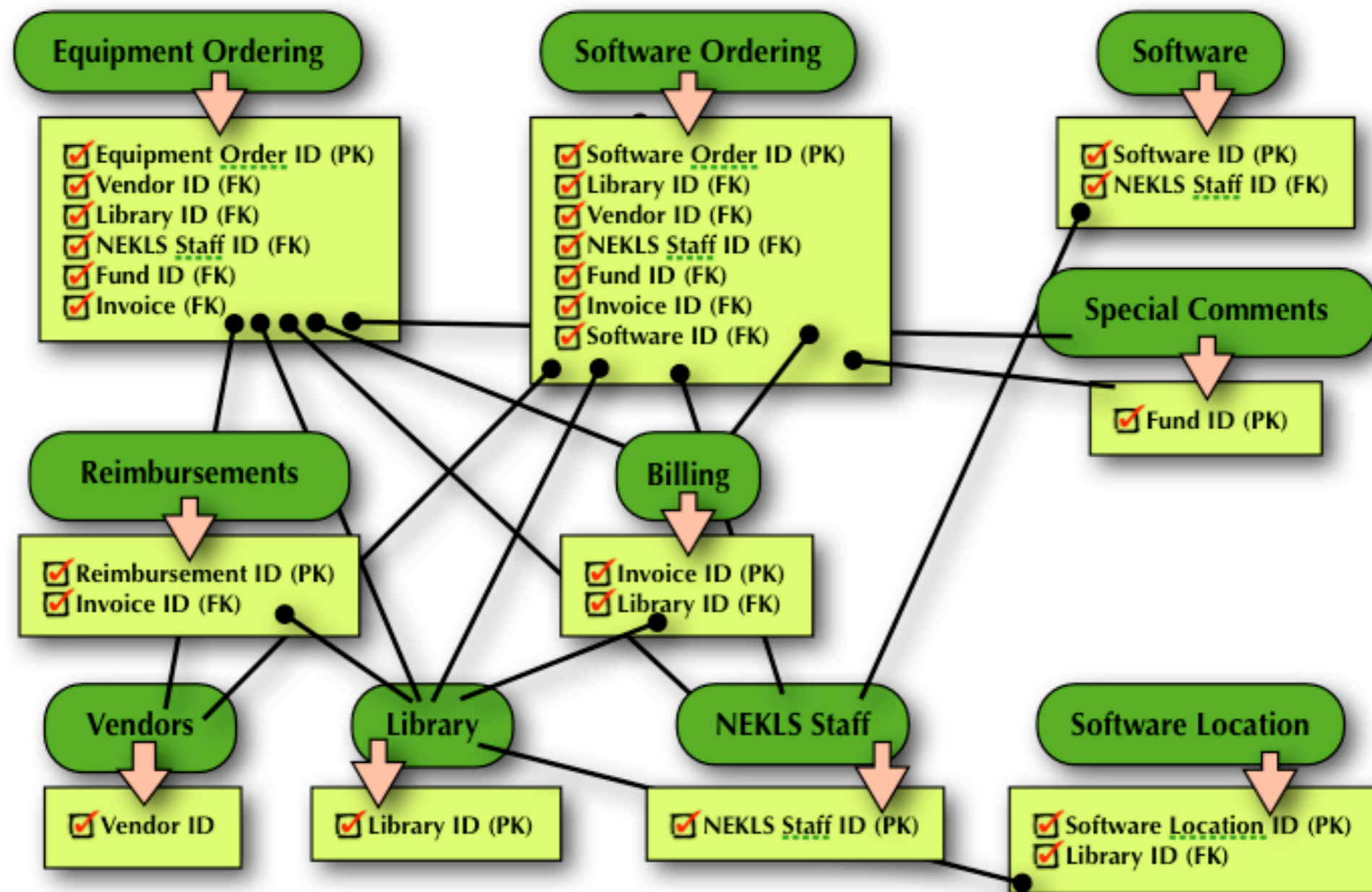
Business Rules, Part Three

15. Library Table: Library Phone is a phone number data entry field.
16. Library Table: Library Fax is a phone number data entry field.
17. Vendor Table: Library Phone is a phone number data entry field.
18. Vendor Table: Library Fax is a phone number data entry field.
19. Software Ordering Table: Media sent to library field: Yes/No
20. Software Ordering & Equipment Ordering: Method of Payment field options: Heather Visa/Sharon Visa/Liz Visa/Diana Visa/Laura Visa/Amazon Account/Crucial Billing/Dell Account/CDWG Account/Office Depot Credit Card/SHI Account/Other Billing
21. Software Method of Ordering: options: Phone/Fax/Email/Web/Mail/Store
22. Equipment Method of Ordering: options: Phone/Fax/Email/Web/Mail/Store

