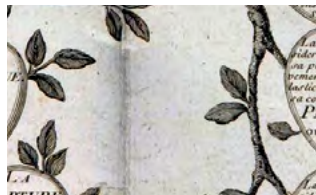


The (non-) sense of general knowledge taxonomies

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Introduction

In this publication I will lead you through the (non) sense of general knowledge taxonomies. I will explain you what I understand these taxonomies to be, and what not. Some findings may be extended to other knowledge taxonomies too.

After explaining what General Knowledge Taxonomies are, I will share a few benefits and drawbacks. From these characteristics I will then explain a few use-cases. The conclusion tries to give a final judgement on whether these general taxonomies make sense and whether you should (or shouldn't) start using them.

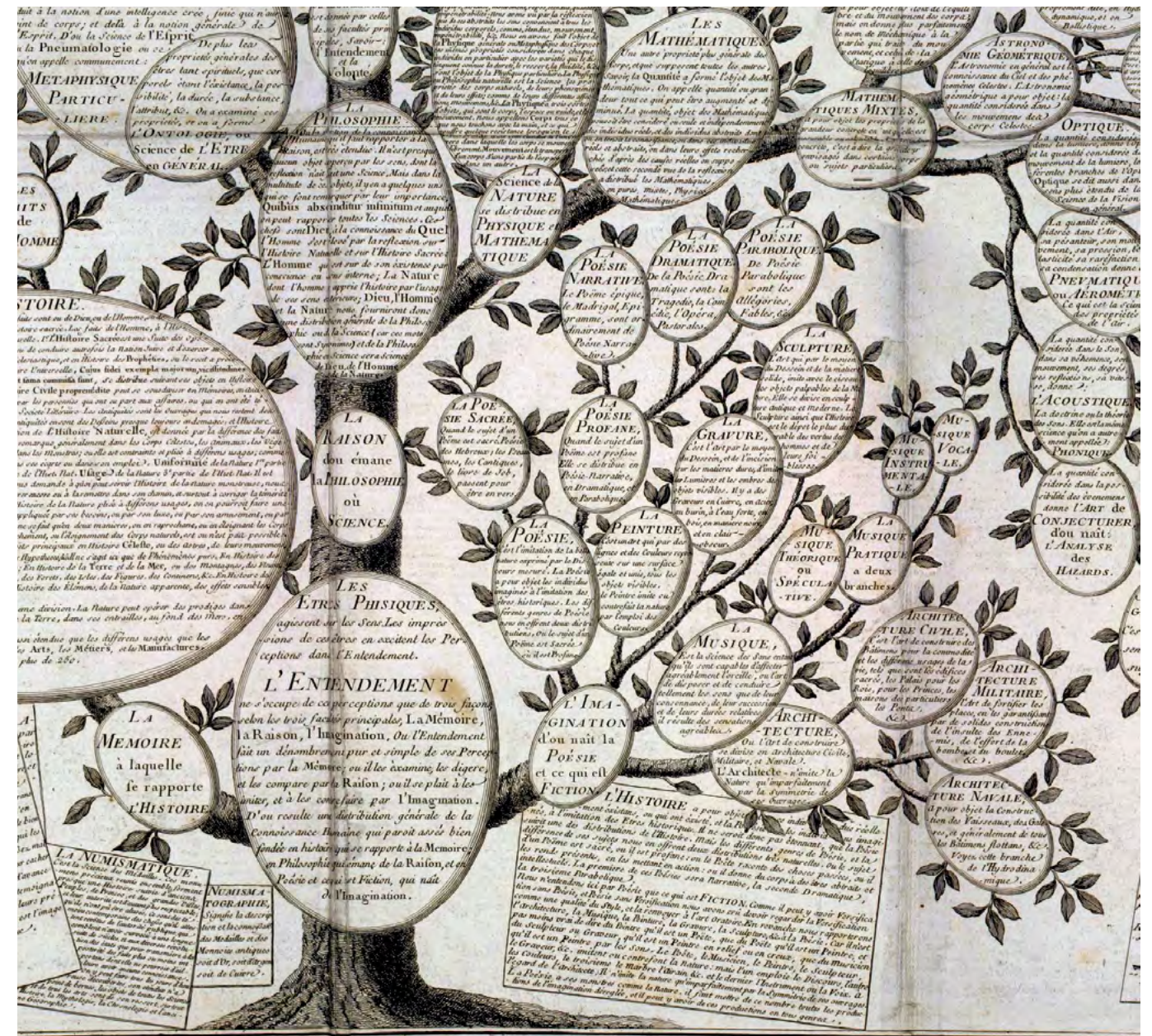
My background is Dutch. So a lot of examples and experiences I know best are in the Netherlands and / or Europe. I know there are many more general knowledge taxonomies like O*net in North

America and the Knowledge Taxonomy by the Asian Development Bank in Asia. These are very similar in build-up and usage, so make just as much (non) sense.

