# Artificial Intelligence: What it makes and what it breaks

**Also: A look at the past and future of AI, the use of AI in healthcare and education, avoiding bias in AI to ensure equality, and more...**

# In This Issue

# Letter From the Editors

OpenAI's release of their online generative Artificial Intelligence (AI) application, ChatGPT, has led to a surge in conversation and debate about AI, as well as the usage of AI applications and technology. The use of AI has implications for education, government, the creative sector, and for all the other spheres of human activity.

In this issue of Funded, we summarize this as 'the making and breaking' of the human world as we know it. While "breaking" may imply fear, we view this term as encompassing the wonder of the unknown, and possibly disruptive, potential of AI. AI harbours enormous potential to change our everyday lives and the way we work.

The impacts of AI remain to be seen. In this issue, we have focused on the intersection between Artificial Intelligence and the public funding world. From AI's potential contribution to existing inequalities, to the changing grant landscape, to the importance of AI project applications, and the effect of AI on funding capture are manifold. Our contributors outline the necessity for strong policy guidance for AI, the challenges tools such as ChatGPT introduce to the education sector, investigate European approaches to AI, and account for underlying ethical questions of responsibility and meaning. We also focus on the impact generative AI can have on grant writing, in our cover article, written, Vanessa Sanchez del Pozo, examines the existing solutions to aid grant writers and professionals.  Others, like Gregory Clare, examine how the debate surrounding AI has evolved from the 1980s to these days.

In honor of this issue's theme, we thought we would try something new for our usual introductory note and gave ChatGPT a prompt to write our editor's note. The judgment of the result lies with you readers.

"Hi ChatGPT, please write me Charlotte and my fellow editor of FUNDED Adele, an introductory editor's note to the fall issue of our magazine FUNDED. I'd like you to mention our theme "Artificial Intelligence" and why we think it is important and interesting from a global funding perspective, and its importance to the grants community."

Dear readers,

Welcome to the fall issue of FUNDED, where we explore the theme of "Artificial Intelligence". As editors, we believe that AI is one of the most significant and fascinating subjects of our time, especially from a global funding perspective.

AI is revolutionizing various industries, from healthcare and finance to transportation and agriculture. It has the potential to solve some of the world's most pressing issues, from climate change to social inequalities, and to unlock new opportunities and innovations.

From a funding perspective, AI is becoming a priority area for many governments, philanthropic organizations, and venture capitalists. The global investment in AI startups has been increasing steadily over the past few years, with billions of dollars being poured into the development of AI technologies and applications.

For the grants community, AI presents unique challenges and opportunities. How can we ensure that AI is used ethically and responsibly? How can we foster AI research and development that benefits all, not just a few? How can we support the capacity building of nonprofits and community organizations to leverage AI for social good?

In this issue of FUNDED, we bring you articles and features that explore these questions and more. We have interviews with AI experts, case studies of AI-powered projects, and insights from grantmakers and grantseekers. We hope that this issue will inspire and inform you, and that you will join us in exploring the exciting world of AI.

Thank you for reading.

Charlotte and Adele
Editors,
FUNDED

The potential for AI to contribute positively and negatively to our daily work in the Grants world is yet to be seen.. As always, our objective here at Grants Office is to provide context to the various grant funding programmes available across Europe, and in this case, the AI-relevant programmes discussed include Horizon Europe, UKRI's Technology Mission Fund as well as the Recovery and Resilience Facility as it pertains to Portugals and much more!

Kind regards,
*Adele Lebano and Charlotte von der Brelie*
Editors,
FUNDED

# The Transformative Potential of Artificial Intelligence in Grant Writing: Efficiency, Creativity, and Beyond

**Vanessa Del Pozo Sánchez**
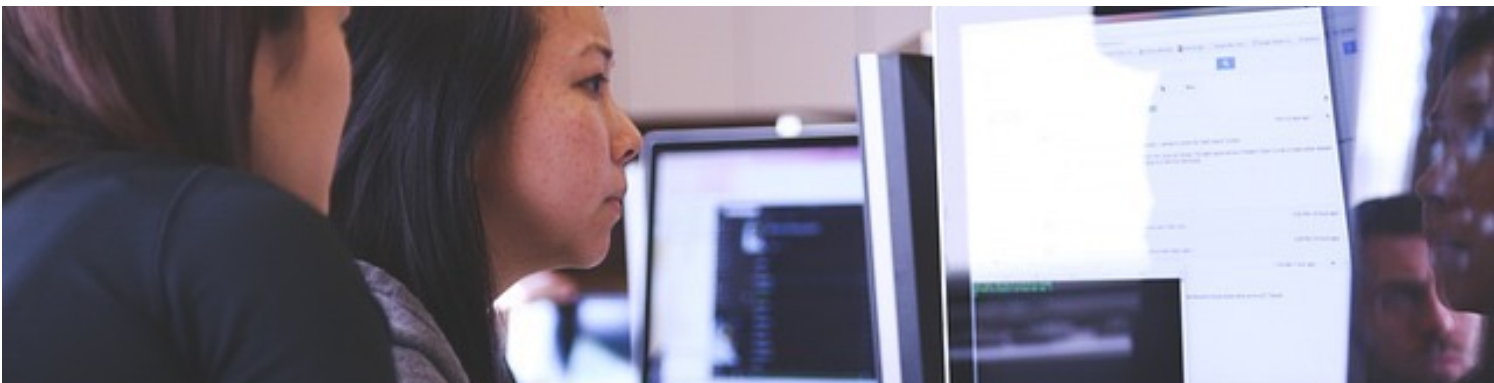


The integration of AI in grant writing can have a range of impacts and benefits. One of the most immediate advantages is the increased efficiency it offers, with AI-powered tools like ChatGPT quickly generating summaries, abstracts, and various sections of grant proposals, thereby saving grant writer's valuable time. Additionally, AI can automate repetitive tasks such as proofreading and editing, allowing writers to concentrate on higher-level aspects of proposal development.

Another significant benefit is the enhancement of creativity and idea generation. AI serves as a valuable brainstorming tool, suggesting novel and innovative ideas that grant writers may not have considered, boosting the creativity of proposals, and resulting in more compelling and unique grant applications that capture the attention of potential funders.

AI also contributes to consistency and standardization by helping maintain a uniform tone and style throughout a grant proposal. This ensures that the message remains coherent and professional, which is particularly crucial when proposals are composed by different team members or over an extended period.

Accessibility and inclusivity are other positive impacts of AI integration, potentially making grant writing more accessible to individuals with varying levels of writing expertise. Novice grant writers can use AI assistance to produce more polished proposals, and organizations with limited resources can generate higher-quality applications.

AI's ability to assist in data analysis and provide insights strengthens the rationale for a grant proposal. It can identify trends, patterns, and relevant statistics, bolstering the case for funding and highlighting the potential impact of the proposed project.

