

KOS Mappings

NKOS Workshop 2019

OSLO

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12 September 2019

KOS for Commerce

- NKOS, Linked data, academic apps, etc.
- But what about the things business uses?
- Commerce apps
 - Thin data
 - Coded lists
 - Need words and inferences
- Much application in commerce
 - Enabling search
 - Enabling transactions
 - Enabling purchase

Define KOS

- “Knowledge Organization Systems (KOS), concept system or concept scheme is a generic term used in knowledge organization about authority files, classification schemes, thesauri, topic maps, ontologies etc.”
- INTERNATIONAL ISO/IEC STANDARD 11179-2 Information technology — Metadata registries (MDR) — Part 2: Classification
- Little mention of numbered classification schemes
- But they are widespread, enable commerce and need KOS



[https://standards.iso.org/ittf/PubliclyAvailableStandards/c035345_ISO_IEC_11179-2_2005\(E\).zip](https://standards.iso.org/ittf/PubliclyAvailableStandards/c035345_ISO_IEC_11179-2_2005(E).zip)

Access Innovations Inc.
maker of Data Harmony taxonomy software

https://en.wikipedia.org/wiki/Knowledge_organization_system



Data Harmony
from Access Innovations, Inc.

Three case studies

- Searching for music
- Organizing Streaming Media
- E-Commerce transactions

#1 Searching for music

- Use Case
- Finding things to buy
- Create a playlist
- Organize collections
 - For sale
 - For personal use
- No time to watch everything and categorize it.
- Need programmatic inferences to create the lists

Improving Music Search with Limited Data



Improving Music Search with Limited Data

Example of track data

Track Title: Silverman

Track Description: Dangerous, alarming hybrid of jungle and drum 'n' bass

CD Title: JUNGLE & X GROOVES

CD Description: Jungle, drum n' bass

Author: John Smith

Main Track: True

Library ID: HML-41-001

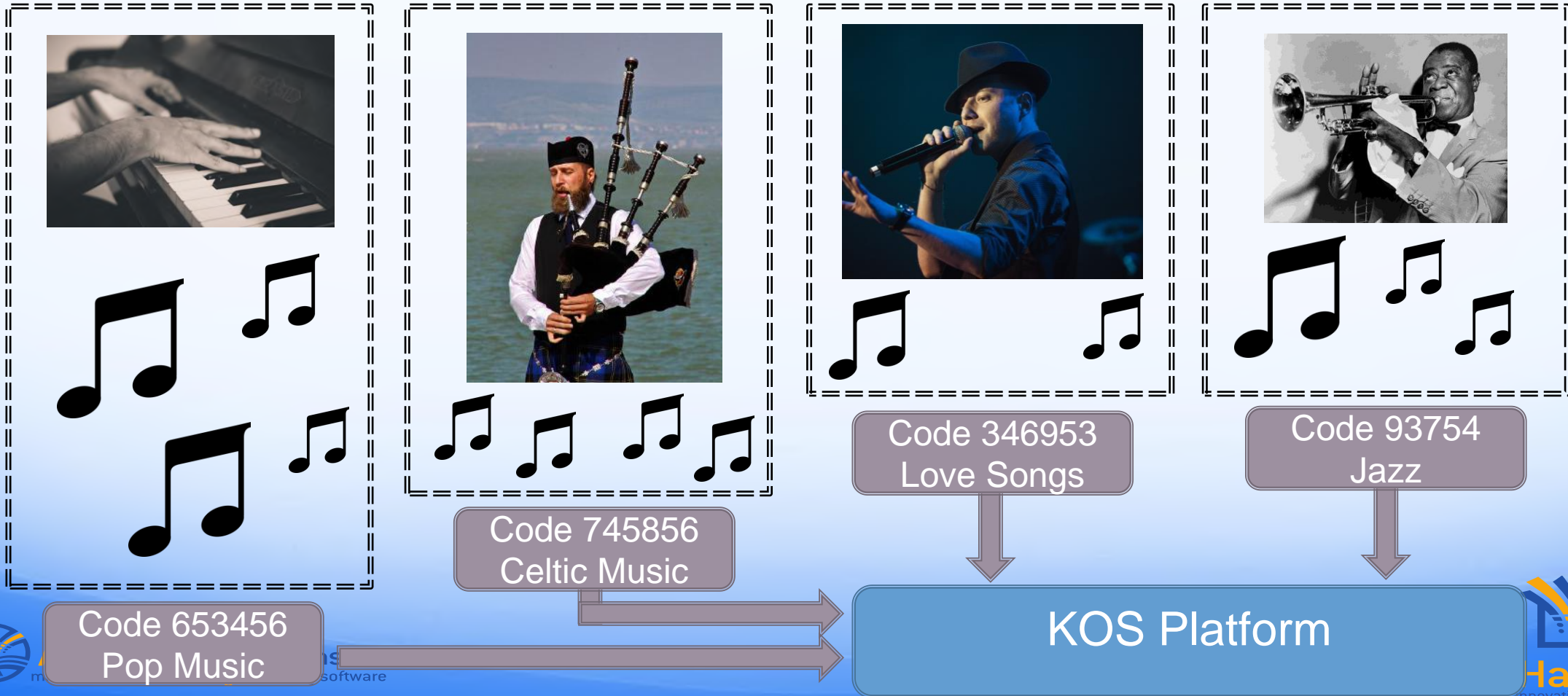
Potential Tags

- Genres
- Mood
- Remix
- Etc.



Improving Music Search with Limited Data

Various Libraries



software



Harmony
Innovations, Inc.

Improving Music Search with Limited Data



Classical Stylings

Neo classical

Classical Arrangement

Classical
Remix

- Tracks were minimally tagged upon upload with a single “master” genre and anywhere from 0-15 “alternate” genres.
- This provided comparison points to improve rules.
- It also provided a useful data point to gauge the accuracy of existing tags.

Improving Music Search with Limited Data

Two goals emerged...

- Confirm existing tags
 - Can use a “looser” rulebase and be run against more data
- Suggest new genres or alterations of existing flags



Confirming Existing Genres

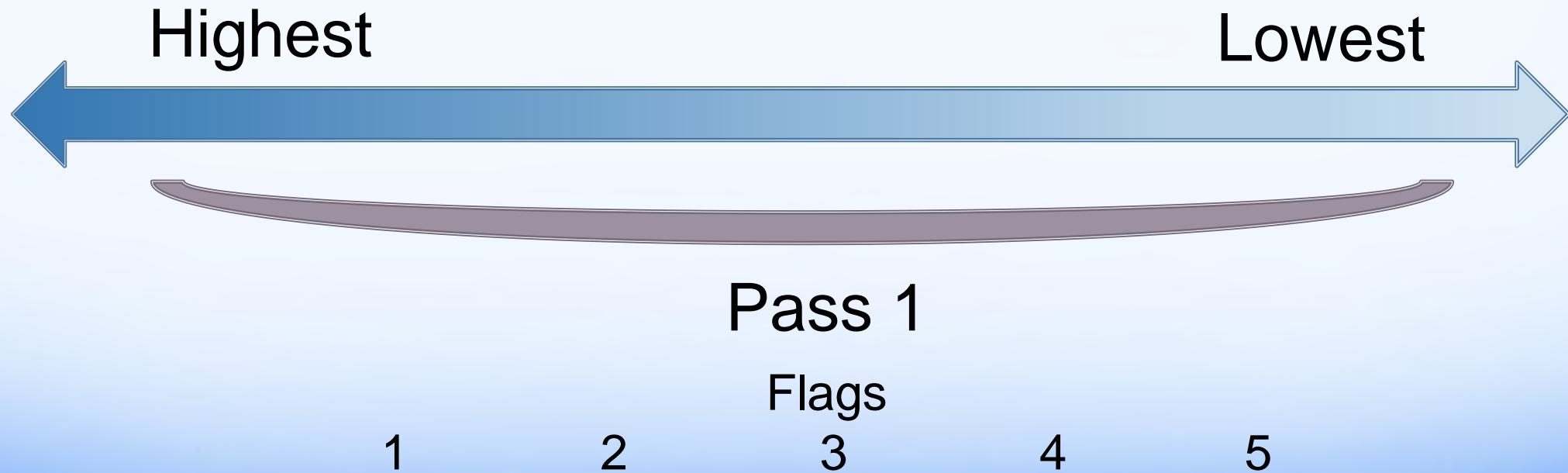
- Confidence would be determined by a flag from 1-5.
 - 1=Direct match. Our system suggested the previously assigned genres.
 - 2=More granular match. Our system suggested more specific genres of previously assigned genres (Example Jazz vs. Smooth Jazz).
 - 3=Sibling match. Our system suggested a sibling term to a previously assigned term.
 - 4=Broader match. Our system suggested parent term to a previously assigned term.
 - 5=Miss. Our system did not agree with any previously assigned term.
- More input data could be used so there would be two passes of the data
 - Pass 1: Track description and track title
 - Pass 2: Track description, track title, CD description, CD title

Suggesting New Genres

- The same 1-5 confidence flag would be used for suggested genres
- If a genre was a match to the previously assigned master genre it was given more weight than an alternative genre
- A “tighter” rule base was used to reduce any potential noise
- Only track level information was used as the input to further reduce noise
- Programmatically assigned tracks would always be assigned as alternate genres.
- More granular suggestions (flag 2) would be used to replace the broader tags previously applied.

