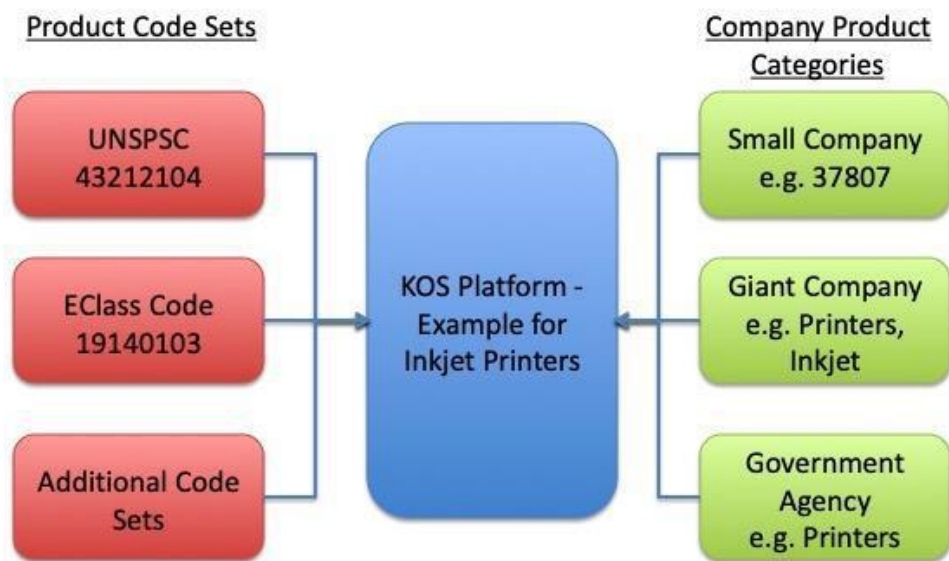


## KOS Mappings

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Although linked data is much reported in academia there is a larger effort underway to map KOS and coded lists to enable both e-commerce and brick and mortar commerce. This paper covers three examples of KOS mapping: Coded KOS lists in support of B-to-B purchasing; support for search on sparse data such as tracks of music; and ad tracking based on video content. Each individual mapping project has unique characteristics, but can be extrapolated to show robust, new applications of taxonomies, ontologies, and data linking (as opposed to linked data).

1. Mapping external, standardized classification schemas such as the UNSPSC (<https://www.unspsc.org>) or Ecl@ss (<https://www.eclass.eu/en.html>) to proprietary classification schemas hosted on a central e-commerce hub is being done by more and more organizations as varied as local and national governments, small companies, and large multinational corporations, move to KOS driven transactions. These complex maps become a kind of knowledge graph created to support the complexities of electronic ordering over diverse platforms, languages, borders, political geographies, and cultures at the speed of digital transmission. The time factor including enabling the finding of materials, placement of orders, and sending them to customers is a competitive edge, involving a great many players. Organizations must order items from geographically dispersed suppliers with their own, proprietary product categories and manage the expectations of the customers as automatically as possible. Reducing the number of human hands (and the mistakes we're prone to making!) by providing complex KOS mapping (and translation) schemas to connect the dots between the various coding, classification, and categorization schemas of each player in a supply chain allows transactions to happen in real time, accurately and more efficiently.



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

2. Generating play lists as automatically as possible for all age groups and preferences is an increasingly in-demand service. To make these services work there are behind the play- list offerings KOS with large synonym schemas, often multilingual, to support customer requests and fulfill them both from albums and singles released by various artists, produced by varied composers, and distributed by multiple labels. A popular song is often 'performed' by a series of various artists. Artists are known to record a given song multiple times in their careers. These multidimensional KOS can be called ontologies or taxonomies or knowledge graphs, but the functionality is often outside the definitions of any of these concepts. These KOS may be developed in spreadsheets or specialized apps and delivered in CSV, XML, or other formats depending on the consuming applications. With only very sparse textual metadata, automatically tagging audio tracks with the KOS was very challenging, requiring these very extensive, complex synonyms schemas.

3. The environment for providing on-demand streaming and television programming has become increasingly complex given the volume and variety of content available. Defining that content and providing resources for those who select and provide the programming is a must. Early on professionals with extensive expertise did this classification work by hand, but it was slow and done inconsistently. These select professionals are now being supported in their work by several KOS providing authority files as well as topical or subject guidance to the programming.

All of these applications share a single methodology in the creation of multi-dimensional knowledge graphs for the domains covered – which are in all cases very broad commerce and consumer oriented rather than vertical topical areas or academic disciplines we normally deal with as taxonomies or ontologies or thesauri. When the input / output is bi or multilingual it requires additional processing steps, much of which can be automated.

This paper outlines these three unique case studies, giving the general methodology for fulfilling the organizational need for knowledge support to deliver their products and services.