Moreover, AI allows for customization and tailoring, adapting its language and content to match the specific requirements of different grant applications, aligning proposals with the preferences and priorities of various funding organizations. AI-powered tools can offer suggestions to improve the clarity, coherence, and persuasiveness of grant proposals, potentially leading to higher-quality applications with a better chance of securing funding.

It is important to acknowledge that while AI offers numerous advantages, there are also potential challenges and drawbacks to consider. AI may lack the nuanced understanding of a specific project's context or the emotional resonance that human grant writers can provide, potentially missing the personal touch and passion infused into a proposal by skilled grant writers. Additionally, ethical concerns may arise as AI-generated content becomes more prevalent, particularly regarding transparency and disclosure to funders about the use of AI assistance in proposal creation. Lastly, while AI can assist, it should not replace the development of strong grant writing skills, as grant writers still need to understand the fundamentals of proposal development to effectively use AI tools.

## WHAT ARE THE MAIN AI TOOLS AND WHAT ARE THEIR PRIMARY FEATURES?

To gain firsthand experience and a practical understanding of AI's functionality in the realm of grant writing, I embarked on a test trial. During this trial, I thoroughly explored the workings of various AI grant writing tools, dissecting their strengths and weaknesses to discern the nuances of each.

The chart below presents a comparison of the key features of three of the most popular AI tools in this domain.

It is crucial to acknowledge that these AI tools are heavily reliant on our prior knowledge and input. Users are required to upload their previous work, which offers two distinct advantages. Firstly, it ensures that these tools are tailored for individuals with prior experience in grant writing, optimizing their functionality for seasoned professionals. Secondly, this input process allows AI to learn from the user's unique voice and style, enabling it to generate results that closely resemble the user's natural expression and approach.

In conclusion, the integration of AI into the grant writing industry can revolutionize the way proposals are developed, reviewed, and submitted. By harnessing AI's capabilities, grant writers can enhance their efficiency, creativity, and overall proposal quality, while also navigating the ethical considerations that arise in this evolving landscape. As the industry continues to adapt to these technological advancements, finding the right balance between AI assistance and human expertise will be key to maximizing the benefits of this transformation. However, a thought-provoking question emerges as we delve into the world of AI-powered grant writing: Could AI itself become the evaluator of its own content?

| | Qualities | Price |
|---|---|---|
| Grantable | • Utilizes previous proposal content for drafting responses to new questions.<br>• Provides a clean and user-friendly writing environment.<br>• Automatically stores work in a smart content library.<br>• Continuously improves over time through usage.<br>• Provides instructional videos demonstrating platform usage. | Monthly billing between $24 to $89 USD or Annual billing between $240-$890 USD |
| Grantboost | • Simplifies the user experience by providing built-in prompts, eliminating the need for users to create detailed instructions for the AI.<br>• Offers a variety of templates and successful grant proposal examples, which can serve as valuable guides for users, especially those who are new to grant writing.<br>• Offers features that assist in managing the entire grant application cycle.<br>• Specific to Nonprofits | Up to $99 USDper month |
| HyperWrite | • Powered by GPT-4 and ChatGPT.<br>• Suitable for non-profit program funding, research grants, educational grants, arts and culture grants, and environmental grants.<br>• Personalizes to your writing style with the Chrome extension.<br>• The extension allows access and usage of the Grant Proposal Generator on various websites and platforms. | Premium Plan at $19.99 USD per month or Ultra for $44.99 USD per month |

## ABOUT THE AUTHOR

Vanessa Del Pozo Sánchez is one of the Senior Grants Development Consultants for Grants Office Europe. Driven by reason, analysis, and the disposition to help others, she takes pride in producing plausible solutions for a broad range of problems, all as part of a system of human cooperation. As part of the team of Grants Office, her goals include support to public and private entities in their search for grants for high-tech projects in Spain.

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# How the Grant Funding Sector Can Avoid Bias in Artificial Intelligence to Ensure Equality

## Linn Engen

2023 will likely go down as the year that artificial intelligence became mainstream. Whether you are a technology native or a sceptic, conversations about machine learning tools and how they will shape our future are increasingly prevalent. ChatGPT has been the star of the last quarter, and theories on how its inevitable presence will change the way we work, or not work, are being discussed at a high pace.

Popular films, TV series, and books by well-established physicists ponder existential questions about consciousness and the future of humanity: "what does it mean to be human?" Central themes explored in newspaper editorials or water-cooler discussions centre on more imminent matters such as whether AI tools may lead to mass layoffs or inhibit school children's academic growth.

 The above-mentioned growing pains with this technological leap are important to discuss, however one matter not considered enough is the inherent cultural bias displayed by current AI tools and applications. One common application already explored is using AI to evaluate applications and candidates to fill employment vacancies. These early attempts to use AI in this area of decision-making have shown that further measures need to be taken to ensure fair evaluation processes. Given the potential to use this technology to process large data sets without human prejudice interfering, it is reasonable to think that AI will soon play a part in the public funding sector. It is plausible that artificial intelligence will soon assist grant makers in selecting winning proposals. This article highlights some of the pitfalls to avoid as the new technology is adopted.

## MISREPRESENTATION OF DATA

There are many ways bias shows through in AI systems, one of these being from the existing biases in the original data fed into the AI models. This bias can be reflected as an under-, over-, or misrepresentation of certain groups of a population. An example of this type of bias is the historical under-representation of people of colour and women as awards winners of scholarships or holding of tenures. If or when AI technology is introduced as a method to select grant winning applications for example, there is a risk of dis-favouring applicants with limited representation in a certain research field.

Misrepresentation of data happens when, for example, data relating to criminal activities disproportionately includes markers of non-white ethnicities due to years of systemic racism. The misrepresentation embedded in the original data set from which deep learning takes place can cause incorrect conclusions, just as it does within a human brain when it is exposed to a misrepresented newsfeed.

caution, these questions might be answered with the status quo of high-ranking people currently in business or academia or outsourced to the AI developers themselves, which are all likely to be cis men with a certain socio-economic status. It is therefore important to decrease the risk of framing bias through consulting various perspectives early in the development stage. It is important that technology companies developing the tools as well as the authorities using them make sure they know what they want to achieve and for whom.

## PREPARATIONAL BIAS

Equally as important as selecting data sets is selecting which data points to disregard in order to obtain a good representation of the reality one wants to look at. In preparing the collected data, someone needs to decide which properties should be analysed in order to solve the specified optimisation problem.

Depending on the intended use of the tool, the characteristics AI is asked to consider might cause bias. For example, information about gender, sexuality and socio-economic factors could be relevant to accurately represent reality, but this information can also cause potential bias which can be difficult to identify.

Unfortunately, being aware of the potential types of discrimination is not necessarily enough. As shown in Amazon's recent AI aided hiring process, simply omitting gender data in the analysis of resumes does not guarantee a decision free from misogyny. It turned out that men and women are likely to use different wording in describing themselves and their competency, potentially because of societal expectations, norms, and pressures, and the decision-making algorithm preferred "male" language. As a result, the problem presented to the AI (i.e., pick the best candidate) and the information it was asked to consider (self-acclaimed personality traits) were subject to unconscious bias, when used in combination.

