HumanE AI:

Toward AI Systems that Augment and Empower Humans by Understanding Us, our Society and the World Around Us

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D3.2: Concept for maximizing the socio-economic impact of large-scale bottom up AI research initiatives synchronized with Horizon Europe strategy

Author(s): Viviana Gropengiesser, Albrecht Schmidt, Ville Mäkelä, Theresa Doppstadt
Contributing partners: LMU Munich, German Entrepreneurship GmbH, CDTM, Fortiss, VW Datalab, ING, Aalto University, Philips, Siemens AI Lab
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Contact: albrecht.schmidt@um.ifi.lmu.de

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0.1 Authors

Authors	Institution	e-mail
Albrecht Schmidt	LMU Munich	2lbrecht.schmidt@ifi.lmu.de
Ville Mäkelä	LMU Munich	ville.maekelae@ifi.lmu.de
Viviana Gropengiesser	German Entrepreneurship GmbH	gropengiesser@german-entrepreneurship.de
Theresa Doppstadt	CDTM	doppstadt@cdtm.de
George Kampis	DFKI	George.Kampis@dfki.de

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EXECUTIVE SUMMARY

In this deliverable we describe the concept for maximizing the socio-economic impact of large-scale bottom-up AI research initiatives. In this revised and extended version, we explain how this strategy and initiative contributes to the newly proposed Humane AI net activity. The core of the work is an innovation strategy that is based on community input and has been consolidated in an interdisciplinary workshop. In this extended version we also report a validation exercise in the community and propose a high level approach to innovation with and for AI.

The focus of the strategy is twofold, (1) providing means and mechanisms to transform basic and applied research results into ventures and businesses that provide value to European citizens, and (2) to ensure that applied research is guided by real-world challenges and steered toward domains that are beneficial for society. Before presenting the strategy, we identify the current shortcomings in AI innovation in Europe. To achieve this we see it essential that Europe strengthens its expertise and activities in understanding human desires and societal needs as well as on AI technologies and their applications. If, and only if, both aspects come together we expect that AI-based innovations can be created in Europe that are good for people – for individuals and as well as the society as a whole.

Different stakeholders have different challenges, and different types of enterprises have different needs. Hence, we map out the strategy, and propose mechanisms that support the creation of start-ups, the transformation of traditional (non-digital) SMEs into high-tech companies, and the push to agile innovation in major industries. A range of dedicated mechanisms is envisioned and described. The aim is to create leaders in AI technologies that have a deep understanding of human needs. Furthermore it is essential to understand how European enterprises and entrepreneurs can create new technologies, solutions, products, and services that make Europe a leader in the humane application of AI.

1. INTRODUCTION

INNOVATION AND IMPACT STRATEGY

This Document outlines and explains in detail what was only summarized before.

In order to foster human-centric AI and maintain Europe as a powerhouse in this key technology shaping the global economy, it is crucial to maximize the socio-economic impact of the research roadmap of the consortium. To this end, the **research agenda must commit to solving current major challenges in the European society and economy**.

To generate societal impact clearly perceptible to European citizens, **fostering application-driven innovation is key**. Therefore, the aim is to support the transformation from the results of the research agenda to start-up creation and innovation in existing businesses, organisations and industry via dedicated mechanisms.

Alignment with the Horizon Europe Strategy

We expect that the next wave of innovation through AI is innovation in applications across a wide range of domains and areas, that align well with the **Horizon Europe Strategy**, especially with **Pillar 2**: *Global Challenges and Industrial Competitiveness*[1]. The areas mentioned there will require AI to create internationally competitive solutions, and all areas will require a deep understanding of human desires and needs in order to develop solutions European citizens want or at least find acceptable.

The following areas in Pillar 2 relate strongly to potential domains, where we see major changes through AI. We expect radical and disruptive innovation, as entirely new solutions become feasible through AI, e.g.

