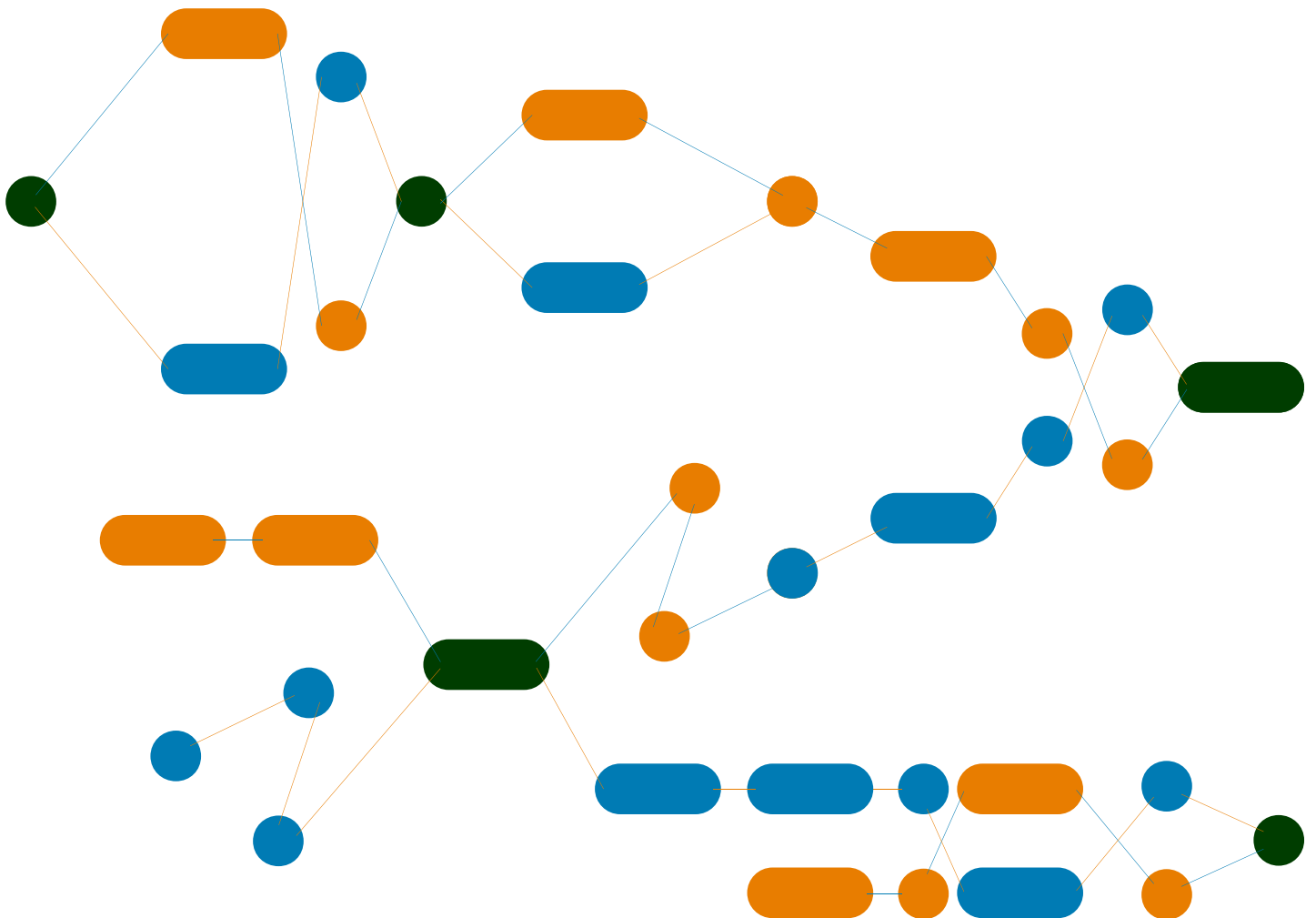


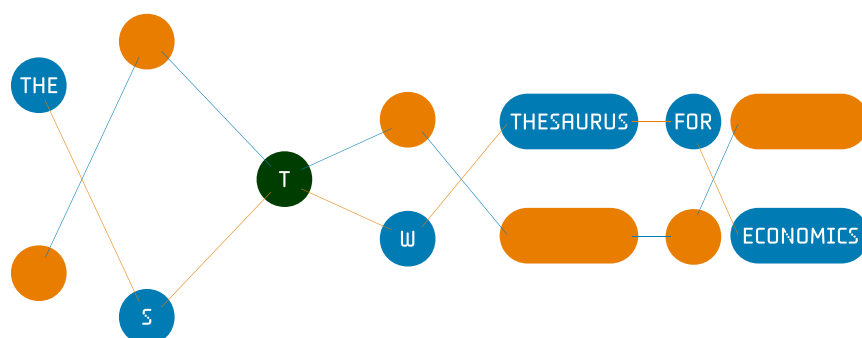
# THE STW THESAURUS FOR ECONOMICS – INTRODUCTION & EDITORIAL GUIDELINES

*First edition*



# ABOUT THIS DOCUMENT

*This document introduces  
the STW Thesaurus for Economics  
and describes the STW editorial  
guidelines and processes.*