Subtle bias of this kind is something that grant makers need to be aware of as AI technology is incorporated into the grant making process. If AI models are used to evaluate grant proposals, there needs to be a thorough review of which candidates the AI initially favours and why. To understand the reasons behind the conclusions it makes is crucial. It is also necessary to investigate the results for patterns that are not obvious at first. If the AI model systematically favours proposals from one demographic over others, some hidden preference could be the culprit.

Grant makers should be well placed to make these kinds of judgement calls as the aim of many funding calls is to create fairer opportunities or to actively favour historically disadvantaged groups of people.

## FRAMING BIAS

The problems around bias in AI neither begin nor end with the collection of data. Before the data is collected someone needs to decide what type of AI model they want to build and what that AI model should be able to do. The data believed to serve as accurate training material for this purpose should then be collected. The question upon which the tool is built might carry some bias from the AI developer's personal worldview. In determining whether someone is a good fit to lead a project funded by the government or to receive a loan, for example, exists ambiguously around what "good fit" means. There are cultural differences affecting what humans consider to be a "good fit." For an AI model to work there needs to be a question that can be comprehensively calculated and supplied with equal representation in the data set.

For example, artificial intelligence cannot provide an answer to the following question without some human guidance: Which 10 people should be invited for a next-stage interview regarding their application for public funding? Someone needs to clearly define what outcomes should be optimised, for example; by appointing a project lead, do we want to a) increase profit, b) increase wellbeing in the community or something else? Without

## BIASED TRAINING DATA

The method with which data is analysed by AI is also likely to replicate existing prejudice. There are several types of AI utilising different routes to draw conclusions. Machine learning is just one way AI can reach a conclusion, which is built entirely on historical data and the AI's own past computations. When a machine learning tool is tasked to act as a decision maker, it will prepare itself for such an exercise on material comprised of past decisions in similar situations i.e., decisions that might have been discriminatory.

A few examples of such data sets for training purposes that could result in detrimental misjudgements, are historical outcomes of legal trials, workplace sexual harassment disputes, or hiring processes. The machine would learn to act like a human and potentially disfavour women or non-white people as a result. For the world of funding, this bias can present itself in different ways.

If AI is given free rein to learn from funding streams throughout history, there is a risk that male-dominated fields of research are given priority. This is because it is well-established that research on medical conditions only affecting women has been heavily underfunded. In cases where the same disease manifests itself differently in different genders, such as cardio-vascular problems, the male study subject has been used as the norm. When groups of researchers or others have their requests for funding evaluated, it is important to ensure that the software or person going through it is not biased by historical priorities. Cognitive computing and neural networks both attempt to imitate the way humans think, for example, through identifying patterns in data. Depending on the available data set and whether the information contains systemic bias can lead to discrimination. In summary, bias can be introduced at every step of the journey when artificial intelligence is programmed. It stems from misrepresentation in the original data, human prejudice reflected in the way the question is framed, or which attributes are evaluated, and is then reinforced during the machine training stage. There is also the type of algorithmic bias that unintentionally yet systematically disfavours a category of attributes/candidates/responses. This can be due to picking up patterns linked to attributes of gender, race or more.

Biased data, correctly referred to as statistical or computational bias, is just the beginning. The human biases and systemic biases discussed above are also issues that need to be addressed. It is therefore necessary to investigate the outcomes made by an AI with the same critical eyes that would study the work of humans. AI should be used to improve decision making to come to fairer conclusion than a few individuals would be able to. If this is not possible due to limitations of existing data, it is probably best to only use it in combination with the standard review process.

However, as the knowledge about how the different types of AI should best be used increases, there are many ways to improve upon the existing process and deploy the software in a beneficial way. There are, after all, many negative human traits that AI does not exhibit such as decision-making fatigue, a tendency to pursue one's own agenda, or becoming subject to peer pressure and corporate politics.

## RISK FOR UNJUSTNESS IN THE DISTRIBUTION OF AI-GENERATED WEALTH

There is an understanding amongst business experts that machine learning tools have the potential to increase production output whilst creating more wealth - making us free and rich, as opposed to unemployed and poor, which is a fear for some. There is also concern that the resources gained or saved will not be justly allocated. So, in addition to the risk of arriving at unfair decisions, AI also poses the risk of making the rich richer and the poor poorer.

As things stand today, much of technology is controlled by a few technological giants due to the need for innovative computational power and enormous amounts of electricity. On top of owning our data and acquiring more at no cost through our generation of more data, Google, Facebook, and others, are at the forefront of AI development and are destined to benefit from the AI revolution.

Some are cautious about the future of AI- Professor Timothy C. Havens, an AI expert at Michigan Technological University believes that the current technology landscape can increase the income gap. Similarly, historian Yuval Noah Harari is of the opinion that this revolution is indeed different to the one we saw during the industrial revolution and that the use of AI will cause mass unemployment. In his book 21 lessons for the 21st century he argues that we will see "a useless class of people" form as a result of technology taking jobs whilst failing to create new ones.

Others are more optimistic and argue that AI tools and technology can be used in the individual's favour, helping with investment decisions, work skill development, and more. Only time will tell what will happen, but conversations surrounding bias and equitable representation of data and in algorithms should definitely continue.

### ABOUT THE AUTHOR

Linn Engen is the Grants Development Consultant for the UK and Ireland at Grants Office Europe, helping public and private sector organisations identify funding opportunities suitable to their projects. She has a master's degree in industrial engineering and has a passion for sustainability and innovation.

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# Institutional Policies and Guidance Concerning the Use of Generative Artificial Intelligence Applications in Education

## Charlotte von der Brelie

The sudden emergence of newly powerful generative AI applications capable of producinghuman-like output, including art, summaries, and essays, as well as the capacity to score top marks on major standardized tests and university entrance examinations and assessments has forced the education system to quickly re-evaluate their examination methods and create policies regarding the use of AI technology.

A recent survey by the Ministerial Roundtable on Generative AI and Education organized by UNESCO, showed that of a global examination of over 450 schools and universities,fewer than 10% have developed institutional policies or formal guidance concerning the use of generative AI applications. I The majority of institutions have not yet providedg the necessary guidance and direction regarding the usage of new AI applications.

This delay in action is in part because olicies that govern and influence the use and misuse of novel digital technologies in education often beginat the institutional level  and are enacted before state or national level policies have been made. These deliberations take a lot of time and effort even at the institution level,therefore one can gather that a similar process at the national and sub-national level will take even more time.

Without institutional guidance, these technologies may end up influencing the education system in unwanted or unplanned ways. Institutions need to keep up with continuous technological advances, and  an agile and iterative approach is required to quickly respond toemerging technologies that could hinder their abilities to evaluate students effectively.

