

United States Transuranium and Uranium Registries
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Database Harmonization

Stacey L. McComish
s.mccomish@wsu.edu

Associate in Research
College of Pharmacy and Pharmaceutical Sciences
Washington State University

1845 Terminal Drive, Suite 201, Richland, WA 99354
www.ustur.wsu.edu

“Learning from Plutonium and Uranium Workers”



College of
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Pharmaceutical Sciences
WASHINGTON STATE UNIVERSITY



USTUR Database System

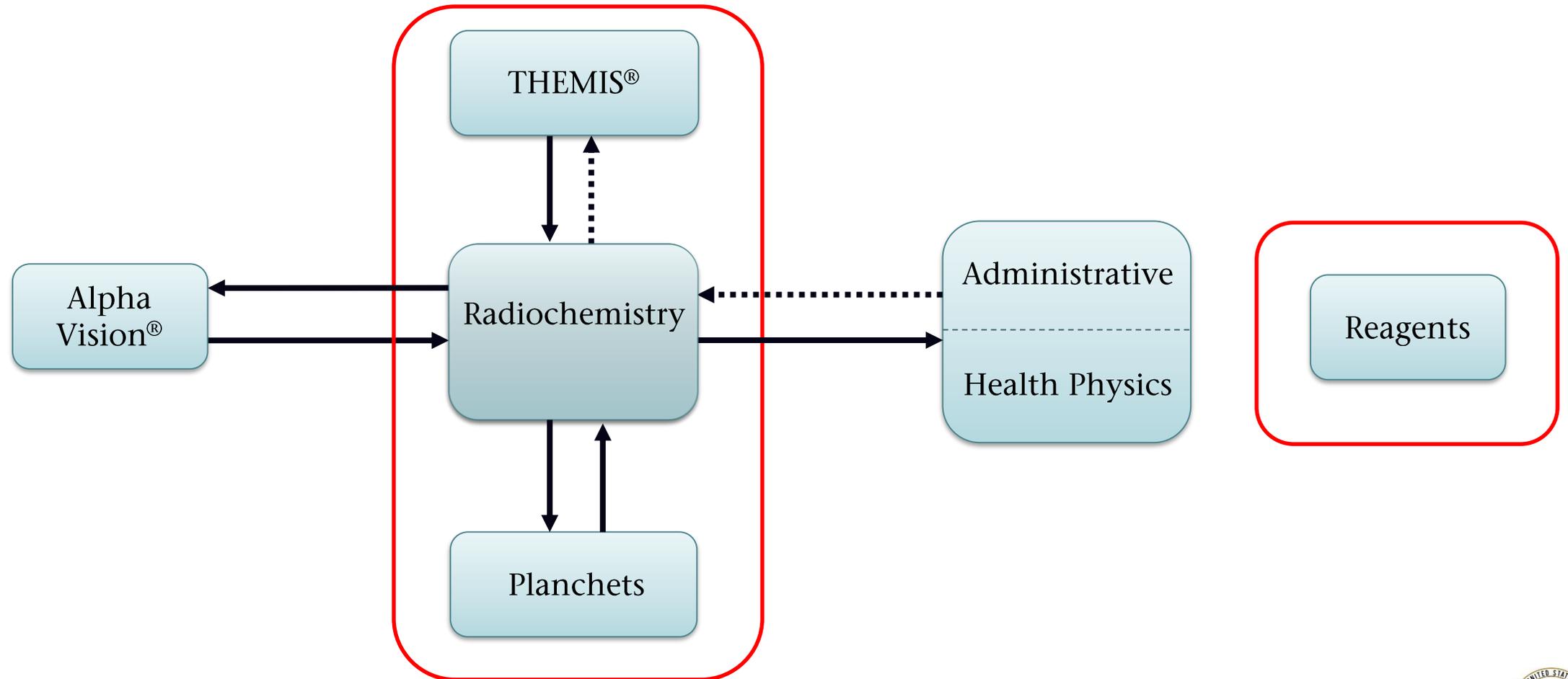
- Most databases started out as standalone databases, to meet specific needs
- Tables associated with the databases were 'linked' on an ad-hoc basis
 - ✓ Automated reading, writing, copying of data
 - ✓ Copying by hand





