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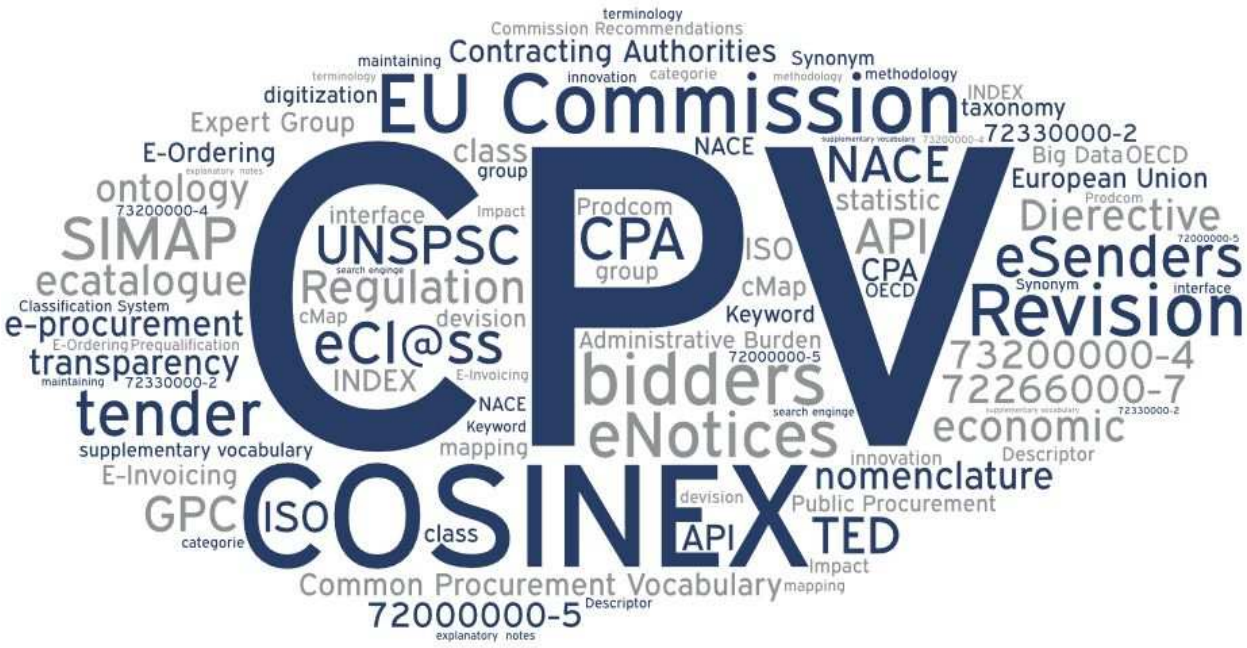

Revision of CPV

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Glossary of abbreviations

AEVP	Annual estimated value of procurement published in TED
API	Application programming interface
CA	Contracting authority
CC3P	Classification and Catalogue systems for Public and Private Procurement
CEN	European Committee for Standardisation
cMap	Classification Mapping for open and standardized product classification usage in eBusiness
CPA	Classification of Products by Activity
CPC	Central Product Classification
CPV	Common Procurement Vocabulary
DG MARKT	Internal Market and Services Directorate General
GPC	Global Product Classification
EC	European Commission
ELEE	Estimated lower economic efficiency
ESLEB	Estimated share of lower economic benefits
ESPE	Estimated share of procurement affected by errors with CPV
EU	European Union

ISO	International Organization for Standardization
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne (Statistical Classification of Economic Activities in the European Community)
OECD	Organisation for Economic Co-operation and Development
PP	Public procurement
PRODCOM	PRODuction COMmunautaire" (Community Production)
SIMAP	Système d'information pour les marchés publics (Information System for European Public Procurement)
TED	Tenders Electronic Daily
UNSPSC	United Nations Standard Products and Services Code

Executive summary

The Common Procurement Vocabulary (CPV) is a single classification system for public procurement aimed at standardising the references used by contracting authorities and entities to describe the subject of procurement contracts. It also reduces the risk of error in translating notices, since the CPV is available in all the EU's official languages.[1] The European Commission wished to explore the possibilities for revision of the CPV from both a technical and legal standpoint. To this end, an informal Expert Group was set up to evaluate all the scenarios available for CPV development. cosinex was appointed to provide consultancy services in this context.

Problem definition

With the estimated annual value of procurement published in Tenders Electronic Daily (TED) of EUR 450.21 billion, an estimated 16.5% share of tenders where the code applied does not correctly describe the works, supplies or services procured and an estimated lower benefit for a tender of approximately 11.7%, the result could be an annual figure of lower economic efficiency of as much as EUR 8-9 billion or 2% of the estimated value of procurement published in TED. The main causes identified in the functioning, structure and the environment are:

1. Sometimes incorrect use of the CPV/Difficulties for users in finding/choosing the closest matching code for a service/product. So, the main objective – to make the EU internal market more transparent and efficient – cannot be assured.
2. Absence of a classification connection/mapping of the CPV to other existing classifications. The processes of data mapping and concept modelling are required to achieve interoperability in electronic data handling. Mappings between prevalent existing international classifications and the CPV should result in more harmonisation between the private and public sectors and these advantages could be exploited[2]. Therefore, the CPV and some classification systems used in the private sector (UNSPSC, GPC and eCl@ss) need to be harmonised. Overall, mappings to classifications like NACE and CPA play an important role in policy making[3].
3. Failure to apply the CPV to different phases of e-procurement. The CPV is currently used only for the publication and identification of tender notices and cannot be used for subsequent e-procurement phases because it is not designed to offer sufficient coverage of business sectors for other phases of e-procurement. Yes, the European Commission advocates extended use of e-procurement in the field of public procurement, i.e. under Directive 2014/24/EU contracting authorities may require the use of electronic catalogues in all procedures.
4. Absence of a process for maintaining the CPV. There is currently no defined process for maintaining the CPV (i.e. the process of updating the CPV), except by means of the comparatively elaborate process of revising the existing regulation.

The problems with the CPV have different drivers, from the complexity of the current structure

[1] Based on the key points in the official summary of the Regulation (EC) No 2195/2002.
[2] Reduction of hurdles, easier handling, participation from both areas and thus the increase of stakeholder interaction with the various services offered.
[3] CPA product categories are related to activities as defined by the Statistical classification of economic activities in the European Community (NACE). CPA provides the basis for collecting and calculating statistics on the production, distributive trade, consumption, international trade and transport of such products. The CPA is part of an integrated system of statistical classifications. This system makes it possible to compare statistics across countries and in different statistical domains and thus is the basis for policy making based on this analyses.

of the CPV (unbalanced tree, incomplete coverage, the irregular structure and the existence of the separate supplementary vocabulary) and the complexity in the current presentation of the CPV for the end-users (via an Excel/PDF file)[4] to low awareness of the CPV and technical innovation, which influence the terminology, through to the unbalanced classification methodology of the CPV and the rigidity of the legal instrument, which make it hard to update it or correct material errors.

The key stakeholders affected by the problems mentioned above are contracting authorities and economic operators. Because the CPV code used by one or the other (or both) is sometimes incorrect, it is difficult for economic operators to identify relevant tender notices in the Official Journal of the European Union (OJEU). Therefore, CAs might not receive the most economic offer. This results in a reduced capacity on the part of CAs to deliver value for money and quality of supply for the public sector, while companies cannot fully benefit from Public Purchasing market opportunities. The problems also affect the following stakeholders: the European Commission, TED and eSenders, e-procurement providers and prequalification systems, the press, academics and anybody wanting to carry out statistical analyses (e.g. OECD).

Scenarios for improving the CPV and relevant impacts

The policy options are segmented into four different approaches:

1. Policy option 0 "Baseline scenario" describes how the problem would evolve without new EU action. The subsequent options are assessed against the baseline scenario, which will therefore always have a score of 0.
2. Policy option 1 "Better search tools" describes the approach of improving only the usability of the CPV, but without any amendments to the CPV itself. The CPV is complemented by additional interactive tools as a way of improving the system's usability and efficiency. Such tools can be integrated into procurement platforms via API's or can be used independently. Full-text search, integration of the official "CPV 2008 explanatory notes" and the supplementary vocabulary, keywords and synonyms can be provided to enable consideration of the personal language mentality (e.g. "portable computer" versus "laptop", "netbook" or "mobile telephone" versus "smartphones"). Possible methods for derivation of keywords are part of this option.

   Improving the search mechanism[5] for users can help foster the EU internal market and ensure more efficient and transparent public procurement. Incorrect use will probably diminish.
3. Policy option 2 "Small adjustments to the CPV" describes the solution with only minimum changes within the CPV[6]. Under option 2 only small steps are taken and minor amendments are made to carry out a minor update to the CPV. Relevant changes are:

[4] CPV is also provided as XML. This file can be used by providers of the software solutions, but not by the end-users, because for the use of the XML file a special editor is required.
[5] Not only TED, by the possibility to search for the CPV in other e-procurement platforms of the member states, on national platforms, which forwards tenders automatically to SIMAP via the certified interface (OJS eSender).
[6] Implementation of the existing results of the Rambøll Study after further investigations to ensure currentness of results after six years. So, for example, it has to be checked, whether certain CPV codes are still not used and whether the codes are the same as in 2012.

- removal of all the irregularities identified in the CPV structure after additional analysis,
- removal of codes never used after appropriate further investigation,
- implementation of the supplementary vocabulary in the CPV structure, and
- collecting and adding new CPV codes etc.

The supplementary vocabulary could be integrated in the revised CPV structure (after additional analysis). Keywords and synonyms are used as a part of this option to narrow the gaps within the mapping of the CPV to other existing classification systems and to integrate the CPV into an e-procurement environment. Improvement of the CPV legal instrument is not a part of this option.

4. Policy option 3 "Extensive adjustments to the CPV". The focus of this option is on a complete reorganisation of the hierarchical tree structure of the CPV and a reduction in the level of detail, using a new methodology for the classification system which is both supplier-oriented as well as contracting authority-oriented. The supplementary vocabulary is dropped completely. Keywords and synonyms are integrated in the main structure of the CPV. Applying the CPV to different phases of e-procurement is achieved through collaboration with another classification system (e.g. eCl@ss). This collaboration on mapping the CPV to other existing classifications is carried out using activities such as cMAP[7]. In line with this approach, a release policy is defined for updating/maintaining the CPV that distinguishes between updates (minor amendments/changes) and revisions (major amendments/changes), for example by using the ISO 22274[8] standard.

Recommendations

The experts' preferred solution for the revision of the CPV is the option 3 (reorganisation of the CPV). Option 2 is only a temporary solution, which provides only low added value but nevertheless requires many resources in time, effort and cost by comparison. The combination of option 3 with option 1 (better search tools for CPV) is recommended by the experts. Option 1 addresses only some problems while option 3 addresses most problems. Option 3 combined with option 1 solves all identified problems and with a positive cost-benefit-ratio. Therefore, this is the preferred scenario.

Option 1 should – because it requires less effort and there is no conflict with the legislative regulation – be taken up before option 3. Option 1 can improve the current situation until a complete reorganisation of the CPV, but likewise after a complete reorganisation of the CPV, still help key stakeholders to better find the correct CPV. In parallel, the necessary preparations should start for option 3, such as the derivation of the methodology, the preparation of the legal basis and the advancement of the cMAP project.

Since option 1 is carried out upstream, the inclusion of the synonyms in the main structure of the CPV can be cancelled because option 1 already contains keywords and synonyms. These can be much more flexibly configured and updated (without the requirement for a new CPV regulation). Supplementary vocabulary is integrated into the CPV search tool via official

[7] www.cmap.eu

[8] ISO 22274:2013 is a system to manage terminology, knowledge, content and concept-related aspects for developing and internationalizing classification systems and provides guidelines for creating, handling and using classification systems for international environments.

explanatory notes, which give hints at to which part of the supplementary vocabulary should be used for products or services in this group. Since the supplementary vocabulary is not a factor inhibiting making changes, it can be left untouched initially.

0. Context

0.1. Policy context

The Common Procurement Vocabulary" (CPV) is a single classification system for public procurement. It consists of 9,454 codes structured in a five-level tree hierarchy. Each code is made up of eight digits and a wording that describes the type of works, supplies or services forming the subject of the contract. The purpose of the CPV is to make it easier for bidders to find relevant tender notices. Bidders can find these by searching for CPV codes. The CPV is available in all the European Union's 24 official languages. The CPV fosters cross-border procurement in particular, as it allows bidders to identify tender notices more easily irrespective of the language.

The logic behind the CPV aims to increase competition and ensure a higher level of transparency. If relevant tenders can be identified more easily and also across borders, this will result in more bids and increase competition between bidders. This contribution to the Single European Market aims to achieve higher value for money in public procurement. Use of the CPV is mandatory when contracting authorities and entities publish public procurement notices in the Official Journal of the European Union and via TED (Tenders Electronic Daily)[9].

0.2. Economic context

Each year public authorities in the EU spend around 14% of EU GDP (~ EUR 2 trillion)[10] on works, goods and services. This can be interpreted as purchases which could have been publicly procured and is a rough estimate of all public procurement in the EU[11]. In 2015, the estimated value of tenders published on TED was 3.1% of EU GDP (~ EUR 450 billion, including utilities and defence)[12].

Because of the size of the EU internal market, the number of tenders and the shortcomings of the CPV, there is a risk that a considerable number of bidders will not find a relevant tender (or will find it too late). And with those who find it later or too late, there is the danger that they will

[9] TED (Tenders Electronic Daily) is the online version of the 'Supplement to the Official Journal' of the EU, dedicated to European public procurement: http://ted.europa.eu
[10] http://ec.europa.eu/growth/single-market/public-procurement/strategy_en
[11] This latest estimate (2015) does not include utilities (it does include defence). Former estimates (up to 2011) also included utility procurement and were around 19% of EU GDP (~ EUR 2.3 trillion)
[12] Public Procurement Indicators 2015 DG GROW G4 - Innovative and e-Procurement, December 19, 2016"

not have enough time to make proper calculations for their bid and thus build in a risk premium.

0.3. Legal context[13]

The CPV is an important instrument for the functioning of the EU Internal market and cross-border procurement in the field of public contracts.

The competence is based on the Treaty on the Functioning of the European Union, especially Art. 3 (1) b) and Art. 4 (2) a) and finds its concrete expression in **Regulation (EC) No 2195/2002**[14]:

(1) The use of different classifications is detrimental to the openness and transparency of public procurement in Europe. Its impact on the quality of notices and the time needed to publish them is a de facto restriction on the access of economic operators to public contracts. […]

(3) There is a need to standardise, by means of a single classification system for public procurement, the references used by the contracting authorities and entities to describe the subject of contracts.

Amendments and improvements to the classification standard are within the competence of the Commission and the Parliament. This is illustrated by the following excerpt from the Directive for public procurement:

Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC[15]:*(135) In order to adapt to rapid technical, economic and regulatory developments, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of a number of non-essential elements of this Directive. Due to the need to comply with international agreements, the Commission should be empowered […] references to the **CPV nomenclature** may undergo regulatory changes at Union level and it is necessary to reflect those changes into the text of this Directive*[16]*; the technical details and characteristics of the devices for electronic receipt should be kept up to date with technological developments; it is also necessary to empower the Commission to make mandatory certain technical standards for electronic communication to ensure the interoperability of technical formats, processes and messaging in procurement procedures conducted using electronic means of communication taking into account technological developments; the Commission should also be empowered to adapt the list of legislative acts [...]; the list of International Social and Environmental Conventions and the list of Union legislation whose implementation creates a presumption of free access to a given market [...]. In order to satisfy that need, the Commission should be empowered to keep the lists up-to*

[13] The following part is merely a placeholder and is intended to provide the first clues that have resulted from the preparation of the report. The legal comments and aspects should be supplemented if applicable by the Commission, or they should be drawn up separately in the context of a legal report.
[14] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008R0213
[15] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0025
[16] sic Directive 2014/23/EU of the European Parliament and of the Council: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014L0023

date. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level. When preparing and drawing up delegated acts, the Commission should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.

The following legal texts need to be taken into account in any Revision of the CPV under the latest and current Directive in the field of public procurement:

Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC[17]:

(Article 23 "Nomenclatures" (2)): The Commission shall be empowered to adopt delegated acts in accordance with Article 87 to adapt the CPV codes referred to in this Directive, whenever changes in the CPV nomenclature must be reflected in this Directive and they do not imply a modification of the scope of this Directive.[18] *[…]*

(28) It should therefore be set out explicitly that patient transport ambulance services should not be excluded. In that context it is furthermore necessary to clarify that CPV Group 601 'Land Transport Services' does not cover ambulance services, to be found in CPV class 8514. It should therefore be clarified that services, which are covered by CPV code 85143000-3, consisting exclusively of patient transport ambulance services should be subject to the special regime set out for social and other specific services (the 'light regime')[19].

The following sections help to define the actual aim of the project on revision of the CPV. These extracts help in understanding the challenges, which revision of the CPV poses, in addressing the CPV problems correctly and in establishing the objectives of the project:

Commission Recommendation of 30 July 1996 on the use of the Common Procurement Vocabulary (CPV) for describing the subject matter of public contracts[20]:

(8) Whereas standardization of the information will also:
- boost transparency in public procurement,
- make it possible to set up an information system for public procurement (Simap project),
- reduce the risks of error in the translation of notices,
- simplify the task of preparing notices, and in particular of describing the subject matter of contracts, for contracting authorities and contracting entities,
- simplify the preparation of statistics on public procurement, including those necessary to fulfil the Community's commitments under the Government Procurement Agreement (GPA) concluded within the framework of the WTO; […]
(12) Whereas the Vocabulary will be adapted to circumstances since it will be revised regularly.

[17] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0024
[18] sic Directive 2014/25/EU (41).
[19] sic Directive 2014/25/EU (36).
[20] http://eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX:31996H0527

Regulation (EC) No 2195/2002 of the European Parliament and of the Council of 5 November 2002 on the Common Procurement Vocabulary (CPV)[21]:

The following section prescribes the revision of the CPV (i.e. the relevant extracts, which are still important for the revision of the CPV, because the need for such adjustments is ongoing and does not disappear:

(2) The structure, codes and descriptions of the CPV should be adapted or amended, in the light of developments in the market and users' needs. Some specific suggestions made by interested parties and CPV users for improvements of the text of the CPV should be taken into account. The structure, codes and descriptions of the CPV should be updated also to make the CPV an efficient tool for electronic public procurement.

(3) To increase the user friendliness of the CPV, it should be made less material-driven and more product-driven. Accordingly, the product characteristics in the Main Vocabulary set out in the current Annex I to Regulation (EC) No 2195/2002, should be transferred to the Supplementary Vocabulary set out in the same Annex and divisions which are strongly material driven in the current vocabulary should be redistributed over the other divisions.

(4) Rationalisation of the hierarchy of the CPV by aggregating and redistributing divisions with a limited number of codes, which should partially be considered together, as well as divisions which could cause confusion, should be performed in such a way as to simplify the use of the nomenclature by providing a more coherent and homogenous presentation.

(5) The classification for defence-related equipment and services should be improved by regrouping the existing and scattered codes in new groups and classes for more coherent presentation and by adding new codes such as military research and technology

(6) The structure of the Supplementary Vocabulary should be entirely revised in order to create a logical structure with sections divided into groups to be used in addition to the Main Vocabulary. For the simplification it can bring, in terms of allowing a complete description of the subject matter of a contract, and in terms of reducing the number of codes of the Main Vocabulary, the Supplementary Vocabulary should also be enriched with characteristics of products and services.

[21] http://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:32002R2195

1. Problem definition

This chapter presents the CPV's current problems which the next revision of CPV needs to solve or at least mitigate while considering all impacts for all stakeholders. First, Section 1.1 illustrates the economic background to the problems arising from incorrect use of the CPV. Based on a mathematical formula as well as on the basis of existing official statistics, the Section estimates the probable economic efficiency per year. Section 1.2. goes into the essential nature and extent of the CPV's problems. The main triggers and drivers of these problems mentioned below are in Section 1.3. Section 1.4. shows who is affected by these problems and in which ways.

1.1. Estimated lower economic efficiency due to CPV problems

In order to illustrate the potential economic impact of problems with the CPV, the following statistical data and values are used to calculate the expected lower economic efficiency:

- annual estimated value of procurement published in TED;
- the share of tenders where the code applied did not correctly describe the works, supplies or services procured[22];
- estimated share of lower economic benefits.

Due to the size of the EU internal market, the number of tenders and the shortcomings of the CPV, there is a risk of a significant number of bidders not finding a relevant tender (or finding it too late) and thus not being able to make an offer that best suits the tenderer's needs or is more competitive in price.

It can also be assumed that:

1. if public contracting authority XY does not use the correct CPV/s for a given tender, then a proportion of all potential bidders will not find a relevant tender. In this case, contracting authority XY will obtain e.g. 3 bids (just an example)[23] fewer than in tenders with correct CPV usage[24];

[22] Percentage share of incorrect use of CPV

[23] This calculation is only an example to estimate the potential economic efficiency and would probably be a lot less at the national level, where Member States also use the CPV for their national tenders. The assumption that bidders sometimes are not searching efficiently or using the wrong CPV increases the likelihood that contracting authorities will receive fewer bids. This means, on the one hand, that public authorities receive fewer bids due to their own wrong use of the CPV for the subject of their tender, on the other hand that bidders are not exploiting the CPV to the full. Therefore, a calculation based on 3 offers seems realistic in such a case.

[24] There exist negotiated procedure without prior publication in TED (direct awards) which since 2006 is about 5.4% per year. However, we assume that the number and the corresponding volume is so small that they can be neglected in this calculation.

2. if not all potential bidders can find a specific tender in a timely manner or search for relevant tenders using an incorrect CPV, the contracting authority may not receive the most economic offer. So the impact of a lower number of bids is lower economic benefits. In the light of the existing academic work on the impact of a lower number of bids or respectively factors influencing the final price of public procurement, it can be assumed that *"with the increasing number of candidates the price against the estimated price decreases"*[25] and has been shown separately that *"every additional candidate lowered the final price of public procurement by an average 3.9%"*[26]. This means that the lower economic benefit amounts to 3.9% per "missing" bid and amounts to **11.7%** (= 3.9% x 3 bids) in the case mentioned above, where contracting authority XY obtains e.g. three bids[27] fewer than in tenders with the correct CPV and where economic operators are searching for tenders using the correct CPV.

In this analysis it is therefore assumed that the lower economic benefits for a tender where the CPV is used incorrectly (maybe even by both the contracting authority and the bidders) potentially results in **11.7%** of additional costs relative to the contract volume.

Thus, the formula is as follows:

$$AEVP\ x\ \frac{ESPE}{100}\%\ x\ \frac{ESLEB}{100}\% = ELEE$$

Key:

AEVP *= "**A**nnual **e**stimated **v**alue of **p**rocurement published in TED"*

ESPE *= "**E**stimated **s**hare of **p**rocurement affected by **e**rrors with CPV"*[28]

ESLEB *= "**E**stimated **s**hare of **l**ower **e**conomic **b**enefits"*[29]

ELEE *= "**E**stimated **l**ower **e**conomic* **e**fficiency"[30]

According to *Public Procurement Indicators 2015 DG GROW G4 - Innovative and e-*

[25] Procedia Economics and Finance. Volume 25, 2015: Matus Gregaa/Juraj Nemecb: "Factors Influencing Final Price of Public Procurement: Evidence from Slovakia". p. 545-546. Download at http://www.sciencedirect.com/science/article/pii/S2212567115007686
[26] As above. p. 546.
[27] This calculation is only an example to estimate the potential economic efficiency.
[28] Tenders where the code applied did not describe correctly the work/supply/service procured
[29] Percentage share of lower economic benefits when the contracting authority does not get the most economic offer.
[30] Annual percentage share of lower economic efficiency due incorrect use of CPV.

