IRCAI
GLOBAL TOP 100

REPORT 2021

100 Artificial Intelligence approaches for sustainable development and the benefit of humanity

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Preface

Artificial Intelligence is quickly developing as both an academic and practical discipline. At IRCAI, we aim not only to be part of that development, but to influence the focus of its application, as well as the humanity of its implementation. How can an initiative such as IRCAI achieve maximum impact? We believe that part of the answer lies in the development of a collaborative partnership with researchers and practitioners, excited by and committed to creating effective solutions for the key challenges of our age as captured by the Sustainable Development Goals of the United Nations. We wish to share IRCAI's vision of this global partnership through a mapping, encompassing all regions of the world, which describes a large set of concrete projects that are already underway, and that we believe can together conjure what a fully operational IRCAI can achieve. We invite you to take part in this journey, and marvel at the results we collected. We are amazed at what our colleagues are doing to use AI to solve one of the major challenges of our time, sustainable development.

John Shawe Taylor, Director at IRCAI

Acknowledgements

We would like to thank IRCAI colleagues and members of the IRCAI Scientific Programme Committees, Scientific Journal Editorial Board, and Business and Impact Council for assisting in the design, execution and follow up of the call for proposals and reviews and for their invaluable feedback and inputs.

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Executive Summary

In 2021, IRCAI developed and deployed the IRCAI Global Top 100 international call for applications which mobilize current AI technologies to achieve the 17 United Nations Sustainable Development Goals. The call was phenomenally successful, boasting projects which covered all 17 SDGs, multiple sectors and every geographic region. Specifically, the call revealed a number of insights about the current state of the sustainable tech space.

In terms of geographic distribution, while the lion's share of project applications came from Europe and North America (roughly 80%), their context of application was often either global and transversal, or targeted regions outside of the country in which the projects were based. Additionally, while the majority of the call's submissions hailed from the private sector (roughly 65%), the history and development of many of these projects involved collaboration across multiple sectors, revealing an encouraging degree of cross-pollination and cooperation in project development.

Where such information was reliably ascertainable, the brunt of the projects were male-lead, where female leadership featured in only roughly 17% of entries. In terms of SDG distribution across projects, a favoritism appeared for SDGs 3, 9, 10, 8, 13 and 4, while a comparative lack of representation was seen for SDGs 6, 7, 14 and 2. This result may indicate that current AI technology is more readily harnessed in pursuit of some SDGs rather than others, especially those SDGs which apply to sectors in which AI already characteristically thrives (e.g. healthcare and industry). This may also indicate a type of shoe-horning across some of the project applications, where alignment with an SDG may have been circumstantial rather than intentional; an intuition which is bolstered by the high number of project applications which addressed more than four SDGs (roughly a third of all entries).

Interestingly, the result of the call also revealed a lack of substantive awareness and consideration for ethical criteria, either in the form of AI principles such as privacy and transparency, or in terms of the ethical risks and trade-offs inherent to many of the proposed solutions.

Thus, while the overall results of the call were encouraging, greater attention must be paid to how AI can ethically contribute to sustainability. Going forward, IRCAI will take this information into consideration, fostering new projects and calls, and strengthening its role as the founder of an engaging international platform and entrepreneurial ecosystem of sustainable solutions for the future.

Introduction

The International Research Centre in Artificial Intelligence under the auspices of UNESCO (IRCAI) is dedicated to supporting the development of AI-based solutions to achieve the United Nation's Sustainable Development Goals, a mission defined by its founders, Jožef Stefan Institute, UNESCO and the Slovenian Government. In this spirit, in 2021, IRCAI developed and deployed an international call for solutions which mobilize current AI technologies to address and achieve the 17 United Nations Sustainable Development Goals, the *IRCAI Global Top 100,* which showcased one hundred outstanding applications of AI towards the SDGs from around the world. This call was phenomenally successful, covering all 17 SDGs in multiple sectors and all five geographic regions.

It also proved that the role of artificial intelligence in sustainability is not only nascent, but thriving among the many research groups, start-ups, established companies, development agencies and non-profit organizations which span the globe. These promising results align with IRCAI's principal aims in developing the Global Top 100: first, that of drawing attention to innovative applications of AI from around the world designed to tackle the SDGs, and second, that of founding an engaging international platform for sustainable applications, fostering and expanding an entrepreneurial ecosystem in the sustainable tech space of global reach and impact.

PART 01 The Report

Process – About the Methodology

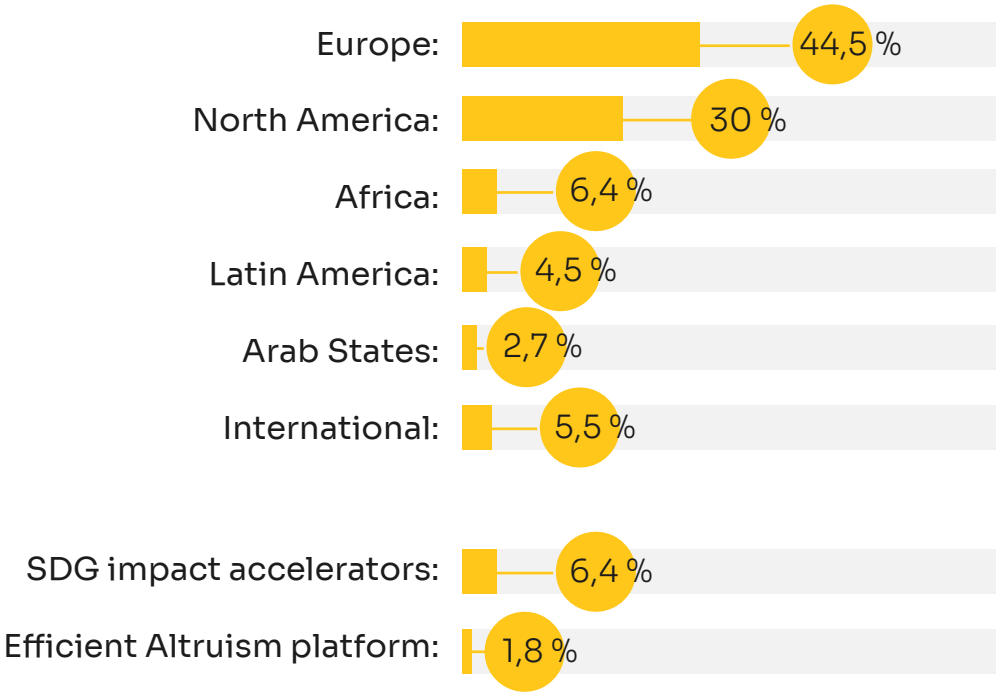
The call was born of a cooperative effort within IRCAI (scientific programme committees, business and impact council). The selection and review process aimed to identify those AI-based projects which presented robust applications directly or indirectly addressing one or more sustainable development goals, including the innovative research at work behind these applications. A strong focus was thus placed on applications featuring machine learning, artificial intelligence and data science, regardless of scientific discipline.