What do we mean with general knowledge taxonomies

What are general knowledge taxonomies. There are three important factors to consider:

- Broad knowledge domain
- Publicly available
- Structured and interconnected



They cover a broad range of knowledge. For some this means the entire labour market (like ESCO). For others it means all IV professionals of the Dutch national government (KWIV). It is never restricted to just one organization and not even restricted to one type of company or organization.

The taxonomy has to be publicly available. This means it cannot be a taxonomy made and/or maintained by one company. There are a lot of in-company knowledge taxonomies. Some of those are very specific and only have a few hundred knowledge topics. But established companies with a broad range of activities may have internal knowledge taxonomies with many thousands of knowledge topics. Though these proprietary internal knowledge taxonomies are out of scope for this publication, some findings may still be applicable to those too.

General knowledge taxonomies have to be structured and interconnected. If they are not, they are more of an ontological description of a certain domain.

Example 1: KWIV

KWIV (Dutch National Government IV professionals knowledge taxonomy) (1)

The KWIV contains 400+ jobs which are connected to 61 general profiles. Those 61 general profiles are again connected to 200+ skills of which a few are transversal skills. Transversal skills are skills anyone is expected to have (to some degree) like Ethics, Accessibility, Usability, Security and Privacy.

Example 2: ESCO

ESCO (European Skills Competencies and Occupation) framework.
<https://esco.ec.europa.eu/en>

„ESCO is the multilingual classification of European Skills, Competences, Qualifications and Occupations. ESCO is part of the Europe 2020 strategy.

The ESCO classification identifies and categorises skills, competences, qualifications and occupations relevant for the EU labour market and education and training. It systematically shows the relationships between the different concepts.“

ESCO provides descriptions of **3008 occupations and 13.890 skills** linked to these occupations, translated into 28 languages (all official EU languages plus Icelandic, Norwegian, Ukrainian, and Arabic).

Benefits

General available knowledge taxonomies have a few great benefits. Most notably:

- **Quick** deployment
- **Complete** coverage
- Automatic **updates**

Because the taxonomies already exist, you can deploy them immediately. They are either downloadable as CSV, Excel or database file or can be accessed through an API connection. You don't have to waste time to setup and structure your own taxonomy.

(1) More information (in Dutch) can be found here:
<https://www.functiegebouwrijksoverheid.nl/kwaliteitsraamwerken/kwaliteitsraamwerk-informatievoorziening>



Fig. 1: Profile of IT application development from the KWIV

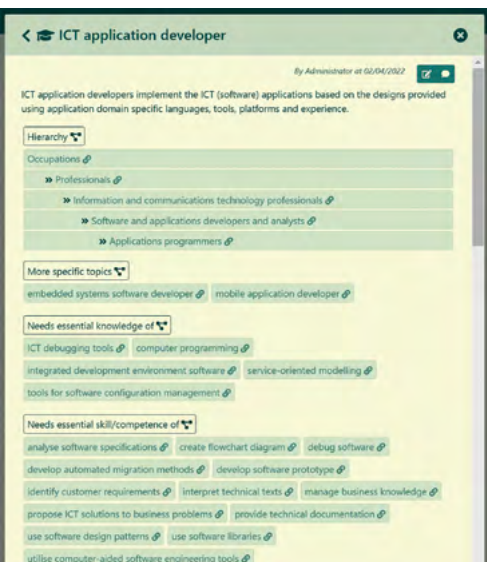
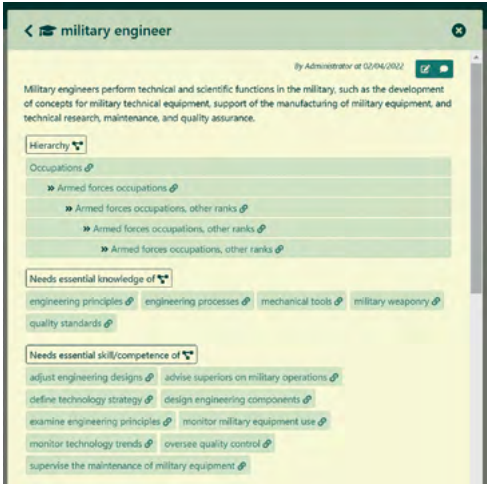


