European Commission

National strategies on Artificial Intelligence
A European perspective in 2019

Country report – Belgium

In order to position Belgium into the European landscape of AI, the AI4BELGIUM coalition (Belgium, 2019) launched a policy recommendation report in March 2019. This report has been prepared by a multidisciplinary team of forty experts stemming from various institutional backgrounds, including AI practitioners, academics and governmental representatives. The policy recommendations outlined in this report constitute a first step towards an ambitious and official Belgian AI Strategy. The AI4Belgium coalition now has more than 500 members.

In order to match the yearly investments per capita of France, Germany and Finland, the coalition recommends a minimum investment level of €80 million per year which corresponds to at least €1 billion by 2030.

An external consultant has been commissioned by the Federal Ministry of Economy to draft, by mid-2020, a Belgian AI strategy supported by all Belgian Regions and the Federal State.

1 Human capital

One of the main recommendations for a future Belgian strategy is the creation of a new learning deal. The new learning deal encompasses a range of policy recommendations on skills building programmes to prepare existing and upcoming generations to the societal transformations that AI technologies bring along. These recommended skills building programmes do not only target the reskilling of adults on the job market, but should also include reforms of the educational system to include AI (related) courses in all levels of the school curriculum.

The future national strategy of Belgium should advocate tailored and sufficient incentives for **lifelong learning and reskilling** at large scale through:

- Improved tools and standards to invite workers to identify skills and skill gaps and find appropriate reskilling programmes;
- Give all labour-market stakeholders the responsibility to invest in lifelong learning;
- Development of massive open online course (MOOCs) on AI to train at least 1% of Belgian citizens;
- Improved opportunities to engage in lifelong learning and make lifelong learning a core mission of all schools.

In addition, the Belgian coalition of experts recommends the **reinforcement of human skills in AI at all education levels** which would not only target students but would also provide the necessary training to teachers in order to use innovative AI-enhanced tutoring techniques. This could include following initiatives:

- Reforms of primary and secondary education towards increasing soft skills (creativity and critical thinking) and integrating coding, use of technology and data courses;
- Introduction of data, technology and AI courses in higher education while stimulating cross-disciplinary learning;
- Training and upskilling teachers to teach AI-related courses.

In order to grow and attract more AI talent, particular attention is devoted to initiatives that enhance the university and post-graduate offering of AI subjects. One of the proposed approaches would be to increase the amount of AI courses in Bachelors and Masters Programmes and to include studies on Data Translator, Business Analyst and High-level Data Engineering with a strong AI methodology. Another initiative relates to the creation of a country-wide AI/Machine-learning doctoral school to grow the stock of AI experts in Belgium.

2 From the lab to the market

One of the main objectives in every AI Member States' strategy is to enhance the competitiveness of companies through the use of artificial intelligence. This can be reached through the creation of an enterprise-driven ecosystem in which companies are effectively supported to conduct world-class research and are provided with the necessary incentives for setting up AI testing facilities and eventually for bringing promising AI applications successfully on the market. Belgian's support actions for the innovative process of companies - from the lab to the market – should comprise both financial funding and **initiatives to fuel research and innovation power in the private sector** such as reinforced research laboratories and projects. Financial instruments would target SMEs in particular in order to alleviate their constraints to experiment with AI and to allow them scaling up. Hence, policy initiatives should include among others:

- Position Belgium as the European AI Lab by scaling up research laboratories and setting up sandboxes for testing purposes;
- Set up large-scale blue-sky projects to fuel research;
- Set up financial instruments for SMEs to experiment with AI;
- Support SMEs when applying for European investment programmes;
- Support scale-up growth through a large-scale AI public-private matching investment fund.

The Belgian coalition of experts also calls for a substantial **transformation of the public sector ecosystem**. Currently only few public sector organisations are experimenting with and implementing AI applications in Belgium. To reverse this trend, a change in paradigm is needed. The public sector should not only be service provider but should play an active role in AI development. It should become a facilitator and platform towards AI experimentation and exploration. To this purpose, the experts recommend various tools ranging from strategic investments to governance efforts in the public sector:

- Create rolling fund and task force for experimentation with AI in public institutions;
- Redesign public procurement processes to enable trial and error;
- Appointing a Chief Digital Officer to coordinate nationwide efforts;
- Select use cases in public institutions to improve service and build expertise.

3 Networking

Collaborations between companies, research institutes and society are important engines for a swift deployment of AI. Bringing the community together and combining expertise and efforts from various sources are indispensable tools to seize (the often ambitious) AI opportunities. This calls for policy initiatives to support local collaborations, but also to target large-scale ecosystems and hubs that encompass all AI stakeholders which do not necessarily restrict to the country borders but expand to international communities. According to the Belgian coalition experts, increased collaborations could be reached through effective knowledge and data sharing related to technological, administrative, organisational and training issues, among others. Policy building blocks to **foster networking and collaboration** would be:

- Set up a Belgian Innovation Hub;
- Set up partnerships with industry and public sector to allow AI and PhD students to work on practical applications;
- Create a confederation of Belgian laboratories and join European initiatives (ELLIS, CLAIRE);
- Develop an independent Belgian data-sharing platform.