The scoring and final decisions of the review board were made across four key criteria: first, the sustainability of the project's proposed application, including to what degree artificial intelligence was integral to its delivery; second, the project's impact on the relevant SDG(s), either through KPI measurement or by providing systems which improve these; third, the method of implementation of the application, including a demonstration of its potential in the form of a proof of concept or a research paper, and finally, the ethical impact and ramifications of the proposed application, including its alignment with relevant ethical design principles such as transparency, privacy, and accountability, or the AI model's technical and environmental sustainability. Taken as a whole, this process provided not only a thorough scientific, ethical and entrepreneurial review of each project submitted, but also, significant prospects for their future development, in the form of feedback, expert counselling, networking, partnerships, visibility and potential financial support.

The following report explores some of the results and key insights gleaned from the projects submitted to the call, passing through different forms of qualitative and quantitative analyses. It also offers a cursory take on how these findings may impact future initiatives within IRCAI, as well as the development of the sustainable tech global ecosystem.

Results – Geographical and Sectoral Analysis

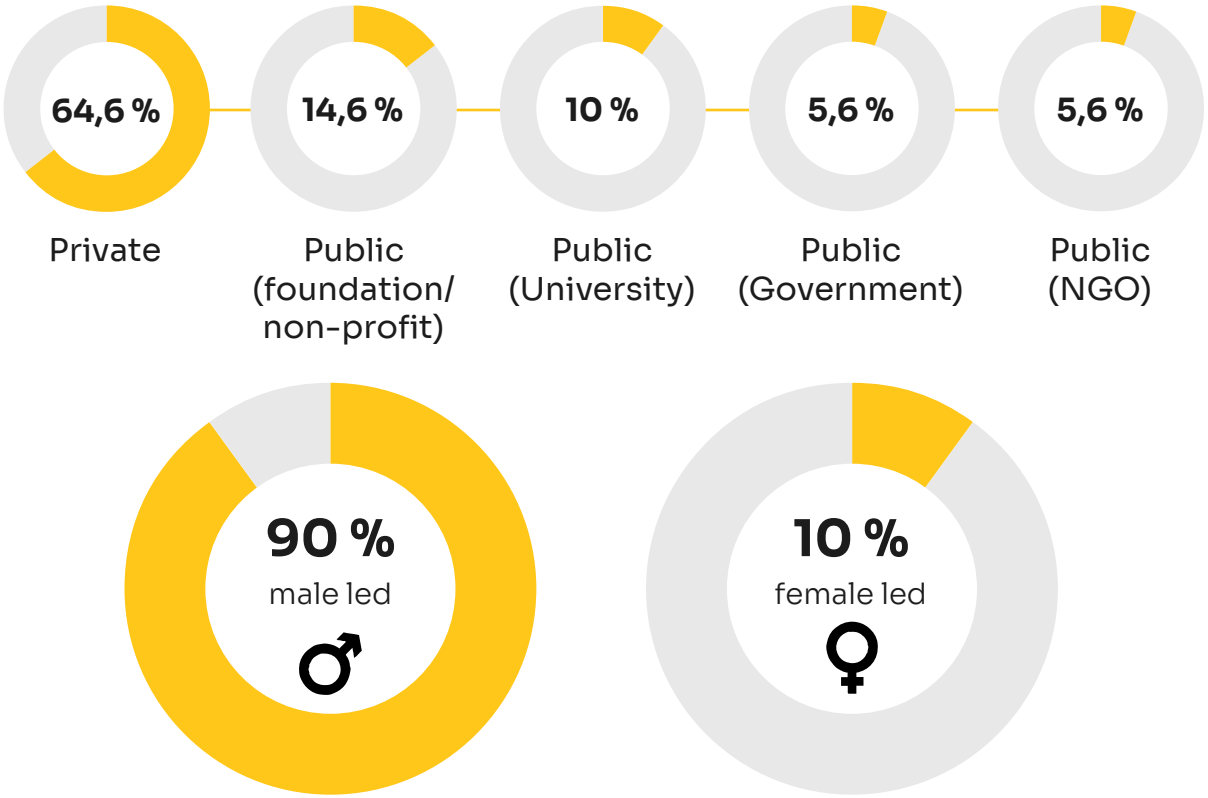
The results of the Global Top 100 Call revealed critical insights concerning the shape, scope and impact of today's AI-based sustainable development solutions, as can be seen in the graphics below.



Graphic 1: Project Representation by Region & Transversal Project Representation

Looking at the table, it remains clear that the lion's share of the project proposals hailed from Europe and North America, with the remaining regions collectively contributing only 20 percent of submissions. On a positive note, this asymmetry is somewhat counteracted, however, by the context of application of the solutions themselves, many of which aimed for global or multi-regional impact, or targeted specific regions which differed from the locality of the project's founding institutions or members.

To this end, roughly 8 percent of submissions were transversal, focusing on the measurement and improvement of SDG efforts generally, in the form of impact accelerators or efficient altruism platforms. In this sense, it seems plain that many proposed solutions looked beyond regional horizons, often collaborating with multiple institutions, or leveraging multiple sources of local expertise.



Graphic 2: Project representation by Sector & Gender Representation in Project Leadership

In terms of representation by sector, the results of the Global Top 100 call revealed another dissymmetry across the proposed solutions, in the form of a dominance of private-sector born projects, comprising roughly 65 percent of submissions. Given both the parameters of the call, and the realities of today's technology sector, these results are as reasonable as they are predictable. Importantly, however, most private-sector submissions were not 'pure', drawing instead from collaborations across multiple institutions, or owing their origins to previous ventures from other sectors.

