

**INVESTOR EXECUTIVE SUMMARY**  
**HUAWEI-CMU Quantum Annealer for Optimization Problems**

- Summary** We are building a quantum-based SaaS platform that can solve intractable combinatorial optimization problems exponentially faster than current classical supercomputers. The platform will be powered by a quantum annealer (basically a quantum supercomputer) and the service provided globally via HUAWEI's cloud-based 5G wireless networks. This project is a collaboration between Research Center for Quantum Technology (RCQT), Chiang Mai University (CMU) and Rebus Co., Ltd., a team of specialist in tech commercialization. We are raising THB 150 million to build a ready-to-demo, proof-of-concept (PoC) prototype within 12 months. Visionary investors are welcomed to invest in this high-impact technology that can redefine how mankind solves complex problems in the 21<sup>st</sup> century.
- Background** Classical supercomputers, despite years of advancement, have their limits. They cannot efficiently find a solution to a multi-dimensional optimization problem with more than 60 parameters. Hence, the time it takes to solves some optimization problems become impractical (for example, >ten years). However, the needs of multi-parameter optimization are prevalent in many fields and in many forms. These include IT networks, logistics, investment portfolio, election auditing, running lotteries, satellite scheduling, traffic flow, cryptosystems, and 'proof of stake' cryptocurrencies. The world does not need more processing power from a supercomputer (since this only provides marginal improvement), but a radical new type of computer that offers a novel way to tackle these intractable problems.
- Our Tech Solution** We would like to present a quantum annealer, a system of hardware of software that offers exponential improvement in solving complex optimization problems. Intractable problems that require supercomputers 10 years to solve can be solved by our system within a day.
- How It Works** Our quantum annealer solves complex optimization problem through a process called "quantum annealing". Compared to classical supercomputers which use binary bits (can be either 0 or 1), our machine uses "qubit" (can represent multiple states at the same time). This allows multiple parallel computations to take place at the same time, and this allows our annealer to find solutions to intractable problems exponentially faster than classical supercomputers.
- The Plan** RCQT have already formed a team of 71 multi-disciplinary researchers and engineers, ranging from physicists, integrated systems engineers, material scientists, quantum theorists, to quantum algorithm specialists. Once we receive the investment, we will collaborate with HUAWEI to build a commercially ready prototype within 12 months.
- The Ask** We are raising THB 150 million THB to setup a new laboratory with suitable research tools at CMU to develop software and hardware of our quantum annealer in parallel.
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