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**SYSTEM OF INTELLIGENT DATA PROCESSING SUSTAINABLE PURCHASE BASED ON NEURAL NETWORKS**

Implementing artificial intelligence systems, especially models like GPT-4, for analyzing data on government procurements opens new horizons for regulatory bodies and organizations involved in the process. AI can automate the analysis of textual data, detecting not only obvious signs of corruption but also subtle patterns of behavior that may indicate potential risks[1].

AI's ability to learn from large data sets and adapt to changing behavioral patterns becomes critical in ensuring the relevance and accuracy of analytical reports. Moreover, using AI for public procurement can significantly reduce audit and monitoring costs, as the system can quickly process volumes of information that humans cannot handle. This also allows auditors to focus their efforts on more complex cases that require in-depth analysis and expert intervention[2].

Optimizing data analysis processes not only enhances the efficiency of public funds use but also strengthens citizens' trust in the government procurement system, demonstrating transparency and accountability in decisions related to public resource expenditure[3].

The goal of the research is to develop a method that enables an artificial intelligence system to analyze data about government procurements provided through the Prozorro API platform and based on this to identify potential corruption in tenders. The system needs to be able to independently learn and adapt to changes in data, requiring the development of complex machine learning and natural language processing algorithms[4].

The proposed method is based on integrating data from the Prozorro API, which collects large volumes of information about government procurements, and further analyzing them using artificial intelligence, particularly the GPT-4 language model.

The process begins with extracting necessary data through the Prozorro API, which provides access to detailed information about each tender, including descriptions, contract amounts, information about participants, and more. Selected data are then subjected to primary filtering and cleaning to ensure their relevance and accuracy before being fed into the model. Next, the prepared data is sent as a request to the GPT-4 language model.

The model processes the request, using advanced natural language processing algorithms to detect potential signs of corruption or other risks related to procurement. It analyzes the textual information, looks for connections and anomalies in the data, and based on this, forms predictions and conclusions. An important aspect is the user interaction with the system, which allows not only to receive predictions but also to refine or change the query parameters for more accurate analysis.

Thus, the process is not fully automated but involves active participation of a specialist for controlling and adjusting the results. This ensures the system's flexibility and the possibility of adaptation to the specific needs and conditions of each individual case of government procurement. The proposed method of applying artificial intelligence systems for intelligent processing of data about government procurements demonstrates significant potential in increasing efficiency, transparency, and reducing corruption risks in this area.

Using GPT-4 and other AI models allows for processing large volumes of data, identifying complex patterns, and providing substantiated predictions regarding potential risks. This approach not only helps save time and financial resources of the interested parties but also enhances trust in the government procurement system due to increased openness and accountability.

**List of references**

1. What is artificial intelligence (AI). Online: <https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence>
2. How can AI transform government procurement. Online: <https://www.government-transformation.com/innovation/can-ai-transform-government-procurement>
3. What does artificial intelligence mean for government procurement? Online:<https://www.instituteforgovernment.org.uk/event/artificial-intelligence-government-procurement>
4. Documentarion openprocurement.api. Online: <https://prozorro-api-docs.readthedocs.io/uk/master/>