Procurement, December 19, 2016[31] the following data/values are available on the annual estimated value of procurement (published via TED (Annual estimated value of procurement published in TED (see above)):

"TED provides information on notices covered by both the "classical" and "sector" or "utilities" and "defence" Directives. The estimated value of procurement published in TED is computed both including and excluding utilities and defence. This allows for an appropriate comparison with the total general government expenditures on works, goods, and services while offering the most of the information available in the database."[32]

"The estimated value of tenders published in TED (including utilities and defence)[33] *amounts to EUR* ***450.21 billion****, 6.9% more than in 2014."*[34]

According to the European Court of Auditors *Special report: The EU institutions can do more to facilitate access to their public procurement (No 17 (2016)*[35], the following values are available to assess the annual **estimated share of procurement affected by errors with the CPV (ESPE)** where the CPV code applied did not correctly describe the works, supplies or services procured:

"In around ***10% of cases*** *the code applied did not describe the work/supply/service procured; in some 8%, the code applied was too general, and in about 4%, the code was too specific. Examples of inaccurate CPV codes used by the Commission:*

For a study contract related to 'Statistics and forecasts analysis of different markets for motor vehicles' the contracting authority used the code for 'public road transport services' (code 60112000[36]*). Value of the contract awarded: EUR 429 300.*

For a study contract 'in the fields of emissions and competitiveness and economic analysis of the automotive industry' the code for 'transport equipment and auxiliary equipment to transportation' (code 34000000[37]*) was used. Value of the contract awarded: EUR 5 000 000.*

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[31] http://ec.europa.eu/DocsRoom/documents/20679/attachments/1/translations/en/renditions/native
[32] Public Procurement Indicators 2015 DG GROW G4 - Innovative and e-Procurement, December 19, 2016. P. 3
[33] The information on monetary values published in TED notices often su ers from missing values and reporting mistakes (particularly in the form of nonsensically large values). These problems prohibit computing the annual value of public procurement opportunities published in TED as the simple sum of the values of the contract notices (CNs) published.
[34] Public Procurement Indicators, December 19, 2016. P. 1 and P.10
[35] http://www.eca.europa.eu/Lists/ECADocuments/SR16_17/SR_PROCUREMENT_EN.pdf. P. 39
[36] The correct CPV in this particular case would be either 79310000-0 "Market research services" or/and 79330000-6 "Statistical services.
[37] The correct CPV in this particular case would be 79300000-7 „Market and economic research; polling and statistics".

For a contract 'Collection of key qualitative and quantitative information on the European Commission's merger decisions' the code for 'market research' (code 79310000) was used. The procedure was unsuccessful, no contract awarded."

The result of the Rambøll Study analysis[38] was that "*In 23% of the analysed cases the CPV was incorrectly used. The incorrect use of the CPV is a relevant drawback of the CPV in the view of bidders. The extent of incorrect use is most notable for works because around 28% of the notices tested were carrying an incorrect code.*"

As the estimated number of cases – where the code applied does not correctly describe the works, supplies or services procured – is different depending on the source (European Court of Auditors or Rambøll Study) we use for representative statistical values the average of the data from each (=(23%+10%)/2), i.e. 16.5%.

Thus, a rate of 11.7% is assumed for the estimated share of lower economic benefits (ESLEB, i.e. not all potential bidders can find a specific tender in a timely manner and the contracting authority does not get the most economic offer). Therefore, the estimated lower economic efficiency caused by the incorrect use of the CPV code is calculated as follows:

$$AEVP\ x\ \frac{ESPE}{100}\%\ x\ \frac{ESLEB}{100}\% = ELEE$$

$$\textbf{EUR 450.21 billion}\ x\ \frac{16{,}5}{100}\%\ x\ \frac{11{,}7}{100}\% = \textbf{EUR 8.69 billion} \Rightarrow$$

1.9% of the estimated value of procurement published in TED.

Conclusion: An annual value of procurement published in TED of EUR 450.21 billion, a potential error rate of 16.5% (the average between the data from the Rambøll Study (23%) and the data from the European Court of Auditors Special Report (10%)) and an estimated lower economic benefit of approximately 11.7% (three bids fewer x 3.9% loss of estimated price) could result in an annual lower economic efficiency of up to EUR 8-9 billion or might even be close to 2% of the estimated value of procurement published in TED.

1.2. The problems and their drivers

Annex 1 gives a first indicative prioritisation of the CPV challenges identified at the beginning of

[38] Rambøll Study. P. 63

the project. In the further course of the project, these challenges were identified either as problems or as the cause of the problems (see Chapter 1.2.1 and 1.2.2). In this section, we discuss first the key problems with the CPV identified as a result, and then look at the drivers or causes of those problems. Practical examples are included in order to illustrate the problems.

The Problems with the CPV need to be solved because they are triggers for the following consequences in the public procurement market:

1. high administrative burden;
2. lower competition and transparency in public procurement markets;
3. difficulties in making statistical analyses of public procurement data, and in using these for data processing and policy making.

The impact of these consequences is that they cut across the CPV's most important aims, i.e. to improve the capacity of Contracting Authorities to deliver value for money and quality of supply in the public sector and helping businesses to benefit fully from Public Purchasing market opportunities. Therefore, to achieve the main aim of CPV and to improve its functionality for public procurement, the problems have to be solved because they are the basis for the consequences. Solving problems means eliminating/minimising those drivers which are responsible for them, in order to eliminate these CPV problems and the associated consequences and high-level impact for stakeholders and society (see figure 5 below).

1.2.1 The problems

The problems identified during the project are:

1. instances on the part of contracting authorities and bidders of using incorrect or insufficiently accurate CPVs and difficulty in finding the closest matching code for a service, product or works;
2. absence of classification connections or mapping of the CPV to other existing international classifications used in the private sector (UNSPSC, GPC and eCl@ss);
3. lack of scope to use the CPV for other e-procurement phases;
4. from a broader and slightly different perspective on the problems examined: the absence of a process for maintaining the CPV. The better a process for maintaining the CPV is defined, the greater the added value for the whole field of public procurement, and this indirectly fosters competition in PP markets. Therefore, this connection (between "Maintaining the CPV" and "Lower competition and transparency in PP markets") is associated with only a

thin line in figure 5.

CPV-problem 1: Incorrect use of the CPV | Difficulties for users in finding the closest matching code for a service or product

Contracting authorities and economic operators sometimes use incorrect or insufficiently accurate CPV codes.[39] This has repercussions for the EU internal market. If a contracting authority uses the wrong CPV for the tender, bidders cannot find this tender in a timely manner or at all. So efficient and transparent public procurement in the EU internal market cannot be assured.

The incorrect use is evidenced by recent examples from requests to the Contract Advisory Agencies[40], as well as numerous requests to the department responsible in the European Commission. The questions arise both from potential bidders who are unable to sort out their services or product by CPV as well as from contracting authorities who also cannot meet their requirements via the CPV. There are two kinds of problems: on the one hand, finding the right CPV, and, on the other hand, choosing the right CPV, especially if the number of results is very high and thus not transparent enough from the semantic point of view.

One example is the recent request from the secretary general of the Norwegian Organization of Interior Architects and Furniture Designers (NIL): "*When tenders for Interior Architecture Services are announced today, there are no separate CPV codes for the category, although this is a separate profession. We request that it's created a separate CPV code for Interior Architecture Services, in the same way as for Architecture Services and Landscape Architecture Services. There should also be a CPV code for Furniture Design"*. In this case the organisation had disregarded or had not found the right CPV codes for "Interior design services" (79932000-6) and "Furniture design services" (79934000-0). Moreover, in this case, the Supplementary Vocabulary can be used to describe the service in detail: "Architectural and related services" (71200000-0)+ Interior (IA09-3).

The issue of CPV codes which are never or seldom used is important. On the one hand, it may be that some codes are not relevant for public procurement. On the other hand, CPV codes which are never used may be a consequence of incorrect use of the CPV and the fact that some codes simply cannot be found.

[39] Please see also Chapter 1.1 Estimated economic loss due to CPV problems and the appropriate examples on the p. 16-19
[40] Consultation services to economic operators and contracting authorities, as well as training in public procurement law.

The current CPV makes it possible to describe works/supplies/services in extensive detail. However, the level of detail provided is not fully used in practice – and also not necessary. The Rambøll Study investigated CPV use in all tenders published in the TED (Tenders Electronic Daily) between 2009 and 2011. This discovered that some codes are very rarely used and some CPV Codes, namely 13%,[41] are never used at all: "*Of the 9,454 codes available,* ***1,221*** *(13%) alone accounted for 80% of all usages. [...] A further 5,521 codes were used fewer than 100 times.*"[42]

These results were verified during the cosinex research project as part of Ms Akulich's doctorate: "*Between 2011 and 2015,* ***1,261*** *of a total of 9,454 CPV codes (around 13%) were neither selected nor used*[43] *by any contracting authority anywhere in the EU, i.e. they were not used in any of the 28 Member States. However, the number of codes that is hardly used is much greater. This is evident from the example of Germany: around 50% of 9,456 CPV codes were not used in EU-wide tenders over the five year period (2011-2015). However, in Germany, 1141 and thus 12.1% of the CPV codes were used only once; 701 and thus 7.4% of all CPV codes were used only twice; 432 and thus 4.5% of the CPV codes were used only 3 times in the years 2011 to 2015.* ***In total, German tenderers used only 21.1% (1991) of all CPV codes*** *in EU-wide tenders from 2011 to 2015. This number is especially significant because it gives an additional impression of the intensity of CPV use."*[44]

These figures raise the following questions: do the codes (that are never used) disrupt the transparency and thereby the usability of the CPV? Is there a requirement to cut the CPV?

Problem 2: Absence of classification connections | mapping of the CPV to other existing classifications

Currently, there is hardly any link between the CPV and other standard classification standards. Product classifications are the basis for a uniform categorisation and description of product data and thus constitute the basis for electronic business processing. To use the individual products

[41] These results (13%) were also confirmed in a cosinex research project: 13% of the codes were not used by any of the Member States in EU-wide notices (TED) over the five years investigated from 2011- 2015. A complete list of codes that have never been used in this period is available from cosinex. Thus, an evaluation could be repeated at any time to verify these results.
[42] Ramboll Study, p. 36
[43] At this point, it should, of course, be verified whether these statistical evaluations provide the same CPV codes.
[44] Akulich, Antanina (2017): Klassifikationsstandards im EU-Binnenmarkt aus Sicht der angewandten Sprachwissenschaft am Beispiel des CPV-Codes. P. 224

of different providers available in an electronic marketplace or in an e-procurement system and for them to be directly comparable for customers, the products need to be uniformly classified or described, and integrated on the corresponding platform, without any great manual effort. Therefore, mapping between different classifications is vital for e-procurement. Mapping provides a crosswalk between systems, linking the content from one terminology or classification scheme to another. Valid mapping is urgently needed to link from a highly specific terminology to a contemporary classification system in order to allow data collected for one purpose to be used for another, i.e. "enter once, use many times." However, automating the process of mapping from a reference terminology to a classification system is challenging.

The need for harmonisation of the international classification standards was stressed by the European Commission already in 2011:
"Classification and catalogue systems for public and private procurement: CC3P analyses the classification systems used in Europe for public procurement (CPV – Common Procurement Vocabulary) and some used in the private sector (UNSPSC, GPC and eCl@ss). CC3P proposed harmonization, mapping methodologies, recommendation on their use in electronic catalogues and areas of improvement in the CPV."[45]
The CPV is based on the Classification of Products by Activity (CPA) nomenclature, which is successfully used for statistical evaluations in particular. *"The CPA is the European version of the CPC (Central Product Classifications of the United Nations), and the purposes it serves are in line with those of the CPC. Whilst the CPC is merely a recommended classification, however, the CPA is legally binding in the European Union."*[46]
There is in particular a need to map the CPV to other existing classifications, e.g.:

- CPA (Statistical Classification of Products by Activity in the European Economic Community (*5.522* codes)). This is available in the 23 of the 24 official languages of the European Union as well as for several non-EU countries.
- CPC, NACE Rev 2; CN. (See Commission Regulation (EC) No 213/2008 of 28 November 2007[47] (9)):

[45] European Commission. Directorate-General for Informatics. (2011): The eProcurement Map. A map of activities having an impact on the development of European interoperable eProcurement solutions. https://joinup.ec.europa.eu/community/epractice/document/eu-eprocurement-map-fifth-edition. P. 10
[46] Classifications. Statistical Classification of Products by Activity, Version 2.1: http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=DSP_GEN_DESC_VIEW_NOHDR&StrNom=CPA_2_1&StrLanguageCode=EN
[47] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32008R0213

"As a consequence of the revision of the CPV, it is appropriate to update also the illustrative tables set out in Annexes III, IV and V to Regulation (EC) No 2195/2002 which show the correspondence between the CPV and respectively the Provisional Central Product Classification (CPC Prov.) of the United Nations, the General Industrial Classification of Economic Activities within the European Communities (NACE Rev. 1) and the Combined Nomenclature (CN). In the interest of clarity it is appropriate to replace them."

- eCl@ss (cross-industry and national code for the classification of product groups, which is used in Germany in particular (32,592 codes)). It is available in 16 languages in all. This includes 9 of the 24 official languages of the European Union.
- UNSPSC (United Nations Standard Products and Services Code for classifying a product-group standard and also as a cross-industry code (41,655 codes)). UNSPSC is available in 11 languages. This includes 8 of the of the 24 official languages of the European Union.
- GPC (Global Product Classification, i.e. a global classification standard for products (3,491 codes)). GPC is currently available only in English, French, Japanese and Serbian.

Problem 3: Applying the CPV to different phases of e-procurement

The CPV is currently used only for the publication and identification of tender notices and cannot be used for further e-procurement phases because it is not designed to offer sufficient coverage of business sectors for other phases of e-procurement. However, the CPV should be suitable not only in the pre-award phases. It should also be a suitable instrument both for executing tenders and awards electronically on specific platforms and for the overall process of public procurement from planning and supervision of requirements through implementation (i.e. through tendering up to the fulfilment of requests).

However, the possible use of the CPV for e-catalogues should also be borne in mind. These have become even more important in the light of Directive 2014/24/EU recital (e.g. Recital No 68):

"Contracting authorities should be able to require electronic catalogues in all available procedures where the use of electronic means of communication is required. Electronic catalogues help to increase competition and streamline public purchasing, particularly in terms of savings in time and money."[48]

[48] http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32014L0024

Moreover, the use of different classification systems (i.e. eCl@ss) for e-catalogues makes the interoperability between Member States difficult. Therefore, the CPV could be especially useful not only for electronic catalogues (e-catalogues), but also for procurement planning and controlling. However, to be integrated into e-procurement environments, the CPV would need to meet certain requirements. It should for example integrate and relate to existing international standards for classification systems in structure, data model and content.

Problem 4: Absence of a process for maintaining the CPV

The first version of the CPV was published in 1993. It has been revised extensively three times since then. The last release of the CPV dates from 2008, 9 years ago, so the last version is now outdated. The CPV review process constitutes a concern, as there is neither a formal nor informal maintenance process based on change requests. Currently, there is no defined process for maintaining the CPV (i.e. process for updating the CPV). Other classification systems have defined maintenance processes which, for example, set certain release dates and involve users.

1.2.2 The drivers

In this chapter multiple drivers shown in figure 5 ("Problem tree") are presented in detail. These may affect the CPV problems to a lesser or greater degree. Solving the problems described above means acting on the drivers. This Impact Assessment has identified six primary underlying drivers behind the CPV problems:

1. The complexity of the current structure, an unbalanced tree structure, incomplete coverage and irregularities;
2. Low awareness of the CPV;
3. Complexity in the current presentation, i.e. providing CPV via Excel/PDF;
4. Effects of technical modernisation/innovation;
5. Bad classification methodology;
6. Rigidity of legal instruments.

Figure 5 below illustrates the relationships between the drivers, the problems and the consequences, with the dotted lines illustrating where the key interrelationships between each level lie.

Driver 1: Complexity in the current structure of the CPV (unbalanced tree, incomplete coverage of the CPV, irregularities in CPV structure and supplementary vocabulary)

In the light of the results of the Rambøll Study[49], it is possible to say that some code classification levels are not conclusive (some codes should be at higher or lower levels) and some codes do not match the subject of the superordinate level (they should be grouped under different superordinate codes). "Cutlery" and "Spoons and forks" are good examples as they can be found in different categories. "Cutlery" is not in the CPV class "Kitchen equipment, household and domestic items and catering supplies", whereas "Spoons and forks" are. Moreover, some codes are not mutually exclusive. This is illustrated by the following example: *"Within the division "Education and training services" (80000000) are two codes "Computer training services" (80533100) and "Computer courses" (80533200). But it is difficult to differentiate between the two. "Computer training services" and "Computer courses" are not mutually exclusive."*[50] Furthermore the hierarchical tree structure of the CPV is often not consistent. The following example illustrates this:" *At code "71900000 Laboratory services" "the hierarchical tree ends at group level. Classes, categories and subcategories are missing."*[51]

Figure 1: CPV's hierarchical tree structure is not consistent

Code	Level	Description
71 0 0 0 000	Division	Architectural, construction, engineering and inspection services
71 9 0 0 000	Group	Laboratory services
71 9 x 0 000	Class	not available
71 9 x x 000	Category	not available
71 9 x x xxx	Subcategory	not available

On the other hand, some specific codes are missing: *"The following table shows an example for missing elements at different levels of classification. There is a group called "Postcards, greeting cards and other printed matter" (22300000). This group consists of two classes: "Postcards" (22310000) and "Greeting cards" (22320000))."*[52]

[49] Review of the function of the CPV Codes/System; https://ec.europa.eu/growth/single-market/public-procurement/rules-implementation/common-vocabulary_en
[50] Rambøll Study, p. 41
[51] Rambøll Study, p. 38
[52] Rambøll Study, p. 39-40

Figure 2: An element is missing within different levels of classification

Code	Level	Description
22 0 0 0 000	Division	Printed matter and related products
22 3 0 0 000	Group	Postcards, greeting cards and other printed matter
22 3 1 0 000	Class	Postcards
22 3 1 1 000	Category	Pictures
22 3 1 2 000	Category	Transfers
22 3 1 3 000	Category	Designs
22 3 1 4 000	Category	Photographs
22 3 2 0 000	Class	Greeting cards
22 3 2 1 000	Category	Christmas cards

However, there is no "Other printed matter" class as suggested by the group's name. The Rambøll Study contains a comprehensive list of irregularities in the CPV tree structure ("Appendix 1 - CPV code usage and assessment of structure and content").

Moreover, by comparison with other classification systems, the CPV is less balanced. Each of the different divisions, groups and classes contain a very different number of single elements. Thus, greater consistency of approach would make the CPV easier to navigate.

Any of the problems mentioned above make it difficult for contracting authorities and entities to identify the right CPV in the CPV list because the logic of the structure is not always conclusive.

Supplementary vocabulary is also a driver of CPV problems and is part of the "complexity of the CPV-structure" because supplementary vocabulary is currently provided completely separately from the CPV itself. Supplementary vocabulary makes it possible to further describe works, supplies or services. There are, for example, supplementary vocabulary codes for different materials, e.g. "Metal", "Aluminium", "Bronze" etc. According to the results of the Rambøll Study, the supplementary vocabulary was used in only 1.5% of the notices. Most public contracting authorities do not even know that the supplementary vocabulary exists and do not use it at all. So, while the supplementary vocabulary offers different flexible possibilities for describing the subject of a contract better and in more detail, statistical analyses show that this possibility is hardly used by public contracting authorities and potential bidders do not use it at all.

Driver 2: Low awareness/low acceptance of CPV as a classification system

The attitude to the classification system plays an important role in the use of this nomenclature. According to a survey conducted in Germany among public contracting authorities who have

already published an EU-wide tender on TED, [53] consideration of the CPV is very low. The feedback from the contracting authorities taking part in the survey oscillated strongly as a result between paradoxical requirements, i.e. as to whether to expand or reduce the CPV. On the one hand, there is a view that the CPV is not intended to provide sufficiently precise definitions and therefore is not sufficiently granular, since CA´s believe relevant terms have been missed out[54]. On the other, the CPV code is extremely confusing for many CA´s because of the partially very high level of detail.

Dissatisfaction is also high on the part of the economic operators. Most of this comes from the fact that the CPV is not completely supplier-oriented, but also takes the requirements of CA´s into account. Potential bidders therefore find it hard to assign their own reading or product to the CPV.

Driver 3: Complexity in the current presentation of the CPV | providing CPV via Excel and PDF files

Currently the CPV (and the supplementary vocabulary) are provided only via an Excel file or PDF file. Thus, the context of the CPV categories is not transparent enough. The user needs to be able to see the CPV codes in the context of the CPV structure, including related or subordinated and superordinated CPV terms, in order to be able better to decide which CPV code works suitably for a given service or product. This makes it very difficult overall to identify the right CPV using only full text search, which is all that is offered in the Excel or PDF. And if a word is misspelled or has a typing error, as is often the case, the user cannot find the right CPV. CPV is also provided as XML file, which can be used for example by providers of the software solutions, but not by the end-users, because for the use of the XML file a special editor is required. Otherwise, the CPV structure looks as follows (e.g. when using Internet Explorer):

[53] https://blog.cosinex.de/2016/12/15/ergebnisse-einer-umfrage-cpv-code/
[54] Where it is often the case, that the certain CPV simply will not be found. (See chapter 2.2)

Figure 3: CPV as a XML file

```
  </CPV>
- <CPV CODE="03111000-2">
    <TEXT LANG="BG">Семена</TEXT>
    <TEXT LANG="CS">Semena</TEXT>
    <TEXT LANG="DA">Frø</TEXT>
    <TEXT LANG="DE">Saatgut</TEXT>
    <TEXT LANG="EL">Σπόροι</TEXT>
    <TEXT LANG="EN">Seeds</TEXT>
    <TEXT LANG="ES">Semillas</TEXT>
    <TEXT LANG="ET">Seemned</TEXT>
    <TEXT LANG="FI">Siemenet</TEXT>
    <TEXT LANG="FR">Graines</TEXT>
    <TEXT LANG="GA">Seeds</TEXT>
    <TEXT LANG="HU">Vetőmag</TEXT>
    <TEXT LANG="IT">Semi</TEXT>
    <TEXT LANG="LT">Sėklos</TEXT>
    <TEXT LANG="LV">Sēklas</TEXT>
    <TEXT LANG="MT">Żrieragħ</TEXT>
    <TEXT LANG="NL">Zaden</TEXT>
    <TEXT LANG="PL">Nasiona</TEXT>
    <TEXT LANG="PT">Sementes</TEXT>
    <TEXT LANG="RO">Seminţe</TEXT>
    <TEXT LANG="SK">Osivo</TEXT>
    <TEXT LANG="SL">Semena</TEXT>
    <TEXT LANG="SV">Frön</TEXT>
  </CPV>
- <CPV CODE="03111100-3">
```

Driver 4: Technical modernisation and innovation

Technical modernisation, innovation and technological progress but also appropriate new Regulations make it necessary to adapt the Common Procurement Vocabulary to these changes: *"The structure, codes and descriptions of the CPV should be adapted or amended, in the light of developments in the market and users' needs."* (COMMISSION REGULATION (EC) No 213/2008 of 28 November 2007)[55].

Linguistic innovations, for example, new terms, such as "Smartphone" or "Plug-n-Play-Camera", which appear as a result of technical modernisation, need to be considered by the Common Procurement Vocabulary. On the other hand, there are terms have which lost their relevance as a result of technical modernisation and innovation (e.g. "light pens"[56] (30237430-2) in the category "Data entry accessories" (30237400-3)).

Apart from the influences of technical modernisation, there is a need, among others, to integrate the CPV into further e-procurement phases. A wide range of areas that are further developed and expanded as a result of today's technical modernisation require a broader approach on the part of such international classification standards as the CPV or other international classification systems.