Suggesting New Genres

Confidence Level



B	C	D	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
TrackTi	TrackDescription	CDTitle	Library	Sub-library	MainTrack	Genre	Genre	Genre	Genre	Genre	Genre	Genre	Genre	FLAG					
1	Here I Am	Thrashy and infectious Indie groove - ma	INDIE	KPM	JM	Y	Pop	Indie	Rock					1	[1339]Indi	[1339]Indi	[1142]Gro	[1142]Grooves	
2	Here I Am	Thrashy and infectious Indie groove - Bac	INDIE	KPM	JM	N	Pop	Indie	Rock					1	[1339]Indi	[1339]Indi	[1142]Gro	[1142]Grooves	
3	California	Vocal / Lyric - Feel good summertime stri	INDIE	KPM	JM	Y	Pop	Rock	Alternative Rock					5					
4	California	Feel good summertime strumming - Back	INDIE	KPM	JM	N	Pop	Rock	Indie	Alternative Rock				5					
5	Somethin	Melodic uplifting soulful pop - male voca	INDIE	KPM	JM	Y	Pop							1	[1198]Mot	[1198]Mot	[1292]Pop	[1292]Pop	
6	Somethin	Melodic uplifting soulful pop - Backing tr	INDIE	KPM	JM	N	Pop	Indie						1	[1198]Mot	[1198]Mot	[1292]Pop	[1292]Pop	
7	Only Love	Slowburning broody outpouring of raw e	INDIE	KPM	JM	Y	Pop	Indie	Alternative Rock					5					
8	Thinking /	Edgy Lo-Fi pop punk - male vocal	INDIE	KPM	JM	Y	Pop	Punk	Pop Punk					1	[1159]Lo F	[1159]Lo F	[1293]Pop	[1293]Pop Punk	
9	Thinking /	Edgy Lo-Fi pop punk - Backing track	INDIE	KPM	JM	N	Indie	Punk	Pop Punk					1	[1159]Lo F	[1159]Lo F	[1293]Pop	[1293]Pop Punk	
10	Coming Di	Vocal / Lyric - Sensitive fragile ballad to	INDIE	KPM	JM	Y	Pop	Indie	Alternative Rock					5	[1198]Mot	[1198]Motivational			
11	I Don't Ne	Melodic Indie angst - male vocal	INDIE	KPM	JM	Y	Pop	Indie						1	[1339]Indi	[1339]Indie			
12	I Don't Ne	Melodic Indie angst - Backing track	INDIE	KPM	JM	N	Pop	Indie						1	[1339]Indi	[1339]Indie			
13	Standing C	Uplifting rock anthem	INDIE	KPM	JM	Y	Rock							1	[1198]Mot	[1198]Mot	[1351]Roc	[1351]Rock	
14	Fly To The	Vocal / Lyric - Laid back summer sounds -	INDIE	KPM	JM	Y	Pop	Rock	Alternative Rock					5					
15	Fly To The	Laid back summer sounds - Backing track	INDIE	KPM	JM	N	Pop	Rock	Indie	Alternative Rock				5					
16	Find Me (Vocal / Lyric - Rousing Indie rock - male v	INDIE	KPM	JM	Y	Pop	Indie	Rock					1	[1339]Indi	[1339]Indi	[1351]Roc	[1351]Rock	
17	Find Me (Rousing Indie rock - Backing track	INDIE	KPM	JM	N	Pop	Indie	Rock					1	[1339]Indi	[1339]Indi	[1351]Roc	[1351]Rock	
18	Retributio	Brooding edgy rock	INDIE	KPM	JM	Y	Rock	Grunge						1	[1351]Roc	[1351]Rock			
19	On The Rc	Driving pop rock anthem	INDIE	KPM	JM	Y	Indie	Rock						1	[1292]Pop	[1292]Pop	[1351]Roc	[1351]Rock	
20	Here I Am	Thrashy and infectious Indie groove - ma	INDIE	KPM	JM	N	Pop	Indie	Rock					1	[1339]Indi	[1339]Indi	[1142]Gro	[1142]Grooves	
21	Here I Am	Thrashy and infectious Indie groove - Bac	INDIE	KPM	JM	N	Pop	Indie	Rock					1	[1339]Indi	[1339]Indi	[1142]Gro	[1142]Grooves	
22	California	Vocal / Lyric - Feel good summertime stri	INDIE	KPM	JM	N	Pop	Rock	Indie	Alternative Rock				5					
23	California	Feel good summertime strumming - Back	INDIE	KPM	JM	N	Pop	Rock	Indie	Alternative Rock				5					
24	Somethin	Melodic uplifting soulful pop - male voca	INDIE	KPM	JM	N	Pop	Indie						1	[1198]Mot	[1198]Mot	[1292]Pop	[1292]Pop	
25	Somethin	Melodic uplifting soulful pop - Undersco	INDIE	KPM	JM	N	Pop	Indie						1	[1198]Mot	[1198]Mot	[1292]Pop	[1292]Pop	
26	Only Love	Slow burning broody outpouring of raw e	INDIE	KPM	JM	N	Pop	Indie	Alternative Rock					5					
27	Thinking /	Edgy Lo-Fi pop punk - male vocal - 30 Sec	INDIE	KPM	JM	N	Indie	Punk	Pop Punk					1	[1159]Lo F	[1159]Lo F	[1293]Pop	[1293]Pop Punk	
28	Thinking /	Edgy Lo-Fi pop punk - Backing track - 30 S	INDIE	KPM	JM	N	Indie	Punk	Pop Punk					1	[1159]Lo F	[1159]Lo F	[1293]Pop	[1293]Pop Punk	
29	Coming Di	Sensitive fragile ballad to uplifting epic -	INDIE	KPM	JM	N	Pop	Indie	Alternative Rock					5	[1198]Mot	[1198]Motivational			
30	I Don't Ne	Melodic Indie angst - male vocal - 30 Sec	INDIE	KPM	JM	N	Pop	Indie						1	[1339]Indi	[1339]Indie			
31	I Don't Ne	Melodic Indie angst - Backing track - 30 S	INDIE	KPM	JM	N	Pop	Indie						1	[1339]Indi	[1339]Indie			
32	Standing C	Uplifting rock anthem - 30 Sec	INDIE	KPM	JM	N	Rock	Indie						1	[1198]Mot	[1198]Mot	[1351]Roc	[1351]Rock	
33	Fly To The	Vocal / Lyric - Laid back summer sounds -	INDIE	KPM	JM	N	Pop	Rock	Indie	Alternative Rock				5					

Track titles and descriptions are used as text for indexing



Highlighted genre indicates the genre that best fits the track

Number indicates level of confidence (1 is highest confidence)

Indexing results inform the genre selection



Additional Techniques

Because of the lack of textual data to go from a number of other methods were used to confirm existing genre data

- Master tracks were compared to their child tracks (variants of the master). If the child track data was more robust it was rolled up to the master.
- Tracks with variant artists were compared against each other.
- The same song was performed by the same artist multiple times. These tracks were compared as well.

#2 - Streaming media

- Use case
 - Help users find appropriate videos to watch
- The state of the data
 - Text is buried in audio
 - Text is provocative copy – not informative
 - Data is visually rich, text poor

Streaming Media

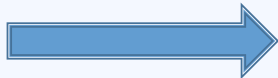
As streaming media content becomes more adopted it also becomes substantially more complex. Originally this was done by hand but as the environment becomes more complex new techniques become necessary.



