December 2023
APPG AI Evidence Meeting

BIG INNOVATION CENTRE

AIs use in Healthcare & Telehealth

PARLIAMENTARY BRIEF

AIs use in Healthcare & Telehealth *is a* Parliamentary Brief based upon the All-Party Parliamentary Group on Artificial Intelligence (APPG AI) Evidence Meeting held in House of Lords: Committee Room 4A on the 13th of November 2023.

This APPG AI is co-Chaired by **Stephen Metcalfe MP** and **Lord Clement-Jones CBE**.

We would like to express our appreciation to the following people for their oral evidence:

- **Dr. Dimitrios Kalogeropoulos,** Chief Executive, **Global Health & Digital Innovation Foundation**
- **David Fearne,** Global Head of Generative AI, **Cognizant**
- **James Kirk,** Founder, **Ditto**
- **Dr. Franz Pfister,** CEO & Co-Founder, **deepc**

Big Innovation Centre is the appointed Secretariat for APPG AI

- CEO, **Professor Birgitte Andersen**
- Rapporteur, **George Farrer**

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1. Introduction

This APPG AI meeting featured insightful discussion around the disruptive potential of Artificial Intelligence (AI) driven innovations to transform healthcare accessibility, quality, and efficacy. Expert speakers provided diverse perspectives on opportunities for technologies like intelligent automation and data analytics to enhance remote care delivery, personalise treatment, and relieve overburdened workforces. However, experts also raised ethical concerns around patient data privacy that must be addressed for responsible adoption.

As advanced economies face strain from aging populations and care access gaps, the emergence of AI capabilities that gather clinical insights or support care delivery has inspired possibilities to transform quality, availability, and outcomes through data-driven innovations. However, realising this immense potential necessitates responsible, thoughtful governance focused on elevating health equity, inclusion, and transparency for patients. Cross-sectoral collaboration exploring how to ethically integrate AI across remote care, diagnosis, and treatment is crucial to ensure progress mitigates risks and biases while improving societal wellbeing.

Provocation Questions:

- *What is the update of using AI in Telehealth and other digital health care solutions adopted on wearable technology (mobile phones and pacemakers, etc.)?*
- *How can the national health care (NHS) adopt the 'best' Telehealth solutions to lower the growing health burden on society? How shall the public-private partnerships on Telehealth be managed?*
- *How can AI-driven Telehealth solutions improve patient outcomes and enhance the overall healthcare experience?*
- *What ethical considerations should guide the development and deployment of AI in Telehealth, especially concerning patient data privacy and security?*
- *What are the emerging standards?*

List of panellists:

- **Dr. Dimitrios Kalogeropoulos,** Chief Executive, **Global Health & Digital Innovation Foundation**
- **David Fearne,** Global Head of Generative AI, **Cognizant**
- **James Kirk,** Founder, **Ditto**
- **Dr. Franz Pfister,** CEO & Co-Founder, **deepc**

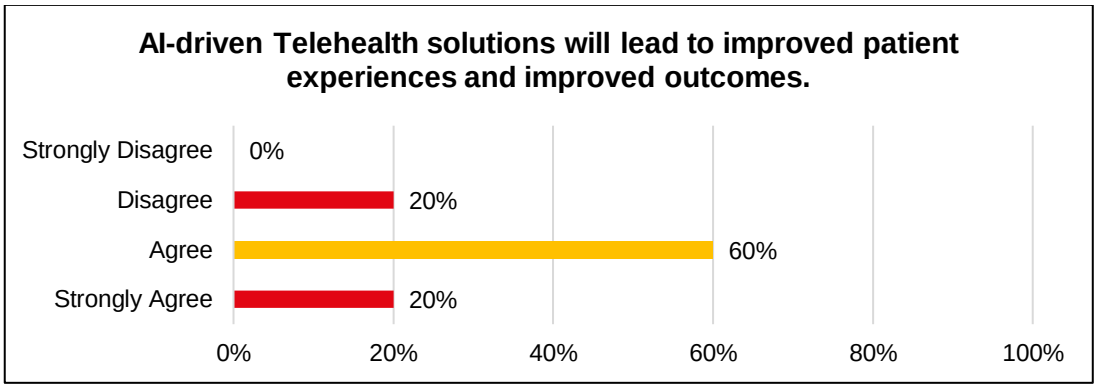
(From L-R: Dr. Franz Pfister, James Kirk, Lord Clement-Jones CBE, Stephen Metcalfe MP, Prof. Birgitte Andersen, David Fearne, Dr. Dimitrios Kalogeropoulos)

This meeting was chaired by Co-Chairs **Lord Clement-Jones CBE** and **Stephen Metcalfe MP.**

Parliament has appointed Big Innovation Centre as the **Secretariat of the APPG AI**, led by **Professor Birgitte Andersen (CEO)**. The Project Manager and Rapporteur for this meeting is **George Farrer**.

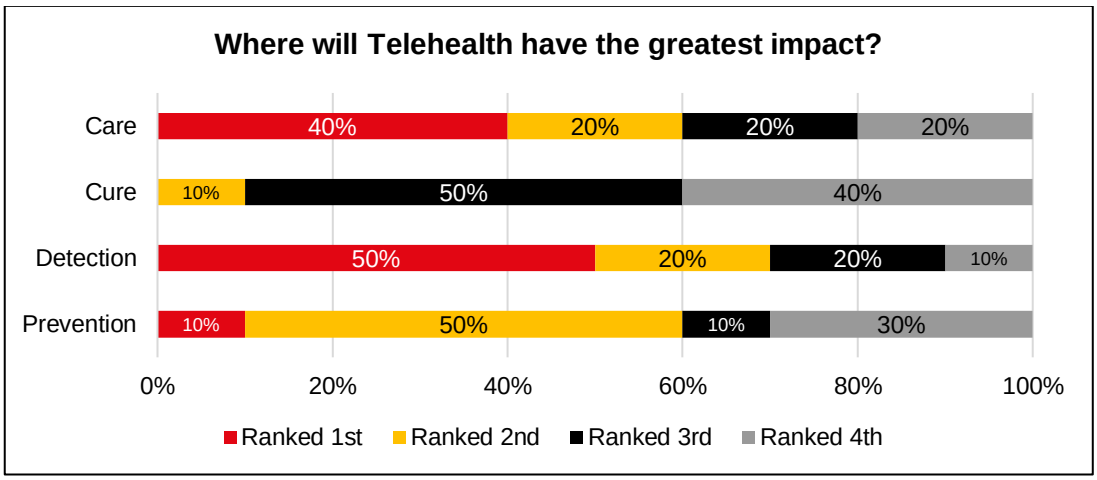
2. APPG AI Pavilion Survey

Prior to the APPG AI meeting, a survey was issued on the **APPG AI's Pavilion Platform**.