The ad hoc nature of the current approach is underlined by further details of the study, of the education institutions that reported having a policy, only half  had clear rules and advice regarding the educational use of generative AI applications. The other half of institutionsleave any adaptation and enforcement up to individual departments, classes, and teachers to decide whether and how to use generative AI. Only two of the surveyed institutions indicated that their policies banned the use of generative AI applications such as ChatGPT. Further, some 40% of the institutions surveyed indicated that their existing policies had only been communicated orally and that there was no written policy. Universities did have significantly more institutional policies present than schools (13% to 7% respectively).

For education institution decision makers, UNESCO is a relevant source for guidance and policies regarding generative AI. They published a framework on AI competencies for students and teachers for school education on September 4th that can aid in the creation of internal policy memos. Additionally, the 2019 Beijing Consensus on AI and Education and the 2019 I'd Blush If I Could publication are valuable resources regarding some of the challenges and implications of AI technologies, and for pointed policy advice the publication AI and Education: Guidance for Policy-Makers is an excellent resource.

**ABOUT THE AUTHOR**

Charlotte von der Brelie is the Grants Development Consultant for Germany at Grants Office Europe. She studied International Relations and International Political Economy, with a strong background in OSINT she now focuses those skills on grants, tenders and public procurement.

# The Artificial Intelligence Hype Cycles of the 60s and the 80s: Bracing for Funding Challenges Ahead

## Gregory Clare

In the world of grant consultancy, we receive an abundance of free or discounted tickets to board the "hype train." It is easy to get carried away by the allure of the next big emerging trend. Our interactions involve bright and entrepreneurial minds presenting astonishing ideas that arouse excitement. With time, however, patterns of underlying technological development giving rise to these 'groundbreaking concepts' becomes clear.  A few years ago, every remarkable invention had to revolve around blockchain technology; and over the past year, Artificial Intelligence (AI) has taken centre stage for the most impressive projects.
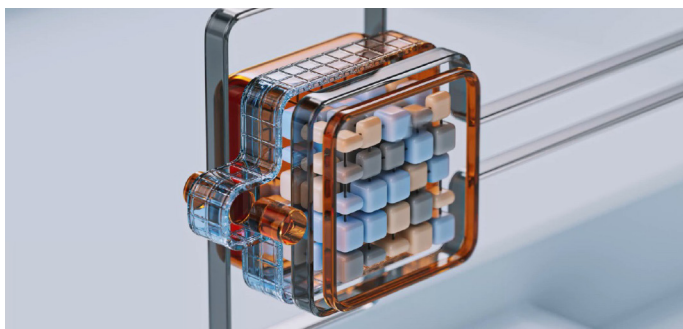
I echo the sentiments of many in this industry when I express that we have all grown cautious of hucksters, yet AI might warrant more acknowledgement. It can be considered the grandfather of emerging technologies. With roots tracing back to 1951, AI has traversed a tumultuous journey marked by bursts of optimism shadowed by disillusionment. Through decades we transitioned from the highs and lows during the cycles of the 1960s and 1980s to an almost deafening silence around AI in the 1990s. In recent days we have witnessed substantial investments by prominent consulting firms like Accenture and have seen the European Commission making a contribution by investing a hefty €220 million from the Digital Europe funds into Testing and Experimentation Facilities.

The intention of this article is to uncover some of the patterns that have emerged during the various cycles and explore how we can prepare ourselves to remain steadfast in building a robust AI sector despite waning attention.

## THE 60S: TRIUMPHS ROOTED IN BASIC TASK PERFORMANCE

The 1960s ushered in the initial wave of AI hype, buoyed by military backing and the prospect of conscious machines. The US Office of Naval Research unveiled an invention by psychologist Frank Rosenblatt, dubbed by The New York Times as *"the embryo of an electronic computer that the navy expects will be able to walk, talk, see, write, reproduce itself and be conscious of its existence."* It served as a modest precursor to modern-day deep-learning networks, a time when computers paled in comparison to present day.

I will refrain from delving into all the many AI variants introduced in the 60s, but I assure you that the enthusiasm surrounding Rosenblatt's creation was echoed in other AI domains, followed by inevitable disappointment. In the Alchemy of Artificial Intelligence, Hubert Dreyfus concluded that *"an overall pattern is taking shape: an early, dramatic success based on the easy performance of simple tasks, or low-quality work on complex tasks, and then diminishing returns, disenchantment, and in some cases pessimism."*

Dreyfus' critique resonated with funders, and the latter half of the 60s witnessed a steep decline in funding opportunities for AI research. Prominent funding authorities such as the British Government, the National Research Council (NRC), and the Defense Advanced Research Projects Agency (DARPA) slashed financial support for AI projects. Ironically, despite these cuts, DARPA pats itself on the back for its perseverance in the AI realm during trying times. *"DARPA has repeatedly delivered on that mission, transforming revolutionary concepts (that at some point seemed impossible) into practical capabilities."* Those at Carnegie Mellon University, who faced a cut of their annual $3 million funding, retain a slightly different perspective. The downfall of AI in the 60s stemmed from overhyped breakthroughs that could not be carried by the computational capabilities of the era.

## THE 80S: AI'S BOUNDARIES AND THE PURSUIT OF UNCHARTED KNOWLEDGE

The 80s bore witness to AI's achievements in research, business, and the business of board games. Japan's 5th Generation Programme aspired to transcend conscious machines, with the goal of creating computers endowed with reasoning capabilities. The project intended to showcase Japan's capacity to contribute to global knowledge development; and inadvertently triggered the second wave of frenzied AI funding across the world. This endeavour, deemed an economic challenge to U.S. dominance, catalyzed governments globally to funnel resources into AI during an era dubbed an "AI arms race."

AI once again captivated the public's imagination. Armed with lessons from previous disappointments, researchers began unveiling commercially applicable applications, propelling heightened investment in research and development. IBM sponsored and subsequently acquired the computer scientist Feng-hsiung Hsu's system "Deep Thought," which triumphed over a chess Grandmaster.

Akin to the AI of the 60s, the 80s AI also grappled with dwindling funding. Researchers encountered an obstacle known as the "Qualification Problem." This enigma concerns inadequately specifying all prerequisites essential for executing real-world actions successfully. It originates from the lack of a universally accepted definition of 'intelligence,' permitting varied interpretations of what constitutes intelligent behaviour. This matter circles back to Dreyfus, who argued that framing AI as a thinking entity akin to the human brain, or beyond, is an inherently flawed approach. The human mind operates intuitively, adapting to real-world contexts. This setback ushered in the AI winter of the 1990s, a period when AI operated in the shadows with very little funding.

## MODERN ERA: THE ENDURING FLUX OF OPINIONS AND EXPECTATIONS

I have yet to encounter an individual who is indifferent to AI; opinions are consistently fervent, as is the case with each hype cycle. Nonetheless, a more significant number of individuals opt to embrace the present cycle with many believing this round will "change the world as we know it."

One certainty prevails: the Fear of Missing Out (FOMO) reigns supreme among individuals, institutions, governments, and businesses. Another cycle of AI advancements has captured the human imagination, but have researchers truly surmounted all of AI's challenges, thereby fulfilling grand expectations? While researchers heavily leverage Machine Learning (ML) and Deep Learning (DL) to confer human-like tendencies upon AI, the concept of sentient AI, an anticipation held by an alarming number of people, remains a distant prospect.