Streaming Media: The Basic Approach

Genre Tags

Comedy



Horror

Love story

Children

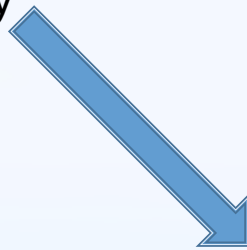
Animation

Shows with Tag

Stand up comedy

Late night

Cartoons



Streaming Media: The Better Approach

Genre Tags

Comedy

Horror

Love story

Children

Animation

Shows with Comedy

Stand up comedy

Late night

Cartoons

Shows with Love Story and Animation

Disney Movies

User Chooses from list

User Profile

- Likes “Comedy”
- Dislikes “Horror”
- Likes “Love story”
- Likes “Animation”



Streaming Media: The Best Approach

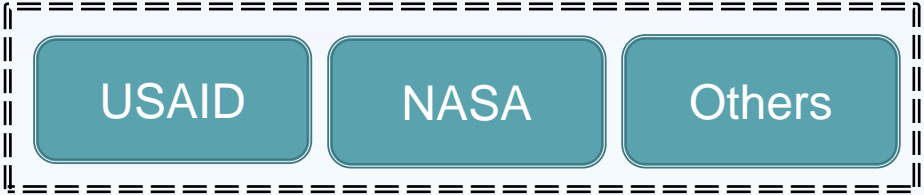
- Create robust user profiles
- Use multiple tags for all content
- Determine relationships between content (Ex: Kids shows usually don't have violence).
- Use additional data points such as usage to optimize delivery
- Give users choice!
- Group similar content (particularly for advertising)



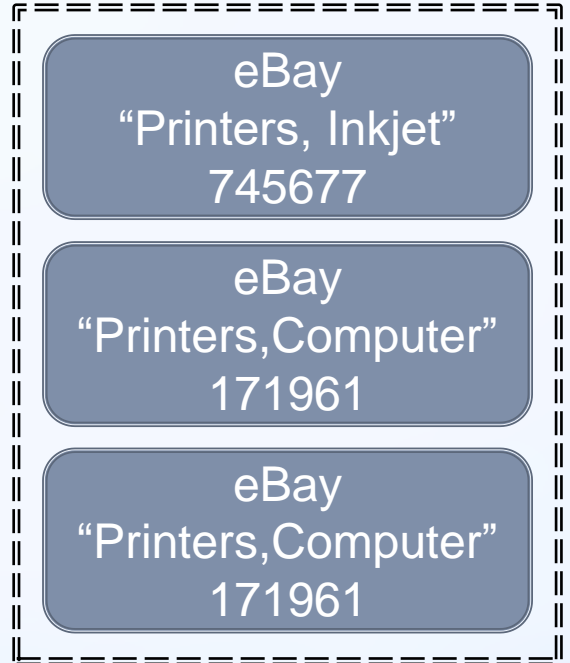
3 E-Commerce transactions

- Use case
- How to index / tag everything
 - On an online “store” site, like Amazon, eBay, Walmart, Home Depot, B&H Photo
 - Or instore to enable search on a kiosk
 - Or for purchase of services and supplies on a corporate website
- Map to UNSPSC or Ecl@ss for corporate transactions
- UNSPSC

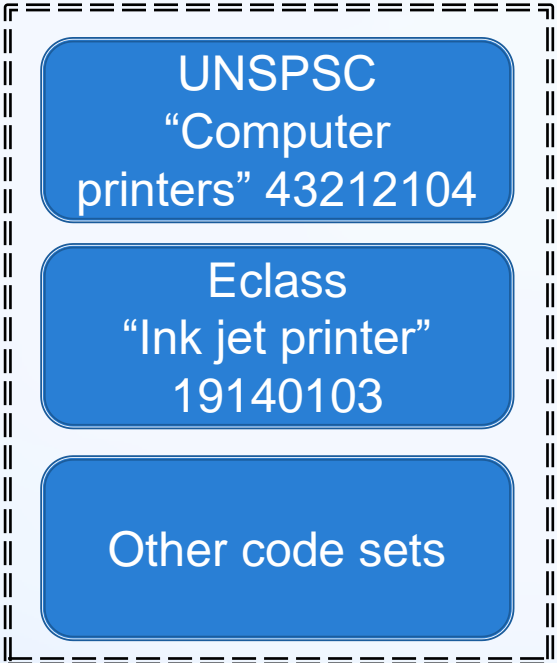
Federal Agencies



eCommerce Retailers

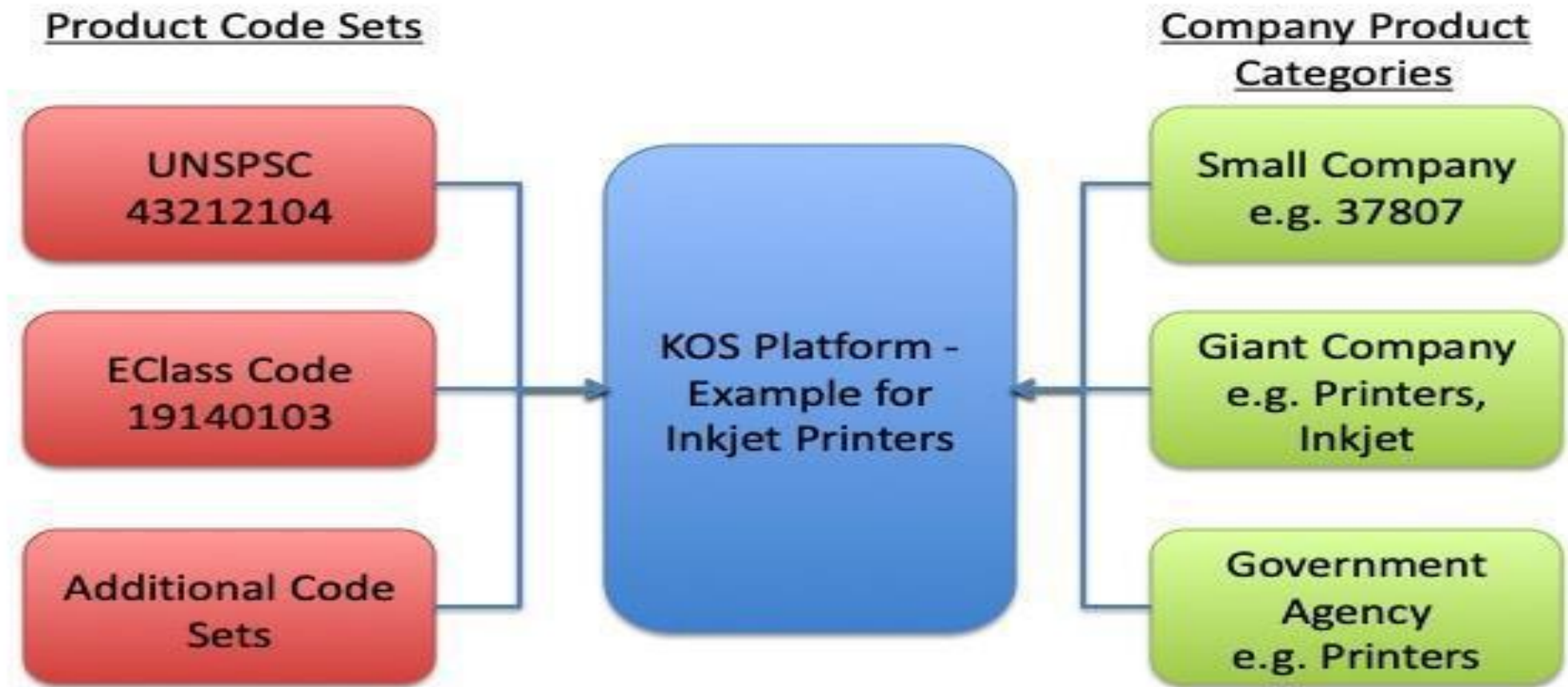


Product Code Sets



Brick and Mortar Retailers





Mapping codes, classifications, categories from very broad to very specific

UNSPSC

- **United Nations Standard Products and Services Code (UNSPSC)**
- A taxonomy of products and services for use in eCommerce.
- Four-level hierarchy coded as an eight-digit number, with an optional fifth level adding two more digits.
- The latest release of the code set is 21.0901 (as of December 2018).^[2]
- Over 50,000 commodities listed

Sample UNSPSC Codes

Level	Code	Description
Segment	44000000	Office Equipment, Accessories and Supplies
Family	44120000	Office supplies
Class	44121900	Ink and lead refills
Commodity	44121903	Pen refills

