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NGEI's Initiatives from DSI Regarding the Sovereign Quantum Computing Decal Plan

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I will briefly discuss the history of how scientific focus areas are coordinated through the use of the national development plan, aligned scientific white papers, and the decadal plans that are built from the resulting insight. I will also discuss the current academic landscape of quantum computing in South Africa.

I will discuss the CSIR and how the clusters within the organisation align with the decadal plan. Two units in particular are involved in computing research and are therefore aligned with quantum computing research, while other units within the CSIR offer unique insights and potential to explore the applications of quantum computing. Researchers within the Centre for High Performance Computing (CHPC), and the Nextgen enterprises and institutions units within the CSIR are working on making quantum computing research available and applicable to South Africans. The two units are working with each other, other suitable clusters within the CSIR, and quantum-orientated academic institutions, and industry.

The quantum computing community in South Africa is too small to work in isolation and working together in a coordinated manner is essential. If we work together we will find applicable uses of quantum computing as applied to local problems that are unique to South Africans. There are many examples of uniquely South African problems applicable to quantum computers that would be ignored by international scientists. As just one example, applying quantum computing to optimisation problems, such as finding, predicting, and treating strains of HIV that are only found in South Africa.

The universities are providing additional quantum computing research topics, and academic groups such as the quantum computing working group also contribute white papers that guide the next round of policy making. Both the universities and the CSIR provide the DSI with indications on how to apply the focus areas as suggested in the decadal plan.

Aligning quantum computing research with the focus areas within the decadal plan will help fund and coordinate carefully pre-identified critical research that helps South Africa with identified problems and potential threats.

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