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CALCULATION OF BUSINESS CASE FOR THE PROJECT: “development of AI and natural language processing tools in order to obtain unstructured data from documents submitted by citizens, and transform it into structured metadata that will be processed in a business intelligent data platform”

1. PREVIOUS CONSIDERATIONS

Currently, administrative tasks take a long-waiting processing time of data extraction from documents.

Therefore, the main objective of this Innovation Procurement is to improve efficiency in administrative management by implementing a technological solution that can make use of a State Data Brokerage Platform and a document automation tool, such as an Artificial Intelligence and Natural Language Processing tool, which could help to easily obtain unstructured data from the documents submitted by citizens and companies, and transform it into structured metadata. This solution shall allow to:

- Simplify processes.
- Improve and facilitate user access to information.
- Foster interaction between public bodies.
- Save time in information processing and reduce costs for citizens and companies (external costs).

For the subsequent analysis of the cost-benefit of the acquisition of a software platform for the management of documentation and information related to administrative procedures, it is necessary to take into account:

1. Processing time of documents and information necessary for file management.
2. Spanish and European regulations related to electronic administration.

1.1 FILE PROCESSING TIME

We are assuming the following considerations for the processing time in the management of administrative procedures:

- The number of **files processed per year**.
- **Average processing time of a file.** Average time it takes since a file is opened, until it is closed. The processing time per file includes reception, classification, extraction of the relevant data and storage in the correct profile. This timeframe is due to the complexity of administrative processes, wrong documents received, or even insufficient staff and legal requirements.
- **Average time of dedication of public workers to process the file.** During the lifecycle of the file, public workers use to work on several files in parallel. A file can be started, but not necessarily has to be immediately ended. Sometimes due to the nature of the



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process, others, because of delays in the receipt of documentation, mistakes, notification gaps, queued tasks, vacations, personal leaves ...

Based on these indicators, the **SCENARIO 2021** is:

- **Files processed per year:** 13 000.
- **Average processing time:** 35 days.
- **Average dedication time** (25% of the processing time): 8.75 days.
- **Average dedication time per file** (25% of the processing time): 61.25 hours.

1.2 ADMINISTRATIVE REGULATIONS

According to Spanish and European legislation on electronic administration and good governance, **there is an obligation on behalf of the Administration to provide electronic services, with criteria of effectiveness and efficiency and the right of citizens and companies to interact with the administration through electronic media.**

Thus, according to Spanish regulations, it must be taken into account:

1. Spanish laws 39/2015, *"Procedimiento Administrativo Común de las Administraciones Públicas"*, and 40/2015, *"Régimen Jurídico del Sector Público"*, which establishes **the right of people to interact by electronic means with public administrations, simplifying the access to them, and reinforcing the use of information and communication technologies (ICT) in public administrations, both to improve the efficiency of its management, and to strengthen and favor collaboration and cooperation between them.**
2. Spanish law, 39/2015, *"Procedimiento Administrativo Común de las Administraciones Públicas Artículo 28. Documentos aportados por los interesados al procedimiento administrativo. Apartado 2. Los interesados tienen derecho a no aportar documentos que ya se encuentren en poder de la Administración actuante o hayan sido elaborados por cualquier otra Administración. La administración actuante podrá consultar o recabar dichos documentos salvo que el interesado se opusiera a ello.*
3. The principles of good regulation contained in article 129 of law 39/2015: **principles of necessity, effectiveness, proportionality, legal certainty, transparency and efficiency.**
4. Spanish regulation for action and operation by electronic means in the public sector. Article 2. General principles:
 - a. Principle of **technological neutrality** [...] The public sector will use open standards as well as standards that are in general use.
 - b. **Accessibility** principle [...] Guarantee equality and non-discrimination in access.
 - c. **Ease of use** principle.
 - d. **Interoperability** principle for data sharing and information exchange.
 - e. Principle of proportionality.
 - f. Principle of **personalization and proactivity** [...] Provide pre-completed services and anticipate potential users needs.