Question 1 asked members of the APPG AI community whether they agreed that *AI-driven Telehealth solutions will lead to improved patient experiences and improved outcomes.* Overall, there was an overwhelmingly optimistic view that AI-driven Telehealth solutions will improve patient experiences and outcomes.

60% **'Agree'** and 20% **'Strongly Agree'** that these innovations can enhance healthcare accessibility, quality, and results. With only 20% selecting **'disagree'**, the prevailing sentiment is that intelligent automation and augmentation of remote care delivery can meaningfully transform patient-centricity, responsiveness, and efficacy. This consensus highlights expectations that applying AI capabilities to Telehealth will realise meaningful improvements through superior experiences and elevated outcomes.

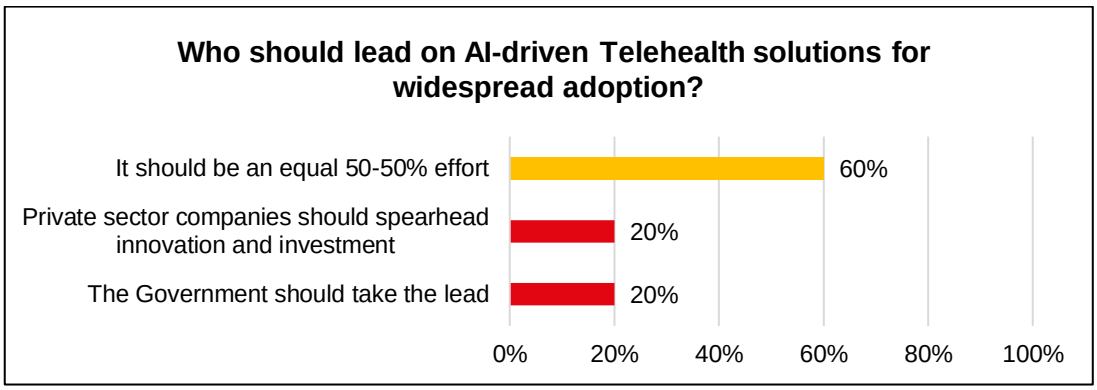


Question 2 asked respondents to consider *where Telehealth will have the greatest impact*, in turn providing insights into the expected impact of Telehealth across various healthcare

domains.

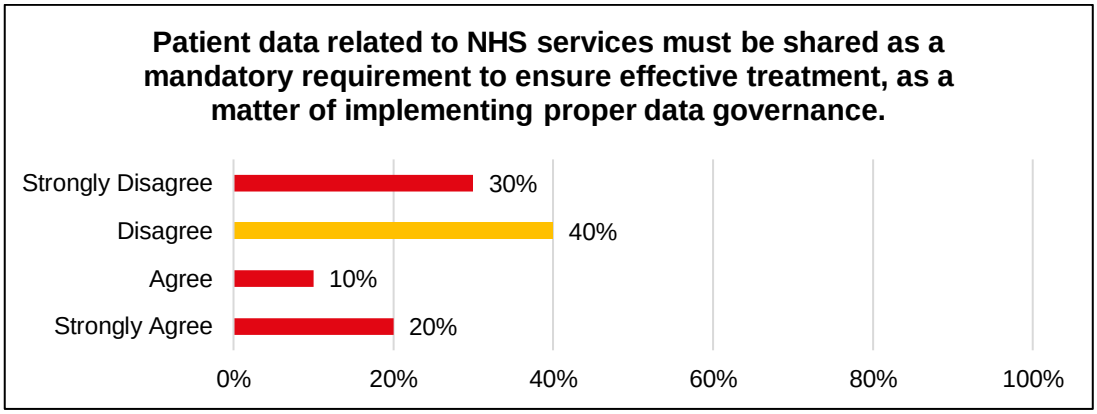
Notably, the majority (50%) deemed **detection-**oriented Telehealth apps, gathering data such as blood pressure and eye health, as having the most significant impact. **Prevention**-focused Telehealth, encompassing areas like fitness, mental health, and heart monitoring, yielded mixed sentiments, with 10% ranking it highest and 50% considering it the second least impactful.

Care-related Telehealth, guiding medication adherence and monitoring devices like pacemakers, received significant attention, as 40% ranked it the highest. Conversely, Telehealth's role in direct **curative** services was perceived with less optimism, with 50% ranking it as the least impactful.



Question 3 questioned *who should lead on AI-driven Telehealth solutions for widespread adoption.* The results highlight a prevailing view that advancing AI-powered Telehealth requires concerted, collaborative leadership between both government and private sector stakeholders. 60% believe it should be an **equal 50-50% effort**, underscoring the need for robust public-private partnerships to enable widespread adoption.

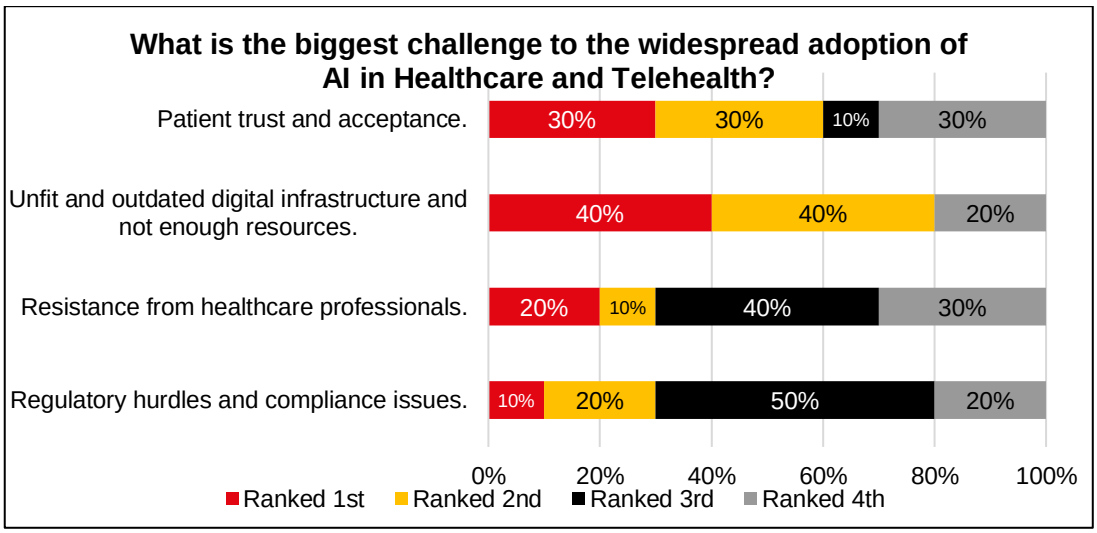
With only 20% feeling either **government** or **industry** should spearhead independently, there is consensus on the need to leverage both public funding and oversight as well as private innovation and investment. This balanced perspective recognises the complexity of equitable, ethical, and efficacious Telehealth deployment at scale.



