Lingo – a SNOMED Authoring Tool

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Presentation Overview

1. Key business drivers
2. What is Lingo?
3. Technology and context
4. Current Product Capabilities
5. Overview of the project
6. Demonstration
7. Current state and future plans
Business Drivers

• The need for a single effective tool to develop and release SNOMED CT based clinical terminology in Australia, and
• To support the use and adoption of clinical terminologies in health information exchange improving clinical safety, and creating healthcare delivery efficiencies.

A market scan was completed to investigate alternatives to the NEHTA Workbench and AMT v2 tools – both of which were considered cumbersome, costly and not fit for purpose given our focus on efficiency and implementation.

NEHTA decided to leverage terminology and technical capabilities in the business, to partner with CSIRO, and develop a purpose built solution, with the future in mind.
“Lingo” is the Australian NRC’s authoring, maintenance, release and integration tool. It supports the development and release of SNOMED CT AU and the Australian Medicines Terminology.

It is:

- Standards based with a central server architecture and rich web client.
- SNOMED CT focussed with a SNOMED CT centric data model (not RF2,OWL)
- Always ready to use, with fast, continuous export QA results and an integrated classifier (using CSIRO’s Snorocket).
- Designed to integrate:
  - “upstream” with suppliers of data like IHTSDO and Government drug administration, and
  - “downstream” with clinical terminology implementers and users.

Importantly – it does what we need it to do, the way we want to do it
Lingo in an NRC context
Lingo Technology Architecture

Web User Interface
Javascript/AJAX

REST/JSON

Java Enterprise Container

AMT Authoring

SNOMED CT Authoring

SNOMED CT Model and Persistence

Solr

Hibernate

Classifier (Snorocket)

Security

Users

Tasks

Continuous Integration Server

Release QA framework

REST/JSON

REST/JSON

REST/JSON

Jira

Solr/Lucene

MySQL
Mapped to the IHTSDO’s Open Tooling Framework

IHTSDO Plugin Modules

- Namespace API
  - Namespace Module
- Request API
  - Content Request Module
- Documentation API
  - Documentation Module
- Member Exchange API
  - Member Exchange Module

IHTSDO Infrastructure Modules

- Workflow API
  - Workflow Module
- User Administration API
  - User Administration Module

IHTSDO Core Modules

- Terminology Query API
  - Terminology Storage & Retrieval
- Terminology CRUD API
  - Terminology Editing Workspace
- QA API
  - QA Rules Module
- ID Mgmt API
  - Identifier Management Module
- Release API
  - Release Process Module
What is NOT in the BOX (yet)

What does it **NOT** do?

- Document management
- Licensing
- Request submission
- Mapping (other than substance mapping for AMT)
- Translation
- Member exchange
- Namespace management
The use of the "<Disjoin->" stereotype on this diagram indicates that all subtypes of the annotated concepts (and not subtypes of other diagrammed concepts) are disjoint.

Specifically:
1) No concept may be the subtype of two different Medicinal Substance concepts
2) No concept may be the subtype of two different Trade Product concepts that are not descendants of Trade Product Unit of Use (which is not marked as disjoint)
Capabilities Details

SNOMED CT National Extension
• Language reference set automation
• Language reference set editing/review
• Simple reference set authoring
  • Query based
  • File import
  • Individual concept selection
• Concept authoring/editing
  • Including language refset handling

Medicines Terminology
• Form based product data entry
• Form based product editing
• Automated name generation
• Automated refset and language refset handling
• Substance mapping integrated in process
• Bulk product editing
Capabilities Details

Common needs
• Classification
  • Duplicate concept reporting
  • Concrete domain implementation
  • Stated and inferred view
• Workflow via Jira integration
  • Edits tracked against user/ticket
• Description editing/authoring
• Review functionality
  • Single expert authoring with dual independent review
  • Records “assertions” about “statements” about concepts
  • Assertions remembered – immediate alert on recurrence
• Release and automated testing
  • 982 AMT tests
  • 1284 SNOMED CT-AU tests
How Lingo was delivered

Project Driver:
• Deliver AMT to market **ASAP**, then **SNOMED CT-AU**

Goals:
• AMT v3 model, documentation and initial release (classified DNF)
• Authoring tool to enable AMT v3 production releases
• A single platform for AMT and SNOMED CT-AU development
How Lingo was delivered

**Methodology:**

- Scrum adopted – supported at all project levels
- 2 week sprints – delivery and review every 2 weeks

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<tr>
<th>Role</th>
<th>Count</th>
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<tr>
<td>Developers</td>
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<td>CSIRO AEHRC collaborators</td>
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Demonstration
Now

Current state

- Production use for AMT and SNOMED CT-AU (MVP)
  - Monthly AMT releases (initial plus 4 since)
  - November SNOMED CT-AU release
- Old systems *decommissioned*
Future stages

- Refactoring - look and feel
- “Release 2” for AMT and SNOMED CT-AU
- Integration with TGA/PBS for AMT product data
- Collaboration on AMT content with jurisdictions
- Integration/services for implementers
Questions?

Thanks to the project team:

**Project Sponsors** – Kate Ebrill and David Bunker

**Product Owners** – Trang Tran, Matt Cordell and Liam Barnes

**Project Managers** – Manuel Aponte and Damien Cunningham

**CSIRO collaboration** – Michael Lawley, Alejandro Metke and Ming Zhang

**Business Analyst/Scrum Master** – Hamish Martin

**Testers** – David Mudge and Chris Stanbridge

**Developers** – Michael Trudgian, Attila Edelenyi, Stephen Crow, Luke Swindale and Dion McMurtrie