

VINCI Energies and QuantumBasel launch a pilot project with D-Wave's quantum technology

QuantumBasel, Switzerland's first quantum hub for commercial use embedded in the uptownBasel innovation campus, launches a quantum pilot project with VINCI Energies, an accelerator of environmental and digital transition. With D-Wave as its technology partner, QuantumBasel and VINCI Energies will work on the research and development of a series of quantum-hybrid applications. The collaboration will use D-Wave's annealing quantum computers and quantum hybrid solvers through the Leap™ quantum cloud service to provide VINCI Energies with real-time access to quantum solutions

VINCI Energies' Use Case

One of the many challenges you face when constructing a building is the design of the heating, ventilation, and air conditioning (HVAC) system. The design of the HVAC system involves several steps to maximize user comfort, minimize environmental burden and reduce cost of materials. One of the last steps in the HVAC design process is called "network generation". This step ensures that all HVAC elements are correctly connected while complying with safety and sustainability requirements. While this step is of crucial importance it is also a step that is computationally very expensive or even prohibitive.

To tackle this computational bottleneck, VINCI Energies has developed a data-driven approach under their AI initiatives supported by VINCI's Leonard innovation program. This approach dramatically reduces compute time and subsequent manual adjustments. However, the network generation problem falls into a category of combinatorial optimization problems that scale very badly on conventional devices such as CPUs or GPUs.

Quantum computing approaches have the potential to solve certain combinatorial optimization problems more efficiently than purely conventional approaches. This is why VINCI Energies has started a collaboration with uptownBasel and D-Wave to investigate if / when / how they can further improve the quality (shorter compute time and lower costs) of the generated HVAC network solutions.

VINCI Energies' quantum proof of concept – with a timeline of roughly six months – is divided into two phases: The problem formulation phase followed by the implementation and experimentation phase. During the current problem formulation phase, they have been translating the HVAC network generation problem – an essential part of the overall HVAC design process – into a well-defined form that D-Wave's hybrid systems can understand. This has required several iterations between VINCI Energies' HVAC subject matter experts and D-Wave's quantum code developers to derive and investigate several representative model formulations. In addition, the team has prepared and adjusted multiple HVAC data

sets and chosen tailored model evaluation and business metrics to later optimize and quantify the quality of the inferred HVAC network solutions.

VINCI Energies, uptownBasel and D-Wave have now reached a stage where they have two model formulations that are going to be used for experimentation during the early stages of the second phase.

VINCI Energies & QuantumBasel

After identifying a clear use case, VINCI Energies decided to explore the capabilities that quantum computing offers compared to classical computing, as well as how this can be scaled in the future for other areas and challenges of the company. QuantumBasel not only offered VINCI Energies direct and seamless access to D-Wave's quantum technology, but it also provided access to its Quantum community and network, pushing its internal innovation culture forward. VINCI Energies' collaboration with D-Wave and QuantumBasel exemplifies its commitment to entering the Quantum Era, a collective journey that brings together academia and industry under QuantumBasel's vision of democratizing the power of quantum.

Quotes

"At VINCI Energies, we design and build facilities that help improve daily life and mobility for all, with a constant eye on sustainability and environmental responsibility," said Dr. Reinhard Schlemmer, Member of the Board of VINCI Energies. "We believe that today's quantum technology can play a key role in ensuring optimal and efficient construction and operation of buildings and are eager to use D-Wave's quantum solutions in support of that effort."

"D-Wave, VINCI Energies and uptownBasel possess a common vision to accelerate digitalization for the betterment of industry and society," said Damir Bogdan, CEO of uptownBasel Infinity Corp. "This collaboration reflects that shared focus on accelerating the adoption of emerging technologies – and specifically, practical quantum computing solutions – to usher in a new era of industrial construction."

"Construction projects feature a multitude of optimization challenges that can contribute to cost overruns and delayed building completions when not adequately addressed," said Dr. Alan Baratz, CEO of D-Wave. "We believe today's quantum-hybrid technologies can help solve these computationally complex problems to drive efficiencies and streamline building processes and look forward to working with VINCI Energies and uptownBasel to bring quantum to construction."

About VINCI Energies

In a world undergoing constant change, VINCI Energies contributes to the environmental transition by helping bring about major trends in the digital landscape and energy sector. VINCI Energies' teams roll out technologies and integrate customised multi-technical solutions, from design to implementation, operation and maintenance. With their strong local roots and agile and innovative structure, VINCI Energies' 1,900 business units have positioned themselves at the heart of the energy choices of their customers, boosting the reliability, efficiency and sustainability of their infrastructure and processes. VINCI Energies strives for global performance, caring for the planet, useful to people and committed to local communities.