Question 4 presented the viewpoint to the APPG AI Community that *patient data related to NHS services must be shared as a mandatory requirement to ensure effective treatment.*

The results reveal strong objections to mandatory NHS patient data sharing as proper governance, with a total of 70% either **'strongly disagreeing'** (30%) or **'disagreeing'** (40%) that it should be compulsory even to enable effective treatment. This highlights concerns over consent, privacy, and data controls.

With only 30% believing the statement to be true, there is little support for forced data dissemination, instead cautions about risks of overreaching policies undermining trust in ethical stewardship. The results emphasise developing frameworks to support care quality should avoid hastily compelling distribution without sufficient safeguards or input in utilisation.



Question 5 asked *what the biggest challenge is to the widespread adoption of AI in Healthcare and Telehealth.* The most commonly perceived challenge is **"Unfit and outdated digital infrastructure and not enough resources"** with 40% ranking it as the most significant challenge and an additional 40% ranking it as the second most significant.

Following closely is the challenge of **"Patient trust and acceptance"** with 30% ranking it as

the most significant challenge and another 30% ranking it as the second most significant. This indicates that a substantial portion of respondents recognises the importance of building and maintaining trust among patients for the successful implementation of AI in healthcare.

“Regulatory hurdles and compliance issues” are considered the third most significant challenge, with 50% ranking it as the third most significant. This suggests that while regulatory considerations are acknowledged, they may not be perceived as the primary obstacle by a majority of participants.

Finally, **“Resistance from healthcare professionals”** is ranked as the least significant challenge, with 40% ranking it as the third most significant. This indicates that, among the listed challenges, resistance from healthcare professionals is perceived as having a comparatively lower impact on the adoption of AI in healthcare.

3. Recommendations for policymakers

1. Develop Telehealth into **a more comprehensive strategy** focused on delivering health equity, inclusion, and participatory care in order to create treatments and interventions that leave no patient groups behind.
2. Embrace adaptive, continual learning interventions **that allow AI systems to improve over time within regulatory policies**. Model this after the predetermined change control plans used for AI regulation in the United States.
3. **Proactively build and provide access to a world-first benchmark dataset** that AI innovators across healthcare can use to evaluate the safety, transparency, and accuracy of their systems at each tier of a diagnostic or treatment design pattern needed to meet regulations.
4. **Modernise the current evidence translation ecosystems** and clinical trial protocols that are trusted but outdated. Emphasise the inclusion of patient reported outcomes as a tool to deliver interoperable insights across health systems.
5. Extend the current General Data Protection Regulation (GDPR) privacy regulations to embrace the concept of **allowing data to have multi-ownership instead of single ownership**, as single data ownership has not worked well historically.
6. Specifically support increased integration of Telehealth services into value-based reimbursement models across care settings, using the hospital at home model as a promising example for policymakers to consider.
7. Invest in and provide more **evidence sandbox facilities, development spaces and datasets** to accelerate data-coupled innovation governance, data standards, and more agile policy development around emerging technologies like AI.
8. Leverage previous investments made into innovation safe spaces like the UK's **Medicines and Healthcare products Regulatory Agency (MHRA)[1] "AI airlock"**[2], which allows AI innovators to **test solutions in a regulated sandbox**. Use these to provide more comprehensive safe spaces for AI innovation across UK healthcare.

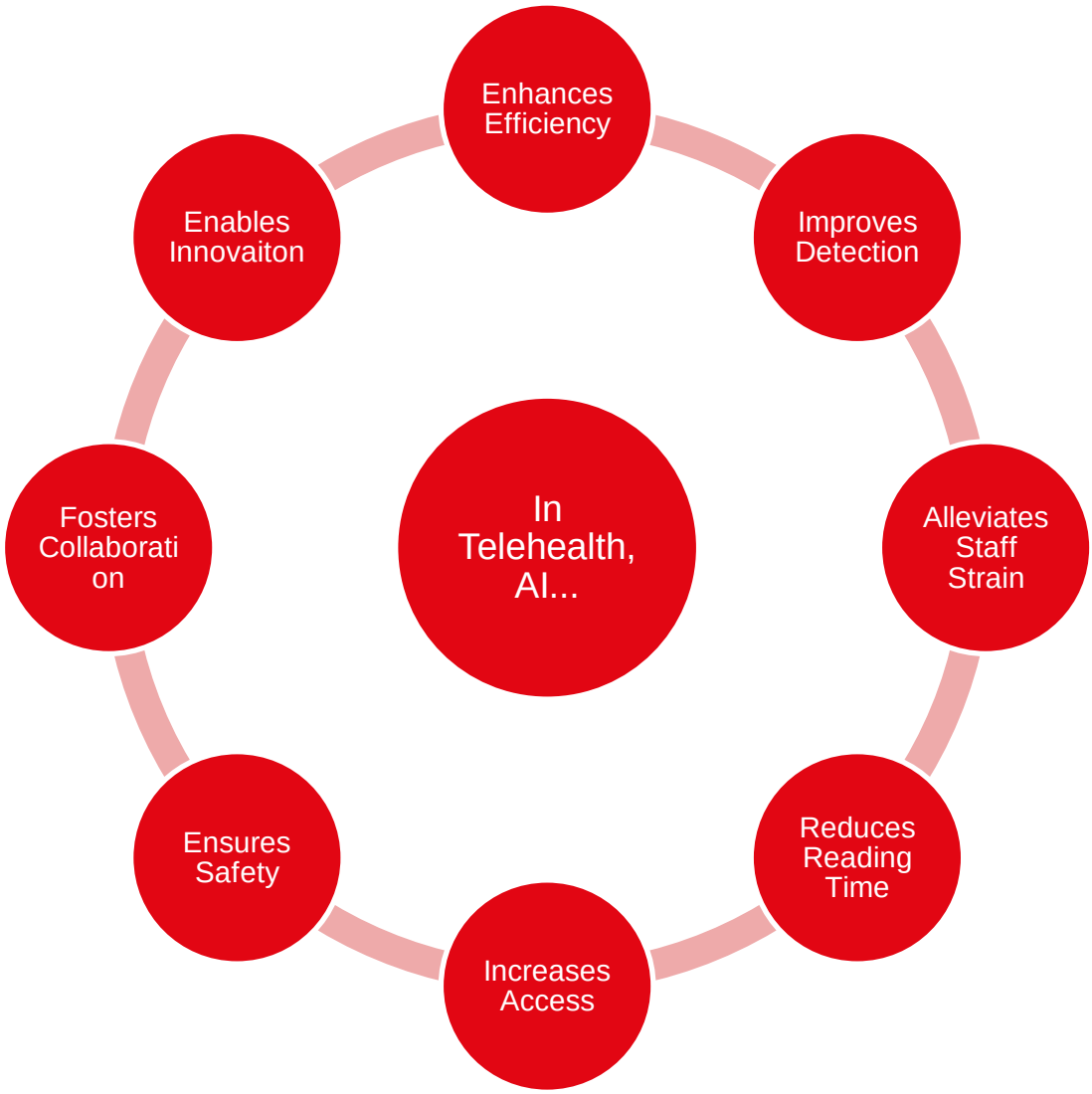
The expert speakers at this meeting wholeheartedly agreed that AI has monumental potential to enhance and progress healthcare systems, improving outcomes and quality of life for