The unmistakable pattern that emerges across these seven decades of AI development is revealing. Stakeholders, whether governmental or commercial, anticipate AI will not just outperform humans but will support them in their efforts to surpass other humans.

Funds continue to flow to support both technical and socially conscious AI projects. Those seeking funding opportunities can explore entities such as the European Artificial Intelligence & Society Fund, which supports organizations aiming to shape the development of artificial intelligence through policy and advocacy grants. For projects with a technical orientation, programs like Horizon Europe are valuable resources.

Horizon Europe, through its various components, offers substantial support to both the technological and societal dimensions of AI development and deployment. The European Research Council (ERC) provides grants and facilitates the establishment of specialized AI-focused research centres across European Union member states. Meanwhile, the European Innovation Council focuses on channelling funding to promising innovators and small and medium-sized enterprises (SMEs), enabling them to transform cutting-edge research into tangible, game-changing innovations.

## MY GRAND GRANT ADVICE: A PLEDGE TO REAL-WORLD PROBLEM SOLVING

What does the future hold for AI? Numerous individuals with far more authority than I have are better suited for such prognostications. However, from the perspective of someone interested in the flow of funds, I am invested in these cycles and exploring how we can sustain efforts once the hype inevitably subsides.

The enduring pattern that emerges from these seven decades of AI development is clear: we consistently expect AI not only to surpass human capabilities but also to assist us in surpassing each other. This insatiable thirst for AI breakthroughs sometimes blinds us to the tangible progress being made in the field.

The key, regardless of the end of another AI hype cycle, lies in developing projects that address real-world challenges. Funders will persist in financing cancer treatment research because it is essential. Businesses will persist in procuring tools and services facilitating talent attraction and retention. Will they sustain this during the AI winter? Honestly, I cannot provide a definitive answer. Guided by common sense—an attribute AI still lacks—I am equipped to conclude that the world's supply of problems requiring solutions will never diminish. Where there are problems to be solved, funding follows.

## ABOUT THE AUTHOR

Gregory Clare is one of the Senior Grants Development Consultants at Grants Office Europe. His area of expertise is the funding landscape in the Netherlands and the EU, with a particular focus on digitalisation processes in education and the developing labour market. As a former grant writer and fundraiser in the Lebanese, Syrian and Turkish context, he is also adept to developing compelling projects for non-profit organisations seeking European funding. His spare time is filled with as much sports as possible and he claims to be an expert on European film.

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# Portugal's Thriving Path to Artificial Intelligence Integration and Development

## Janice Chantre Raposo

Portugal is at the forefront of the transformation into an ever-evolving digital landscape. Funding opportunities for technology have increased, particularly for AI (Artificial Intelligence.) As AI is utilized exponentially, facilitated by tools like ChatGPT, the question of its impact on human intelligence persists but one thing remains clear, this technology opens up a world of unexplored possibilities.

Portugal's AI journey officially started in 2019 with the inaugural national AI strategy, in line with the European Union's (EU) action plan. The goal of this strategy was to increase education, research, innovation, and the development of products and services supported by AI technologies. Two years later, Portugal reinforced this commitment to AI during the presidency of the Council of the EU with a push for the adoption of the first EU law on AI. This law defended transparency and respect for users' rights, particularly human rights, and respect for privacy. Portugal is no stranger to the prioritization of these ideals. The country offers a special visa for digital nomads, whilst actively promoting technological progress and embracing AI.

In April 2021, the European Commission introduced the first EU regulatory framework for AI. This framework involves evaluating and categorizing AI systems used across various domains based on the potential risks they pose to users. Through this framework, the EU is attempting to manage advancement and application of AI technology. Recently, Members of the European Parliament approved the Parliament's proposed approach for the EU AI Act's negotiations. Subsequent deliberations will start with EU member states in the Council determining the final structure of the legislation. The goal is to reach a mutual agreement by the end of this year. Once completed, this will be the world's pioneering legislation for AI. Meanwhile, Elvira Fortunato, the Portuguese Minister of Science, Technology, and Higher Education, has outlined Portugal's approach to regulating these new technologies. This plan involves not only seeking EU-funded projects but also actively engaging in, hosting global AI forums, and offering PhD scholarships related to AI.

## DEDICATED FUNDING OPPORTUNITIES TO AI

Available national and EU funds are helping shape the future of AI projects. As a member of the EU, Portugal benefits from Digital Europe, a flagship programme to accelerate the economic recovery and shape digital transformation. This funding is available to Small and Medium-sized Enterprises (SMEs) in five key capacity areas: AI, supercomputing, cybersecurity, advanced digital skills, and digital innovation hubs. There is a budget of 7.5 billion EUR, and Portuguese SMEs can utilize funds until 2027.

Furthermore, the Recovery and Resilience Facility (RRF) allocates a sizable portion of its funds to digital transformation and AI projects, serving as a key funding source for the progress of this field. 147.5 million EUR will be available until the end of the current multiannual framework in 2027 for AI investments in the country. Moreover, the Government added a new funding scheme to the RRF, especially conceived to support the digital transformation of SMEs. With a total budget of 60 Million EUR, this mechanism takes the form of a grant with a maximum of 200,000 EUR. To facilitate the smooth integration of technological solutions, it will support solutions for AI in production, IoT (Internet of Things) and networking, among others.

## TURNING FUNDING OPPORTUNITIES INTO ACTION

As part of Portugal's journey, the country is involved in many technology industry fairs, which are key opportunities to highlight funded projects and real-life achievements. For instance, many innovative AI funded projects were presented in the Hannover Messe 2023, the world's largest tech industry fair. Portugal was among entrepreneurs, government representatives, and industry organisations on the hunt for innovative solutions and networking opportunities. This years' theme was 'Industrial Transformation: Making a Difference', so connectivity and carbon neutrality were trending topics but AI and Industry 4.0. were also in the spotlight.

November marks another opportunity for a national presence at the annual WebSummit, one of the world's largest technology conferences focused on technology, entrepreneurship, innovation, and networking. Lisbon has been the host city for WebSummit since 2016, and this event has significantly contributed to the city's reputation as a European tech hub. This year's initiative - Road 2 WebSummit 2023 - will highlight the work of 125 startups, dedicating 25 spots to underrepresented minorities or high social impact solutions. These startups will have the opportunity to win prizes of up to 15.000 EUR.

Portugal's dedication to innovation and progress is clear through these initiatives and involvement on a global scale. The country is determined to advance its technological landscape, while integrating AI into critical sectors such as health, education, and sustainability. Notably, Portuguese companies can now use funding opportunities to keep the progress going. As we anticipate the forthcoming EU regulations on AI, Portugal's involvement in AI and technological development will continue through collaborations across academia, industry, and public entities.

