The use of facets in ESCO

Purpose

During the sign-off meeting of 12 November, the Maintenance Committee identified the need for clear guidance on the use of facets. This document starts from the ESCOpedia article about facets and is enriched with the findings of the Secretariat during the quality assurance process. It is presented to the ESCO Maintenance Committee for consultation.

Where do facets come from?

The ESCO Guidelines v1, endorsed mid 2013 by the Maintenance Committee, shortly mention the development of additional word lists as part of the five step methodology[1]. According to the ESCO Guidelines v1, these wordlists are lists of working tools, work environments, working methods that could be used in a vacancy in a given sector or field of economic activity.

While applying the five-step methodology the Reference Groups and Taxonomy Expert Group shared their experiences and the challenges they faced with the ESCO Secretariat and the Maintenance Committee. The Reference Groups expressed the strong need to include additional context or specialisations into the occupation profiles. Based on their request, the concept of wordlists developed into the use of facets and work context. This document only covers the use of facets.

The Maintenance Committee approved the use of facets during its 12th meeting in June 2014.

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[1] ESCO Guidelines v1, pg 75.

What are facets?

Facet

A facet is a classification of concepts that can be used to provide additional context to an occupation or to a skill (skills, competences and knowledge). Using facets can be very useful and time-efficient in case there are already existing taxonomies or verified listings that can be used as support for creation of concepts.

> Example:
>
> Classifications such as "animals", "musical instruments", "languages", "IT tools" are good examples of facets that can be found in ESCO.

Facet groups

A facet group is a subset of facet concepts sharing one or more features or carrying a particular interest for some concepts.

> Example:
>
> Within the facet "animals", examples for facet groups are: "dairy animals" and " farm animals". Within the facet "musical instruments" examples of facet groups can be: "strings", "drums", "brass", "woodwinds".

The same facet group can be used on several different concepts to produce efficient results.

> Example:
>
> The facet group "farm animals" can be used several times for cases of occupations and skills, such as the occupation "animal breeder", skills like "feed livestock" and knowledge like "livestock reproduction".

This is an efficient solution because it reduces the number of concepts that needs to be created and maintained.

Facet members

A facet member is a concept classified within a facet.

> Example:
>
> Members of the facet "animals" are: "pig", "cattle", "goat". They are also members of the facet group "farm animals". Combining this facet with an occupation leads to faceted occupations such as "cattle breeder", "pig breeder", "goat breeder". Members of the facet "musical instruments" are:

"guitar", "violin", "mandolin". They are also members of the facet group "strings". Combining this facet with a skill leads to faceted skills such as "play guitar", "play violin", "play mandolin".
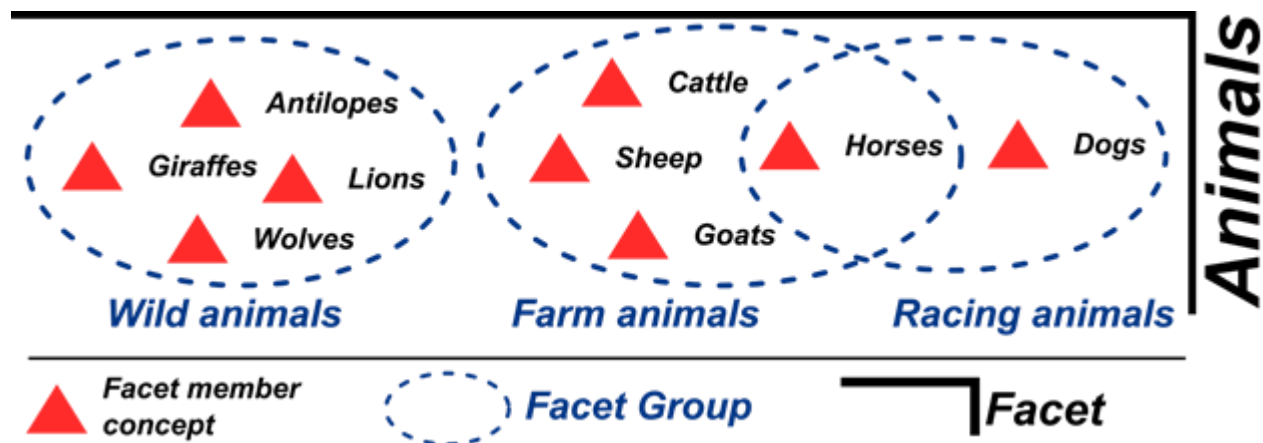

Figure 1: Facets, facet groups and members of facet groups.

