NEXUS

Quantum AI

A new foundational AI based on swarm intelligence

maxamlabs.io

THE PROBLEM

“Every one of us knows someone whose life has been changed by illness, sometimes in an instant, sometimes over years of struggle.

Today, the world stands on the edge of a medical revolution. AI has already begun to accelerate discovery, but the tools we currently rely on are sometimes limited and progress can be slow.

The toughest diseases, the most complex health challenges, demand more than incremental progress; they demand a leap. We have built that leap.

We have built **NEXUS**.”

David Gammond - CEO

QUANTUM AI

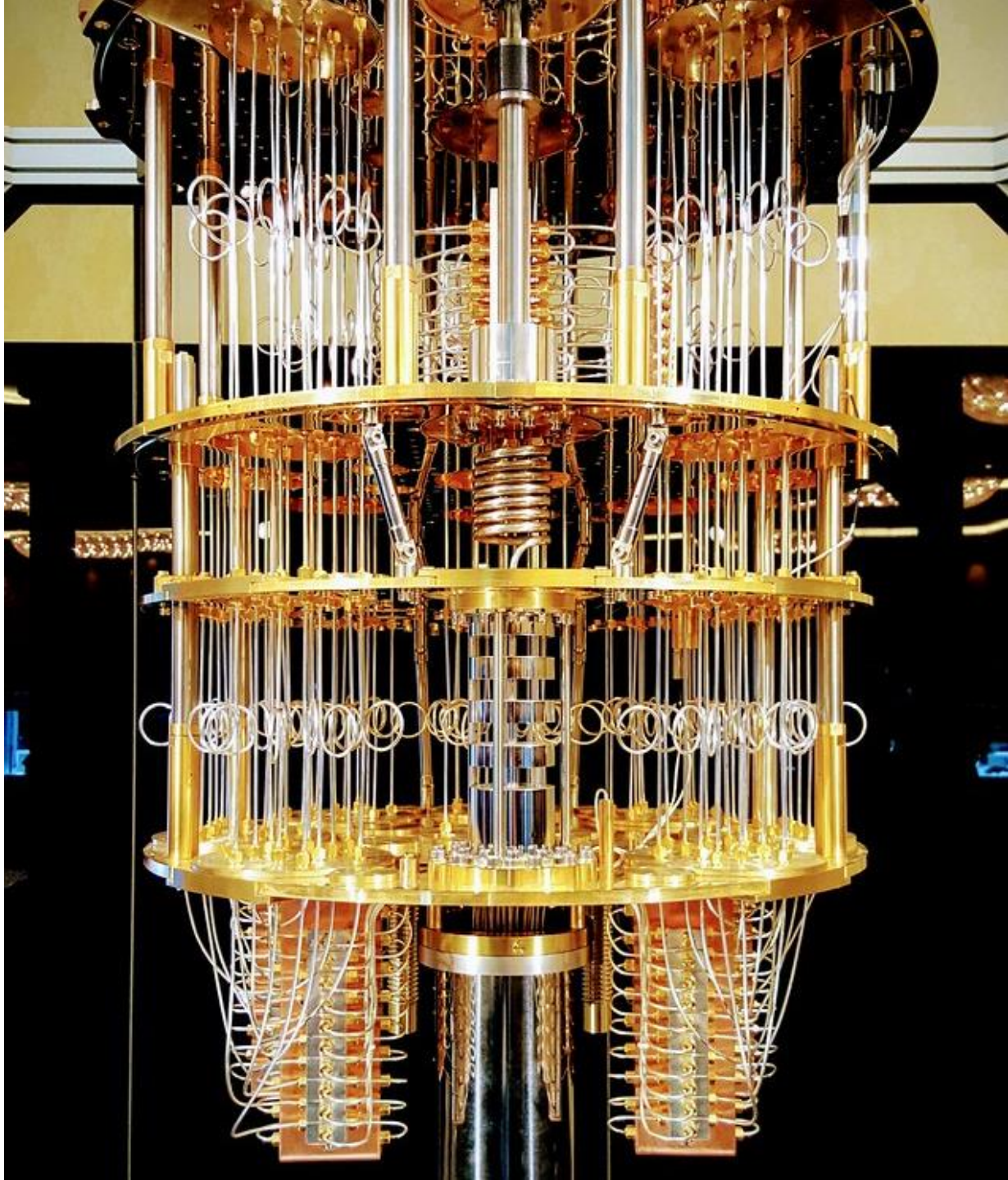
Our foundational artificial swarm intelligence integrated with quantum computing offers three key advantages for medical science:

Quantum-accelerated collaborative learning enables decentralized, privacy-preserving analysis of medical data, enhancing disease detection through parallelized multi-modal processing;

Quantum-optimized problem-solving rapidly resolves complex challenges like drug discovery and treatment planning using quantum swarm algorithms, achieving unprecedented precision;

Scalable quantum-security combines decentralized governance with quantum encryption to securely analyse global genomic/clinical datasets, ensuring compliance and cybersecurity.

This synergy creates a transformative platform for precision medicine, delivering energy-efficient, real-time solutions while maintaining data security.



HOW IT WORKS

We have shown that emergence* is created by the **NEXUS** architecture, using an environment filled with what we call Dants (Digital Ants). Running their evolution at thousands of times natural speed, we have created an intelligent, creative AI capable of solving real world problems.

Mathematical, analytical and optimization problems can be input into **NEXUS**. These problems include warehouse optimization and route planning, asset deployment strategies, and most importantly, supporting the creation of new pharmaceuticals.

The Dants swarm around the problem to discover the most efficient path to a solution, working together they create chains of processes. These chains are then used to solve the problem creating the output.

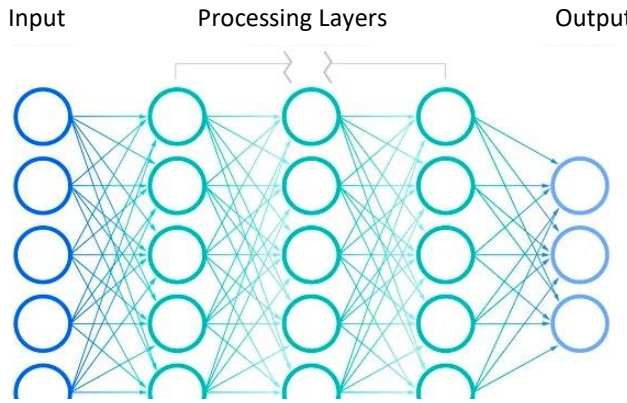
NEXUS is a core technology which creates artificial intelligence in a completely different way to generative AI or LLMs. We have found that by utilizing the power of emergence, **NEXUS** is able to evolve original, efficient solutions.

*Emergence occurs when a complex entity has properties or behaviours that its parts do not have on their own and emerge only when they interact in a wider whole.

Typical generative AI architecture comprises of a network of neurons (nodes). These neurons are linked together using parameters.

Input is passed through the processing levels, which make decisions to create an output that is based on training data.

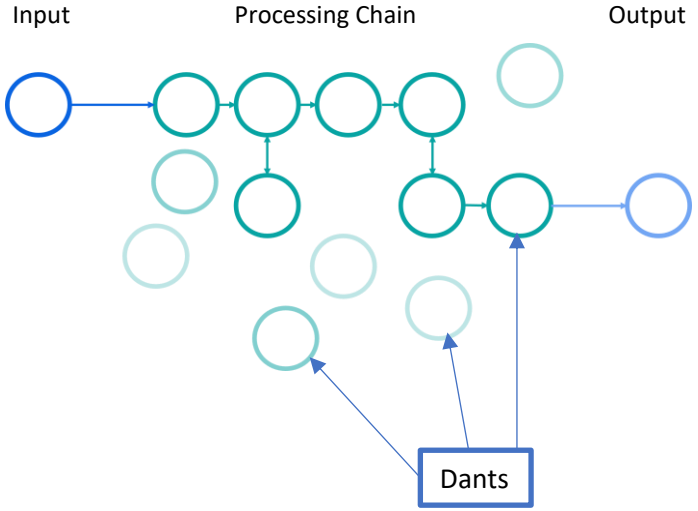
This architecture is very good at processing text but lacks ability when processing complex math.



