MUNICIPAL PROGRAM FOR ARTIFICIAL INTELLIGENCE AND ROBOTISATION OF THE CITY COUNCIL OF MADRID

11/30/2021

Introduction

In recent years, technology has been developed to open new horizons for economic and social systems, making extraordinary advances a reality in the scientific, industrial and service fields, in resource management, public management, governance and the welfare state.

Artificial Intelligence (AI) has been identified worldwide as a technology which allows the exponential growth of research and innovation, having a significant transformative impact on multiple sectors of activity: environment, energy, tourism industry, transport, mobility, food, agriculture and livestock, banking, commerce, construction, culture, health, education, security and public administration. In fact, 84% of executives say that their organisations will not achieve their growth goals if they are not able to incorporate and scale artificial intelligence capabilities. Additionally, it is estimated that the use of these technologies will mean a 40% increase in productivity.

Focusing on what AI is conceptually, the European Commission, in a technical report in 2020, The European Commission focused on the concepts of AI and took its first step to define it as "software (and possibly also hardware) designed by humans that, before an complex objective, acts in the physical or digital dimension: perceiving their environment, through the acquisition and interpretation of structured or unstructured data, reasoning knowledge, reprocessing the information derived from this data and deciding the best actions to take to achieve the given objective. AI systems can use symbolic rules or learn a numerical model, and can also adapt their behaviour by analysing how their previous actions affect the environment."

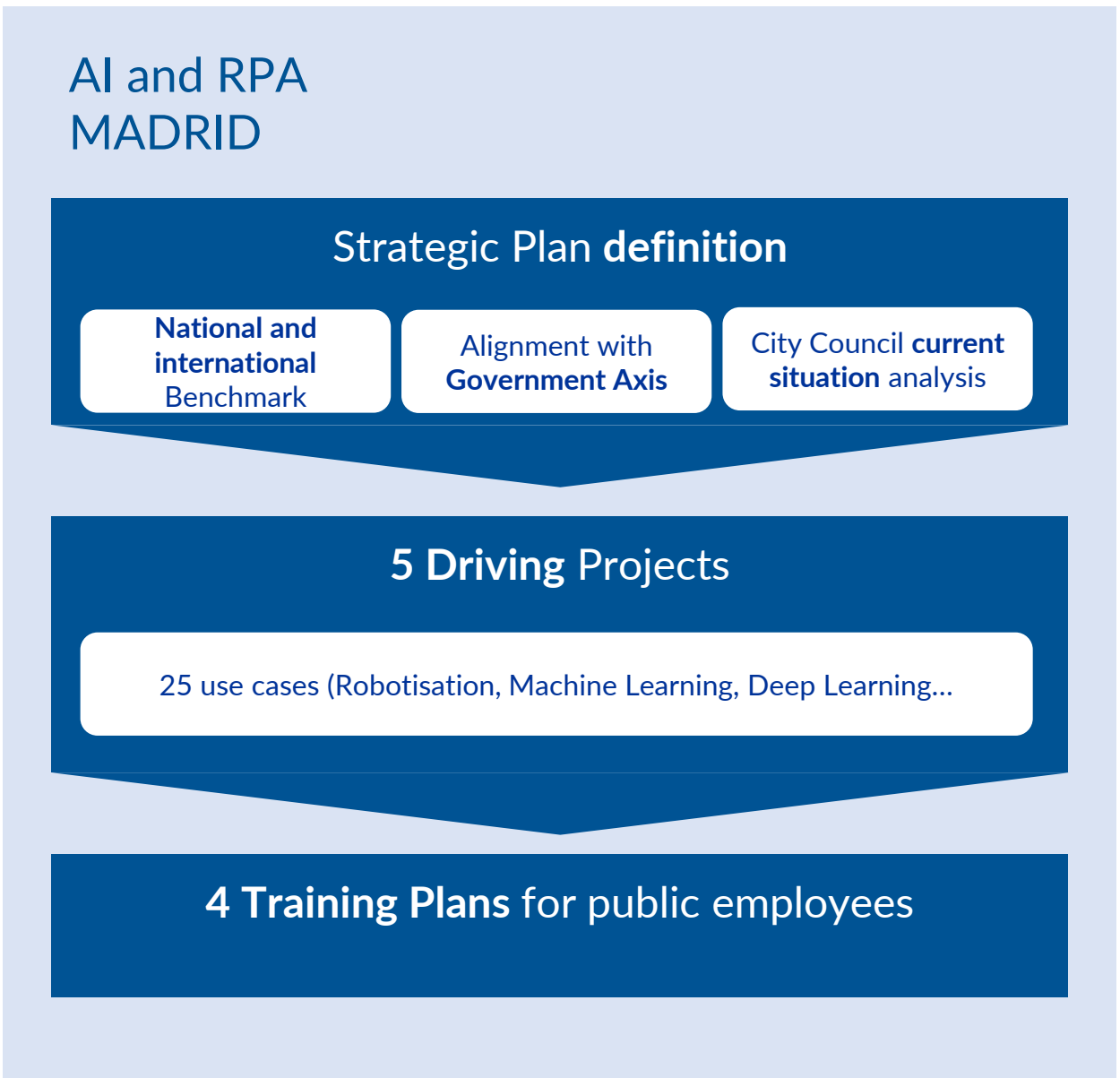
When talking about AI and Robotic Process Automation (RPA), we are talking about complex and amazing technological disciplines in that it is still difficult to imagine the impact that their application will have in the future. Its fundamental objective is to get machines to simulate human behaviour as realistically as possible. In fact, it could be said that Artificial Intelligence is “the degree to which the system can replicate human capabilities (how capable it is of 'thinking' and perhaps even 'feeling' like a human)".

