A CONTRASTIVE ANALYSIS OF PHRASEOLOGICAL UNITS RESULTS FROM SPECIALIZED FIELDS BASED ON THE CLASSES OF OBJECTS' THEORY IN EXAMPLES IN SPANISH AND GERMAN: A LITERATURE UPDATE AND REVIEW

Ruben Medina Serrano

ruben.medina.serrano@gmail.com Universidad de Alicante

1. Introduction

The strong increase of the globalization's influence at the industry, especially for Small-Middle-Enterprises (SMEs), highlights the problem of non-having standardized multilingual reports and product specifications to supply them to customers, suppliers or third parties. Thus, today most SMEs choose the outsourcing option to obtain qualified text translations, especially for the translation of multilingual contracts and products' specifications. How phraseological units can be analyzed and classified and which criteria must be considered to evaluate and classify translation errors? Even the analysis of phraseological units is not at its infancy stage, the methodology for their analysis varies from one research to another. Interestingly, most of the traductology researchers proof their theoretical findings empirically. However, research works of traductology requires to be updated continuously, proving their results in case studies. Despite the large number of studies analyzing phraseological units and assessing translation errors in specialized languages, empirical studies of managerial practices with focus on the contrastive analysis of phraseological units in specialized fields like traceability; supply chain management; audit management; quality management; contracts and risk management using the ISO 9001, ISO 2859-1, ISO 19011, ISO 26000 and ISO 31000 standards have still room for improvement. The proper use of phraseological units in the industry is given the importance it deserves. Furthermore, practitioners in the industrial sector, whose work involves preparing reports and specific products documentation, used to write them in a monolingual format. For instance, in the case study based on a firm located in Germany, was German the main used language for products specifications and company reports. This led to a problem, once the product specifications were used by the purchase department to ask different suppliers for a quotation. After a first evaluation, strategic purchasers might identify potential suppliers in a country abroad, where the spoken language is other than German. Suppliers must translate the provided documents into their spoken language, which can lead to wrong interpretations of the source text, delivering a product different as expected by the purchaser.

As long as practitioners do not have a model corpus to guide them in choosing the right phraseological units in each case, wrong translations can be delivered. Thus, this research aims to assist these professionals in the process of deciding which phraseological units are best suited to a given process or document. However, while the number of phraseological units is daunting, the empirical work should be updated continuously in order to respond to the rapidly changing environment, with new regulatory and political constellations and a market situation that is constantly evolving. In view of the above, professionals, translators and teachers must strengthen their ability to adapt their knowledge and translation processes to possible changes, especially considering the strategic role that translation plays in education and in the performance of firms operating in international environments. The results of this research are influenced by these changes, as regulations such as the REACH, RoHS and CMRT sustainability requirements, which were updated in January 2021 for the European countries. This, in turn, leads to important changes in the documentation of processes carried out by firms working with electronic components in Europe. The present research attempts to develop a methodology to analyze and classify phraseological units by compiling corpora, in order to support translators, practitioners and academics in the corresponding process documentation. While phraseology research has evolved over the last decades, multilingual collocations in specialized fields are often unknown by translators and teachers. This research aims to address this gap by performing an analysis of PU in specialized contexts in the Spanish-German languages.

The present research has three primary goals: 1) reviewing and analyzing the existing literature on Spanish-German phraseology, 2) determining which definition of phraseology best fits the purpose of this research, 3) develop a framework to guide researchers and practitiones to perform contrastive analysis of Spanish-German phraseology. The rest of the paper is organized as follows: Section 2 provides a literature review based on a list of research works with a high impact factor in the field of phraseology, according to the ProQuest and Google Scholar databases. In Section 3.1, the most relevant findings applied in the developed thesis from the content review and the consultations with practitioners from a firm located in Germany are presented. Finally, the main conclusions, other related topics that might be addressed in future researches and the limitations of this study are discussed and presented in Section 4.

Cross-linguistic research on phraseology covers a wide range of challenging topics. Current research paper aims to perform a contrastive study in the German-Spanish languages, producing a list of entries of Spanish and German constructional phraseological units. It lays stress on collocations, idioms and metaphors as the constituent principles of set phrases and FVCs, and provides interesting information about the intriguing interplay between universal cognitive principles, culture and phraseology. Cross-linguistic phraseology is closely linked to translation studies. There may also be an interesting link between phraseology and the

research on translations. What is the impact of phraseology on the overall pattern of the translation process? Evidently, there is an important impact of phraseology on the translation studies. Even though research works about phraseology increased in the last decade, there are still discussions over the interpretations and definitions adopted by different researchers like Sancho Cremades (2003), depending on the language used and country of research, which lead to misunderstandings. For instance, Sancho Cremades (2003) stated that interjections should be included in the field of phraseology too. Whereas phraseological units are unfortunately not taught in German lessons for foreigners (Ránics, 2019), many research groups have been working on multilingual databases for decades. For instance, the FRASYTRAM (Phraseology and Multilingual Translation) research group from the University of Alicante started the development of a multilingual database in 2005. Although research on phraseology has evolved in the last decades, studies on Spanish-English-German FVCs are still scarce. This research work is oriented in the collection and translation of Fixed Verbal Constructions (FVC) following Mogorrón Huerta (2014)'s definition, FVC as: (1) verbal locutions; (2) verbal collocations; (3) support verbs; (4) comparative verbal constructions; and (5) verbal constructions + adverbial phrase. The present research has three primary goals: 1) reviewing and analyzing the existing literature on Spanish-German phraseology, 2) determining which definition of phraseology best fits the purpose of this research, 3) collecting evidence of Spanish-German phraseology by compiling a database through a two-way content review of Spanish and German dictionaries and research works. The rest of the paper is organized as follows: Section 2 provides a literature review based on a list of research works with a high impact factor in the field of phraseology, according to the ProQuest and Google Scholar databases. In Section 3, collected expressions from German, English and Spanish dictionaries, and the dissertation of Medina Serrano (2019) are verified by consulting with a group of polyglots. The most relevant findings from the content review and the consultations with a group of polyglots located in Germany are presented in Section 3.1. Finally, the main conclusions, other related topics that might be addressed in future research and the limitations of this study are discussed and presented in Section 4.

2. Literature review

A literature review of a number of research works from the databases ProQuest and Google Scholar is performed with focus on research works using the keyword "phraseology and phraseological units". Papers from the renowned editorials Peter Lang and De Gruyter were specially analyzed. In order to start with the fundamental theories of the contrastive analysis of phraseological units, the following theories are reviewed: (1) general theories; (2) theories for Spanish traductology; and (3) theories for German traductology. Within the first part, four subcategories are defined, namely: (1.1) the lexicon-grammar theory; (1.2) the object class theory; (1.3) the skopos theory; and (1.4) the appraisal theories.

(1.1) The lexicon-grammar theory developed by Maurice Gross (1975) focuses on the identification and formalization of general rules applicable to a wide class of words. Chomsky's (1965) transformation rules described systematic relations between various syntactic structures, but as Chomsky (1965) himself pointed out, these rules are not always the same. Given a particular word, the question arises whether a given generalization applies to a particular phraseological unit or not. In other words, a complete description of the syntax

of a language involves not only the identification of general rules, but also the determination of which rules must, can or cannot be applied with each word or lemma. This is what Maurice Gross attempted to do with French through the lexicon-grammar theory. Thus, there are fixed word combinations that are used in different situations and which are of interest in this research. These combinations of fixed phraseological units are of interest from both, social and business perspective, since there are phraseological units in specialized languages that have to be known in the industry. Especially, when writing reports in language combinations, it is essential to know the linguistic equivalences in order to avoid making mistakes of the translation, which may be the case, if only the literal meaning of the word or phrase is translated. M. Gross's lexicon-grammar theory (1975), based on his studies of the French language, aimed to provide a systematic description of the syntactic and semantic properties of syntactic functors, i.e. verbs, predicative nouns and adjectives (Gardent et al., 2005). According to Gutiérrez Ordóñez (1981), function is the meaning corresponding to a functor. Functors are meanings of special signs of a syntagmatic nature. The predicative relation is a content expressed by the numerical-personal agreement between a noun and a verb. M. Gross (1975) organized the systematic description into groups of tables, where each group is associated with a syntactic category (full verbs, supporting verbs, nouns, etc.). Within a group, a table corresponds to one or two specific syntactic constructions and gathers all the words that fit into that construction. For instance, a verb table may contain all verbs that can have an infinitive complement in addition to a subject, but not a complement that is a finite completive or an infinitive.

The systematic examination of the lexicon is therefore a mean of understanding a language globally. In particular, it requires a detailed and exhaustived analysis of all lexical items; furthermore, the minimum unit of meaning should be the phraseological unit and not the word (like the case in traditional dictionaries). This research work aims to validate the applicability of the theory of Maurice Gross (1975) for the contrastive analysis of phraseological units for German-Spanish language combinations by classifying them according to their syntactic-semantic properties. Likewise, by analyzing in detail and systematically which functor requires, accepts or forbids the application of a given syntactic rule, a classification of phraseological units can be made on the basis of verbs, predicative nouns and adjectives. Following the theory of Maurice Gross (1975), the work of verbs in completive constructions, i.e., preceded or followed by an infinitive, and their identification in different electronic dictionaries is analyzed in this research. Our research concentrates mainly on morphosyntactic information about the verb and arguments by analyzing the semantic structures applied in specialized contexts.

Next, the important work of electronic dictionaries and the analysis of verbs in completive constructions (Gross, M., 1975) are taken into account. For this analysis, Maurice Gross created a dictionary containing a significant number of verbs, described on the basis of distributional and transformational criteria (for example, whether or not the verb can be used in the passive form, the pronominal form, or whether a complement can be added). Currently, lexicon-grammar is developed mainly for verbs. The lexicon-grammar theory contains detailed information on the categorization of syntactic functors, especially on the number and type of their arguments. Thus, for each verb usage, one or more subcategorization frames are included in the form of a list of arguments; for each subcategorization frame, there is morpho-semantic-syntactic information about the

arguments and about the verb. For each subcategorization frame, information about its auxiliary verb type, about the tense agreement constraints on verb arguments, and information about the human character of the argument is considered. Syntactic and semantic features play an important role, since they allow for the lexicon to be classified into broad categories that can be further subdivided later.