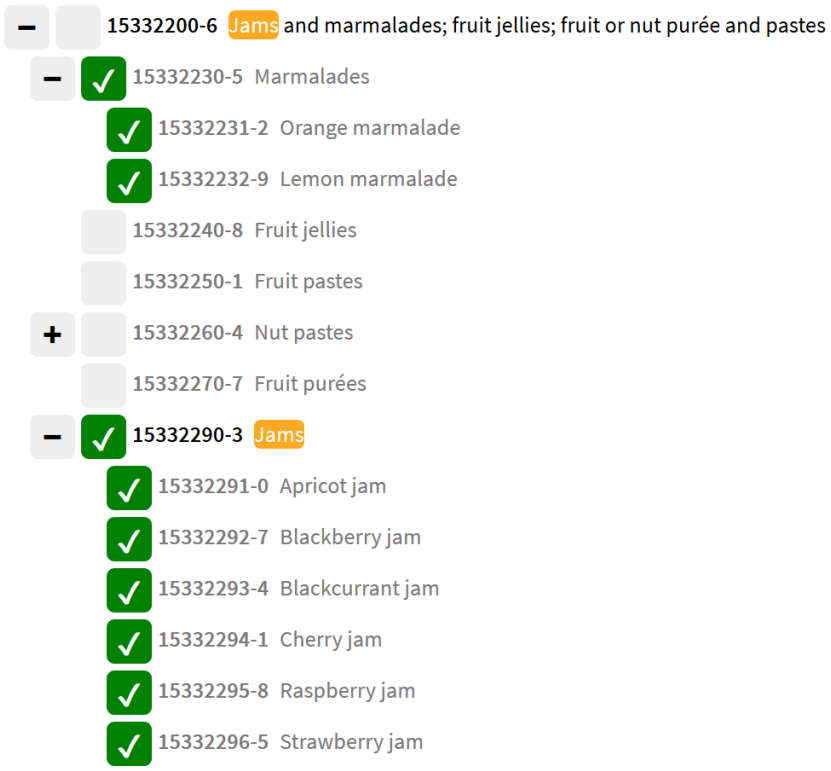
[55] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32008R0213
[56] Computer input device in the form of a light-sensitive wand used in conjunction with a computer's CRT display.

Overall, all classification systems need to be continuously refined, improved and adapted to the social, economic and political environment. New perceptions on patterns-of-use of the CPV need to be analysed and considered. Therefore, the nomenclature-ontology[57] and taxonomy[58] have to be improved and adapted to the social, economic and political environment. But correcting existing errors in the logic of the nomenclature is also an ongoing process.

Driver 5: Unbalanced classification methodology

The level of detail in CPV is very different for similar works, supplies and services and at the same time excessive.[59] The more detail offered, the more mistakes are possible. Moreover, sets of methods selected for CPV classification have to be checked, i.e. hierarchy, meta model and ontology methodologies. Properties characterising the object of class and invariants that apply for all objects have to be considered (so called finding classifier).

Figure 4: Different levels of detail



The question of an underlying methodology (criteria) for amending the structure and level of detail of the CPV needs to be defined. An underlying methodology also plays an important role

[57] A set of concepts and categories in a subject area or domain that shows their properties and the relations between them.
[58] The science or techniques of classifications.
[59] See Rambøll study, p. 99

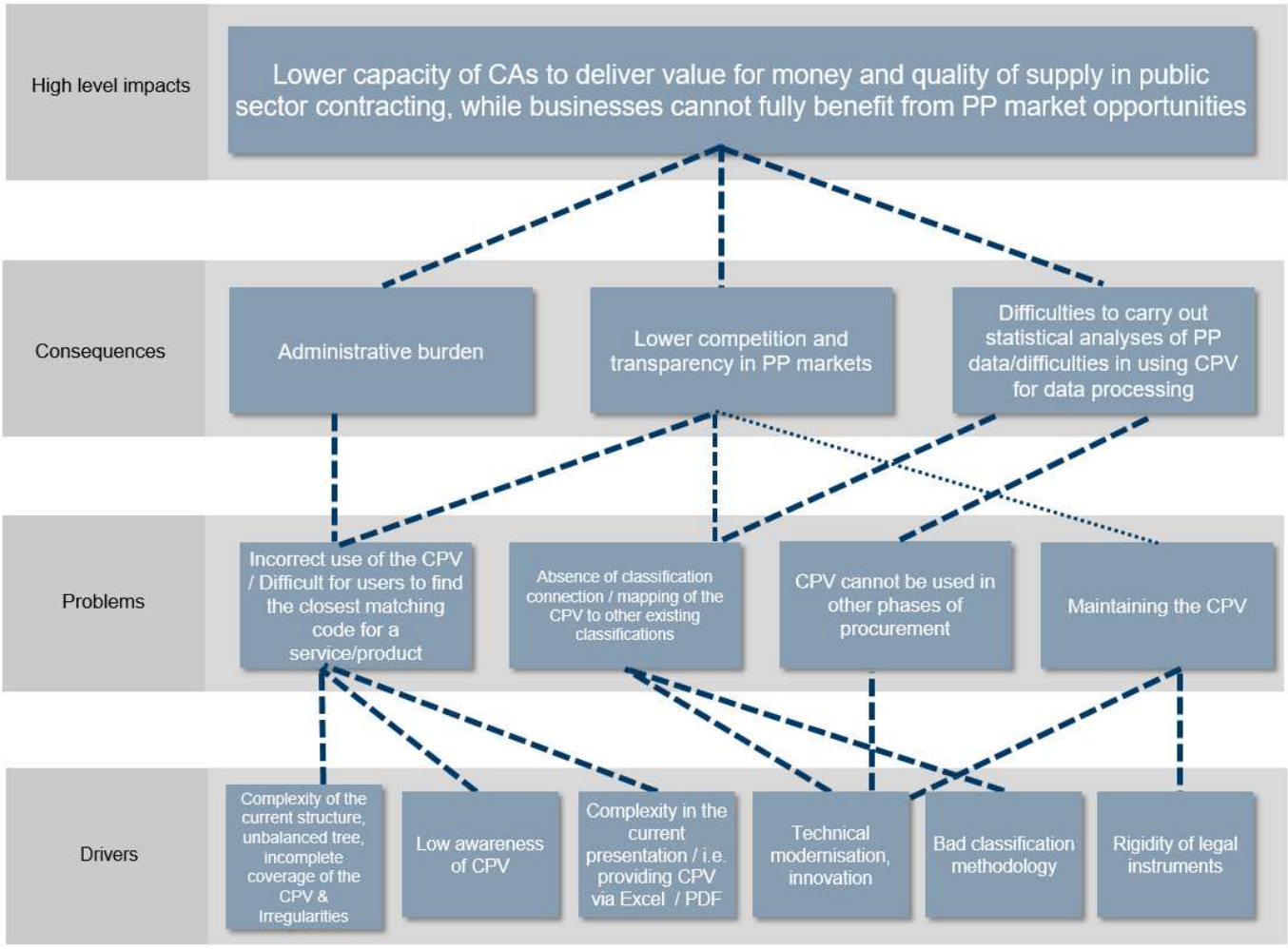
for mapping the CPV to other classification systems. There is, however, a conflict of methodology-related objectives, among the agreed objectives of the CPV code and among the criteria of the underlying methodology: On the one hand, the CPV needs to be clear enough for public contracting authorities and tenderers to find each other; on the other, the CPV code should offer sufficient coverage of business sectors for the classification standard to be appropriate for the phases of e-procurement, mapping and statistical analysis as well. In addition, decisions on adding or removing codes, dealing with the depth of the structure or a complete reorganisation of the nomenclature directly depend on the CPV methodology. Therefore, the methodology criteria need to be defined in a way that is appropriate for all purposes.

Driver 6: Rigidity of legal instrument

As the CPV is provided through a regulation, it follows the usual procedures for amending regulations. There are difficulties related to the legal nature of the instrument, which make it hard to update it or correct material errors. The long time needed for decision making and approval of changes makes it difficult to update the CPV flexibly.

Figure 5 below, which should be read from bottom to top, shows these drivers and problems, and the consequences and impact mentioned at the beginning of this chapter in graphical form.

Figure 5: Problem tree



So, the **incorrect use of CPV** respectively difficulties in finding the closest matching code for users is caused by the **complexity in the current structure of the CPV** (unbalanced tree, incomplete coverage of the CPV, irregularities in the CPV-structure and supplementary vocabulary), by low awareness of the CPV on the user's side and not least by the **complexity in the current presentation of the CPV** and **its** supplementary vocabulary (providing CPV via Excel and PDF files).

In terms of the absence of classification connections, on the one hand, **technical modernisation and innovation** in the EU internal market increase the relevance of interoperability by electronic data handling and thus the necessity of harmonisation respectively **mapping between CPV and other existing international classification systems**. On the other hand, an **unbalanced underlying methodology** of the CPV makes it among others difficult to map different classifications among themselves. The **use of the CPV in further e-procurement phases** is influenced by **technical**

modernisation and innovation as well because a wide range of areas – that are further developed and expanded as a result of today's technical modernisation – require a broader approach that includes different international classification systems. And third, **technical modernisation and innovation** is one of the reasons why the CPV and the corresponding terms need to be regularly updated. However, today´s **rigidity of legal instruments** contributes additionally to the problem of **maintaining the CPV**.

1.3. Who is affected, in what ways and to what extent?

All public **contracting authorities**[60] across the EU are affected by the quality of the CPV. Due to the size of the EU internal market, the number of tenders and the shortcomings of the CPV, there is a risk that a significant number of bidders will not find a relevant tender (or will find it too late). It is assumed that if not all potential bidders can find a specific tender in a timely fashion, the contracting authority does not receive the most economic offer. We assume that this lower efficiency for the contracting authority is **11.7%**[61].

At the same time, all **economic operators/contractors**[62] interested and participating in EU-wide tenders are affected by the quality of the CPV. If contractors do not correctly classify their services or products by using the CPV, they do not find the tenders that are important for them and do not get orders important for their business. Given the current process-related complexity (distance, language, higher costs), there are also substantial losses in terms of fostering cross-border procurement. Economic operators cannot fully participate in the public procurement market.

The **European Commission** is affected by the problem in terms of policymaking and enforcement/implementation. The Commission is responsible for the central updates of the CPV. TED- related applications managed by the EU Publications Office are affected by revision

[60] The term "contracting authority" is defined in Directive 2004/18/EC: "*Contracting authorities' means the State, regional or local authorities, bodies governed by public law, associations formed by one or several of such authorities or one or several of such bodies governed by public law.*" Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004: http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32004L0018

[61] Please compare chapter 1.1 Estimated economic loss due to CPV problems and the appropriate examples on the p. 16-19

[62] The term "economic operator" is also defined in Directive 2004/18/EC: *"The terms 'contractor', 'supplier' and 'service provider' mean any natural or legal person or public entity or group of such persons and/or bodies which offers on the market, respectively, the execution of works and/or a work, products or services. The term 'economic operator' shall cover equally the concepts of contractor, supplier and service provider. It is used merely in the interest of simplification. An economic operator who has submitted a tender shall be designated a 'tenderer'. One which has sought an invitation to take part in a restricted or negotiated procedure or a competitive dialogue shall be designated a 'candidate'."* Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004: http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32004L0018

of the CPV every time implementation of the new version of the CPV is required.

Providers of solutions for electronic support to public procurement are affected in that they have to implement all the amendments to the CPV in their solutions. All Member States' prequalification systems are also affected because they issue certificates based on the relevant CPV.

In press (and public relations work) statistical analyses are often based on the use of the CPV, among others, especially in the case of economic issues and topics. The analysis of the frequency of CPV use allows conclusions to be drawn about the respective requirements and demand for consumption in the Member States. If the CPV is not used correctly, the statistics become imprecise. Accordingly, the press transfer misleading conclusions to the public. Academics and anyone else in the EU internal market, who need statistical analyses and who look for/use this data are influenced by the disadvantages of the CPV. Organisations such as OECD (Organisation for Economic Co-operation and Development) are completely dependent on the quality of classification systems which are used so widely.

2. Objectives

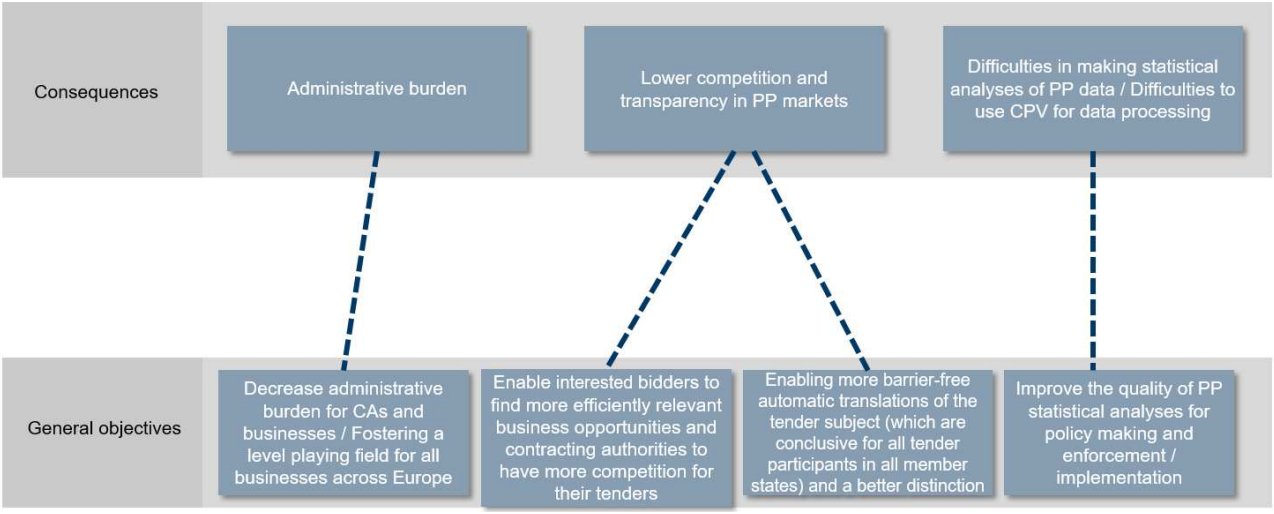
The rationale of this project is to increase competition and ensure a higher level of transparency. If relevant notices can be found more easily and also across borders, there will be more offers and increased competition. This contribution to the Single European Market should lead to money being saved or to getting better value for goods and services in public procurement. So, the main aim is to increase the capacity of CAs to deliver value for money and quality of supply in public sector contracting and to increase the awareness of businesses about the public procurement market opportunities using the CPV as an instrument.

In order to achieve the main aim, the following general objectives have been defined:

1. Decrease the administrative burden for CAs and businesses/Foster a level playing field for all economic operators across Europe;
2. Enable interested bidders to find relevant business opportunities more efficiently and contracting authorities to have more competition for their tenders;
3. Enable more barrier-free automatic translations of the tender subjects (which are conclusive for all tender participants in all Member States) and a better distinction between the definition of works and services respectively;
4. Improve the quality of statistical analyses of public procurement for policy making and enforcement/implementation.

To respect the Impact Assessment logic, general objectives always address or have to be linked with the consequences of CPV problems, namely the administrative burden, lower competition and transparency in PP markets and difficulties in carrying out statistical analyses of public procurement data, and thus in using the CPV for data processing and policy making. The following Figure presents these links:

Figure 6: Link between general objectives and consequences

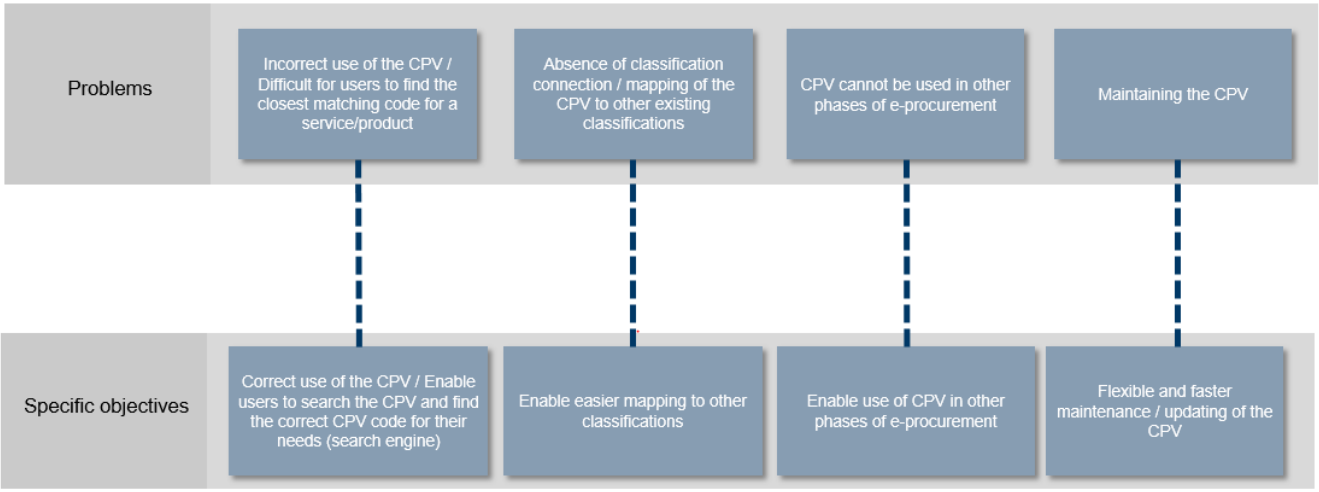


All general objectives mentioned above can be used to derive appropriate specific objectives. In order to achieve the general objectives, the following specific objectives have been defined as follows:

1. Correct use of the CPV/Enabling users to search the CPV better and find the correct CPV; code for their needs (better search tool for the CPV);
2. Enable easier mapping to other classifications;
3. Enable the use of the CPV in other phases of procurement;
4. Establish more flexible and faster maintenance/updating of the CPV.

To respect the Impact Assessment logic specific objectives always address or have to be linked with the corresponding problems. The following Figure presents these links:

Figure 7: Link between specific objectives and problems of CPV



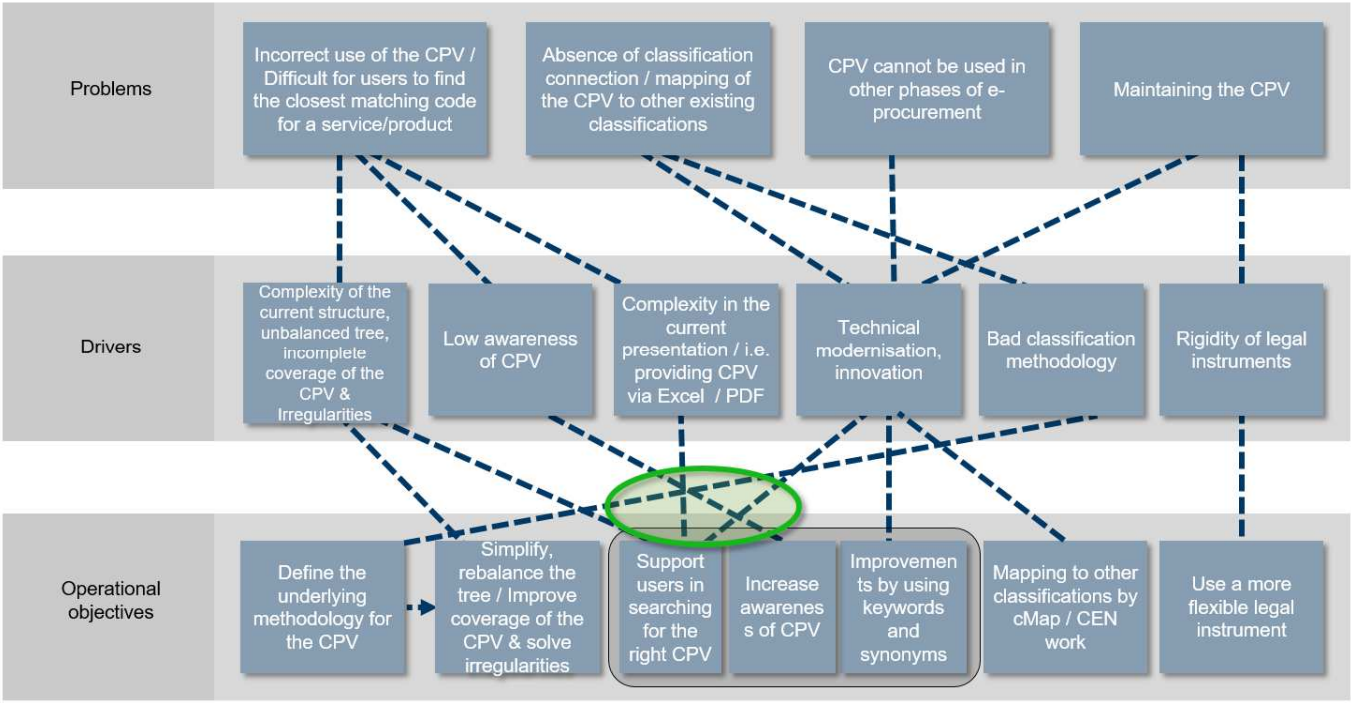
The specific objectives mentioned above can be achieved in turn by realising the operational objectives. In order to achieve the specific objectives, the following operational objectives have been defined:

1. Define the underlying methodology for the CPV;
2. Simplify and rebalance the CPV tree structure, and improve CPV coverage (add new CPV codes that are needed and/or remove the CPV-codes are not needed or used); solve and correct irregularities identified in the CPV-structure (and/or collect further irregularities);
3. Support users (CA´s and economic operators) in identifying the right CPV;
4. Increase the awareness of the CPV and/or acceptance of the CPV by users (CA´s and economic operators)[63]
5. Improve the CPV with keywords and synonyms;
6. Map CPV to other existing international classifications using cMap/CEN work;
7. Use a more flexible legal instrument.

To respect the Impact Assessment logic, operational objectives always address the corresponding trigger/driver of each problem in order to solve them. The following Figure presents the interdependencies between CPV problems, drivers of the problems and operational objectives:

[63] Using additional support instruments, better promotion etc.

Figure 8: Interdependencies between CPV problems, drivers of these problems and operational objectives



The **complexity of the current structure** can be solved by simplifying and rebalancing the tree structure. At the same time, the complexity of identifying the right CPV can be reduced by using a form of search tool which supports users looking for the right CPV via synonyms, right terms etc. If the CPV code is not correctly formulated, it can be found by full text search or synonyms.

Low awareness of the CPV can also be solved by using a search tool because additional hints, business rules or simply EU explanatory notes can be integrated in such a mechanism, so that every user can see them directly alongside the CPV code indicated.

The **complexity of the current presentation** (providing CPV via an Excel/PDF file) can be improved by a search tool. This is important because it is only where it is possible to see CPV codes in the context of the CPV structure, including related or subordinated and superordinated CPV terms, that the code can reasonably be judged.

New terms appearing in the context of **technical modernisation** can be taken into account by using keywords and synonyms. In this way, new terms can be added without any need to change the CPV itself. Therefore, using such an interface/management tool for the CPV creates the potential to make small changes, i.e. add new terms and words in the CPV without any confrontation with the legal instruments.

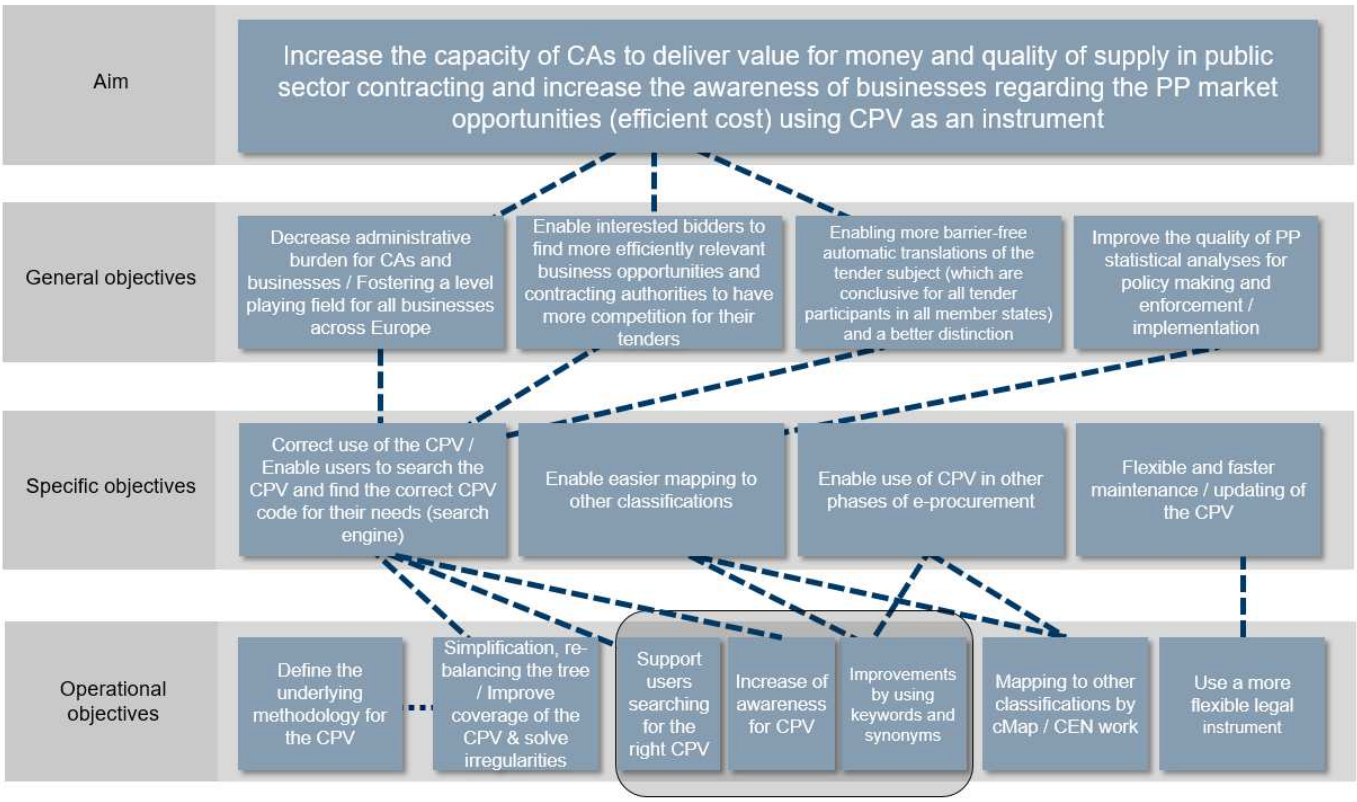
A poor classification methodology can be solved by defining the criteria for an underlying methodology.