	A	B	C	D
1	CategoryID	CategoryName	ParentCategory	UnspscCommodities
3740	20593	Other Door Hardware	41976	3116
3741	20594	Other Home Building & Hardware	3187	30
3742	20601	Plumbing & Fixtures	159907	3018
3743	20604	Other Flooring	180983	301617
3744	20607	Mops & Brooms	259338	471316
3745	20608	Trash Cans & Wastebaskets	259345	47121702
3746	20612	Portable Fans	185114	40101604
3747	20613	Space Heaters	185107	40101819
3748	20614	Vacuum Cleaners	299	47121602
3749	20618	Vacuum Cleaner Bags	299	47121607
3750	20620	Laundry Supplies	299	471115
3751	20621	Other Home Organization	43502	561015
3752	20624	Other Laundry Supplies	20620	471115
3753	20625	Kitchen, Dining & Bar	11700	5215
3754	20633	Microwave Cooking Gadgets	20635	5215
3755	20635	Kitchen Tools & Gadgets	20625	521516
3756	20636	Colanders, Strainers & Sifters	20635	521516
3757	20637	Flatware, Knives & Cutlery	20625	521517
3758	20638	Knife Blocks & Storage	20637	23232001
3759	20641	Peelers & Slicers	20635	52151609
3760	20642	Mixing Bowls	20635	52151602
3761	20643	Paper Towel Holders	20652	5215
3762	20644	Refrigerator Magnets	20635	491016
3763	20646	Spice Jars & Racks	20652	521520
3764	20647	Spoon Rests	20635	52151705
3765	20649	Cooking Utensils	20635	521516
3766	20651	Other Kitchen Tools & Gadgets	20635	521516
3767	20652	Kitchen Storage & Organization	20625	521520
3768	20653	Food Storage Bags	20652	52152002
3769	20654	Canisters & Jars	20652	52152002
3770	20655	Food Storage Containers	20652	52152002
3771	20657	Aprons	71237	46181501
3772	20658	Napkin Rings & Holders	71237	30181510
3773	20659	Napkins	71237	52121602
3774	20660	Placemats	71237	52121606

In this type of product mapping, we use the UNSPSC product code set as the backbone. As a fixed code set, it can be used as the basis to connect product lists from various retailers.

Mapping to multiple product lists allows us to use UNSPSC as the “hub” in a “hub and spoke” model. We can then begin to infer like products from product list to product list.

The applications learns as more lists are added, finally allowing us the possibility of creating bespoke catalogs for retailers that do not possess one.

