Title: Expected Business Value in the Quantum Computing Ecosystem

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Abstract

The quantum computing ecosystem has significant parallels to the global Information Technology (IT) Infrastructure business landscape. The same core and enabling technologies will be required to mature and be commercialized. If you evaluate a scalable quantum system as a stack of hardware, software, network, facilities and services, then you create a framework and can evaluate based on current gross profit margins and degree of concentration to predict quantum valuations. Many of these pockets of business value in the quantum computing system stack require technology invention and development and should create significant profit opportunities.

From a commercial enterprise point of view, this new technology can unlock significant value. It can help increase efficiency in business processes where exact and precise answers were computationally intractable. It can help us better understand and de-risk complex, hardware-software systems (e.g., aircraft). It can reduce risk and increase expected returns in business decisions by looking at problems differently. It can also improve customer-facing products and services, in ways that cannot be predicted today. This is a new frontier for corporations and government entities that may take years or even decades to mature in a linear development path (e.g., Moore's Law) or could be here at any time through a discrete burst of innovation and invention (e.g., Lunar flight).

Commercial enterprises see risk from the development of quantum computing systems. It may disrupt their industries as new efficiency levels and client service models evolve. It can also require changes in IT security processes since quantum computing models are expected to render current TLS and SSH cryptography models insecure.

From a government and public policy perspective, quantum computing holds the promise of creating a more energy efficient computing model. It also provides potential benefits in positioning, navigation and timing (PNT), and in more accurate sensing.

In this presentation, we will discuss both the current state of the quantum computing system ecosystem and where we expect significant value creation to occur, as well as a view of how clients should think about maximizing value from the evolving quantum computing ecosystem, both today, and at scale.

References

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Biography: (100 -200 words)

Jeffrey Paul Cohen is an executive IT management consultant and general manager by profession. He leads a quantum computing startup in Chicago, IL USA. He holds a Masters degree in management from the J.L. Kellogg Graduate School of Management, Northwestern University, a Bachelors degree in economics from the University of Chicago, and completed four courses and dissertation research towards a PhD in Management Sciences from the Stuart School of Business at the Illinois Institute of Technology.

He has built, led or turned around IT management consulting and project businesses ranging in size from 11 to 380 consultants, and with a peak size of $447M in annual sales. Has performed most roles in large consulting firms, including sales, delivery, pre-sales, solutioning, personnel management, portfolio development, and analyst relations. Domain expertise across all infrastructure domains (hardware, software, networks, facilities, operations, administration and management).

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