Federal Ministry
for Economic Affairs
and Energy

KOINNO
COMPETENCE CENTRE FOR
INNOVATIVE PROCUREMENT

Examples of the usage of Artificial Intelligence (AI) in the Public Sector

by Competence Centre for Innovative Procurement (Germany)

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Agenda

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1 Germany

Municipality of Berlin

Project: Bobbi
Field: Relationships with citizens and businesses
Where: Berlin

The virtual service assistent Bobbi was developed in a reasearch cooperation by DAI-Labor der TU Berlin, ITDZ Berlin and the Senatsverwaltung für Inneres und Sport Berlin and Senatskanzlei Berlin. The chatbot gives answers 24/7 and learns from every dialogue and is available in English and 7 other languages.

Source: Berlin (2020)

Municipality of Hamburg

Project: Frag den Michel
Field: Relationships with citizens and businesses
Where:Hamburg

The virtual service assistent „Frag den Michel“ was developed in a reasearch project with DAI-Labor der TU Berlin. The chatbot gives answers 24/7 and learns from every dialogue. It therefore complements other services like the 115 service number and the information of the website.

Source: Hamburg (2020)

Municipality of Heidenheim

Project: Kora
Field: Relationships with citizens and businesses
Where: Heidenheim an der BRenz
Funded by: Ministerium für Inneres, Digitalisierung und Migration Baden-Württemberg | Städte und Gemeinden 4.0 – Future Communities 2017

The virtual service assistent Kora and is based on IBM Watson Assistant. It gives answers 24/7 and learns from every dialogue. It therefore complements other services like the 115 service number and the information of the website.

Source: Heidenheim (2020)

Municipality of Munich

Project: Chatbot Munich
Field: Relationships with citizens and businesses
Where: municitpaliry of Munich

The IT-Department of the municipality of Munich is currently working on the development of a chatbot for Munich which is supposed to complete the current services like the common number 115, the service portal and mobile apps.

Source: Municipality of Munich (2020)

Oberfinanzdirektion

Project: Steuerchatbot
Field: Relationships with citizens and businesses
Where: Oberfinanzdirektion Karlsruhe

The Oberfinanzdirektion in Karlsruhe has established a chatbot to answer simple questions about the tax declaration.

Source: Oberfinanzdirektion Karlsruhe (2020)

Municipality of Ludwigsburg

Project: L2B2 service robot
Field: Relationships with citizens and businesses
Where: municitpality of Ludwigsburg
Funded by: Ministerium für Inneres, Digitalisierung und Migration Baden-Württemberg | Städte und Gemeinden 4.0 – Future Communities 2017

As the first municipality Ludwigsburg uses a speaking service robot within the Citizens Advice Bureau. The robot L2B2 welcomes all citizens in the lobby and drives through the corridors to take them to the right departments.

Source: ludwigsburg.de

Municipality of Karlsruhe

Project: digital Citizens Advice Bureau
Field: Relationships with citizens and businesses
Where: municitpality of Karlsruhe

The Municipality of Karlsruhe ist testing virtual service robots in their Citizens Advice Bureau to digitalise certain services and relieve the workload of their employees. Citizens can now create a citizen account and conduct specific services like printing official documents and change adresses by using a terminal which runs with AI-systems.

Source: karlsruhe.de

Deutsche Bahn AG

Project: SEMMI
Field: Relationships with citizens and businesses
Where: Deutsche Bahn AG

The transport company Deutsche Bahn AG develops a digitalised assistent to answer questions in real-time. The company hopes SEMMI helps in critical situations like storms, snow and other wheather conditions to help their employees with the peak of questions from the customers. Until 2021, SEMMI is supposed to work on every information channel of the company, on the website www.bahn.de , the App DB Navigator and as avatar on some main stations.

Source: deutschebahn.com

Ministry of Foreign Affairs

Project: PREVIEW
Field: crisis recognition

With the data tool PREVIEW the Ministry of Foreign Affairs in Germany analyses publicly available data regarding the political, economical and civil status quo, conflicts and violance to detect critical developments. Therefore, PREVIEW uses methods of machine learning to visualise maps of conflicts, to predict the development of political, civil and critical situations and to detect certain patterns of conflict and crisis which can be used to develop suitable courses of action and strategies.