The Belgian coalition of experts expresses the need for an enhanced national and international visibility, displaying the high-quality AI developments of the country. In addition to increasing its visibility abroad, Belgium should also aim at attracting foreign talented individuals and firms in AI. Hence, talent exchange and selective migration of high potentials to Belgium should be encouraged. Proposed initiatives towards **increasing the (inter)national attractiveness of AI** include:

- Organise large-scale events that showcases Belgian AI successes;
- Set up a public programme that supports AI projects with positive social impact;
- Simplify visa procedures and selective immigration for top foreign talent;
- Actively chase private research initiatives to bring them to Belgium.

4 Regulation

Public trust is the cornerstone of any AI and data strategy. Hence, the **development of ethical guidelines is key** to support the use and the development of AI. Trustworthy and ethical AI should account for both individual and collective rights and should address notions of accountability, legitimacy, non-discrimination, respect for privacy and transparency,

among others. The Belgian coalition of experts recommends the following initiatives to address several of these notions and principles:

- Create a Belgian ethical committee to provide guidance on ethical topics to all AI players;
- Support communication, transparency and shared guidelines between public and private sectors about AI ethics policies;
- Integrate civil society in the design and decision process.

Successful and smooth deployment of AI across the economy and society also requires a **robust and up-to-date legislative framework**. Following initiatives are advocated by the experts to reach a relevant and effective regulatory framework:

- Development of digital and AI literacy among policymakers and regulators to foster the policy dialogue towards regulation;
- Development of a regulatory framework in AI that includes sector-specific legislation, but also covers horizontal legal aspects that transcend sectoral issues.

Besides the development of a legal framework and ethical rules for AI, the policy recommendation report briefly mentions the **importance of standardisation**. In particular private-public partnerships and government to government (G2G) collaborations should be supported towards data sharing and the development of common standards. The focus should however lie on the development of pan-European and international standards rather than on country-specific ones.

5 Infrastructure

The policy recommendation report does not explicitly mention policy initiatives for the reinforcement of the digital and telecommunication infrastructure.

6 Regional strategies

The transversal nature of artificial intelligence and its pervasive impact on the Belgian economy and society at large, necessitates an intra-Belgium **multilevel governance approach** given the division of competences in a federal state such as Belgium.

Flanders

In March 2019, the Flemish government launched the Flemish action plan to foster artificial intelligence in Flanders. The Flemish AI action plan provides funding complementing funding that is available through the regular, bottom-up instruments of both FWO (funding for HEIs) and VLAIO (funding for enterprises). Thanks to these regular instruments, in 2019 FWO invested more than €15 million and VLAIO more than €41 million in AI related projects. The Flemish AI action plan foresees an additional annual budget of €32 million for its implementation that is centered around 3 pillars:

- Basic Applied Research (12 million euros). Four strategic challenges will be addressed. Applying (and combining) the research results of these four challenges will happen in the context of for use cases or proofs of concept, in particular in health and industry4.0:
    - Help to Make Complex Decisions Through Data Science: Hybrid, Automated, Trusted, and Actionable;
    - Deliver Artificial Intelligence to the Edge: Realtime & Power Efficient AI;
    - Interact Autonomously with Other Decision-Making Entities: Multi-Agent Collaborative AI.
    - Communicate and Collaborate Seamlessly with Humans: Human Like Artificial Intelligence
- Technology Transfer and Industrial Applications (15 million euros):
    - The existing Flemish policy mix of support mechanisms for enterprises will not be extended (e.g., no specific extra evaluation criteria) but additional funding for AI related proposals is earmarked on beforehand (with a clear definition on how important the share of AI is supposed to be) with the clear intention to support a substantial extra number of AI related project.
- Supporting activities (awareness, training, ethics) (5 million euros):
    - A "data and society" research centre has been created to support practitioners in including various ethical issues in the design, creation, implementation and roll-out of AI-driven applications. In addition, many kinds of awareness rising activities will be launched and different types of educational and training material for various target groups and skills levels.

Actual activities under the umbrella of the action plan have started as from July, 1st 2019. Noteworthy items to be mentioned are: a research roadmap with four major challenges (including several proofs of concept), dedicated calls to

support AI take-up and development by companies, the set-up of a expertise centre on "data & society" and the creation of various outreach and educational material on AI.

Brussels Region

An analysis of all regional AI activities and initiatives in the Brussels Region is underway in order to draw up a comprehensive overview of AI actors and support programmes in the regional ecosystem. This overview should be available by mid-2020 and will help identify potential gaps in the current policy setting.

However, the Brussels Region is already very advanced in AI, since it has been building up several initiatives in order to boost AI-related activities in Brussels. In the last two years, the regional innovation funding body Innoviris has been playing a major role in the support of AI-related research and innovation effort, through a strong development of its support programs with a dedicated budget of EUR 20 million. In particular, one can mention the launch in 2017 of an AI call ("Team Up") aiming at fostering collaboration between academia and industry. This program is a reflection of the Brussels region approach to AI development, which puts a great emphasis on collaborative research and open innovation. Academics get access to use cases and data while companies receive the expertise they often lack. The scheme has proven to be very successful with nineteen collaborative projects funded amounting to EUR 12 millions of subsidies.