In this sense, one encouraging take away arrives in the form of an apparent cross-pollination of expertise between sectors, indicating an encouraging degree of openness within today's sustainable tech ecosystems, and a capacity for evolution across the life-cycle of a single solution. This enthusiasm, in turn, is somewhat frustrated by the largely male-led nature of the proposed solutions. Of those projects for which relevant information was ascertainable, female leadership among founding members featured in only 17 percent of submissions. This result unfortunately reinforces the well-known problem of male dominance in the tech space generally, however, a glimmer of hope can be seen in the larger advisory board or scientific council of many of the proposed solutions, where most projects featured at least one female.

Results – SDG Distribution and Focus

The crux of IRCAI's mission in developing the Global Top 100 revolved around the identification and advancement of the UN's Sustainable Development Goals within emerging AI-based projects and ventures. The representation of each of these 17 goals across the results of the call provides a striking portrait of the ways in which artificial intelligence is currently being harnessed to tackle some of our planet's most pressing concerns, and this often in enlightening ways. To refresh the reader's memory we quickly list the SDGs here:

Sustainable Developement Goals

GOAL 1: No Poverty

GOAL 2: Zero Hunger

GOAL 3: Good Health and Well-being

GOAL 4: Quality Education

GOAL 5: Gender Equality

GOAL 6: Clean Water and Sanitation

GOAL 7: Affordable and Clean Energy

GOAL 8: Decent Work and Economic Growth

GOAL 9: Industry, Innovation and Infrastructure

GOAL 10: Reduced Inequality

GOAL 11: Sustainable Cities and Communities

GOAL 12: Responsible Consumption and Production

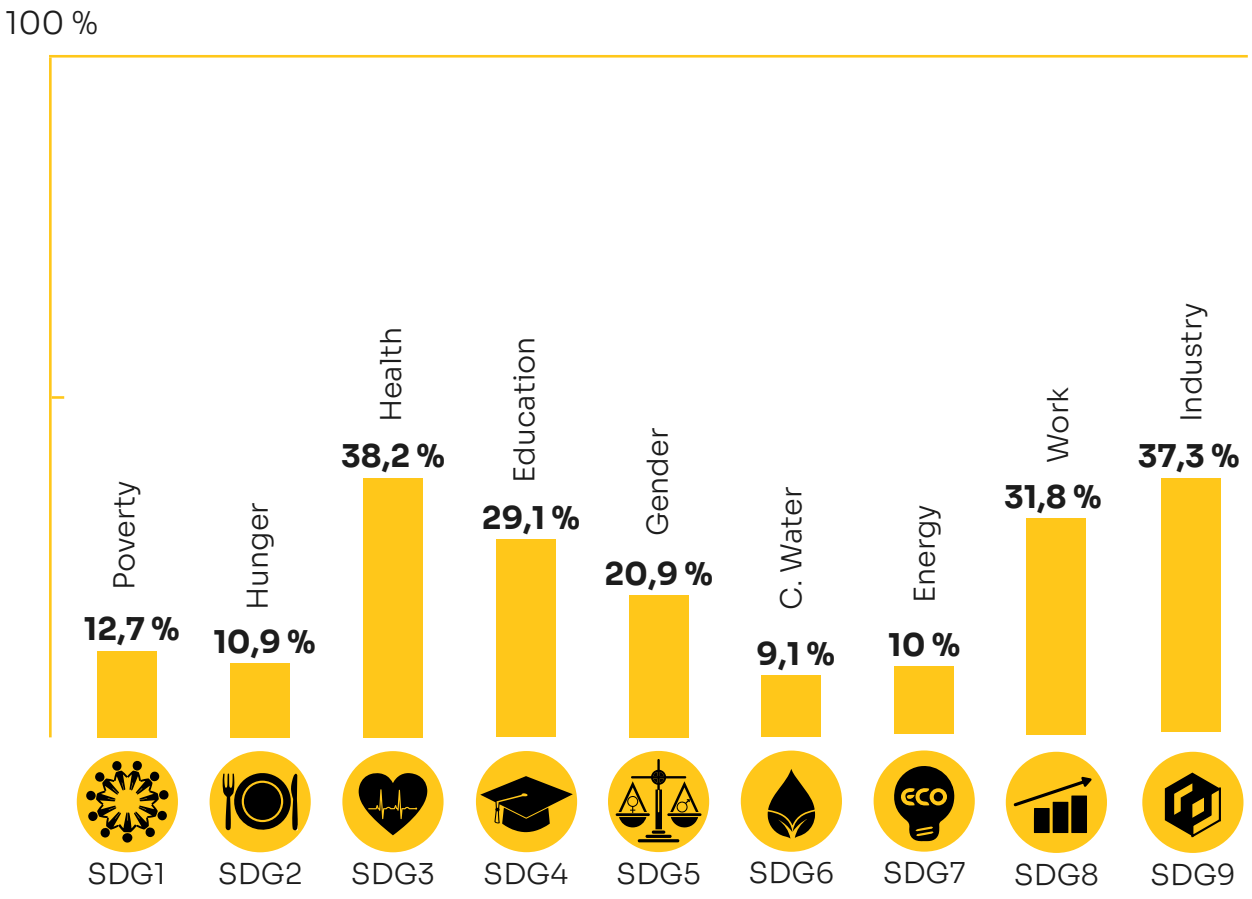
GOAL 13: Climate Action

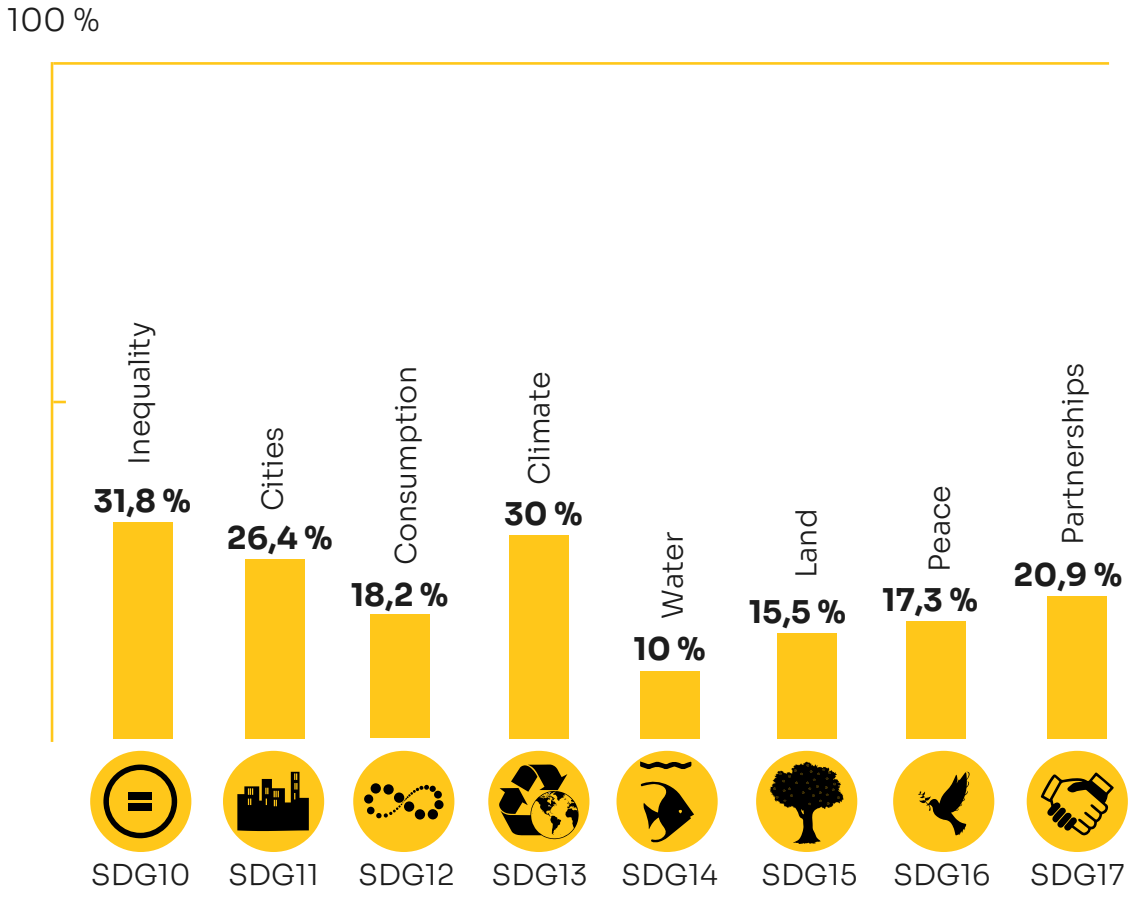
GOAL 14: Life Below Water

GOAL 15: Life on Land

GOAL 16: Peace and Justice Strong Institutions

GOAL 17: Partnerships to achieve the Goal

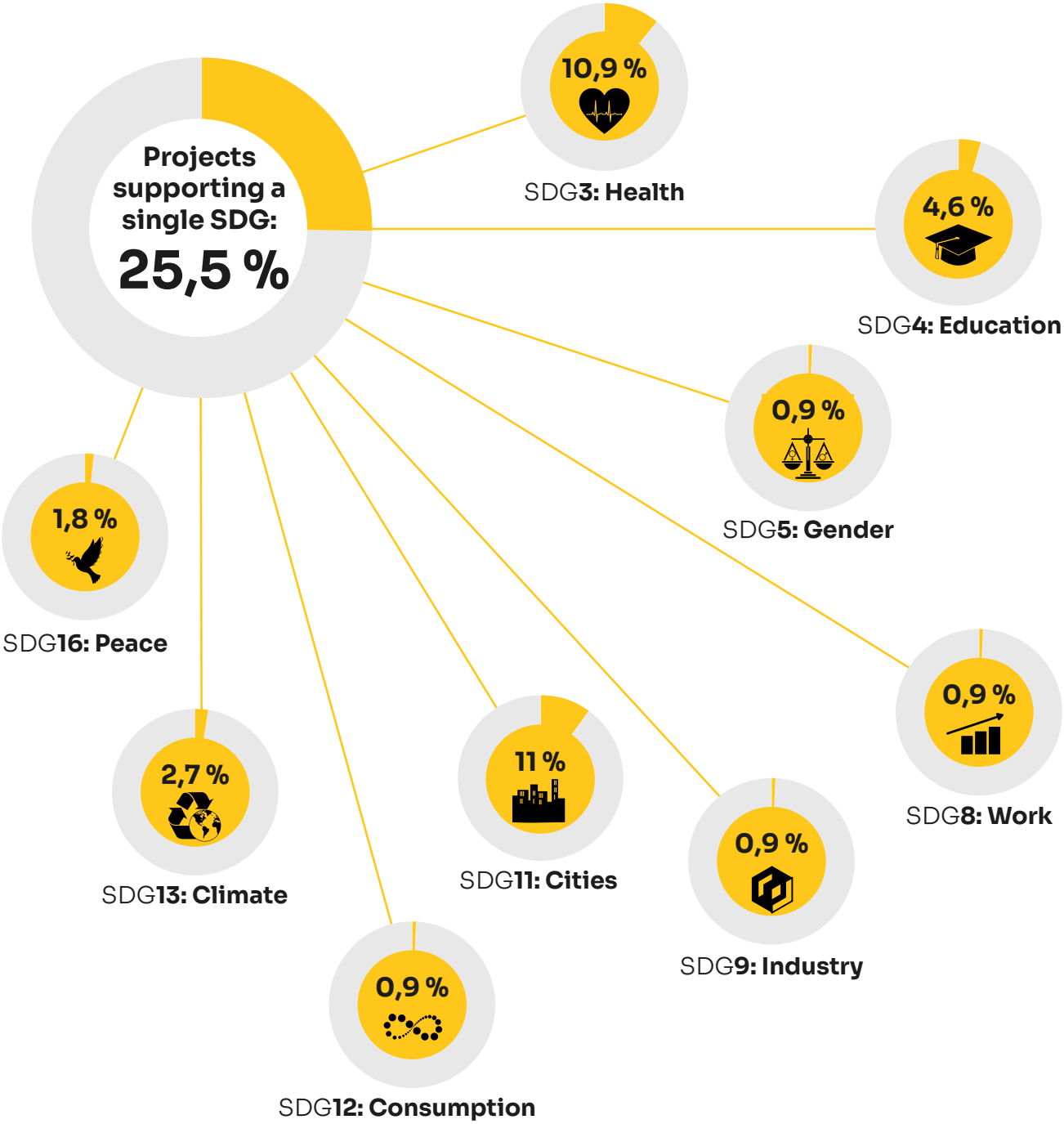


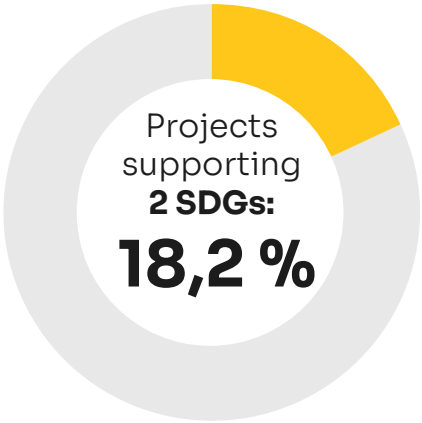


Graphic 3: Representation/ mentions of SDGs across projects

Projects supporting a single SDG: **25,5 %**

Of the single SDG-oriented projects, the distribution across SDGs:





