International Collaboration between VINCI Energies, QuantumBasel and D-Wave Improves Efficiency in HVAC System Design with Quantum Computing

A collaborative project leveraging quantum computing has taken an important step in the realm of sustainable building design. This initiative, a quantum proof of concept (qPoC) spearheaded by VINCI Energies | DIANE, uptownBasel | QuantumBasel, and D-Wave, focused on optimizing the design of heating, ventilation, and air conditioning (HVAC) systems for complex buildings.

The project's first phase successfully transformed the complex HVAC network generation problem into a constrained quadratic model (CQM), potentially efficiently solvable by D-Wave's quantum-classical hybrid solvers. This marked a clear step away from traditional computational methods to a more innovative, quantum-classical hybrid approach.

The implementation and experimentation phase saw the CQM translated into Python code and processed by D-Wave's hybrid solvers. These solvers, utilizing using both classical and quantum devices, inferred identified superior HVAC network designs, outperforming the existing data-driven method in significant ways. Notably, the new approach yielded solutions more quickly with shorter duct lengths and fewer construction elements, such as elbows. In addition, subject matter experts from VINCI Energies visually and manually inspected these solutions, confirming their superiority in terms of quality. Importantly, these results were based on one representative building plan and diverse HVAC systems, setting the stage for broader application in the industry.

A crucial factor in the project's success was the interdisciplinary team. Team members from Europe (Switzerland, France, Germany) and North America (Canada, USA) brought specialized knowledge and experience, resulting in rapid progress and efficient problem-solving. This global team operated seamlessly through collaboration tools, demonstrating the power of virtual teamwork in achieving cutting-edge innovation.

As the project moves forward, the focus will shift to translating these technical improvements into tangible business impact, such as reduced computation time and less manual engineering effort.

This quantum computing project stands as a testament to the power of collaborative innovation in driving sustainable and efficient solutions in building design. It marks another important step towards a more sustainable future, in which human expertise and technology forces to create environmentally friendly and cost-effective building solutions.

Voices of Experience: Insights from Key Participants

Stéphane Maviel (Chef d'entreprise DIANE): "At DIANE, we are experienced in handling complex algorithms. We also aim to reduce their running times to fit real-world scenarios. One of the challenging tasks we face is generating HVAC networks, which requires a lot of computations. We were astonished by the outcomes of D-Wave, both in terms of the quality of the models they devised and built with us and the impressive speed of execution enabled by quantum computing."

Dr. Reinhard Schlemmer, Member of the Executive Board of VINCI Energies: “Quantum technologies are exciting and promising fields. We at VINCI Energies have therefore decided to start integrating these technologies into our AI program. We are happy to be working on this exciting project, which makes practical use of the possibilities quantum computers already offer today. It will serve to further increase the comfort and energy efficiency of buildings - and make an important contribution to sustainability.”

Damir Bogdan, CEO of QuantumBasel: “We are very proud that QuantumBasel's hub concept already is contributing significantly to the advancement of quantum computing applications in real-world scenarios. This project exemplifies our commitment to bridging the gap between quantum technology and practical industrial solutions. The successful optimization through quantum is showcasing the potential of quantum technologies to revolutionize traditional industries and pave the way for more sustainable, efficient, and innovative future practices.”

Dr. Thomas Staehelin, Chairman of the Board of uptownBasel and investor: “Investing in uptownBasel and QuantumBasel signifies more than just advancing technology; it's a strategic move against our country's de-industrialization. By funding innovative solutions like the HVAC optimization project, we're not only embracing quantum computing but also reigniting our industrial potential and leading the way towards a technologically advanced and sustainable future.”

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 customized 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 QuantumBasel

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 center 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.

QuantumBasel, 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, QuantumBasel is also expanding its global network to encompass research institutes and universities. www.quantumbasel.com

About D-Wave Quantum Inc.

D-Wave is a leader in the development and delivery of quantum computing systems, software, and services, and is the world's first commercial supplier of quantum computers—and the only company building both annealing quantum computers and gate-model quantum computers. Our mission is to unlock the power of quantum computing today to benefit business and society. We do this by delivering customer value with practical quantum applications for problems as diverse as logistics, artificial intelligence, materials sciences, drug discovery, scheduling, cybersecurity, fault detection, and financial modeling. D-Wave's technology has been used by some of the world's most advanced organizations 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.

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Forward-Looking Statements

Certain statements in this press release are forward-looking, as defined in the Private Securities Litigation Reform Act of 1995. These statements involve risks, uncertainties, and other factors that may cause actual results to differ materially from the information expressed or implied by these forward-looking statements and may not be indicative of future results. Forward-looking statements in this press release include, but are not limited to, statements regarding the shift in focus of the project going forward to obtaining tangible business impacts. These forward-looking statements are subject to a number of risks and uncertainties, including, among others, various factors beyond D-Wave management's control, including the risk that the collaboration or the project could be terminated before the next stage of development; general economic conditions and other risks; our ability to expand our customer base and the customer adoption of our solutions; risks within D-Wave's industry, including anticipated trends, growth rates, and challenges for companies engaged in the business of quantum computing and 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 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; the risk that our securities will not maintain the listing on the NYSE; and the numerous other factors set forth in D-Wave's Annual Report on Form 10-K for its fiscal year ended December 31, 2022 and other filings with the Securities and Exchange Commission. Undue reliance should not be placed on the forward-looking statements in this press release in making an investment decision, which are based on information available to us on the date hereof. We undertake no duty to update this information unless required by law.