(1.2) Object class theory

Syntactic-semantic features and characteristics are often insufficient to describe predicate selection. In fact, these are defined by the semantic properties of the arguments. However, this insight of Maurice Gross (1975) is based on the premise that there are no predicates with the same kinds of arguments that have different meanings. An example of this problem is the verb "coger". Also in one of its uses in Spain, the verb coger selects a noun referring to a mean of transportation, but in Mexico it has a different meaning. Therefore, polysemy in phraseological units must be identified, especially taking into account the geographical diatopic variation meanings. In the above example, means of transportation constitutes what, according to G. Gross (1995), is known as an object class. Object classes are semantically and syntactically homogeneous. While *coger* in Mexico is synonymous with having sexual relations, its use in the sentence Juan cogió el autobús has a completely different semantic meaning. Whereas coger in Mexico would be classified within the abstract class, its use in the sentence Juan cogió el autobús can be grouped into the concrete class and has a completely different semantic meaning. Another example of polysemy is the verb "get" which can mean procure, become or understand or cadena in Spanish which can refers to the supply chain (cadena de suministro) or the toilet (tirar de la cadena). An object class is a grouping of nouns, with a homogeneous meaning that delimits a specific use of a given predicate (Gross, G. 1995). Consequently, object classes are not abstract semantic concepts but entities determined by the meaning of the predicates. As these are not necessarily isomorphic, classes may vary from one language to another. Nevertheless, bilingual descriptions have shown empirically that the vast majority of classes are common in different languages, whether European or not.

While a lexeme indicates a lexical meaning, the morpheme and syntagma (it does not admit the permutation or change of order of any of its components) have a grammatical and derivative nature, respectively (Mendoza Fillola and Briz Villanueva, 2003). In addition to this, the structural meaning relates to the meaning expressed by the lexemes and morphemes of an unit. For instance, morphemes indicate whether the unit is singular or plural, or whether it is used in the active, passive, perfective, imperfective, etc. form. The concept of object classes, developed by G. Gross (1995) from M. Gross's lexicon-grammar theory (1975), draws on some aspects of Mel'čuk's sens-text theory (1996) and, in particular, on the treatment of lexical units to account for some of the semantic constraints that a predicate can impose on its arguments. It seemed pertinent to introduce into our analysis certain concepts concerning explanatory and combinatorial lexicology.

(1.3) The Skopos theory

Skopos theory, known as *Skopostheorie* in German, is a theory in the field of translatology (or translation studies), positing that translation strategies should be determined by the function or purpose of a translation (Nord, 2012). The determination of the function and purpose of a translation or target text is dependent on the specific behavior, norms and

conventions of a culture (Reiß and Vermeer, 1984). The translator must therefore be aware of the aforementioned behaviors, norms and conventions of the target language, without losing the skopos of the translation. In this way, the client provides the required instructions to the translator so that it can be produced the expected target text (Du, 2012). The purpose of a translation action (the set of actions performed by the translator or of the different professional mediation activities) is established through the translation assignment, i.e., through the instructions given by the client to the translator, so that the latter can produce the target text or expected translation. The research results identify criteria for the evaluation of translations based on the skopos theory. The skopos theory is a theory from the field of traductology, whose translation process is determined by the function or purpose of the translation. Especially in contracts, the normative character of the translation must be taken into account. This theory is based on the approach that the translation of a text is executed in a way that can be used for the purpose and audience that is intended for. For instance, mantenerse del aire is a phraseological unit that has a polysemous feature leading to an opacity for the translator.

(1.4) The Appraisal theory

This study attempts to evaluate the possible feelings, emotions, and subjective positioning of translations by using and translating phraseological units, following the appraisal theory (Martin and White, 2005; White, 2015) and its further implementations from Tajvidi and Arjani (2017). A central concept of Appraisal theory is that sender or speaker transmit his/her feelings to the receiver or listener of a language (Martin and Rose, 2003). For instance, by the evaluation of *vivir a lo grande*, the appraisal theory can help to analyze and evaluate if the phraseological unit conveys positive or negative assessments, even the subjectivity of the speaker and constitutes an important part of speakers' culture and can reflect their mood and subjective situation (appraisal theory). The appraisal framework proposed by Martin (2000) and Martin and White (2005), with a focus on the system of engagement.

- (2) Within the literature about Spanish traductology, we highlighted (2.1) the Fixed Verbal Constructions (FVC); (2.2) the phraseological units (PU); and (2.3) the collocations.
- (2.1) In this research, special attention is paid to FVC's definition of Mogorrón Huerta (2014) who suggested his own definition, classifying them in five groups, namely: (1) verbal locutions; (2) verbal collocations; (3) support verbs; (4) comparative verbal constructions; and (5) verbal constructions + adverbial phrase.
- (2.2) An especial attention in the Spanish research works on phraseology is addressed to authors like Zuluaga (1980), whose research work proposed an introduction for the study of fixed expressions. Whereas Corpas Pastor (1996) wrote a manual about the Spanish phraseology, García-Page (1996) researched about Spanish phraseological variants. Additionally, Ruiz Gurillo (1997) presented her work about the aspects of the theoretical Spanish phraseology and García-Page (2008) stated that frequently different researchers employ phraseologisms inadequately. PU, also called phraseologisms are characterized, according to Soler and Batista-Rodríguez (2008), by the following three features:

- (1) their polilexical character, which distinguishes them from the isolated words, simple or compound words of the language;
- (2) their fixation, which implies their memorization as if they constituted an inseparable whole, as if they were inseparable whole, just as single units are stored; and
- (3) their idiomaticity or lexical opacity, a feature which, however, may be lacking, as in the case of the collocations.

As several studies have evidenced (García-Page 1998 and 2008; Koike 2003; and Mogorrón Huerta 2014), the diatopic variation of the phraseological unit (PU) is as relevant in numerical terms as the variation of the other lexical units (simple words, lexical compounds, syntagmatic compounds), also called geosynonymy (e.g. t-shirt/playera/polo). For instance, Mogorrón Huerta and Albaladejo-Martínez (2018) researched the PU with focus on the linguistic, lexicographic and translational problems in the context of diatopic variation of Spanish geographically. Based on Corpas Pastor (1996), PU can be defined as lexical units formed by two words, at their lower limit, or by a compound sentence, at their upper limit, and characterized by their formal and semantic fixation. From this definition it follows that, for a phraseological unit to exist, there must be a combination of at least two words, and this combination must be fixed in form and meaning. This statement must be qualified because of there are some PU that present formal and semantic fixation to a relative degree, i.e., they are not completely fixed in their form and meaning. The most widely followed classification of phraseological units in Spanish phraseology, is the one proposed by Corpas Pastor (1996) in her manual, which divided them into three spheres, namely: (1) collocations; (2) locutions; and (3) phraseological statements. Besides this definition, Penadés Martínez (2012) extended this definition to four categories. Since the first two classes of units are characterized by not constituting utterances and the third by being so, Penadés Martínez (2012) differentiated between paremias, on the one hand, and formulas, on the other hand and proposed to classify phraseologisms in four spheres distributed in two groups: units that are equivalent to an utterance or a sentence and units that are not equivalent to an utterance, but are, rather, part of it. Within the first group, in turn, it is possible to separate paremias from formulas and, in the second, it is possible to differentiate between collocations and locutions.

(2.3) Collocations

While Alonso Ramos (1994) proposed the definition of collocations as the combination of two lexemes A and B, so that their meaning is the sum of the meanings of the lexemes, Corpas Pastor (1996) defined collocations as phraseological units formed by two lexemes that present a syntactic relationship, but do not constitute speech acts or utterances by themselves. Later on, Castillo Carballo (1998) proposed a classification into six types according to the type of lexicon of which collocations are composed. Koike (2001) introduced the concept of 'environment' and proposed his formal and semantic definition of lexical collocations on the basis of (1) frequency of unit concurrence; (2) combinatorial constraints; (3) formal compositionality (i.e. internal flexibility such as adjectival modification or grammatical category change); (4) lexeme linkage; (5) typical relationship

between constituents; and (6) semantic precision. Pérez Serrano (2015) created a table with collocations based on the type of words that compose them, extending Castillo Carballo's (1998) definition to seven types. Aguinaga (2019) concluded that collocations are lexical combinations determined by the use of a community of speakers that are characterized by a concurrence of elements with a certain degree of fixation, which are categorized as semiidiomatic units. Finally, Bustos (2020) classified the types of collocations as follows: (1) noun + adjective: *vino tinto*; (2) verb + noun: *hacer compras*; (3) verb + adverb: *negociar intensamente*; (4) adjective + adverb: *reclamado intensamente*; and (5) noun + preposition + noun: *informe de minerales*. Sánchez (2017) understood the term of collocations as any kind of fix combination of two or more words that generally do not show any grade of idiomaticity. An overview of the literature review is drawn in Table 1.

Autors	Year	Proposed Theory				
		Combination of two lexemes				
		A and B, such that its meaning is the sum of the meanings of				
		the constituent lexemes, and its meaning includes the meaning of				
Alonso		lexeme A and a meaning C. C' is empty: lexeme B is an auxiliary				
Ramos	1994	used to support a syntactic configuration.				
		Collocations as PU built by two lexemes that are syntactically				
Corpas		related, but do not constitute speech acts or utterances in				
Pastor	1996	themselves.				
Castillo		Classification of the collocations into 6 types				
Carballo	1998					
		Stated that the noun select the base or the verb, but the				
		selection of this verb is not purely arbitrary. For instance, dar or				
		hacer are combined with nouns denoting actions and tener with				
Blanco		nouns denoting stated (tener calor) (e.g. to give an explanation vs.				
Escoda	2000	to be cold).				
		Introduced the concept of 'environment' and The author				
		proposed his formal and semantic definition of lexical				
		collocations (1) the semantic definition of lexical collocations in				
		terms of (1) the frequency in the concurrence of units; (2)				
		combinatorial constraints; (3) formal compositionality; (2)				
		combinatorial constraints; (3) formal compositionality; (4) the				
		linking of lexemes; (5) the typical relationship between				
		components; and (6) semantic precision. (Sign a contract; sign is				
Koike	2001	the collocator and a contract is the environment).				
		Divided collocations according to their composition and				
		frequency. Free compositions, such as sharing expenses or				
		making a cake. These complex lexical units allow a wide range of				
		substitution between their elements, as well as semantic				
***	2002	transparency.				
Wasow	2002	- Transparent collocations, such as check in detail				

		- Semi-opaque collocations, e.g. play the guitar, where				
		learners need a deeper knowledge of the language to understand				
		the exact meaning of the combination.				
		also considered the combination of prepositional phrase +				
Gładysz	2003	verb as collocations.				
		elaborated a table with the collocations on the basis of the type				
Pérez		of words that compose it. Expanded the definition of Castillo				
Serrano	2015	Carballo (1998) to 7 types				
	Posed that collocations are lexical combinations dete					
		by the use of a community of speakers and characterized by a				
		concurrence of elements with a certain degree of fixation. This is				
		he reason why this type of construction is classified as				
		semiidiomatic units. Collocations should not be confused wi				
Aguinaga	2019	idioms or locutions such as escurrir el bulto.				
		Bustos (2020) classified the types of collocations as follows:				
		(1) noun + adjective: vino tinto or proveedor cualificado				
		(qualified supplier); (2) verb + noun: hacer compras; (3) verb +				
		adverb: negociar intensamente (to negotiate intensively; (4)				
		adjective + adverb: reclamado intensamente (claimed intensely);				
		and (5) noun + preposition + noun: informe de minerales (mineral				
Bustos	2020	report).				