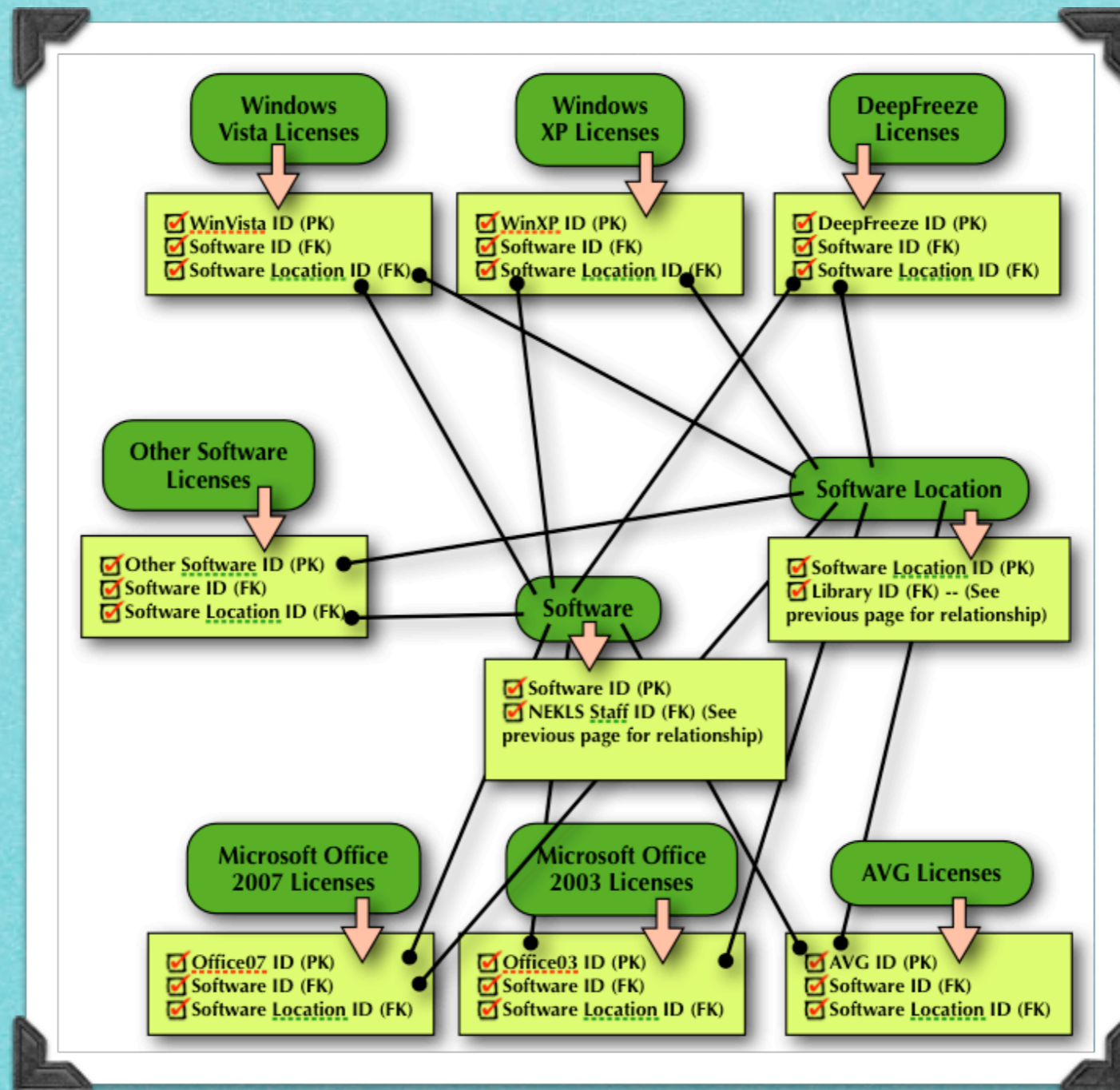
Tables and Fields

(note: all PKs are surrogates)

Database Structure: Primary & Foreign Keys, Part 1



Database Structure: Primary & Foreign Keys, Part 2



Software Table & Fields

- ▶ **Software Table**
 - ▶ Software ID (PK)
 - ▶ Software Title
 - ▶ License Code
 - ▶ Number of Purchased Licenses
 - ▶ Number of Licenses in Use
 - ▶ Software Download Link
 - ▶ Software Username
 - ▶ Software Password
 - ▶ NEKLS Staff ID (FK)
 - ▶ License Expiration Date
- ▶ Length of License
- ▶ Vendor ID (FK)
- ▶ Method of Ordering

Software Ordering Table & Fields

▶ **Software Ordering Table**

- ▶ Software Order ID (PK)
- ▶ Library ID (FK)
- ▶ Date of Ordering Software
- ▶ Number of Licenses Ordered
- ▶ Software Total Price
- ▶ Media Sent to Library?
- ▶ NEKLS Staff ID (FK)
- ▶ Method of Ordering
- ▶ Method of Payment
- ▶ Fund ID (FK)
- ▶ Vendor ID (FK)

▶ Software ID (FK)

Vendor Table & Fields

- ▶ **Vendor Table**
 - ▶ Vendor ID (PK)
 - ▶ Vendor Mailing Address 1
 - ▶ Vendor Mailing Address 2