- **Health**: new diagnostic and therapeutic solutions will emerge through the availability of massive amounts of data and algorithms to process them. Health is also a very sensitive area and Europe has a good position as innovator, as there is a strong healthcare sector.
- **Inclusive and Secure Society:** Europe has a strong sense of making society inclusive and providing individualistic opportunities. Means for increasing cohesion in society and making it more secure require solutions that respect European values, and this creates a strong field for innovations.
- **Digital and Industry**: the digital transformation is ongoing in many different industries. There is no single AI-solution to fit all. We expect that many industry specific digital solutions, heavy drawing on AI, will finally emerge.

[1] https://ec.europa.eu/info/files/horizon-europe-factsheet_en

- **Climate, Energy and Mobility**: Europe has been World leader with respect to climate friendly technologies and renewable energies. With a great tradition and highly evolved multimodal mobility solutions (including bike, public transportation, individual mobility) and related industries (e.g. automotive), Europe offers a perfect environment for AI-based future solutions in this area.
- **Food and Natural Resources**: Also, with regard to food and the conservation of natural resources, Europe has a strong identity. Here too, specific and highly innovative solutions that embrace European values can be expected.

Interaction with the Horizon Europe Missions

Also looking at the Themes **in Horizon Europe Missions**, it is apparent that AI will play a major role in making them happen:

- Adaptation to Climate Change, Including Societal Transformation
- Cancer
- Healthy Oceans, Seas, Coastal and Inland Waters
- Climate-neutral and Smart Cities
- Soil Health and Food

At the core of accomplishing these missions, an interdisciplinary effort is required that will strongly build on data science, apply machine learning, and use artificial intelligence as key part in the solutions. Nearly any innovation, independent of what subject it is concerned with, relates currently to processing and understanding data and requires advanced algorithms, typically built on top of various artificial intelligence solutions.

It is important to understand that here the innovation and the **advances come from the application and appropriation of artificial intelligence algorithms to real world challenges**, rather than from creating genuine new AI techniques or algorithms. This requires strong technical skills in AI, ingenuity to find solutions, comprehensive domain insights, and the understanding of human and societal needs to make a valid step towards accomplishing these missions. Europe is strong in this area, with a great number of excellent researchers and practitioners who can find and implement systems using artificial intelligence.

In order to fulfil the potential fostering, an innovation ecosystem is essential and of great importance. **Stakeholders with domain knowledge**, **experts** with excellent knowledge **in artificial intelligence as well as in human centered research and engineering need to collaborate**. If we can create an environment in which these players come together and effectively collaborate, then Europe can lead the way in turning AI technologies into AI solutions for people. These solutions will be the major economic drivers in the next century. We expect that in this period **value creation moves from the algorithms to real world solutions**.

Fostering Innovation

Innovation is not trivial; hence we recap the main steps of the innovation process. Several important steps need to be taken to transfer research outcomes to innovative products and services.