[1] **Medicines & Healthcare products Regulatory Agency.** https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency

[2] **AI-Airlock.** https://www.gov.uk/government/news/mhra-to-launch-the-ai-airlock-a-new-regulatory-sandbox-for-ai-developers

countless patients. Whether through accelerating diagnosis, expanding access to specialised care, relieving overburdened medical workforces, enabling more preventative and personalised medicine, or enhancing efficiency - AI promises transformative solutions to critical healthcare system challenges if developed responsibly.

There was strong consensus that realising the immense promise of healthcare AI necessitates prioritising safety, security and privacy protections during development and deployment. The experts cautioned that short-sighted AI system implementations which squander resources or have unintended consequences should be avoided entirely. Instead, they emphasised that ethics, potential risks, reusability, and alignment with long-term strategic health goals must be engineered into these systems from the outset. Mainstreaming robust ethics training and education on unintended outcomes into computer science curriculums, alongside establishing adaptive policy and regulatory frameworks for healthcare AI were highlighted as essential



Positive impacts of using AI in Telehealth

ways to cultivate progress responsibly. The speakers unanimously agreed that patient wellbeing must remain the guiding light directing how healthcare AI systems are conceived, developed, and governed for society's benefit.

Additionally, the experts resoundingly highlighted the tremendous value of close cross-sectoral collaborations between governments, healthcare providers, academic researchers, and technology companies to construct the interoperable, scalable digital infrastructure needed to realise healthcare AI's potential. Considerable investment in pioneering government initiatives and robust, secure platforms were also salient points of consensus to place the UK at the global forefront of healthcare AI innovation and integration for the common good.

Dr. Dimitrios Kalogeropoulos, Chief Executive at the **Global Health & Digital Innovation Foundation**[3], opens his statement by reflecting that decades ago as a young researcher, he predicted that meaningful applications of AI would predominantly assist with navigating vast evidence to enable streamlined evidence-based medicine practices. He argues that large language models (LLMs) are now leading us out of a historical predicament in which technological complexity has outpaced solutions. The path forward, he states, involves participation and collaboration between humans and AI systems.

Elaborating further, Kalogeropoulos contends that while promising capabilities exist for AI to extract insights from clinical data, the field currently lacks enough high-quality clinical trials that demonstrate real-world impact and enable positive innovation ecosystems. He spotlights that negotiations on adopting the **EU's AI Act**[4] revealed concerns specifically around the use of foundation models in healthcare. Overall, he suggests that innovation is greatly needed in clinical research itself and the conduct of clinical trials.

Finally, Kalogeropoulos puts forth that combining Telehealth initiatives and evidence sandbox facilities with AI assistance could help modernise clinical trials, moving beyond barriers to achievement of health equity. As recommendations, he advocates extending GDPR to allow for data multi-ownership rather than single-ownership models, as well as embracing adaptive, continual learning interventions within regulatory policies, among other proposals.

David Fearne, Global Head of Generative AI at **Cognizant**[5], starts his evidence statement by reflecting on the immense pace of advancement in generative AI, which he argues has rapidly outpaced regulation, privacy safeguarding, and control mechanisms. He then discusses a recent project undertaken with the **UAE Department of Health**[6] and **Artificial Intelligence Office**[7] to create an autonomous AI system capable of providing telemedicine consultations, gathering information, and deriving diagnoses.

[3] **Global Health & Digital Innovation Foundation.** https://ghdif.org/

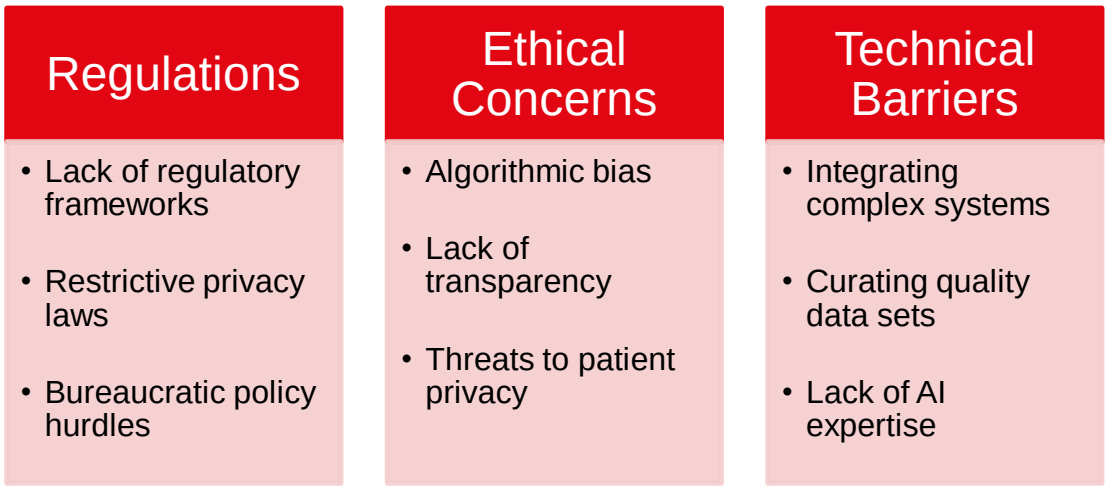
[4] **European Union Artificial Intelligence Act**. https://artificialintelligenceact.eu/the-act/