 - ▶ Vendor City
 - ▶ Vendor State
 - ▶ Vendor Zip
 - ▶ Vendor Phone
 - ▶ Vendor Fax
 - ▶ Vendor Email
 - ▶ Vendor Website

NEKLS Staff & Special Comments Tables & Fields

▶ **NEKLS Staff Table**

- ▶ NEKLS Staff ID (PK)
- ▶ NEKLS Staff First Name
- ▶ NEKLS Staff Last Name
- ▶ NEKLS Staff Email

▶ **Special Comments Table**

- ▶ Fund ID (PK)
- ▶ Fund Name
- ▶ Fund Description
- ▶ Fund Active?
- ▶ Fund Members

Equipment Ordering Table & Fields

▶ **Equipment Ordering Table**

- ▶ Equipment Order ID (PK)
- ▶ Equipment Date of Purchase
- ▶ Equipment Purchased Description
- ▶ Vendor ID (FK)
- ▶ Price (include shipping)
- ▶ Library ID (FK)
- ▶ NEKLS Staff ID (FK)
- ▶ Delivered to
- ▶ Delivered?
- ▶ Installed?

▶ Installed Date

- ▶ Fund ID (FK)
- ▶ Invoice ID (FK)
- ▶ Method of Payment
- ▶ Method of Ordering

Software Location Table & Fields

- ▶ **Software Location Table**
 - ▶ Software Location ID (PK)
 - ▶ Library ID (FK)
 - ▶ Type of Computer (Staff/
Patron)
 - ▶ Computer Brand
 - ▶ Computer Serial No.
 - ▶ Computer Name
 - ▶ Computer Model