Projects supporting 2 SDGs: **18,2 %**
Of these, the **SDG pairings**:

(3: Health, 11: Cities)

(11: Cities, 13: Climate)

(3: Health, 9: Industry)

(8: Work, 9: Industry)

(12: Consumption, 15: Land)

(8: Work,9: Industry)

(3: Health,11: Cities)

(5: Gender, 8: Work)

(10: Inequality, 16: Peace)

(3: Health, 9: Industry)

(4: Education,9: Industry)

(4: Education, 8: Work)

(3: Health, 10: Inequality)

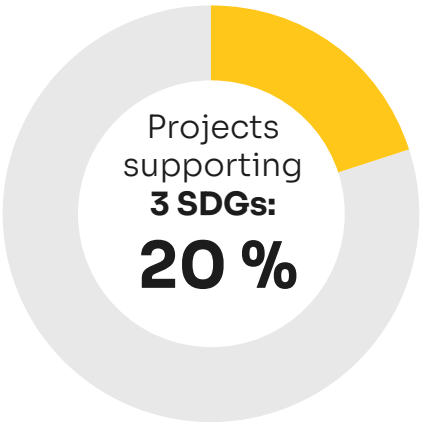
(13: Climate, 15: Land)

(3: Health, 10: Inequality)

(3: Health, 4: Education)

(14: Water, 15: Land)

(9: Industry, 10: Inequality)



Projects supporting 3 SDGs: **20 %**
Of these, the **SDG triplets**:


(7: Energy,11: Cities,13: Climate)


(4: Ecucation, 9: Industry,10: Inequality)


(8: Work, 9: Industry, 10: Inequality)


(8: Work, 11: Cities, 13: Climate)


(12: Consumption, 13: Climate, 17: Partnership)


(3: Health,5: Gender,16: Peace)


(4: Education,9: Industry,10: Inequality)


(4: Education, 8: Work, 9: Industry)


(9: Industry, 11: Cities, 12: Consumption)


(7: Energy,12: Consumption,13: Climate)


(5: Gender, 9: Industry, 16: Peace)


(2: Hunger, 13: Climate, 15: Land)


(1: Poverty, 3: Health, 10: Inequality)


(4: Education, 5: Gender,10: Inequality)


(3: Health, 11: Cities, 16: Peace)


(1: Poverty, 4: Education,10: Inequality)


(4: Education, 8: Work, 10: Inequality)

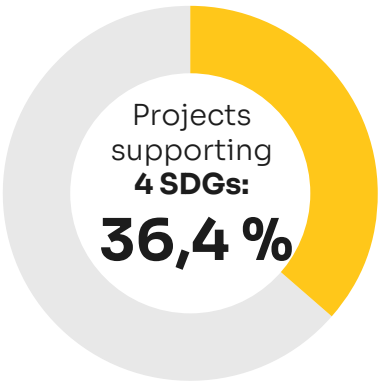

(8: Work, 9: Industry, 10: Inequality)


(13: Climate, 14: Water, 15: Land)


(9: Industry, 11: Cities, 12: Consumption)


(11: Work, 13: Climate, 15: Land)


(9: Industry, 13: Climate, 17: Partnership)



Taken generally, a notable favoritism appears for SDGs 3, 9, 10, 8, 13 and 4 (good health and well-being, industry innovation and infrastructure, reduced inequality, decent work and economic growth, climate action, and quality education, respectively), and a comparable lower representation of SDGs 6, 7, 14 and 2 (clean water and sanitation, affordable and clean energy, life below water, and zero hunger, respectively). This rather uneven distribution is likely caused by a heterogenous set of factors: not least the passions and interests of the founding members of the proposed applications, the limitations or mandates of their host institutions, the financial viability of their concepts, perhaps even the scope or specificity of a given SDG. The data analysed here, in other words, may not tightly track the larger SDG-related trends in the AI ecosystem.

Carefully, however, we may still be able to glean some possible insights into the viability of AI itself in application to some of the sustainable development goals, appearing less as the wholly multi-purpose tool that it often purports to be, and rather as a scientific medium through which some goals can be advanced to a greater degree than others. This intuition seems to garner support, for instance, from the prevalence of submissions hailing from the health and industrial sectors, areas in which current AI tools, models, practices and applications seem characteristically to thrive.

To this end, a more specific look at the way the SDGs were addressed within each proposed solution seems to paint a similar picture. With the notable exception of SDG 11 (sustainable cities and communities), the general prevalence of certain SDGs over others in table 3 is echoed among the projects which dedicate themselves to a single Sustainable Development Goal. This not only seems to lend further support to the idea that (at least current) AI technology is better equipped to advance some goals more than others, **it also may lead us to consider a causal, 'chicken-or-egg' type question: which came first, the desire to harness AI technology to advance a goal, or a technical capacity and market which (perhaps unintentionally) aligned with said goal?**

This latter intuition seems to garner further strength from the high number of projects that addressed multiple SDGs, which—beyond those projects that were intentionally transversal—could point to a type of 'shoe-horning' amongst a small subset of submissions, where alignment with the SDGs arrived more from a posteriori circumstances and opportunities than a priori intentions. While a more utilitarian reading of the results would surely find this intentional difference to be of little significance, it may nevertheless indicate the need for increased communication and awareness around the ways in which AI could be practically harnessed to achieve the SDGs, a gauntlet which IRCAI will endeavour to take up in future work.