Source: Ministry of Foreign Affairs (2020)

Municipality of Bad Hersfeld

Field: data analysis
Where: Bad Hersfeld

The municipality Bad Hersfeld is and using different kinds of available data and is publicly showing them in the so called Urban Cockpit. Citizens can gather information about parking, the current status of waste bins and where to find a sstation for e-cars.

Quelle: Fraunhofer IAO (2020), p. 34 | Urban Cockpit Bad Hersfeld

2 EU member states

European Commission (EC)

Project: eTranslation
Field: online machine translation service
Funded by: EU - ISA programme

eTranslation is an online machine translation service provided by the European Commission (EC). eTranslation is intended for European public administrations, SMEs and University language faculties, or for Connecting Europe Facility projects.
If you work in one of the above in an EU country, Iceland or Norway, you can use our product free of charge at least until the end of 2020. eTranslation has been officially launched on 15 November 2017 and builds on the previous machine translation service of the European Commission - MT @ EC.

Source: European Commission (2020)

Austria

Project: WienBot
Field: Relationships with citizens and businesses
Where: Vienna

The virtual language assistent „WienBot“ of the municipality Vienna is showing directly the wanted information – also in English. The App is using speech recognition and processing based on AI and a translation-API. Furthermore, special terms and austrian expressions were added.

Source: Wien (2020)

Latvia

Project: UNA
Field: Relationships with citizens and businesses
Where: Latvia's Register of Enterprises

UNA, a 24/7 virtual assistant chatbotthat provides answers in writing to frequently asked questions posed by current and future Latvian entrepreneurs, including status updates about submitted registration documents. UNA can be accessed through the Register of Enterprises website, as well as Facebook Messenger. It provides an alternative to an in-person visit or telephone call, and enables users to receive answers to questions at any time of the day.

Source: OECD (2019), p. 82 | OPSI (2020)

Portugal

Field: transportation
Where: municipality of Lisbon

The City Hall of Lisbon has partnered with the National Civil Engineering Laboratory (LNEC) and an academic partner, Instituto Superior Técnico, to putin place AI systems to gather, treat, classify and use urban mobility and situational context data, in order to map out and manage traffic flux can in an integrated way.

Source: OECD (2019), p. 80 | FCT website

Portugal

Project: Sigma
Field: relationsships with citizens and businesses
Where: municipality of Lisbon

On 14February 2019, the Portuguese Government launched ePortugal, the new Portal of Public Services. It was accompanied bySigma, a 24/7 virtual assistant chatbot that provides answers in writing to frequently asked questions posed by Portuguese citizens. Sigma can be accessed at ePortugal either by unregistered or registered users (in which case it will increasingly tailor its responses through NLP). In the event thatSigmarecognises that itsresponseis not adequate, it will askthe user whether theywant to speak to a human, and connectthem viatelephone or email depending onthe user's preference.

Source: OECD (2019), p. 82 | ePortugal

3 European region

Denmark

Project: CHAIN project
Field: water management
Where: City Aarhus
Funded by: Innovation Fund Denmark

The purpose of the CHAIN project is to develop innovative solutions for smart water networks based on artificial intelligence and machine learning. The objective is to find ways to increase efficiency, safeguard water resources and ensure security of supply.

Source: https://alexandra.dk/uk/cases/chain-smart-water-networks-UK | National Strategy for Artificial Intelligence Denmark, p. 15.

Denmark

Field: baggage handling
Where: Copenhagen Airport

Since 2016, Copenhagen Airport has been using artificial intelligence to optimise baggage handling. Among other things, artificial intelligence is used to predict where staff can probably best empty aircraft and put cases on conveyor belts. Focus is on time optimisation. This has resulted in fewer queues and better passenger experience.

Source: National Strategy for Artificial Intelligence (2019), S. 15.

4 International

United States of America (USA)

Field: labour data analysis
Where: United States Department of Labor (DOL)

Every year, the Bureau of Labor Statistics at the DOL is tasked with analysing hundreds of thousandsof surveys related to workplace injuries and illnesses in businesses and public sector organisations across government. Starting in 2014, the Bureau began to experiment with using AI to code surveys. Over time, the use of AI increased and is now used on half of all surveys. The Bureau has found that AI can code as much in one day as a trained employee could do in a month, with a higher level of accuracy.