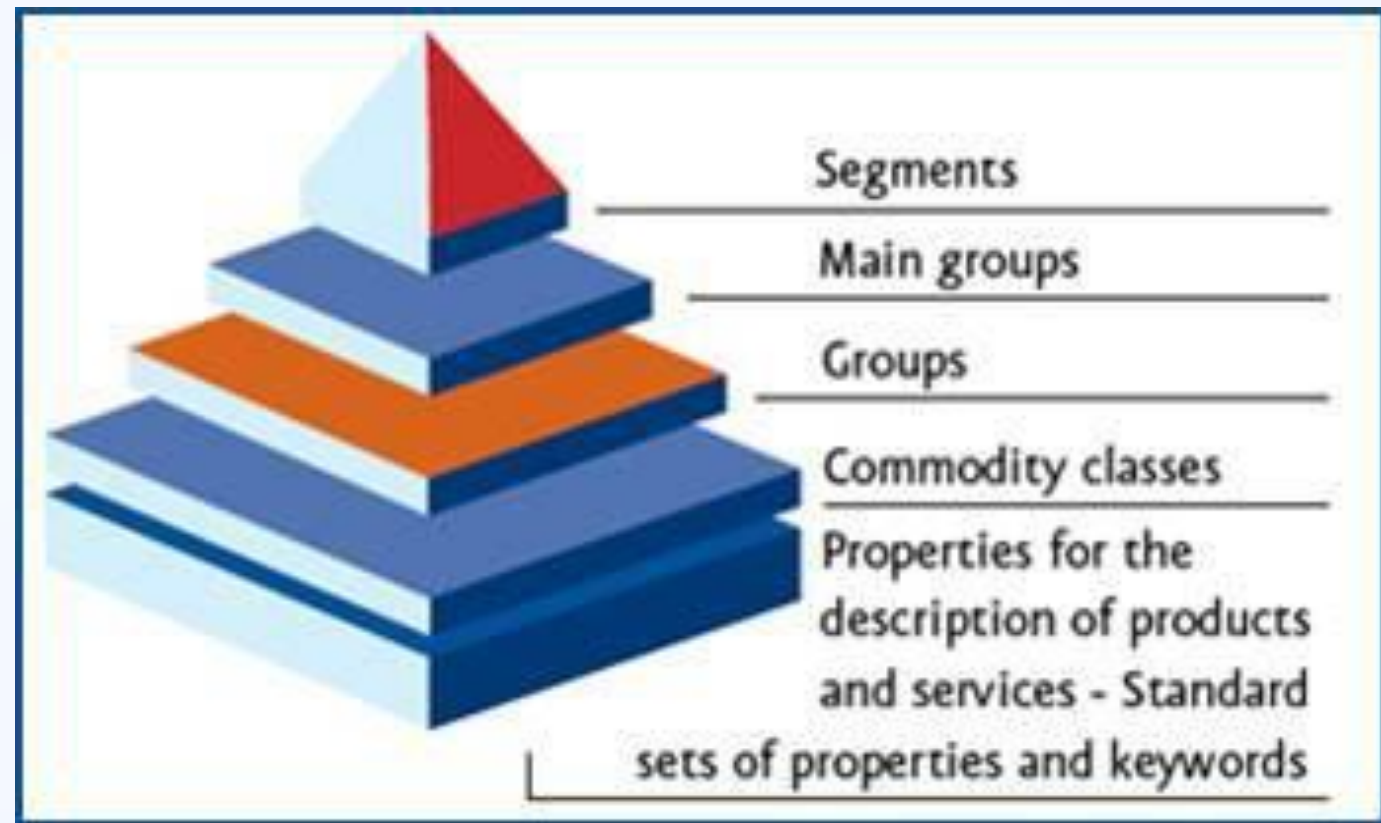


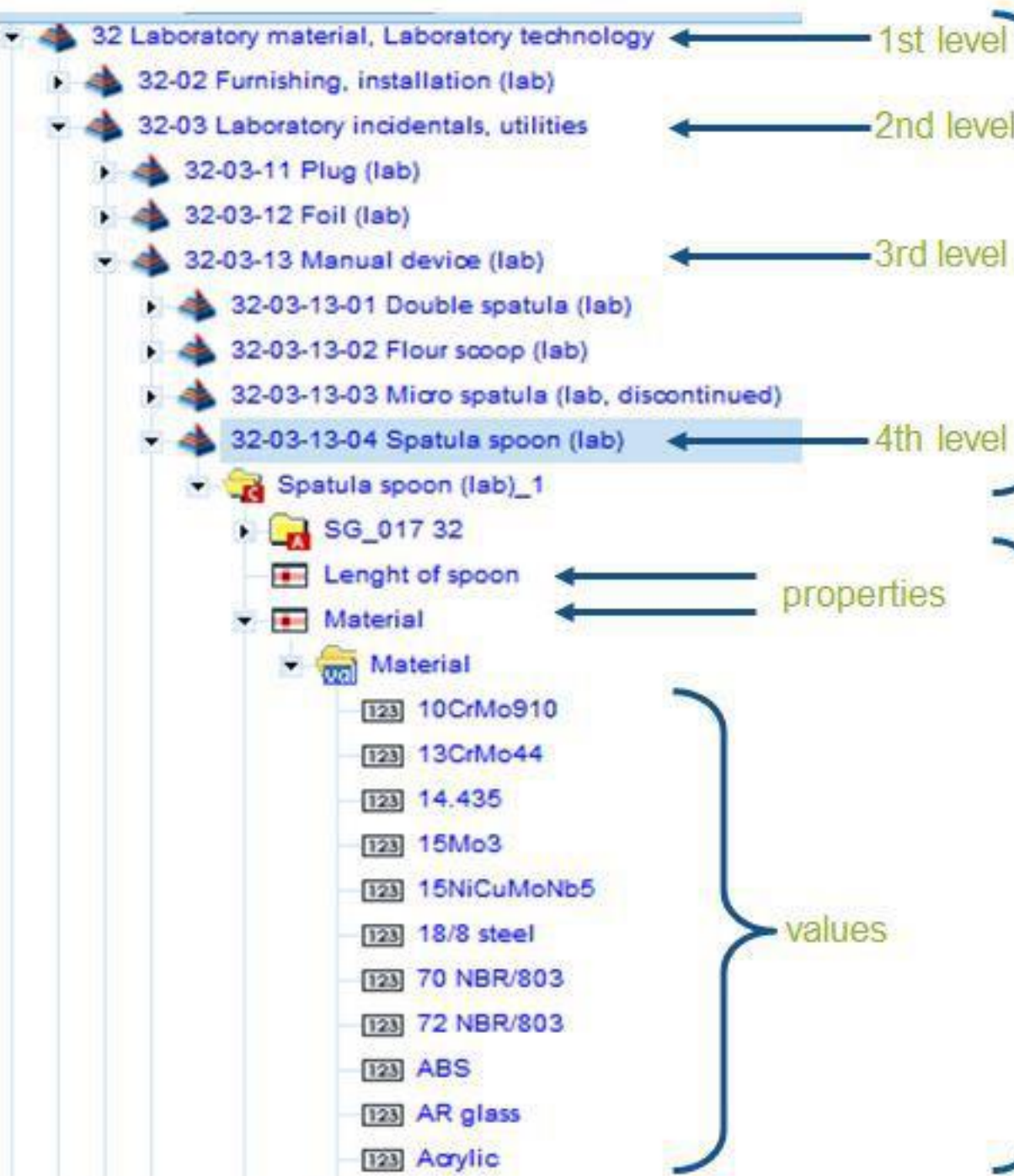
Common Procurement Vocabulary

- CPV was developed by the European Union to support procurement
- Main vocabulary = subject of the contract
 - supplementary vocabulary to add further qualitative information.
 - 03113100-7 Sugar beet
- Tree structure made up with codes of up to 9 digits
 - Divisions: first two digits of the code XX000000-Y.
 - Groups: first three digits of the code XXX00000-Y.
 - Classes: first four digits of the code XXXX0000-Y.
 - Categories: first five digits of the code XXXXX000-Y.
 - Use for supplies, works or services
 - Can use more than one CPV Code
 - Use CPV codes to identify business sectors

eC|@ss

- Monohierarchical classification
 - system
- Classification class
 - has a unique identifier ([IRDI](#))
- Four levels
 - Segment
 - Main group
 - Group
 - Sub-group or commodity class (product group)





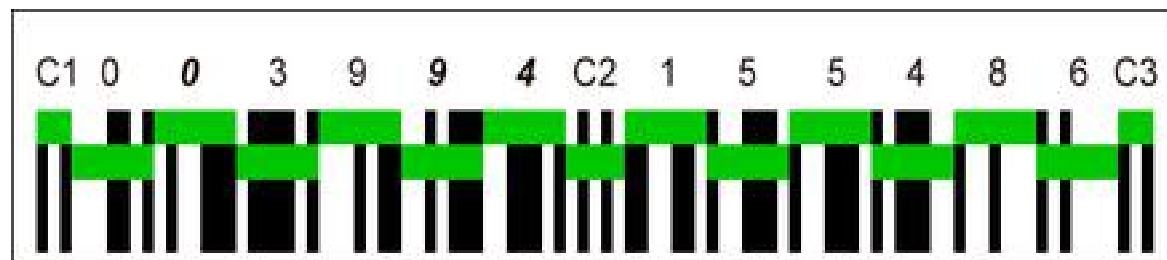
Classification

Product Description

http://wiki.eclass.eu/wiki/Classification_Class

EAN-13 barcode example

- EAN-13 barcode. A green bar indicates the black bars and white spaces that encode a digit.
 - C1, C3:Start/end marker.
 - C2: Marker for the center of the barcode.
- 6 digits in the left group: 003994.6 digits in the right group (the last digit is the check digit): 155486.
- A digit is encoded in seven areas, by two black bars and two white spaces. Each black bar or white space can have a width between 1 and 4 areas.
 - Parity for the digits from left and right group: OEEOEE EEEEE (O = Odd parity, E = Even parity).
- The first digit in the EAN code: the combination of parities of the digits in the left group indirectly encodes the first digit 4.
 - The complete EAN-13 code is thus: 4 003994



Global Product Classification

- GS1 - a not for profit global organization
- Universal Product Code (UPC) was selected by this group as the first single standard for unique product identification
- GS1 barcodes are scanned more than six billion times every day.
- **EAN European Article Number**
 - 13 digit code
 - Unique Country Code (UCC) first 3 digits
 - 5-digit manufacturer codes
 - 99,999 codes available per manufacturer
 - Product code – three digits



Global Trade Item Number

- GTIN also from GS1
- Universal number space
 - International Standard Book Number (ISBN)
 - International Standard Serial Number (ISSN)
 - International Standard Music Number (ISMN)
 - International Article Number
 - European Article Number and Japanese Article Number)
 - some Universal Product Codes (UPCs)

GTIN Format

- 8, 12, 13 or 14 digits long
 - Company Prefix,
 - Item Reference
 - Check Digit
 - Marked with [EAN-8](#), [EAN-13](#), [UPC-A](#) or [UPC-E](#) barcodes.
- EAN-8 code used usually for very small articles
 - Chewing gum,
 - Wrigley's Chewing gum was the first barcode read in 1974

The Need

- Rapid growth
 - Ariba faces a constant need to map an ever expanding set of products to one universal product taxonomy.
- Expense and Time
 - Manual mapping needs to be phased out in favor of automated mapping in order to accommodate for size.

The Solution

A single master product taxonomy which Ariba can maintain and change as needed.

Spot Buy Taxonomy

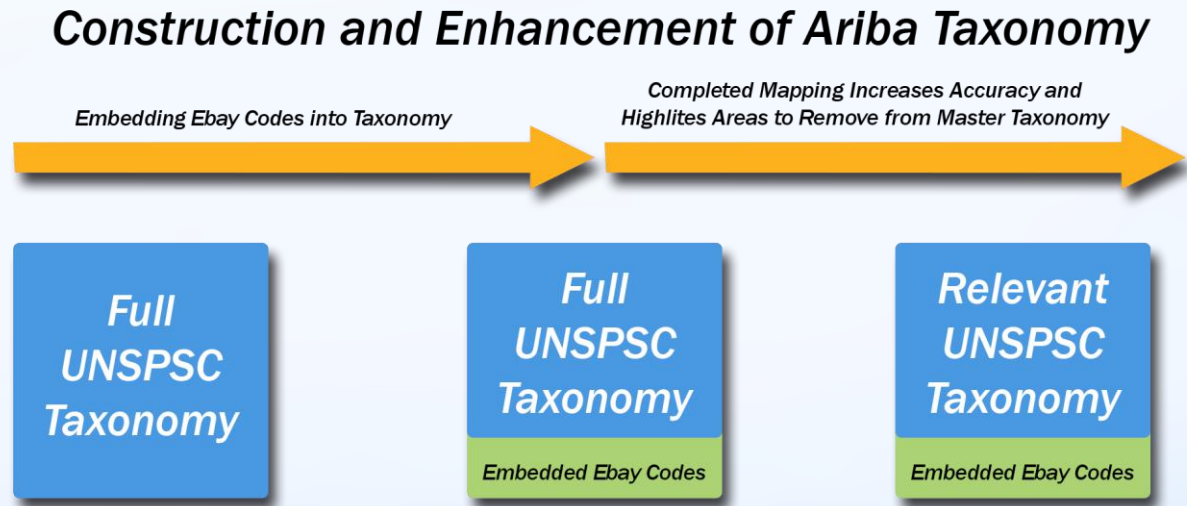
The taxonomy must be...

- Large accommodate the needed breadth and granularity required for effective mapping
- Editable to allow for the creation of new products
- Expandable to capture any additional relevant information
 - EBay codes
 - Product numbers
 - Etc.
- Capable of automatic mapping for incoming vendors taxonomies

The Proof of Concept

To prove the feasibility of a master Ariba taxonomy Access Innovations created a basic pilot.