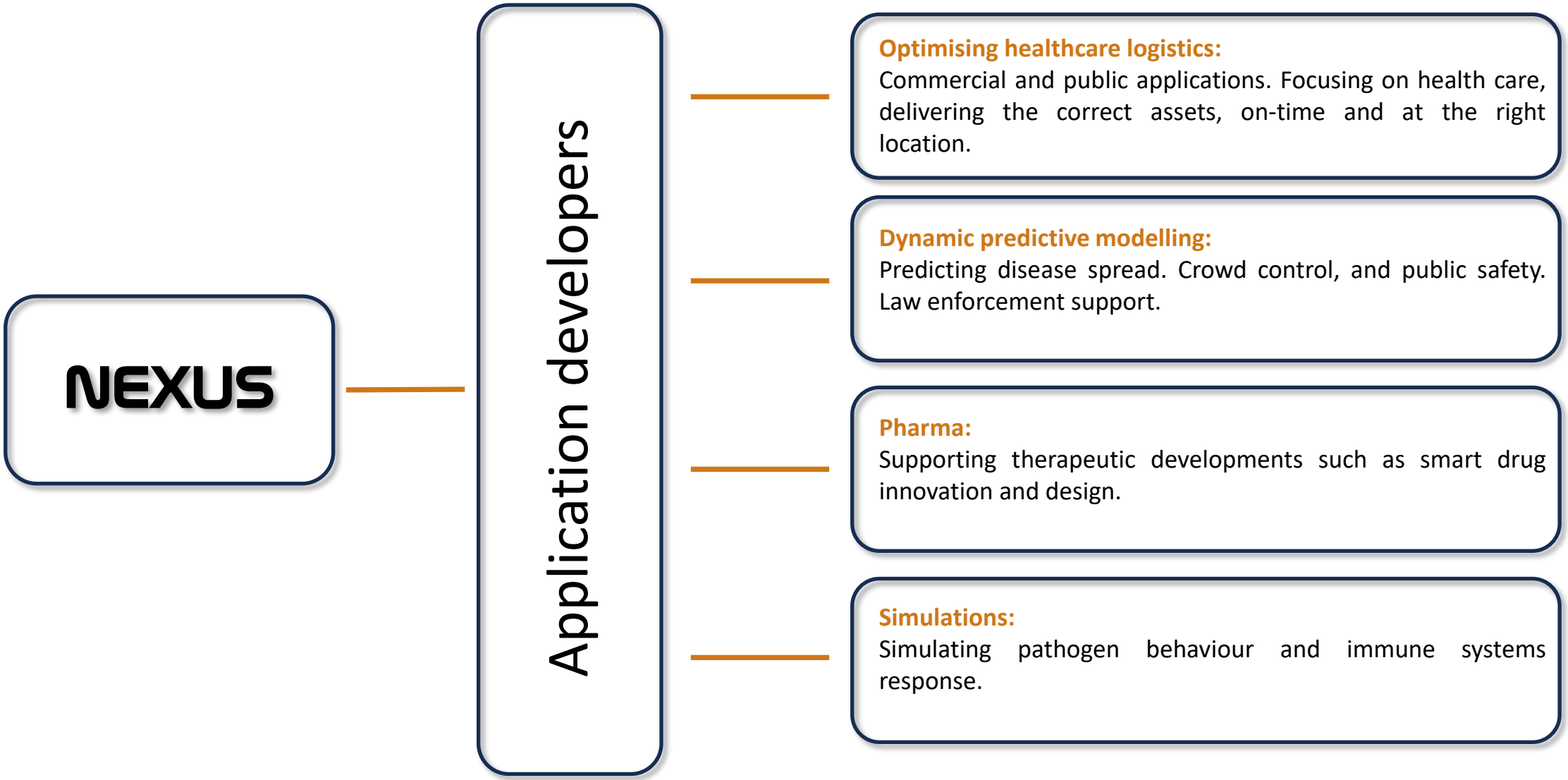
In **NEXUS** dants are created with differing mathematical skills and other attributes, such as the ability to call on external AI models and other services.

Driven by the input, the dants swarm and stick together to form processing chains. The chains are created through a set of rules that trigger complex computational emergence.