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Moreover, according to European regulations, it must be taken into account:

1. There are several Ministerial Declarations (Manchester: 24 November 2005, Lisbon: 19 September 2007, Malmö: 18 November 2009, and Granada: 19 April 2010), in which ministers invited the Commission to facilitate cooperation among Member States by implementing cross-border and cross-sector interoperability solutions that would enable more efficient and secure public services. Member States even recognized that better public services should be delivered with fewer resources, and that the potential of e-government could be boosted by promoting a culture of collaboration and improving the conditions for interoperability in European public administrations.
2. DECISION (EU) 2015/2240 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 25 November 2015, establishing a programme on interoperability solutions and common frameworks for European public administrations, businesses and citizens (ISA2 programme) as a mean for modernizing the public sector:
 - a. (20) Additionally, **in order to establish a more effective, simplified and user-friendly e-administration**, some adaptations in the European public administrations, with the support of the Member States, may be necessary. **Efficient online public services are crucial to fostering the confidence of businesses and citizens in digital services.**
 - b. (26) Besides European public administrations, businesses and citizens are also end-users of interoperability solutions, as they use electronic public services provided by public administrations. The principle of user-centricity applies, in particular, to end-users of interoperability solutions.
 - c. (30) Interoperability and, consequently, the solutions established and operated under the ISA2 programme, are instrumental to **exploiting the potential of e-government and e-democracy to the full, by enabling the implementation of 'one-stop shops' and the provision of end-to-end and transparent public services leading to fewer administrative burdens and lower costs.**
3. REGULATION (EU) 2021/694 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 29 April 2021 establishing the Digital Europe Programme and repealing previous Decision (EU) 2015/2240:
 - a. (45) **Modernizing public administrations and services by digital means is crucial to reduce the administrative burden on businesses, including SMEs and citizens in general, by making their interactions with public authorities faster, more convenient and less costly, as well as by increasing the efficiency, transparency and the quality of the services provided to citizens and businesses, while at the same time increases the efficiency of public spending.**
 - b. (51) The modernization of European public administrations is one of the key priorities for successful implementation of the Digital Single Market. The mid-term evaluation of the Digital Single Market strategy highlighted **the need to strengthen the transformation of public administrations and to ensure citizens have easy, trusted, and seamless access to public services.**
 - c. (53) The **interoperability of European public services concerns all levels of the Administration: the Union, national, regional and local.** Besides removing



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barriers to a functioning internal market, interoperability facilitates cross-border cooperation, the promotion of European standards and the successful implementation of policies. It offers great potential to avoid cross-border electronic barriers, securing the emergence of new ones, as well as the consolidation of the development of common public services at a Union level.

d. Article 8 Specific Objective 5 – **Deployment and Best Use of Digital Capacities and Interoperability:**

- i. (e) offer the **public sector and the Union industry, in particular SMEs, easy access to testing and piloting of digital technologies** and increase the use thereof, including their cross-border use;
- ii. (f) **support the uptake by the public sector** and the Union industry, in particular SMEs and start-ups, of advanced digital and related technologies, **including in particular HPC, AI, cybersecurity**, other leading edge and future technologies, such as distributed ledger technologies (e.g. blockchain);
- iii. (g) **support the design, testing, implementation, and deployment and maintenance of interoperable digital solutions, including digital government solutions, for public services** at Union level which are delivered through data-driven reusable solutions platforms aiming to foster innovation and establish common frameworks in order to unleash the full potential of the public administrations’ services for citizens and businesses.

2. COST-BENEFIT ANALYSIS

The cost-benefit analysis is determined by the efficiency in the provision of the public service and the cost savings for citizens and companies derived from time savings. Any public organization shall serve its ultimate purpose: provide services to its citizens in an efficient and effective manner. In this sense, the benefits derived from this procurement impact positively mainly to citizens and companies.

On the other hand, both European and Spanish regulations establish principles, obligations and rights regarding the use of electronic administration and ICT (information and communication technologies in general as AI or interoperability) and the relationship between citizens and companies with the Administration that oblige public administrations to implement technological solutions that allow compliance with these principles.

Therefore, the cost-benefit analysis is based on the following premises:

- Efficiency in public services: Time savings.
- Regulatory cost.



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2.1 COST SAVING FOR CITIZENS AND COMPANIES (EXTERNAL COSTS)

The reduction of processing times implies a reduction in costs for citizens and companies, that depends on:

- Less use of advisory services thanks to the simplification and automation of the administrative procedure and the reduction of documents and information to be provided by citizens and companies.
- Opportunity cost reduction: time savings that allow meeting their goals and needs sooner (open a business or receive a grant earlier).
- Lower document burden with easier forms or fewer documents that will reduce mistakes and carry out the administrative processes in an easier, more agile and faster way.