Table 1. Collocations

(3.1) Funktionsverbgefüge (FVG), which are similar in structure to the noun-verb collocations, are defined by some linguists as a subgroup of collocations, and by others as a different phenomenon. For instance, Corbacho Sánchez (2005) identified that FVG are linguistic mechanisms of high relevance, especially in administrative and economic texts and previously Zuluaga (1980) in reference to the FVG in his study about fixed verbal expressions provided some examples like (eine Erklärung abgeben = erklären (dar una explicación / explicar); unter Beweis stellen = beweisen); eine Präsentation halten / präsentieren (dar una presentación / presenter). Furthermore, he aimed to create an analogy with the Spanish language and defined them as "lexemas verbales compuestos", which are defined as the combination of a verb + a noun or a prepositional construction which is usually equivalent to a simple verb whose lexical content coincides with that of the nominal component (tomar parte = participar). Corbacho Sánchez (2005) stated that it's important to identify the possibility to replace the functional verbal construction through a verb or an adjective. Thus, the noun like "eine Erklärung" derivates from the verb "erklären". Castell (1997) defined functional verbs as a series of verbs that lose their original meaning when they appear in combination with certain prepositional or nominal syntagms in the accusative". López-Campos Bodineau (1997) defined the structure with function verb as those constructions in whose scope the grammatical and lexical loads of a given verb appear to a certain extent "unlinked" one from the other through one verbal and the other nominal components. In addition to the term Funktionsverbgefüge pointed out by most linguists, there are similar

designations like *Streckverben* (Burger, 1973), *Schwellform* (Glück, 1993) and *Streckform* (Helbig 1979; Schemann 1993). Specifically, the description of the term *Streckformen* (synonym of *FVG*) defined by Schemann (1993) denotes a somewhat particular conception. A special characteristic of these combinations is that the original meaning of the verb is lost (Reiners, 1966). Helbig saw a common property among collocations and FVG, especially in the non-idiomaticity of the constituents, which is also aligned to Roos (2001); Wotjak and Heine (2005) and; Heine (2006)'s statements. Collocations are typical German word combinations whose literal translation would produce an unusual effect in the target language (Reder, 2006). Also, mentioned by Hausmann (1985) years ago. In individual cases, different forms of article restrictions can be found: e.g. *zur Ruhe* kommen (Heine, 2006) - to come to rest.

(3.2) The term "collocation" is used differently in research studies. Collocations are "typical, specific and characteristic combinations of two words" according to Hausmann (1985), who has dealt intensively with this topic several times. Essential for collocations in Hausmann's understanding is that collocations: (1) represent the preferred verbalization for a given state of affairs; (2) are transparent, and; (3) their elements are in a specific relation to each other, which is described by the terms "base" and "collocator". An example of Hausmann (1985)'s definition for collocation is *Lieferanten bewerten*, which is built by Base (Lieferanten) and Collocator (bewerten) (supplier evaluation). According to Hausmann, the base component has an autonomous reading, which is also applied outside of the collocation. The lexicographic approach to collocations, especially of pedagogical lexicography, assumes that collocations consist of two items: a base, which is semantically autonomous, and the collocator, which cannot be semantically interpreted in isolation. The collocations' dictionary of Uwe Quasthoff (2011) is the first dictionary of collocations in the German language and solved the need of creating a special dictionary for collocations identified by some investigators like Reder (2006) years ago. The dictionary of Uwe Quasthoff (2011) contains different structures of collocations, namely: (a) with the base as noun there are: adjective + noun, noun (as subject) + verb, noun (as object) + verb, noun (as prepositional complement) + verb; (2) with the base as verb: adverb + verb; and (3) with the base as adjective: adverb + adjective.

According to the definition of Quasthoff (2011) and as pointed out by Radzik (2013) the following groups of collocations can be distinguished: (1) substantival collocations (adjective + noun); (2) verbal collocations (noun + verb, adverb + verb); and (3) adjectival collocations (adverb + adjective). In comparison with other representations of the structures of collocations, in Quasthoff's dictionary the subgroup of substantival collocations (noun + noun) and adverbial collocations (adverb + adverb) are not listed (Gładysz, 2003). Wasow (2002) divided collocations according to their constituent composition and frequency and their meaning, including the meaning of the lexeme A and a meaning C. In addition, Gładysz (2003) also considered the combination of prepositional phrase + verb as collocations. Later on, Roth (2015) concluded his perspective about collocations with the creation of the concept of collocation aligned with the previous definition of Burger (2010) and conceived collocations as fixed word compounds that are not idiomatized or are weakly idiomatized and that form syntactic units. These also represent semantic units. A list of some of the most representative contributors to the collocations literature in German are drawn in Table 2.

Burger	Hausmann	Gładysz	Wotjak	Reder	Heine	Quasthoff
1973	1985 2004	2003	&	2006	2006	2011
2003 2010			Heine			
			2005			
Schemann	Helbig	Wotjak	Roos	Wasow	Radzik	Roth
1993	1979	1994	2001	2002	2013	2015

Table 2. Collocations

3.3 Are composites part of the collocations? Roth (2015) took into account the phonological, morphological and syntactic criteria to limitate the definition of composites in relation to other forms of phraseological units. He classified them as follows: determinative, possessive, copulative and recessive composites and compounds (phrasal composites). According to Roth (2015), while collocations are ruled according to syntactic properties, composites follow morphological rules. The German language is rich on composites because this is an effective process to build new words, saving the use of connectors and prepositions, like in the case of *Qualitätssicherungsvereinbarung*, in English (Quality Assurance Agreement, QAA). An example of it, reviewed in the case study, is attached in the annex.

The other main question is the decision when to use the combination of words as collocations or composites. Thus, the use of building composites reduces in some ways the use of choosing collocations. Therefore, both structures are in continuous competence among each other as also identified by Wellmann (1973); Helbig and Buscha (1984) and Barz (1996). A comparison can be performed with adjective-noun syntagms (ANS) and adjective-noun composites (ANC) such as warm air — Warmluft. Pairs of ANS and noun-noun composites (NNC) are also included if the adjective is not compositionally connectable and a lexically identical noun appears as the first member of the composite as in golden ring goldener Ring — Goldring (Barz, 1996). For instance, *Konfliktmineralien* (noun+noun); *Grüntee*— *grüner Tee*; *Gutlieferant*— *guter Lieferant*).

3. Data collection methods: mixed methodologies

This study employs the mixed methodology according to Rojo (2013), based on a literature review and verification through dictionaries and a case study. Qualitative data analysis was conducted following Miles and Huberman's (1994) methodology, including data reduction, data display and conclusion. In order to carry out the empirical study, main data is collected from a set of interviews with practitioners from a case study. Practitioners are selected based on their experience on dealing with suppliers like purchasers, quality planners and quality managers. Interestingly, the author of this paper is an experienced quality manager certified by the European Organization of Quality (EOQ). Semi-structured interviews with middle-level managers were undertaken in order to avoid bias and to be able to approach a qualitative comparison. Supplier Quality corpora are special corpora made up of texts that do not overlap

as much with the large central pool of corpora. Therefore, this study differentiates the Supplier Quality corpora from the rest of the corpora. Reference corpora in the linguistics combination of English-German, obtained from QAA and other related documents relied on standards like ISO 2859-1 (2014), is the basis for the comparison of multilingual equivalence structures.

The case study focused on a leading manufacturer of electronic products based in Germany with 1.690 employees and a €246,5m turnover (key figures from the end of 2020). A content review of a number of representative quality inspection collocations was verified through contrasted dictionaries like *Leo* (2020), *Redensarten-index* (2020) and *Lexico* (2020), the databases Interactive Terminology for Europe (*IATE*, 2020) and Deutsches Referenzkorpus (*DeReKo*, 2021), and the consultation of practitioners. The analysis is performed based on the M. Gross (1975)'s theory, the theory of classes of objects (Gross, G., 1995) and the application of research works like the one from Mogorrón Huerta (2014). The methodology of G. Gross (1995) was chosen because of this theory is a referent for object classes and it's well-established for grouping classes of objects, as an example through electronic dictionaries. The case study was carried out using evidences from multiple sources, such as supplier inspection plans, QAA, incoming quality inspection plans, manufacturing inspection plans, with a view to gain validity and reliability (Yin, 2018).

The research work is split in four main blocks, namely: (1) Introduction; (2) Research works; (3) Conclusions and implications; and (4) Appendix. Nineteen research works are described into the block two: (1) "A corpus-based analysis of economics-related expressions in German-English-Spanish" (2) "How do translations influence on education?"; (3) "A contrastive study and critical analysis of translations in multilingual surveys"; (4) "A contrastive analysis of body expressions that come to mind through appetite"; (5) "The influence of the figure of the translator to the literature legacy"; (6) "Best practices for compliance with the new REACH/RoHS regulations"; (7) "A contrastive analysis of conflict mineral collocations along the supply chain"; (8) "Interpreting phraseological units in supply chain contracts"; (9) "A contrastive analysis of traceability expressions: a corpus-based study"; (10) "A contrastive analysis of audit management expressions: a corpus-based study"; (11) "How the power of thinking can influence a success mindset? The appraisal theory in phraseology"; (12) "Estudio contrastivo de fraseologismos en el campo de las auditorías remotas"; (13) "A contrastive study of phraseology on social networks: an update and review"; (14) "A contrastive study of phraseology in the field of remote audits using ICTs"; (15) "A contrastive analysis of expressions used in quality inspections: a corpus-based study"; (16) "A developed systematic approach for the qualification process of new products during the R&D phase"; (17) "How to create an inspection plan according to ISO 2859-1? A case study"; (18) "How to set up an audit programme? -ISO 19011-", and (19) "Language learning for raising a multilingual child: OLOP and OLOTOC Methodologies". The overview is drawn in the Figure 1.