Library Table & Fields

▶ **Library Table**

- ▶ Library ID (PK)
- ▶ Library Name
- ▶ Library Mailing Address 1
- ▶ Library Mailing Address 2
- ▶ Library City
- ▶ Library State
- ▶ Library Zip
- ▶ Library Phone
- ▶ Library Fax
- ▶ Library Director First Name
- ▶ Library Director Last Name

▶ Library Director Email

- ▶ Library Tech Contact First Name
- ▶ Library Tech Contact Last Name
- ▶ Library Tech Contact Email
- ▶ Library Billing Contact First Name
- ▶ Library Billing Contact Last Name
- ▶ Library Billing Contact Email

AVG & Microsoft Office 2003 Licensing Table & Fields

▶ **AVG Table**

- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ AVG ID (PK)
- ▶ AVG Install Type (NEKLS-provided or Library Purchase)

▶ **Microsoft Office 2003 Table**

- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ Office03 ID (PK)
- ▶ Office 2003 Install Type (NEKLS-provided or Library Purchase)

Windows XP & Microsoft Office 2007 Licensing Table & Fields

▶ **Windows XP Table**

- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ Windows XP ID (PK)
- ▶ Windows XP Install Type
(NEKLS-provided or Library
Purchase)

▶ **Microsoft Office 2007 Table**

- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ Office07 ID (PK)
- ▶ Office 2007 Install Type
(NEKLS-provided or Library
Purchase)

Windows Vista & DeepFreeze Licensing Table & Fields

▶ **Windows Vista Table**

- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ Windows Vista ID (PK)
- ▶ Windows Vista Install Type
(NEKLS-provided or Library
Purchase)

▶ **DeepFreeze Table**

- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ DeepFreeze ID (PK)
- ▶ DeepFreeze Install Type
(NEKLS-provided or Library
Purchase)

Other Software Licensing Table & Fields

- ▶ **Other Software Licensing Table**
- ▶ Software Location ID (FK)
- ▶ Software ID (FK)
- ▶ OtherSW ID (PK)
- ▶ Other SW Install Type
(NEKLS-provided or Library Purchase)

Reimbursements and Billing Tables & Fields

▶ **Billing Table**

- ▶ Invoice ID (PK)
- ▶ Date of Invoice
- ▶ Invoice Total Cost
- ▶ Library ID (FK)
- ▶ Equipment Order ID(s) (FK) -- multi-value field??
- ▶ Software Order ID(s) (FK) -- multi-value field??

▶ **Reimbursements Table**

- ▶ Reimbursement ID (PK)
- ▶ Check Amount
- ▶ Date Check Received
- ▶ Invoice ID (FK)



*Relationships and
Queries*

Relationships

- ▶ My tables became complicated from their formation, and I am unclear whether or not I have created tables that should be linking tables, instead.
- ▶ I know I have many one-to-many relationships, but I cannot figure out if I have one-to-one table relationships and many-to-many relationships.
- ▶ My tables are all related to one another, especially the Library, Software Location, and Software Tables.

Possible Queries in Database

- ▶ How many AVG licenses are installed at library x?
- ▶ What invoice needs to be created for library x based on Equipment and Software orders?
- ▶ How many AVG licenses have been installed at NEKLS libraries?
- ▶ Does library x have more than the provided licenses of AVG?
- ▶ Has library x paid invoice for equipment/software orders?



Design Process Summary

Design Process Summary

- ▶ I haven't encountered any serious problems; I have an intricate knowledge of what this database is needing, as my job revolves around a lot of the information this database will hold. That has helped limit problems.
- ▶ So far the process has been to interview NEKLS staff and myself; look at the sample spreadsheets, invoices, etc., that currently organize all the used information for tracking equipment and software purchasing and billing; and develop tables and fields lists.
- ▶ For the business rules, I'm still not clear on how all that is going to work, but I was still able to look at my fields and tables, and identify required fields and fields that would have limited choices available.
- ▶ Overall, I'm pleased with how the process has gone; it's taken a long time, but when completed, it'll make my life and other lives much easier at NEKLS, so I have extra motivation to see this project through.