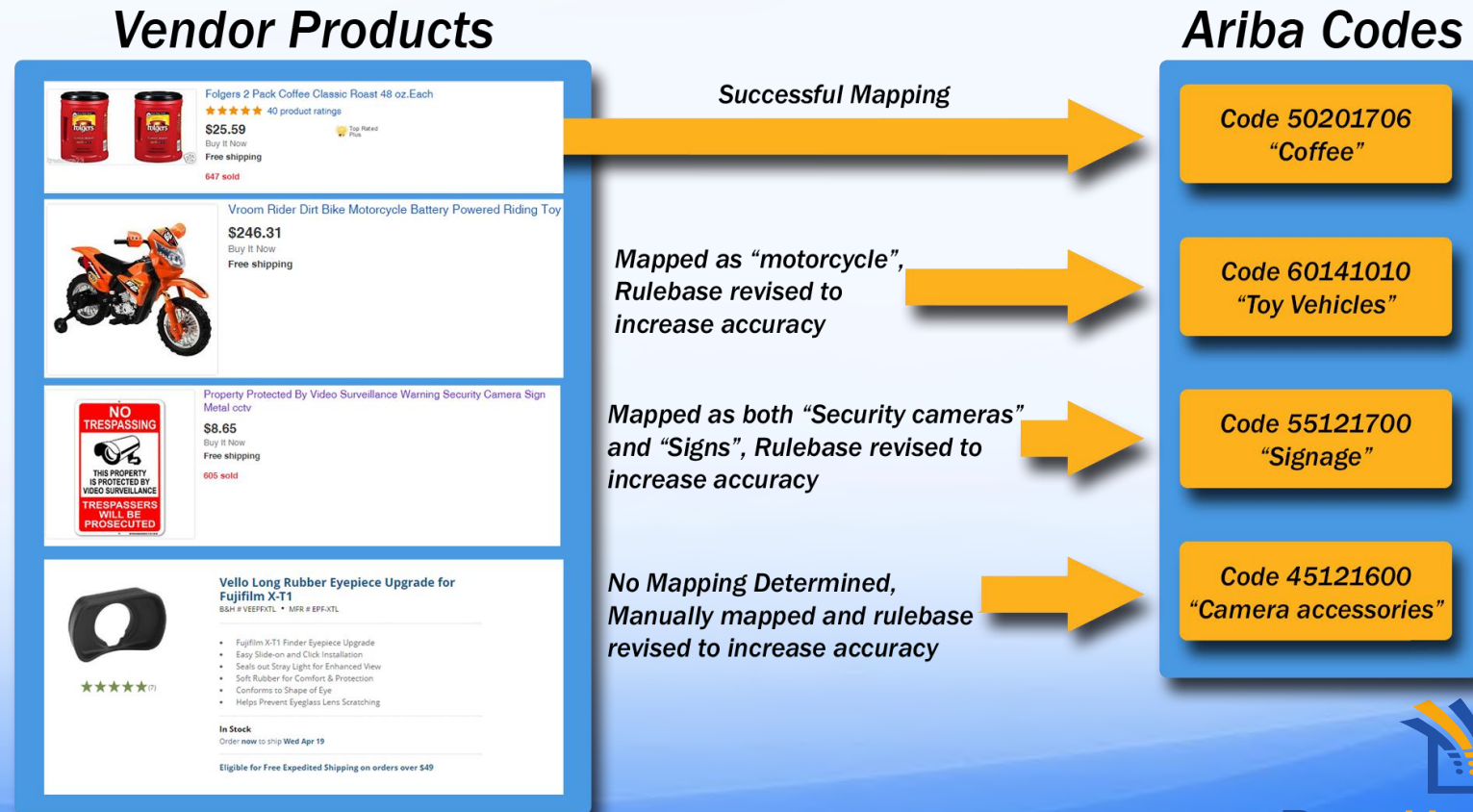
- Based off UNSPSC
- 21,715 terms
- Very broad
- Deleted irrelevant codes
- Enhanced terms with embedded EBay codes



Automated Mapping

Used Machine Aided Indexing (MAI) to automatically and accurately map the EBay taxonomy

- Incorrect mappings were used to revise the rule base and improve future mapping
- Determined need to index based on high level categories

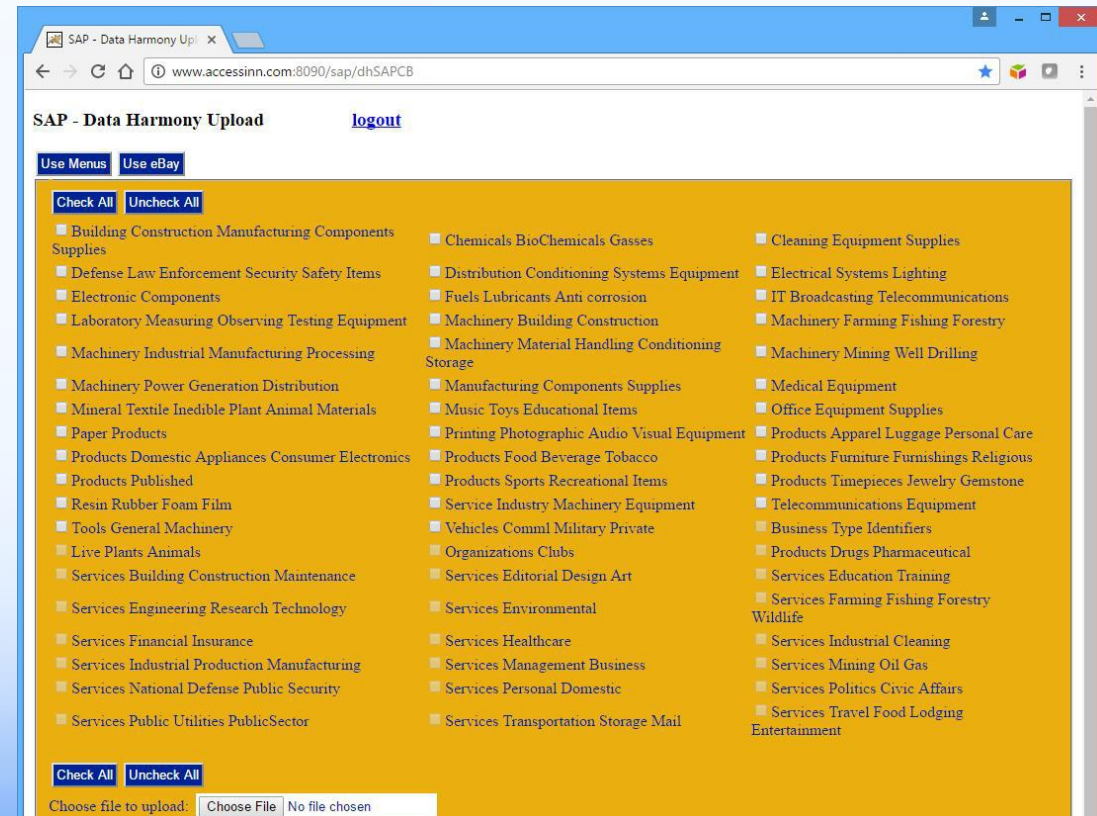


Automated Mapping

After successfully mapping the EBay taxonomy to the Ariba product taxonomy Access Innovations created a web application to allow for editorial interaction with the mapping system.

The web application was designed to be...

- Easy to use
- Secure (login access required)
- Flexible
 - Variety of upload formats
 - Secondary options available for EBay code mapping (rather than text)
 - Option to scan only specific categories for mapping



What Was Learned?

Automated mapping between various formats of vendor product taxonomies to the Ariba master taxonomy is proposed. **Spot Buy Taxonomy**

- UNSPSC as the base
- Created a basic Ariba taxonomy
- More granularity needed
- Great variety of products in EBay/other vendors.
- Rule base alterations continually increase the automated mapping accuracy
- Completed mappings are automatically re-ingested

What Next?

Continued mapping of high priority vendor taxonomies to the Ariba master taxonomy.

- Google product taxonomy
- NAICS
- SIC
- eCl@ss,
- UL
- B&H Photo
- EBay
- United States EBay (already mapped)
- United Kingdom EBay
- Australia EBay
- Germany EBay
- Mercado Libre
- Etc...

Each mapping improves overall mapping accuracy

Plan for vendors to go directly to Access Innovations for mapping services

What Next?

Revision of Ariba taxonomy to increase granularity and accuracy

- Taxonomy transforms and grows as product categories become more granular.
- New products creates a feedback loop
- Uses vendor data to keep the Ariba taxonomy up to date

What Next?

