

# ANNEX TO THE TEXT

## CPV Codes Assigned to Individual Expenditure Categories

A list of the CPV codes included in the study that are considered as costs related to the digitalization of the healthcare system, along with all their subcategories.

### IT services not related to software:

- 50300000-8 - Repair, maintenance and associated services related to personal computers, office equipment, telecommunications and audio-visual equipment
- 51600000-8 - Installation services of computers and office equipment
- 80533000-9 - Computer-user familiarisation and training services
- 72100000-6 - Hardware consultancy services
- 72600000-6 - Computer support and consultancy services
- 72800000-8 - Computer audit and testing services

### Deliveries of hardware and equipment:

- 30200000-1 - Computer equipment and supplies
- 39134000-0 - Computer furniture
- 33197000-7 - Medical computer equipment

### Deliveries of software packages (off-the-shelf software):

- 48100000-9 - Industry specific software package
- 48180000-3 - Medical software package
- 48200000-0 - Networking, Internet and intranet software package
- 48300000-1 - Document creation, drawing, imaging, scheduling and productivity software package
- 48400000-2 - Business transaction and personal business software package
- 48500000-3 - Communication and multimedia software package
- 48600000-4 - Database and operating software package
- 48620000-0 - Operating systems
- 48700000-5 - Software package utilities
- 48930000-6 - Training and entertainment software package
- 48940000-9 - Pattern design and calendar software package
- 48960000-5 - Drivers and system software package
- 48970000-8 - Print shop software package
- 48980000-1 - Programming languages and tools
- 48990000-4 - Spreadsheets and enhancement software package

### Deliveries of specialized software:

- 48180000-3 - Medical software package
- 48610000-7 - Database systems
- 48800000-6 - Information systems and servers
- 48910000-0 - Computer game software package, family titles and screen savers
- 48920000-3 - Office automation software package
- 72000000-5 - IT services: consulting, software development, Internet and support

- 72200000-7 - Software programming and consultancy services
- 72300000-8 - Data services
- 80533000-9 - Computer-user familiarisation and training services
- 22471000-2 - Computer manuals
- 72420000-0 - Internet development services
- 72900000-9 - Computer back-up and catalogue conversion services

#### **Infrastructure:**

- 32410000-0 - Local area network
- 32430000-6 - Wide area network
- 35710000-4 - Command, control, communication and computer systems
- 45432121-8 - Computer floors
- 44300000-3 - Cable, wire and related products
- 45314320-0 - Installation of computer cabling
- 72410000-7 - Provider services
- 72700000-7 - Computer network services

## **Low Quality of Available Data**

The data concerning announcements of public procurement results lack sufficient information to enable the unambiguous, automated identification of contracting authorities and contractors indicated in the published documents. This is partly due to legal regulations, which, until 2018, did not require the specification of contractor identifiers. Additionally, the tools used for publishing results lack mechanisms that would enable the unequivocal identification of these entities. Even the amendments introduced in 2018, which allowed for the inclusion of a national identifier for contractors, neither mandated nor facilitated the indication of the type of identifier (e.g., NIP, PESEL, KRS, REGON). The data entry tools for contractors also permit the input of arbitrary character strings for both the contractor's name and address, thereby increasing the risk of operator error during information entry.

During the period under study, there were also three different systems used for the publication of data in the Public Procurement Bulletin and two system versions in the case of the Supplement to the Official Journal. These circumstances result in the presence of multiple variants of both contracting authorities and contractors in these public datasets concerning their names, business addresses, and identification numbers. Furthermore, the information contained in public procurement market data does not include details on changes in the names of entities or on branches or divisions in the case of larger entities or those conducting business in multiple locations.

## **Additional Exclusions and Analytical Conditions**

Funds allocated to procurements containing the selected CPV codes were classified as costs related to the informatization of a given entity. All other costs from awarded procedures that did not indicate the above CPV codes were considered unrelated to informatization.

The presented IT costs for the analysed entities do not include supplies and services purchased for these entities by central administration (e.g., the Ministry of Health) or supervising local government bodies (e.g., municipalities or regional governors).

The reported cost figures do not include remuneration for IT staff employed in healthcare facilities.

The values presented also exclude procurements below the threshold for the application of the Public Procurement Law (PZP). According to data published by the Public Procurement Office (Report of the President of the Public Procurement Office on the functioning of the public procurement system in 2021), the value of procurements excluded from the PZP in 2021 accounted for approximately 38% of the total value of contracts awarded by entities subject to the PZP.

## **Potential Sources of Measurement Error**

Risk of underestimation of the procurement market value and IT expenditure:

Omission of procedures that were legally required to be published but were not made public.

Incomplete inclusion of all published procedures from the BZP and TED in the Zamówienia 2.0 database due to technical system errors.

Errors resulting from non-compliant reporting of the awarded contract value, such as inputting the value per hour or per unit rather than the total contract amount.

Incorrect or missing assignment of CPV codes for IT solutions (a frequent practice in construction-related procurements).

The costs of electricity required for the operation of computer hardware and server rooms cannot be estimated from the available data and are not included in the presented costs.

The costs of installing and maintaining cooling (air conditioning) systems and fire protection systems are generally impossible to establish without individually verifying the subject of each procurement and, in most cases, are not included in the reported costs.

Risk of underestimation or overestimation of the procurement market value and IT expenditure:

Incorrect input of awarded contract values (e.g., additional zeros, lower or higher values than in reality).

Some contracts may be executed over several years following publication—the actual costs incurred often occur with a delay.

Some published results may have been cancelled by the National Appeals Chamber (KIO), or the KIO may have ordered the rejection of an offer initially indicated in the result, leading to the selection of a more expensive offer than originally published.

Risk related to the assignment of values to specific categories of IT expenditure Incorrect or overly general assignment of CPV codes, or failure to assign CPV codes to particular services or products.

The allocation of CPV codes to particular cost categories and to IT costs as a whole constitutes a simplification, which made it possible to avoid verification of the contract subject descriptions for over four million documents. While this approach enables a broad market analysis, it must be acknowledged that it has limitations and introduces a significant risk of error.