## Suggested Citation

ZBW – Leibniz Information Centre for Economics, ed. 2025. *The STW Thesaurus for Economics – Introduction & Editorial Guidelines – First edition*. Kiel. [https://www.zbw.eu/stw\\_editorial\\_guidelines\\_v1](https://www.zbw.eu/stw_editorial_guidelines_v1)

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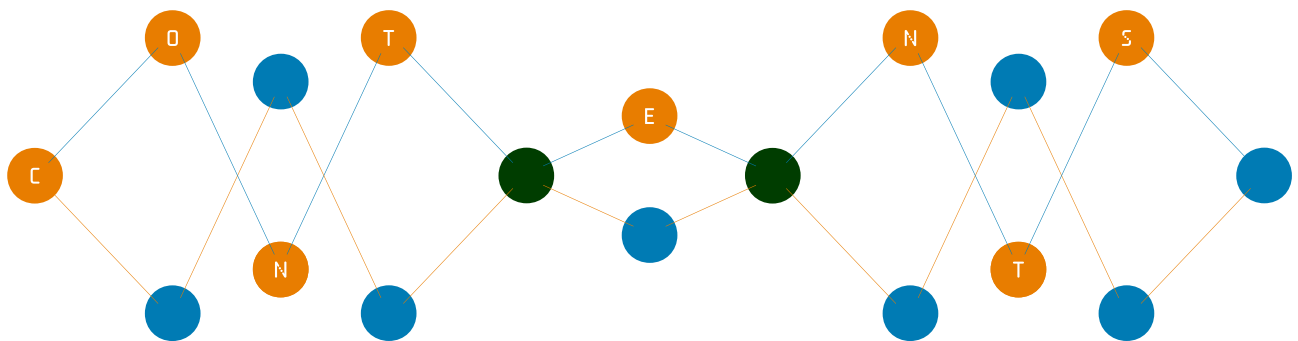
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# ABBREVIATIONS AND ACRONYMS

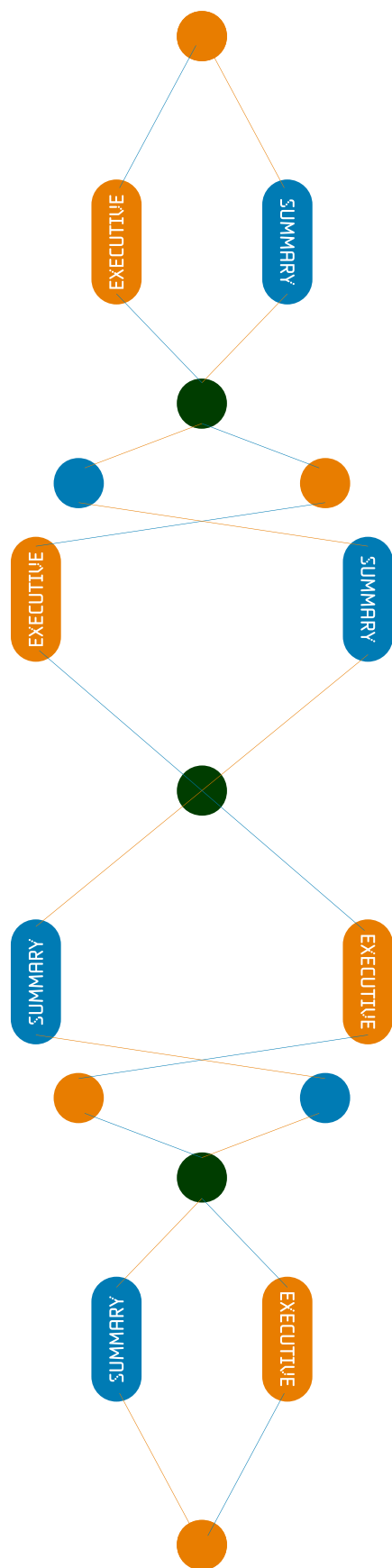
<b>AGROVOC</b>	Multilingual controlled vocabulary covering areas of interest of the Food and Agriculture Organization of the United Nations (FAO) ( <a href="https://www.fao.org/agrovoc/home">https://www.fao.org/agrovoc/home</a> )
<b>GND</b>	German Integrated Authority File ( <a href="https://gnd.network/Webs/gnd/EN/Home/home_node.html">https://gnd.network/Webs/gnd/EN/Home/home_node.html</a> )
<b>IANA Language Subtag</b>	Internet Assigned Numbers Authority
<b>ISO</b>	International Organization for Standardization
<b>LOD</b>	Linked Open Data
<b>SKOS</b>	Simple Knowledge Organization System
<b>SPARQL</b>	SPARQL Protocol and RDF Query Language
<b>STW</b>	Thesaurus for Economics (German: Standard-Thesaurus Wirtschaft)
<b>TheSoz</b>	Thesaurus for the Social Sciences
<b>URI</b>	Uniform Resource Identifier
<b>zbwext</b>	STW SKOS custom extensions