The rigidity of the legal instrument should be solved by using a more flexible legal instrument.

Therefore, four of the six drivers of CPV problems can easily be solved completely or partially by the operational objectives "Support users searching for the right CPV" and by "Increasing the awareness of the CPV". Using an interface or an automated search engine for the CPV can at least bring improvements to the largest part of the drivers and triggers of the CPV problems.

The following Figure presents the final structure of the CPV objectives, which consists of three dimensions: general, specific and operational objectives.

Figure 9: Structure of objectives/Intervention logic



3. Policy options

This chapter provides a summary of the options for addressing the drivers/triggers of the CPV problems. It sets out all the options for solving or at least reducing the problems.

1. Policy option 0 *Baseline scenario* describes the situation if there is no intervention by the European Commission. This does not necessarily mean that nothing will change, as third parties may choose to take action.
2. Policy option 1 *Better tools only* describes an approach which improves the usability of the CPV for both public contracting authorities and entities, but without any amendments to the CPV itself.
3. Policy option 2 *Small adjustments to the CPV* describes an approach with only minimum changes within the CPV.
4. Policy option 3 *Extensive adjustments to the CPV* describes an approach with all possible and extensive amendments to the CPV.

The different elements of most of the options are not mutually exclusive and could be combined. Thus, for example, the decision on the maintenance or removal of the supplementary vocabulary could be made independently of the option selected. Policy option 1 can be combined with policy option 2 or policy option 3 in its different forms. The advantages and disadvantages of these combinations are analysed in chapters 4 and 5.

3.1. Policy option 0: baseline scenario

Under this option, the Commission continues to rely on the existing framework, without further action to address the weaknesses of the CPV itself or the CPV environment. In concrete terms, this means that no changes are made to the CPV structure, supplementary vocabulary or legislative nature. CPV codes which are seldom or never used remain in force. The findings and recommendations of analyses and studies are not to be taken into account. There is no further analysis of coding behaviour nor any improvement to the search mechanism for potential bidders and public contracting authorities. Thus, public contracting authorities and bidders use the CPV as before. There is no process for the maintenance of the nomenclature. Release policies for updating/maintenance of the CPV are not defined. The legal nature of the instrument remains unchanged. This does not preclude action by third parties, so the situation is not necessarily completely static.

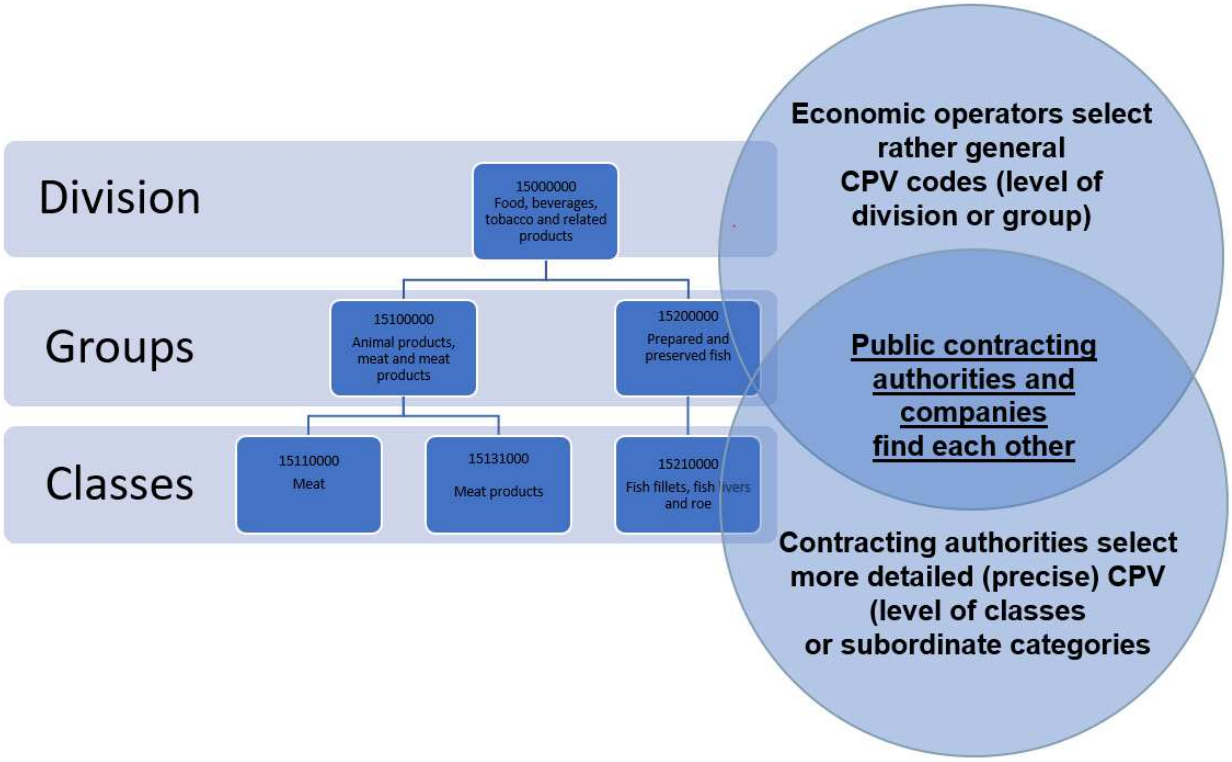
3.2. Policy option 1: Better search tools

This option implements technical measures for the improvement of the search function[64]. It is based on the findings of the Rambøll Study. No changes are made to the CPV itself. The improvements in the search mechanisms take place in this case only to support users:

1. contracting authorities: to classify the tender under the correct – and most precise – CPV code;
2. economic operators: to search for relevant notices using the right CPV.
3. This is based on the following premises. On the one hand, contracting authorities should select the most precise CPV code possible within the hierarchical category tree (i.e. depth at the level of classes and subcategories). Thus, they should not choose e.g. "Food, beverages, tobacco and related products" (15000000), but rather "Fish fillets, fish livers and roe" (15210000). On the other hand, economic operators should rather select superordinated categories (at the level of a division and groups), i.e. "Food, beverages, tobacco and related products" (15000000) and not "Fish fillets, fish livers and roes" (15210000). A "deep" selection in the category tree might lead to potential bidders overlooking relevant notices if the contracting authority has chosen the CPV at a higher level than the one sought. This means that only if the CAs select more detailed and economic operators select rather general CPV codes can both sides find each other:

[64] Rambøll Study. P. 65-79

Figure 10: Simple quantity model using example of CPV

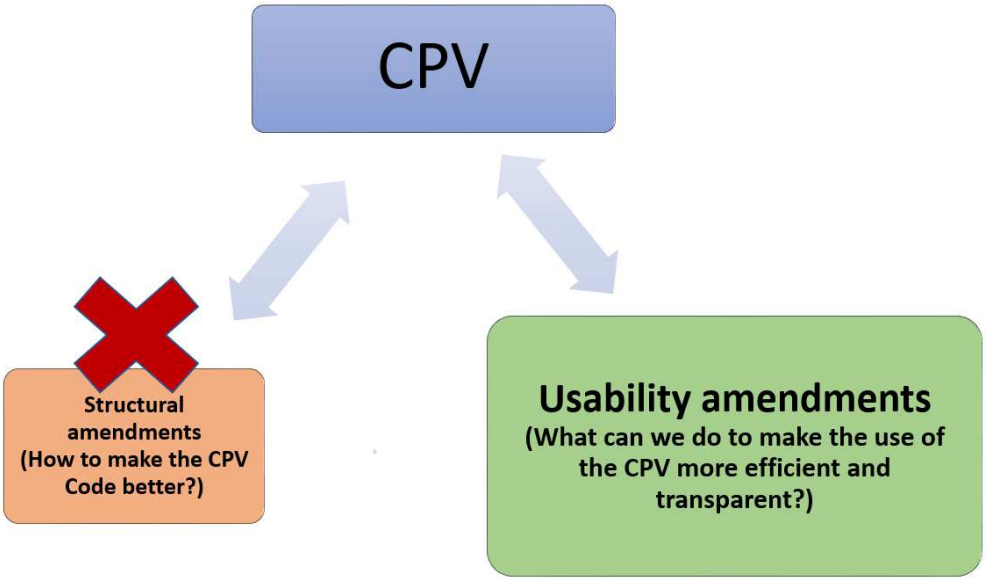


The search mechanisms or some form of search engine for CPV would help contracting authorities find more precise codes (rather at the subordinated levels) and would better support economic operators in searching for the relevant notices (at the superordinate levels in order to get results which preventively cover more relevant notices at the subordinated levels[65]).

This improvement in usability can be addressed even without any amendments to the CPV itself, so there are no structural amendments to or interactions with the CPV regulation[66] or with the maintenance of the CPV, because the focus of this approach is only on better CPV usability:

[65] In this case, all search results are delivered, which are listed under the more general code (the more general the code, the more results, which refer to the subordinated codes of this general CPV).
[66] Commission Regulation (EC) No 213/2008

Figure 11: Policy option 1 | Usability amendments



The desirable characteristics of an improved search functionality

The CPV itself is currently provided in the form of a PDF or Excel file. What could best help users is to provide a consistent and more visible list with the CPV structure to make it possible to understand better the logic, semantics, ontology[67] and taxonomy[68] behind the CPV.

The basic idea is that this search tool for the CPV (a form of interface/search engine) needs to be available for every user or Member State. This means that it needs a multilingual functionality.

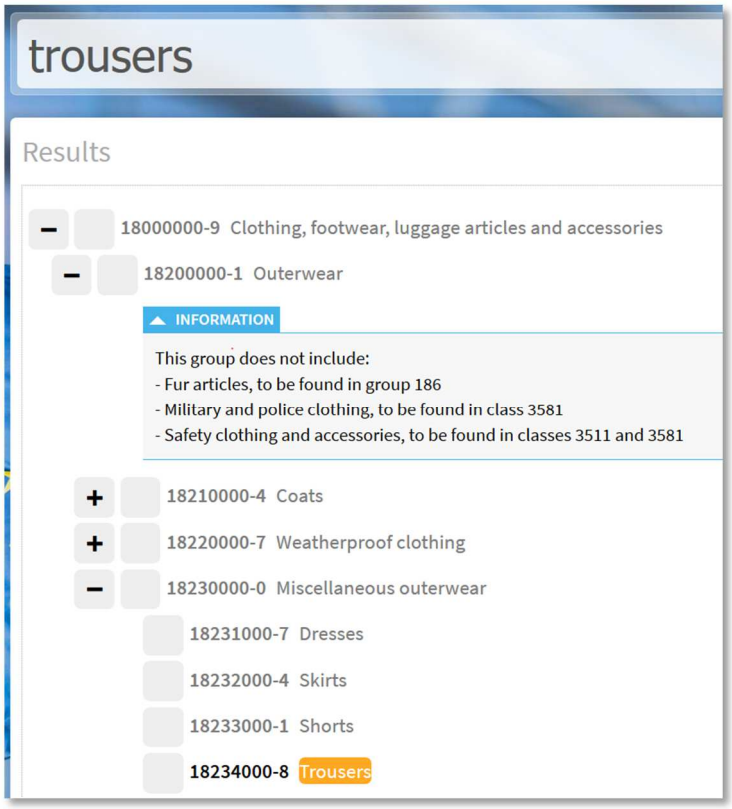
The following steps can be taken in this approach:

1. The CPV can be complemented with additional interactive tools as a way of improving the system's usability and efficiency, e.g. by implementing a search tool or alternatively developing a TED-CPV search function (eNotices). Full text search should be offered in the search tools.
2. CPV use should be facilitated by using and taking into account the official "CPV 2008 explanatory notes" which provide some helpful information and support, especially to contracting authorities, in choosing the right CPV. Thus, when the explanatory notes are visible directly alongside the desired CPV, the user can understand that e.g. the CPV code

[67] A set of concepts and categories in a subject area or domain that shows their properties and the relations between them.
[68] The science or technique of classification.

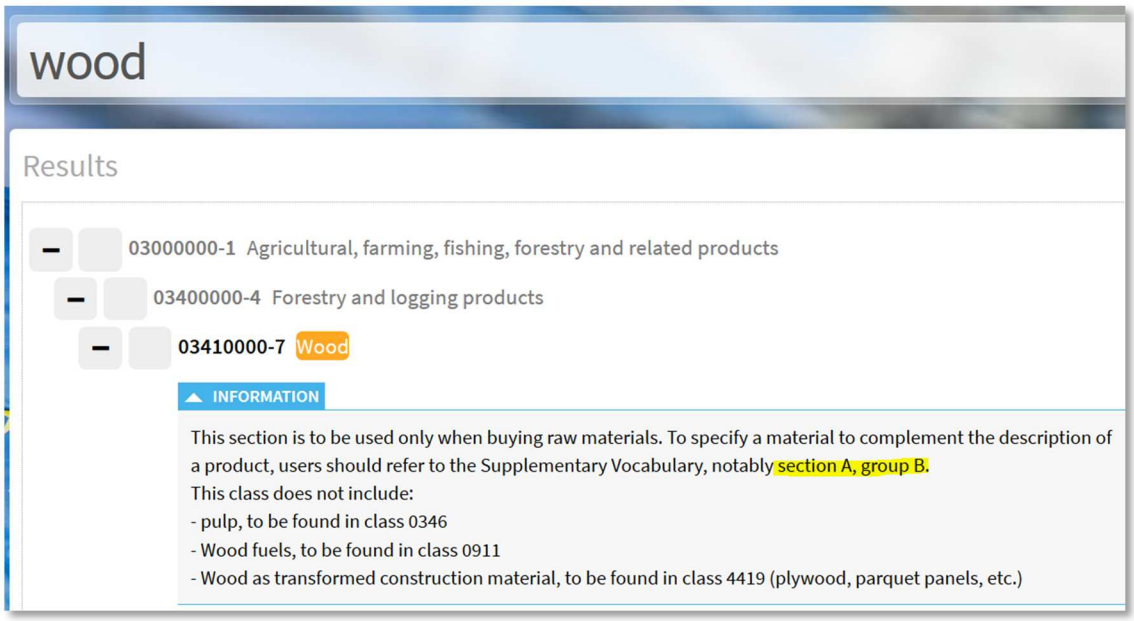
"Trousers" (18234000) does indeed according to the Explanatory Notes belong to superordinate group 182 (Outerwear), but the procurement of trousers for the police is in class 3581, and probably in police uniforms (35811200):

Figure 12: Example for explanatory notes using "trousers"



The next important aspect is that explanatory notes also help users make use of the supplementary vocabulary. First of all, they serve as a reminder that the supplementary vocabulary exists and also give hints as to which part of the supplementary vocabulary should be used for products or services in this group.

Figure 13: Example of explanatory notes and supplementary vocabulary



This search tool should provide automatic completion of the words being searched for as soon as three characters have been inputted.

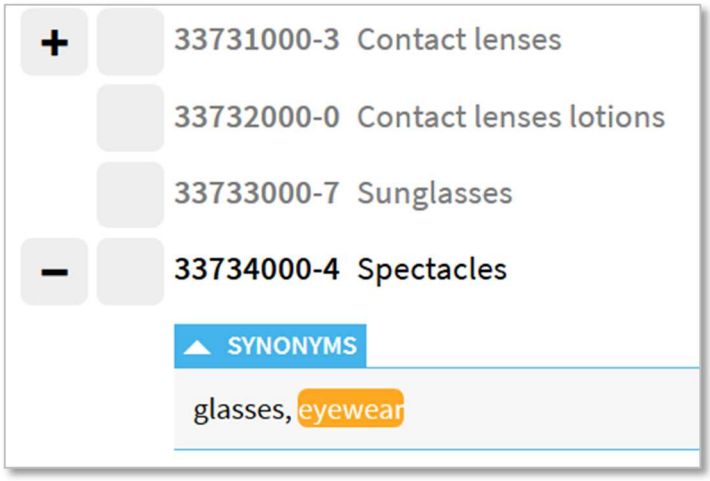
Figure 14: Automatic completion of the searched for words in a search engine

This is in line with the recommendation of the Rambøll Study p. 80: "*The web-based search engine should provide searching capability by browsing the tree structure and a text-based search. The search engine should display search results automatically when entering search terms in order to increase search comfort. The majority of users are accustomed to this feature from their experience with Internet search engines.*"

3. Keywords/synonyms (for example in the form of a technical interface that enables the use of these keywords) should be implemented as an additional feature. This is in line with the recommendation of the Rambøll Study p. 67: "*Contracting authorities use the online tool eNotices on SIMAP for preparing public procurement notices and publishing them in the Supplement to the Official Journal of the European Union. As part of the text-based search, keywords can be entered and a list of codes appears that match the search term.*"

   After collecting a sufficiently large basic set of synonyms, this function would also make it possible to consider the personal language mentality (active vocabulary) of each user (example: "display screens" versus "monitor" or "spectacles" versus "glasses" or "eyewear"):

Figure 15: Synonyms for CPV



The following methods could be used to derive keywords and descriptors[69]:

I. Machine learning. This is a subfield of computer science that gives computers the ability to learn without being explicitly programmed. In this way many companies (Google, Amazon and IBM among others) provide different tools (including free tools for evaluation). IBM's

[69] Descriptor is a word or expression used to describe or identify something mostly in the context of automated data processing

"Natural Language Classifier" understands the intention behind texts and returns a corresponding classification, including a confidence score for the relevance of potential keywords. A classifier learns from exemplar data and can return information for texts that it is not yet trained on. For this, descriptions and titles of tenders (or the whole tender document) can be used. The titles of the tenders always correspond to the main and/or first CPV code used by a contracting authority for a given tender and the description includes other semantically linked words. The Rambøll Study p. 80 raised this: "*Self-learning like Google: TED could facilitate the search for users by re-directing wrong or incomplete search inquires to the correct items. In the end, the system could learn from the user inquiries. These search functions could propose possible search items to users while typing (see Google).*"

II. In addition, the search field in a search engine can be tracked to obtain all the terms searched for by users but which are not found in the CPV. So, if users are searching, for example, for docking stations for laptops, and unfortunately find no CPV code, all these terms can be tracked to find an appropriate CPV for this term and to use it as a keyword in the CPV search tool.

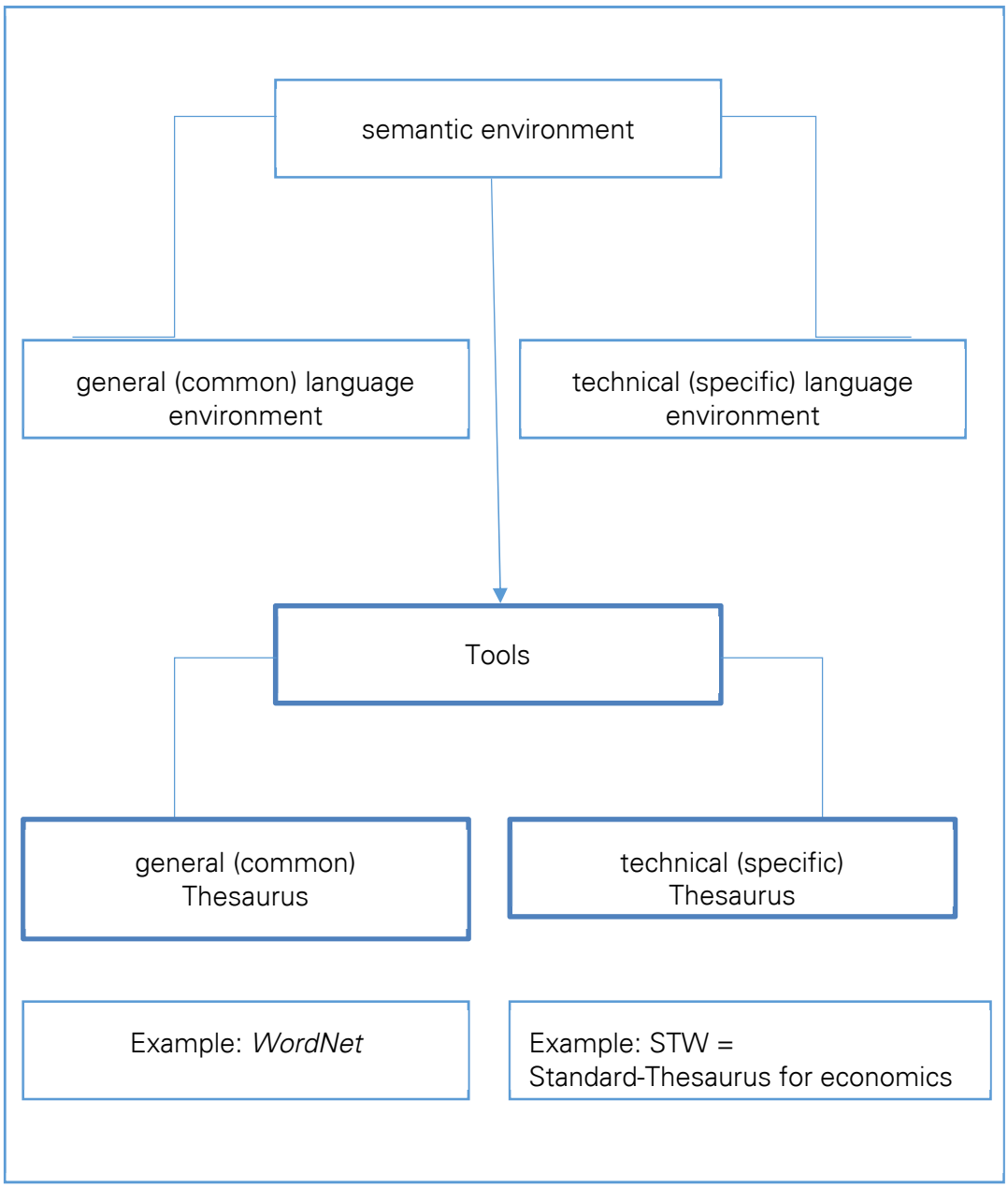
III. Synonyms from eCl@ss. There is already a mapping between the CPV and eCl@ss, but only for 30% of CPV codes. Nevertheless, the existing synonyms from eCl@ss could probably be used for a CPV search tool.

IV. Thesauri provide not only synonyms but hyponyms, i.e. minor terms, too, for example: not only vegetables, but also tubers and yams. Not all synonyms from thesauri are automatically suitable for use in the CPV, but some might be used successfully. Interpretability and consistency would have to be considered by cross-checking with dictionaries, e.g. WordNet Clarity, by checking low level concepts in their context defined by the superordinate classes:

WordNet "*is an online lexical reference system whose design inspired by current psycholinguistic theories of human lexical memory. English nouns, verbs and adjectives are organized into synonym sets, each representing one underlying lexical concept. Different relations link the synonym sets.* […]"[70]

[70] Ferilli, Stefano (2011): *Automatic Digital Document Processing and Management: Problems, Algorithms and Techniques.* P. 201

Figure 16: Derivation of synonyms using WordNet



A process for updating

The list with keywords and synonyms should be updated regularly and be based on a revised content and structure. Users could be involved in this process. One possible approach to collecting synonyms for the CPV (or e.g. suggestions and further irregularities) would be to attach a questionnaire to every contract notice and open a helpdesk to report problematic cases. Crowdsourcing could be used, for example, to involve users. An unofficial steering committee with experts from every Member States should evaluate proposals for changes.