Source: OECD (2019), p. 77 | PARTNERSHIP FOR PUBLIC SERVICE | IBM CENTER FOR THE BUSINESS OF GOVERNMENT (2018), p. 6f.

United States of America (USA)

Field: cancer detection
Project partner: Google and Northwestern Medicine (Chicago)

Lung cancer is one of the leading causes of cancer-related deaths, and catching it early is crucial to treating the disease. Typical processes for diagnosing thedisease have high rates of false positives and false negatives. Google and Northwestern Medicine, an academic medical centre in Chicago, collaborated to develop a “deep learning” AI algorithm to review image scans used to diagnose lunch cancer. The algorithm was then able to review scans independently to predict whether a scan indicated cancer. In all compared cases, the AI system’s predictions were as accurate as those of the radiologists. In some situations, the AI system outperformed the doctors.

Source: OECD (2019), p. 79 | Medical News Today (2019)

Australia

Field: wheather forcast
Where: Queensland Fire & Emergency Services (QFES)

By applying state-of-the-art data science approaches to both Queensland Fire & Emergency Services (QFES) data (internal, public, or otherwise), the project uses AI to forecast the likelihood of major hazards (e.g. cyclones, fire) which drive the service demands for QFES.

Source: OECD (2019), p. 81 | OCED OPSi (2020)

China

Project: City Brain
Field: transportation
Where: Hangshou

The city of Hangzhou, which has a metropolitan population of about 6 million, has partnered with tech firm Alibaba to launch the “City Brain” project. The initiative uses hundreds of cameras around the city to collect real-time data on road traffic conditions. These machine-readable data are then centralised and fed into to an “AI hub” which makes decisions affecting traffic lights at 128 city intersections. t can also make more strategic decisions, such as identifying and clearing paths for ambulances on emergency calls, reducing their travel time by 50%..

Source: OECD (2019), p. 80 | GovInsider

Korea

Project: Platform for Investment and Evaluation (PIE)
Where: Ministry of Science and ICT

The government funding in Korea for R&D has grown steadily; however, this trend has not fully contributed to innovative economic outputs which relates among others to a defragmentation of R & D programmes in 14 different ministries and agencies as well as no connection from the basic research to later stages of applied commercial research and development. Therefore, the Government of Korea is implementing a new innovation investment model which pulls together data from multiple areas and then applies Big Data analytics and Machine Learning to assess disruptive changes in the technology landscape.

Source: OECD (2019), p. 78 | OECD (2020)

Thailand

Feld: cyber security
Where:

Thailand is using AI to monitor network traffic and conduct big data analyses to detect suspicious user behaviour –for instance, two unusual logins with the same credentials, but hundreds of kilometres away.

Source: OECD (2019), p. 82

5 Literature

Publications

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- Berryhill, J., et al. (2019), "Hello, World: Artificial intelligence and its use in the public sector", OECD Working Papers on Public Governance, No. 36, Paris: OECD Publishing.
- Christian Djeffal (2018): "Künstliche Intelligenz in der öffentlichen Verwaltung (Kurzstudie)", Berichte der NEGZ No. 3, Berlin: NEGZ.
- European Commission (2020): "White Paper On Artificial Intelligence - A European approach to excellence and trust", Brüssel: European Commission.
- Fraunhofer IAO (2020): "Künstliche Intelligenz in der öffentlichen Verwaltung" (Studie), Fraunhofer IAO.
- United Nations (2019): „UN Activities on Artificial Intelligence (AI)", Geneva: International Telecommunication UnionPlace.
- World Economic Forum (2018): „Harnessing Artificial Intelligence for the Earth", WEF.

AI Strategies of P2I member countries

- Estonia: National AI strategy
- Germany: National AI Strategy Germany (DE)
  Handbook of regulatory sandboxes Germany (EN)
- Italy: National Strategy on Artificial Intelligence
- Netherlands: Strategic Action for Artificial Intelligence
- Portugal: AI Portugal 2030
- Spain: RDI Strategy in Artificial Intelligence
- Sweden: National Approach for Artificial Intelligence

To be released 2020:

- Austria
- Ireland
- Greece

More information on www.ec.europe.eu

Useful Links

- AI Watch
- European AI Alliance
- Observatory of Public Sector Innovation (OPSI)
- Plattform lernende Systeme (PLS) | Germany

6 Contact

Thank you very much for your attention!

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