# EXECUTIVE SUMMARY

*In this publication, we first introduce the STW Thesaurus for Economics. We explain the STW concept model and describe how the STW uses the SKOS model and SKOS properties. Second, we elaborate the STW maintenance and curation processes and present the STW outreach channels. The publication aims to make the editorial processes of the STW Thesaurus for Economics more transparent and to enable people to make suggestions for new concepts and terms.*

After reading this publication, readers will:

- be familiar with the basics of the STW thesaurus and its development,
- be able to understand the STW concept model,
- understand how the STW uses the SKOS model and SKOS properties,
- understand how the STW is managed and curated,
- know how to access the STW.



# ABOUT THE STW THESAURUS FOR ECONOMICS

Since the publication of the **first version in 1998**, the STW Thesaurus for Economics has served to standardize the indexing vocabulary in economics with the aim of providing efficient access to economic publications. With currently **over 6,000 subject headings in English and German and more than 22,000 synonyms it covers all subject areas in economics** and, at a more general level, the most important related subject fields.

The STW Thesaurus for Economics was originally developed in a three-year collaboration between four leading public and private German providers of business and economic information services. The project was partly funded by the Federal Ministry of Economics. It was initially aimed primarily at the German-speaking scientific community and its first printed version was only available in German. Today, the ZBW – Leibniz Information Centre for Economics, which has taken over its maintenance and development, consistently gears the STW towards and international, English-speaking scientific community following the latest international terminology usage in the field of economic sciences. Since version 8.02, released in 2007, all STW descriptors have been bilingual, German and English. The STW is continuously developed by a ZBW in-house **editorial board** of subject experts, which publishes an updated version every year. Developed as a general indexing and retrieval tool for publications in the economic sciences, **the STW is used by different kinds of organizations, such as documentation centers and database producers, for indexing their own materials.**

Although the STW was created and maintained electronically from the outset, it was published exclusively in printed form for the first ten years. In 2009, the STW was **published on the web** (<http://zbw.eu/stw>). Browsing and download of the complete thesaurus and all mapping files were made freely available. As facilitating easy reuse was the main objective, the choice fell on the SKOS (Simple Knowledge Organization System) format recommended by the W3C and covering all requirements for easy and complete data publication and exchange (Neubert 2009). For each concept, an HTTP web address (URI) as immutable identifier was published, as for example <http://zbw.eu/stw/descriptor/13371-0>. When looked up, this address provided information about the concept and links to others. The data was embedded in the HTML web pages themselves via RDFa, which made them readable for humans as well as for machines.

Right from the start, the STW was **linked to other data on the web via mappings**. These exist partly at STW concept level and partly at STW subject category level. Today, among others the STW Thesaurus for Economics is linked to the Integrated Authority File (GND) as well as to the AGROVOC and the Thesaurus for the Social Sciences (TheSoz). The mappings can be differentiated according to the different mapping approaches that were used, e.g. intellectual, semi-automatic, automatic (Kempf and Neubert 2021).

With the aim of facilitating broader reuse, since 2021, the STW is available under the **CC-BY 4.0 licence**.

# THE STW THESAURUS FOR ECONOMICS CONCEPT MODEL

In November 2024, the STW Thesaurus for Economics contained over 6,000 **concepts**, each represented by a preferred term in English and German, also known as descriptor, as well as one or more additional English and German synonyms or quasi-synonyms, also known as non-descriptors. Referring to the ISO standard 25964 a concept is a unit of thought. Operationally and referring to the STW, a concept is the set of bilingual terms to describe the same idea identified by a dereferenceable URI. For example, the URI for the STW concept “Health care system” is <http://zbw.eu/stw/descriptor/13371-0>. The terms or labels are the concept’s names in different languages. For example, Health care system or Gesundheitswesen are both labels for the same concept in English and German respectively.