Furthermore, better definitions of CPV terms should be introduced. The relationships between similar CPVs could also be added. Based on the explanatory notes, those relationships could be used to make suggestions of CPVs related to other CPVs. Thus, for example, the following CPV-codes will very often be used in the combination with each other[71]:

Table 1: CPV-combinations (evaluation of all CPVs from TED tenders in Germany (2011-2015)

CPV 1	CPV 2	Quantity
Window-cleaning services	Building-cleaning services	1721
Electricity distribution	Electricity	489
Engineering services	Architectural and related services	358
Water plumbing work	Sanitary fixture installation work	301

Source: cosinex research project

This interface should be flexible, being used first, for example, in a step 1 "New service/module (web-based), e.g. under www.cpv.ted.europa.eu"[72] as a new module of SIMAP, or optionally in a step 2 by integration in eNotices[73] (via an application programming interface (API)) and also optionally in a step 3 by giving the Member States the possibility of implementing it in their e-tendering platforms (via – probably – the same API).

The additional option for the re-use and/or implementation of some form of search engine is to use a solution under an Open Source Licence like the current European Single Procurement Document (ESPD)[74].

[71] Evaluations of all CPV from tenders (2011 to 2015) from TED only in Germany

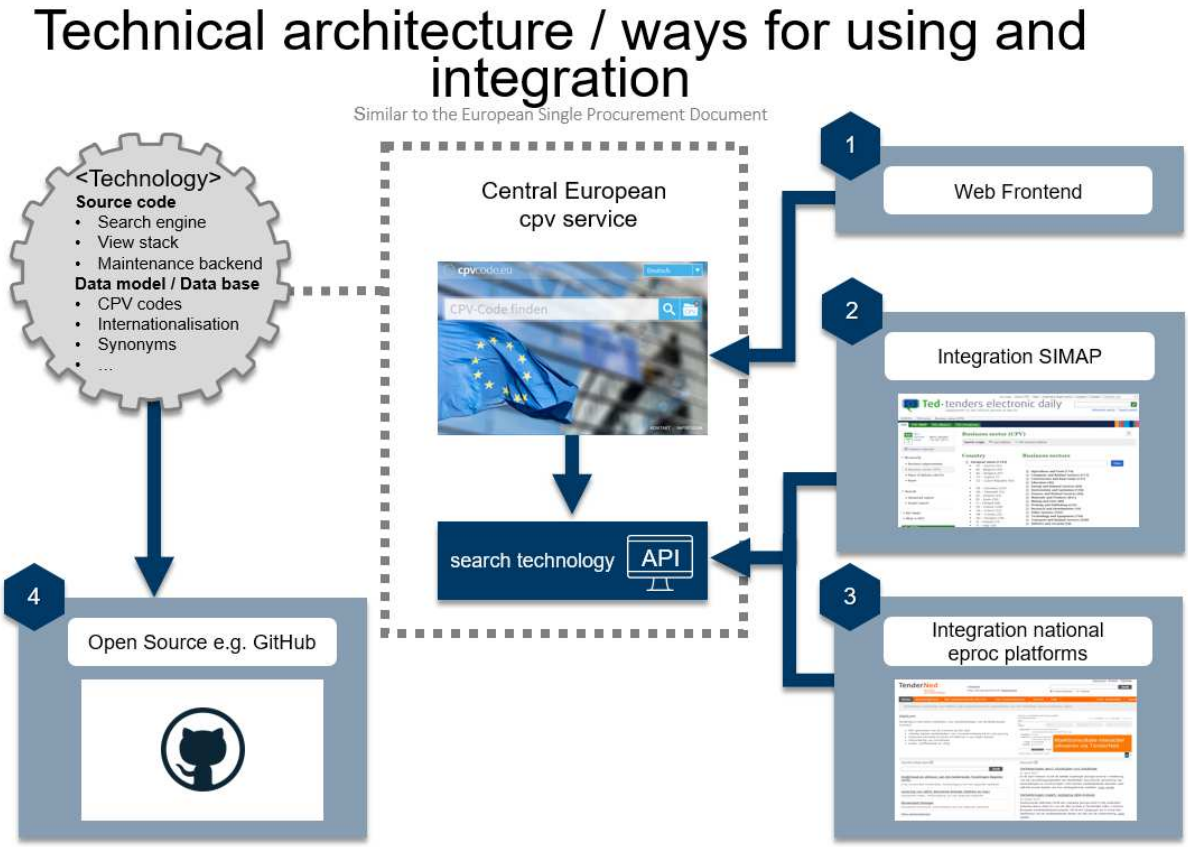
[72] See also the recommendation of the Rambøll Study p.80: "*A web-based search engine available equally to contracting authorities and bidders: this should be available to contracting authorities without being logged in to the online eNotices tool and should also be available to interested companies.*"

[73] See also the recommendation of the Rambøll Study p.80: "*Contracting authorities should be able to enter CPV codes directly within the SIMAP forms without first having to select from the pop-up menu "Browse", "Search" or "My favourites". Facilitating the search for keywords and synonyms: at present, the text-based search hits matching codes only when the search term directly corresponds to a specific CPV code or the designation of a portion of the code. Keywords (and synonyms) could be added to the CPV in order to implement the keyword search in the next step.*"

[74] https://ec.europa.eu/tools/espd/welcome

In addition, this interface could be integrated into the search function on the bidder side, because "*bidders have the option of using TED to search for CPV codes. TED offers a user interface different from that for the contracting authorities."*[75]*[…] The list displayed in this menu does not contain the CPV divisions, i.e. it does not reflect the official list of CPV codes but is an aggregation of certain divisions to CPV sectors called "Business sectors"*.[76] So on this site as well, interaction with the CPV search engine would be required and used via an API, meaning that all the relevant suggestions of this study are implementable.

Figure 17: Implementation of search toll via API/possibilities for use and integration



Policy option 1 should be addressed independently of the measures from the other Policy options.

3.3 Policy option 2: Small adjustments to the CPV (implementation of existing results)

Under option 2 small steps and amendments are implemented which are more in the nature of a minor update of the CPV. In contrast to the elements indicated under option 1, this option

[75] Rambøll Study p. 70
[76] Rambøll Study p. 73

includes procedural aspects in the CPV structure itself based largely on the results of Rambøll Study. The idea of this option is that irregularities in the CPV structure identified so far, as well as CPV codes which are never used, are hindering the transparency of the CPV and thus the usability of this classification system. The main purpose of this option is to improve the usability of the CPV with only small adjustments in its structure. To make these adjustments, a definition of the CPV´s underlying methodology is needed. Based on this methodology the right decisions can be taken on each adjustment, taking into account – among others – the balance in the level of detail in the CPV structure. However, problems with mapping, using CPV for other e-procurement phases and updating of the CPV take place in this option, unlike in Policy option 1.

The approach to handling the issues within the CPV-structure is first to delete and then to improve everything that is possible. Relevant changes in the CPV-structure within this option are:

- improvement of all irregularities identified in the CPV structure[77] case-by-case after additional analysis;
- removal of codes never used after appropriate further investigation[78];
- collecting and adding new CPV codes, which are needed or which appear in the context of technical modernisation and innovation; and
- implementation of the supplementary vocabulary in the CPV structure

Further investigation is carried out into the incompleteness and inconclusiveness of the CPV structure (i.e. **irregularities**) because there cannot be a one-size-fits-all approach to the irregularities; they need to be considered case-by-case. All changes in the structure are documented for users to show which point has been moved where (a kind of Mind-Map). Map Services could be used for this. Thus, for example, the current OMG (Object Management Group) specification of the CTS2 (Common Technology Services 2) Map Service for the mapping of code systems can be found at: http://www.omg.org/cgi-bin/doc?formal/2015-04-07. Information and frameworks for realising a form of mapping between the different versions of classification systems can be found at https://github.com/cts2/cts2-specification or https://github.com/cts2/cts2-framework. In parallel, further irregularities in the CPV are collected for the next update. Crowdsourcing (or a functional e-mail address) could be used to involve

[77] Rambøll Study. Appendix 1 - CPV code usage and assessment of structure and content.
[78] As above.

users.

CPV codes that are never used could be dropped to simplify and improve the use of the CPV in order to improve CPV transparency. The more detail is offered, the more mistakes are possible – and it may be in fact that only a higher level is really needed. This is especially because those CPV codes which are not used are mostly at the level of the classes, categories and subcategories, ergo the codes with a high degree of detail. This should also be a reason for reducing the number of hierarchical levels. But the steps outlined below are gone through before finally removing codes never used so far. The analysis of CPV codes never used needs to be verified because the analysis in the Rambøll Study was conducted five years ago. The analysis needs to be updated.

It is important to clarify whether these codes are never or seldom used, and whether this is because of problems with the CPV structure or because of missing requirements and a very deep level of detail in this specific area. Contracting authorities that do or do not use these codes could be asked whether these codes are necessary for their business needs. For every specific category and case, users could be consulted to decide – case-by-case – about the CPV codes never used. A statistical approach could determine the appropriate rate of use for dropping a CPV code (< 0.1% for instance). In parallel, such codes could be promoted better. Only after these measures are taken, can those CPV codes which are still never used be dropped completely.

At the same time, new CPV terms, which are needed or appear in the context of technical modernisation and innovation, are collected and added to the revised CPV. Here too crowdsourcing (or a functional e-mail address to collect suggestions) could be used to involve users. New CPV terms will be added which are of greater relevance as a result of technical progress (e.g. "smartwatch", "netbook", "laptop") or which are generally not taken into account by the last CPV version (e.g. "champagne" or "tramway" as a vehicle). In parallel, further additional terms needed are collected for the next update. On the other hand, there are terms have which lost their relevance due to technical modernisation and innovation (e.g. "light pens"[79] (30237430-2) in the category "Data entry accessories" (30237400-3)). Such CPVs could be dropped.

The supplementary vocabulary should be approached first in the same way as the CPV codes

[79] Computer input device in the form of a light-sensitive wand used in conjunction with a computer's CRT display.

that are never used, starting with investigating why the supplementary vocabulary is not used. Public contracting authorities should be asked why they do not use the supplementary vocabulary for their tenders and whether the supplementary vocabulary is useful from their point of view or not. In parallel, the supplementary vocabulary should be better promoted, for example by offering better guidance. The supplementary vocabulary could then be integrated in the revised CPV structure. The expectation of this measure is that if the supplementary vocabulary is directly visible alongside the codes being searched for, then it is more likely to be used.

To integrate the CPV into an **e-procurement environment** requires both improvements to the CPV attributes and keywords/synonyms, and "self-development" of keywords[80]. However, the following e-procurement phases probably play a less important role in practice:

1. E-Ordering
2. E-Invoicing.

To narrow the gaps in the **mapping of the CPV to other existing classification systems** keywords and synonyms can be used that correspond to or are derived from specific codes in classification systems.

To use such mappings efficiently, the stakeholders will require some manner of automated interface with these mappings, so as to avoid having to search for each one manually in the lists.

No measures are applied to the **rigidity of legal instruments** in this policy option.

With regard to **updating/maintaining the CPV,** this option can be considered both a minor update of the CPV and as the first revision.

3.4 Policy option 3: Extensive adjustments to the CPV

This option could include different elements already presented in option 2. However, it includes additional relevant procedural aspects. This is the most extensive approach because it consists of extensive adjustments to the CPV and entails a complete CPV revision. The objective of this option is to address every aspect which is relevant for addressing the existing drivers of CPV problems. In order to distinguish this option from option 2, it is relevant that this approach focuses on improving the CPV structure by reducing the number of hierarchical levels. This

[80] See Rambøll Study. P. 97-98

solves the problems of "CPV codes never or seldom used" and "irregularities in CPV structure identified so far", as the hierarchical level of detail of the CPV will generally be reduced. This will be based on a new methodology for the CPV, which will help to decide which level of detail to go to and which codes it is appropriate to drop. The level of detail in the CPV structure is excessive and not necessary, as the CPA (Classification of Products by Activity)[81] and Statistics by Product (Prodcom)[82] statistics do not even go to this level. The fact that some codes are not used at all is again a manifestation of this. The more detail that is offered, the more mistakes are possible – and maybe there is really only a need for a higher level. There needs to be a realisation that there is no obligation to go to the most detailed level if a higher level is more appropriate and sufficient.

As in Policy option 2, the definition of the underlying methodology of the CPV is essential in this case. An underlying methodology has to be determined in order to decide on the depth of the level of detail of the CPV, otherwise the CPV structure will head off in all directions and become inconsistent. With regard to the underlying methodology, it is important to decide on the orientation: whether it should be supplier-/bidder- or contracting authority-oriented. This is also the biggest challenge for the CPV and at the same time its main attraction: to be suitable for both sides. This challenge was the rationale for the 1993 decision to take the CPA as a basis and the reason why a complete rethink of the CPA was needed to focus more on the public procurement process: "*Despite its deficiencies, the CPA was chosen as the basis for the new reference classification for public procurement mainly because it was consistent at European level and well suited to the industrial structure of the European Community. However, its structure was more supplier-oriented than purchaser-oriented, and a complete rethink of the CPA was needed to focus more on the procurement process.*"[83] This is how the CPV originated. In fact, as classifications are designed for their particular purposes, the NACE, the CPA and PRODCOM are based on economic activities, whereas others, such as the COICOP (Classification of Individual Consumption According to Purpose) and similar functional classifications of expenditure by purpose are demand-based. So, the central challenge is to make the CPV better bearing in mind both the main purposes and the requirements of the CPV.

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81 http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=DSP_GEN_DESC_VIEW_NOHDR&StrNom=CPA_2_1&StrLanguageCode=EN

82 http://ec.europa.eu/eurostat/web/prodcom

83 European Commission (2008): Public Procurement in the European Union. Guide to the Common Procurement Vocabulary (CPV) Download https://simap.ted.europa.eu/documents/10184/36234/cpv_2008_guide_en.pdf, P. 5

As the derivation of the classification methodology is not a part of this project respectively this report, but only an example of the solution to the methodology with a supplier-oriented approach, it is presented in Annex 3 because this approach does not meet the criteria for suitability for both bidders and contracting authorities. To fulfill these two requirements, another appropriate methodology needs to be pursued.

In this option, users contribute to collecting further specific codes which might be needed in order to address **missing CPV codes** and **CPV terms**. Crowdsourcing or a functional mailbox can be used, for example, to involve users.

All changes to the structure have to be documented for users to show which point has been moved where (a form mapping of the old to new CPV)[84], just as is the case for Policy option 2.

A complete overhaul of the CPV means that the users of the CPV need to be made familiar with the new CPV. When informing the users about the new CPV this could be accomplished by communication pointing to the advantages of the new CPV, such as being easier to understand and apply, more up-to-date, no more uncertainties etc. This communication will also have the effect that users will become **more aware of the CPV** and in a positive manner.

The **supplementary vocabulary** disappears (in order to simplify and improve the use of the CPV). In the light of the difficulty of distinguishing between works, supplies and services (or a combination), consideration may – just theoretically – be given to using only three supplementary codes to differentiate between these kinds of contracts (works, supplies and services). This would require three supplementary codes, one each for works, supplies and services.

Applying the CPV to different phases of e-procurement happens through collaboration with another classification system. This collaboration respectively **mapping of the CPV to other existing classifications** is achieved using activities such as cMap[85] (CEN work[86]). These are carried out across all classification system to facilitate mapping and produce positive outcomes.

Additionally, keywords and synonyms can be integrated in the main structure of the CPV to enable full text search and to facilitate searching. It must be borne in mind, however, that the

[84] The current OMG (Object Management Group) specification of the CTS2 (Common Technology Services 2) Map Service for the mapping of code systems can be found at: http://www.omg.org/cgi-bin/doc?formal/2015-04-07. Information and frameworks for realising a form of mapping between the different versions of classification systems can be found at https://github.com/cts2/cts2-specification or https://github.com/cts2/cts2-framework.
[85] www.cmap.eu
[86] CEN – European Committee for Standardization. Download from ftp://ftp.cen.eu/PUBLIC/CWAs/eCAT-CC3P/

update of keywords, which are a component of the CPV, will be intricate because every adjustment requires a complete iteration/initiation of its legislative nature.

In terms of **updating/maintaining the CPV,** a release policy for the CPV should be defined that distinguishes between update (minor amendment/change) and revision (major amendment/change). Intervals and the extent of the updates and revisions must be established[87]. The following example is the life cycle of ISO 22274:

"ISO 22274:2013 establishes basic principles and requirements for ensuring that classification systems are suitable for worldwide application, considering such aspects as cultural and linguistic diversity as well as market requirements. By applying principles relating to terminology work, ISO 22274:2013 provides guidelines for creating, handling, and using classification systems for international environments."[88]

Figure 18: Life cycle ISO 22274: 2013

"In ISO 22274, the viewpoint of a concept system is that, the relations between the concepts are formalized and the characteristics that delimit related concepts are identified."[89]

[87] There are a number of options for providing CPV in a more structured way, for instance, via the Metadata Registry of the Publications Office or via Joinup.
[88] International Organization for Standardization. Download under https://www.iso.org/standard/36173.html
[89] Jahankhani, Hamid et al. (2017): *Global Security, Safety and Sustainability - The Security Challenges of the Connected World*. P. 179

4. Analysis of impacts

The depth of the expected impacts differs depending on the level of performance and level of implementation of the different policy options in in terms of **effectiveness** and **efficiency**.
This analysis first addresses the impact of different assumptions on the **effectiveness** of policy options. This begins with analysis of the performance of the different policies in **achieving the defined policy objective** and their **repercussions on the causes (drivers)** of CPV problems.

The logic of the graphic in the analysis of effectiveness, which consists of the impact on policy objectives and impact on causes (drivers of CPV problems), is that, if the achievement of an operational objective has a positive impact, it is partially or completely transferred (depending on the circumstances) to the specific objective or driver of the CPV problem.

The logic of the relationships between the specific and operational objectives, and the drivers and operational objectives, is: operational objectives are formulated in order to achieve, among others, the specific objectives and to eradicate the causes. Therefore, in the following analysis, we only discuss one side of the causal chain in order to avoid redundancies, since the other side – or effect – results automatically from the first.

After that, the analysis addresses **efficiency** (=cost effectiveness) of the policy options. It is important to stress, that first the cost of implementing policy options is dissected (as an absolute financial parameter) and then efficiency (the relationship between benefits and cost) is gauged. In order to measure the efficiency of the four policy options, core (key) progress indicators are established, which are derived from this analysis. These indicators refer to the level of implementation of one or more of the key objectives (general and specific). In this context, the following key questions are important.

1. What **cost** do the different options impose on the different stakeholders (i.e. for business analytics, collecting irregularities, drafting new codes, etc.), IT development, familiarisation with new codes/systems (both one-off switching cost and long-term additional costs)? In line with the provisions of the Better Regulation Guidelines[90] when quantitative assessment of costs is not possible or not proportionate, the assessment of costs in this and subsequent sections on efficiency is qualitative and based on an assessment of the effort and complexity of the different options.

2. Which **stakeholders** are affected?

[90] https://ec.europa.eu/info/better-regulation-guidelines-and-toolbox_en

3. What cost savings can be achieved by the options and for which stakeholders?

4. What is the degree of complexity? What is the minimum timeframe for implementation purposes given legal complexity, technical complexity and organisational complexity?

The analysis below does not assess the environmental and political impacts because none of the specific policy objectives or the policy options assessed have environmental or political dimensions.

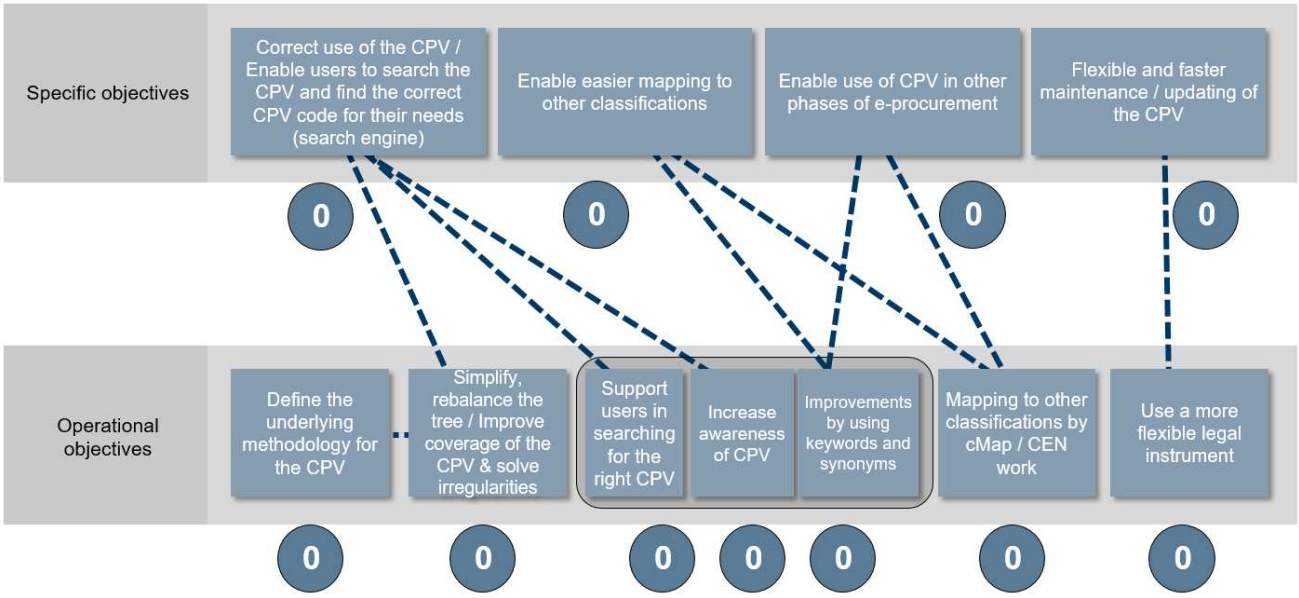
4.1. Scenario 0: baseline scenario

4.1.1. Effectiveness

Impact on policy objectives

This baseline scenario meets none of the objectives defined in the project. Furthermore, this option does not have any positive impact from an economic or social perspective and is even likely to have a negative impact, since it will not help to reduce unnecessary and unjustified barriers. Indeed, the absence of any action at EU level could nevertheless have a positive impact on the objectives if – for example – a third party were to decide to create a CPV search engine. However, these would only be isolated cases in the Member States and the likelihood of such a search engine being extensively used by all relevant parties (CAs and bidders) is very low. Accordingly, no operational objectives are formulated and no specific objectives are achieved, so a score of 0 is adopted across the board.

