Solving the Toughest R&D Challenges

Accelerate Chemical and Material Development

Process manufacturing companies waste almost $100 billion globally every year while formulating novel materials and chemicals due to the trial-and-error approach to R&D and the lack of tools to leverage the experimental data in real-time. The London, UK-headquartered start-up Quantum Boost tackles this by applying the power of modern machine learning to help R&D teams design and run more targeted experiments to get to relevant insights more efficiently. Their formulation development platform enables customers to accelerate the R&D process and save up to 50% of experimental resources. CHEManager wanted to know from Filip Auksztol, CEO, and Kacper Kielak, CTO of Quantum Boost, what makes the company's technology so special and what its plans are for further development.

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Filip Auksztol, CEO, Quantum Boost

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Kacper Kielak, CTO, Quantum Boost

CHEManager: How can researchers save so much time using your formulation development platform?

Filip Auksztol: Traditional approaches like design of experiments — DoE for short — and trial-and-error rely on predetermined patterns or a researcher's instinct, which can lead to extensive and time-consuming experimentation. For instance, classical DoE has a static approach and initial randomness in selecting points within the factor space. This often reduces its ability to consistently identify and execute the most impactful and efficient experiments. Our technology, on the other hand, pinpoints the most critical factors and interactions from the start. As a result, our platform reduces the need for many iterations, enabling researchers to achieve their objectives with significantly fewer experiments — often reducing the number of experiments performed threefold compared to conventional methods.

How does Quantum Boost's technology differ from standard DoE software?

F. Auksztol: Quantum Boost's technology deviates from standard DoE software by incorporating Bayesian optimization, which allows it to learn and adapt from each experiment's results. This method is much more dynamic and efficient compared to the rigid, exhaustive approach of DoE, which often requires testing all possible variable combinations. Quantum Boost's smart algorithms optimize the experimental journey, significantly reducing unnecessary tests.

Our platform features an intuitive interface designed to align with the user's workflow. It handles the statistical complexities in the background, allowing users to focus more on the experimentation and less on the computational intricacies. This thoughtful combination of easy-to-use design with advanced computational strategies makes Quantum Boost stand out as a great tool for navigating future material and chemical development challenges.

What is Quantum Boost's business model?

F. Auksztol: Our business model is built around a subscription-based platform as a service, offering various tiers to suit different needs and budgets. Clients can sign up for a free 14-day trial to experience our intuitive AI-powered graphs and advanced machine-learning capabilities firsthand. After the trial, they can choose our Starter Pack at $95 a month, which continues to provide access to our dynamic formulation development platform. For larger organizations requiring a more bespoke approach, we offer an Enterprise tier, which is custom-tailored to align with the company's specific requirements. This tiered structure ensures flexibility and scalability for businesses of all sizes, allowing them to leverage our technology for efficient and effective R&D.

Are you already working with clients on specific projects?

F. Auksztol: Absolutely, Quantum Boost has collaborated with clients on specific projects across a range of applications, like 3D ink formulation, coatings and lubricants. The feedback from the specialty chemicals industry has been overwhelmingly positive.

What specialist expertise is represented on the company's team?

Kacper Kielak: My co-founder, Filip Auksztol, brings his Oxford-honed expertise in material science alongside our team of seasoned data scientists and engineers, all well-versed in industry needs through collaboration with formulation scientists, ensuring our platform aligns advanced machine learning with practical industry applications.

What are your plans for the future of Quantum Boost?

F. Auksztol: The company is on a trajectory to democratize access to advanced AI-driven R&D tools. We started as an exclusive platform, but our vision has evolved. Now, with a free tier available, we're opening the doors for all levels of formulation scientists, from professionals to enthusiasts, to experience the benefits of our algorithms and accelerate their research and development.

Looking ahead, our focus is on nurturing a shift in the industry towards the widespread adoption of artificial intelligence. We're not just offering a superior platform; we're leading a movement to redefine how research is conducted in the chemical and material sciences. By continually enhancing our software and making AI tools more accessible, we aim to empower scientists to make breakthroughs more efficiently and precisely. Quantum Boost's future is about innovation and inclusion.

Personal Profile

Filip Auksztol, an Oxford alum with a rich background in materials science, leads Quantum Boost as CEO. His expertise in pioneering AI tools for material and chemical discovery is grounded in his deep-tech business development experience and quantum technologies research. At Quantum Boost, he leads the charge in applying AI to transform R&D, enhancing industry practices and encouraging innovative partnerships.

Kacper Kielak, CTO of Quantum Boost and a Trinity College Cambridge dropout, is a machine learning specialist whose work has been cited by leading AI research labs including Google Brain, Microsoft Research, and Meta AI Research. With a diverse background that includes roles at Amazon and JPMorgan, he is a pivotal figure in driving innovation and artificial intelligence at Quantum Boost, focusing on groundbreaking efficiency in material and chemical discovery.

Business Idea

Formulate Products 5x Faster with AI

Process manufacturing companies waste almost $100 billion globally every year while formulating novel materials and chemicals due to the trial-and-error approach to R&D and the lack of tools to leverage the experimental data in real-time.

Quantum Boost, founded in Singapore in 2019, tackles this by applying the power of modern machine learning to help R&D teams design and run more targeted experiments to get to relevant insights more efficiently. This approach not only enhances productivity but also fosters innovation in developing new materials and chemicals. We deliver a formulation development platform that enables any formulator, hobbyist or industrial expert, to accelerate the R&D process and save on valuable experimental resources.

