

INVESTOR EXECUTIVE SUMMARY
FUJITSU-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 NTC's cloud-based 5G wireless networks. This project is a collaboration between Center of Excellence in Quantum Technology (CEQT), 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 24 months. Visionary investors are welcomed to invest in this high-impact technology that can redefine how mankind solves complex problems in the 21st 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 and 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 permits numerous 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** CEQT has already formed a team of 79 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 FUJITSU to build a commercially ready prototype within 24 months.
- The Ask** We are raising THB 150 million THB to setup a new laboratory with suitable research tools at CMU to develop hardware and software of our quantum annealer in parallel.
- Contact** Please contact Waranont Anukool, Ph.D., Center of Excellence in Quantum Technology +66 89-191-2122 waranont.a@cmu.ac.th or Jirawan Suwannajak, M.S., Administrator of the Center of Excellence in Quantum Technology +66 85-614-8566 jirawan.su@cmu.ac.th