Figure 19: Impacts on policy objectives | Policy option 0



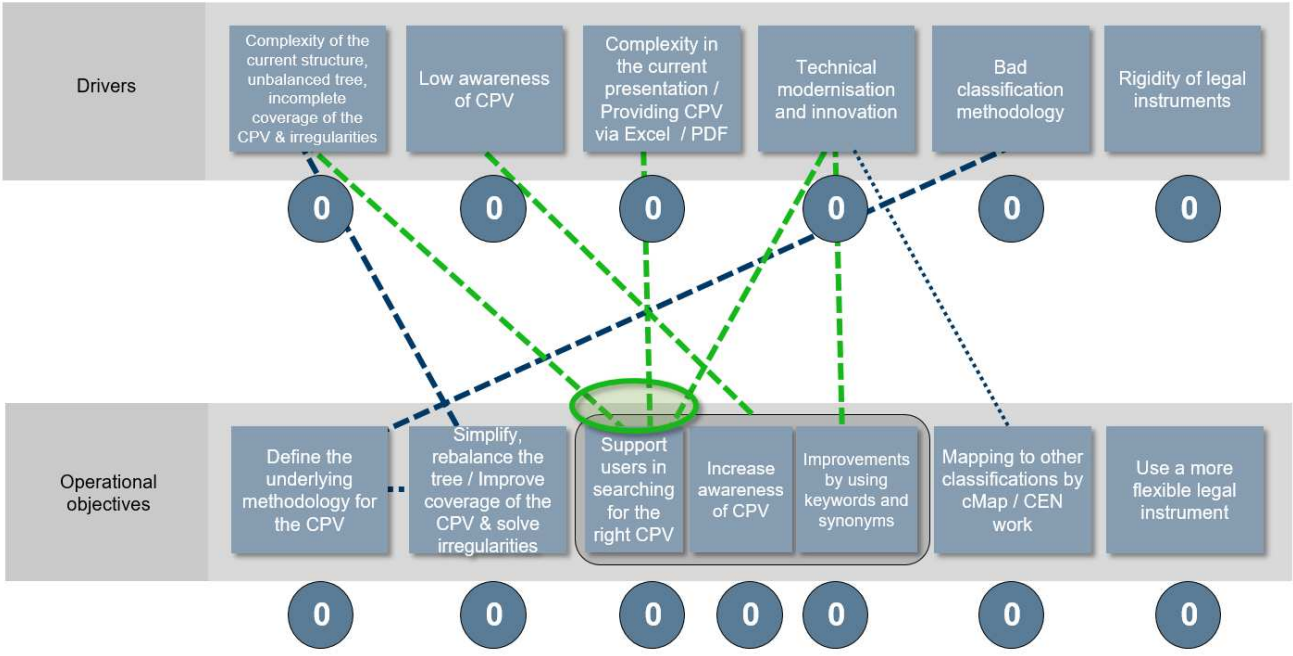
Key to this and subsequent Figures on impacts:

0	*neutral*
(+)	*slightly positive*
+	*positive*
++	*strongly positive*

Impact on causes/drivers of CPV problems

Without any action at EU level, the drivers of the problems remain:

Figure 20: Connections between operational objectives and drivers of problems | Policy option 0 [91]



[91] See the key relating to this Figure on page 61.

4.1.2. Efficiency

There is no cost, no effort or cost saving for any stakeholder from failure to take action.

Conclusion

Without further intervention at EU level, the problems identified during the evaluation are likely to persist; indeed, there are grounds for expecting the situation to worsen. The economic impact effects attributable to incorrect use of CPV on both sides are likely to increase in the long term. Public contracting authorities are unlikely to obtain more bids. Bidders are unlikely to find a greater number of relevant tenders on a timely basis. Expenditures on supporting contracting authorities and economic operators in the search for the appropriate CPV will remain or may increase in the long term.

Any of the irregularities identified in the CPV structure (as per the results of the Rambøll Study) remain unchanged. As a result, the logic of the CPV structure remains partly inconclusive. This makes it difficult to use the CPV correctly because this is an additional barrier. However, some users have been working with this CPV structure for a long time and they are familiar with this sometimes incorrect structure. For users who are searching for the right CPVs for the first time or who frequently use different CPV codes, the irregularities in the CPV structure continue to be a barrier.

CPV codes which are never or seldom used are not taken into account, but this should be not a big problem in terms of the general CPV objectives. Furthermore, these codes are used for statistical analyses and big data[92]. So the fact that there are CPV codes that are never or seldom used does not seem to be a major problem, but it probably does hinder the usability and transparency of the CPV.

The supplementary vocabulary remains in place and is probably still only hardly used. The existence of the supplementary vocabulary is not a serious problem and does not hinder the overall functionality of the CPV. The CPV continues to be used incorrectly, and incorrect usage may increase or decrease.

The CPV is not used for further e-procurement phases but – as is the case today – is used only as a classification system for the publication of tender documents. The CPV is not integrated into additional processes. Mapping of the CPV to other classification systems is not possible. The added value of the mapping of the CPV to other existing classifications is relinquished. The

[92] The fact of non-use is also a statistical value.

CPV exists without a defined release policy for updating/maintenance of the CPV. The legal nature of the instrument endures. Statistical analyses based on the CPV become increasingly imprecise. The lack of possibilities for updating the CPV flexibly result in more associated complications.

This means that providers of solutions for electronic support to public procurement in all Member States must offer to improve their solutions in line with the CPV search, for example, by offering better separate search mechanisms for the CPV for each e-tendering platform.

Policy option 0 does have one particular impact, more precisely a negative impact. Over time, doing nothing at all always tends to be negative. Nevertheless, policy option 0 represents a point of reference. Subsequent options are measured against the baseline scenario, i.e. a situation where no policy change is undertaken and which will therefore always have a score of 0.

4.2. Policy option 1: Better search tools only

4.2.1. Effectiveness

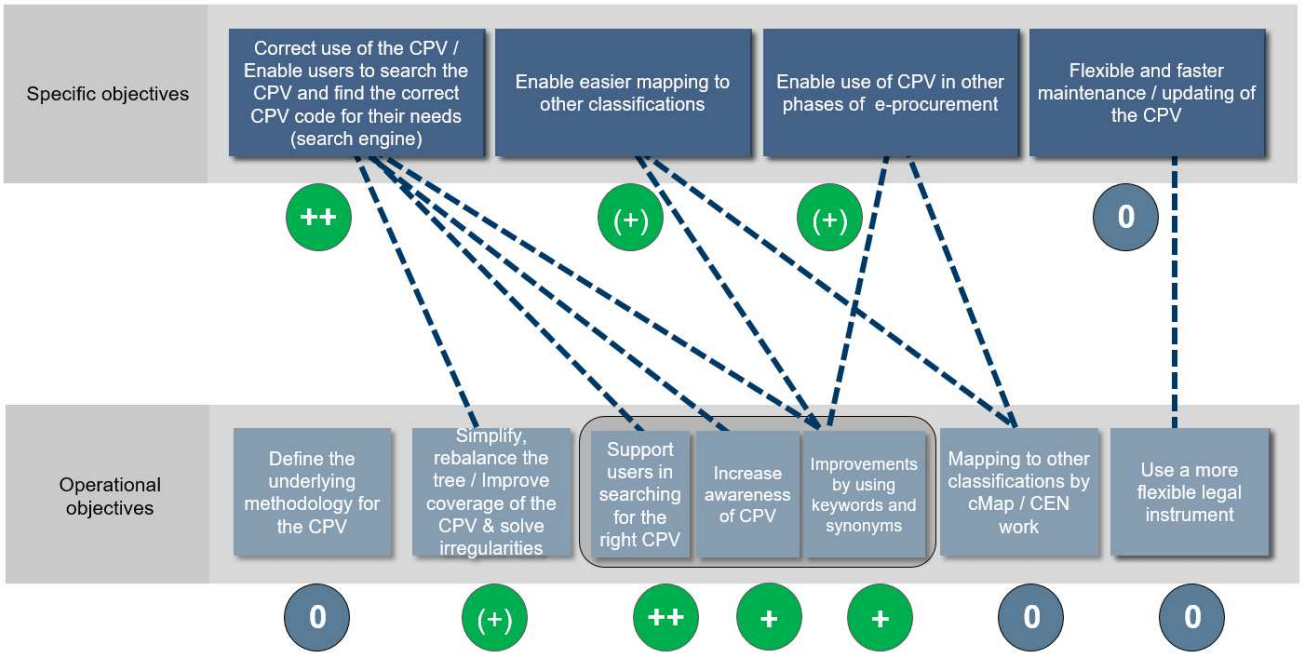
Impact on policy objectives

Not all operational objectives are achieved in this scenario. There is no definition of criteria for an underlying methodology, because no changes are made to the CPV itself. There is no simplification and rebalancing of the tree structure, but users nevertheless receive support because some kind of interface with the CPV search engine is implemented. So certain irregularities in the CPV structure can be bridged and improved slightly thanks to a search engine. Therefore, the unbalanced tree structure of the CPV obtains a small plus (in brackets). In terms of the impact on the specific policy objectives, this option meets the objectives in such a way that the improvement in search mechanisms would help bidders to find relevant notices more efficiently and help contracting authorities to find the right CPV for tenders, and so foster a level playing field for all businesses across Europe. Improvements in the search mechanism also foster barrier-free translation of the tender subject.

Keywords and synonyms are derived for the search engine and can be used to perform mapping and integration of the CPV into the e-procurement environment (viz. policy option 2 or page 98 of the Rambøll Study).

Mappings to other international classification systems and improvement of the underlying CPV legal instrument are not a part of this option.

Figure 21: Impacts on policy objectives | Policy option 1 [93]



At the level of the specific objectives, **correct use of the CPV** is largely achieved thanks to a search engine which enables public contracting authorities to code more precisely and supports potential bidders when searching for tenders. CPV use is facilitated by using the "CPV 2008 explanatory notes", by the visibility of the CPV tree structure and its context, by automatic completion of the search results, and by using keywords and synonyms. This makes it possible to take the personal language mentalities (active vocabulary) of each user into account (example: "navigation equipment" versus "SatNav" (satellite navigation) and "GPS", or "sparkling wine" versus "champagne"). Therefore, the objective "**correct use of the CPV**" obtains two big pluses in this option. The **awareness and acceptance of the CPV** increases due to implementation of explanatory notes or other useful forms of explanation for business and hints from practice, which provide added value for correct use. Therefore, the low awareness of the CPV obtains one plus in this option.

Two other specific objectives (mapping and integration of the CPV into an e-procurement environment) obtain a small plus in this option. Use of **cMap work** is not a part of this scenario. Therefore, this specific objective is not achieved.

Improvement of the underlying **CPV legal instrument** is not a part of this option.

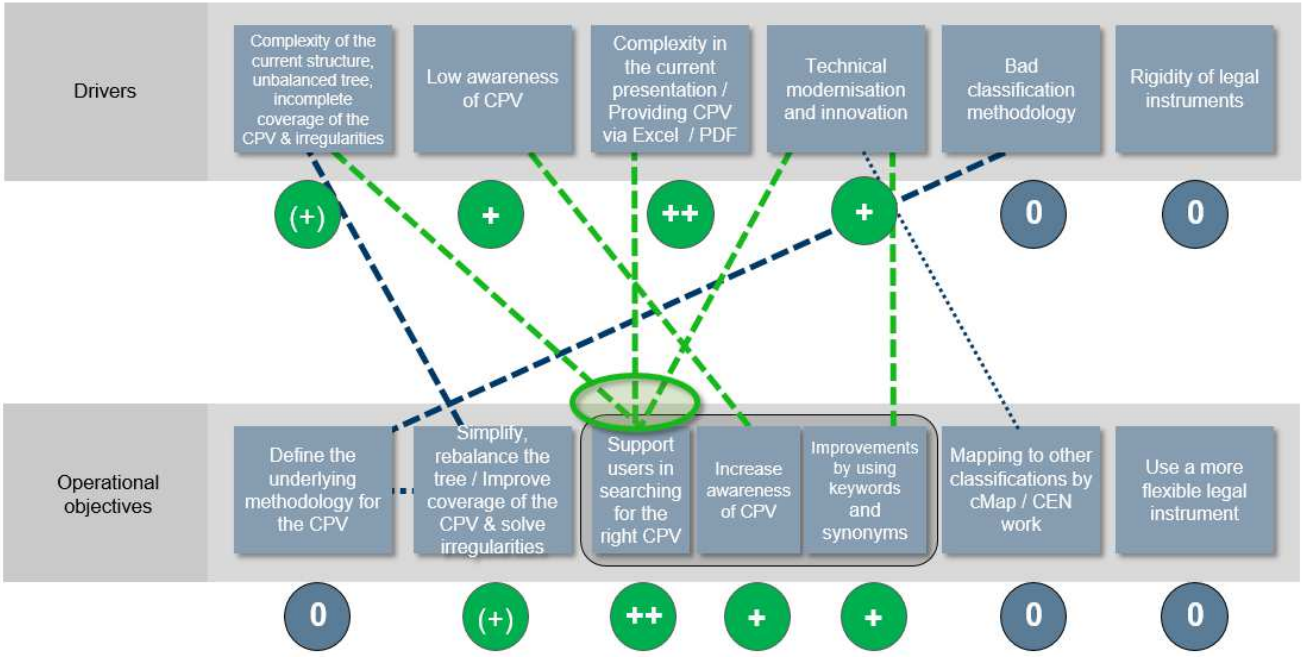
[93] See the key relating to this Figure on page 61.

Impact on causes/drivers of CPV problems

The first driver of CPV problems is the "**complexity in the current structure**", shown in the first box on the left. This driver will be dealt with by means of simplification from using the CPV 2008 explanatory notes or other useful forms of explanation for business and hints from practice (ergo a small plus). **Low awareness of the CPV** is improved in much the same way, but has a more positive effect, so is a big plus.

The **complexity in the current presentation** (CPV via **Excel/PDF** file) is solved altogether by using a search engine, where users can see the complete CPV structure, and enlarge or close it. There are therefore two big pluses for this driver. The new terms appearing in the context of "**Technical modernisation and innovation**" can be added every time as keywords in the interface without any changes to the CPV itself. Therefore, there is one plus for this driver.

Figure 22: Connections between operational objectives and drivers of problems | Policy option 1 [94]



In summary, four of the seven drivers of CPV problems are easily solved completely or partially by the operational objective "**support users searching for the right CPV"**. This means that by using some kind of interface or automated search engine, most of the drivers and triggers of the problems are at least improved.

[94] See the key relating to this Figure on page 61.

4.2.2. Efficiency

The (primarily legal) complexity in implementing better search tools is rather low and might last for one or two years only because no legal texts have to be translated in this case. Thus, not amending the CPV avoids legislative changes. Possible costs arise for the Commission in developing a tool with a technical implementation period of up to a maximum of one year (a rather low one-off cost), including the necessary steps, such as the derivation of keywords and synonyms, and other concomitant documents. Overall, the one-off cost for the whole technical process of establishing a search tool of this kind have been estimated low.
But what needs to be taken into account additionally are the one-off costs of integrating a search tool as a new service/module (web-based) or in eNotices and in TED (via an API) and/or other e-procurement platforms in the different Member States[95]. In this case, the Commission and/or national e-procurement providers are affected. Up to one year is needed for this technical implementation. The one-off costs are estimated as low.

The one-off costs for derivation of useful rules and hints for end-users and the implementation of the EU official explanatory notes to increase awareness of CPV in the search tool are expected to be low.

In contrast, the derivation of useful keywords and synonyms is an ongoing process. The recurrent costs must therefore be borne in mind. Derived keywords and synonyms always have added value and can be used later for possible mapping, for the integration of the CPV into the e-procurement environment or for other purposes. Here, Member States and e-procurement providers are affected and have to contribute to the process because synonyms cannot easily be transferred into other languages. Experts from the field of applied linguistics may be required for this process. As a preventive measure, such results should be checked by a native speaker up to the end of the semantic work. The recurrent costs for ongoing derivation of keywords and synonyms for each official language in the EU are estimated as high.

In the table below, the derivation of keywords and synonyms is characterised as an organisational factor and is therefore grouped under "organisational complexity", ranging from content management (keywords), management of technical aspects (updates) to the coordination between the Commission and Member States, and is assessable within a lasting of one year at most. Ongoing maintenance and update services (if necessary) only affect the

[95] Annex 2 provides further information about impacts of different steps in implementation of the CPV search tool.

Commission and to a small extent the Member States because these updates are easy to implement and can be implemented centrally. The reccurent costs are expected to be low. Policy option 1 can – in a short time frame – save a lot of time for all stakeholders. Costs are expected to be low relative to the savings, ergo it offers high efficiency.

Table 2: Qualitative assessment of costs | Policy option 1: Better search tools

Operational objectives	Activities required to comply with operational objectives	Cost in Effort	Nature of effort
Define the underlying methodology for the CPV 0	0	0	
Simplify, rebalance the tree/Improve coverage of the CPV & solve irregularities (+)	Develop tool; Ongoing maintenance and updates/coordination between the Commission and member states	One-off cost (+)	Technical implementation: Up to 1 year Legal complexity: low, 1-2 years
Support users in searching for the right CPV ++		Recurrent costs (+)	
Increase awareness of CPV +	Derivation of useful rules and hints for end-users, implementation of the EU official explanatory notes	One-off cost (+)	Organisational complexity: Up to 1 year (coordination Commission + national level) Technical implementation (low)
Improvements by using keywords and synonyms +	Ongoing derivation of keywords and synonyms for each official language in the EU, implementation	Recurrent costs ++	
Mapping to other classifications by cMap/CEN work			

Operational objectives	Activities required to comply with operational objectives	Cost in Effort	Nature of effort
0	0	0	
Use a more flexible legal instrument 0	0	0	
Medium effectiveness + Low cost = High Efficiency			

Key:

++	*High*
+	*Medium*
(+)	*Low*
0	*No cost or action*

Conclusion

As outlined above ("Economic context" chapter 0.2.), a CPV that works well and the correct handling of this classification are of enormous economic significance from the point of view of transparency and prevention of corruption. Transparency in publishing tenders and a quick search for relevant notices through the use of the right CPV codes have evident advantages not only for the bidders, but also for the public contracting authorities: the more companies find a relevant tender, the higher the probability that the offers will meet market needs and are competitive.

The improvement in the search mechanism helps foster the EU internal market and so ensures more efficient and transparent public procurement. Thus, the extent of incorrect use of the CPV should diminish. This will have directly positive effects for the relevant economic situation in the EU. While it is clear that improving the search mechanism is very important, and it should be developed as soon as possible and even regardless of the general revision of the CPV, it is important also to be aware that any such improvement in the search mechanism is a mere accessory to the CPV revision process and not the main feature of the revision itself.

The relationship between achieving the operational objectives and the qualitative assessment of costs indicates that this option provides **medium effectiveness** and **high efficiency** (the

relationship between benefits and expected cost) because of low implementation costs and low organisational complexity.

4.3. Policy option 2: Small adjustments to the CPV

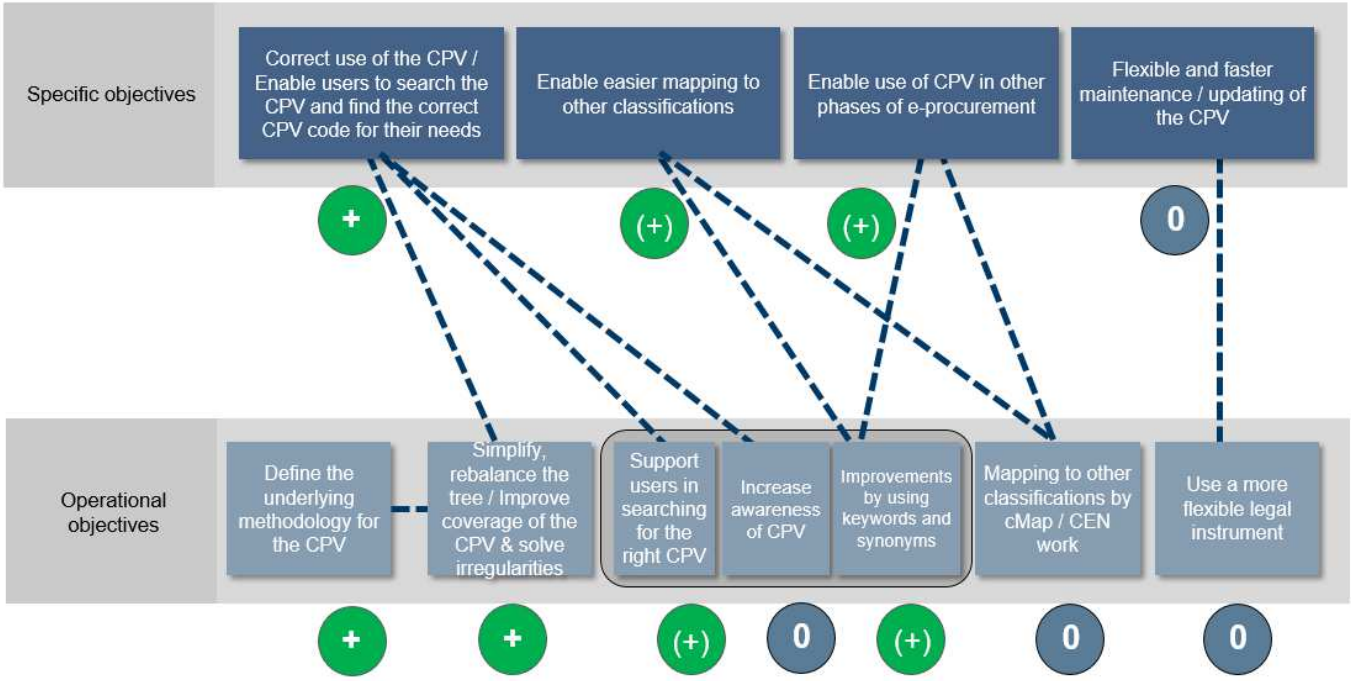
4.3.1. Effectiveness

Impact on policy objectives

In relation to the operational objectives, definition of an underlying methodology is part of this scenario but not to the same extent as in scenario 3. Therefore, this objective obtains only one plus. Improvements to the CPV (in its structure) can be expected to lead to simplification and rebalancing of the tree structure (therefore one plus as well) and better usability of the CPV. The improved structure (which only receives a small plus for the objective "support users" compared to the effect in option 1 supports users when searching. This option does not increase acceptance of the CPV. The task of this option is to integrate the CPV into an e-procurement environment and to narrow the gaps in the mapping of the CPV to other existing classification systems by improvements using keywords and synonyms. Therefore, the objective "improvements by using keywords" obtains a small plus. Use of cMap work is not part of this scenario. Therefore, this operational objective is not achieved. No measures are applied to the rigidity of legal instruments in this policy option.

This option meets most of the specific objectives by enabling and simplifying the CPV structure and so helping bidders to find relevant notices more efficiently and contracting authorities to find the right CPV per tender.

Figure 23: Connections between operational and specific objectives | Policy option 2 [96]



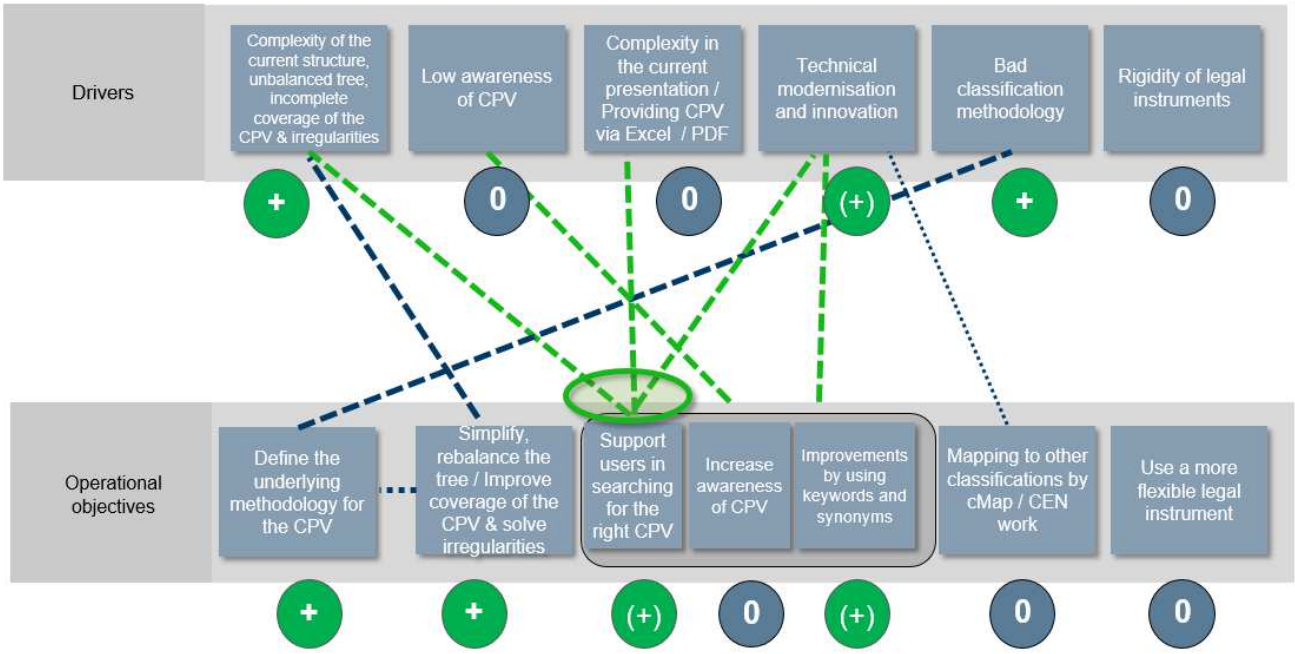
Impact on causes/ drivers of CPV problems

The **complexity in the current structure**, an unbalanced tree, incomplete coverage of the CPV and irregularities are improved; the **low awareness** of the CPV cannot be targeted/improved in this case. The complexity in the current presentation (**providing CPV via Excel/PDF** file) cannot be improved. **Technical modernisation** can be partially taken into account by using keywords derived for the mapping and other e-procurement phases and by the introduction of some additional new codes. Therefore, the driver "**technical modernisation and innovation**" obtains a small plus. The definition of the **methodology** is part of this option because a rebalancing of the CPV structure needs criteria. Compared to option 3, this driver obtains only one plus. This policy option makes no difference to the "**rigidity of legal instruments**".