Implementation of languages facets

In ESCO v1, the facet "languages" will be populated by a selection of the most important languages for the European labour market, with a mapping to ISO 639. The facet "languages" includes both signed and spoken languages. The facet will be used to specify exactly which spoken or signed language someone is skilled at, either as a mother tongue or as a foreign language. Foreign language competence has the potential to be described even further by combining with the details listed under the facet "language usage", namely "speaking - spoken interaction" and "speaking - spoken production", "listening", "reading" and "writing". These facets are aligned with the Common European Reference Framework for Languages (CEFR).

Use of facets in ESCO

Faceted concepts

A faceted occupation is the combination of a facet or facet group with an occupation concept. A faceted skill is the combination of a facet or facet group with a skill or competence concept. Faceted knowledge is the combination of a facet or facet group with a knowledge concept. All are faceted concepts.

Example:

The occupation "animal breeder" is combined with the facet group "farm animals". This results in seven faceted occupations: "animal breeder, bee", "animal breeder, cattle", "animal breeder, fur

animals", "animal breeder, horse", "animal breeder, pig", "animal breeder, poultry", "animal breeder, sheep".

The knowledge "livestock reproduction" can be combined with the facet group "farm animals" as well. This would result in seven faceted skills: "animal reproduction, bee", "animal reproduction, cattle", "animal reproduction, fur animals", "animal reproduction, horse", "animal reproduction, pig", "animal reproduction, poultry", "animal reproduction, sheep".

General rule the use of facets and facet groups

When combining a concept with a facet or facet group, by default a faceted concept is created for each facet member of the facet or facet group. It is not possible to apply only part of the members of a facet or facet group to the concept. In case not all members of the facet or facet group are relevant, the relevant members need to be organised in a new facet group.

Example:

The skill "milk dairy animals" can't be combined with the facet "farm animals" as not all members are relevant, e.g. "bee", "poultry". The Reference Group therefore creates a facet group "dairy animals" with as members: "cattle", "sheep" and "goat".

When a concept is combined with a facet or facet group, by default a faceted concept is created for each facet member of the facet or facet group. The standard notation of a faceted concept is "concept, facet member". If the standard notation is not commonly used, the preferred term can be adapted into a more commonly used term (compound term).

Example:

The occupation "instrumentalist" can be combined with the facet group "strings": "instrumentalist, violin", "instrumentalist, guitar", "instrumentalist, piano", and "instrumentalist, cello". However, more commonly used and therefore better suited as preferred terms are the compound terms "violin player", "guitar player", "piano player" and "cello player"; or the terms: "violinist", guitarist", "pianist" and "cellist".

The preferred terms of the faceted occupations "animal breeder, bee", "animal breeder, cattle", "animal breeder, horse", "animal breeder, pig", "animal breeder, poultry" and "animal breeder, sheep" have been changed into the more commonly used compound terms "bee breeder", "cattle breeder", "horse breeder", pig breeder", "poultry breeder" and "sheep breeder".

Guidelines for the use of facets

Before using facets

The following principles will help to identify when to capture context or specialisations with facets:

1. Preferably, facets or facet groups are reusable by different occupations and skills throughout ESCO. If the facet is not reusable, it might be better to capture the context or specialisation through optional skills, work context or by creating distinct occupations.

    > Example:
    >
    > The Reference Group "Veterinary activities" created a facet "animal therapist" and listed "hydrotherapy", "physiotherapy", "chiropractic", "massage therapy", "osteopathy". The facet is combined with only one occupation: "animal therapist".
    >
    > In this case, the use of facets is not opportune. Better would be to capture the specialisations either in the optional skills of the "animal therapist" or make distinct occupations for each specialisation.

2. When the context or specialisation requires frequent updating, the use of facets is beneficial. The facets, facet groups and their members are managed as separate lists which are easier to manage and update.

    > Example:
    >
    > Frequently, new software is being developed and launched. It is less work to create and maintain faceted occupations with the occupations "database administrator", "database developer", the faceted skills "manage databases", "develop databases" and the facet "database management systems". Each time new software becomes relevant, it can be added as a facet member to the facet "database management systems". Automatically, this results in new faceted occupations and skills.

3. When existing classifications can be used to capture the context or specialisation for an occupation or skill, the use of facets is beneficial.

> Example:
>
> The facet "language usage" makes use of the terminology provided in the [Europass Language Passport](#) "speaking - spoken interaction" and "speaking - spoken production", "understanding - listening", "understanding - reading" and "writing"

4. Context and specialisations can be captured in occupational profiles in three ways: through the optional skills, by using facets or by including work context[2]. Each occupation usually has between 20 and 40 skills. Providing the required context of a specific occupation or capturing the different specialisations of an occupation via the optional skills, may result in a long list of optional skills. In such cases, facets are a good solution as the optional skills will be spread over the faceted occupations.