Our Vision: Before

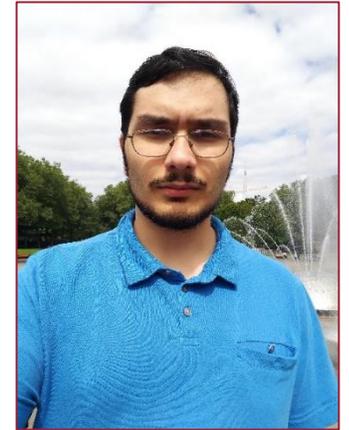
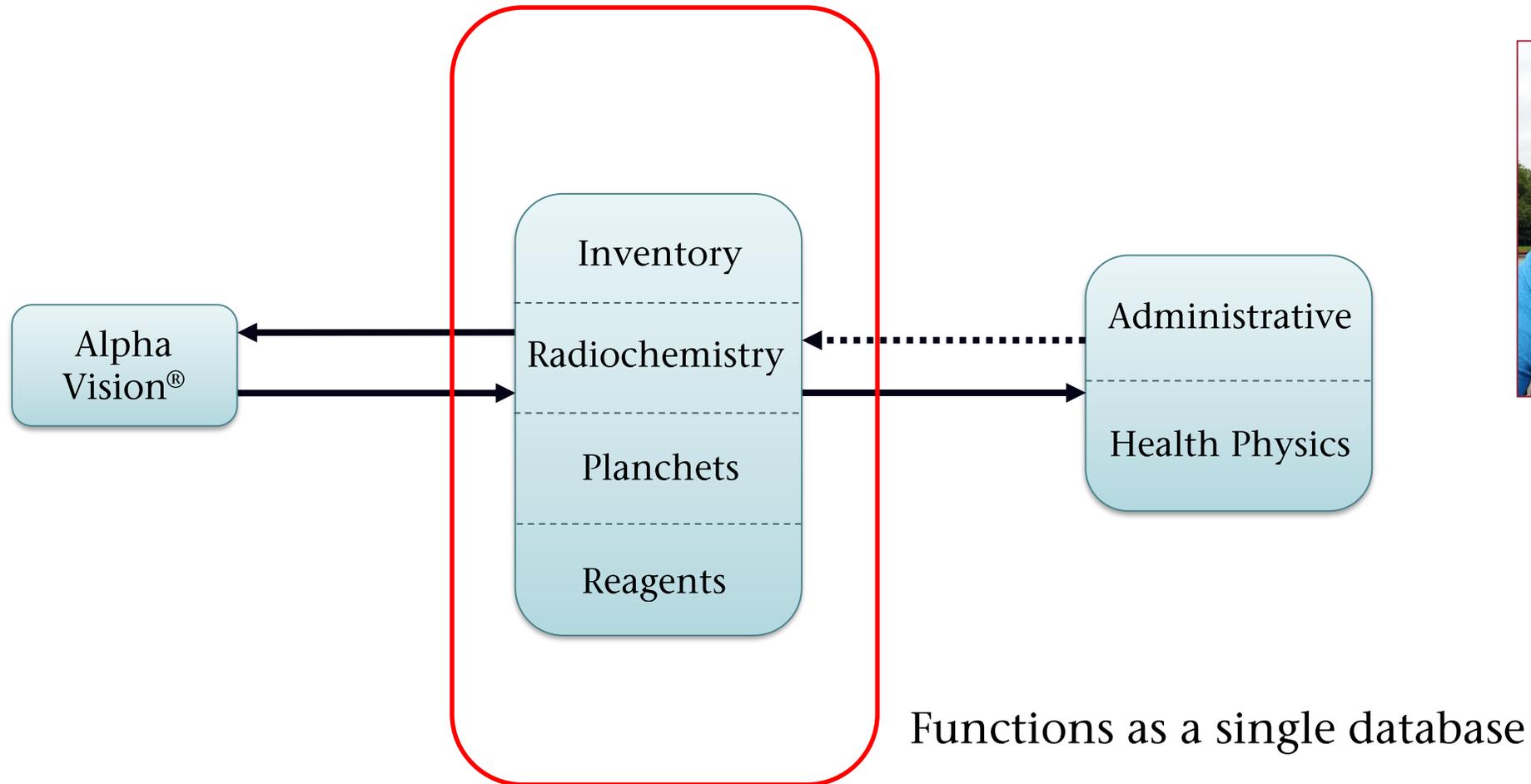
Integrate THEMIS, Radiochemistry, Planchets, and Reagents databases...





