Exploring Blockchain for Public Sector Recruitment

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Abstract - **Enhancing the management of human capital resources in the Greek public sector addresses the challenges of optimizing the civil personnel recruitment process, increasing public integrity while enforcing the principles of transparency, participation, accountability, effectiveness and efficiency. The objective is the design and activation of a central, unified Human Resources Management System (HRMS) both in terms of procedures, methods and Information Technology (IT) infrastructure. The blockchain technology adopted for the needs of public administration recruitment in Greece and the expected results are described. The importance of working within an established legislative framework in which merit is well defined, job requirements reflect occupational requirements and illustrate the assessment practices from the Greek public service are set out.**

Keywords – Blockchain; Public sector recruitment; Qualification; Verification; Evaluation.

I. INTRODUCTION

Public sector organizations are expected overtime to fulfill mandates revolving around objectives such as qualitative and cost-effective service delivery, as well as accountability in the management of various types of resources. To achieve that, effective assessment in recruitment of the most qualified personnel is of the essence. Carrying out this complex procedure with the use of multiple assessment tools and information collected from diverse sources is expected to provide a more comprehensive approach of the candidates being assessed and further added value to the recruitment system overall. Securing access to the candidates' work and educational background as well as performance reviews in a credible way is argued that it will, the least, improve the current recruitment process in view of the aforementioned mandates. Blockchain technology is regarded as a game-changer in several sectors including the domain of Human Resources (HR) and recruitment, mainly because of its inherent characteristics of decentralization, transparency and immutability. There are currently numerous business and research, private and public sector endeavors, to explore both the theoretical and practical implications (technical, political, socio-economic, legal and cultural) of the blockchain technology. The purpose of this paper is to report on the development of an innovative assessment tool being designed whilst making most use of the blockchain technology that will ultimately provide ASEP, Greece, with the means to optimize the personnel recruitment process for the Greek public sector it has been entrusted with.

II. PUBLIC SECTOR RECRUITMENT IN GREECE

A. Legal framework

ASEP (Supreme Council for Civil Personnel Selection) is an independent body provided under the Greek constitution, entrusted with performing public administration recruitment processes for project agreements as well as fixed-term and short-term employment agreement positions at all levels. ASEP is supported by a high-end electronic information system managing the vast volume of applications, vacancies, news releases, results and, most importantly, candidates involved in ASEP selection processes records. Candidates are evaluated based on the score they achieve in written exams, the outcome of their interview, and their qualifications overall. Some of the tools missing from ASEP's day-to-day business are functionalities that could relieve the public from the bureaucratic burden (such as achieving validation, i.e. confirmation of authenticity, of university degrees) and further enhance qualitative and cost-effective service delivery and accountability (by way of, amongst others, simplifying the already complex recruitment process of Highly Qualified Civil Personnel).

Under the current legal framework, ASEP is entrusted with performing public administration recruitment processes in Greece, apart from certain exceptions provided by law. More specifically, certain Greek public entities are empowered by the said legislation to proceed with recruitment of personnel, either supervised by ASEP or not. It should be noted that ASEP's competence to supervise the recruitment process of such a public entity does not, in any way, overlap with the entity's competence to deliver that recruitment process.

B. Process

Vacancies in the civil sector are made public by ASEP through newsletters, its official website (www.asep.gr) and the press, in a non-personalized way. Citizens can make queries via its website about announced vacancies looking for those that better match their qualifications. Following the announcement, citizens sign into the ASEP Registry where they fill in their qualifications and submit an e-application regarding the announced vacancies. The e-application itself does not suffice as the candidates are further expected to print out their e-application and send it to ASEP along with the hardcopies of all supporting documents and certificates. ASEP's Central Committee then issues and publishes interim

results in the form of tables containing all necessary information (eg. name, ID number, credits collected per qualification etc.) which may be appealed by those with vested interest. ASEP's Council Members in composition review the appeals and the interim results, issue and publish the final results.

Vacancies in the public sector addressed to highly qualified candidates, although announced and handled similarly with the rest (application process, interim and final results and so forth), is significantly more complex to the extent one more step in the recruitment process, just before the issue of the interim results, is added. More specifically, ASEP's Evaluation Committee issues (for internal use only) an initial ranking based on candidates' declared qualifications and assessment methodology that varies as it is left by law to the Committee's discretion to decide upon this each time. The candidates ranking high are then called for an interview and the Committee, upon evaluation, issues and publishes interim results in the form of tables containing all necessary information (eg. name, ID number, credits collected per qualification etc.) which may be appealed by those with vested interest. ASEP's Council Members in composition review the appeals and the interim results, issue and publish the final results.

Following the announcement of the final results in both scenarios as described herein above, the public entities who triggered the recruitment process proceed with hiring the prevailing candidates as per ASEP's results and validating their qualifications. In case of fraud detection, public entities may submit, within three years from the final results publication, a request to ASEP for replacement.