Furthermore, to complement the above industrially focused approach, in 2018, AI was also made a focus on another R&I program called "Anticipate". The objective there was to fund projects which present a prospective vision of AI and the impact of its development on a social and economic scale in the Region. This type of program is key with regards to AI development since it helps understanding all the ethical, social, and economic implications of AI and in turn will be useful for the design of an inclusive and ethical AI strategy.

Moreover, it is worth noting that besides these two specific calls, Innoviris funds AI/Data related projects for more than 6MEur subsidy per year (equivalent to quarter of its budget dedicated to industrial support) through its open call dedicated to companies.

While the approach so far was meant to be cross-sectorial, Innoviris is now engaged in a more specialized track with for example an ongoing call dedicated to predictive medicine and an upcoming call dedicated to Industry 4.0.

The Brussels Region also offers a large panel of services to support companies in their AI endeavours – both from technical and business point of views.

As for the technical aspects, one can mention the leading role of Sirris Brussels through its Elucidata laboratory (10 experts) and the ICiTy.Bru technology hub, both co-funded by the Brussels Region and ERDF. Furthermore, Innoviris has recently expanded its list of accredited centres to several AI labs to provide services via Innovation Vouchers.

When it comes to awareness raising, the Region is also funding, still through Innoviris, various programmes aiming at boosting skills in ICT. One can mention the mobile fablab programme, which visits schools in Brussels to promote new technologies amongst Brussels youth. Besides, Innoviris organises each year a festival on science for a wide audience.

Innoviris also launches open calls for proposal dedicated to STEM awareness, where innovative projects on STEM awareness would get funding in order to stimulate another vision of STEM around youth. Innoviris also took part in the platform Women in Tech and is a partner of de Women Code Week, in cooperation with the Brussels Agency for Enterprise Hub.Brussels.

The Walloon Region

Supported by the Digital Agency, Agoria, the ICT Cluster Infopole and the AI Network, the DigitalWallonia4.ai program has the main objective of accelerating the adoption of artificial intelligence (AI) in Wallonia and the development of its Walloon ecosystem. Its official launch was celebrated on November 27, 2019 but the effective start took place on July 1, 2019. Here is a first assessment.

The strategy developed for the DigitalWallonia4.ai project is based on four structuring axes:

- Society and AI;
- Companies and AI;
- Training and AI;
- Partnerships and AI.

Axis 1: Society and AI

Numerous awareness-raising actions took place in 2019, aimed at businesses, public authorities and citizens. One of the first was the implementation of the DigitalWallonia4.ai project published on the Digital Wallonia platform which brings together all the resources (e.g. events, profiles, publications) related to the project.

Axis 2: Companies and AI

Two actions, linked to axis 2 which aims to support and accelerate the digital transformation processes within Walloon companies in order to create "augmented" products and services, were implemented in 2019: Start AI and Tremplin AI.

Start AI whose objective is to support companies in their discovery of artificial intelligence, through a 3-day coaching by one of the members of the AI expert pool of Digital Wallonia.

Tremplin AI, program intended to establish demonstrators (PoCs) on artificial intelligence in the Walloon Region. The objective is to launch at least 2 individual PoCs, and 3 collective PoCs before the second half of 2020.

Axis 3: Training and AI

Preparation of two public contracts (still in progress) for the implementation of training programs on AI throughout the Walloon territory. These markets will be published in early 2020.

The AI course developed by Agoria is available online for free on the DigitalWallonia4.ai portal. First level of training for companies and individuals.

Axis 4: Partnerships and AI

The 4 referent partners of the DigitalWallonia4.ai project were joined by around twenty official partners as part of the regional dynamic, in connection with the national (AI4BELGIUM) and European strategy.

Reference

Belgium (2019). AI4Belgium. Ministers for Digital Agenda.
https://www.ai4belgium.be/wp-content/uploads/2019/04/report_en.pdf

Background information

This country report has been prepared in the context of AI Watch and the OECD AI Policy Observatory.

AI Watch is the European Commission knowledge service to monitor the development, uptake and impact of Artificial Intelligence (AI) for Europe, launched in December 2018.

The OECD AI Policy Observatory (OECD.AI) is an inclusive hub for public policy on AI. It aims to help countries encourage, nurture and monitor the responsible development of trustworthy AI systems for the benefit of society.

This country report has been created on the 25th of February 2020. Please visit https://ec.europa.eu/knowledge4policy/ai-watch/belgium-ai-strategy-report for regular updates.

Contacts:

European Commission – Joint Research Centre
Directorate B – Growth & Innovation – Digital Economy Unit (B6)
e-mail: EC-AI-WATCH@ec.europa.eu
website: https://ec.europa.eu/knowledge4policy/ai-watch_en