Our Vision: After

...to create a Laboratory Information Management System (LIMS)



Alex Tabatadze



Retrofitting a Database System

- A lot of the framework is being retained
 - ✓ Radiochemistry, Planchets, Reagents will change little if at all
 - ✓ Some conceptual aspects of how THEMIS works
- Some parts needed to be 'taken down' and completely rebuilt
 - ✓ THEMIS
 - ✓ User interface incorporated into the Radiochemistry front end
 - ✓ Tables restructured to integrate into LIMS
- Important to restructure tables right the first time
 - ✓ Data is the foundation
 - ✓ Avoid problems with the front-end





Roadmap

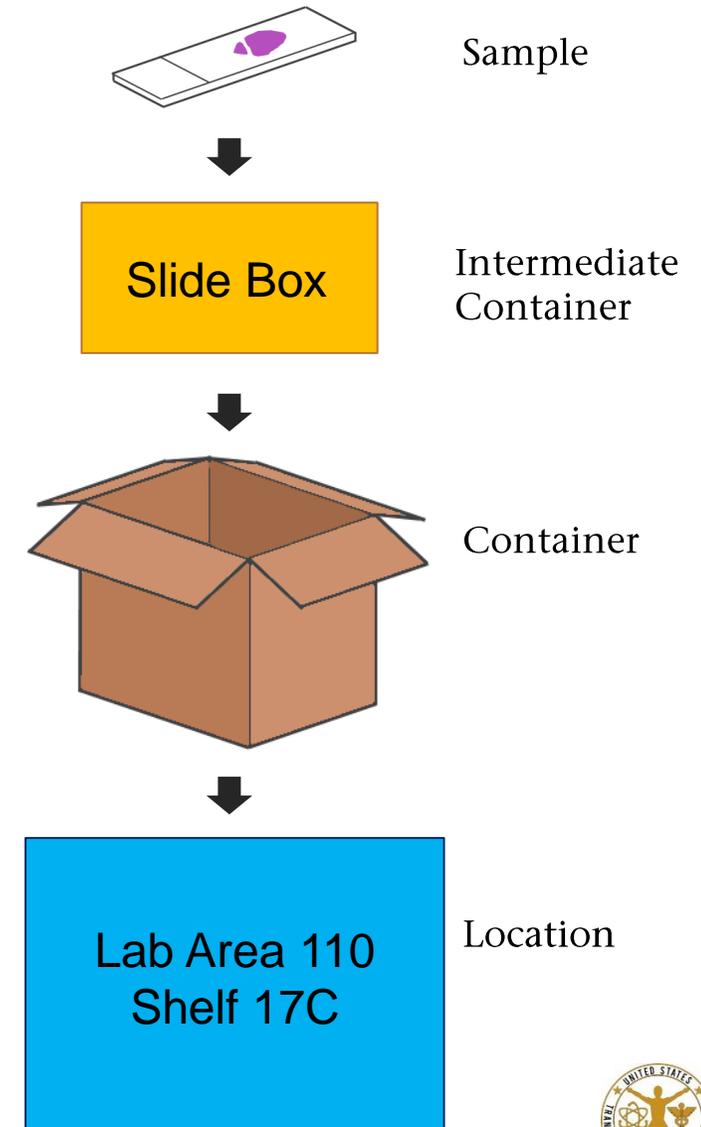
- Build new inventory tables in SQL (rebuild THEMIS)
- Import data from THEMIS to the new tables
- Design user interface (front-end)
- Test basic functionality and SQL
 - ✓ Meanwhile Alex will develop advanced functionality
- Test advanced functionality
- Prepare documentation





Redesign THEMIS Tables and Build in SQL

- Data properties and tables relationships defined using the tables, not code
- Numerical IDs as table keys
 - ✓ Needed by SQL
 - ✓ Affected most tables
- Added fields to create intermediate containers
- New mass tracking table
 - ✓ Mass
 - ✓ Physical form
 - ✓ Date
 - ✓ Universal table