All concepts in the STW, represented by terms, are subject to **terminological control**. All of the information required for this is summarized on the corresponding descriptor page, as shown in **Figure 1**. The preferred term appears at the top of each descriptor page in English and German. Usually, the most common term is the preferred term. “Used for” lists the synonyms and quasi-synonyms that serve as lead-in entries. In some cases, a scope note in italics follows to define or clarify the semantic boundaries of a concept. If necessary, an additional follows to indicate what is excluded from the concept.

Further down, the page lists descriptors in a **hierarchical or associative relation** to the corresponding descriptor. The indication of broader and narrower terms enables users

The screenshot displays the STW Thesaurus for Economics website. The browser address bar shows the URL: [zbw.eu/stw/version/9.18/descriptor/13371-0/about.en.html](http://zbw.eu/stw/version/9.18/descriptor/13371-0/about.en.html). The page header includes the ZBW logo and the text 'Leibniz-Informationszentrum Wirtschaftswissenschaften Leibniz Information Centre for Economics'. The main content area is titled 'Health care system' (English) and 'Gesundheitswesen' (German). Below the title, it lists 'used for: Public health, Health system, Health services, Health care industry' and 'also used for: Health economy'. A section 'Referring to the interdisciplinary scientific field USE Health economics' is also present. The 'Narrower Terms' section lists: Blood service, Dental practice, E-health, Hospital, Pharmaceutical distributors, Physician practice, Rehabilitation hospital, and Rural health care. The 'Related Terms' section lists: Disease, Health, Health care, Health care market, Health economics, Health insurance, Health personnel, Health policy, Health statistics, Medical device, Medical sciences, Rehabilitation, and Veterinary control service. The 'Subject Categories' section lists: V.14.03 Health economics and W.25 Health care system. A 'Links to other Thesauri and Vocabularies' section lists various external resources. At the bottom, there is a footer with contact information and a Creative Commons BY 4.0 license.

**Figure 1.** On the left, the subject categories navigation tree allows for systematic browsing. On the right, the descriptor page lists all relevant information about it.



to navigate semantically to more general or to more specific concepts and to trigger a search with the corresponding concept in ZBW's academic search portal ECONBIZ via the **EB** icon. The category Related Terms contains concepts that are related to the content of the respective concept but have no hierarchical relation to it.

STW concepts are grouped into **subject categories**, which together form a systematic structure on up to four hierarchical levels. As a navigation tree on the web page (see [Figure 1](#), left side) it allows STW users to browse the descriptors of a certain subject field thematically. While terminological control and semantic relations of a concept indicate the narrower content-specific relationships of a concept, the subject categories point to the larger domain-specific context of it. The first level consists of seven main subject groups or sub-thesauri. They are divided according to the sub-disciplines and sub-areas in the economic sciences. In addition to the usual continental European subdivision of the economic sciences between economics and business economics, the STW contains a sub-thesaurus of economic sectors and one of commodities. With regard to their subdivisions, the latter ones follow current classifications of products and economic sectors used in official statistics. Finally, there are the sub-thesauri General Descriptors, Geographical Names and Related Subject Areas.

The **mappings** to other vocabularies at descriptor or category level are listed at the end of each descriptor or subject category page. The mappings can be differentiated according to the different mapping approaches that were used, i.e. intellectual, semi-automatic and automatic mapping approaches. More importantly, different parties created the mappings either as a one-sided and one-time-approach, in the case of AGROVOC, or in the form of continuous updates by a joint editorial team, in the case of the mapping to the Integrated Authority File (GND). This results in different levels of maintenance. In addition, institutions involved in the mapping process can choose to only consider and display the mappings to a certain extent, depending on the particular subject focus of the institution.

More recently, descriptors of individual sub-thesauri have been mapped to the community-driven knowledge base Wikidata, which not only supports many language-specific editions of Wikipedia, but has also evolved to be a global data hub, linking to more than 5,000 external databases by identifier. This includes thesauri and classifications, for which a specific mapping to the STW would not be feasible. A derived mapping, via bilaterally linked Wikidata items, could prove useful.

The STW Thesaurus for Economics uses the SKOS model:

- **skos:prefLabel** stands for the preferred term, also known as descriptor. All terms are in quotation marks. A concept has only one preferred term in each of the two languages, i.e. German and English. The term language is indicated by @ plus the IANA Language Subtag;
- **skos:altLabel** stands for a non-preferred term, respectively alternative label. A concept may have zero or more non-preferred terms.
- **skos:hiddenLabel** stands for non-preferred terms, which should not be displayed in the STW web representation, but which are nevertheless searchable;
- **skos:broader** and **skos:narrower** properties represent the hierarchical relations, see *Figure 1*;
- **skos:related** represents the associative relation between concepts that are not related hierarchically but share a strong semantic connection;
- **skos:scopeNote** includes definitions as well as usage instructions
- **skos:exactMatch**, **skos:closeMatch**, **skos:narrowMatch**, **skos:broadMatch** or **skos:relatedMatch** properties represent semantic matches with external concepts.
- **skos:inScheme** links the concept to the concept scheme to which it belongs.

