



PROJECT SUMMARY

Ref No.: MRC-HPC-RIG-A09	Title: Leveraging cloud computing to build an advanced data analytics platform for sugarcane research and crop monitoring
Local Company: Mauritius Sugarcane Industry Research Institute (MSIRI)	
Collaborating Institution: Cybernaptics Ltd	
Project Leader	
Dr. Goolam Housen Badaloo	Mauritius Sugarcane Industry Research Institute (MSIRI)
Research Collaborators	
Name	Organisation
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TECHNICAL ABSTRACT	
<p>One of the main objectives of the Mauritius Sugarcane Industry Research Institute (MSIRI) is to develop new and more productive sugarcane varieties through its breeding and selection programme. It relies heavily on its computer systems for its operations and in handling voluminous data generated during its breeding and selection programme. It can take up to fifteen years for a new variety to be released from the time it is produced after crossing two parents and its selection. Annual data related to crosses, selection trials, and variety performance stored at MSIRI goes back to the mid-1960. As climate is a key driver of crop production systems and has a major influence on crop productivity, climate-related data is also stored. However, the current MSIRI computer system is obsolete and incompatible with latest technologies and is not portable. Moreover, the risks of losing critical data are high, especially with no failover alternative. The main purpose of this project is to take advantage of the cloud computing cost effective solutions to safeguard the sugarcane hybridization and selection as well as the climate database. The objective is to build a climate and crop database in order to provide ubiquitous access to information, user-friendly data analytics and reporting tools through the development of innovative business intelligence (BI) dashboards on the cloud. It is proposed that information on climate and crop status would be made available on-line to different categories of cane growers through a web-based application for better crop monitoring. The cloud platform</p>	



would also help in promoting exchange of genetic information among sugarcane research centres worldwide. In future, local and international institutions could make use of this platform to store and share information against payment of an access fee to ensure and this would allow for sustainability of the cloud system. Eventually this platform could evolve into a fully functional agricultural knowledge-based system with the integration of other components on cane research:

1. Build cloud environment
2. Initial data migration
3. Data cleansing, preparation and validation
4. Incremental data synchronization
5. Implementing data analytics and reporting dashboards

Key Words: Cloud, data analytics, synchronization, reporting, sugarcane breeding and selection, database, climate