2022 : €16.7 billion // 90,000 employees // 1,900 Business Units // 57 countries www.vinci-energies.com

About uptownBasel and uptownBasel Infinity

uptownBasel serves as a global hub for Industry 4.0, seamlessly connected to the world while firmly rooted in Basel, Europe. Situated on the historic Schorenareal site in Arlesheim near Basel, an expansive research and production facility covering approximately 70,000 square meters is being constructed. With the opening of Building 1 and its use by the two European technology groups Bouygues and Vinci (Axians and Actemium), the campus has already created 400 new jobs since 2021. In total, the centre will house about 100 companies, generating up to 2500 jobs. The investment volume amounts to over 500 million Swiss francs. uptownBasel is made possible by the private ownership of the family Monique and Thomas Staehelin and implemented by Fankhauser Arealentwicklungen.

uptownBasel Infinity, a wholly owned subsidiary of the uptownBasel Group, runs “QuantumBasel” its Center of Competence for Quantum and Artificial Intelligence and the first commercial quantum hub in Switzerland. Seamless access to quantum and high-performance computing is made available to tenants and the ecosystem of uptownBasel, including enterprises, research institutes, startups, and universities. Collaborating with esteemed technology partners like IBM, D-Wave, and IonQ, uptownBasel Infinity is also expanding its global network to encompass research institutes and universities. www.quantumbasel.com

About D-Wave Quantum Inc.

D-Wave is at the forefront of quantum computing systems, software, and services, holding the distinction of being the world's first commercial supplier of quantum computers. Setting itself apart, D-Wave is unique in constructing both annealing quantum computers and gate-model quantum computers. Our primary objective is to harness the potential of quantum computing in the present to bring about advantages for both businesses and society. This is achieved by providing practical quantum applications that deliver value to customers, addressing a wide range of problems such as logistics, artificial intelligence, materials sciences, drug discovery, scheduling, cybersecurity, fault detection, and financial modeling. D-Wave's cutting-edge technology has been adopted by renowned organizations globally, including Volkswagen, Mastercard, Deloitte, Davidson Technologies, ArcelorMittal, Siemens Healthineers, Unisys, NEC Corporation, Pattison Food Group Ltd., DENSO, Lockheed Martin, Forschungszentrum Jülich, University of Southern California, and Los Alamos National Laboratory. www.dwavesys.com

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Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, which statements are based on beliefs and assumptions and on information currently available. In some cases, you can identify forward-looking statements by the following words: “may,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue,” “ongoing,” or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. These statements involve risks, uncertainties, and other factors that may cause actual results, levels of activity, performance, or achievements to be materially different from the information expressed or implied by these forward-looking statements. We caution you that these statements are based on a combination of facts and factors currently known by us and our projections of the future, which are subject to a number of risks. Forward-looking statements in this press release include, but are not limited to, statements regarding VINCI’s work on the project, the use of D-Wave’s quantum computers by VINCI, the potential of quantum computers with respect to optimization problems, the potential of today’s quantum computing technologies more generally, and the potential size of the uptownBasel centre. We cannot assure you that the forward-looking statements in this press release will prove to be accurate. These forward-looking statements are subject to a number of risks and uncertainties, including, among others, various factors beyond management’s control, including general economic conditions and other risks, our ability to expand our customer base and the customer adoption of our solutions, and the uncertainties and factors set forth in the sections entitled “Risk Factors” and “Cautionary Note Regarding Forward-Looking Statements” in D-Wave’s Annual Report on Form 10-K for its fiscal year ended December 31, 2022, as well as factors associated with companies, such as D-Wave, that are engaged in the business of quantum computing, including anticipated trends, growth rates, and challenges in those businesses and in the markets in which they operate; the outcome of any legal proceedings that may be instituted against us; risks related to the performance of our business and the timing of expected business or financial milestones; unanticipated technological or project development challenges, including with respect to the cost and or timing thereof; the performance of the our products; the effects of competition on our business; the risk that we will need to raise additional capital to execute our business plan, which may not be available on acceptable terms or at all; the risk that we may never achieve or sustain profitability; the risk that we are unable to secure or protect our intellectual property; volatility in the price of our securities; and the risk that our securities will not maintain the listing on the NYSE. Furthermore, if the forward-looking statements contained in this press release prove to be inaccurate, the inaccuracy may be material. In addition, you are cautioned that past performance may not be indicative of future results. In light of the significant uncertainties in these forward-looking statements, you should not place undue reliance on these statements in making an investment decision or regard these statements as a representation or warranty by any person we will achieve our objectives and plans in any specified time frame, or at all. The forward-looking statements in this press release represent our views as of the date of this press release. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this press release.