The potential use of AI in public procurement processes in CEE

The necessity to digitalise and use AI in all business sectors is irrefutable and public procurement is no exception. The more advanced digitalisation is in a public procurement system, the greater the chances are for business continuity in the tender sector.

In recent years, significant efforts have been made all over Europe to digitalise public procurements. Public procurement in CEE is still administratively burdensome and time-consuming, with a number of complicated forms to be filled out which require significant human effort by both the contracting authority and the tenderer. Our CEE public procurement team has identified areas in public procurement where AI could be used to make tenders in CEE more efficient. We complied two AI papers to set out the benefits AI can bring to the tender sector to make it a more efficient process. In the first paper we covered the importance of data, how AI may help prepare public contract award proceedings as well the advantages chatbots could add to public procurements. In this second AI paper we focus on how to take pricing, contract management and billing in public procurement to a new level with AI.

Pricing

Price is considered one of the most important factors in the procurement process by both bidders and contracting authorities. It always plays an important role even if various quality and timing aspects are considered at the same timetherefore, pricing itself can be one of the most complex issues in the entire procurement process.

Contracting authorities can already benefit from AI during the preparation phase to assess and evaluate the most suitable award criteria. AI can compare the various models available with data from previous procurements and test the eventual outcomes and scenarios of the pricing models in the simulated conditions based on real market predictions, which leads to an outline of the optimal award criteria. Subsequently, it can calculate and evaluate the best price/quality ratio of the separate bids submitted.

However, AI today is mostly used by bidders, in particular during e-auctions where it enables a bidder not only to easily compare prices between multiple suppliers and other bidders in a matter of seconds, but it is able to provide valuable recommendations and predict other participants' behavioural patterns in the auction. AI is also used to participate in e-auctions and automatically make price adjustments based on predefined algorithms while maintaining the best profit for the bidder.

AI can calculate and prepare the best pricing model for a bid. While not widespread yet, it is gradually becoming one of the best performing approaches to combine the contract details and previous pricing models of the bidder with the current market situation and predictions, while optimising potential revenues at the same time. However, this greatly depends on the available data. Nevertheless, as AI is capable of "learning" the entire pricing process, including the sourcing patterns, it can recommend optimal prices based on expected volume and other details of the contract.

Contract Management

Given the features and abilities AI inherently offers, it may soon play an important role in improving contract management in public procurement. Data captured in contract lifecycle management systems will be capable of being processed in innovative ways, which will not only rapidly enhance the efficiency of all contracting authorities but also offer innovative ways on how to process and make further use of the collected data. Implementing AI in contract management will allow the automation of routine tasks and speedier data processing, which in turn will let contracting authorities level-up their positions and focus more on data-strategic decisions rather than on administration.

One major problem contracting authorities face is the overwhelming number of contracts to be managed. Often these procedures lack uniformity and effectiveness. Contracting authorities that must keep track of the relevant terms and renewal dates have a difficult task of not only managing the contracts and keeping them consistent, but also of pursuing higher-value activities such as how to make use of the sheer amount of data encapsulated in such datasets.

Contract databases often contain wide-reaching volumes of data which, if sorted in certain ways, could provide a great insight into deeper areas of the contract, such as the negotiation process, risk allocation and market standards. This element of predictive intelligence ("PI") involves automated data sorting and allocating patterns in large historical datasets to predict the future with increased accuracy based solely on algorithms. PI uses algorithms to identify behavioural patterns and other relationships or correlations between data. Based on its outputs, PI then anticipates the intentions, likes and dislikes of bidders in various sectors. The results of predictive analytics enable contracting authorities to observe bidders' behaviour, including any of their clarification questions or comments, and allows them to easily prepare for the next tender. This equips contracting authorities with tailormade intelligent recommendations, unique guidelines for optimisation, and locates the most relevant areas for improvement.

Another aspect of AI which will prove very useful in contract management is Natural Language Processing ("NLP"). NLP is a communication method by which AI systems use natural languages to read, decipher and understand contractual clauses not only linguistically but also contextually. NLP extracts data from large amounts of natural language found in contracts and categorises this data into specific groups that may be further developed and used. This will help contracting authorities to extract more detailed information from contracts which would otherwise go unnoticed.

These examples reflect the potential AI has in improving how all contracting authorities tackle contract management. AI tools may serve as a great accelerator of contract processing while generating remarkable business-relevant data.

Take billing in Public Procurement to a new level with AI

It is most likely you already use an e-billing system and are aware of its benefits compared to outdated paper invoicing. It may seem that everything that can be automated in accounting has already been done. So, how can AI further change billing and how can companies and contracting authorities benefit from this?

Most invoices are now electronic; however, businesses still need to review each invoice individually to extract and further process the information in it. It is in the process of extracting information from invoices where many of the human mistakes occur. Current technology allows customers to "teach" the machine to recognise invoices from a certain sender by creating a template. In this way, computers know where to search for information in a PDF invoice that has been loaded in the system. Once a template is created, it can be used multiple times. Traditional OCR (optical character recognition) is used for this, which means that mistakes may occur.

If OCR and AI are combined, there will be no need to create templates. Thanks to the development of AI and machine learning, the AI itself will be able to recognise the essential data on invoices, check it for mistakes, and then collect it. Once the information is extracted, AI will be able to further process it and incorporate it in a certain matter or account, enabling fast and clear details concerning the budgeted allocation under a project, and the expected payments or expenses.

Both contracting authorities and companies can benefit from introducing AI to e-billing, as it is expected that this will significantly cut time and costs. The faster review of invoices will also mean faster payment. Companies will be able to use AI to monitor the invoices of subcontractors, suppliers and others, and contracting authorities will be able to check invoices with the help of AI and use the technology to avoid the burdensome transfer of data from invoices to ERP systems. It's reasonable to assume that it won't be long before we can teach AI to create expectations for future invoices based on public procurement contracts, check the invoices based on these expectations, and report deviations from them.

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