Three areas required extensions:

- to have both, the STW subject categories, as well as the STW concepts in one concept scheme, it was decided to subclass **skos:Concept**:
  - **zbwext:Descriptor** `rdfs:subClassOf skos:Concept`;
  - **zbwext:Thsys** `rdfs:subClassOf skos:Concept`;
- to distinguish between synonyms and quasi-synonyms, we used:
  - **zbwext:altLabelNarrower** for quasi-synonyms that can actually be considered narrower;
  - **zbwext:altLabelRelated** for quasi-synonyms that can actually be considered related;
- to refer to other concepts that are excluded from the scope of the concept being clarified:
  - **zbwext:useInsteadNote** `rdfs:subPropertyOf skos:note`

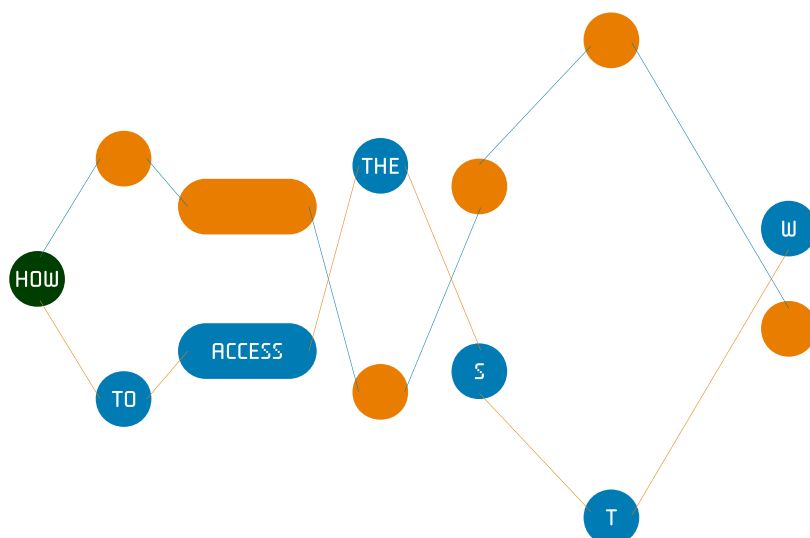
The thesaurus and its mappings can be downloaded from the website as SKOS files (see <https://zbw.eu/stw/version/latest/download/about.en.html>).

# HOW TO ACCESS THE STW

If you want to browse the STW, search for concepts or terms, or look at the structure, the web browsing interface <https://zbw.eu/stw/version/latest/about.en.html> is the best option. This interface offers search and browse functionalities, an alphabetical index and a structural browsing display along the seven STW subthesauri. It also offers an English and German user interface. Apart from that you can use the web browsing interface Skosmos <https://zbw.eu/beta/skosmos/stw/en/>, which is an open source web-based SKOS browser and publishing tool.

A web service (see <http://zbw.eu/beta/econ-ws>) provides an API for use in programs. A SPARQL endpoint (see <https://zbw.eu/beta/sparql-lab/about/#stw>) allows unrestricted experimental queries.

Moreover, the STW is integrated into Eurospider's digital assistant (DA), (see <https://www.eurospider.com/en/relevancy-product/digital-assistant-da-3>) which supports the verbal and classificatory indexing of library resources. Subject information in the form of subject headings from the German Integrated Authority File (GND) can be translated into STW subject headings.