The application of technologies based on Artificial Intelligence and Process Automation can mean, in the Public Sector in general and in the City Council of Madrid in particular, a drastic and positive change in the relationship between citizens and public employees themselves.

After major disruptions to business and the provision of public services caused by COVID-19 since 2020, public organisations seek to resume their course and activities and build a new future. The City Council of Madrid is clear that there is no leadership without technological leadership and the rapid digital acceleration that the city has experienced makes technology the cornerstone of that essential leadership.

Methodology

The definition of the **municipal Strategic Plan for Artificial Intelligence and Automation** has been based on the analysis of the strategy of other national and international city councils, the alignment with the current axes of the Government Operational Program and the analysis of the current situation of the city council.



MADRID

Strategic Plan Definition

Alignment with **Government Axis**

Madrid, city of **opportunities**

Madrid, city for all **families**

Madrid, sustainable city

Madrid, open, **cultured** and **city of sport**

Madrid **responsible**, **reliable** and **easy**

National and international **Benchmark**

Singapore

New York

Dublin

Vienna
Prague

London

Barcelona
Malaga
Zaragoza

Current situation **analysis**

Implantation

Analysis of the municipal situation of training needs, culture, implementation, technology, from the point of view of leaders, business and technical profiles.

Normative

Analysis of European regulations and the different initiatives to promote ethical and responsible artificial intelligence.

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Madrid **Accelerates**

BUSINESS PROMOTION

Automation of access **to public subsidies** by SMEs, Startups and professionals (**optimising** their spending/performance), launch of **AI training**, promoting **Madrid** in the online world and implementing an **analytical system** to order to improve the **city's** tourism model

OBJECTIVES

- Accelerate the **creation of jobs** and the **financial recovery**
- Position Madrid to have **an innovative ecosystem**
- Attract national and international **investors**
- Promote the **tourism sector**

TARGET

SMEs, Startups and professionals

POLICIES

- Public **subsidies**
- Tax **Incentives**
- Publicity **Investing** (Digital Marketing)

TOOLS (AI)

Predictive Analysis	Text processing (NLP)	Optimisation
Image Recognition (Visual Analytics)	Speech analytics	**Robotisation** (RPA)

REFERENCES

- Malaga AI Project
- Digital Talent Programme
- AI Marketplace Initiative

USE CASES

Subsidies Automation for SMEs

Innovation Ecosystems and AI

Tourism Analytical System

Intelligent Digital Marketing

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Madrid **Protects**

SECURITY AND SOCIAL PROTECTION

Intelligent risk prevention (exclusion, security, emergencies, meteorology, fires...) through **predictive models**, **profiling** of citizens (focus on the elderly and vulnerable), **analysis** of demographic movements by neighbourhood and **intersection**, and **enrichment** of information sources (e.g. emergencies)