[5] **Cognizant**. https://www.cognizant.com/uk/en

[6] **United Arab Emirates, Ministry for Health & Prevention.** https://mohap.gov.ae/

[7] **United Arab Emirates, Minister of State for Artificial Intelligence.** https://ai.gov.ae/

Expanding further, Fearne details the "design pattern" they used to model human dialogue, with layers to gather supporting evidence, understand user intention, retrieve relevant information, derive knowledge to potentially inform a diagnosis, and responsibly present the next best action. Clinicians evaluated this system design to approximate medical assessment pathways. Simultaneously, the approach enabled building a regulatory framework.



Challenges of implementing AI in Telehealth

Finally, Fearne suggests that investments such as the UK MHRA's AI airlock could enable the provision of regulated spaces to foster AI innovation for healthcare. Additionally, he advocates the development of benchmark datasets that clearly delineate transparency and accuracy standards desired for systems at each layer of the human-mimicking design pattern.

James Kirk, Founder of **Ditto**[8], begins by strongly highlighting statistics that demonstrate how prevalent loneliness doubles risks like dementia and equates to health impacts as severe as smoking over 10 cigarettes per day. He then introduces his startup Ditto, which provides AI companions aimed at building social confidence and enabling human connections.

Elaborating further, Kirk argues Ditto's AI capabilities could provide immense relief to NHS pressures in numerous ways, including supporting mental wellbeing of hospital patients, keeping isolated groups like military families connected during deployments, and enabling 24/7 mental health assistance. However, he also highlights two key challenges faced in development - the complexity of navigating UK healthcare regulations for startups, and the common funding catch-22 between investors seeking traction while startups require funding to demonstrate capabilities.

Finally, Kirk puts forth proposals like AI tools that simplify regulatory compliance through conversation and catalogues that detail AI medical devices past regulatory journeys to ease the burden for startups. For funding, he suggests a higher focus on commercialisation and market access within government-backed innovation initiatives. Kirk concludes by stating that

[8] **Ditto**. https://www.helloditto.ai/

supporting early-stage ventures is crucial for realising AI's healthcare potential.

Dr. Franz Pfister, CEO & Co-Founder of **deepc**[9], starts his statement by showcasing current examples of AI capabilities demonstrating tangible improvements in areas like breast cancer screening, where AI leads to early detection that raises patient survival rates. Additionally, AI alleviates overburdened radiology workforces across specialties, enhancing efficiency.

Going further, Pfister highlights that AI also holds promise for democratising access to quality healthcare in remote regions, overcoming radiologist shortage barriers. However, he acknowledges core challenges around ensuring AI safety at scale, privacy protection, and security that must be addressed proactively, such as through investments in assurance technologies.

Pfister concludes by urging policymakers to focus on three critical tenets - building scalable infrastructure to support AI deployment, fostering collaboration between healthcare stakeholders, and continuing leading funding initiatives for AI innovation. Looking forward, he predicts a future in just ten years where AI will be fully embedded across health systems, transforming medicine by that point to the new normal standard of care.

[9] **Deepc**. https://www.deepc.ai/

4. Evidence statements

Dr. Dimitrios Kalogeropoulos, Chief Executive, Global Health & Digital Innovation Foundation

Introductory Remarks

As a young researcher in AI in Medicine in the 1990s at City University in London, I remember predicting that very soon, meaningful uses of AI would be predominantly about navigating the vast expanse of evidence. As predicted, to streamline today's fine-grained evidence-based medicine practices, AI is a pre-requisite; to harness the significant data footprint that we create with medical technologies.

AIs use in Healthcare

In that respect, LLMs are leading us out of a historical predicament; one caused by technology-creating risks and complexities increasing faster than the pace at which technology can effectively address these risks. The path shown is participation and collaboration.

We are finally catching up. AI can now read radiology reports and generate outputs that other applications may use to add value for both patients and clinicians. Yet, high-quality clinical trials that measure impact and empower positive innovation ecosystems for us, are scarce. On top of that, negotiations on the adoption of the landmark **EU AI Act** hit the brakes over these foundation models during last Thursday's trilogue session, in the European Parliament

Last week I delivered a keynote at an international quality-of-care consensus conference for advanced breast cancer in Lisbon[10]. I talked about how AI can be used to assist along new digital and patient-centric treatment delivery pathways that reach underrepresented patients. I proposed some fundamental capabilities our health systems must develop.

One will come from using Telehealth to understand the needs and challenges of underserved populations. Another from evidence sandboxes, which we currently are lacking globally and in the UK. The two combined, with assistance from AI, can be used to modernise clinical trials, the latter as gatekeeper for social innovation which we keep failing to achieve.

Clinical Trials

Current global expenditure on clinical trials amounts to £41 billion annually. This is roughly 3.5% of the global pharmaceutical market revenue. 20% of that is data curation and this is one of the innovation delivery stages. In the case of AI projects data curation accounts for a staggering 80% of budget, excluding clinical trials. The quality-of-care consensus conference reiterated the lack of research data. Yet we generate so much of it, it has become a climate issue. Clinical research and clinical trials are in desperate need of innovation themselves.

The great thing about where we are now, is that if we succeed in validating simple downstream applications of AI, such as breast cancer screening assistants, we can data-couple them in the clinical setting to deliver great productivity and precision gains. This translates to less disease and equitable patient outcomes.

Recommendations for Policymakers

We can describe the one thing that has kept us back all these years as “digital incongruity”. We are already delivering precision cancer treatments, yet treatment protocols do not address the specific needs of young HPV-positive head and neck cancer patients given their overall survival rate of 80%, this is one field where inequity has prevailed despite technological advances. I believe, that underlying all that is a growing innovation divide and information asymmetries within and across health systems, within our NHS as well. We need a strategy to get past this. And I propose that one for just-in-time adaptive innovation with data recycling would do the job, including serving the following objectives along the way.