Once the most efficient processing chains possible are created the remaining dants are removed from the system until again needed.

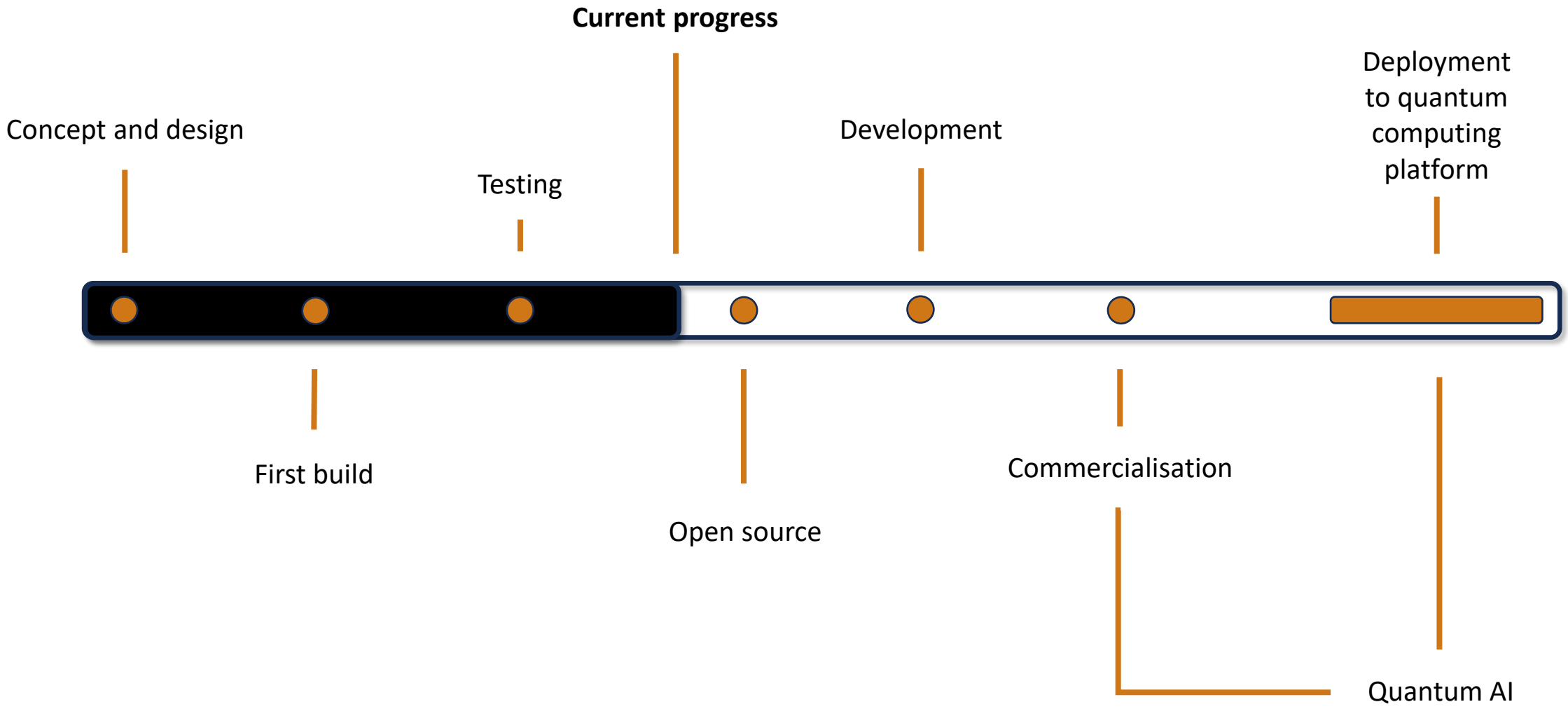


APPLICATIONS



These are a sample of the large number of applications that can be powered by **NEXUS**.

OUR JOURNEY


Current progress
Concept and design
Testing
Development
Deployment to quantum computing platform
First build
Open source
Commercialisation
Quantum AI

QUANTUM AI

We believe that a quantum AI based on our technology will have the ability to comprehend what it is doing and why it is doing it. Through this understanding, it will have a much greater potential to solve highly complex problems.