C. Drawbacks in the current process

Qualifications' evaluation by ASEP (initially by the Central Committee or the Evaluation Committee as per the case and later by the Members in composition) is a time-consuming process as it is performed in a non-automated way. Qualifications' validation by the public entities that trigger the recruitment process and ultimately hire the prevailing candidates as per ASEP's results is also performed in a non-automated way. Both processes are apparently time-consuming, notably the validation of qualifications requires exchange of letters and, in certain cases, circulation of hardcopies, with all the cost that the stakeholders at issue incur with regard to time, money and manhours. The replacement process itself is time-consuming and linked with both direct and indirect costs.

III. QUALICHAIN POTENTIAL

QualiChain targets the creation, piloting and evaluation of a decentralised platform for storing, sharing and verifying education and employment qualifications and focuses on the assessment of the potential of blockchain technology, algorithmic techniques and computational intelligence for disrupting the domain of public education, as well as its interfaces with private education, the labour market, public sector administrative procedures and the wider socio-economic developments.

IV. PUBLIC ADMINISTRATION RECRUITMENT PILOT

Qualichain pilot goals in relation to public sector recruitment are the following:

- Demonstrate and assess the QualiChain concept and technological solution, by piloting the combination of disruptive technologies involved in the context of staffing the public sector.
- Assess the impact, i.e. the benefits and risks of the QualiChain technological solution on the full spectrum of stakeholders towards which it is addressed in public administration.

A. Stakeholders

The stakeholders involved in the ASEP use case are the following:

1) ASEP Council Members and Employees: As publishers, evaluators, validators, and decision makers with regard to the candidates' qualifications and the entire selection process in general.

2) Citizen/Candidate: As the main participant of a selection process and the owner of qualifications.

3) Public Entity: As "customer" of ASEP selection process and the future employer of the candidate.

4) Qualifications' issuing/accrediting institutions and their personnel: As (indirect) providers of qualifications or on the receiving end of requests for verification, by public entities.

B. Expectations

The recruitment and competency management services of QualiChain will be exploited to enhance not just the check of the candidates' declared qualifications, but also their screening, leading to a short list of those to be interviewed and, ultimately, to the identification of the best possible applicant for the role.

Specifically, this pilot has the following main expectations, as illustrated in Figure 1:

- To provide personalised candidate notifications for job vacancies by matching individual profiles with available jobs in the civil sector.
- To utilise the solution's Blockchain based digital ledger in order to validate academic and professional qualifications of individual candidates.
- To improve efficiency of the selection process in terms of time and credibility.

C. Use case steps

The Highly Qualified Civil Personnel recruitment process steps are the following:

1) The issuing organization issues a qualification component (either an academic qualification or a work experience certificate) for a citizen.

2) The isssuing Organization, after obtaining the candidate's consent, uploads the qualification component in QualiChain and sends it to the Citizen.

3) ASEP announces positions/vacancies on QualiChain.

4) Citizen/Candidate gets notified of new vacancies via a Data Analytics Tool embedded in QualiChain.

5) Candidate signs up to ASEP's Registry (if not already registered), fills in his qualifications, uploads the relevant proof of qualifications declared (e.g. university degree) and applies for the vacancy they are interested in.

6) ASEP confirms the validity of the proof of qualification declared and potentially its metadata (e.g. year of graduation).

7) ASEP marks the qualification, the validity of which has been confirmed to its Registry, as a Level 6 qualification. A Level 6 registered qualification means that this process does not have to be repeated for this qualification.

8) ASEP uses QualiChain´s MCDSS (Multi Criteria Decision Support System) to get an initial ranking of candidates.

9) Based on this initial ranking, ASEP proceeds to the stage of interviews.

10) ASEP uses QualiChain MCDSS to get the final ranking and ultimately the interim results.

D. Challenges

Several challenges have been identified from the beginning, as follows:

- Friendliness and usability of user interface provided by Qualichain, given that it will be, mainly, used by ASEP'S members and employees, with no technical background whatsoever.
- Pilot planning and integration with internal ASEP procedures.

- Semantic interoperability between Greek terms used by ASEP information systems (e.g. institution names, qualifications, certifications, job descriptions and so forth) and QualiChain terminology.
- Compliance with Greek and EU regulation e.g. General Data Protection Regulation (GDPR) [1].

V. CONCLUSION

In order to achieve effective assessment in recruitment of the most qualified personnel in the public sector, methods and tools must be constantly developed and tested to educate and train everyone in line with new developments, in our case, with the blockchain technology, so that their benefits can be fully realized by all stakeholders. The opportunity to explore an area that has not had much attention academically, i.e. public sector recruitment process from a different angle, that of embedding highly sophisticated tools, enables this effort to be treated as a breakthrough in contemporary recruitment processes, not necessarily restrained in the civil sector.

REFERENCES

[1] General Data Protection Regulation (GDPR), http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&qid=1522240823531&from=EN

[2] ASEP's founding law 2190/1994 (Official Government Gazette nr. 28/B/1994)

Figure 1. Pilot objectives.