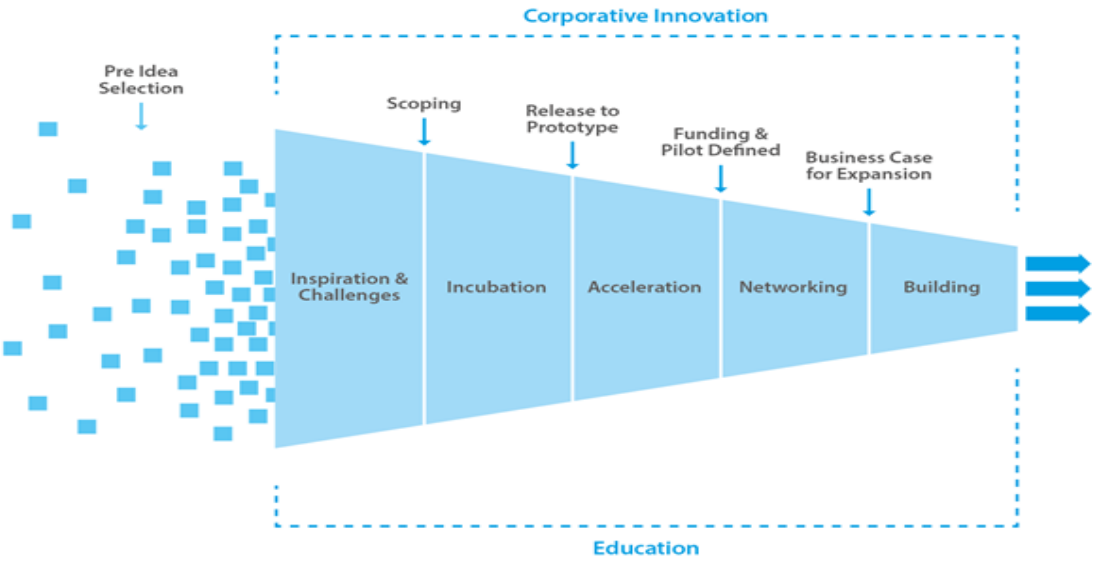

Figure 1: The innovation funnel: a structured approach to move from basic research to economic and societal value.

The steps include (see also Figure 1):

- Inspiration to Problem-Solution Fit
- Building teams
- Creating an AI-suitable business idea and model
- Business planning
- Scaling strategy for products, services and enterprises
- Finding and bringing together partners (consortia of different expertise, producers and consumers, developers and customers, etc.)
- Securing funding at different stages.

Using AI tools, the researchers will be recommended support structures to encourage and enable them to take the next step towards implementation. These innovation steps are also relevant in the context of AI-driven developments.

In the European initiative, this approach to innovation has become the core strategy.

2. IDENTIFICATION OF SHORTCOMINGS

PROBLEMS/GAPS IN THE CURRENT EUROPEAN AI INNOVATION ECOSYSTEM

It is apparent however that there are problems in the innovation ecosystem, as Europe is leading in different areas of AI research, but lacks the transfer. We used different mechanisms to investigate and uncover potential gaps and problems, including literature research, workshops, and direct discussions.

To consolidate the idea, the German Entrepreneurship GmbH and the Ludwig-Maximilians-Universität München have facilitated a workshop on the topic of "*Innovation in AI & AI in Innovation*" on the 30th and 31st of October 2019 in Munich. The participants were HumanE AI consortium members and guests from the industry (healthcare, automobiles, aircraft, industry 4.0), start-up companies (mainly AI service start-ups from Munich and across Europe) as well as members of the scientific community (universities, students, research labs etc.) from the fields of AI, human-computer interaction, or economics. One major part of the workshop was devoted to the identification and discussion of challenges in the European innovation ecosystem and the innovation funnel within the field of AI, consolidating prior experience and knowledge.

The workshop sessions consisted of input lectures, keynotes, group work, discussions and exchange formats in the form of "speed dating". Therefore, participants shared experiences and transferred knowledge among each other through numerous activities. An active and intensive exchange between the participants was fostered and common challenges as well as new ideas were identified.

Figure 2: Impressions from the workshop, where participants created themes and topics that can be addressed by joined efforts. Initial ideas should be developed in fast paced settings such a "hackathon" and then continued further in joined projects.

Figure 3: Viviana Gropengiesser from the German Entrepreneurship GmbH presenting.

A core strategy for future innovation is based on various micro-projects (MP) that will produce results ranging from fundamental research, prototypes, pieces of software, and tool sets to use cases and business ideas. Hence, depending on the outcome of a MP, a suitable mechanism or an opportunity to pursue the ideas further along the innovation funnel must be offered. Along the innovation funnel, many important steps need to be taken to proceed from fundamental research to successful businesses.

One of the discussed core challenges that was identified is that many of the currently available publicly provided funds result in a **lack of agility due to lengthy processes**, a very competitive process prior to receiving funding, and also a less competitive situation after receiving the funds. Another discovered issue is that **intellectual property (IP) of research results belongs to universities and research institutes**. This leads to many obstacles when individuals want to move forward with an idea and there are little incentives for researchers to start their own business based on their research conducted at a university or research institution.

Furthermore, it was found that a general **acceptance of failure in the European culture** of entrepreneurs as well as a clear transparency of the innovation ecosystem and its possibilities and easy access to funding **must be acknowledged**.