OBJECTIVES

- **Potential** risks prevention
- Increase the **logistic efficacy when responding** to emergencies
- Care for **families** and the most **vulnerable** after the impact of COVID-19

TARGET

Citizens, seniors and vulnerable people

POLICIES

- Citizens' **Security**
- **Emergencies**
- **Social** services

TOOLS (AI)

Predictive Analysis	**Text** processing (NLP)	**Optimisation**
Image Recognition (Visual Analytics)	Speech analytics	Robotisation (RPA)

REFERENCES

- Barcelona - Algorithms (ML) in the social services
- Vienna - WAALTeR Project Active assistance for seniors at home.
- Digital Inclusion Innovation Programme

USE CASES

- **Social care optimisation**
- **Prediction of gentrification by neighborhood**
- **Territorial vulnerability index**
- **Proactive management of emergencies**
- **AI applied to citizens' Security**

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Madrid **Breathes**

SUSTAINABILITY

Optimisation of public transport services, traffic and electric mobility, garden management, recycling, maintenance of assets (buildings, municipal vehicles, machinery) and ventilation systems (energy efficiency) through an **analytical platform**

Objectives

- Guarantee **clean air**
- Allow a **sustainable growth** for Madrid
- Increase **efficiency** in assets management
- Promote the use of **green areas**

TARGET

Citizenship

POLICIES

- **Public** transportation
- Traffic **policies**
- Electric **mobility**
- Garden **management**
- **Residue** recycling
- Energy **efficiency**
- **Assets** maintenance

TOOLS (AI)

Predictive Analysis	Text processing (NLP)	**Optimisation**
Image Recognition (Visual Analytics)	Speech analytics	**Robotisation** (RPA)

REFERENCES

Málaga - Smart Grids. Energy savings

Smart Energy Project. More sustainable and economic energy

Monitoring of air pollution, noise levels and optimisation of waste management.

USE CASES

Transportation analytics

Recycling optimisation

AI applied to the management of green areas

Energy efficiency

Predictive maintenance

Traffic simulation model

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Madrid **Entertains**

CULTURE, LEISURE AND SPORTS

Advanced customisation of the cultural, sports and leisure offer for citizens (focus on young people) and national and international tourists, through **machine learning**, a **recommendation system** and the exploitation of health **data** (sports)

Objectives

- Consolidate the **attractiveness of Madrid**
- Promote the consumption of **culture through digital channels**
- Increase **sports practice** among citizens
- Expand the **influx to sporting,** cultural and leisure events

TARGET

Young people and tourists

POLICIES

- **Culture** (museums, concerts, theatre, etc.)
- **Sports** (practice and entertainment)
- **Leisure** and hospitality
- **Fairs** (e.g.: books, antiques) and other events

TOOLS (AI)

Predictive Analysis	**Text** processing (NLP)	**Optimisation**
Image Recognition (Visual Analytics)	**Speech** analytics	**Robotisation** (RPA)

REFERENCES

BIOTIP-Smart-Tourism Bilbao and personalised digital signage in Barcelona.

Visit London web. Personalised event recommendations.

USE CASES

Machine Learning applied to digital signage

Personalised cultural offer

AI applied to sports

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Madrid **Attends**

CITIZENS SERVICES

Improvement of **citizen service** and **administrative management** (public employees) through a new **digital**, **efficient** and **intuitive** model based on different **artificial intelligence** capabilities (cognitive engines, biometrics, robotisation, predictive analysis, advanced search engines, etc.)

Objectives

- Streamline **bureaucratic processes**
- Maximise **citizen service** capacity
- **Transform the digital environment** of public employees
- Expand **follow up** and **forecasting** capabilities
- **Automate** the mechanical tasks

TARGET

Citizenship and public employees

POLICIES

- **Digital management**
- **Virtual assistance** on different channels
- **Respect for privacy** and personal data
- **Internal optimisation** of the City Council

TOOLS (AI)

Predictive Analysis	**Text** processing (NLP)	**Optimisation**
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REFERENCES

Talk-London citizen collaboration platform

Chatbots and sensorisation: reporting problems in infrastructures.

New York Center for Responsible Artificial Intelligence

USE CASES

In person attention	**Digital workplace**	**Revenue forecast**	**360 browser**
Digital identity	**Intelligent Madrid Line**	**Data platform**	**Fight against fraud**
Automatic file processor			

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