Enhancements to the Ariba taxonomy to add value

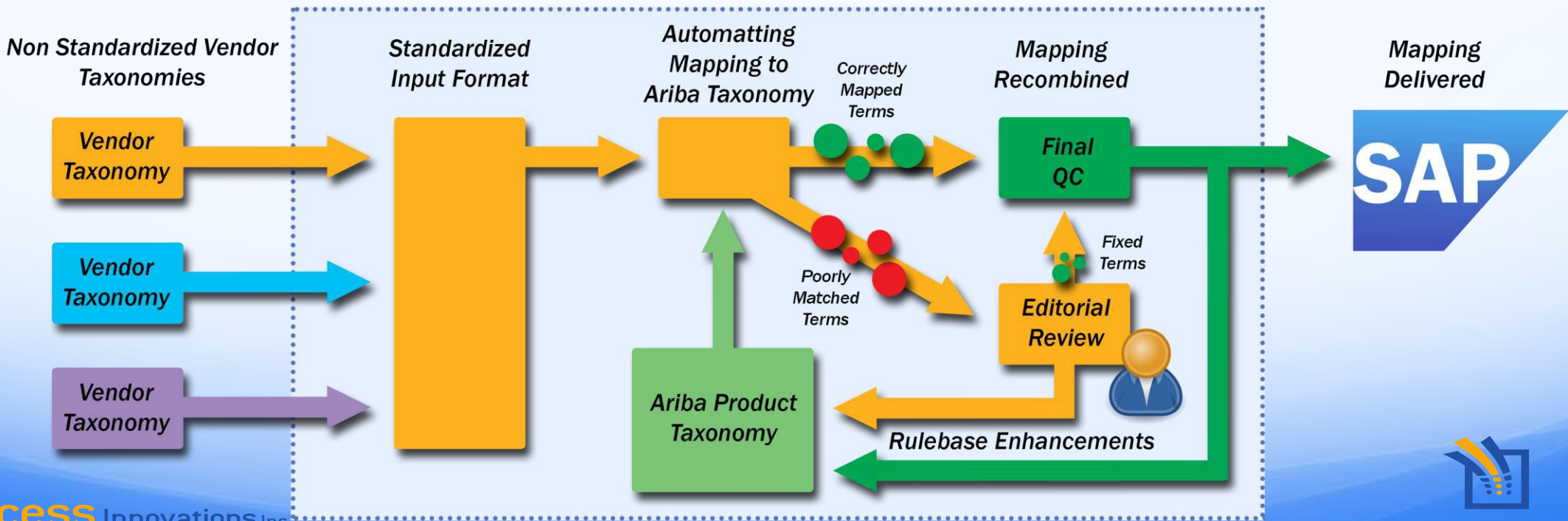
- EBay codes
- Foreign language terms
- Definitions
- Scope notes
- Product numbers
- Etc.

Term Enhancements



What Next?

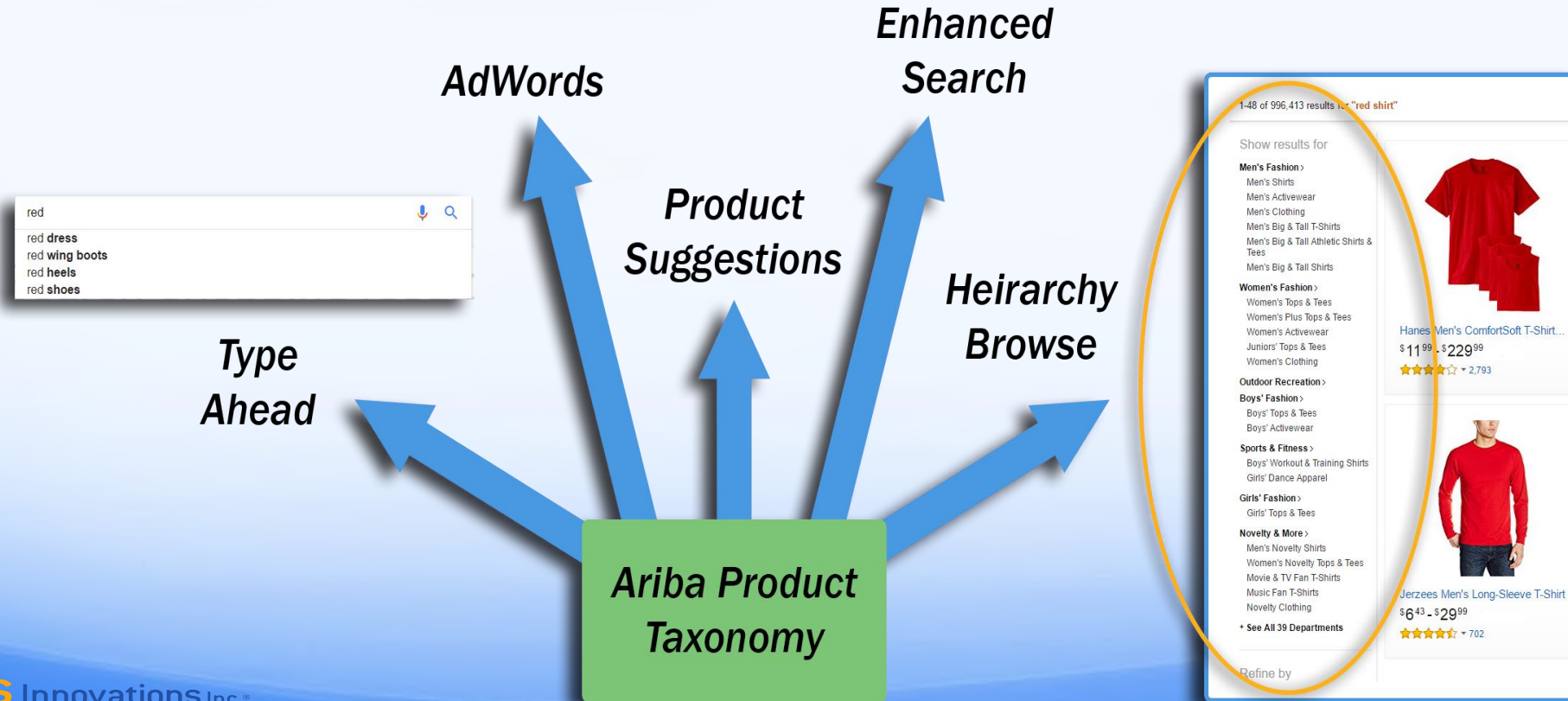
Self improving workflow which can improve the speed and accuracy.



What Next?

Effective implementation of the master taxonomy

- A well maintained master taxonomy has multiple uses which can increase value including...



Federal Agencies



Product Code Sets

UNSPSC
"Computer printers" 4321210

Eclass
"Ink jet printer" 19140103

[Partially obscured]

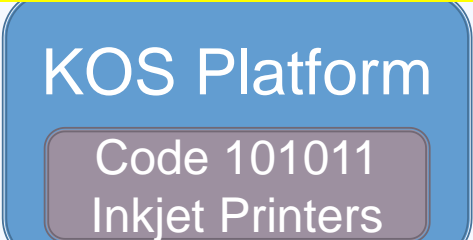
eCommerce Retailers

eBay
"Printers, Inkjet" 745677

eBay
"Printers, Computer" 171961

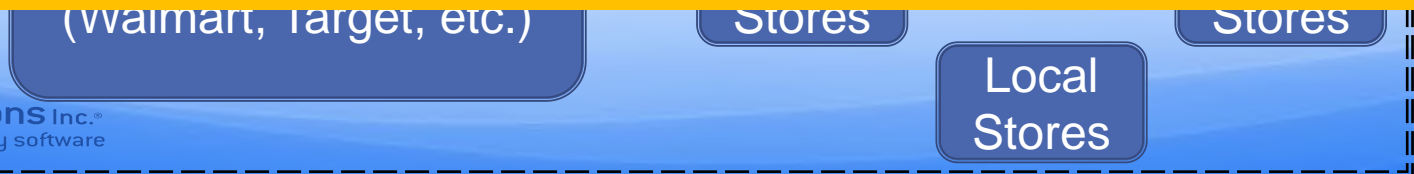
eBay

A Knowledge Graph?



Or does it have to be an RDF Triples?

Certainly could be converted



Summary

- There are MANY Code sets representing old classification systems.
- We need to make them work as a KOS
- The same methods apply
 - Although the terms phrases are not standard
- Three case studies
 - Coded lists
 - Need text for search
 - Merging Coded lists with text based KOS
 - Gives excellent retrieval
 - Supports commerce
 - Support search

It's a HUGE world out there!

Questions??

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Solving Medical Coding

Implementing ICD-10 with Access Integrity

The need

- Medical Providers are required by clinic management to provide ICD-10 codes for a patient encounter.
 - Doesn't the clinic hire coders to do this?
- Providers are out of their element and miss codes that can pay them more.
 - MAIstro captures and recommends these.
- Doctors want to be doctors,
 - but they have to take time with unfamiliar code sets and concept
 - keeping them from providing you the care they know they should deliver.