For the industrial sector in Europe, the **lack of corporate agility**, and the **lack of qualified talents in AI** and interdisciplinary teams pose a big challenge. Additionally, many people, especially employees in large organizations **still fear AI and see it as a threat to their job position**. This is due to the lack of knowledge about AI and the

many possibilities it offers. Moreover, several AI applications remain in the prototype status because of a lack of funding to develop stable and scalable AI products. This is also provoked by the **regulatory uncertainties**. **Especially in safety-critical systems**, regulation for AI must be clarified to foster successful innovation.

Additionally, for all AI players, the **access to high-quality labelled data**, especially industry data, is a big challenge and needs to be addressed.

Generally, an increase in **interdisciplinary cooperation** and exchange between art, culture and the public as well as the industry and academia is important in the future and can assure an early connection between the technology push and the market pull. **Real-life problems must be connected to research early on** to lead to successful innovation.

For the **dissemination of AI innovation in Europe, networking, cooperation and communication between all stakeholders across the European continent is essential**. Increased exploitation of the cultural diversity in Europe can also help to achieve these objectives.

For these jointly identified problems and gaps in the innovation funnel, the existing structures must be better exploitable and new structures, partnerships and programs must be developed in order to create an exhaustive and successfully connected European innovation ecosystem in AI. Some possible support structures were discussed and rated among the participants and are included in the innovation strategy.

DISCUSSION WITH FUTURE ENTREPRENEURS

As part of the winter school "*How Artificial Intelligence Impacts User-Centered Innovation Processes*" held from the 19th to the 22nd of February 2020 at Söllerhaus in Austria, the opportunities and obstacles for AI innovation were discussed. In different sessions with young people, mainly PhD students interested in creating start-ups, various topics were assessed.

These included:

- An Introduction to Human Centered AI innovation by Viviana Gropengiesser from the Entrepreneurship Center
- An overview of how AI innovations contribute to new solutions by Prof. Elisabeth André and Prof. Thomas Rist
- A panel on female leadership in AI and start-ups with Dr. Jasmin Nieß (University of Luxembourg), Prof. Elisabeth André (University of Augsburg), Prof. Elba Valderrama Bahamóndez (Panama)
- A session on User-centered design processes and how they change with AI by Prof. Enrico Rukzio (University of Ulm)
- A mini Ideation and hackathon sessions
- Several discussion rounds on Funding start-ups (Tilman Pfeifer) and experiences with Start-ups in the age of AI

Figure 4: Impressions from the Winter School. Viviana Gropengiesser from the German Entrepreneurship GmbH presenting the introduction, some results from group discussions, the material for the hackathon, and the female leadership panel (with Prof. Albrecht Schmidt).

3. THE PROPOSED STRATEGY

Based on research and experiences with exciting innovation processes and innovation support, a strategy was developed and is proposed below. Partnering between stakeholders and aiming for synergies is the central high-level goal. To implement it, an innovation platform and an innovation ecosystem is required. We outline types of events that support this strategy. Finally, we propose the innovation strategy for different enterprise structures (such as industry, start-ups, SMEs).

ESTABLISHING STRONG PARTNERSHIPS AND CREATING LONG-TERM SYNERGIES

The key is to establish strong links between various stakeholders and promote long-term synergies. The innovation strategy consists of four main objectives:

- **Unite the research and innovation community through a platform** by **matching researchers** and their research results **with** the appropriate **support structures and partners** needed to take their research a step further into successful application and implementation.
- **Involve and leverage the best existing support structures** and formats in Europe **from incubators to** innovation units of **large industries** and create an attractive environment for all relevant players to use the platform.
- Design and implement support formats and structures **filling the existing gaps in the research and innovation ecosystem**.
- Use and **develop an exhaustive innovation infrastructure** taking the **societal impact** and involvement into consideration for the three main target groups (1) **Industry** (2) **SME**s and (3) **Start-ups**.

THE INNOVATION ECOSYSTEM PLATFORM

The platform allows a centralized, integrated approach that facilitates co-creation between the relevant players in the field of innovation, supports vital exchange across disciplines and industries and ultimately joins forces across Europe towards a strong AI strategy. The platform will have to be embedded in or connected to the existing networks (e.g. AI4EU) and designed to attract and provide incentives to the relevant target groups from research, industry (corporates, SMEs & start-ups), talents, VC firms, accelerators/incubators as well as local, national and international communities and organisations.