### ABOUT THE AUTHOR

Meet Janice Chantre Raposo, the Grant Development Associate for Portugal at Grants Office Europe. She is deeply engaged in various activities involving European countries, like conducting webinars and research. Her educational background in media studies has been further complemented by her recent master's degree in management and communication from the iaelyon School of Management. Janice has considerable experience in communications and projects funded by the EU. Her love for languages and writing is evident from her fluency in Portuguese, English, and French and her good command of Spanish. She keeps a close watch on available funds and opportunities!

Connect with Janice on LinkedIn

# Recovery Plans around the EU: Spotlight on Portugal's Key investments in Artificial intelligence
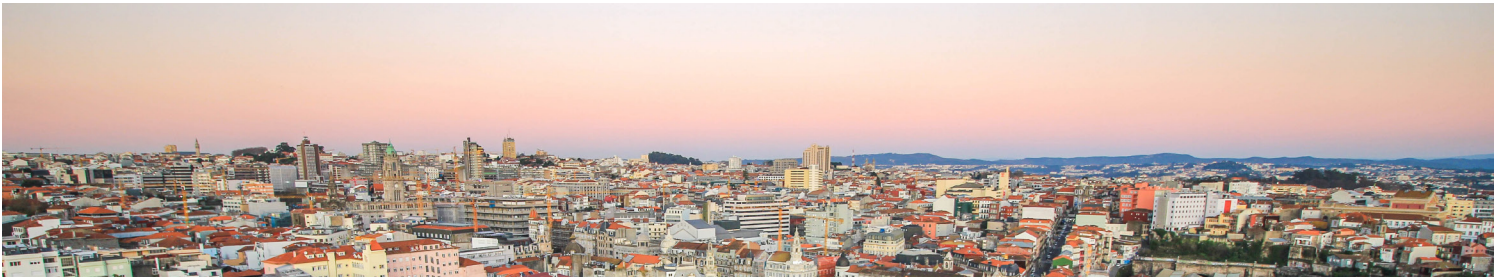


The Recovery and Resilience Facility (RRF) in Portugal extends to 2026 and focuses on three principal areas: resilience, digital transition, and climate transition. Out of the 16.6 billion EUR budget, Portugal has secured 5.1 billion EUR, meaning 17% of the plan has been accomplished. But the country has requested an increase in funding to 22.2 billion EUR to respond to economic challenges such as high inflation, supply chain disruptions, and labour shortages. It will also include a new chapter on REPowerEU to support energy transition and decrease dependence on Russian fossil fuels.

Central to its digital transformation agenda, Portugal emphasizes artificial intelligence (AI). The Transparency Portal reveals a significant commitment, with 147.5 million EUR allocated to AI projects. This comprises 77.9 million EUR for direct investments and 67 million EUR for other AI-related innovations. Below are some examples:

- **Direct Investments in AI (77.9 million EUR):** Accelerat.ai aims to revolutionise interactions between public-private entities, customers and citizens through conversational AI agents and Contact Center as a Service (CCaaS). The project seeks to create a cognitive service platform in European Portuguese, in addition to enhance user experiences with products and services. Also, the Centre for Responsible AI project envisions a pioneering consortium that will establish the next generation of AI products. This collaborative initiative brings together renowned and smaller startups, alongside leading AI and R&D centers in Portugal. Finally, the Data4ALL project aims to boost 45 Portuguese companies in AI, Internet of things (IoT), Data Science and BigData, by facilitating their digitalisation through technology-based solutions. INOVA+ and DECSIS form the consortium and will lead the execution of the project.

- **Healthcare (1.6 million EUR):**  These projects include the renewal of the scientific and technological support network and orientation towards manufacturing, led by the Value for Health CoLAB.

- **R&D (7.5 million EUR):**  Establishment of Technology Centres in collaboration with educational institutions to introduce AI courses and activities, nurturing future innovators.

- **Education (1.5 million EUR):** Creation of Science Clubs for schools to engage students in interactive projects and integration of AI courses into the higher educational system.

- **Manufacturing (34.7 million EUR):** Projects include infrastructure construction, including the Specialised Technology Centres (CTE). In addition, it will provide innovative technology integration, preparing students for Industry 4.0 challenges.

- **Data Analysis (2 million EUR):** The SmartAP RAM Connect Project stands out as an initiative that employs AI for Big Data Analysis, combining and processing data from diverse sectors to generate valuable insights and informed decision-making.

- **Digital Transformation (21.2 million EUR):** While CONNECT5 is fostering digital and green transformation in SMEs, DIH4CN initiative accelerates the transition of cities into smart ecosystems through AI. The Portugal Blue Digital Hub is also emphasizing AI-based services.

# The Future is Now. Artificial Intelligence and the making (or breaking) of the human sphere

**Adele Lebano**

*Among the works of man, which human life is rightly employed in perfecting and beautifying, the first in importance surely is man himself. Supposing it were possible to get houses built, corn grown, battles fought, causes tried, and even churches erected and prayers said, by machinery—by automatons in human form— it would be a considerable loss to exchange for these automatons even the men and women who at present inhabit the more civilized parts of the world, and who assuredly are but starved specimens of what nature can and will produce. Human nature is not a machine to be built after a model and set to do exactly the work prescribed for it, but a tree, which requires to grow and develop itself on all sides, according to the tendency of the inward forces which make it a living thing.*

*—John Stuart Mill, On Liberty (1859)*

The topic of AI has entered into our everyday lives through cultural and political debates. Is it utopia or apocalypse? Is it just the next chapter in human history to be enabled by technology or are intelligent machines going to displace us?

Using tools to enable existence on the planet and construct and improve life is the mark of culture over nature. The more extraordinary the achievements that technology allows, the more unsettling the questions and resistance it can raise. At every technological turn throughout history, from fire to gun powder to steam engines to telephones to genetic engineering, humans have had to weigh the pros and cons of such advancements. Intelligent machines are now at the center of the debate.

Many have been questioning the impact of AI on everyday human life, work, relationships, and our world as we know it. As with every advancement, national and European institutions are responsible for enacting policies to address such concerns. And it does not stop there. National and local governments and organizations must also find ways forward for public funding. Funders and policy makers must determine how to continue creating opportunities and minimize challenges. Since education, mobility, and healthcare are often centered on employment, concerns about the future of work and AI must have a response. According to a recent study commissioned by the Italian association of artisanal firms (Confartigianato), 8.4 million workers in Italy are at risk of being displaced by AI technology if regulations are not put into place. That is 36,2% of the Italian employed population, compared to 39.5% of the working populations of broader Europe. The fields most like to be affected are administrative, linguistic and computational.

There is an argument to be made, however, that AI development can be used to increase human productivity, create jobs, prosperity, and protect and rejuvenate democratic freedoms. There is also space for AI tech to foster creativity, judgement, and initiative. This is particularly true in AI research. The studies being conducted today are a crucial component of the funding and regulation of tomorrow. These studies will help determine the path forward for the use and application of AI technology.