1. Modernise our trusted but outdated evidence translation ecosystems and the way we conduct clinical trials, with emphasis on patient reported outcomes as a tool to deliver interoperable insights.

2. Extend the GDPR to embrace the concept of data multi-ownership. Single ownership has not worked until now.

[10] **Advanced Breast Cancer – Seventh International Consensus Conference.** https://www.abc-lisbon.org/

3. Embrace adaptive, continual learning interventions within regulatory policies. The US are leading this initiative with pre-determined change control plans.

4. Turn Telehealth into a strategy for equity, inclusion, and participatory care, to develop treatments that leave no one behind.

5. Support the integration of Telehealth in value-based reimbursement. For example, hospital at Home is a great place to start.

6. Provide evidence sandbox facilities to accelerate data-coupled innovation governance, standards, and policy development.

David Fearne, Global Head of Generative AI, Cognizant

Introductory Remarks

I am a data practitioner and have been a data scientist for the last 20 years, so my evidence is very practical. It is very hands on and it's the experience from the field of working for the last 11 months since the dawn of generative AI to today, and what we've achieved with various health organisations around the world, both from a delivery through to life sciences organisations and also payers and providers.

The rate of innovation inside of generative AI, even AI full stop, this year has been profound. I do not think we've ever seen anything move so quickly. You blink and you are out of date, this is superb, except for the fact that it's left regulation, privacy, and control largely in in the dust.

What I want to start off by talking about is the opportunity that AI now presents to telemedicine and what I want to talk about specifically is a piece of work that we undertook with the Department of Health for the UAE and also with the Artificial Intelligence Office for the UAE well.

United Arab Emirates Case Study

The UAE is a very forward-thinking region as far as their AI is concerned and their regulations concerned, and they came to us a couple of months ago and said, look, we would love to embrace a new, you know, modality of telemedicine using AI predominantly and we would like to model it on the UK's 111 service which we were very proud of. However, they said that they

do not want to spin up call centres, and don't want to have the overhead of running a 111 service as we do in the UK, how do we work together? We went to Dubai and sat down with their team, and over the course of 2 months we created the world's first fully autonomous AI system that was able to go and provide a formal consultation with a user and drive out a diagnosis that is used to inform a decision.

Design Patterns

Now that itself is not that unique or particularly revolutionary. What we what we did was we fitted that into a design pattern, and this design pattern into a regulatory framework. What I want to talk about today is that reusable and repeatable design pattern and how we then apply the regulation around it to ensure that we could have a number of different attributes

With the design pattern we used, we tried to model it on how humans talk and communicate. When I'm talking now, the first thing you are doing is trying to drive what I'm intending to say – what's my intuition? How are you understanding what I am saying. Once you have understood my point you then pass that down to the information layer. When we are in the information layer, we're retrieving declarative information. We are retrieving memories to support answering the intention that you've catalysed around what I'm saying.

Once we've catalysed that intention and we've derived the supporting evidence or the supporting information to essentially answer that question, we pass it down to a knowledge layer, that goes and combines these two into an answer, and then we take that answer or that next best action, and we present it back to the user in a safe and responsible way that they can consume and then make an informed decision upon.

We have taken that design pattern, those four layers and in between each one of them, we go and gather evidence. We say, 'present the evidence in between the intention layer and the information layer to prove that you've understood the user's intention correctly.' We then took that intention and basically gave it to a number of clinicians and said is this how you would interpret this user's diagnosis? We worked in concert with these clinicians at every layer. Is this the kind of information you would use to answer that question or support the diagnosis, is this then the diagnosis you would make and is this then the next best action you would advise that individual takes?

We were able to build this regulatory framework as we went, inside of this design principle and build something that we could evidence in a clinical peer reviewed way, that was performing an approximation of a clinician in a clinical pathway.

We took that and we moved forward with it, and it's been a fantastic success. It's in a limited trial at the moment in the UAE for 5000 citizens. It has been evaluated by the 50 clinicians, so they're moving forward very, very swiftly with it.

Recommendations for Policymakers

We built this very quickly and we built it almost in reverse. I would love to see us align the UK's **National AI Strategy**[11], which is all about how can we stop regulatory capture stifling innovation? How can we drive forward trust in our in our AI systems that we develop? We need to leverage some of the investments already been made in things like the MRHA airlock to provide that safe space for AI innovation within the healthcare sector and have us proactively build that data set that allows innovators to go and benchmark their systems at each tier of the design pattern.

What does it look like to be broadly accurate between the intention layer if a user is asking these questions? What does accuracy look like? We need to build that world first data set that we could then leverage in our innovation spaces, to say to innovators that this is the regulation you need to fit within; this is the transparency we need you to be able to apply to your applications. This will allow them to innovate in a broad and successful way.

[11] **National AI Strategy.**
https://assets.publishing.service.gov.uk/media/614db4d1e90e077a2cbdf3c4/National_AI_Strategy_-_PDF_version.pdf

James Kirk, Founder, Ditto

Loneliness

What do Margaret, who is 72, Jonathan who is 46 and Samira who's 19 have in common? These three people have a 25% increased chance of death because of one reason. Loneliness. Like over half of all UK older adults, Margaret spends 95% per day alone. This is doubling her chances of developing dementia. Jonathan is part of the 75% of disabled people who say they are lonely, most all or all of the time and that's increasing his chances of depression, heart disease and stroke. Samira is part of the age group which now say they're lonely most often and most intensely: 16 to 24 year olds. That is increasing her chances of having serious health conditions, and it's actually having the same impact on her physical health as smoking 15 cigarettes a day.

Introduction to Ditto

Now, this is a problem as close to my heart. I've seen the impact of loneliness first hand on my own mum's mental health over the last 20 years. I want to assure that what I'm not trying to do is replace people with robots, but what I am trying to do is build a startup called **Ditto**.

We provide AI powered digital companions. Unlike other apps that promote endlessly talking to an AI, we focus on building. social confidence and creating a bridge to meaningful human connections. Consider Margaret, she begins using Ditto and finds that it provides more than just companionship. It offers mental health support tailored specifically to her. Initially apprehensive, Margaret finds ease in communicating with Ditto in the comfort of her own home. By proactively asking questions, Ditto learns about her interests, such as her love of literature. After a while Ditto suggest that she joins a group chat with others that love books as

much as she does and when she's ready this her can help her transition into real world meetups, supporting her to build social confidence at her own pace.