Using the platform, every research group working on a MP will upload a presentation of their results as well as perform a self-assessment based on a fixed template structure summarizing the most relevant information about the technology, its business/impact readiness level and an indication of willingness to personally pursue the idea. The research will be collected and listed on the platform. The platform also lists all opportunities/mechanisms to take the research results to the next level and provides access to the contact person and key partners in the innovation ecosystem.

The selected institutions or groups offering various opportunities or formats, e.g. university entrepreneurship centers, company builders, corporate intrapreneurship programs, mentors, experts, co-founder, investors or venture capitalists have the possibility to present their solutions and support formats on the platform as well, and can in reverse search for suitable researchers or research results, upload challenges,

send individual requests and connect with researchers directly. Therefore, the platform allows for a multi-directional approach for innovation-creation and enables all stakeholders to actively engage with the community and reach the common goal through cooperation.

The platform solution ensures customized matching and recommendation of research results with attractive and suitable options on how to take the research to the next level based on the technology readiness, challenges, the involved team and their location. It also connects all relevant drivers of innovation directly with the researchers and their results. All in all, it connects people across disciplines and industries for a joint AI vision and creates a vivid ecosystem linked to an exhaustive environment of support structures and opportunities.

Furthermore, the platform will create transparency that allows tracking the success and progress of projects and identifying further gaps and needs in the European Innovation Ecosystem. Based on the collected data on the platform, further possibilities to improve the European Innovation Ecosystem can be detected and missing highly demanded support structures can be implemented.

To build a meaningful and successful platform for all stakeholders, the platform needs to be designed and built with links to existing platforms like AI4EU. Furthermore, it is important to deep dive into:

(1) partner strategy on incubators & accelerators and others,
(2) the access strategy for all stakeholders
(3) the recommendation strategy
(4) the incentive strategy and
(5) the offered tools on the platform like MOOCs on AI, Entrepreneurship and others, a talent database and an innovation ecosystem map etc.

INNOVATION INFRASTRUCTURE: ENGAGING THE INDUSTRY AND ENSURING ECONOMIC IMPACT

To reach relevant players in the European Industry, dedicated strategies are developed for diverse target groups. The strategy for synergy with the industry consists of four components:

(1) collaborative European structures and events,
(2) a component targeting European "champions" in key domains,
(3) an SME strategy and
(4) a strategy for fostering and supporting start-ups.

Within all four components, there will be common elements such as workshops, summer schools, tutorials, and access to dedicated areas of the virtual laboratory (with online courses, tools, datasets etc.). While the Ph.D. program will mostly target larger companies (see below), it will also interact with SMEs and start-ups.

COLLABORATIVE EUROPEAN STRUCTURES AND EVENTS

To create a vivid and dynamic analogue ecosystem – aside from the digital platform – events and structures are created to foster exchange and collaboration. To solve the

biggest common problems and allow efficient innovation in AI, three main “offline structures” are built: (1) future vision conferences for specific domains (2) a European Data Hub and (3) a European regulatory Co-Development Hub.

Future Vision Conferences

In order to bring all stakeholders together and inspire, ideate and create a future disruptive vision for different domains, interdisciplinary future conferences will be held. The conferences – dedicated to one specific domain (e.g. mobility) – will invite all relevant stakeholders (industry, start-ups, research, non-profit, government) to come together and create a future vision for the domain. In cooperation with arts and culture, a final fair will be organized which will be accessible to the public. At the conference and fair, cooperation across disciplines, industries and nationalities is celebrated, co-creation and networking is strengthened and public feedback and interaction is facilitated.

Regulatory Co-Development Hub

As identified jointly by workshop participants from different domains, AI innovation in safety critical fields is particularly difficult because the regulations are still often unclear and yet to be developed. At the same time regulation is difficult to develop as AI is not yet always explainable, and it is difficult to prove whether a product complies to regulations or not. Therefore, a closer collaboration between industry, start-ups and research on the one hand and European regulatory authorities on the other needs to be strengthened. Stakeholders in different industries like in aviation or the finance industry will be working with researchers and lawyers in regulatory sandboxes co-creating new products, better AI, meaningful regulations and automated reporting methods. To allow change and effective regulations, long-term cooperation is needed over a time-period of at least 5-10 years. This also allows a regular yearly analysis and safety assessment on incidents and consequential changes and developments in the regulations. To make this structure successful it needs to be endorsed and supported by European authorities.