Policies are being enacted to protect human experience, such as the EU Cybersecurity Strategy, the Digital Services Act, the Digital Markets Act, and the Data Governance Act. Each provides infrastructure and regulation needed to ensure AI systems are robust, fair, and promote fundamental human rights and freedom.

There are also several programs available in support of research, applications, and reflections on safety and fundamental human rights in connection to AI. As an example, the Horizon Europe Call Next Generation AI and Human Behaviour: promoting an ethical approach is devoted to build human centered, ethically sound research and innovation systems. The Call will open at the beginning of December and close in mid-March.

Another example of this is the FemTech initiative, aiming to address the problem of the under-representation of women's health in research and education. What these initiatives have in common, besides focus on AI, is that they continue to pose questions and present solutions to the future of technology. These are urgent questions of justice and equality, and not mere questions of profits and performance.

## ABOUT THE AUTHOR
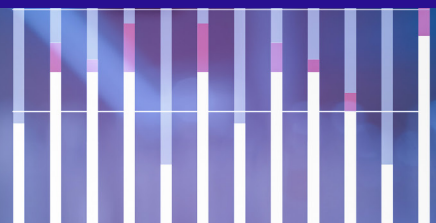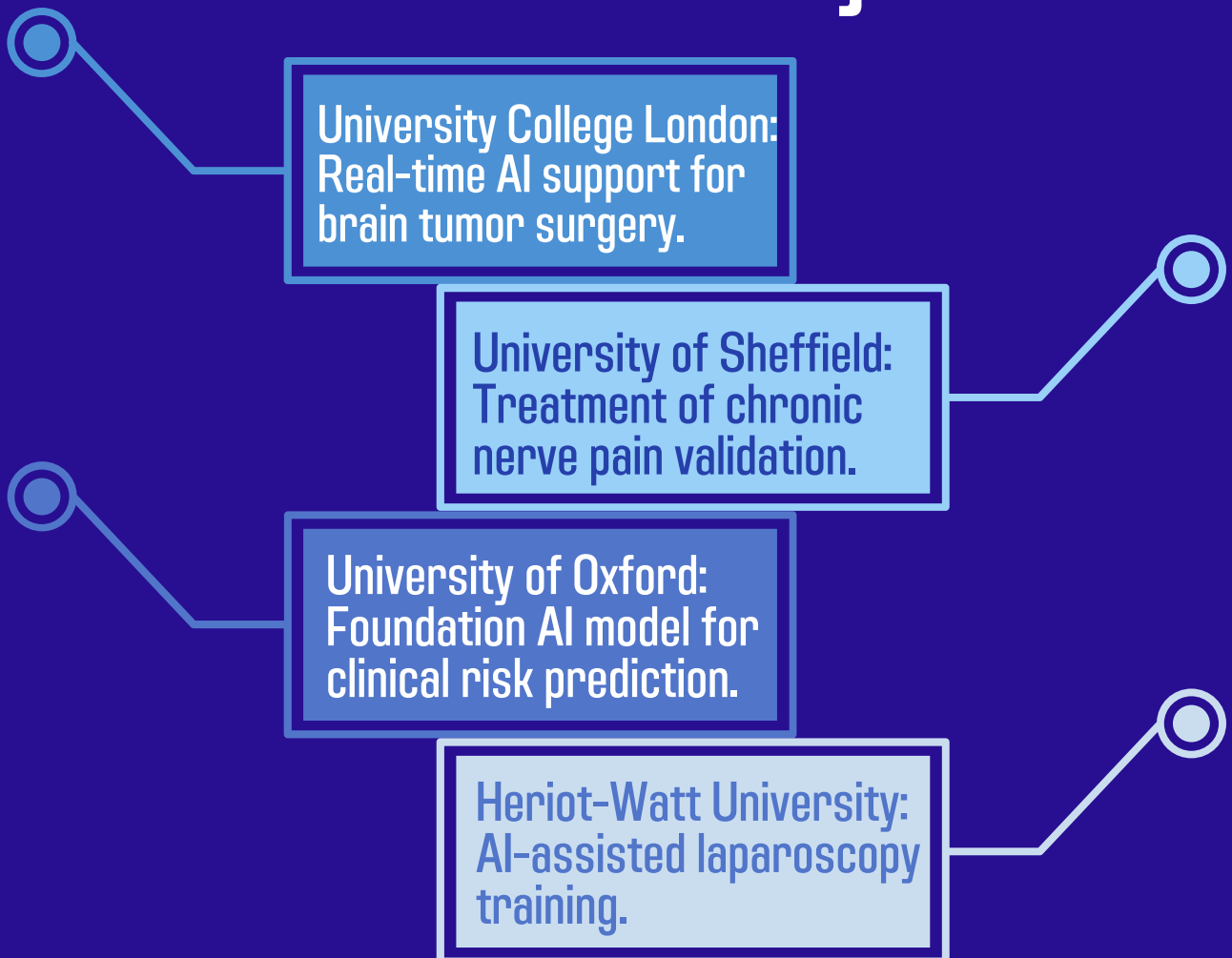
As the Grants Development Consultant for Italy at Grants Office Europe, Adele Lebano has gained a rich experience through her former positions in academia, business, and the public sector across a variety of European countries and the United States. Her passion for rigorous research, effective communication, freedom, equality, and inclusion are evident throughout her writing and consulting.

# Health Transformation with AI in the UK:

## 22 projects announced for health transformation using AI. Focus on refining diagnostics and procedures.

- Announced on August 10 by Michelle Donelan, Secretary of State for Science and Technology.
- Supported by £13 million from UKRI's Technology Missions Fund.

# Diverse Funded Projects

**University College London:** Real-time AI support for brain tumor surgery.

**University of Sheffield:** Treatment of chronic nerve pain validation.

**University of Oxford:** Foundation AI model for clinical risk prediction.

**Heriot-Watt University:** AI-assisted laparoscopy training.

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# How is EU funding addressing societal challenges by supporting AI?

**Marie-Christine Noujaim**

Artificial Intelligence (AI), the latest revolutionary technology to shape our world, is an ambivalent phenomenon. It has the potential to amplify human capacity but also to hinder human agency. According to Pew Research Center, "the rise of AI will make most people better off over the next decade, but many have concerns about how advances in AI will affect what it means to be human, to be productive and to exercise free will." The aim of this article is not to assess whether AI is an opportunity or a threat, but rather to approach AI through EU grand funding lens. To this end, we will overview what, how and why of EU accomplishment via AI funding.

As we move further into the 21st century, AI is attracting increased attention from scientists, funders, and even politicians. It is one of the technologies most radically transforming the world and our lives. According to IBM, AI can be defined as "the science and engineering of making intelligent machines, especially intelligent computer programs". AI enables computers to analyze massive amounts of information in real time leading to timely and efficient decisions. AI can thus be applied to many sectors in our society like healthcare, education, smart cities and crisis anticipation and management. According to the article, The Rise Of Artificial Intelligence, AI has the potential to help address many of the challenges faced by the healthcare industry AI algorithms can predict the progression of diseases such as diabetes, heart disease and cancer, enabling healthcare providers to design personalized treatment plans. In education, one of AI's strengths lies in its ability to personalize learning. AI-based adaptive learning systems can analyze learners' individual strengths and weaknesses, identify gaps, and provide targeted resources to address these difficulties (GGI Insights, 2023). Furthermore, AI makes it possible to exploit inter-army and diplomatic tactical, precise, and immediate data. It could even help to prevent crisis, thanks to its automatic

language processing algorithms, Canadian start-up BlueDot was one of the first to sound the alarm on SARS-CoV-2.