The implications of changing documents and instruments with a legal character in terms of them requiring translation by the official EU services need to be borne in mind.

[96] See the key relating to this Figure on page 61.

Figure 24: Connections between operational objectives and drivers of problems | Policy option 2 [97]



4.3.2. Efficiency

When thinking about only small adjustments to the CPV, the question of the complexity of an amendment needs to take into account several perspectives. From a legal point of view, the challenges are, compared to policy option 1, higher because of the spillover effect on regulations and directives, which results in an estimated conversion period of about three years. The one-off costs are expected to be high.

One workshop with the expert group is required to define an underlying methodology, which is needed to take decisions on the handling of new codes, CPV codes seldom or never used, and irregularities in the CPV structure. The one-off costs for definition of criteria for the underlying methodology are expected to be low.

The organisational complexity in this option consists of the involvement of users in order to collect feedback, including on further irregularities and new CPV codes needed, to execute additional statistical analyses, to take decisions on certain amendments to the structure and to

[97] See the key relating to this Figure on page 61.

maintain a mapping to the old CPV. All assignments mentioned above are the responsibility of the Commission, except that the mapping to the old CPV has to be implemented on the e-tendering platforms of the Member States. The organisational complexity amounts to about one year. The recurrent costs are assessed as medium.

The derivation of keywords and synonyms for the use CPV for other e-procurement phases involves the Commission as well as Member States. The recurrent costs are assessed as high.

The implementation of the new CPV in SIMAP (eNotices and TED) and/or national e-tendering platforms leads to the necessity to change the data model. Thus, the technical complexity is assessed as "low" and costs are assessed as high taking into account the ongoing process of semantic development. The one-off cost for mapping of the new CPV to the old CPV is assessed as low.

Generally, policy option 2 also has the potential to save time for contracting authorities and bidders, but to a lesser extent than option 1, and needs medium cost, so this option is classified as "medium" in terms of efficiency.

Table 3: Qualitative assessment of costs | Policy option 2: Small adjustments to the CPV [98]

Operational objectives	Activities required to comply with operational objectives	Cost in Effort	Nature of effort
Define the underlying methodology for the CPV +	Definition of criteria for the underlying methodology	One-off cost (circa 1 workshop) (+)	Legal complexity (change regulation, directives, etc.): high, ≈ 3 years
Simplify, rebalance the tree/Improve coverage of the CPV & solve irregularities +	Collect user (and/or business or trade association) feedback (CPV codes needed, further irregularities, etc.), additional statistical analyses	Recurrent costs +	Organisational complexity: (Involvement of all stakeholders and preparation): 1 year

[98] See the key relating to this Figure on page 68.

Operational objectives	Activities required to comply with operational objectives	Cost in Effort	Nature of effort
Support users in searching for the right CPV (+)	Amendment of CPV (changing the data model)	One-off cost ++	Technical complexity (change the data model): low, ≈ 1 month
	Mapping to old CPV	One-off cost (+)	
Increase awareness of CPV 0	0	0	
Improvements by using keywords and synonyms (+)	Derivation of keywords/synonyms	Recurrent costs ++	Organisational complexity: Up to 1 year Technical implementation: 1 month
Mapping to other classifications by cMap/CEN work 0	0	0	
Use a more flexible legal instrument 0	0	0	
Low effectiveness + Medium cost = Low Efficiency			

Conclusion

The impact is expected to be slightly positive in those areas where the Commission facilitates

an in-depth analysis of information and intensified scrutiny. These additional analyses as well as the implementation itself will require some resources and this implies **medium costs**.

The involvement of public contracting authorities that do not use some CPV codes in order to clarify the reason for non-use or missing requirements could require a significant effort and medium cost to coordinate the process for collection of this feedback. It will be difficult to get exhaustive feedback for each CPV code. A statistical approach could make it possible to identify categories with a low level of use and reduce the scope of the consultation. It needs to be borne in mind that the planned inclusion of users and/or business or trade associations can – based on the applied and daily experience of experts – be enormously time-consuming.

The relationship between achieving the operational objectives and the qualitative assessment of costs indicates that this option provides **low effectiveness** and **low efficiency** (the relationship between benefits and expected cost).

4.4. Policy option 3: Extensive adjustments to the CPV

4.4.1. Effectiveness

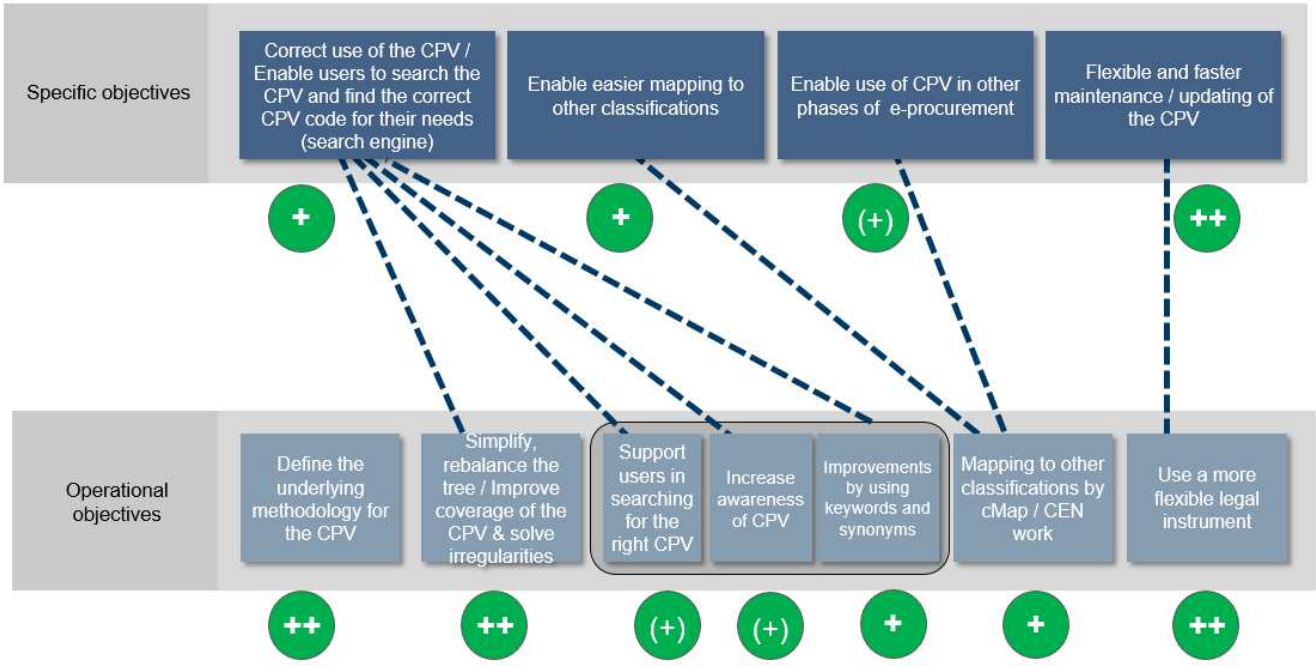
Impact on policy objectives

In contrast to the other proposed options, this option complies with all operational objectives.

The focus of this option is on the complete reorganisation of the CPV structure. For this, a new definition of the underlying methodology is needed. Therefore, there are two large pluses for the operational objective "**define the underlying methodology"**. A "**simplification and rebalancing of the tree structure"** is largely achieved because this is the main goal of the new more balanced methodology. Therefore, the "simplification and rebalancing of the tree structure" receives the highest rating with two pluses. Due to the reorganisation, and thus the simplification and rebalancing of the tree structure, it is expected that the extent of better usability and improvement in CPV use will increase (operational objective „**Support users in searching for the right CPV**"). Informing the users about the new CPV is accomplished by communication pointing to the advantages of the new CPV. This communication will also have the effect that users will become more **aware of the CPV**, and in a positive manner. This mechanism will work well for option 3 with a complete new CPV. It might, however, not work for option 2 as for these options, the change in the CPV system is too small to attract broad attention. Therefore, the operational objective "**increase awareness of CPV"** get a small plus.

In addition, "**keywords and synonyms**" are added to the main structure of the CPV. Therefore, the operational objective "**improvements with the keywords…**" receives one plus. The operational objective "**mapping to other classifications by cMap/CEN**" gets one plus because additional use of the results of the cMap project and/or integration of existing mappings is part of option 3. In terms of "**updating/maintaining the CPV",** a release policy for the CPV is defined that distinguishes between update and revision, e.g. using ISO 22274. Therefore, this objective gets two pluses. **Integration of the CPV in other e-procurement phases** as a specific objective occurs indirectly using these mappings: the necessary CPV equivalent to certain eCl@ss codes can be found in the cMap table. Since mapping exists only for around 30% of CPV codes, the specific objective "**enable use of CPV in other e-procurement phases"** gets only a small plus.

Figure 25: Impacts on policy objectives | Policy option 3 [99]



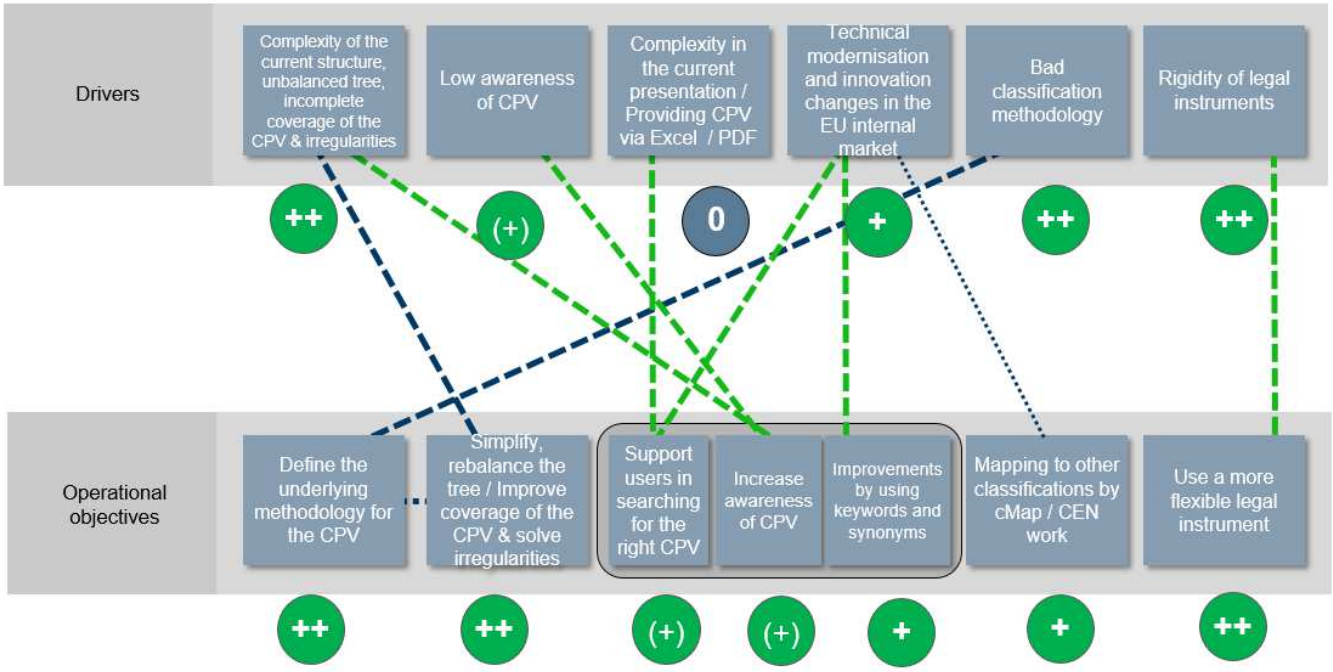
Impact on causes/drivers of CPV problems

"**Complexity in the current structure, an unbalanced tree, an incomplete coverage of the CPV"** and irregularities in the CPV structure are addressed by complete reorganisation of the CPV but the results are much better than in option 2 (therefore it has two pluses). As a result of positive communication about the new revised CPV and accompanying advantages, the awareness of

[99] See the key relating to this Figure on page 61.

the CPV will increase. Therefore, "low awareness of the CPV" get a small plus. Complexity in the current presentation (provision via Excel/PDF) Is not improved in this option. Technical modernisation could be considered in this option only once by reorganisation because keywords and synonyms are added in the main structure. The bad classification methodology is completely improved by the definition of the underlying methodology which is more thorough than in option 2; it therefore receives 2 pluses. The rigidity of legal instruments is improved due to a definition of release policies in terms of "updates" and "revisions" (see above).

Figure 26: Connections between operational objectives and drivers of problems | Policy option 3 [100]



4.4.2. Efficiency

Assessing the circumstances for the third option, all transformation factors and efforts are weighted the highest – but the cost and effort are high. In return, all parties profit from considerable time savings and more precise and comfortable use in the handling and during the search for suitable CPV codes.

There is even higher complexity in the legal process than in policy option 2, namely about five years to change the regulations/directives, including appropriate translations and defining the criteria for a corresponding methodology. The latter also takes approximately three workshops instead of one in comparison with policy option 2. Therefore, the one-off costs are expected to

[100] See the key relating to this Figure on page 61.

be high.

The recurrent costs for involvement of users and/or business or trade associations in order to collect feedback are assessed as medium.

A change in the entire data model and mapping between the old and new CPV is required. This takes the technical complexity to about two years. The one-off cost for complete reorganisation of the CPV, changing the data model and mapping the new CPV to the old CPV is expected to be high. If derived keywords and synonyms are implemented in the main structure of the CPV, this effort may be even higher.

The recurrent costs for informing the users about the new CPV (communication pointing to the advantages of the new CPV) are expected to be low.

Additionally, a large number of stakeholders are involved in numerous topics, such as not only the collection of feedback and derivation of keywords/synonyms, but drawing up a new CPV code and mapping via the cMap project as well. Furthermore, all the legal texts affected have to be translated. Thus, the organisational question takes at least one and a half years to clarify. Therefore, the recurrent costs in combination with handling keywords and mapping via and updating of cMap/CEN work are expected to be high.

The one-off cost of definition and integration of a release policy for the new CPV is assessed as medium. Due to the complexity and duration of the legal implications, frequent updates are difficult.

Table 4: Qualitative assessment of costs | Policy option 3: Extensive adjustments to the CPV [101]

Operational objectives	Activities required to comply with operational objectives	Cost in Effort	Nature of effort
Define the underlying methodology for the CPV ++	Definition of criteria for the underlying methodology	One-off cost (circa 3 workshops) ++	Legal complexity (change regulation, directives, etc.): high, ≈ 5 years
Simplify, rebalance the tree/Improve coverage of the CPV & solve	Collect user (and/or business or trade association) feedback	Recurrent costs +	

[101] See the key relating to this Figure on page 68.

Operational objectives	Activities required to comply with operational objectives	Cost in Effort	Nature of effort
irregularities ++	(CPV codes needed, further irregularities, etc.)		Organisational complexity: very high ≈ 1.5 years (Involvement of all stakeholders, extensive topics, translation of all legal texts) Technical complexity: high (even change of the data model) ≈ 2 years
Support users in searching for the right CPV	Reorganisation and improvement of CPV; Changing the data model; Mapping the new CPV to the old CPV	One-off cost ++	
Increase awareness of CPV (+)	Informing the users about the new CPV accomplished by positive communication about the advantages of the new CPV	Recurrent costs (+)	
Improvements by using keywords and synonyms +	Derivation of keywords/synonyms	Recurrent costs ++	
Mapping to other classifications by cMap/CEN work +	Development and continuous update of the mapping	Recurrent costs ++	
Use a more flexible legal instrument +	Definition and integration of release policy	One-off cost +	
Very high effectiveness + High cost = Very high efficiency			

Conclusion

The effectiveness for the third policy option, i.e. extensive adjustments of the CPV, brings the highest weighting in terms of achievement of the operational and specific objectives as well as elimination of drivers of CPV problems – so the resulting **effectiveness is the highest** in comparison to the other options.

The question of an underlying methodology for amending the structure and level of detail of the CPV and in particular the relevant decision could require a great deal of effort to coordinate the process. The mapping and especially the continuous update of the mapping in the event of changes requires considerable resources in terms of impact assessment. For better mapping between classification systems, the CPV needs to be more detailed, so that cutting back on the CPV is undesirable.

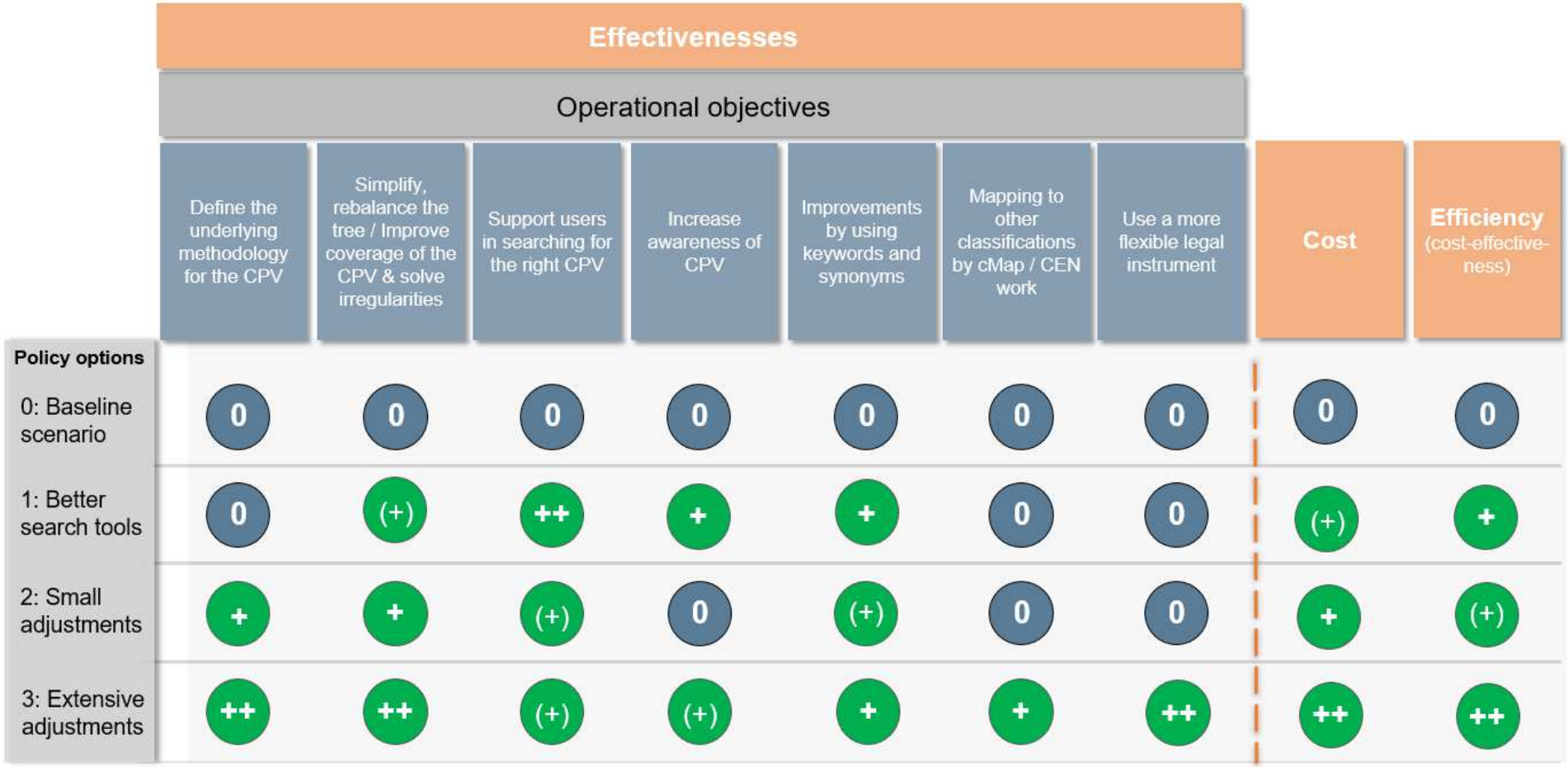
This option implies high cost and high effort and, compared to other options, also has the most technical and organisational complexity because of extensive adjustments. Additional analyses, derivation of methodology criteria as well as the implementation itself require resources and cost money. Nevertheless, this option provides **the highest added value** over the long term and makes it possible to achieve all the important objectives of the project. Therefore, the **efficiency is classified as very high**, taking into account the parameters mentioned above.

5. Comparison of options

5.1. Comparison in terms of effectiveness and efficiency

In order to verify the results of the discussion or work of the expert group, a comparative analysis of the key parameters was carried out at the end of the project, followed by voting. The following Figure summaries in visual form the results of the evaluation of options in terms of their effectiveness and efficiency (cost-effectiveness). The options are compared with the baseline scenario = no policy change, which always has a score of 0. This depiction is only the first step in the evaluation and shows an overview of the results with regard to achieving the operational objectives.

Figure 27: Comparison of the policy options in terms of their effectiveness and efficiency



Evaluation:

Effectiveness is the result of "objectives achieved" relative to "objectives planned/defined", and thus describes how close the results are to the results calculated at the outset. Efficiency means that the results achieved and the resources spent have been used as cost-effectively as possible and the benefit is greater than the underlying cost (economic principle).

Option 1 has **medium effectiveness** (a total of 4.5 pluses)[102] in comparison, **low cost** (half a plus) and therefore **high efficiency** (1 plus).
Option 2 has **low effectiveness** (a total of 3 pluses), but slightly lower than in option 1, **medium cost** (1 plus) and therefore **low efficiency** (half a plus).
Option 3 has the **highest effectiveness** (a total of 9 pluses), **high cost** (2 pluses) and therefore **very high efficiency** and thus the **highest efficiency** (2 pluses).

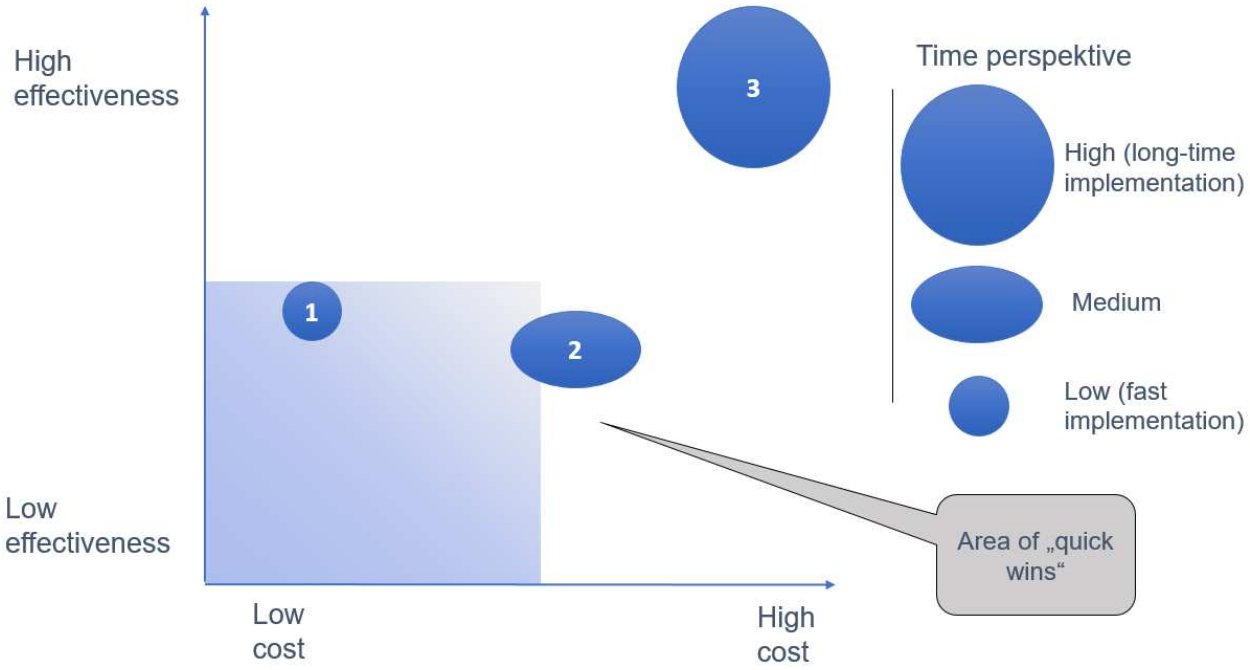
Option 3, i.e. improving the CPV itself, is clearly the **most effective**, but the effort is high relative to the benefits and this affects the assessment of efficiency. Option 1, i.e. providing a **medium level of effectiveness** and a **high level of efficiency,** and option 3 are, moreover, not necessarily mutually exclusive. Option 2, with only **low effectiveness** and **low efficiency,** is the worst result and could be discarded based in these results. In relation to option 1 and option 3, it is important to stress, that indeed option 1 and option 3 provide high benefits, but nevertheless these benefits are different in character and the quality of the value added is different respectively considering the goal of this project (support in using the CPV versus improvements to the CPV itself). This means that only option 3 meets the primary goal of improvement the CPV, and option 1 provides further support and simplification in dealing with this classification system. Thus, it can be seen, that after the comparison of efficiency the remaining solutions are complementary in nature.