European Data Hub

Data is the beginning of all meaningful AI applications and use cases. Getting access to high-quality labeled data especially in the industry is still a big challenge for most industry players, SMEs and start-ups. To create easier access to data for all, it is beneficial to join forces and create a common European Data Hub. Universities as well as start-ups, SMEs and industry players will be able to share their data and in return receive full access to data in the hub. The hub will collect open source data as well as data from the partners and will process and manage the data to improve the quality and make it useable for all stakeholders.

Industrial Champions Strategy

In our work we will form collaborations that include key European industrial players in domains that are important for the EU economy. Thus, for example currently the following companies are involved: Philips for health, ING for finance, Generali for insurance, Volkswagen for mobility/automotive, Ericsson for telecom, Airbus for aerospace and SAP as a representative of the European software industry.

Currently each of these companies is in charge of the synergies in their respective domain. To foster such synergies further, we will focus on several activities:

(1) Agenda Workshops
(2) Dedicated micro projects
(3) Industrial PhDs
(4) Corporate AI Innovation units
(5) Industry Hackathons
(6) MOOCs for corporates
(7) European industrial use-case prize for societal impact

In the following, these activities are described in more detail.

Agenda Workshops

Agenda workshops for each domain will bring together representatives of the respective industrial champions, their customers and researchers from relevant fields. Workshops will ensure that researchers understand the needs of the industry, and help the industry to go beyond incremental improvements over established solutions and identify potentially disruptive, novel approaches. The workshops will produce domain specific R&D agendas which will be the basis for industrial micro-projects (see below).

Industry-Driven Micro projects

Industry-driven micro projects will be conducted on the basis of the above R&D agendas and the research results obtained by scientist. Where appropriate other external partners will be involved. The industrial micro projects will be key means for transferring the results of basic research industry and evaluating the results in industrially relevant use cases.

Industrial PhDs

An industrial Ph.D. and postdoc program will create further close links between the academic centers of excellence and the European industry. As a coordinated program across the entire HumanE AI network it could provide industrial PhDs the opportunity to consult Europe's leading experts in their specific area, to pick the best academic supervisors for their work, to interact with peers across the continent and to access all necessary infrastructure.

Corporate AI Innovation Units

Low agility, long bureaucratic processes as well as hesitations and lack of knowledge of AI possibilities in business units hinder the quick innovation and adaption of new technologies like AI in large corporates. Dedicated structures can be helpful to increase the speed and quality of Innovation. Corporate AI Innovation units can be built with the goal to create an agile environment for AI Innovation. The AI innovation units will act as a service provider towards the business units to bring AI closer to the daily work of the business units and employees and explain the potential of AI and its application possibilities through workshop formats. Furthermore, the AI innovation units will aim to extract use cases from the pain points of the Business Units and develop solutions in co-creation with research and facilitate start-up cooperation. AI innovation units can also potentially act as cooperative structures across industries to further foster exchange and collaboration.

Industry Challenges

The problem-solution fit between real-life application in industry and research can be challenging. One of the most efficient ways to facilitate an effective problem-solution fit are Industry challenges for researchers and students. Industry hackathons will be held for single corporates or across industries for specific industrial challenges, when needed.

AI MOOCs

As many employees often fear the application of AI in their workplace, the technology needs to be made understandable and the positive potential for everyone to use AI and optimize their own work needs to be demonstrated. For this purpose, MOOCs for corporates can be set up, which will mainly focus on fostering entrepreneurship in AI by reducing fear, explaining possibilities and making AI understandable and usable for all employees to support them in their tasks.