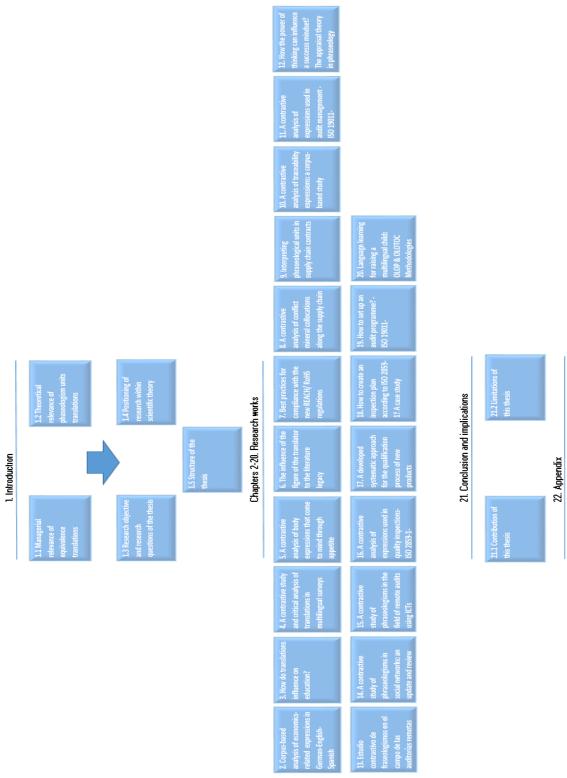


Figure 1. Research overview

3-A Findings of the research

In order to gain visibility, our research focus on the applicability of the above mentioned theories into the thesis, analyzing which part of the theories can be applied to our analysis.

With hands-on the applicability of the reviewed theories, we split our research findings as follows:

(3.1) general theories; (3.2) theories for Spanish traductology; and (3.3) theories for German traductology. Within the first part, four subcategories are defined, namely: (3.1.1) the lexicon-grammar theory; (3.1.2) the object class theory; (3.1.3) the skopos theory; (3.1.4) the appraisal theories; (3.1.5) theory of specialized fields; (3.1.6) Teaching theories; (3.1.7) learning strategy; and (3.1.8) textuality criteria. (3.2.1) FVC; (3.2.2) PU; and (3.2.3) collocations (Spanish). (3.3.1) *Funktionsverbgefüge* (FVG); (3.3.2) Collocations (German); and (3.3.3) Composites.

3.1.1 lexicon-grammar theory

The syntactic-semantic properties applied to phraseological units are split in this research study into seven categories: temporal (temp), 'animal' (anl), 'vegetable' (veget), 'locative' (loc), 'concrete' (inc), 'abstract' (abst) or 'human' (hum). Information pertaining to a given verb as "sign" is collected and analyzed. An example is, "sign a contract" which is collected within the lexical entry "sign" and the phraseological unit is classified into the concrete category. As an example, the expression "vivir como un rey" is categorized as human. This classification is very practical when you aim to perform a methodically language analysis. Thus, by classifying PU into groups, it is possible to manage synonyms within the same group and to automate the translation of phraseological units of the same group into other languages (neighboring and distant ones). Finally, from a pragmatic point of view, the PU of specialized languages, such as those related to the supply chain applied in this study for the combination of linguistic research, have an application of interest to businesses as well as from a social perspective. An example of syntactic-semantic features used in this research representing the richness and diversity of the large set of concrete, human, abstract, temporal, vegetable, animal and locative nouns is listed below:

- Human (Hum) vivir como un patriarca.
- Animal (Anl) wie die Made im Speck leben (lit. live like a maggot in bacon, como el gusano vive en tocino).
 - Vegetable (Veg) live in the lap of luxury, in Saus und Braus leben, vivir a pata ancha.
 - Concrete (Con) pasarlo en grande.
 - Locative (Loc) en esta empresa se trabaja de lujo.
 - Abstract (Abst) vivir en la gloria.
 - Temporal (Temp) En abril aguas mil.

The prospect of developing a lexicographic tool – a database or an electronic dictionary of phraseological units in specialized contexts – that could be implemented in automatic language processing systems and to improve report writing in firms and contribute to specific studies in the future was a strong motivator for undertaking this study.

3.1.2 the object class theory

Combinatorial lexicology defines language as a set of rules that establish the correspondence between meanings and texts. Correspondence lexicology can be studied both from meaning to text (synthesis) and from text to meaning (analysis). Synthesis produces all expressions, synonyms or quasi-synonyms for a given meaning, while analysis reduces a

given expression to one or more meanings. First, through the formalized system of paraphrase rules developed by the lexicographic definition of a lexicon is an expression that functions as a paraphrase of that lexicon and makes its meaning explicit (Mel'čuk, 2007). The limits of this concept will lead to the notion of object classes (Gross, G., 1995), noting that it is indeed necessary to group nouns into homogeneous subsets, both semantically and syntactically. In the analysis phase, expressions in the previously mentioned contexts are analyzed to recognize syntactic patterns of different classes of objects. Equivalent expressions in the source and object languages are also analyzed, evaluating whether the conjugation rules in the source and object languages are respected. The concepts and topics of fixed expressions have been largely developed and 15 object classes are analyzed within the 2-20 chapters of the specialized fields analyzed (s. Table 3).

Chapters	Object classes	Object subclasses		
2	<nomecon></nomecon>	<nomcom>; <nomcap>; <nommon></nommon></nomcap></nomcom>		
		<nomcontract>; <nomcompl>;</nomcompl></nomcontract>		
	<nomsupply_chain></nomsupply_chain>	<nominspection>; <nomverification>;</nomverification></nominspection>		
3		<nomcontrol></nomcontrol>		
4	<nomstrat_source></nomstrat_source>			
	<nomgastr></nomgastr>	<nombehav>; <nomquant>;</nomquant></nombehav>		
5		<nomtempo></nomtempo>		
6	<nomliter></nomliter>			
		<nom_directive);< td=""></nom_directive);<>		
		<nom_substanceproperty>; <nom_harm< td=""></nom_harm<></nom_substanceproperty>		
		to Health>; <nom_material>;</nom_material>		
7	<nomsvhc></nomsvhc>	<nom_other>; <nom_preventive></nom_preventive></nom_other>		
		<nomsmelter); <nomdecl="">;</nomsmelter);>		
	<nomkonflikt></nomkonflikt>	<nominspection>; <nommaterial>;</nommaterial></nominspection>		
8		<nomstandard></nomstandard>		
		<nomnotification);< td=""></nomnotification);<>		
		<nomagreement>; <nominspection>;</nominspection></nomagreement>		
9	<nomcontract></nomcontract>	<nom obligation="">; <nomother></nomother></nom>		
		<nomtraceinformation>;</nomtraceinformation>		
		<nomidentification>;</nomidentification>		
	<nomtraceability></nomtraceability>	<nomenvironmental>;</nomenvironmental>		
10		<nomdeclarationoforigin>;</nomdeclarationoforigin>		
10		<nomother>; <nomproductcertification></nomproductcertification></nomother>		
11	<nomlearning></nomlearning>			
10	<nomsuccessfulmind< td=""><td></td></nomsuccessfulmind<>			
12	>			
13	<nomlearning></nomlearning>			
14	<nomsocialnetwork></nomsocialnetwork>			
15	<nomicts></nomicts>			

16	<nominspection></nominspection>			
17	<nominspection></nominspection>			
18	<nominspection></nominspection>			
19	<nomaudit></nomaudit>			
		<nom_leitfaden>;</nom_leitfaden>		
		<nom_stoffeigenschaft>;</nom_stoffeigenschaft>		
		<nom_gesundheitsschäden>;</nom_gesundheitsschäden>		
		<nommaterial>; <nom_andere>;</nom_andere></nommaterial>		
20	<nomsvhc></nomsvhc>	<nom_vorbeugend></nom_vorbeugend>		

Table 3. Overview of object classes applied

First, the derivation process of simple nouns is studied and the productivity of the suffixes and learned elements used in the formation of PU by means of statistical data is analyzed. Next, the research is focused on the composition of morphologically complex lexical units and then on the construction of lexical molds that allow us to describe certain nouns of the supply chain, economy, sustainability fields, where it's insisted especially on the importance of the lexicographic information contained in the database of this study that is intended to be used for future researchers. The importance of domains and subdomains within object clases is demonstrated. In particular, they play an essential role in complex corpus queries and in the search for suitable operators for nouns used in specialized texts such as the ones related to the supply chain field. A simple sentence is a sentence that is built around a predicative core, which is completed by one or more noun arguments and one or more nominal arguments. It is structured as follows:

$P \rightarrow Pred (arg)$

Here is an example of a simple sentence, followed by the corresponding argument pattern:

 $P \rightarrow Stefan sign a contract with Rainer.$

relationship (Stefan, Rainer)

Standard dictionaries do not provide the translation of FVC, but the translation of words. In this example, the predicate is the noun of professional relationship, which is accompanied by two arguments which happen to be the personal names Stefan and Rainer. The predicate is said to select its arguments; this means that the number of arguments (at least one and rarely more than three), the semantic nature (Hum, Inc, Loc...) and the form (nominal or subordinate group). The predicate is defined by a pattern of arguments represented as follows:

Pred (arg0, arg1, arg2...)

relationship (NO Stefan, N1 Rainer)

When the predicate is a noun, the verb of the sentence plays the role of the supporting verb. For instance, the class <NomEcon> represents an object class and the classes Trade/Handel/Commerce (<NomCom>); (2) Wealth/Vermögen/Capital (<NomCap>); and (3) Money/Geld/Money (<NomMon>, three subclasses. Another object class defined is NomSupply_Chain which collects word combinations and phraseological units belonging to the supply chain field. In this case, we are dealing with PU belonging to a specialized field. Within this object class five subcategories are defined: (1) Contract (<NomContract>); (2) Complementary (<NomCompl>); (3) Inspection (<NomInspection>); (4) Verification

(<NomVerification>); and (5) Control (<NomControl>). Additionally, the <NomSupply_Chain> class is of particular interest due to its intersection between specialized and general language. This research work is oriented on the concept of object classes developed by G. Gross (1995). For example, the phraseological unit "sign a supply contract" belongs to the object class NomSupply_Chain and the subclass <NomContract>.