But we can make Ditto even more personal. This time let's imagine I'm going to make a Ditto for my Mum. I can load that Ditto up with stories of memories that we've shared over the years, photos, videos, music. I can even give my voice by recording short sample. I can give that Ditto to my mum through an app on any smartphone or tablet and the next time she's feeling lonely or missing me, she can interact with it and relive those treasured memories in an immersive experience, and when she does, I'll receive a notification, giving me a nudge to give her a call the next time I get the chance.

Where can Ditto help?

Now the **UK Government's 2020 Loneliness Monetisation Report**[12] revealed that severe loneliness imposes a cost of around £9900 per person per year. This increases the pressure on an already stretched NHS. Introducing solution like Ditto could offer significant relief. It can be used as a tool to support and monitor individuals living with long term illnesses, allowing them to stay at home longer and avoiding the high cost of care facilities. In hospital settings Ditto could be a digital companion to those that are alone, supporting their mental well-being and conserving valuable nursing, and mental health. For our Armed Services, where mental health challenges are on the rise, Ditto could bridge emotional distances, keeping families connected during deployments. Ditto could help in suicide prevention, the biggest cause of death for males under 50 in the UK. It's 24/7 support provides non-judgmental space, and many find it easier to confide in an AI than they do in humans.

Challenges in Development

These illustrations many scratch the surface of Ditto's potential yet actualising this vision is neither quick nor straightforward, and it's a journey I've just begun. I like to spotlight two of the key challenges that I've had to navigate as an early-stage founder within the AI healthcare space.

Navigating Regulation

Firstly, navigating AI healthcare regulation is complex, often compounded by inconsistent information. Engaging legal experts or consultants is a luxury most early-stage founders can't afford. Recent efforts to streamline this information are a step in the right direction but are insufficient. Direct interactions with regulatory bodies like **MHRA** can be daunting without regulatory experience. A conversational AI tool leveraging the codified nature of regulations could simplify this process, providing clear and easy to navigate insights. Unlike the US, where the **Food & Drug Administration**[13] database provides a reference for those looking to

[12] **"Loneliness Monetisation Report"** (August 2020).
https://www.gov.uk/government/publications/loneliness-monetisation-report

[13] **US Food & Drug Administration**. https://www.fda.gov/

understand how similar devices have been regulated, the UK lacks such a resource. A digital catalogue of AI medical devices and their regulatory journeys could be invaluable, offering a roadmap to compliance and easing the regulatory burden for startups.

Funding

Next, we consider funding. Securing funding for an AI healthcare startup is a classic catch-22, where investors seek traction, but traction requires significant funding due to the high cost of AI development and clinical trials. Consequently, many startups pivot to less regulated wellness sectors or choose to focus on other markets such as the US where timelines are more aligned to venture capitalist expectations. While grants do exist, they predominantly target businesses ready to scale. I think countless brilliant concepts will prematurely die, starved at the initial phase backing, they need. Many Government backed incubators and innovation programmes seem to fall short, particularly in driving commercialisation. It seems these programmes need to focus more on practical steps like market access and navigating regulations. Moving beyond theory to actionable steps will likely lead to a surge in startups becoming market ready.

Beyond the specific hurdles I've mentioned the Government must empower NHS leaders with autonomy to invest in innovation, encouraging small, calculated risks that could significantly impact problem areas. For example, they could allocate an annual innovation budget for trusts to host a competition. Here, each trust would outline their key challenges and early-stage startups could offer solutions. The most promising ideas would get funding boosting UK-centric innovation and increasing independence on expensive foreign solutions.

In the debate on AI in healthcare, which currently is focused on regulation, there's a vital point I want to finish on. We can't regulate what hasn't been built. It's crucial to back early-stage AI healthcare ventures like Ditto in its pre-seed stage so that we can develop into solutions with the NHS in mind. Not every startup will hit the market but those that do could revolutionise healthcare and save countless lives. If we don't buy any of these innovations, we'll soon be buying them from overseas. Let's seize the opportunity to lead in AI, supporting projects from their inception to ensure a robust, homegrown, healthcare future.

Dr. Franz Pfister, CEO & Co-Founder, deepc

Introductory Remarks

I am medical doctor, and a data scientist. I am the CEO and co-founder of **deepc**, a Radiology AI platform company based in Munich with subsidiaries in the UK and the US. Our mission at deepc is clear—to provide access to health, at scale. To achieve this, we've developed 'deepcOS,' a cloud-native and vendor-agnostic Radiology AI platform. We are working with partners, like **BT**[14] in the UK, to deliver and roll-out this technology.

Examples of AI's Impact in Radiology

Allow me to illustrate how AI is making a difference in the NHS today, for its patients, its staff, and through democratised access to care:

Breast Cancer Screening

Referencing the latest multi-centre studies from renowned academic institutions like **Karolinska Institutet**[15] in Sweden, AI is revolutionising breast cancer screening. Breast cancer is a leading cause for death, with 1 out of 8 women affected in their lifetime. AI in breast cancer screening is bringing up detection rates by 12%, demonstrating that 40% of breast cancer patients can be diagnosed earlier while relieving healthcare staff through up to 60% efficiency gains. Early detection is crucial, and AI significantly improves diagnostic accuracy, saving lives of patients. This evidence already demonstrates today that AI will be the new

[14] **BT – Healthcare Technology Solutions.** https://business.bt.com/public-sector/organisations/health/
[15] **Karolinska Institutet.** https://ki.se/en

normal, making it an act of irresponsibility not to use it.

Relief for the UK Radiology Workforce

The UK radiology workforce faces a significant strain, evident in the **2022 Radiology Workforce Census** from **The Royal College of Radiologists**[16] [17]. Currently, there is a 29% shortfall in clinical radiologists, projected to reach 40% in the next five years. AI alleviates this strain, aiding overburdened professionals and enhancing efficiency across various areas, including stroke care, trauma, Alzheimer's, Multiple Sclerosis, and rheumatoid arthritis. In numerous cases, AI today reduces radiologists' reading time by more than 60%.

Extending Care to Remote Areas

Finally, let's delve into how AI improves healthcare access in remote regions. Picture a rural community distant from major healthcare hubs, struggling with limited access to specialised medical services, particularly radiology. This issue is very widespread in remote areas, both in the UK and globally. Here, a shortage of radiologists creates real challenges, and can lead to delays in vital healthcare. AI solutions can step in combined with fellow radiology approaches, transforming healthcare in these areas by democratising access and providing expertise where it's needed most.