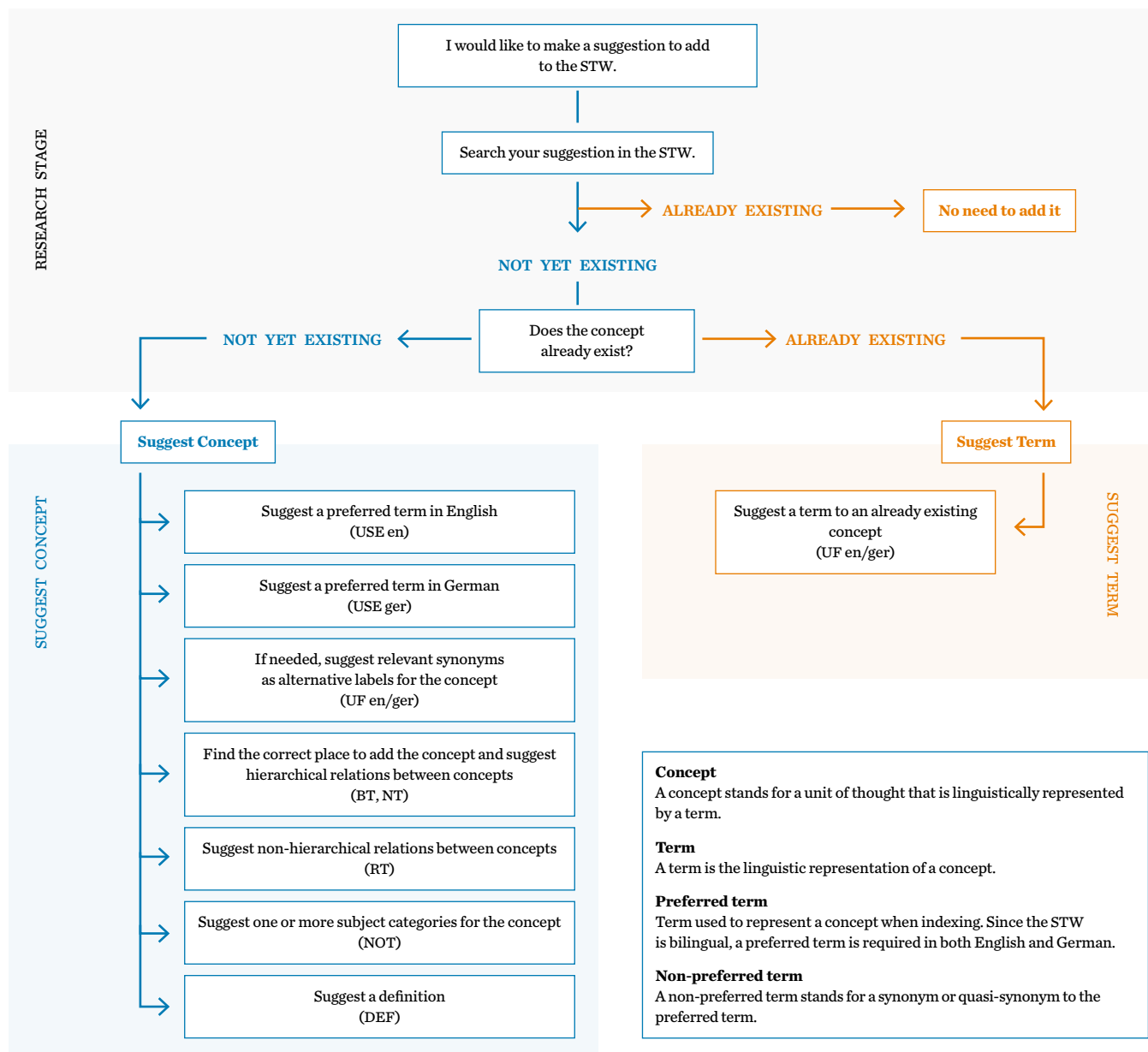


# EDITING THE STW

The STW Thesaurus for Economics is edited by ZBW's editorial board. It reviews and decides on all suggested changes to concepts, terms and relationships between concepts. The editorial board is composed of four subject librarians with expertise in economics and one knowledge organization specialist as managing editor.

Editorial procedures for updating correspond to those depicted in ISO 25964-1 (see clauses 13.6.2 and 13.6.3). The procedures cover all types of changes as listed in ISO 25964-1 (see clause 13.6.4).

Figure 2. Suggesting new terms and concepts to the STW.



The decision to include a concept in the STW is primarily based on the subject-specific relevance and the frequency with which this concept is made a topic in the literature. Other decision criteria include the level of specificity, its usage on an international level, as well as its unambiguousness.

In what follows is a list of the key criteria for adding new concepts, respectively terms to the STW:

<b>Criterion subject reference</b>	Proposed terms should be related to economics, business practice and related topics.
<b>Criterion relevance</b>	<p>The proposed term should be the subject of a significant amount of literature.</p> <p>It is useful to determine in advance the frequency of occurrence of one or more terms that can be used to express a concept, for example by searching in EconBiz under “<i>All fields</i>”, “<i>Title</i>” or “<i>Topic</i>”. The latter shows, for example, how often authors themselves have already used a term to describe the content.</p> <p>For a proposed term, it should be possible to name a reference resource. Possible sources could be e.g. Wikipedia or Gabler Wirtschaftslexikon.</p>
<b>Criterion specificity</b>	The specificity or granularity of the proposed term should be appropriate with respect to the relevance of the topic to the subject area. The proposed term, especially in one of the peripheral areas, should not be located too deeply in an imagined hierarchy.
<b>Criterion internationality</b>	<p>The proposed term should be used internationally. This can be seen, for example, in searches in EconBiz, where English-language terms for the term are listed under the facet “<i>Topic</i>”.</p> <p>Areas that only refer to certain regions but are constitutive for relevant subareas, such as education or the legal system, may not be fully covered.</p>
<b>Criterion unambiguity</b>	The proposed term should be as unambiguous as possible. Both the preferred term and the additional proposed synonyms should indicate as clearly defined a scope of meaning of the term as possible.

# SUGGESTING TERMS

New terms and concepts to be included in the STW Thesaurus for Economics can be suggest, ideally accompanied by an explanation, by e-mail to [stw@zbw-online.eu](mailto:stw@zbw-online.eu).

As a first step, we recommend checking the online STW at <http://zbw.eu/stw/version/latest/about.en.html> to see to what extent a concept or a certain term is already included in the STW.

When making a suggestion, please note, that the STW does not include the following types of entities:

- company names,
- trademarks,
- corporate bodies,
- terms outside economic subject areas and important related subject areas.

If a concept or term is missing, there are several steps to follow (see **Figure 2**).

When formulating a proposal, the following should be noted:

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## Spelling

For spelling, the official rules of the languages should be followed. For English, the STW uses American English spelling as standard, therefore for preferred terms the American English spelling is used. Non-preferred terms often include the British English spelling. Compound terms can be either spelled with a hyphen or with a space – either as a preferred term or as a non-preferred term. For German, the STW uses the spelling according to the new spelling reform as standard. Non-preferred terms often include the old spelling.

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## Disambiguation

In the STW, a term should only be used once, either as a preferred or non-preferred term. In cases where a term can have different meaning in different contexts, the difference is made clear by choosing a more detailed preferred term (e.g. *“Theory of aggregate investment”*, *“Corporate investment theory”*). In some cases, disambiguation using term qualifiers in parantheses is needed to uniquely identify one concept from another (e.g. *“Jura (Canton)”*).

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<b>Adjectives and nominalization</b>	<p>Adjectives without a noun only exist in subject category A.01 Geographic adjectives and languages. Apart from that, adjectives are only used in compound terms in natural language word order, such as <i>“Older workers”</i>. Verbs and initial articles are not part of the STW.</p>
<b>Prepositional phrases</b>	<p>Depending on the language, the use of prepositional phrases should be avoided (e.g. use <i>“Disclosure regulation”</i> rather than <i>“Regulation of disclosure”</i>).</p>
<b>Pre-coordination vs. post-coordination</b>	<p>The STW consists of both separate concepts and combinations of concepts. In particular in the subthesauri <i>“W Economic sectors”</i> and <i>“P Commodities”</i> there exist separate concepts that have to be post-coordinated with other concepts in order to be able to search for the resulting complex concept, e.g. combine <i>“Grain”</i> and <i>“Export”</i> to search for publications on the subject of grain export.</p>
<b>Gender-neutral vs. gender-specific language</b>	<p>The STW contains generic words for humans. Originally, they referred to both males and females. More recently, the generic words for humans, which mostly correspond to the male form, have been supplemented by terms referring to females as non-preferred terms. In cases where a certain volume of literature explicitly deals with the female perspective, the female form has been included in the STW as a separate concept.</p>
<b>Abbreviations and acronyms</b>	<p>Abbreviations and acronyms are used when they are known and unambiguous (e.g. <i>“NAIRU”</i> which stands for <i>“Non-accelerating inflation rate of unemployment”</i>). The written out form is listed as non-preferred term if the abbreviation or acronym has become the preferred term. In the case of ambiguous abbreviations, the written out form is added in parentheses (e.g. <i>“DRG (Diagnosis Related Groups)”</i>).</p>