The following Figure provides a visual depiction of the voting results of the comparison of policy options with regard to again their effectiveness and cost but also the timeframe for the implementation from the experts' point of view (see Annex 4) and shows the area of "quick wins"[103], i.e. improvements that have high value to the stakeholders but are easy and

[102] Pluses in brackets count half a point, one plus counts 1 point and two pluses count 2 points.
[103] An investment very likely to profit in short term.

inexpensive to implement.

Figure 28: Results of comparison in terms of effectiveness, cost and time perspective



Option 1 is located in the area of "Quick wins" (low cost, medium-scale timeframe and medium effectiveness). Option 2 is also partially a "quick win" but imposes even higher cost and crucially more time for implementation, whereas the effectiveness is lower as in option 1. Option 3 is, as might be expected, associated with the utmost cost and a long timeframe but – on the other hand – on the long run delivers maximum effectiveness. It needs to be understood, however, that the effectiveness in option 1 refers only to better usability of this classification system and the correct use of CPV, whereas the effectiveness of option 3 refers to the improvement in the CPV itself.

Comparison of the impact of policy options on stakeholders

The corresponding impacts of the policy options on all stakeholders concerned are presented below.

Despite the possible (rather minimal) effects of the baseline scenario described in Chapter 4.1.1., the subsequent analysis assumes that there will be no relevant (positive or negative) impact on the stakeholders without any action by the EU Commission.

Policy option 1 will have a positive impact on key stakeholders (contracting authorities and economic operators) in the short term as well as in long term. The Commission will receive fewer requests for the right or missing CPV from key stakeholders. The e-procurement providers and providers of the prequalification systems will not obtain any immediate improvements, but will be confronted with additional implementation in their systems. This policy option has particular advantages for all those who need statistical analyses on the basis of CPV, because these analyses are considerably extended by the addition of new terms (keywords/synonyms) and because of the possibility of tracking the search field in the search engine.

Policy option 2 also has a positive impact on the key stakeholders, but it is less than in policy option 1. Due to only small or marginal changes in the CPV itself, the Commission obtains only marginal (or no) benefits. Thereafter, the need for further optimisation of the nomenclature will be required. E-procurement providers and providers of the prequalification systems are primarily faced with effort in the implementation of the changed CPV and no added value for themselves as a result of this policy option. Slight improvements can be expected in the area of statistics.

A very positive effect could be expected for key stakeholders in policy option 3. Positive effects lasting for several years can be expected for the EU Commission. E-procurement providers and providers of prequalification systems need to make a major effort to implement the new CPV. The press and other stakeholders who are dependent on statistical analyses obtain comprehensive improvements.

Tables 8: Summary table of options and their effects **(++, +, – –, –, 0, ≈, ?, n.a.)**

Key:

++	*strongly positive;*
+	*positive;*
– –	*strongly negative;*
–	*negative;*
≈	*marginal/neutral;*
0	*no effect*
?	*uncertain;*
n.a.	*not applicable*

Table 5: Comparison of the impact of policy options on stakeholders

Option	Added value for stakeholders				
	Contracting authorities	Economic operators	Commission	E-procurement providers and prequalification systems	Press, academics, OECD
P.O. "Baseline scenario"	0	0	0	0	0
P.O. 1 "Better tools"	+ short and long-term advantages	+ short and long-term advantages	+ fewer requests from participants in tenders	–*/ 0 no impact or improvements for the systems by integration via interface (step 3)	+ quality of statistical analyses distinctively higher
P.O. 2 "Small adjustments to the CPV"	≈ / + provisional improvements, in the long run not lasting	≈ / + provisional improvements, in the long run not lasting	*/ n.a.* only short-term improvements	–* effort for implementation for only small improvements, not of a final nature	+ positive impacts
P.O. 3 "Extensive adjustments to the CPV"	++ large improvements	++ large improvements	++ positive effect lasting for several years	–* effort for implementatio, but revision is final	++ quality of statistical analyses distinctively higher

* These stakeholders have primarily effort and no added value for themselves

5.2. Preferred option

The **preferred solution** for the revision of CPV based on the results of the workshops and voting by the expert group is **option 3** (reorganisation of the CPV).

Option 2 is only a temporary solution, which provides only low added value but still requires

many resources, time, effort and cost by comparsion. Option 2 is rather an incremental step towards option 3. So, within two years, there is again a need for CPV adjustments and improvements. Furthermore, over time the negative aspects of the current CPV will compound and will result in more negative consequences.

Recommendation

Since the option 1 (better search tools for CPV) is qualified as a "Quick win" and could significantly improve usability in dealing with CPV, the combination of option 3 with option 1 is recommended by the experts. Option 1 addresses some problems while option 3 addresses most of the issues. Option 3 combined with option 1 solves all identified problems and with a positive cost-benefit-ratio. Therefore, this is the recommended scenario. In this case option 1 can be taken up in isolation as it involves less effort and no conflict with legislative regulation. However, the experts consulted for this study expressed a clear preference for option 3 to be implemented as the best long-term solution and for work to start on this in parallel by deriving the methodology, preparing the legal bases and advancing the cMAP project. The work resulting from option 1 will need to be reviewed once option 3 is completed (since input data is very likely to be different).

It is important to stress two interactions resulting from the combination of these two options:

1. Part of option 3 is an integration of the synonyms and keywords into the main structure of the CPV. This could have a negative effect because every update of some synonyms would require a new CPV(-Regulation). In this case, option 1 will be carried out first so the inclusion upstream of the synonyms in the main structure of the CPV can be cancelled because option 1 already contains keywords and synonyms, which can be configured and updated much more flexibly (without the requirement for a new CPV regulation)[104].
2. Part of option 3 is the complete removal of the supplementary vocabulary as such. The supplementary vocabulary is integrated into the CPV search tools (option 1) via official explanatory notes. This helps provide a reminder that the supplementary vocabulary exists, and it also provides hints as to which part of the supplementary vocabulary should be used for products or services in this group. In this way, the supplementary vocabulary will be better known. Supplementary vocabulary or the fact of its existence separate from the CPV is not the biggest problem. Thus, the supplementary vocabulary can be untouched to

[104] The keywords and synonyms are only a recommendation from the Member States or from the statistical analyses (terms are not found in the CPV or most frequently CPV codes, which need synonyms) and would not constitute an fficia part of a regulation.

observe whether its use by contracting authorities and economic operators increases over the next few years.

The combination of these two options (1 and 3), respectively their implementation, makes it possible to address completely or partially all the recommendations of the Expert Group and also of the Rambøll Study[105].

[105] Rambøll Study. P. 65-112

6. Monitoring and evaluation

Any changes to the existing classification have to justify their contemplated purpose. Thus, the methodology for impartial monitoring and evaluation needs to be based on key performance indicators (KPI's) especially designed not only to measure the nature of any progress but also to guarantee a kind of cardinal measurability. In the course of the consultations that were part of the preparation of this report, all specific and general objectives were underpinned with corresponding KPIs which are outlined below.

6.1 Specific objectives

For the specific objectives, the following KPIs were defined.

Table 6: Monitoring and evaluation – Specific objectives

Specific objectives	Key Performance Indicator (KPI)
Correct use of the CPV	- Examination by the experts
Enable users to search the CPV and find the correct CPV code for their needs (search engine)	- Number of user keywords (TED) - Number of searches by CPV (rather by full text search) (TED) - Number of user/support requests - Percentage of CPV codes still not used (TED)
Enable an easier mapping to other classifications	- Increase in mapping coverage, time needed for updates
Enable the use of the CPV in other phases of e-procurement	- Percentage of CPV codes used in other e-procurement phases (i.e. in the first step in e-catalogues)
Flexible and faster maintenance of/updating the CPV	- "Time to market"; request "new code" - Frequency of changes - Number of change requests

The success of an **improved search for a correct CPV** might be rated by either the development in the number of searches (not only numeric, but also via full text search), the frequency of user/support requests, the percentage of CPV codes that are still not used or by comparison with user keywords, i.e. statistical analyses from TED. Easier **mapping to other classification systems** is, for example, achieved when the timeframe needed for updates effectively decreases sustainably and the coverage of mappings is increased. A wider use of the CPV in **other e-procurement phases** can be shown through the percentage of CPV codes used in these phases as well, e.g. in e-catalogues. If the **updating and maintenance process** of the CPV can be organised faster and more flexibly, the efficiency can be derived from a "time to market approach", i.e. for example the time span between delivery of a new CPV version and its first application, the frequency of regular changes or the number of requests to either adopt single CPV codes or to consider new ones.

6.2 General objectives

KPIs were also defined for the general objectives. It might be difficult to measure the impact on these higher-level objectives. For this reason, we suggest focusing on the specific objectives presented above.

Table 7: Monitoring and evaluation – General objectives

General objectives	Key Performance Indicator (KPI)
Decrease the administrative burden for CAs and businesses/Foster a level playing field for all businesses across Europe	- Time needed to find the right CPV - Statistical analyses/share of tenders where the code applied did not correctly describe the subject of the tender
Match tenders and bids more efficiently	- Average number of tenders resulting in actual offers/bids (adjusted for the effect of better translations)
Enable more barrier-free automatic translations of the tender subject and a better distinction between work/supply/service	- Statistical analyses/share of tenders where the code applied did not correctly describe the work/supply/service
Improve the quality of statistical analyses	- Extend mapping to CPA in order to also encompass 5,522 codes helpful for statistical analyses that are not yet considered

Different organisations involved in public e-procurement are expecting a **lower administrative burden** from a revision process in order to foster a level playing field for all businesses across Europe. These expectations are reflected in the time needed to find the right CPV and can additionally be calculated through statistical analyses on tenders before and after the revision process with the question: is the share of tenders where the code applied does not correctly describe the subject of the tender lower compared to the previous results[106]?

The **efficient matching of tenders and bids** can additionally be calculated through statistical analyses of tenders because an efficient matching of tenders and bids will be reflected in the average number of public tenders resulting in actual offers/bids (though, for reliable figures, adjustments are necessary in order to eliminate the effects of better translations).

The **enabling of more barrier-free automatic translations** of the tender subject and a better distinction between works, supplies or services could be calculated through statistical analyses on tenders where the code applied does not correctly describe the tender regarding works, supplies or services.

As **statistical analyses** (on definite transactions) are regularly executed on different questions of public e-procurement, their quality is of utmost importance. To enlarge the extent of figures and to improve their validity and significance, mapping could be extended to the CPA as well in order also to encompass 5,522 codes which are helpful for statistical analyses that are not yet taken into account.

[106] Rambøll Study" (23%) and the data from the "Special report from European court" (10%).

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Annexes

Annex 1. Prioritisation of problems

Below is the first indicative prioritization of CPV-challenges identified to the begin of the project. In the further course of the project, these challenges have been identified either as problems or as the cause of the problems (see chapter 1.2 and 1.3).

All participants received stickers sorted by colour and importance to mark the appropriate challenges. The meaning of the colours was:

Colour codes

- Red – very important, must be solved first
- Orange – important, must be solved as soon as possible
- Yellow – important, but must be solved with consideration for the impact assessment
- Blue – less important, but offers additional value, thus for future consideration
- Green – less important, can be kept and possibly considered for the next major CPV-update
- White – unimportant or implementation not possible

Values were assigned to every colour:

Points

- Red = 5 points
- Orange = 4 points
- Yellow = 3 points
- Blue = 2 points
- Green = 1 point
- White = 0 points

The following picture illustrates the voting.

Figure 29: Illustration of voting patterns on priorities

Table 8: Calculation of voting results

A	B	C	D	E	F	G	H
	Red	Orange	Yellow	Blue	Green	White	Total
1b	13	1					**69**
1a	7	3					**47**
2a	3	4					**31**
3	2	1	1	1	2		**21**
4		2	1	1	7		**20**
5	1	1	3		2		**20**
2b		3	1				**15**
6			1		6	3	**9**

The red line indicates the significant decline in the relevance of CPV challenges and shows clearly that 1a and 1b clearly have the largest number of points and are therefore seen as the

most important challenges.

Explanation and priority of results

1. 69 points - 1b) Coverage of the CPV: Coverage is incomplete (although extensive) and inconclusive;
2. 47 points - 1a) Coverage of the CPV: CPV codes seldom or never used (cut back on the CPV (?), supplementary vocabulary);
3. 31 points - 2a) Incorrect use of the CPV: Contracting authorities sometimes use incorrect or insufficiently accurate CPVs;
4. 21 points - 3) Applying the CPV to different phases of e-procurement;
5. 20 points - 4) Mapping the CPV to other existing classifications;
6. 20 points - 5) Updating/maintaining the CPV;
7. 15 points - 2b) Incorrect use of the CPV: tenderers sometimes search for the wrong CPVs;
8. 9 points - 6) Difficulties linked to the legal nature of the instrument.

In addition to the result of the prioritisation (1a and 1b), it was decided to address as a matter of priority and equally:

2a) "Incorrect use of the CPV: Contracting authorities sometimes use incorrect or insufficiently accurate CPVs", and

2b) "Incorrect use of the CPV: Tenderers sometimes search for the wrong CPVs"

because the CPV helps potential bidders and public procurement authorities to find each other. Moreover, the CPV helps bidders to find the notices relevant to them and supports contracting authorities in using as many economic operators as possible. These are thus two sides of the same coin. The incorrect use of the CPV is an important challenge for both public procurement authorities and entities in furthering the internal EU market.

Annex 2. Impacts of different steps in implementation of the CPV search tool.

The following table indicates the steps in the process for different use cases and/or steps in implementation of the CPV search tool, the appropriate area of responsibility/competence and recommendations.

Table 9: Implementation of some form of CPV search engine

	Step 1 New service/module (web-based), e.g. www.cpv.ted.europa.eu	Step 2 Implementation in eNotices and TED (via API)	Step 3 Possibility for implementation in other Member State e-tendering platforms (of /via API)
Responsibility content (keywords and synonyms)	The linguistic work in any steps or cases must be done in the appropriate languages of and by the Member States because synonyms cannot simply be transferred to another language (Member States). The Commission is responsible for English. Functional e-mail-account is established for possible suggestions.		
Advantages	• Independence of legal nature of instruments (i.e. addition of new terms as keywords without any changes to the CPV itself) • No need to amend any directive or regulation to take synonyms into account as they are not implemented in the CPV itself • Low cost • Quick updates • More transparency • Low technical effort • Improvement of the quality of PP statistical analyses for policymaking and enforcement/implementation: complete statistical analyses of terms are searching for in the field of search engine, but are e.g. not found (to use such terms in the future as a keyword for certain CPV)		
	• Low technical effort • Pervasiveness and acceptance of the	• Medium technical effort • Pervasiveness and more	• Medium technical effort

	search tool: +	acceptance of a search tool: ++[107]	Pervasiveness and more acceptance of a search tool: +++[108]
Disadvantages	Possible lower pervasiveness and acceptance as in the case for step 2 and 3	The rate of the publication of tenders directly in SIMAP decreases as even more CAs publish their tenders on national platforms, which forwards them automatically to SIMAP via the certified interface (OJS eSender).	
Recommendation	Given that the rate of the direct publication of tenders in SIMAP decreases, as more and more CAs publish their tenders on Member State platforms automatically forwards their tenders to SIMAP via the certified interface (OJS eSender). So, step 3 in particular can provide added value because e.g. in 2016, only 162,570 tenders were filed using eNotices and 295,399 using eSenders, i.e. roughly one third comes from eNotices. Also against this growth the most useful approach seems to be a combination of the steps 2 and 3.		

[107] Because the search tool will be used directly ("just in time") by the publication and identification of tenders.
[108] Because the search tool will be used directly by the publication and identification of tenders in own internal national e-tendering platforms.

The further alternative option for the use respectively implementation of some form of search engine is the "Open source" solution along the lines of the European Single Procurement Document (ESPD). But this solution has numerous drawbacks and this variant is not recommended. These drawbacks include:

1. Inability to improve the quality of PP statistical analyses for policy making and enforcement;
2. Sub-optimal transparency;
3. Impossibility of simultaneous (same-day) migration from an old to a new system;
4. Impossibility of aligning with the latest coherent database or always to have always the latest update

Annex 3. Example for the solution to the methodology with supplier-oriented approach Strategy:

- Start with European Classification of Products by Activity (CPA) as in 1993 and for the goods part with Prodcom[109], which is based on the CPA. The CPA goes out to 6 digits (NACE[110]+2 digits)[111] and Prodcom to 8 digits (CPA+2 digits);
- For CPV goods 2 additional digits can be added or Prodcom can be taken as such if it suits;
- For CPV services 2 additional digits can be added to the CPA.

The advantages of this procedure are:

- Many difficult decisions have already been taken by the CPA or, for goods, by the more detailed Prodcom (which is linked to the Harmonised System (HS))[112]. The methodology and criteria of the CPA can be used, without having the necessity to develop this for CPV;
- The hierarchical structure of CPA can be used;
- For the CPA/Prodcom part, Eurostat does the updating;
- For the Prodcom part there is a correspondence table with the Combined Nomenclature (CN), which is updated each year;
- The first 4 digits of the code are those of NACE. This is important as because NACE takes precedence (according to the EU-Directives 2004/17/EC), if there is a conflict between NACE and CPV (eg. in defining works-services):
  Directive 2004/17/EC of the European Parliament and of the Councilof 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors (Title I, chapter 1, 13)[113] or 2004/18/EC (Title I, chapter 1, 13)[114]

  "In the event of varying interpretations of the scope of this Directive, owing to possible

[109] Prodcom provides statistics on the production of manufactured goods: http://ec.europa.eu/eurostat/web/prodcom
[110] Nomenclature générale des Activités économiques dans les Communautés Européennes
[111] European Commission (2008): Public Procurement in the European Union. Guide to the Common Procurement Vocabulary (CPV) Download https://simap.ted.europa.eu/documents/10184/36234/cpv_2008_guide_en.pdf, P. 4
[112] As above. P. 4
[113] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:134:0001:0113:en:PDF
[114] http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32004L0018

differences between the CPV and NACE nomenclatures listed in Annex XII or between the CPV and CPC (provisional version) nomenclatures listed in Annex XVII, the NACE or the CPC nomenclature respectively shall take precedence."

- NACE has an optimal link with the European statistical standards used not only in statistics, but in many other fields;
- There is no longer any need for mapping with the NACE and CPA.

The disadvantages of this procedure are:

- This approach is only supplier- (bidder-)oriented and does not really take the needs of public contracting authorities into account:
  "The main principle for classifying products in the CPA is the industrial origin criterion."[115]
- This approach fulfills the requirement of being able to carry out statistical evaluation, but involves enormous costs and adjustments in all areas and for all stakeholders.
- The level of detail of the CPA does not correspond to the level of detail of the CPV:
  "Like the 5,522 subheadings of the HS, the 3,218 subcategories of the CPA may not meet the requirements of description of each particular good or service."[116]
  The CPA has a hierarchical structure with six levels, each identified with a specific code:
  - first level: 21 sections (alphabetical code);
  - second level: 88 divisions (two-digit numerical code);
  - third level: 261 groups (three-digit numerical code);
  - fourth level: 575 classes (four-digit numerical code);
  - fifth level: 1 342 categories (five-digit numerical code);
  - sixth level: 3 142 subcategories (six-digit numerical code).
- This requires a considerable effort to translate all the legal documents accompanying the CPV and consideration of all accompanying documents of the CPA., so for example CPA 2008 explanatory notes: *"In order to achieve a single, common interpretation explanatory notes are a considerable help. Just as the CPA 2008 is based on CPC Ver.2, the explanatory notes to CPA 2008 are based on those of CPC Ver.2. […] The CPA 2008 presents detailed explanatory notes in relation to products* other than *transportable products (i.e. services)."*[117]

[115] EUROSTAT: CPA 2008 introductory guidelines. P. 7. Download: http://ec.europa.eu/eurostat/documents/1995700/1995914/CPA2008introductoryguidelinesEN.pdf/df1e8d19-1156-4a1c-b384-4f95a12515e5
[116] EUROSTAT: CPA 2008 introductory guidelines. P. 12
[117] EUROSTAT: CPA 2008 introductory guidelines. P. 12-13

Annex 4. Expert voting | comparison of policy options in terms of effectiveness, efficiency and timeframe

The following depiction is a visual representation of the results of the evaluation of options with regard to their effectiveness, efficiency and in addition to their complexity. These parameters are measured at three levels: low, medium and high (colours of post-it notes are to be disregarded):

Figure 30: Comparison in terms of effectiveness, cost and complexity

Every rating with "low" received one point; each rating with "medium" received two points; each rating with "high" received three points. The sum of the points was divided by the number of cards (eight) to establish the quantified average:

Figure 31: Quantified results of comparison in terms of effectiveness, cost and timeframe

	Effectiveness				Cost				Timeframe			
Policy options	**low**	**medium**	**high**	**=> Average**	**low**	**medium**	**high**	**=> Average**	**low**	**medium**	**high**	**=> Average**
1: Better search tools	1	5	2	2,1	6	2	0	1,3	8	0	0	1,0
2: Small adjustments	1	7	0	1,9	2	6	0	1,8	1	6	1	2,0
3: Extensive adjustments	0	1	7	2,9	0	0	8	3,0	0	0	8	3,0
	1	2	3		1	2	3		1	2	3	

Annex 5. Expert consultation

5.1. Methodology of the project

The public consultation is based on the work of the informal expert group. Experts from different Member States and professional backgrounds have been recruited to contribute to the Revision of the CPV. Representatives of different areas of the EU Commission (see annex 5.2) participated in the expert group meetings as well, thus enabling diverse experience and backgrounds in practice to be taken into account. A total of 3 one-day workshops and 4 webmeeting were executed.

5.2. Attendance Expert group

Participants	
EU Commission	Invited experts
Nikita Stampa: Grow, unit G4 (Head of unit)	Frank-Dieter Dorloff, Germany, BME, University Duisburg-Essen
Maria-Magdalena Toader: Grow, unit G4, project leader	Samuel Dupont, France, Département des produits et des services numériques
Christian Danciu: Grow, unit G4, project support	Harald Hetman, Germany, Ministry of Finance of the State of North Rhine-Westphalia
Marc-Christopher Schmidt: Grow , unit G4	Veit Jahns, Germany, BME, Bundesverband für Materialwirtschaft und Einkauf e. V.
Michael Mietzner, ESAT	Kenza Khachani, Organisation for Economic Co-operation and Development (OECD)
Natalie Muric: OP (Publications Office)	Carsten Klipstein, Germany, cosinex
Jan Saloni: Grow, unit G3	Ralf Sand, Germany, Ministry of Finance of the State of North Rhine-Westphalia
	Anja Theurer, Germany, Brandenburg Contract Advisory Agency
	Hans van Hooff, Belgium/Netherlands, Centraal Bureau voor de statistiek

Participants	
	Francisco Vedera Mari, European Committee for Electrotechnical Standardization(CENELEC)
	Jan Siderius, Netherlands, Negometrix
	cosinex GmbH
	Antanina Kuljanin, project manager, moderator
	Robert Kröber, co-moderator
	Daniel Förster, project support