Another examples "specified agreement /G:nm/T:Concrete/C:<NomContract>/ C:<Nom_Agreement>/Ger: zu dieser Vereinbarung festgelegt" or "darse Buena vida/G:nm/T:Abstract/C:<NomEcon>/ C:<NomCap>/Ger:in Saus und Braus leben". In order to build a database with PU is required to create or select the appropriate corpus. For instance, for the analysis we search for all lemmas associated with the domain of interest like performing a search for expressions related to appetite, within the economy object class, such as: "eat a lot" and within "eat a lot" we find glutton. On the other hand, within the object class category of the supply chain field we find PU with a common usage in contracts, audit reports and documents related to this field. Depending on the subdomains, this search can be extended. With this information, it is perfectly possible to build a database in which the entire lexicon of a particular field of activity would be grouped together. These four lexical units are characterized by the human feature, they all belong to the NomEcon class of objects and, at the morphological level, there is nothing to distinguish them. Therefore, disambiguation of these words can only be done through domain information. Subclasses are defined according to the same principle, i.e., by their relations to the appropriate predicates.

3.1.3 The Skopos theory

This theory is a theory in the field of translatology whose translation strategy is the aim or purpose of the translation. In this way, the client provides the required instructions to the translator for the translation of the expected target text (Du, 2012). This means that the skopos determines how must look like the translation of a text e.g. a QAA for the German-speaking target audience in accordance with the existing standards, keeping the main two predominant questions in mind, namely: (1) What is the translat used for?; and (2) For whom is the translation intended? (Reiß and Vermeer, 1984). Thus, a translator applying the skopos theory will aim to keep the adequacy of the source text's communication goal with the target text. Six categories are developed and explained in a separated paper in to classify translation errors (Fig. 3). Within the skopos theory, we realized that the target text must also be adapted to the legal terms of the target country. This also corresponds to the national laws and norms. The "textual function" processed as "the communicative intention or intentions that the producer pursues with his text" is first manifested in Reiß and Vermeer's (1984) translatological discourse when they equated the "textual function" (action) with the concepts of "skopos and its intencionality. "The skopos determines the translat." (Vermeer 1990). This also means that the skopos determines how the translation of supply chain contracts look like. The skopos theory is applied in this research for the translation of texts in among others supply chain related documents like the QAA (see annex).

3.1.4 The applicability of the appraisal theory

This study demonstrates that the appraisal theory is not valid for the analysis of product specifications or reports in the electronic industry. Thus, the PU applied are characterized for not having any emotion or feeling. The appraisal theories of Martin and White (2005) and White (2015) are reviewed and the following classification according to appraisal theory is performed: (1) Consciousness; (2) Purpose; (3) Beliefs; (4) Trust; (5) Productivity; (6) Habits; (7) Body-mind stability; (8) Gratitude; (9) Now; (10) PDCA-cycle review; (11) Mentoring (others); (12) recharge (charging).

3.1.5 Theory of specialized fields

While phraseology research has evolved over the last decades, multilingual phraseological units in specialized fields are often unknown by translators and teachers. This research aims to address this gap by performing an analysis of PU in specialized contexts in the Spanish-German languages. In order to perform the analysis, a theory has been developed, classifying the phraseological units, which are used frequently, namely classifying them based on their high frequency of use in the texts of a certain field. Due to the fact that in specific cases, PU can be classified in different fields, the most representative field in which the phaseological units are listed more frequently has priority against the rest fields (primary against secondary). For instance, supply chain evaluation or supply risk mitigation belong to the supply chain spezialized field, even though they can appear in the literature of economics. These are the specialized fields analyzed in the study: (1) Personal development (body-mind); (2) Auditing; (3) Strategic sourcing; (4) Education; (5) Legal contracts; (6) Literature; (7) Traceability; (8) Social networks; (9) Sustainability; (10) Quality management; (11) Economics.

3.1.6 Teaching theories

The following teaching strategies were analyzed: (1) One Language, One Toy, One Child (OLOTOC) methodology; (2) One Language, One Person (OLOP) methodology; (3) Computer tools; (4) Traditional (face-to-face class); (5) CAD tools; (6) Mentoring; (7) Social networking platforms; (8) Podcasts; (9) Tandem.

Besides the traditional teaching methodologies, especially the OLOTOC and the OLOP methodologies have been analyzed and verified through a case study based on a hyperpolyglot child. After developing the OLOTOC theory, it was proved that several theories can be combined each other, increasing the teaching and learning results. In fact, the OLOTOC theory is based on the use of external applications or toys who speak different languages to help kids to create a personalized and individual link with the toy and learn to create a habit of speaking with a specific toy in a certain language. A particular interesting characteristic of the game is that the toys used are monolingual so that they only speak one language so that kids must do an effort to speak their language, otherwise they will not be able to communicate with the kid (Medina Serrano, 2021). For instance, the following toys were used in the case study:

L'ours (speaks French); la carota (speaks Italian), o elefante (speaks Portuguese), el gos (speaks Valencian).

On the other hand, the child from the case study practices the OLOP methodology with his parents and at the school. The child speaks Spanish with his dad, Croatian with his mum and German at the school. While playing, the child is forming a strong link between a particular person and a particular language: the one-person one-language bond. An advantage for learning is the associations that the child makes among Spanish and neighbour languages like Italian, Valencian or Spanish.

3.1.7 Learning strategy

A learning strategy for learning phraseological units has been developed based on learning by repetition split in seven phases, namely: (1) Learning; (2) Repetition 1 after 30 minutes; (3) Repetition 2 after one day; (4) Repetition 3 after one week; (5) Repetition 4 after one month; (6) Repetition 5 after one year; and (7) Repetition 6 after five years (Medina Serrano, 2022). In fact, the repetition of PU in a combination of languages stimulates the mind and memory of kids.

3.1.8 Textuality criteria

According to De Beaugrande and Dressler (1981) there are seven textuality criteria, which a text must meet to be recognized as a successful communicative event. These are (1) Cohesion; (2) Coherence; (3) Intentionality; (4) Acceptability; (5) Informativeness; (6) Situationality and (7) Intertextuality. The criterion - *cohesion* - states that the elements of a text must be in a formal, grammatical context, connected by grammatical links. On the other hand, the criterion *coherence*, which refers to the context of meaning of a text, not only means of communication are used, but the recipient must also incorporate his/her knowledge of the world in order to understand a text (De Beaugrande and Dressler, 1981).

While *equivalence* is a relation between a target and a source text, which in the respective culture can fulfill the same communicative function on a rank-equal level (Reiß and Vermeer, 1984), *adequacy* is the relationship between the target and source text with consistent attention to a purpose (Skopos), which one pursues with the translation process (Reiß and Vermeer, 1984). Besides the previous definition of De Beaugrande and Dressler (1981), our research findings propose to adapt the normative character of the PU with regards to the related standards like the ISO 9001, ISO 2859-1, ISO 19011, ISO 26000 and ISO 31000 standards from the source to the target text, as well as the cultural aspects like *unverzüglich reagieren* into react immediately or without delay (Fig.2).

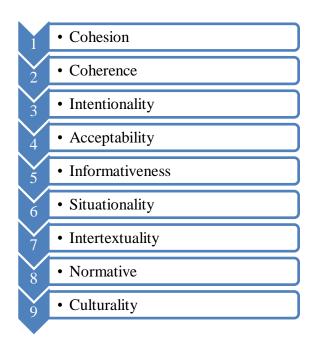


Figure 2. Textuality criteria

- 3.2 Within the literature about Spanish traductology, we highlighted (3.2.1) the FVC; (3.2.2) the PU; and (3.2.3) the collocations.
- 3.2.1 We applied and verified the definition of Mogorrón Huerta (2014) who classified FVCs in five classes, namely: (1) verbal locutions; (2) verbal collocations; (3) supporting verbs; (4) comparative verbal constructions; and (5) verbal constructions + adverbial phrases.
- 3.2.2 After performing a literature review, our findings validated the definition of PU performed by Corpas Pastor (1996) and extended her previous definition of three categories of PU with the subcategories of composites and FVG for their applicability in the German language. This definition shows some constraints in particular cases. However, it can be applied with caution for the German-Spanish cases. Even the definition faces some constraints, PU can be split among PUs depending of their grade of idiomaticity. Aligned with Helbig and Buscha (1996), the meaning of the PU can only be perceived as a whole, without splitting their individual parts. The analysis of the specialized phraseological units allowed us to identify different morphological patterns, among them, we highlight:
 - Noun + Adjective: contrato extendido / extended contract.
 - Noun + Preposition + Noun: auditoría de proveedores / supplier audit
- Noun + Preposition + Determiner + Noun: Contrato de estos proveedores / Contract of these suppliers
- Noun + Preposition + Noun + Noun + Adjective: Ley de protección internacional / International protection law

- Adjective + Noun: red wine
- Preposition + Noun: con copia / with copy
- Verb + Determiner + Noun + Noun: cumplir el contrato / to fulfill the contract
- Noun + Preposition + Noun + Determiner + Noun + Adjective: Auditor de estos proveedores ingleses / Auditor of these English suppliers
 - Preposition + Noun + Noun + Preposition: in charge of / a cargo de

In this sense, this research work aims to update the classification of PU with new research findings. The results of the analysis suggest that there are three types of phraseological units, namely:

- (1) phraseological concretions
- O Verbal locatives: vivir en la gloria, im Himmelreich leben
- O Supporting verb constructions (SVCs) to have a coffee, give (someone) a walk, have a great time, *die Zeit Ihres Lebens haben*
- O Comparative verb constructions: Wie ein Fürst (Jemand) leben, vivir como Dios
- Verb constructions + adverbial phrases that have a closed paradigm with one or more verbs forming a frequently used or preferred combination: vivir a cuerpo de rey, wie die Made im Speck leben
- Ocomposites: *Qualitätssicherungsvereinbarung*Composites are only applicable in German language.
- (2) Phraseological collocations;
- O Verbal collocations: vivir (alguien) a lo grande, (Jemand) auf großem Fuß leben
- FVG: eine Entscheidung treffen
 A paralellism of FVGs in Spanish language can be observed in some cases, as also stated by Zuluaga (1980).
- (3) Idiomatic expressions
- o (Jemand) in Saus und Braus leben, (darse (alguien) buena vida, vivir a pata ancha; luxuriös leben, viel Geld ausgeben; to live it up, to live like a lord [or king]

Following the above-mentioned example, there is no clue for a non-native Spanish speaker to guess that tinto (Engl. tinted) is precisely the required adjective for red wine -vino tinto.