European Industrial Use Case Award for Societal Impact

A common problem in industrial AI development is that many applications are introduced in prototype form and need intensive funding to be ready to be used as a product. The industry often has difficulty deciding which of the applications to fund and support as expertise in technical details, costs of development and implementation as well as potential societal impact is lacking. Therefore, a European Industrial Use Case Award for Societal Impact will be set up, run by an interdisciplinary jury committee consisting of government representatives, tech experts, entrepreneurs, and others. This broadens the bandwidth of expertise on impactful decisions on which technologies to invest in. Start-ups and Corporate R&D units can apply with their prototypes/use cases and are encouraged to show the positive societal impact of their successful implementation.

START-UP CREATION STRATEGY

Start-ups often achieve disruptive innovation. Their agility and freedom from long-term grown bureaucratic structures, which represent intrinsic obstacles, give them the ability to grow fast and adapt to upcoming challenges. Hence, fostering start-up generation is of major importance in order to facilitate impactful AI innovations.

Start-up creation often starts early in the minds of future founders. The interest in founding businesses need to be sparked and carried on by further inspiration and motivation. It is an overall goal to strengthen the entrepreneurial mindset in Europe and promote a culture of failure tolerance.

Furthermore, start-ups in their growing phase require appropriate support to scale up their business. According to the current stage of the start-up, from early stage to later stage, the current needs of a start-ups range vastly. These needs ought to be met through adequate programs to provide the start-ups with assistance.

Having financial resources available to fund start-up growth plays a crucial role too. It is therefore important to create opportunities to bring together investors and start-ups.

Inspirational Events

Inspirational events will be organized and held across Europe to gather and strengthen a European AI start-up community. Students, PhD candidates, young professionals

and entrepreneurship enthusiasts will be brought together with successful entrepreneurs as well as business and technology experts. The event will work as a forum, where founder stories, experienced failures, lessons learned and best practices are shared. Formats like key notes, workshops and matchmaking sessions will be conducted to connect the peer groups. The latter will be realized in order to connect potential co-founders.

European Entrepreneurship Summer School

The European Entrepreneurship Summer School will be set up to be a seven-day program where several university students come together in different European cities (e.g. Munich, Paris, Stockholm and Sofia) to develop entrepreneurial solutions that face the world's as well as Europe's biggest challenges. In the spirit of promoting "cooperation, innovation and development", we work on connecting young people in Europe, on the exchange of technological knowledge, and on the implementation of future-oriented and sustainable ideas.

The aim is to empower AI PhD students and entrepreneurial business students to connect and become young responsible leaders with entrepreneurial training and technical affinity who create positive change in our society and secure Europe as an innovative and competitive player in technological developments.

At the European Entrepreneurship Summer School, participants from all different parts of the European Union will work in interdisciplinary teams on topic-specific problems to develop own idea that include a sustainable impact on society and a self-sustaining, profitable business model based on an AI technology.

The teams will be intensively coached and provided with inputs and feedback. Additionally, a series of interactive sessions with renowned entrepreneurs and mentors with relevant expertise will provide participants with the complementary knowledge.

At the end of the course, each team will pitch their idea to a wide public audience and potential investors.

European Lighthouse Accelerator: Joint AI Acceleration Program

Networking is an important factor in the field of idea promotion and implementation. Start-ups in particular benefit from a good network of investors, like-minded start-ups and companies.

In order to ensure a Europe-wide network, collaborations with exclusively selected, existing accelerators will be intended.

Therefore, the first step is to identify the best and most suitable accelerators. As a next step, these accelerators will be trained to select and promote the best human-centric AI start-ups in Europe. These accelerators will be referred to as Lighthouse Accelerators.

Regular internal exchange meetings with all Lighthouse Accelerators will be held, at which the curriculum is improved, joint events are planned and start-ups are recommended to each other.

A program will be set up to support human-centric AI start-ups more systematically. Thereby researchers, investors, the EU and interested companies have a direct contact point in all European countries.

European "New Markets" Program

A European "New Markets" Program incorporates the idea to support start-ups in their mission to address new markets in Europe. After successfully establishing a business in a national market, a crucial next step for start-ups is to scale up their business and enter new markets. Therefore, a dedicated program for each European country will be set up to support the market entry of foreign European start-ups. The program will also be implemented by the European Lighthouse Accelerators.

