Electric Agricultural Equipment – Market and Technology Landscape

Case Study



Client	A leading global agricultural equipment supplier	
Industry	Electric agricultural equipment	
Products	Battery systems, power systems, drivetrain, and others	

Context

 The operating environment for electric agricultural equipment is different from electric vehicles, and thus, the client is interested in understanding various future technological scenarios arising out of the same.
 Further, the client wants to gather insights regarding key player offerings, and technological and market developments with respect to battery systems, power systems, and drivetrain topologies.

Key Business Questions

- Key developments in power control devices with recent changes in continuous varying torque
- Technological landscape of different battery pack configurations to address high pulsated currents and continuous demand
- Packaging technology for battery pack and power controllers meeting stringent operational requirements, and different drivetrain topologies and their relative merit to agricultural vehicles
- Key differentiators required for charging infrastructures, such as charge speed, rate of charge, and associated controls

1 Identifying Suppliers	2 Identifying Subsystems	3 Identifying Subsystem Suppliers	4 Benchmarking	5 Key Findings and Conclusion
 Identifying key player offerings Identifying underlying technologies within products and services 	 Mapping of subsystems within each equipment Identifying the underlying difference in the requirement of IPM with respect to farm tractors Understanding the end usage of subsystems with respect to different working environmental conditions 	 Mapping of subsystems of each application and technology Identifying key suppliers of these subsystems and their product offerings Mapping of the entire value chain of suppliers from components to final equipment 	 Benchmarking of components and technologies for farm equipment with respect to IPM Benchmarking of vendors supplying this technology Understanding the difference between the use and consumption of these products Understanding the unmet needs and expectations of consumers 	 Mapping of products that the client can leverage in short-term Mapping of gaps in product demand with respect to client offerings Providing insights on regulatory approvals, ecosystem, product availability, and future roadmap

Engagement Scope

Research Methodology

Secondary Research

- Conducted desk research to understand the overall market
- · Referred to paid databases and identified patents for electric agricultural equipment

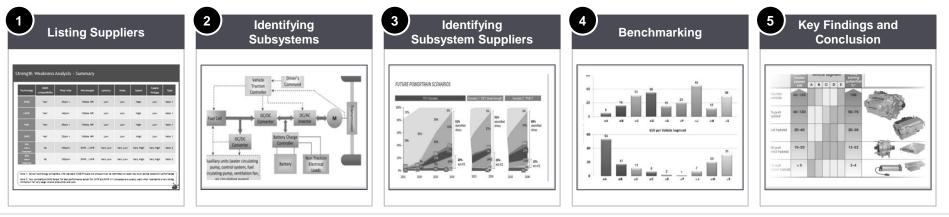
Primary Research

 20+ telephonic interviews conducted with manufacturers, system integrators, industry experts, and design experts

Benefits to Client

- Comparison of benefits and challenges of different drivetrain topologies through direct drive/mechanical coupling/smart commutation
- Determination of field-related key issues and challenges through primary interviews
- Summary of design architecture used by industrial robot manufactures, such as ABB, KUKA, Hitachi, and Mitsubishi

Sample Analysis



Thank you

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