When using facets

The following principles will help to correctly implement facets:

1. The ESCO Secretariat coordinates the correct use and implementation of facets. Always validate with the ESCO Secretariat before developing or using a facet or facet group.

2. Aim to reuse existing facets and facet groups. If not all members of an existing facet or facet group are relevant for the concept, create a new facet group.

3. While the preferred term for facets and faceted concepts is mandatory, the inclusion of other meta data, e.g. non-preferred terms, the description and scope note, is optional. However, when included, the meta data should fully comply with the ESCO guidelines. E.g. descriptions delivered in full sentences.

4. In case the standard notation is not the most commonly used term to describe the faceted concept, opt to reformulate the preferred term in compliance with the respective rules for the formulation of preferred terms of occupations and skills, competences and knowledge (compound terms).

5. Faceted concepts need to provide the desired level of detail for ESCO in line with labour market reality.

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[2] ESCO (2014) SEC 061 FINAL, Developing work context in ESCO.

6. When combining a facet or facet group with an occupation, this is reflected in the occupational profile as well. The faceted occupations automatically inherit the essential and optional skills from the parent occupation.

Example :

The occupation "animal breeder" and the skill "feed livestock" are combined with the facet "farm animals". The skill "milk animals" is combined with the facet "dairy animals".

Faceted occupations: "animal breeder"	Faceted skills: "feed livestock"	Faceted skills "milk animals"
bee breeder	feed bees	milk cattle
cattle breeder	feed cattle	milk sheep
fur animals breeder	feed fur animals	milk horse
horse breeder	feed horses	
pig breeder	feed pigs	
poultry breeder	feed poultry	
sheep breeder	feed sheep	

The occupational profile of an "animal breeder" contains the following skills:

Essential skills:	Optional skills:
feed livestock	process animal by-products
operate farm equipment	process on-farm product processing
animal health and welfare requirements	

In CTC, the occupational profile of the faceted occupation "cattle breeder", lists four skills specific to the breeding of cattle:

Essential skills:	Optional skills:
assist animal birth	process dairy farm products
milk cattle *(faceted skill)*	
Perform milk control	

However, the list of skills for the "cattle breeder" does not show the full picture. The faceted concept "cattle breeder" inherits the skills of its parent, the "animal breeder". In reality the occupational profile of the "cattle breeder" contains nine skills. Those marked in blue bold italic are inherited from the parent occupation "animal breeder".

Essential skills:	Optional skills:
feed cattle (faceted skill) [3]	*process animal by-products*
operate farm equipment	*process on-farm product processing*
animal health and welfare requirements	process dairy farm products
assist animal birth	
milk cattle *(faceted skill)*	
Perform milk control	

Required actions

Although the use of facets was warmly welcomed by the Reference Groups, the ESCO Secretariat noted that they are not applied in a correct and consistent manner.

Until this summer, Reference Groups were not able to register the use of facets in a structured manner. The ESCO Secretariat will coordinate the correct and consistent application of facets with the Taxonomy Expert Group and the Reference Groups.

The ESCO Secretariat will focus on:

Implementing the guidelines for the use of facets

- Informing both the Taxonomy Expert Group and Reference Groups on the guidelines.
- Updating the ESCOpedia article.
- Adapting CTC to make the use of facets more transparent and in line with the guidelines.
- Ensuring the correct implementation of the guidelines by the Taxonomy Expert Group.
- Explaining Reference Groups how to register facets, facet groups and their members in CTC and how to create faceted concepts.
- Identifying and coordinate where in the current data facets can add value and limit their use to a small set of facets that are most value adding, e.g. languages, language usage, species, product categories, hardware, software products, medicine branches, musical instruments, sports and more.

Quality reviewing the use of facets

- Performing quality checks on the application of the inheritance rules for faceted occupations.

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[3] The skill "feed livestock" and the occupation "animal breeder" are both combined with the same facet "farm animals". Therefore the faceted occupation "cattle breeder" inherits the skill "feed livestock" combined with the facet member "cattle": the faceted skill "feed cattle".

- Identifying cases of hierarchical relationships between occupations and solve them. The use of facets is only one of the possible solutions to remove hierarchical relations between occupations. This has to be investigated on a case by case basis.
- Quality reviewing the preferred terms of the faceted concepts.
- The removal of obsolete facets, facet groups and their members.