How It Works

- Leverages Data Harmony in the medical space to deliver relevant ICD-10, CPT, and HCPCS code recommendations.
- The massive rule bases (4.6 million lines for ICD-10) analyze the content and context of the providers' notes in an EHR.
- Delivers highly relevant diagnosis and procedure coding suggestions, while supplying revenue cycle and denial management resources.

AI2 Integration Basic: Medical Claims Compliance (MCC)

Submit Claims Review Claims EMR Batches Search For Claims Edit Claims Statistics Help Logout

Medical Claims Compliance®

User: AI2

Patient Information

EMR Currently loaded:

Record ID #:

ZIP Code:

Gender: M F Age:

Date of Service

Location (select a Place of Service POS)

Provider

Group

Recommended Codes

ICD9v1 ICD9v3 CPT HCPCS ICD10 beta

- Z04 - Encounter for examination and observation for other reasons
- S161 - Strain of muscle, fascia and tendon at neck level
- S169 - Unspecified injury of muscle, fascia and tendon at neck level
- S16 - Injury of muscle, fascia and tendon at neck level
- M255 - Pain in joint
- G4700 - Insomnia, unspecified
- M2660 - Temporomandibular joint disorder, unspecified
- G470 - Insomnia

Selected Codes

- Z048 - Encounter for examination and observation for other specified reasons
- S161XXA - Strain of muscle, fascia and tendon at neck level, initial encounter

Electronic Medical Record/Notes

Paste text below or

1. Adult health examination - Exam is stable. Continue healthy diet and exercise. Labs stable. Mammogram and pap per gyn. Colonoscopy up to date.
Z00.00: Encounter for general adult medical examination without abnormal findings
2. Strain of neck muscle - Refer to physical therapy. Exam and symptoms c/w neck and shoulder tension, likely triggered by TMJ. Celebrex 200 mg qd as needed for pain (use celebrex since she has h/o gastritis).
S16.1XXA: Strain of muscle, fascia and tendon at neck level, initial encounter
3. Temporomandibular joint disorder
M26.609: Unspecified temporomandibular joint disorder, unspecified side
4. Insomnia
G47.00: Insomnia, unspecified
5. Immunization
Z23: Encounter for immunization
Chief Complaint:
Preventive Health

Search Codes

fracture

code description

ICD9v1 ICD9v3 CPT HCPCS ICD10 (Beta)

- S42222 - 2-part displaced fracture of surgical neck of left humerus
- S42222A - 2-part displaced fracture of surgical neck of left humerus, initial encounter for closed fracture

Upload a file or paste text for analysis

Codes are suggested based on context

Selected codes are separated from suggestions for copying and pasting into an EHR.

Search functionality for code and description.

AI2 Integration Intermediate: Find-A-Code (FAC)

FIND-A-CODE™ enter keywords or codes

Codes Info Tools Topics Community Account My Codes History

Code-A-Note™ instantly code provider notes

Demo Video

Patient Information

Record ID ZIP Code

Gender Age

Date of Service

Location

Notes/EMR (Paste notes here.)

Please remove any Personal/Protected Health Information (PHI) from encounter notes before clicking the 'Scan Notes' button for processing.

neck muscle - Refer to physical therapy. Exam and symptoms c/w neck and shoulder tension, likely triggered by TMJ. Celebrex 200 mg qd as needed for pain use celebrex since she has h/o gastritis.
S16.1XXA: Strain of muscle, fascia and tendon at neck level, initial encounter 3. Temporomandibular joint disorder M26.609: Unspecified temporomandibular joint disorder, unspecified side 4. Insomnia G47.00: Insomnia, unspecified 5. Immunization Z23: Encounter for immunization
Chief Complaint: Preventative Health

Feedback/Comments

Recommendations (Click on a code to Choose it.)

S16.1XXA - Strain of muscle, fascia and tendon at neck level, init

M26.609

S16.9XXA - Unsp injury of muscle, fascia and tendon at neck level, init

M62 - Other disorders of muscle

Z04.8 - Encounter for examination and observation for oth reasons

Z04.9 - Encounter for examination and observation for unsp reason

Z04 - Encounter for examination and observation for other reasons

S16.1 - Strain of muscle, fascie and tendon at neck level

S16.9 - Unspecified injury of muscle, fascia and tendon at neck level

S16 - Injury of muscle, fascia and tendon at neck level

M25.5 - Pain in joint

G47.00 - Insomnia, unspecified

M26.60 - Temporomandibular joint disorder, unspecified

G47.0 - Insomnia

Z00.00 - Encntr for general adult medical exam w/o abnormal findings

Chosen Codes

ICD10CM S16.9XXA - Unsp injury of muscle, fascia and tendon at neck level, init

ICD10CM Z04.8 - Encounter for examination and observation for oth reasons

CPT 90472 - IMMUNIZATION ADMIN EACH ADD (RVU:0.36)

Add a code: Code not listed?

Code Checker

General Messages:

Procedure Code: 90472

Everything in MCC also exists in Find-A-Code, with some additions.

Zip code is required to calculate Relative Value Units (RVUs), which determine how much a practice gets paid. Health care is cheaper in Cheyenne than Boston.

Book View surfaces the hierarchy, allowing users to see the codes surrounding the suggested codes.

Scrub functionality checks selections against medical databases and returns errors if they exist. This is not a well-coded note.

The screenshot displays the IntegraCoder interface with several key sections:

- Recommendations:** A search bar at the top left with the text "Search individual code sets or search globally." pointing to it. Below are tabs for "ICD10", "Procedures", "Items/Services", and "ICD9". The "ICD10" tab is active, showing a list of codes such as "[ICD10CM] M26.609" and "[ICD10CM] Z04.9".
- Notes:** A section titled "Notes" containing "Diagnoses:" with a list of medical notes, including "1. Adult health examination - Exam is stable..." and "2. Strain of neck muscle - Refer to physical therapy..."
- Assessed:** A section titled "Assessed" showing a list of codes with status indicators, such as "[ICD10CM] S16.1XXA -ASSESSED-" and "[ICD10CM] G47.00 -ASSESSED-".
- Line Items:** A section titled "Line Items" showing a table with columns for code, units, modifiers, and diagnosis. One row is visible: "[CPT] 90472 Units: 1 Modifiers: ? GA Diagnosis: S16...".
- Top Right:** A navigation bar with buttons for "Raw Data", "Beta-eMDoc", "Scrub", "Save", and "Charge". A "Feedback" button (represented by a speech bubble icon) is also present.

Search individual code sets or search globally.

Feedback button allows for easy communication.

Charge pushes selections back into the EHR billing screen.

IntegraCoder validates the codes selected within the EHR.

View and select modifiers for more accurate reimbursement.

AI2 SDK Integration: ZipRad – Medical Imaging Application

The screenshot shows the ZipRad application interface. It includes a header with the 'ZipRad' logo and a gear icon. The main content area is divided into several sections:

- Select Patient:** A dropdown menu showing 'Little Bubba DOB: 04-26-1947'.
- Request:** A dropdown menu showing 'Stat'.
- Imaging Center:** A dropdown menu showing 'Zip1'.
- Exam:** A dropdown menu showing 'CT'.
- Complaint:** A text area containing 'chest pain, pneumonia'.
- Available Exams:** A tree view showing categories like 'Upper Extremity', 'Head/Neck', 'Chest', 'Abdomen', 'Pelvis', 'Lower Extremity', 'Spine', and 'Combo - Whole Body'. The 'Chest' category is expanded, showing sub-categories like 'Thoracic Spine' and 'Heart/Great Vessels'.
- Exam Options:** A section with four toggle switches: 'Radiologist's discretion:' (Yes), 'With IV contrast:' (No), 'Without IV contrast:' (No), and 'With & without IV contrast:' (No).
- Comments:** A text area containing 'Allergic to penicillin'.
- Please select a file to add:** A 'Select files...' button.
- Submit Order:** A 'Submit Order' button.
- ICD-10 and CPT codes:** A list of codes with checkboxes:
 - R07.9 - Chest pain, unspecified
 - R07.89 - Other chest pain
 - J18.8 - Other pneumonia, unspecified organism
 - J18.9 - Pneumonia, unspecified organism
 - J17 - Pneumonia in diseases classified elsewhere

ZipRad is an application that presents a provider with a map of the human body, with which they select the body part, type of imaging, and modifier.

They integrated the AI2 SDK to automatically recommend ICD-10 and CPT codes, which the provider selects before ordering the imaging service.