COST SAVINGS CALCULATION

Based on the current **SCENARIO 2021** indicators:

Indicator	Current	Expected
Files processed per year	13 000	13 000
Average processing time	35 days	30 days
Average dedication time	8.75 days (25% of the processing time)	6 days (20% of the processing time)
Average dedication time per file	61.25 hours (25% of the processing time)	42 hours (20% of the processing time)

According to the Manual of Administrative Simplification and Reduction of Burdens for the State Administration¹, based on the Standard Cost Model, we can assume the following average cost savings per file related to time saving:

- From 1 to 25%: 20 €
- From 26 to 50%: 60 €
- From: 51 to 75%:110 €
- From 76 to 99%: 180 €

According to the expected values of the indicators, **we could have a total cost saving of 780 000 € per year.**

The reduction of the processing time is estimated on the basis of the previous market consultation, and it has been considered for its calculation:

- Automation of tasks: classification, validation, and information extraction.
- Improved task and approval flows.
- Reduction of document requirements for citizens and companies.

¹ https://www.mptfp.gob.es/dam/es/portal/funcionpublica/gobernanza-publica/simplificacion/doc-referencia/14_Manual_Simplificacion_Administrativa_y_reduccion_de_cargas_AGE.pdf



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- Reduction in the average dedication time per file by having automatic processes (less time for document validation and information extraction).
- Process improvement.

Note: There is no reduction of required documents. In almost all cases documents are required in legal basis.

Additional note

It has been considered that the documents processed per year do not change substantially since they are related to administrative procedures, and it is also considered that there is no increase in these procedures. Even if the technological solution was able to do it, it has not been taken into account that more documents can be processed per year, as it would imply an increase in administrative procedures and/or requests from citizens and companies.

TOTAL COST OF OWNERSHIP CALCULATION

The total cost of ownership (TCO) includes total acquisition cost, operational cost, maintenance cost and remaining value. The following considerations are assumed:

- Total acquisition cost (procurement cost): 300 000.00 €. Break down into:

Consulting	50 000.00 €	17%
Solution development	190 000.00 €	63%
Implementation	45 000.00 €	15%
Staff training	15 000.00 €	5%

- The operating and maintenance cost is about 40% of the acquisition cost. We assume one year for fully deployment of the solution before O&M starts:

Profile	Hours per year	Cost per year	TOTAL for 4 years
<i>Project Manager</i>	200	5 096.00 €	20 384.00 €
<i>Software Engineer</i>	340	8 503.40 €	34 013.60 €
<i>Software Developer</i>	700	17 304.00 €	69 216.00 €
		30 903.40 €	123 613.60 €

- Considering 25% depreciation rate for the IT systems, we can assume that the remaining value is zero in 5 years and that we will need to replace the system.

In this case, considering an ending life cycle in 5 years, and a TCO of 423 613.60 € for the technological solution, costs and remaining value per year are as follows.



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COSTS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Acquisition cost	300 000.00 €	0.00 €	0.00 €	0.00 €	0.00 €
Operating and maintenance	0.00 €	30 903.40 €	30 903.40 €	30 903.40 €	30 903.40 €
Remining value	300 000.00 €	225 000.00 €	150 000.00 €	75 000.00 €	0.00 €

On the other hand, to calculate the cost-benefit we can consider that to meet the goals and performance without an IT solution, it would be necessary to hire more staff. The following considerations are assumed:

- New staff would work solely on this task (processing files).
- **Annual cost per new person:** 42 500.00 €
- **Average dedicated staff:** In order to obtain a reduction of 30% of dedication time per file, 3 workers should be hired.

TOTAL COST (4 years): 510 000.00 €

The benefit in this analysis is the difference between procuring a new IT solution and hiring more staff:

- New IT solution (5 years): **423 613.60 €**
- More staff (4 years): **510 000.00 €**

Therefore, it is **86 386.40 € more beneficial to buy a new IT solution.**

2.1 REGULATORY COST

Through the acquisition of the IT solution, the legal requirements and principles established in the Spanish and European legislation in relation to electronic administration and public services would be fulfilled.

3. OTHER POSITIVE EXTERNALITIES

Other positive externalities that can be achieved with this procuring are:

- Facilitate data sharing with other administrations and private sector to create value from data, in line with the European data strategy.
- Improve data security.
- Reduce environmental impact (less use of paper and reduction of air pollution).



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In conducting this procurement project “development of AI and natural language processing tools in order to obtain unstructured data from documents submitted by citizens, and transform it into structured metadata that will be processed in a business intelligent data platform”, Las Rozas de Madrid Council benefits from assistance offered under the eafip initiative (www.eafip.eu), which is supported by the European Commission Directorate-General Communications Networks, Content & Technology (DG CONNECT).

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