Quantum Boost enhances R&D accessibility through its cloud-based web platform. This platform facilitates the acceleration, management, and analysis of experimental processes in R&D. The platform's user experience is specifically tailored for formulators of any experience, ensuring that it is user-friendly and scalable. By simplifying advanced experimentation and analysis, the platform aims to make the R&D process more inclusive and efficient, supporting a wide spectrum of formulation and material development projects.

We've established ourselves as a game-changer in the industry by working hand-in-hand with leading companies in the ink, paints & coatings, pharmaceuticals and specialty chemical sectors. Our approach has been directly compared with other design of experiment (DoE) software alternatives, and the results are undeniable. Clients using our solutions consistently achieve a two to five times acceleration in their outcomes, a clear testament to the effectiveness and efficiency of our approach.

Our consistent record of enhancing client performance has established us as a reliable and respected choice in the industry, and we have been growing rapidly ever since our inception. This growth reflects our commitment to excellence and our ability to adapt to the changing demands of the R&D sector.

- Quantum Boost, London, UK
  www.quantumboost.com

QUANTUMBOOST

Elevator Pitch

R&D Revolutionized

Quantum Boost is transforming the field of research and development with its cutting-edge cloud platform. By harnessing the power of Artificial Intelligence, we streamline the R&D process, enabling teams to achieve their objectives with unmatched speed and efficiency. Our platform offers an intuitive interface that simplifies complex data analysis and experimental design, allowing users to focus on innovation and discovery. Quantum Boost is the key to unlocking faster, more effective R&D outcomes for small-scale projects or large industrial operations.

Milestones

2021
- Filip and Kacper founded Quantum Boost in Singapore under the wings of Entrepreneur First accelerator
- Quantum Boost secured initial venture capital funding.
- Launch of the QB platform and acquisition of the first paying customers

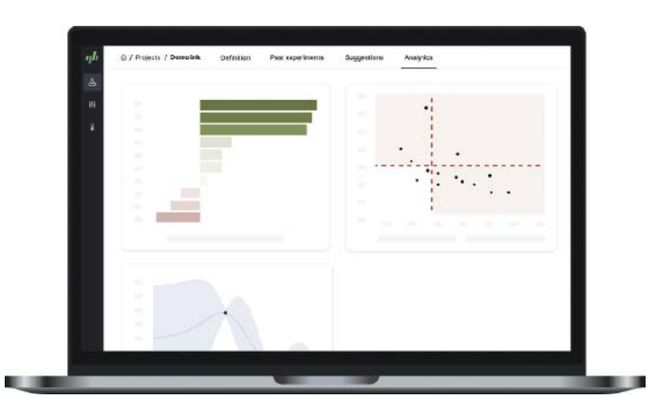
2022
- Relocation of the Singapore headquarters to the UK
- Raising a pre-seed round with European investors, Inovo VC
- Growth of the team, product capabilities and customer base

2023
- The Quantum Boost platform was released publicly with a subscription model and a 14-day free trial.
- Collaboration with Quadra Chemicals for further development of the product in the chemical market and distribution in the USA & Canada

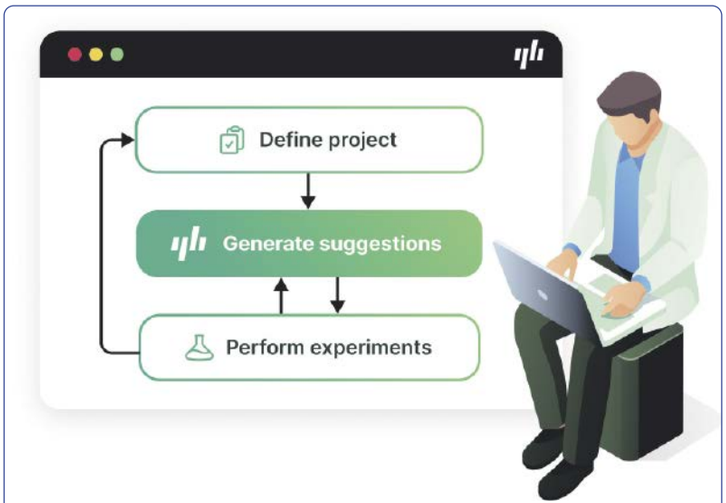
Roadmap

Quantum Boost is committed to relentlessly refining our platform. We're focused on rolling out new, impactful features and enhancing user experience, always in line with the latest in AI and machine learning. By integrating user feedback and technological advances, we aim to not only keep pace with but actively shape the evolving landscape of R&D.

As we recently unveiled Quantum Boost to the general public, our roadmap for the near future is focused on broadening its reach and influence within the R&D community. Our goal is not just to introduce a new tool, but to be a catalyst for the industry's transition towards integrating AI in R&D processes. We are committed to leading this paradigm shift and encouraging the industry to embrace this new era of technological advancement.



The Quantum Boost platform is an AI formulation assistant that helps researchers develop breakthrough chemicals and materials faster than ever.



Quantum Boost's flexible workflow adapts to evolving project definitions, allowing modifications without sacrificing data or progress—unlike traditional DoE methods.