Analysis – Trends and Ethical Upshots

As part of the process of the review board and scientific committees responsible for the adjudication of the submissions, and in view of assessing the most efficient ways to support their future work and development, the projects included in the call were separated into four categories: outstanding, excellent, promising, and early stage. The brunt of submissions fell within the 'promising' category (approximately 50 percent of entries), following a harmonized score based upon the aforementioned judgement criteria, and the technical and entrepreneurial maturity of each project. Interestingly, in conversing with many of the founders and authors of the projects, it became clear that the resources required to further mature their projects (regardless of category) were of a highly varied nature.

While some submissions were in need of financial partnerships, or initial capital investment and entrepreneurial support, a great many others called for networking, communication and visibility opportunities, so as to better reach their target demographics, to locate relevant experts and specialists, or to bolster their legitimacy in their specific markets. Further still, some projects sought a secondary influx of capital, either to expand the physical facilities necessary for the growth and maintenance of their businesses, or to fund important field work and research, providing new and more robust data sets on which to train and hone their AI models. Taken together, these results indicate a number of heterogenous entry points for potential investors and incubators, and perhaps the need for a casuistic approach to supportive investments in the sustainable tech space.

More generally, recognition of and adaptation to the realities of the global Covid-19 pandemic constituted a strong trend across the submissions. For some, this influence came in the form of the founding idea of the projects themselves: addressing questions of access and legitimate information online, attenuating the workload and health risks of frontline workers in healthcare as well as other sectors which engage with the public, or addressing the mental health challenges relating to a socially-distanced life. Taken as an ensemble however, the submissions revealed a certain reticence concerning the future, as well as a marked proactivity as to the ways in which AI could be harnessed to mitigate the short and long-term costs of the pandemic.

In a similar vein, a minority of the proposed applications appeared to be highly automation-reliant, advocating for various types of control systems to survey, regulate or optimize various human social sectors.

In this sense, the ethically salient boundary between, on the one hand, technological applications to the SDGs, and on the other, SDG-oriented technological approaches was occasionally blurred.

Further still, recognition and substantive understanding of ethical criteria and principles were highly varied across the submissions. While the quasi-totality of submissions saw their projects as advancing some human good or value, either throughadherence to a sustainable development goal or

more generally, **relatively few provided a positive and substantive account of how their models and applications aligned with notions such as data privacy, transparency, explainability or accountability, and fewer still seemed cognizant of the value trade-offs and ethical risks associated with their applications.** While some of this lack of insight can be explained by the nascent state of technical maturity of many of the proposed solutions, this caveat alone does not usher away all potential ethical concerns. Indeed, it seems rather that if artificial intelligence is to provide any type of substantive support to the achievement of the Sustainable Development Goals, it must consistently seek to internalize its own ethical costs.

These costs come not only in the familiar forms of labour displacement and the erosion of human rights, but also in the high environmental cost involved in the training and maintenance of many AI models, the reinforcement of human isolation at the hands of algorithmic efficiency and optimization, and the general loss of human autonomy across many aspects of life.

Put simply, the furthering of one ethical goal should not come at the price of another, no matter how innovative or efficient a solution it entails. The results of the call seemed to indicate a rather truncated and segregated view of the values which underpin the Sustainable Development Goals, addressing individual fragments of sustainability while dismissing the harder question of how AI might best fit into the larger picture.

Conclusions and Recommendations

The 2021 Global Top 100 Call constitutes the maiden voyage of IRCAI's continued and dedicated effort to harness AI technology, actors and practices in the pursuit of a sustainable and humanistic future. The results of the call have revealed a number of promising projects, trends and ventures, and just as many opportunities for technical, relational and ethical improvement in the sustainable tech space. In this sense, it may be that greater awareness and communication surrounding how AI specifically can contribute to the achievement of the SDGs is needed, so as to maximize the coordination and precision of the sustainable tech space.

To this end, it also appears that inclusivity, both geographically and in terms of gender representation, remains a challenge to which we all must continue to respond. Finally, every actor in the sustainable tech space – from experts to investors – must not shy away from the ethical impact of their innovative applications, and must continue to root out the human risks inherent to their ventures, carefully weighing these against any future benefit. Moving forward, IRCAI will take this valuable information into account, fostering new calls, efforts and expert communities in an attempt to build a robust platform upon which the future of sustainability can flourish.

PART 02 List of Oustanding projects

Ten solutions were deemed “outstanding” by the IRCAI Scientific Program Committees and the IRCAI Scientific Journal Editorial Board among the Global Top 100 project submissions based on their centrality of AI, the potential impact on relevant SDG(s), demonstration of potential in completed work (either proof of concept or completed research paper), and ethical design. We briefly introduce these outstanding projects.

Rewire (SDG5, 9, 16)

Online platforms have repeatedly committed themselves to addressing online hate speech and harassment. Yet, hateful comments – often aimed at specific identity groups – are still widely found on various platforms. Rewire aims to wipe out this toxic content from the online world by developing an NLP-based AI tool that automatically detects if the given content qualifies as hate. By enabling online platforms to run responsibly and striving to tackle (children) abuse, Rewire’s product addresses both SDG9 (Industry, Innovation, and Infrastructure) and SDG target 16.2 (‘End abuse, exploitation, trafficking and all forms of violence against and torture of children). Moreover, given that women are disproportionately exposed to online abuse (The EIU, 2021), the project also supports SDG5.

ASMSpotter (SDG12, 15)

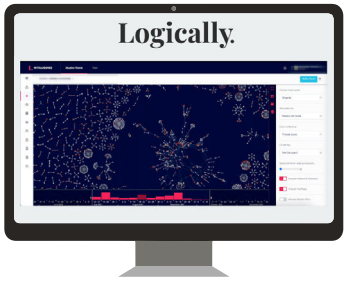
ASMSpotter is a tool that aims to “help local authorities effectively and continuously monitor artisanal and small-scale gold mining (ASGM) in large geographic regions by automating the detection of ASGM sites and applying Machine Learning and Computer Vision algorithms to satellite imagery.” The software was proposed as a basis to regulate the gold mining sector and plan ASGM formalization activities. In this way, the developers aim to enable local people to “have a share in the prosperity generated by artisanal gold mining and to minimize negative impacts on environment, health, and working conditions” (SDG12 + SDG15).