3.2.3. Collocations

Following Koike's (2001) definition of lexical collocations, this research classifies the supply chain collocations oriented on his definition, identifies the incongruence of that definition in the Spanish language with the application of the definition in the German language and proposes a new classification. The PONS dictionary (Schemann, 1991) sorted phraseologisms out by classifying them into main groups. For example, *ruhig bleiben*, *die Nerven behalten* or *sich beherrschen*.

Even the definition of the collocations in the combination of languages German-Spanish can be simplified to the construction of a base + collocator without showing any grade of idiomaticity, it has been observed the need to split in detail the different ways to build the

base and collocator for these two languages. In fact, or research proposes extends the previous classification of collocations of Castillo Carballo (1998), Koike (2001), Pérez Serrano (2015), Wen (2019) and Bustos (2020) to complete it with the eighth type, extending the noun + prep. + noun + adj. use case (see Table 4).

```
Type 1
    noun (subject) + verb
registrarse un incendio, desatarse una polémica (a fire breaks out, a controversy breaks
out)
Type 2
    verb + noun (object)
    (also verb + prep. + noun)
asestar un golpe, interponer un recurso, poner en cuestión (to strike a blow, to bring an
appeal, to call into question)
Type 3
    noun + adjective (also noun + noun + noun)
ruido infernal, conducta intachable, paquete bomba (infernal noise, blameless conduct,
bomb package)
Type 4
    noun + prep. + noun
ronda de negociaciones, ciclo de confesiones (round of negotiations, cycle of
confessions)
    Type 5
    verb + adverb
rechazar categóricamente, llorar amargamente (to reject categorically, to weep bitterly)
    adverb + adjective
visiblemente afectado, altamente fiable (visibly affected, highly reliable)
    Type 7
    verb + adjective
    reclamar rápido (claim fast)
    Type 8
    noun + prep. + noun + adj.
informe de minerales conflictivos (conflict minerals report)
```

Table 4. Proposal of classification of Spanish collocations (Types)

Interestingly, the above proposed classification can be reformulated in subclasses like add the type two as part of the type one or add "minerales conflictivos" (conflict minerals) from the type noun+noun into the subgroup of the structure noun + adjective. In addition to this, all of them share a common characteristic, namely: a high occurrence of the combination of words. Additional complex collocations can be taken into consideration following the definition of Koike (2001) (see Table 5).

a) Verb +	Configurar un despacho	eine Zollabfertigung
nominal locution	aduanero	einrichten

b) Verbal	Llevar a cabo la			
locution + noun	aceptación de mercancías	Warenannahme durchführen		
c) Noun +				
adjective locution	Acuerdo de préstamo	Leasingvertrag		
d) Verb +	Rellenar cuestionario de	Lieferantenselbstauskunft		
adverbial locution	proveedor	ausfüllen		
e) Adjective +	Rechazado como un	Abgelehnt wie ein Vertrag		
adverbial locution	contrato sin firma	ohne Unterschrift		

Table 5. Examples of the supply chain included in the database.

- 3.3 Within the theories for German traductology, we differentiated among 3.3.1 *Funktionsverbgefüge* (FVG); 3.3.2 Collocations; and 3.3.3. Composites.
- 3.3.1 Special attention is paid to the nominalization or *Nominalisierung* in German, like in the example of "make a proposal", den/einen Vorschlag machen in German consisting of an article + noun + fixed verb. As a rule, the noun phrase takes the accusative case (einen Vorschlag machen) in German, although there are also combinations with the dative, genitive or nominative cases (Helbig, 1984). According to Schoch (2011), FVG or Nomen-Verb-Verbindung are combinations of substantives with certain verbs in which the verb itself only functions as a functional verb. In addition, FVGs play an important role as collocations as stated by Burger (2003) who posed that the functional verb constructions are "the most strongly subgroup of the noun-verb collocations. These contain a noun (e.g., decision) nominalized from a verb (decide). Other examples are (from entscheiden-> zur Entscheidung kommen; from vereibaren-> zur Vereinbarung kommen). As also aligned with Castell (1997) and Corbacho Sánchez (2005) findings, we can confirm that especially for the field of supply chain a certain similarity of the FVG between the combination of languages Spanish and German has been also identified, which can be very helpful for learning those constructions in both languages. For instance, eine Unterschrift leisten (noun-verb) vs. unterschreiben (verb). Proporcionar una firma versus firmar and provide a signature versus sign/signing, focusing above all on the noun-verb structure as proposed by Corbacho Sánchez (2005). In addition to this, Castell (1997) posed that functional verbs, which form part of a fixed construction named "verb-nominal periphrasis" shared general characteristics in German and Spanish.
- 3.3.2 Our findings rely on the classification of the FVG as part of the collocations because of their weak idiomaticity and discard the composites as part of the collocations based on the grade of congruencies and incongruencies identified. The classification of FVG as part of the collocations is aligned with the statements of Wotjak 1994; Irsula Peña 1994; Feilke 1996; Lutzeier 1995; Burger 2003; Proost 2004; and Hausmann 2007, against Steyer 2000; and Heine 2006, among others, who treated both entities as independent classes. Interestingly, the collocation signing a quality assurance agreement (Ger. *eine Qualitätssicherungsvereinbarung unterzeichnen*) means "agreeing a quality assurance" (Ger. Eine Qualitätssicherung vereinbaren) (Spa. *firmar un acuerdo de control de calidad*) (s. Table 6).

Starting from the noun:	Starting	Starting		
- Adjective + noun: ruhmreich + Ära, alkoholfrei + Bier (glorious + era,	\mathcal{C}	from the		
non-alcoholic + beer).	verb:	Adjectiv:		
non-acononic + beet).	_	- Adverb		
- Noun (as subject) + verb: Fußgänger + flanieren, Wald + sich lichten	Adverb	+		
(Pedestrian + stroll, forest + thinning out)	+ Verb:	Adjektiv:		
- Noun (as object) + verb: DAT. dem Dienst + fernbleiben; AKK. Gas +	gewinnb	nervlich +	Com	pos
freisetzen (DAT. to stay away from duty + stay away from; ACC. gas + free	ringend	fertig,	ites	are
set-)	+	hundertpr	not	part
- Noun (in prepositional complement) + verb: DAT. auf der Ware + sitzen	nutzen,	ozentig +	of	the
bleiben, mit Sorge + erfüllen; AKK. in die Tiefe + vorstoßen) (DAT. sit on the	gänzlich	sicher.	collo	cati
goods + sit-to stay, to fill with worry +; AKK. to push into the depths +	+	(Quast	ons,	but
advance).	vergesse	hoff	of	the
– FVGs as part of the collocations	n	2011)	PU	

Table 6. Is /Is not

3.3.3 Composites

The applicability of the composites within the supply chain field has been identified in words like *Qualitätssicherungsvereinbarung*. Our findings pose that composites are not part of the collocations because the structure of base + collocator is for them not possible, but they are part of the phraseological units and they count with a weak grade of idiomaticity. Interestingly, it's possible to build a collocation from a composite like in the example below:

- Composite: Qualitätssicherungsvereinbarung
- Collocation: Qualitätssicherungsvereinbarung unterzeichnen

3.4 This research study aims to provide a guide for future researchers by identifying the main criteria and subcriteria for conducting a contrastive analysis of PU from different perspectives based on the theories listed below. The developed framework for performing contrastive analysis of PU, including learning and teaching strategies is drawn in Figure 3.

Perspective (1): object class theory (Gross, G., 1995)

Classification according to object theory: (1) Economics; (2) Supply chain; (3) Strategic sourcing; (4) Gastronomy; (5) Literature; (6) Sustainability (SVHC); (7) Conflict; (8) Contract; (9) Traceability; (10) Learning; (11) Succeed mindset (Personal); (12) Social networks; (13) ICTs; (14) Inspection (Quality); (15) Auditing.

Perspective (2): syntactic-semantic theory (Gross, M., 1975)

Classification according to syntactic semantic theory: (1) Animal; (2) Vegetable; (3) Abstract; (4) Concrete; (5) Locative; (6) Temporal; (7) Human.

Perspective (3): appraisal theory (Martin and White, 2005; White, 2015)

Classification according to appraisal theory: (1) Consciousness; (2) Purpose; (3) Beliefs; (4) Trust; (5) Productivity; (6) Habits; (7) Body-mind stability; (8) Gratitude; (9) Now; (10) PDCA-cycle review; (11) Mentoring (others); (12) recharge (charging).

Perspective (4): Skopos theory (Reiß and Vermeer, 1984; Nord, 2012)

Classification according to Skopos theory: (1) Category a; (2) Category b; (3) Category c; (4) Category d; (5) Category e; (6) Category f.

Perspective (5): theory of specialized fields

Specialized fields analyzed in the study: (1) Personal development (body-mind); (2) Auditing; (3) Strategic sourcing; (4) Education; (5) Legal contracts; (6) Literature; (7)

Traceability; (8) Social networks; (9) Sustainability; (10) Quality management; (11) Economics.

Perspective (6): teaching theories

Teaching strategy: (1) OLOTOC methodology; (2) OLOP methodology; (3) Computer tools; (4) Traditional (face-to-face class); (5) CAD tools; (6) Mentoring; (7) Social networking platforms; (8) Podcasts; (9) Tandem.

Perspective (7): follows a learning strategy (Medina Serrano, 2022)

Learning strategy: (1) Learning; (2) Repetition 1; (3) Repetition 2; (4) Repetition 3; (5) Repetition 4; (6) Repetition 5; (7) Repetition 6.