The program will have a time limitation between 3 to 6 months and offer free office space as well as support in local hiring processes. Mentors from industrial leaders plus successful entrepreneurs will give guidance to start-ups during the program. Additionally, the start-ups will get strategic advice in relevant areas such as business model, go-to-market strategy and regulatory affairs.

In order to establish the program, existing and eligible accelerator institutions (preferably the lighthouse accelerator) among the European countries will be identified and trained and qualified to implement and conduct the program. These institutions already possess a significant national network to recruit the right staff and can support the start-ups with marketing and PR through conferences, events and Social Media.

Investor-Start-up Matching Format

Funding represents a crucial success factor for start-ups. Having the financial resources at the right time, provided by a suitable investor that can also guide the start-ups as a mentor, is very important for growing start-ups.

In order to connect the start-ups with investors, a pitch-event format will be implemented. As investors favour exclusivity, solely start-ups and investors will participate at the event. The pitching sessions will be segmented after business sectors, such as mobility, energy, social or finance. The start-ups will get a short time slot of 3 minutes to present their business idea future steps that need financing in front of the investor audience and an investor jury. After a pitch the jury challenges the start-ups with further detailed questions. At the end, the jury will evaluate each start-ups and nominate a winning team. Parallel to the pitching sessions, a start-up fair will be organized in which the start-ups present themselves with a booth. At the fair, the investors and start-ups can exchange ideas.

The lighthouse accelerators represent a suitable implementation partner for the event format because of their extensive network of investors and reach to high-quality start-ups.

SME Support Strategy

Supporting SMEs to benefit from AI innovation is critical, as in many European countries SMEs and in particular high-tech SMEs are the backbone of the economy. We have identified two types of SME, that required different support strategies:

- Established (traditional) SME:

  - most commonly acting B2B
  - currently successful and little time for new innovation
  - missing out on the chances of using AI to improve their Product
  - required means to help the realize the potential of AI
- Highly innovative SMEs in the digital realm (SW, AI):
  - have skills and knowledge in SW technology
  - can move into AI
  - can support customers benefit from AI
  - but lack at this point customers
  - require means to find customers and for teaming up

Small and Medium Sized Enterprises (SMEs) play a crucial role in terms of fostering innovation through HumanE AI, as they represent 90% of all businesses in Europe. At the same time, it is particularly challenging for SMEs to adapt to new technologies and invest in innovation processes. Risks associated with shifts in research and development to new areas like AI and major financial investments constitute significant obstacles for SMEs.

SME Cooperative Innovation Program

In order to lower the financial barrier for investments in innovation processes for SMEs, a cooperative approach bringing together multiple SMEs will be pursued. A co-operated innovation program can range from start-up-SME-matching that leads to joint-venture projects, over an accelerator program to innovative structures such as an AI Lab. Through the cooperative approach, the operational cost for each participating SME in comparison to self-operated programs will be reduced significantly. Additionally, multiple SMEs create a higher attractiveness for potential start-ups. Moreover, the cooperative approach implies a further incentive as the SMEs benefit from an established exchange forum in which SMEs can discuss e.g. common challenges.

Collaboration with DIHs

Furthermore, it is intended to collaborate with other European projects and facilitate workshops between research and the representatives from Digital Innovation Hubs (DIHs). DIHs, funded and initiated by the European Commission, serve as access points for SMEs in terms of digitalization and therefore can well report about the challenges of SMEs. This information is crucial information for scientist to design future research projects to solve problems of the SMEs.

Partnerships with DIHs and national Unions for SMEs

Additionally, the DIHs across Europe are well-eligible collaborative partners in order to reach the SMEs in general. Their already existing wide-spread network is a great contribution to the HumanE AI network. Furthermore, other national unions for SMEs, such as the BVMW in Germany (German Association for Small and Medium-sized Businesses) will be invited to become collaborative partners as well.

European SME Award for Societal Impact

A European SME award for societal impact will be set up. SMEs can apply with their ideas and are encouraged to show the positive societal or economic impact of its successful implementation.