Nasa Harvest (SDG1, 2, 10, 13, 15, 17)

NASA Harvest aims to advance the awareness and use of satellite-based Earth observations (EO) to guide decisions that support food security, stable markets, economic progress, and sustainable, resilient crop production. NASA Harvest unites agricultural stakeholders and EO experts from public and private sectors, empowering the integration of Earth data for key agricultural decisions. Harvest is a neutral convener that is uniquely able to foster mutually beneficial partnerships between diverse actors in agriculture. Their multidisciplinary Consortium includes researchers, farmers, agribusiness, economists, aid organizations, technology developers, and decision-makers – all working together to turn EO into actionable information for food security and production.

FAIR Forward – Artificial Intelligence for All (SDG12, 15)

Aiming for a "more open, inclusive and sustainable AI on an international level", the initiative FAIR Forward has developed multiple pilot applications "improving the lives of millions". By making the datasets (that are used to train the algorithms) openly available, the initiative actively encourages local innovators to take up the data, improve it and localize it. Its strategy also includes working with geospatial datasets, ground truth data, and other open data sources to build AI applications aimed at tackling climate change – as well as joint efforts with policymakers in the development of frameworks for "value-based AI". Having launched a whole variety of pilot applications, the initiative addresses a wide range of SDGs, including SDG3, SDG5, SDG7, SDG9, SDG10, SDG13, and SDG17.



Logically Intelligence (SDG16)

Logically's fact-checking team advises governments on how to combat harmful online misinformation and deliberate disinformation by leveraging its state-of-the-art intelligence platform. The AI-based platform (Logically Intelligence) detects, analyzes and classifies such information – and hosts a series of countermeasures to tackle problematic content, including priority flags, takedown notices and deep-dive investigative reports. By improving civil society discourse and protecting democratic debate, the UN Sustainable Development Goals impacted by this solution is SDG16 ("Peace, Justice and Strong Institutions").

NatureAlpha Biodiversity & nature metrics platform

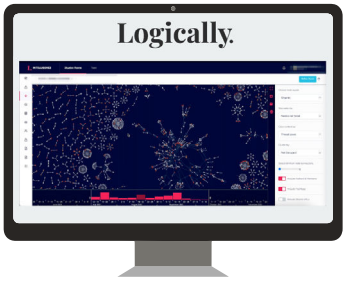
(SDG6, 13, 14, 15, 17)

As losses in biodiversity put entire supply chains and the subsistence of food or health systems at risk, a rising number of investors and financial institutions are now striving to invest in a future with a lower nature-related financial risk. Yet, data on companies' relationship with nature is often intransparent – or simply unavailable. NatureAlpha is striving to fill this gap by "providing science-based, AI and machine learning-powered biodiversity analytics via API or platform to global financial institutions". By fostering investments in biodiversity, NatureAlpha addresses a whole range of SDGs, including SDG6 (Clean Water and Sanitation), SDG13 (Climate Action), SDG14 (Life Below Water), SDG15 (Life on Land) & SDG17 (Partnerships to achieve the Goal).

An AI-powered classification email system to help the Italian Public Administration to better serve citizens

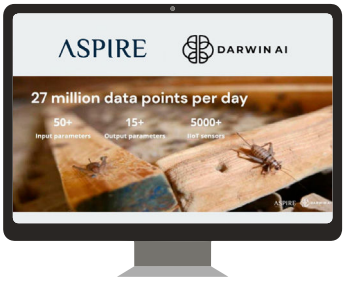
(SDG8, 9)

Every year, a ton of emails are being sent to the INPS, the Social Security Administration of the Republic of Italy. To improve the efficiency of the work within the INPS agency ecosystem, INPS and Accenture developed an AI-based solution with the aim of improving the current manual process of classifying emails sent by citizens and dispatching them to the appropriate office. Thus, by decreasing the burden of public sector employees and improving the quality of services to citizens, the project addresses both SDG8 (Decent Work and Economic Growth) & SDG9 (Industry, Innovation, and Infrastructure).



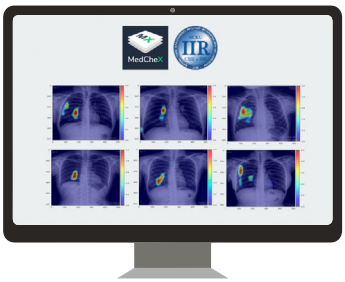
SkillLab (SDG1, 4, 8, 10)

SkillLab aims to guide the widest possible audience applying for a job or a degree. Its AI-based solution empowers people by capturing their skills, finding suitable educational qualifications and jobs, and helping them generate customized vocational training. SkillLab aims to make career guidance accessible, especially to marginalized populations, offering them a "pathway to employment based on a skill-recognition system that is granular, technology-enabled and data-driven." Regarding the UN Sustainable Development Goals, the project aims to contribute to SDG1, SDG4, SDG8 and SDG10.



Novel Application of Advanced Manufacturing Approaches to High Quality Protein (SDG2, 3, 9, 12, 13, 17)

Aspire Food Group is currently constructing the world's largest, fully automated cricket production and processing facility (in London (ON), Canada). With the use of artificial intelligence developed by DarwinAI, Aspire will be able to optimize yield and provide real-time insights into conditions and plant operations. The production of this quality protein at scale using AI addresses several of the UN Sustainable Development Goals while accelerating the world's transition to sustainable ingredients and materials through insect technology. The UN Sustainable Development Goals impacted by this solution are as follows: SDG2, SDG3, SDG9, SDG12, SDG13 & SDG17.



MedCheX: An e-Alert system for automatically detecting pneumonia from chest X-rays (SDG3, 10)

While hospitals in many parts of the world are repeatedly strained with the influx of COVID-19 patients, a team from National Cheng Kung University (NCKU) in Taiwan developed MedCheX, "one of the most effective, fast, and cheap clinical screening tools" to diagnose the coronavirus disease: By designing a Convolutional Neural Network (CNN)-based model to assist frontline doctors in the identification of pulmonary infiltrates on chest X-rays, the system automatically detects high-risk patients with pneumonia (and/or COVID-19) and alerts doctors with a visual representation of the underlying symptoms. The developers of MedCheX emphasize that "amid this pandemic, every individual and country should be treated equally". Thus, aiming to reduce global inequalities in access to health services, this project addresses both SDG3 (Good Health and Well-Being) & SDG10 (Reduced Inequalities).