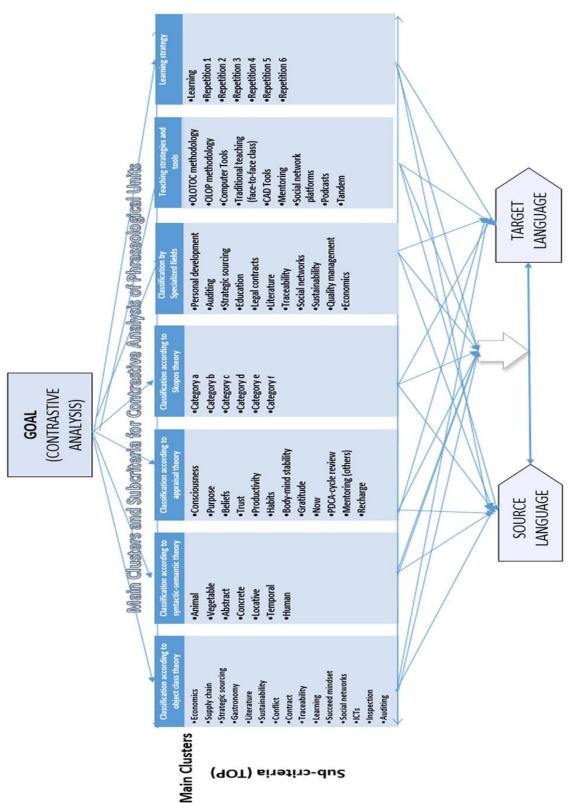


Figure 3. Framework

4. Discussion, conclusions and limitations

4.1 Discussion

This study represents the results from a research work conducted by the author, with a proven international experience in the German-Spanish translation of specialized phraseological units in the fields of Strategic Sourcing Management (SSM), Supply Chain Management (SCM), Quality Management (QM) and auditing processes. This research provides a support methodology for the analysis and classification of phraseological units that any practitioner and researcher can implement – whatever the specialized type of context. Classification of PU and the evaluation of their translation equivalences are of strategic importance to firms and translators and should be taken in a structured, systematic and consistent manner. This study is intended to address contrastive analysis of reviewed phraseological units using among others the Gross, M. (1975), Gross, G. (1995) and skopos theories (Fig. 3). In this study, phraseological units are classified into one of the following seven categories: animal (anl), vegetable (veget), locative (loc), temporal (tps), concrete (inc), abstract (abst) and human (hum). The predominant characters manifesting the nature of PU can be collaboratively expressed as follows: 1) phraseological units are unmotivated word groups; 2) they cannot be freely composed in discourse; 3) they are reproduced as ready-made units; 4) they are structurally stable; 5) they possess stability of lexical components 6) they are reproduced as unchanging single collocations. The lexical and grammatical stability of PU is reflected in the fact that none of the elements that make up the following stereotyped (unchangeable) expressions, which differ in many other aspects, can be replaced: vivir a lo duque and vivir como un obispo.

This research work considers both tactical and theoretical perspectives in connection with translations strategies and includes dedicated ionformation on how to perform contrastive analysis of phraseological units. The text is enriched with clear charts, frameworks and solid examples of best practices from the case studies. This study is underpinned by the valuable and essential contributions of the informants involved and is suitable for anyone working in procurement and supply chain management, as it allows them to understand the mechanisms of value creation through strategic sourcing. Admittedly, it provides managerial guidelines to help translators and practitioners in: (1) evaluating whether certain equivalent translated PU fit in the context; (2) determining exactly which phraseological unit better fits into the target language and context; (3) determining the correct use of collocations in specialized context like supply chain management; (4) using a welldefined professional framework to evaluate translation errors; (5) outlining examples of implementation of the specialized phraseological units using related documents from a case study; (6) as well as the roll out of the processes globally in a combination of languages. The findings and methods discussed in this research will hopefully be of help in many other activities, particularly when it comes to making choices about their correct equivalence of phraseological units in the German-Spanish combination of languages. The approach described in this study focuses on how to craft sourcing strategies, but it can be standardized and applied in many different branches and provides clear and practical guidelines for improving the effectiveness of contrastive phraseological analysis. One of the research's main contributions is the development of a methodology following different criteria for the classification of phraseological units like the theory of object classes (Gross, G., 1995). Object classes is an indispensable tool in the treatment of polysemy, when syntactic and semantic features are insufficient. The following examples show the two uses of the verb reconocer in Spanish: my mother could't recognize me; mi madre no me pudo reconocer. Meine Mütter konnte mich nicht erkennen (infinitive could recognize). The doctor could not recognize David. El médico no pudo reconocer a David; Der Arzt konnte David nicht untersuchen. At first glance, these two sentences seem identical in English if we look at the predicate recognized, accompanied in both cases by a subject and a human complement. However, this verb is polysemous and these two examples illustrate two of its uses. In the first example, the verb reconocer has the meaning of identifying someone by virtue of certain traits or characteristics that are peculiar to him or her and selects any type of human in subject position. In contrast, in the second example, it conveys a meaning of checking that someone is well. In conclusion, analyzing a predicative word is like making an analysis of the classes of objects. Conversely, analyzing a non-predicative class in an argumentative position is analyzing what classes of objects belongs to and what predicates correspond to (Le Pesant, 2000). Once the object classes have been defined, each of them will be associated with a local grammar, in other words, with a set of specific constructions that are specific to it. The information is transmitted to the object classes and these to their subclasses to increase the precision of the descriptions. In this study, a system for classifying phraseological expressions has been developed according to G. Gross' object theory (1995). Under this system, the phraseological expressions analyzed can be categorized into these object classes: (1) economics; (2) supply chain; (3) strategic sourcing; (4) gastronomy; (5) literature; (6) sustainability (SVHC); (7) conflict; (8) contract; (9) traceability; (10) learning; (11) succeed mindset (personal); (12) social networks; (13) ICTs; (14) inspection (quality); (15) auditing. The analyzed expressions are further classified into one of seven categories (human, animal, vegetable, abstract, concrete, temporal and locative), which have been defined following the lexicon-grammar theory put forward by M. Gross (1975).

4.2 Conclusion

How does this research contribute to translatology in general and to phraseology in particular? This study sheds light on how to apply different approaches for performing contrastive analysis of phraseological units in a combination of languages in spezialized fields, developing a framework to perform contrastive analysis of PU, including teaching and learning methodologies. In addition, this research develops a methodology which is verified through a case study. One of the originalities of this research is the implementation of these research findings within the industry. Research results prove the novelty of the research findings for the academia and industry communities, as most of the past translatology studies didn't take into account all updates from the different standards and norms investigated like the ISO 9001, ISO 2859-1, ISO 19011, ISO 26000 and ISO 31000 standards and their practical implementation in the industry. In conclusion, this research conceptualizes the decision support for translators and profesional report writers who have to use multilingual equivalents of PU in specialized fields such as supply chain management (SCM) or auditing. The ability to choose the correct phraseological units that are most appropriate in a specialized document is necessary in the context of globalization in order to support processes within firms efficiently. This study also examines the roles of translators and

professionals in charge of auditing reports, defining control inspections, creating multilingual procurement contracts, and their influence on firm performance. The study presents mechanisms and ways for classifying and analyzing PU in a structured and efficient manner based on a case study from an electronics firm located in Germany: specifically, it (1) presents a developed framework that enables translators, practitioners and researchers to develop dynamic capabilities; and (2) explains how dynamic capabilities acquired by practitioners provide the knowledge to effectively and efficiently analyze phraseological units in specialized fields such as SCM, so that successful translations create added value for firms. The development of dynamic capabilities acquired in the areas of multilingual translations in specialized fields is considered an important factor for competitive performance. With this goal in mind, this research aims to share the importance in the industry to create multilingual product specifications, reports, etc. enabling people involved to have a great experience, avoiding e.g. suppliers wrong interpretations of the source text, and deliverying a product different as expected by the purchaser. This kind of translations' issue among industry partners from different countries and cultures is not an isolated case, but a common one, which migh lead to high losses, lost of trust and further inconveniences for the parties involved, due to translation interpretation errors in the industry. To solve these kind of issues, specifications and further documents and reports should be created in a combination of languages taking into account the correct phraseological units.

A certain parallelism about the fix verbal constructions between the two languages — German and Spanish— can be observed in the field object of this study, validating the previous statements of Corbacho Sánchez (2005) about the parallelism of Helbig (German language) with Spanish researchers like Zuluaga. In addition to this, it's important to highlight the greater number of labels, variants and richness of the Spanish language geographically for the one linguistic phenomenon. Specialized phraseological units are lexical combinations determined by a corpus used by a certain community of speakers, characterized by a high frequency and occurrence of fixed lexical combinations in specialized contexts such as supply contracts with suppliers and in the case of collocations without idiomaticity. Translating these lexical combinations into linguistic combinations and adapting texts with equivalent collocations in the target language, based on the function and target of their translation in a specialized context lead to enable professional translators and practitioners standardize multilingual reports, work instructions, product specifications and processes according to the related standards like ISO 9001:2015.

This research paper sheds light on previous definitions of collocations in the Spanish and German languages, evaluating the contradictions identified in various languages and proposes a new classification of collocations to be valid for contrastive analysis in these two languages, extending the previous literature on contrastive analysis like the valuable works of Mellado Blanco (2015 and 2019). On the other hand, one of the novelties of our research is the proposal of a new classification of PU following the Corpas Pastor (1996)'s definition and extend it with FVG and composites for their applicability in the German language, guiding researchers and practitiones to perform contrastive analysis of Spanish-German phraseology. Interestingly, this study proposes to extend the textuality criteria defined by De Beaugrande and Dressler (1981) from seven to nine, including culturality and normative. Practitioners can create a model corpus to guide them in choosing the right phraseological unit in each case because of the proper use of phraseological units in the industry is given the

importance it deserves, as it has been corroborated in this study. In order to do this, this research proves the applicabiolity of the skopos theory within the analyzed specialized field and aims to create a database of phraseological units in these areas to guide practitioners and translator to decide which phraseological unit better fits in one or other context. To do so, one of the originalities of this research study is the development of a framework to guide managers in the business world to analyze, learn and teach phraseological units in a structured way following a series of defined clusters and subclusters. This research work sheds light on previous definitions of collocations in the Spanish and German languages, evaluating the contradictions identified in various languages.

4.3 Limitation

The use of specialized phraseological units in the globalized industrial firms in general and in the areas such as supply chain, traceability, audit management in particular is not deeply studied at all. As long as our results are based mainly on the results performed in a set of interviews with practitioners from a case study from a German firm from the area of electronics, further investigations in other areas and regions are required in order to provide further valuable result comparisons.

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Annex: QAA- Annex: Products designed by the purchaser

Annex 1 Product list of current delivery contract

This Agreement shall apply for all products and services purchased by the purchaser and especially to the products below:

Annex 2 Requirements to the quality management system

External provider quality management system

The external provider (supplier) maintains a quality management system according to the requirements of the ISO 9001 and the additional requirements for the purchase order processing according to the ISO IEC 80079-34 in their latest revision. The external provider is committed to the zero-defect target and must continuously enhance his services for this purpose.