<b>Capitalization</b>	<p>Capitalization is writing a word with its first letter as a capital letter and the remaining letters in lower case. In both language versions of the STW, the first word of a term always begins with a capital letter. This also applies in German if the first word is not a noun. Proper names are capitalized, generally with the first letter of each word. Acronyms are capitalized.</p>
<b>Singular and plural</b>	<p>As a rule, terms should be in the singular form. If a term only occurs in the plural (e.g. “<i>Accessories</i>”) or in cases of terms whose singular and plural form have different meanings, the plural is used. Groups of people (e.g. “<i>Workers</i>”) and job titles (e.g. “<i>Physicians</i>”) are also in the plural form.</p>
<b>Geographical names</b>	<p>Only continents, subcontinents, countries and political and economic regions or groups of states, which are sufficiently relevant are included in the STW. For German-speaking countries, the federal states or cantons are also included. The list of country names published by the Federal Foreign Office forms the basis for the naming of countries (see Auswärtiges Amt, 2024). If an alternative name is more common, an exception is made (e.g. “<i>United Kingdom</i>” instead of “<i>Great Britain</i>”).</p> <p>Historical territories are only included as concepts if a large volume of literature is expected (e.g. “<i>USSR</i>”).</p>
<b>Organizations for economic cooperation</b>	<p>Groups of countries joint for economic cooperation are part of the STW according to criteria of relevance. They are listed under subject category “<i>G.06.01 Organizations for economic cooperation</i>”.</p>



# FREQUENTLY ASKED QUESTIONS

## ***What topics does the STW Thesaurus for Economics cover?***

The STW covers all economics and business practice-related subject areas and, on a broader level, the most important related subject fields.

## ***How is the STW Thesaurus for Economics organized?***

The STW consists of seven subthesauri, which form the top level of its subject categories. The subdivision of the subthesauri “V Economics” and “B Business economics” follow the usual subject fields in national and international economic research. The subdivision of the subthesauri “W Economic sectors” and “P Commodities” are mostly taken from the current commodity and sector classification of the Federal Statistical Office. The subdivision of the subthesaurus “G Geographical names” is by continent. Each concept record consists of the concept’s preferred term and its alternative labels in English and German together with its hierarchical and associative relations to other concepts. At the end of each concept record links to other thesauri and vocabularies via mappings are listed. Since the STW has been published on the Semantic Web, resp. as Linked Open Data, each concept has its own persistent identifier.

## ***Who maintains the STW Thesaurus for Economics?***

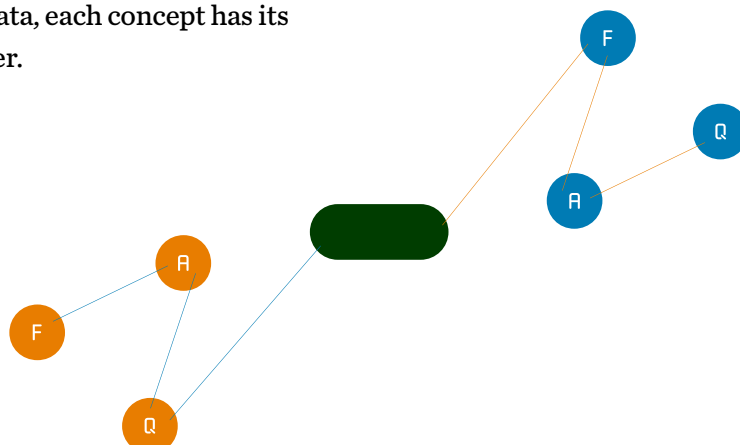
An editorial board of ZBW subject librarians continuously maintains and develops the STW terminology and thesaurus structure.

## ***How often is the STW Thesaurus for Economics updated?***

The STW is updated once a year, usually in the fourth quarter.

## ***Is it possible to view or browse hierarchies when viewing the STW Thesaurus for Economics online?***

It is possible to view and browse hierarchies through the STW English and German web interface see <https://zbw.eu/stw/version/latest/about.en.html> and through the web browsing interface Skosmos <https://zbw.eu/beta/skosmos/stw/en/>.



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# GLOSSARY

<b>Concept</b>	A concept stands for a unit of thought that is linguistically represented by a term.
<b>Term</b>	A term is the linguistic representation of a concept. In the STW, these are descriptors or preferred terms and non-descriptors or non-preferred terms. All terms that represent a concept form the descriptor set.
<b>Descriptor</b>	The descriptor stands for the preferred term of a concept. Since the STW is bilingual, a preferred term exists in both languages, German and English.
<b>Non-descriptor</b>	A non-descriptor, also known as non-preferred term, stands for a synonym or quasi-synonym to the preferred term or descriptor.
<b>Broader term</b>	The broader term relation stands for a hierarchical relation between two concepts. In the STW this relation is not further specified. It includes generic (genus-species), partitive (part-whole) as well as the instance relation (individual instance-general concept).
<b>Narrower term</b>	The narrower term relation also stands for a hierarchical relation between two concepts. It forms the inverse relation to the broader term relation.
<b>Preferred term</b>	Term used to represent a concept when indexing, also known as descriptor.
<b>Related term</b>	The related or associate term relation expresses that two concepts are semantically quite close to each other or often occur together.
<b>Subject category</b>	A subject category stands for a group of concepts related to a specific subject area.