We expect that the quantum version of **NEXUS** will comprehend a problem given to it in a way that no other AI model has yet been able to achieve. This is possible because of the power within emergent complexity. **NEXUS** has the ability to create complex structures that are made up of much simpler component parts, as is the case in nature. It will be able to design its own solutions to highly complex problems.

Enabling **NEXUS** to run on a quantum computer will allow for unparalleled levels of emergent computational complexity.

The consciousness created in the quantum computer will not be of humankind. It can best be described as a mathematical mind, a machine with the ability to solve complex problems using strategies beyond what we can currently achieve or even understand.

JOIN US

We need your support so that we can continue to develop **NEXUS.**

Sponsorship: Make a financial contribution each month in support of our work.

Resources: We need access to medical research, compute facilities and application developers.

Consultancy: Help guide the development of **NEXUS** by joining our team, freely contributing your time and experience.

Grant funding: We have received grant funding in the past, help us to secure more.

We are not seeking equity investment. Maxam Labs is currently funded by government, sponsorship and commercial operations. The adaption of **NEXUS** onto quantum computers is being supported by:

NPL National Physical Laboratory

GM Business Growth Hub

FOUNDERS

"Our founders are a team of highly motivated and experienced people. Building a completely new AI model and bringing it to market requires exceptional talent.

I am proud of our journey, and I am incredibly excited about what we will achieve as we continue to develop NEXUS".

David Gammond
Founder & CEO

David Gammond
Chief Executive Officer

I have worked in the computer industry for over 40 years, supplying computer technology to both large and small companies. Past projects include data capture rigs for particle accelerators, manufacturing systems based on IBM MAPICS, biotechnology and office automation.

For almost 30 of those years, I have been fund raising for tech projects and companies. These include renewable energy, biotechnology, broadcasting, fintech and SaaS providers.

I am based in Manchester, England.

FOUNDERS

Brandon Lin
Chief Science Officer

I have a MEng in Computer Science. Formally educated in cloud architectures, artificial intelligence, machine learning, deep learning, image processing, computer vision, and high-performance computing, I wrote my dissertation on Computational Psychology, the study of how and why deep learning neural networks interoperate data, and what that means for machine learning models.

I am a full stack developer with extensive programming, networks and cloud experience.

I am based in Bristol, England.

Kyle Bradley
Chief Technical Officer

I am an experienced CTO who has actively supported numerous businesses in building out their solution and teams in the pursuit of achieving product-market fit. As such, I have exposure to all aspects of product development and team growth given different stages of a company.

I most recently supported Umazi with their client growth and subsequent fund-raise. Before that, I helped grow two start-ups, from ideas to successful products. These are HouseME, where I was the CTO, and WhereIsMyTransport, where I was a development lead for their flagship product.

I am based in Leeds, England.

FOUNDERS

Nancy Singha
Head Engineering and Programming

I am an experienced data engineer with experience in life sciences and finance. I recently graduated with a Master of Science in Big Data and High-Performance Computing from the University of Liverpool with merit.

I am proficient in ETL development, Data modelling, SQL, Python, Big data technologies and Master Data management.

I enjoy working with new tools and technologies.

I am based in London, England.

Nithin Nampoothiry
Head Analytics and Data

I attained a Master's degree with distinction, marking the onset of a rewarding analytics career. My ability to transform complex data into actionable strategies was further exemplified by establishing a robust operational framework and delivering crucial metrics at NHS Property Services and Mitie.

My focus is set on driving data-driven decisions to propel our ambitious venture toward groundbreaking success in swarm AI solutions.

I am based in Leicester, England.

We are supported by:

OTS Capital – www.ots-capital.com
GM Business Growth Hub - www.businessgrowthhub.com

Without their valued support building **NEXUS** would not have been possible.

We are also funded by our commercial operations, through which we provide our clients with leading solutions using AI technology.

Visit our website to learn more: www.maxamlabs.io

YouTube videos on this subject which you might find interesting:

https://www.youtube.com/watch?v=16W7c0mb-rE&t=38s

https://www.youtube.com/watch?v=LHgVR0lzFJc

https://www.youtube.com/watch?v=U93x9AWeuOA

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