Subcontractor quality management system

In the case of the external provider refers to software, test equipment, materials, services or special pre-deliveries from subcontractors, the external provider shall refer it into his quality management system or document its action plans accordingly in order to ensure the quality of those pre-deliveries.

The external provider is responsible for the supervision of his subcontractors. Subcontractors shall have set up a quality management system that is based on at least the requirements of the ISO 9001 and the additional requirements for the order processing according to the ISO IEC 80079-34 in the current version. On request by the purchaser, the external provider is obliged to provide documented evidences so that the external provider is convinced of its Subcontractor's quality management system effectiveness. If the external provider changes his subcontractors, the external provider is obliged to communicate this to the purchaser in writing.

Regular supplier monitoring (within the validity of the ISO 9001 certificate of the external supplier):

- Subcontractor audits and monitoring subcontractor's performance shall be
 planned and carried out according to the external provider's audit plan. The
 purchaser is allowed to participate on subcontractors 'audits. If these audits are
 not executed, the purchaser will execute those audits and charge the related audit
 costs to the external provider.
- The scope of the audit and the interval of the audit for explosion-related components must meet the ISO IEC 80079-34 and the defined requirements of the purchaser.
- External providers and manufacturers of custom parts (non-ex-relevant components, such as plastic casing or mechanical items) must be monitored in appropriate intervals.

• On special cases, such as repeated complaints, critical deviations or production stop, shall the external provider be able to run short-term audits on subcontractors 'side.

Audit

The purchaser and the mentioned parties (EXAM, UL, FM, CSA,...) are allowed to conduct an audit and determine, if the external provider's actions ensure to fulfill the quality of the purchaser-defined requirements. The audit can be conduct as a system-, process- or product audit. In the case of an escalation, the external provider will permit short-term dates. Appropriate restrictions to save the external provider's knowhow are accepted and privacy is granted. In case of critical quality issues or external provider selection processes, the purchaser is authorized to take part at the subcontractor's side audit.

Test requirements governing production by external provider

- Specified requirements, ISO IEC 80079-34 requirements and contractual agreements must be continuously examined and monitored during the allocation of manufacturing processes and test inspections to subcontractors.
- Required individual verifications for defined materials (UL stipulations and certification requirements) must be provided to the purchaser.
- External provider is obliged to inform the purchaser about abnormal production status
- External provider conducts inspections of safety-related components in accordance with their specification and with the requirements of ISO IEC 80079-34 specified at the purchaser's drawing and the purchaser's test specification.
- Verifications for a completed 100% inspection (ISO IEC 80079-34) must be provided to the purchaser on request.
- On request, the external provider must provide the purchaser with further statistical evaluations. A process capability (cpk) better than 1,33 is expected.
- External provider will check immediately, if the submitted description (specification, data-sheets, drawings) is obviously incorrect, unclear, incomplete or different than a sample part. If this is the case, the external provider shall inform the purchaser in writing prior to start of mass production or performance of services.
- Ex-relevant characteristics have to be identified within the applicable documents, tested and verified.

<u>Incoming goods inspection by the external provider</u>

- Materials which require verification shall be specifically examined in accordance to the ISO IEC 80079-34 requirements.
- The purchaser's specified raw materials must be verified at the external provider's incoming quality inspection. Defined raw materials must comply with the the purchaser specification, (drawings, company standard sheets), and only materials from authorized retailers can be sourced. By sourcing through not authorized retailers, a written confirmation of the purchaser is mandatory.

Production Parts approval process

For first order-samples and for the below cases the external provider needs to execute a production part approval process in accordance with the VDA band2 or AIAG.

Initial sample test report for approval

- For first order-samples and for the below cases the external provider must deliver an initial sample test report:
 - Initial submission
 - New parts
 - Product change (Specification change)
 - Relocation of production
 - Change in Part Processing
 - Stop/Suspend the manufacturing over 12 months
 - Tooling: Transfer, Replacement, Refurbishment, or additional
 - Subcontractor or Material Source Change
 - Change in Part Processing
 - On request by the purchaser
 - o Re-sampling
 - New sampling
- The initial sample test report "ISTR" has to be submitted in accordance with the VDA Band 2 or AIAG and includes:
 - Verification of the documentation with the master sample (drawing, BOM list, circuit diagram, inspection plan and process requirements)
 - o Examination of machine parameters (e.g. AOI and ICT)
 - Measurement values and results of functional tests
 - Verification of the material processed (Material certificate 3.1 acc. to EN 10204)
 - Control plan
 - Identification of initial samples
 - Declaration of conformity ISO IEC 80079-34 according to the purchaser specifications (see conformity declaration)

The external provider shall submit the initial product samples previous the serial production in accordance with the agreed scope and delivery conditions.

The external provider submits the initial samples of the product, which are produced under serial production, prior to commencement of the serial production. Serial production shall only be accepted after approval by the purchaser.

In the development stage, the external provider applies appropriate preventive methods of quality planning, such as feasibility study, reliability studies, FMEA, etc.. Lessons learned from similar projects (process flow, process date, competence studies, etc.) will be taken into account.

Manufacturing and test conditions for serial parts shall be agreed with the purchaser and documented accordingly.

Product change notifications

- Any modification of products, production processes, materials, marking, certifications, design and changes to designated manufacturers require the prior written consent of the purchaser (also for subcontractors).
- External provider is obliged to inform the purchaser whenever defective material has been processed and when defective processes were employed.
- Products shall be delivered in compliance with the purchaser's specification and meet the warranted characteristics. In each and every case, the external provider shall check without delay whether a description provided by the purchaser is incorrect, unclear, incomplete, or doesn't comply with the master sample.
- If the external provider realizes that the agreed characteristics, e.g. delivery dates and delivery quantities would neither be met nor warranted, he shall forthwith give notice in writing to the purchaser.
- The external provider will also immediately notify the purchaser of any deviations detected after delivery. In the interest of a quick solution, the external provider provides all necessary data and facts. If the external provider cannot supply products, which meet the specification, he must obtain a special release of the purchaser before delivery.
- In special cases when products deviate from the specification, the external provider is obliged to inform the purchaser immediately in writing. A derogation request must be approved by the purchaser before shipment.

Production documents

Documents to be provided by the purchaser:

A complete set of the production documentation

- Production drawings
- BOM, bill of materials
- Test and qualification requirements
- Packaging labels
- The purchaser company standards sheets
- Specification: like purchase order text and special requirements
- Control plans will be bindingly agreed between the contractual partners

The purchaser drawing requirements must be taken into account within the manufacturing documents.

Test certificate

An ISO IEC 80079-34 declaration of conformity must be enclosed with each delivery. The content of the declaration of conformity shall comply with the purchaser form in accordance with ISO IEC 80079-34.

Containment actions / Failure analysis

The purchaser will specify priorities for containment actions, production failure analysis and recall actions.

- Prio A: Recall action/pending or imminent production stop
- Prio B: Quality improvement, (serial, repeated failures)

The external provider has to carry out containment actions as follows:

Confirmation of the received complaint within 24h on workdays

- Prio A: within 24h:
 - o Presence of a qualified representative of the external provider on-site
 - Evaluation of expected loss
 - o Conduct failure analysis for defected products
 - o Prepare failure free/zero defect ,replacement deliveries
- Prio B: within 48h:
 - Failure handling identification of possible root causes and address corrective actions
 - o Conduct failure analysis for defected products
 - o Prepare failure free/zero defect ,replacement deliveries

The external provider shall perform the analysis after receiving the parts as follows:

Prio A: within:

- 2 working days (first results)
- 5 working days obvious cause and initiated containment actions (3D-Report)
- 10 working days (8D-Report)

Requirements for product warning/recall are given, if a sudden, unpredictable, inevitable and immediate serious danger arises from a product deficiency. The preparations for the recall are necessary by:

- Awareness and confirmation of defects on ex-relevant parts
- Awareness of high risks with regards to safety and function

Prio B: within 10 working days (8D-Report)

For repeated failures an Ishikawa diagram will be expected.

All these measures are undertaken through the QA contact person.

Based on these analysis results, the external provider shall carry out corrective actions in the manufacturing facilities in order to fix deviations on defective products.

The external provider shall notify the customer about the corrective actions in the production facilities of the manufacturer and shall ensure that no faulty goods will be delivered anymore.

Annex 3 Traceability, product identification

Serial production, Documentation, identification of products

The external provider will keep records of the quality assurance measures, in particular the measured values and test results, and keep these records, as well as the samples of the products agreed upon with the purchaser.

The plant records for individual products shall be stored in a verifiable/traceable manner by the external provider for at least 10 years.

Product changes notices shall be documented along the whole product life cycle.

On request, the external provider will permit the purchaser to have access to their records like initial samples docs.

The external provider regulates the control of data and documents (exclusively for external documents like norms and customer drawings) with procedure instructions and implements them efficiently.

Packaging, Identification, Traceability

The external provider delivers the products in a mode of transport that is suitable and - if so agreed - approved by the purchaser in order to avoid damage and quality degradation (e.g. contamination, corrosion, chemical reactions). The external provider commits himself to ensure the traceability of his delivered products in accordance with the purchaser specification. A traceability system must be in place.

The following conditions must be ensured here:

- The serial number on the assembly must be applied in a machine-readable manner.
- Delivery documents must include the serial numbers in machine-readable form.
- Designation on the device must take the form of a label, in accordance with the the purchaser specification.
- Label and placement of marking must always be at a location either designated by the purchaser or agreed with the purchaser.
- Parts, materials, processes and inspection results must all be traceable (serial number's format must be structured in such a way that can be incorporated in the the purchaser system).
- In the case a failure is detected, the external provider is obligated to ensure the traceability and limitation of the defective parts/products/batches.
- If the purchaser provides the external provider with manufacturing and testing equipment, these shall be designated and identified as property of the purchaser. The external provider is responsible for the integrity and proper functioning of the equipment and shall carry out maintenance, repair and, if required, calibration of the equipment.

Annex 4 Incoming goods inspection by purchaser

General terms and conditions of incoming goods inspection by purchaser

- Visual inspection:
 - Apparent damage
 - Identity in accordance with valid documentation
 Declaration of conformity

 - O Lot size in accordance with order data