Challenges & Risks

As we delve into the promise of AI in healthcare, we must acknowledge and navigate challenges. These include ensuring AI safety at scale, safeguarding privacy, and fortifying security. While these issues are paramount, framing them positively opens up the dialogue and opportunities. For instance, by investing in the creation of robust AI safety assurance and monitoring technology at the platform level, we at deepc lay the foundation for a future where these technologies can be trusted implicitly.

Recommendations for Policymakers

I urge Parliamentarians to continue its focus on three critical aspects:

- Scalable Infrastructure
- Collaboration
- Continue its Funding Initiatives

We need an interoperable, robust, secure, and scalable infrastructure to develop, deploy, and safely monitor AI in the UK and beyond. This investment is not just in technology but in the

[16] **The Royal College of Radiologists.** https://www.rcr.ac.uk/

[17] **2022 Clinical Radiology Census Reports.** https://www.rcr.ac.uk/news-policy/policy-reports-initiatives/clinical-radiology-census-reports/

health and well-being of the nation.

The road to successful AI integration in healthcare requires collaboration. Governments, academia, industry, and healthcare professionals must work hand in hand to create a seamless, patient-centric experience.

The UK has been a trailblazer in the early adoption of AI in healthcare, exemplified by the £21 million **AI Diagnostic Fund**[18]and the recently announced £100 million AI fund for healthcare and life sciences[19]. In my opinion, bringing in an outside opinion and perspective, it is essential to continue these pioneering efforts, fostering innovation and ensuring that the UK remains at the forefront of the AI revolution in healthcare. Let me assure you, that it serves as a great example for health systems around the globe that are closely monitoring and following these leading initiatives.

The Future of Radiology AI

I foresee a future where in ten years from now, nobody will talk about AI in healthcare anymore. This is because AI will be the new normal and naturally embedded in all healthcare processes and systems. At deepc, we do what we do to create a sustainable, tangible positive impact for the NHS, its dedicated staff, and, above all, for its patients. Let us forge ahead together, pioneering today to create a future where healthcare is not a luxury but a fundamental right - accessible, efficient, and patient-centric for all. AI is a technology that can help make this future a reality.

[18] **AI Diagnostic Fund.** https://transform.england.nhs.uk/ai-lab/ai-lab-programmes/ai-in-imaging/ai-diagnostic-fund/

[19] **"New £100 million fund to capitalise on AI's game changing potential in life sciences and healthcare"**. https://www.gov.uk/government/news/new-100-million-fund-to-capitalise-on-ais-game-changing-potential-in-life-sciences-and-healthcare

5. Speaker Bios

Dimitrios Kalogeropoulos, CEO, Global Health & Digital Innovation Foundation

Dr. Dimitrios Kalogeropoulos is Chief Executive at the Global Health & Digital Innovation Foundation, UK. He holds a PhD in AI in medicine and has over 30 years of experience in the field, having pioneered embedded evidence sandboxes to enable reciprocal scaling of AI research and applications, to bridge population-level data gaps, and to effectively address underrepresented and underserved communities in knowledge models.

Having worked as an expert with the World Bank, the WHO and PAHO, the European Commission, UNICEF and Bill & Melinda Gates Foundation, he has a 20-year track record in global health and an instrumental role in developing open innovation ecosystems world-wide. Dimitris is Global AI Ambassador 2023, has contributed to policy think-tanks toward the EU AI Act, serves as digital health editor and member of the IEEE European Public Policy Committee on ICT and as a member of the working group on Digital Health, Interoperability and Climate Policy at the Health Data Collaborative, an initiative led by the WHO.

In 2015 he helped shape policy for Deepening Health Reforms in China, now implemented as Healthy China 2030. He is the founder and chair of the IEEE SA Healthcare & Life Sciences workstream on Secure, Compliant, Coordinated and Inclusive Healthcare Data Recycling. Previously IBM, Dimitris has served on the board of directors and board of advisors of start-ups and organizations in Europe and the U.S.A.

He is a distinguished keynote speaker, startup coach and mentor in the Edison™ Accelerator program facilitated by GE HealthCare to deliver responsible adoption of AI in healthcare settings, as well as several other innovation support programs in healthcare and biosciences, and Health Executive in Residence at the UCL Global Business School for Health.

David Fearne, Global Head of Generative AI, Cognizant

David heads up Generative AI for Cognizant's global Artificial Intelligence and Analytics (AIA) practice, leading our efforts to deliver value from Generative AI. Pioneering the application of enterprise cognitive architecture with generative AI and currently working on a number of papers to share Cognizant's research and innovation in this space.

He joined Cognizant from PA Consulting in June 2021 as European Head of Applied Innovation within the Microsoft Business Group, building on a distinguished career in data. David has operated in other consultancies, lead data intelligence globally for a fortune 500 company and worked at leading technology vendors.

In 2017 he was recognised as one of the 50 most influential people in data, wining his category with a project to raise awareness of large-scale data analytics and AI through the innovative How Happy is London? project. A technology platform that, at the time, was one of the world's largest real time open source implementations.

James Kirk, Founder, Ditto

James Kirk is a seasoned entrepreneur with a rich history in the start-up realm. In 2013, he broke records with Wordeo, a video messaging app that achieved one of the UK's highest pre-seed fundraises. Since then, he's been the driving force behind multiple startups in both the web 2.0 and web 3.0 spheres. James has also lent his expertise as a product design, service design, and innovation strategy consultant to a plethora of industries, including fintech, healthtech, and insurtech. Currently, as the founder and CEO of Ditto, he's on a mission to combat the loneliness epidemic by fostering human-to-human connections through AI-powered digital companions, while also providing crucial mental wellbeing support.

Publications:

- **James Kirk** (2023). 'Ditto: The Story So Far'

Franz Pfister, CEO & co-founder, deepc

Dr. Franz MJ Pfister is an entrepreneur, medical doctor, and data scientist and is recognized as a leading expert at the intersection of artificial intelligence, data, digitization, and healthcare. His academic career includes medical studies at the Ludwig Maximilian University of Munich and the Harvard Medical School, with a medical doctorate in neuroscience. He holds an MBA from Munich Business School and earned a Master's degree in Data Science at the LMU Munich. Franz Pfister is CEO and co-founder of the Munich-based AI platform company deepc, which enables the creation, evaluation, deployment, and monitoring of next-generation Radiology AI solutions, to improve patient care, optimise clinical processes, and enable personalized medicine.

6. Contact

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