PART 03 List of Excellent projects

1. AMP Robotics' AI platform and capabilities (SDG8, 11, 13)
2. AMY.app (SDG4, 5, 10, 17)
3. Artificial intelligence models for water conservation (SDG6, 9, 11, 14)
4. BESPECIAL (SDG4, 10)
5. ECHealth (SDG3)
6. Monitoring global soil carbon stocks in agricultural lands (SDG2, 13, 15)
7. OpenProf (SDG4, 5, 10)
8. School mapping using AI and high-resolution satellite imagery (SDG1, 4, 10)
9. SDG Meter (SDG1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17)
10. Sleep apnea (SDG3)
11. Strengthening of hospitals in resource limited settings by calling up AI algorithm for Chest X-Rays to tackle dual burden of COVID-19 and TB (SDG3)
12. Sustainable investment Brain (SDG3, 5, 8, 9, 10, 12, 13)
13. Vitron (SDG9, 11, 12)

PART 04 List of Promising projects

1. "Sam", the Non-Binary Voice Assistant (SDG5)
2. 19 to Zero – COVID-19 Vaccine Hesitancy Project (SDG3, 11)
3. 75F IoT Building Management System (SDG7, 11, 13)
4. A Measurements-Based Approach to Supervised Machine Learning (SDG3, 9)
5. A.I. For Good Framework to Empower Digital Workers (SDG8)
6. Address Informal settlements' exposure to climate-related hazard (SDG11, 13)
7. AI based SmallFarm Land Farmers Decision Support System Pilot Project (SDG1, 2, 3, 6, 8, 10, 12, 13)
8. AI for Peacebuilding (SDG16)
9. AI4Youth (SDG4, 9, 10)
10. An innovative AI diagnostic tool using saliva to predict oral health vs disease (SDG3, 9, 10, 17)
11. Arbol (SDG13)
12. ASSET: A Value-sensitive AI Approach to Empower Sustainable Consumption (SDG3, 9, 11, 12, 13)
13. Bitskout (SDG8, 9)
14. BrainBox AI (SDG7, 9, 11, 12, 13)
15. briink (SDG12, 13, 17)
16. CityAegis Mobile App (SDG3, 4, 5, 11, 16)
17. CivicLytics (SDG3, 5, 16)
18. Clean Code and Design Educational Tool (Clean CaDET), funded by the Science Fund of the Republic of Serbia (SDG4, 9, 10)
19. CovAid – Twist (SDG3)
20. Creators not consumers (SDG4, 5, 8, 10, 13, 17)
21. Cyan Reef impact investing platform (SDG1, 3, 5, 8, 9, 10, 11, 12, 13)
22. Djehuty (SDG4)
23. DSN EdTech AI Adaptive Learning Engine (SDG4)
24. Equalby30 – Gender Equity in the Energy Sector (SDG5, 8)
25. EvoAId Guarding Beats (SDG3)
26. Expert forecasting for energy companies (SDG12, 13, 7)

27. HalloSophia.com (SDG8, 9, 10, 11, 17)
28. https://ircai.org/top100/entry/http-www-ai4workplacesafety-com/ (SDG3, 9)
29. ImpactMapper Autocoding (SDG5, 9, 10, 16, 17)
30. Learnisa (SDG4, 8)
31. Lili.ai: weak-signal driven project management (SDG6, 7, 9, 11)
32. MALENA (Machine Learning Environment, Social and Governance Analyst) (SDG1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17)
33. Novel Machine Learning Approach for Credit Risk assessment using Non-Traditional Data Sets (SDG1, 3, 10)
34. OmniBot ∞ Particip.ai (SDG3, 4, 8, 9, 10, 16, 17)
35. Pano Rapid Detect (SDG13, 15)
36. Parametric Wildfire Insurance (SDG9)
37. Quantifying Dengue Outbreaks from Space using AI (SDG3, 10)
38. R1T1 Robot (SDG1, 3, 5, 8, 9, 10, 11, 16, 17)
39. RobHome senior care home assistant (SDG3)
40. Safeguarding children online in realtime (SDG3, 11, 16)
41. Solar Photovoltaic Nowcasting (SDG7, 9, 11, 13)
42. SpaceML Worldview Search – The NoCode Earth Data Curator from Unlabeled Petabyte Scale Imagery (SDG13)
43. Strategic Intelligence platform (SDG4)
44. Student Success (SDG4, 5, 8, 10)
45. Talov (SDG4, 8, 10)
46. The AI Economist (SDG8, 9, 10)
47. The Sentinel System (SDG13, 14, 15)
48. Using AI to Accelerate Changing the Eating Habits of a Nation (SDG3)
49. Vlinder – Mangrove Carbon Verification System (SDG1, 2, 3, 4, 5, 8, 13, 14, 15)
50. Wildbook (SDG14, 15)
51. Wildlife Spread Prediction (SDG11, 13, 15)
52. World Data League (WDL) (SDG11)
53. Zupervise, AI Risk Governance Platform (SDG9, 10)

PART 05 List of Early Stage projects

1. 1-10 (SDG1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17)
2. A Motivational and Personalized Recommender Systems for Healthy Physical Activities (SDG3)
3. AI and Digital Ledger Technologies (SDG8, 9, 10)
4. ANNIT (SDG3)
5. Assessment of the ecobranding positive impacts on sustainability (SDG12)
6. Automation of investment promotion at the Estonian Investment Agency (SDG8, 9)
7. Beastro (SDG2, 3, 12, 15)
8. Democratising Online Education with AI-powered Esme Learning (SDG4, 8, 9)
9. Environmental intelligence platform (SDG3, 11)
10. Factmata Narrative Monitoring (SDG10, 16)
11. Goverlytics (SDG4, 8, 9, 11, 16, 17)
12. Human Machine Intelligence In Cybersecurity (SDG4, 9)
13. KAIT Solutions (SDG4)
14. KrattAI (SDG8, 9, 16, 17)
15. PetitPouss (SDG4)
16. PrescribeWrite (SDG3)
17. Reducing carbon emissions in Zambia's forest using computer vision (SDG13)
18. RuleWatcher.com (SDG6, 12, 13, 14, 15)
19. Save the Children (SDG3, 4)
20. Scalable soil carbon measurement for agricultural lands (SDG2, 8, 13, 15)
21. Tashkees (SDG3)
22. The Civic AI Lab (SDG3, 4, 8, 10, 11, 13, 16, 17)
23. Viktoria 1.0 @Hippo AI Foundation (SDG1, 3, 4, 5, 8, 9, 10, 11)
24. World Integration Loop (WIL) (SDG9, 13, 17)