Fig. 2: ICT Application Developer Knowledge and Skill profile from ESCO

Fig. 3: Profile of the Military Engineer showing considerable overlap with civilian engineering skills and knowledge from ESCO



Since all of these taxonomies have gone through extensive and broad review processes, you can be assured that they are completely covering the intended domain. This is enhanced by the automatic updating, so it stays complete.

There will be an active group of authors who update the taxonomy, so you will not miss out on new developments. Of course your usage will have to adjust to those updates. If you use an API, you will get the update automatically. If you download files, you will have to update those yourself. Big changes may also impact your usage. Adding new items is usually pretty easy, but removing old or obsolete ones is usually harder. This becomes particularly difficult if these items are removed from the general taxonomy but are actively using them yourself.

Drawbacks

There are also considerable drawbacks to these general taxonomies. Some are the mirror image of the benefits or are at least logically related.

- **High level definitions**
- **Non relevant** information
- **No company specific** information

Definitions are usually quite high level and contain broad terminology to cover general knowledge and skills.

For example you will find ‘Software Developer’ or ‘Application Developer’ who can have ‘optional’ knowledge of ‘JAVA’ or ‘Dotnet’. In general most organisations and Software Developers will call themselves JAVA developer or Dotnet developer. You also cannot replace one with the other easily or run a Dotnet project with JAVA developers.

Because the scope of the taxonomy by definition is broader than your scope, otherwise you wouldn't have used it in the first place, you will get a lot of irrelevant information. If you use ESCO for example but you don't work for the military, you still get a full Occupation hierarchy for military roles. Either you will carry this additional weight into your solution or you will have to invest time and effort to delete the parts that are irrelevant to you.

Company specific stuff will never be in there. This is particularly difficult for (technically) innovative companies because they will have technical knowledge which will not yet be part of such a general taxonomy. But even for other companies it can be really useful to have their products, programmes, corporate values and projects in a knowledge taxonomy. You will always have to add that yourself, it will never be part of the general taxonomy.

Use cases

Given these Benefits and Drawbacks, what could you do with general knowledge taxonomies. How and when do they deliver value?

Inspiration

The general taxonomy may inspire you to setup your own knowledge taxonomy. It can lead you to not overlook domains on the fringes of your own organization. The inspiration can be drawn from the general structure and relations in the taxonomy.

Using a general taxonomy gives you the assurance of completeness or it could jumpstart your knowledge definitions. It is usually easier to adjust a current definition than come up with a new one yourself.

Employability

This is about how easy it is for employees to find (new) jobs outside their current organization. If you want to setup an inventory or profiling for employees to rate their external employability, these general taxonomies are exactly what you are looking for. You deliberately do not want company specific content in them and you benefit hugely from the broad and general definitions, because they indirectly open up the entire labour market for you employees.

Of course this story applies to individual professionals looking for new challenges as well. If you assess yourself against jobs in high demand (e.g. like UWV publishes twice per year), you can gauge your biggest employability opportunities. Flow:

- Jobs in high demand (UWV or your local agency) (2)
- Related knowledge and skills (ESCO / KWIV / O*net / ...)
- Rate yourself on those knowledge and skill topics
- Highest score gives you the job with the highest employability

If you encounter a large lay-off or you are just individually looking for new opportunities, this approach could give you a quick assessment on your employability.

Refugees fit to labour market

Refugees, especially those from outside the European Union, often bring a lot of knowledge and skills. But their formal accreditations are not recognized or accepted. If the refugees take a test on general knowledge and skills, you will very quickly find where they have the best fit.

This use case can be especially useful if the general knowledge taxonomy is available in the refugee's language.

Personalized learning

Continuous learning or life-long learning are paramount to stay current in your work. Finding specific learnings, courses or studies can be pretty tough. If you don't know what you are looking for, it is really hard to find something in the education guides or websites.

You could do an assessment starting from your current or desired job. Then zoom in to the specific knowledge and skills you need for it. The biggest gaps would be the best skills to start learning.