Our increasing reliance on digital services and new technological developments, especially during and after the Covid-19 pandemic, has brought the importance of AI to the forefront. Over the past few years, the EU has focused its attention on the matter. The EU's approach to AI is focused on excellence and trust, aiming to boost research and industrial capacity while ensuring safety and fundamental rights. To help build a resilient Europe for the Digital Decade, people and businesses should be, according to the European Commission, able to enjoy the benefits of AI while feeling safe and protected. The European AI Strategy aims at making the EU a world-class hub for AI and ensuring that AI is human-centric and trustworthy. The EU legal framework for AI proposes a clear, easy to understand approach, based on four distinct levels of risk: unacceptable risk, high risk, limited risk, and minimal risk.

To put its strategy into practice, the EU is supporting, through its 2021-2027 funding cycle, various AI-related projects in the framework of two important competitive programmes:

1. In the scope of Digital Europe Programme, the European Commission is co-funding €110 million to test AI solutions for healthcare, food, industry, and everyday life via four sectoral Testing and Experimentation Facilities (TEFs) for AI. TEFs are designed to support AI developers to bring trustworthy AI to the market more efficiently, and facilitate its uptake in Europe, as well as to act as a sandbox for AI technologies' development and deployment. The four TEFs are CitCom. ai TEF for smart cities and communities, TEF-Health for healthcare sector, AI-Matters TEF for manufacturing sector and agrifood TEF for agricultural sector and food production. These TEFs will be fully open as of January 2024 with some services starting already in July 2023.

2. In the scope of Horizon Europe programme :

   • The European Commission co-funded in 2022 trustworthy AI tools to predict the risk of chronic non-communicable diseases and/or their progression. This topic supported multidisciplinary research and proposals developing novel robust and trustworthy AI tools to enable timely personalised prevention approaches for chronic non-communicable diseases/disorders.

   • More recently, the Horizon Europe topic closing in January 2024 is supporting the maximization of the potential of synthetic data generation in healthcare applications.

   • The topic closing in November 2023 is supporting robotics and autonomation UGV systems to supplement skills for use in hazardous environments. These key technologies should help to increase productivity and efficiency to prevent, prepare, and/or respond to natural and human-made disasters.

The funding opportunities landscape being deployed by the EU AI strategy is broad, though funders like to support research and innovation projects. This, however, does not mean that entities like SMEs should not consider this kind of funding. Recognizing the significance of SMEs to the European economy, the European Commission is also committed to supporting both the AI industry and the deployment of AI in SMEs in Europe. It is clear that the EU has placed increased significance on AI policy, especially where economics are concerned. An array of funding opportunities are in place to support the development of innovative solutions and their upscaling, the improvement of digital skills, and the implementation of AI solutions with positive impact in crucial sectors including crisis anticipation and management. The EU is approaching AI-related funding with not just a focus on tech advancement and economic development and gains but also on how to reconcile these technologies with more human driven and ethical projects. By supporting AI positive impact, EU funding is aiming to decrease the opportunity for negative impacts on humans and our future.

## ABOUT THE AUTHOR

Marie Christine Noujaim is the Grants Development Consultant for France at Grants Office Europe. Marie Christine is specialized in French funding opportunities, as well as European structural and competitive funding for public and private sector entities. She has participated in several EU-funded projects and has spoken at international webinars, including the TandEM webinar "Empowering Youth as agents of integration and social cohesion" and the Grants Office Europe webinar on France's recovery plan "France Relance".

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**EU Programme Snapshot**

# Robotics: Autonomous or semi-autonomous UGV systems to supplement skills for use in hazardous environments
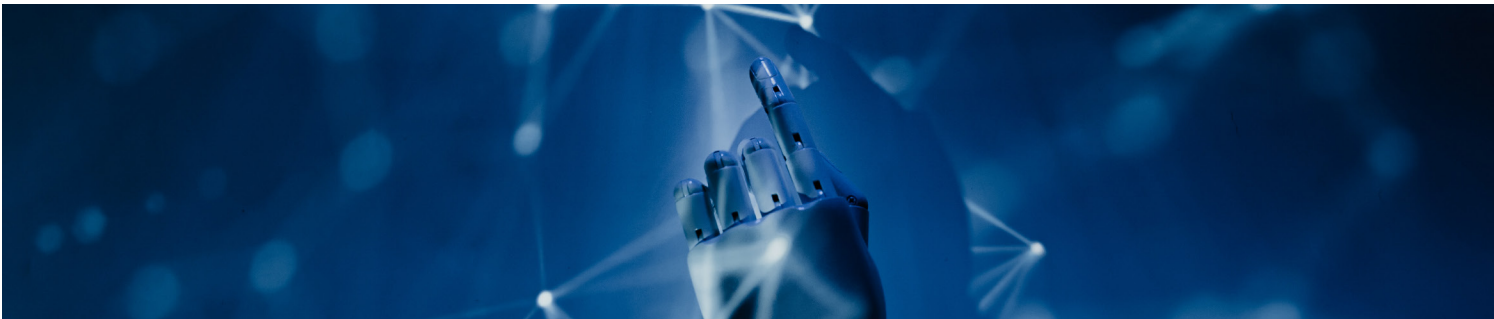


## SUMMARY

The scope of this topic is not only to develop new robotic solutions for specific tasks but addresses also more holistically the surrounding environment and factors that impact civil protection on a larger scale (urbanisation, ageing, climate change, increased complexity in critical infrastructure protection etc.). There are many research and engineering challenges that must be addressed in this topic's framework. First responders play a vital role in ensuring that the robotics solutions are based on the needs and are valuable assets for the civil protection ecosystem.

Projects' results are expected to contribute to some or all the following outcomes:

- Broad acceptance of autonomous systems by first responders and affected people in civil protection;
- Higher safety and security standards for operational forces working in hazardous environments;
- Get ahead of future shortcomings of trained first responder personnel by increasing first responder efficiency (less personnel do more work in shorter time);
- Increased ability to conduct on-scene operations remotely without endangering first responders;
- European robotics industry is strengthened through engagement in the civil protection research as well as an economic and political advantage through building up knowledge for innovative technologies;
- Reduction of false positive readouts from various sensors carried by robots.

## ELIGIBILITY

Any legal entity, regardless of its place of establishment, including legal entities from non-associated third countries or international organisations (including international European research organisations) is eligible to participate (whether it is eligible for funding or not), provided that the conditions laid down in the Horizon Europe Regulation have been met, along with any other conditions laid down in the specific call topic.

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