Import Data to New Inventory Tables

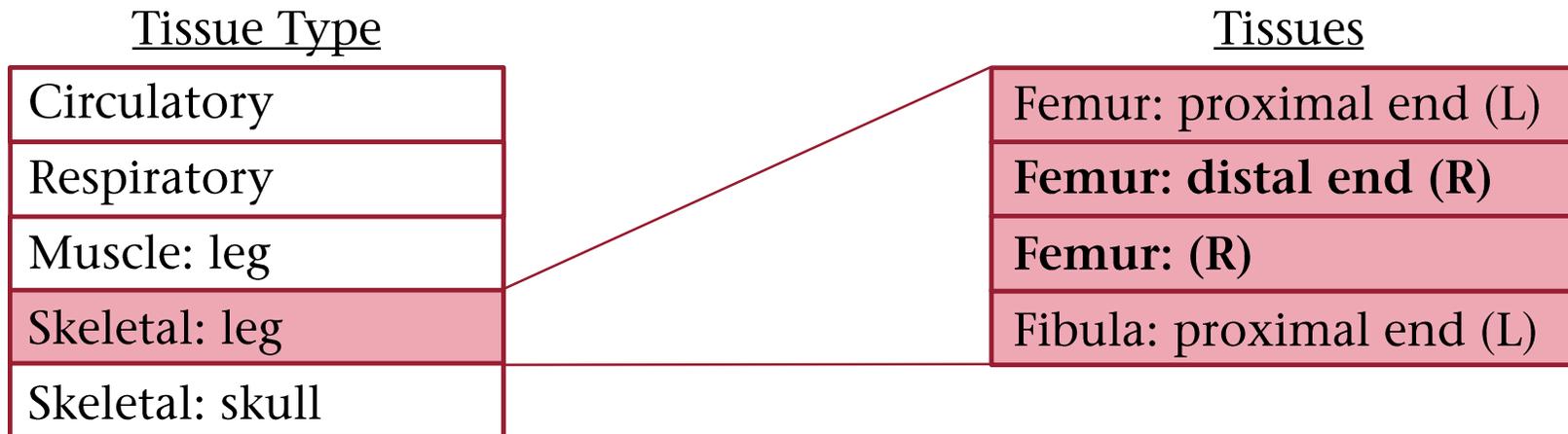
- Create an import algorithm
- To grab columns of data from THEMIS, and import them into the new inventory database
- Table structure has changed significantly between THEMIS and new Inventory database
- Some data are in notes fields
 - ✓ Hard (impossible?) to import reliably
 - ✓ Some will need to be hand-entered





Standardization of Tissue Descriptions

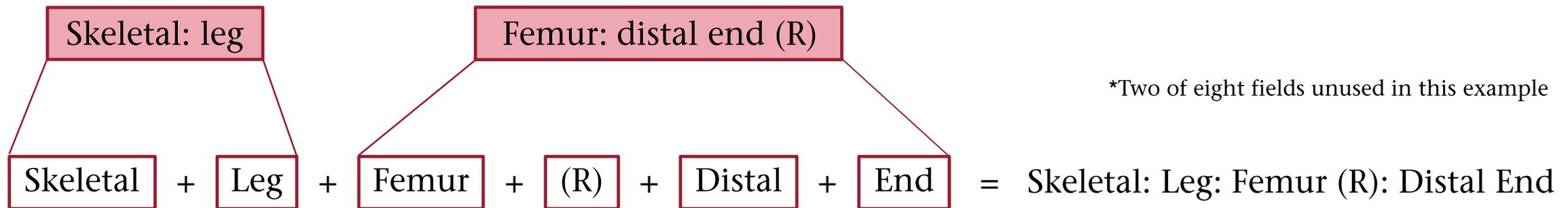
- Tissue descriptions updated to
 - ✓ Standardize formatting
 - ✓ Improve searchability
- THEMIS System
 - ✓ Two fields: Tissue Type and Tissue
 - ✓ Not designed for detailed searches





Standardization of Tissue Descriptions

- Tissue descriptions are being expanded from **two** to **eight** fields
 - ✓ Improves searchability
- A good example of the complexity needed for the import algorithm
- Some samples have ambiguous tissue names or were entered incorrectly
 - ✓ Samples checked one-by-one
 - ✓ Will be fixed on import





Thank You!