See below an example of a skills assessment for a ICT service desk agent based on the ESCO knowledge taxonomy.

The yellow line is the respondent's score. The green dotted lines give the Medior and Senior level. The dark blue outline is the suggested training.

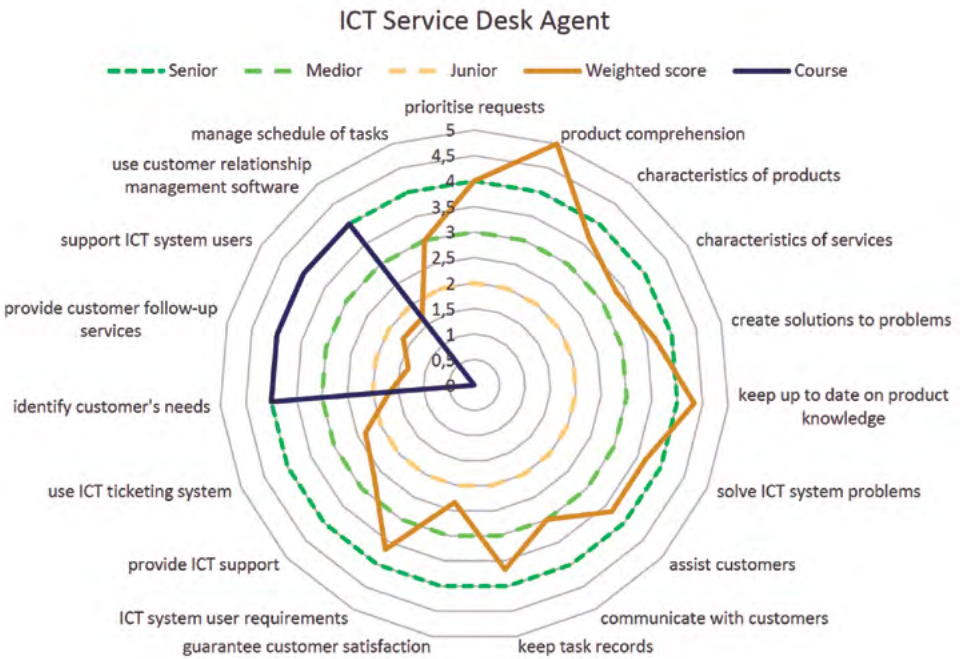


Fig. 4: Example scoring for all ICT helpdesk agent skills according to ESCO

(2) <https://www.uwv.nl/nieuws/ruim-140-structureel-krappe-beroepen>

Conclusion & round up


The general conclusion is that General Knowledge Taxonomies can be a great starting point for internal knowledge mapping, but will always demand a considerable effort to fit with the organization. It will ensure you haven't overlooked anything, but you should get rid of the parts you don't use and always add you specific knowledge, skills and values to the mix.

The best application of General Knowledge Taxonomies lies in general applications which go beyond single organizations. They

are great to increase employability, either of individuals or for groups of employees which are being laid-off. They also provide a simple connection to personalized learning.

All considered, I expect (semi-) public organizations and initiatives to benefit from these General Knowledge Taxonomies. For any specific organization, the real usage of such knowledge taxonomy will prove insufficient. They may be used as supporting material when setting up an internal knowledge taxonomy, but never be continuously updated.



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ABOUT THE KEY VISUAL
Keywords from article for AI prompt: knowledge, taxonomies, employability, learning, skills – Illustrate these terms together by using a single object.
AI response (queried 5 times): a library card, a book, a plan of a building structure, a key, a globe.
Illustration structure to organise content of the „Encyclopédie ou Dictionnaire raisonné des sciences, des arts et des métiers“ published around 1780, France (Wikipedia public domain)

Bart Verheijen MSc. encountered challenges on knowledge and networks in his early career. These questions led to a 'ExpertFinder' pilot which combined bottom-up knowledge inventory and viral snowball sampling recommendations. The pilot led to the founding of GuruScan as a spin-out start-up company. – The GuruScan journey started with a more consultative approach. Early 2021 we released our first fully integrated software solution which covers the basic knowledge mapping and retrieval, team knowledge booster and network visualization. – Bart is connected to GuruScan as co-founder and CEO. He lectures on knowledge management and organizational network analysis at multiple universities (Netherlands, Italy and US). He is also an experienced international speaker on Knowledge, HR, networks and innovation for conferences like Henley Forum and companies like Philips and Telefonica.
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Thanks

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